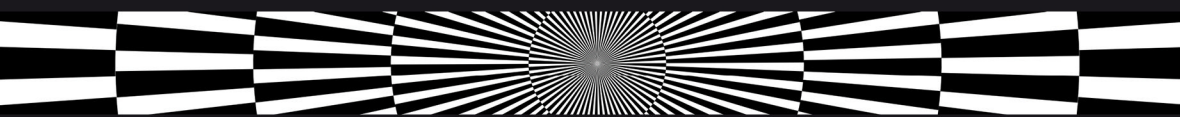


THE  
BLOOMSBURY  
COMPANION TO  
COGNITIVE  
LINGUISTICS



EDITED BY  
JOHN R. TAYLOR AND  
JEANETTE LITTLEMORE

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The Bloomsbury Companion to  
Cognitive Linguistics

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# The Bloomsbury Companion to Cognitive Linguistics

Edited by  
Jeannette Littlemore  
and  
John R. Taylor

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# 1 Introduction

*John R. Taylor and Jeannette Littlemore*

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## 1 Defining and Positioning Cognitive Linguistics

Cognitive Linguistics began as an approach to the study of language, but it now has implications and applications far beyond language in any traditional sense of the word. It has its origins in the 1980s as a conscious reaction to Chomskyan linguistics, with its emphasis on formalistic syntactic analysis and its underlying assumption that language is independent from other forms of cognition. Increasingly, evidence was beginning to show that language is learned and processed much in the same way as other types of information about the world, and that the same cognitive processes are involved in language as are involved in other forms of thinking. For example, in our everyday lives, we look at things from different angles, we get up close to them or further away and see them from different vantage points and with different levels of granularity; we assess the relative features of our environment and decide which are important and need to be attended to and which are less important and need to be backgrounded; we lump information together, perceive and create patterns

in our environment, and look for these patterns in new environments when we encounter them. As we will see in this volume, all of these processes are at work in language too.

The two key figures who are associated with the inception of Cognitive Linguistics are George Lakoff and Ronald Langacker. Both, it should be remembered, started their careers as members of a group of young scholars associated with the radical new approach spearheaded by Noam Chomsky. By the 1980s, however, both Lakoff and Langacker were becoming increasingly disaffected with the formalistic approach to syntax associated with the Chomskyan school. Both scholars turned their attention, instead, to semantic issues, which had been relatively neglected within the Chomskyan framework. Lakoff raised fundamental questions with regard to 'objectivist' semantics – that is, theories which maintained that sentence meaning maps onto objectively verifiable states of affairs in the world. He argued, instead, that semantic content is mediated by how speakers construe and conceptualize the world. An important aspect of construal is how we categorize the things in our environment. Taking up the notion of prototype category developed by cognitive psychologist Eleanor Rosch, Lakoff argued that words do not name classically defined categories, that is, categories constituted by a set of necessary and sufficient conditions. Rather, entities can be good, or less good, members of a category. In a crucial and highly influential move, Lakoff then proposed that the different senses of a polysemous word, and even the different senses of a syntactic construction, might also be analysed in terms of a central, prototypical member, and a number of extended, or more peripheral senses. A noteworthy milestone here is the dissertation by one of Lakoff's students, Claudia Brugman, on the polysemy of the preposition *over* (Brugman, 1981). Brugman argued that the 'central', 'prototypical' sense combines the meanings of 'above' and 'across', as in *The bird flew over the yard*. Extended senses, related in virtue of some common shared features, include the 'above' sense, as in *The helicopter is hovering over the hill*, the 'across' sense, as in *Sam drove over the bridge*, the 'covering' sense, as in *She spread the tablecloth over the table*, the dispersal sense, as in *The guards were posted all over the hill*, and several more. Brugman's thesis (presented in Lakoff, 1987: Case Study 2) not only inspired a plethora of *over*-studies, it also provided a template for polysemy studies more generally.

Lakoff's second main contribution was to identify a number of 'conceptual metaphors' that underlie our abstract concepts and the way we think about the world and ourselves (Lakoff and Johnson, 1980, 1999). For example, one of the most important conceptual metaphors is the idea that 'good' or 'active' things are 'up' whereas 'bad' or 'static' things are 'down', which allows us to say that we're 'feeling low' or having 'down time', that things are 'looking up', or that they are 'up and going'. This metaphor was taken to reflect our basic experience with the world that we have as children; when we fall over we feel bad; when

we lie down we are stationary, when we get up we are active and when we are feeling good, we literally 'stand tall'. As discussed in a later chapter, conceptual metaphor theory has come in for a good degree of criticism in recent years and the theory has been refined to take account of empirical psycholinguistic findings as well as more sociocultural approaches to language, but the basic tenets remain the same: language tends to reflect our physical interactions with the world and abstract concepts are linked to physical experiences through metaphor.

Langacker's contribution is perhaps more fundamental than Lakoff's. His *Cognitive Grammar* (Langacker, 1987, 1991, 2008) offers a radical rethink of basic issues concerning the nature of linguistic meaning and its relation to the surface form of utterances. He proposed a 'minimalist' approach, whereby the only elements in linguistic description are (a) phonological representations, concerning the overt form of an expression (whether spoken, written or signed), (b) semantic representations, roughly, meanings, broadly understood to include pragmatic, situational, and encyclopaedic aspects, and (c) symbolic relations between elements of (a) and elements of (b). On this basis, a language comes to be characterized, quite simply, as an inventory of phonological, semantic, and symbolic units, and language acquisition is a matter of a speaker's increasing command of these units. Importantly, the units differ along a number of dimensions. Thus some units are internally complex, while others are schematic to some degree or other. For example, the expression *can-opener* is internally complex, while the component unit *can* is an instance of the more schematic unit Noun, the whole expression being an instance of the complex schematic unit [N V-er] and its associated semantics (roughly: 'a device that can be used for V-ing Ns'). The schematic unit can sanction an open-ended set of instantiations; in this way, Cognitive Grammar is able to handle syntactic and morphological generalizations. It should also be noted that the unit has other semantic values (think of examples such as *dog-lover*, which denotes a person, not a thing, and *city-dweller*, where the initial noun designates the place where a person dwells); in other words, the unit is polysemous, just like the words of a language. The mechanics of Cognitive Grammar are discussed in more detail elsewhere in this volume. Three aspects, however, may be singled out for special mention here:

- The first concerns the way in which 'grammaticality' (or 'acceptability' – cognitive linguists see little reason to distinguish the two concepts) is to be understood. Grammaticality, namely, has to do with the extent to which an expression is sanctioned, or legitimized, by an already existing schematic unit, or possibly by several such units, in the language; the fit, needless to say, need not be perfect, neither will different speakers of the language always assess the matter in the same way.



- The second observation concerns the idea that syntactic organization is inherently symbolic and therefore meaningful, and that syntactic structures – just like individual words and morphemes – associate a form and meaning. An early indicative study addressed the passive construction in English (Langacker, 1982). Rather than being seen as the result of syntactic transformations, the construction and its various components, such as the verb *be*, the verbal participle, and the *by* phrase, were argued to have semantic content, which contribute cumulatively to the semantic and pragmatic value of the passive construction.
- Third, the Cognitive Grammar approach is sympathetic to the notion that linguistic knowledge, rather than residing in a small number of very broad, high-level abstractions, may actually be rather low-level and ‘surface-oriented’, consisting in multiple memories of already encountered usage and relatively shallow generalizations over these remembered instances. In practical terms, this means that linguistic knowledge will tend to be centred on individual lexical items and their idiosyncratic properties, concerning the syntactic environments in which they occur and their stylistic or pragmatic values. Similarly, the representation of syntactic and word-formation constructions will incorporate knowledge of the lexical items which typically occur in them, in addition, once again, to information about the kinds of situations in which they are likely to be used.

Although it represents a radical departure in some ways from many established ideas in linguistics (such as the formerly widely held view that syntax, semantics and pragmatics were largely independent of one another), the principles underlying Cognitive Linguistics resonated with many traditional concerns of European linguistics and philology. European work in semantics – one thinks of classics such as Gustav Stern’s *Meaning and Change of Meaning* (1931), C. S. Lewis’s *Studies in Words* (1960), and various works by Stephan Ullmann (e.g. Ullmann, 1964) – takes for granted that meaning is encyclopaedic in scope and is grounded in cultural beliefs and practices. Notions such as viewpoint and construal have long been studied in stylistics, in literary and cultural approaches to language study, and in translation studies. For example, the notion of ‘cultural keywords’ has been around for some time (see Wierzbicka, 1997, 2006) and these, by definition, involve encyclopaedic knowledge. Cultural keywords (and expressions) act as ‘focal points’ for complex sets of culturally specific values, distilling these values into a single word or expression, and are very hard, if not impossible to translate without a great deal of paraphrasing. English cultural keywords and expressions include things like ‘pub’, ‘chav’ and ‘cream tea’. The problems that these sorts of words and expressions present to translators are well attested (Baker, 2010). Researchers working in the field of

translation are beginning to argue that metonymic thinking (an idea that has developed in Cognitive Linguistics) can be usefully employed by translators when faced with examples such as these (Denroche, 2013). Finally, the semantic relations between the senses of a polysemous word, and the mechanisms whereby words acquire new senses, have long been an important focus of work in lexicography and historical linguistics.

Concepts proposed in Cognitive Linguistics have also matched developments taking place in second language teaching research. In the 1980s and 1990s, there was an increasing interest among language teaching researchers in the role of authentic input and the importance of context and information exchange in language comprehension and teaching (Canale and Swain, 1980). Significantly less emphasis was placed on syntactic transformations and manipulations and grammar drills and there was an increasing awareness of the ubiquity of idioms and fixed expressions and of the importance of communicative intentions. All of this paralleled the increasing attention that was being paid in Cognitive Linguistics to usage-based language acquisition and construction grammars. In recent years, in language teaching research, there has been a small swing of the pendulum away from purely 'transactional' communication in the language classroom back towards more of a focus on form. It has been shown how learners often benefit from language play and experimentation with second language forms, rather than focusing exclusively on the language from a functional perspective (Cook, 1998). This has coincided felicitously with insights from Cognitive Linguistics concerning the motivated nature of a great many form-meaning connections and a deeper awareness of the mechanisms that allow language to be 'played with' (see Littlemore, 2009; Tyler, 2012).

It can probably be said that Cognitive Linguistics came of age in 1989 with the first conference of the International Cognitive Linguistics Association (ICLA) in Germany and the launch of the journal *Cognitive Linguistics* (Mouton de Gruyter, Berlin) in 1990, closely followed by the launch of the monograph series *Cognitive Linguistics Research* (Mouton de Gruyter, Berlin) in 1991. In the meantime, Chomskyan linguistics has lost its dominant position in linguistics and other approaches have attracted many followers. Even adherents of the Chomskyan programme have come close to endorsing some of the tenets of Cognitive Linguistics in some of their writings (see e.g. Culicover, 1999; Jackendoff, 2010; for discussion of these, see Taylor, 1999, 2011). Rivals to the Chomskyan paradigm include functional approaches, sociolinguistics, discourse, empirical studies of acquisition, typological studies and corpus studies. The assumptions underlying these approaches are compatible with those of Cognitive Linguistics in many ways. For instance, functional approaches to language and sociolinguistics focus on usage, embedding language in its social and communicative context. Studies of first language acquisition have always had a strong empirical component, and have been driven more by the data than by abstract theory.

More recently, studies such as those conducted by Tomasello (2003) have shown how joint attention to one's surroundings and the identification of common points of reference are crucial to the shared understanding that leads to successful language acquisition. Findings from typological studies have underscored the claims made by cognitive linguists concerning perspective taking, construal and categorization. They have shown how differences between languages reflect different patterns of emphasis and construal, and different areas of focus, rather than the earlier, somewhat simplistic ideas about completely different ways of understanding the world. Finally, corpus linguistic studies provide further evidence of the inseparability of syntax, semantics and pragmatics, and of the ways in which all three types of information can be conveyed through a single construction that unites grammar and lexis, as predicted by Goldberg (1995). All of this means that it is now more difficult to demarcate 'Cognitive Linguistics' than it was in the latter decades of the last century, with many approaches converging on a common outlook and a set of common assumptions.

## **2 Themes in Cognitive Linguistic Research**

As will be apparent from the above brief remarks, Cognitive Linguistics does not constitute a unified theory, in the normal sense. Rather, it is best understood as a cluster of approaches, unified by a shared outlook on the nature of language and by preferred research methodologies. One feature that is shared by all the approaches covered by the umbrella term 'Cognitive Linguistics' is that they attempt to ground language description in well-established and well-documented aspects of cognition. This is essentially what is 'cognitive' about Cognitive Linguistics.

### **2.1 Categorization**

One recurring theme has already been referred to – categorization (Taylor, 2003). Underlying much work in Cognitive Linguistics is an assumption that we organize our knowledge of the world, not into discrete, neat categories, but into messy, overlapping categories, and that there will always be some members of a category that are more central than others. For example, in a category that we might label 'furniture', some items, such as tables and chairs will be seen as more central than others, such as televisions and pianos. While the latter might also be categorized as, respectively, 'appliances' or 'musical instruments', they could still be described as furniture. The fact that some members lie towards the periphery of a category often means that the category gradually shades into other categories and that the boundaries between categories tend to

be blurred. Our ability to form graded, flexible categories probably stems from a basic survival instinct: Is it food? Is it clothing? Could it be both? In language, categorization goes way beyond the meanings of nouns, and has been found to apply to sounds, intonation patterns, meanings of individual words and even of grammatical constructions. *The boy kicked the ball* is a 'better' example of a transitive sentence than *The next day saw the religious ceremony at Notre Dame* (BNC) – which is not to say that the latter sentence is 'less good English' than the former, only that it displays fewer features of typical transitivity. For example, the latter sentence does not have a passive counterpart, neither can we enquire into what 'the next day' did or what happened to 'the religious ceremony at Notre Dame'. Actually, 'grammaticality' is also subject to prototype effects. Suppose, reacting to something you have said, your listener comes out with *Yes, I think that's reasonable to say*. Is that a grammatical sentence? (We leave it to you to decide, and to articulate the reasons for your decision.) Researchers working in the field of second language teaching are beginning to suggest ways in which radial categories can be used to teach languages. Teaching 'grammar rules' using a radial category approach allows learners to see how the rules shade into one another, with better and less good examples. Learners are thus able to see the flexibility of grammar rules rather than simply memorizing them, and then learning lists of 'exceptions' (Littlemore, 2009; Llopis-Garcia, 2010; Tyler, 2012).

## 2.2 Figure and Ground

Another feature of general cognition that permeates language is the fact that we tend to notice some things more than others. Whenever we look at a particular scene, some things will stand out and other will recede into the background. There are several apparently universal principles determining what we perceive as the figure (i.e. salient) and what we perceive as the ground (i.e. less salient). Human and animate creatures more generally, as well as smallish moving or movable objects stand a greater chance of being perceived as figures, while large, inanimate, and relatively fixed objects serve as ground. We are therefore more likely to speak of 'the picture above the sofa' than of 'the sofa below the picture'. Figure and ground can of course be reversed, in special circumstances or for special effect. Consider the following, from the great English humourist, P. G. Wodehouse:

'I say, Bertie, you haven't been engaged to Daphne, have you?' Eustace asked as he got outside some eggs and b. [Trying Circumstances]

Here, Wodehouse playfully switches the normal perspective, whereby food that we ingest goes inside of us, to the rather grotesque image of a ravenous

eater ending up outside the food. ('Eggs and b.', by the way, is another typical Wodehouse device. It is short, of course, for 'eggs and bacon', a common enough expression, which, precisely because it is so common, need not be spelled out in full.)

### 2.3 Reference Points

Related to figure and ground is the notion of reference point. Whenever we wish to locate a particular object in our surroundings, or direct our listener's attention to it, we typically do so by appealing to a salient reference point. Candidates for the reference point function are features of the landscape, large immovable objects, as well as human beings (especially speaker and hearer) and animate creatures more generally. We speak of 'the cat's tail', rather than 'the tail's cat', since a cat is a more viable reference point for locating a tail than vice versa. Things which have recently been the topic of conversation are also good reference points. That is why given (already familiar) information is usually stated early in a sentence (often as the subject of the verb); it serves as a reference point for the appreciation of the new information which follows later. In this way, we see that general cognitive mechanisms can influence matters of syntactic organization.

### 2.4 Chunking and Entrenchment

Another important theme in Cognitive Linguistics is that of 'chunking'. Just as frequently performed actions become routinized – the skilled pianist, or golfer for that matter, does not need to pay conscious attention to each single bodily movement that he or she makes, the complex actions are accomplished as a single unit – so it is that frequently used word combinations tend to cohere into single units, for both storage and retrieval. These units are accessed as wholes and do not need to be analysed into their parts every time they are encountered or produced. These patterns of use can become so entrenched that it becomes difficult for speakers to envisage other ways of referring to the phenomenon. (Think of the can-opener example mentioned above; no other name for the device comes to mind, and you do not need to construct this expression by assembling its components in accordance with a syntactic or word-formation schema; the expression is available, ready-made.) Indeed, it has been estimated that about 50 per cent of an average text consists of pre-established chunks, spliced together (Erman and Warren, 2000). Far from exposing the speaker/writer to censure for lack of originality, it is this feature of a text which renders it 'idiomatic' and easy to process. The non-native authorship of a text – even

one which is ‘grammatically correct’ according to the grammar book rules – is often betrayed by the absence of this kind of idiomaticity. One of the major challenges for more advanced learners of a second or foreign language lies precisely in acquiring fluent command of the thousands upon thousands of pre-formed chunks – their number far exceeds the number of individual words in a language – which make up the inventory of symbolic units which a native speaker has acquired.

## 2.5 Constructions

We have already introduced the notion of construction in connection with the can-opener example. Although there are several ways in which ‘construction’ can be understood (Taylor, 2012), the dominant view in the literature largely coincides with the Langackerian notion of a symbolic unit which is (a) complex, that is, it can be analysed into its parts, and (b) schematic, that is, it is ‘abstract’ to a greater or lesser extent, such that its various ‘slots’ can be instantiated by a possibly open-ended number of items. Some constructions are highly abstract, specifying only the kinds of item which can instantiate them and the general meaning which they convey. The ditransitive construction [V NP1 NP2 – e.g. ‘give the dog a bone’], in one of its meanings, denotes the successful transfer of NP2 to NP1; candidates for the V-slot include *give*, *send* and (on a metaphorical understanding of transfer), *tell*. Other constructions may be partially specified with regard to their lexical content. Expressions such as *Off with his head!*, *Down with imperialism!* *Into the car with you all!* instantiate a construction which might be specified as [PP with NP], used to exhort the hearer to arrange matters such that the referent of NP ends up in a location designated by PP. (The example, incidentally, illustrates how aspects of the current speech situation can be incorporated into the semantic representation of a construction.) Some linguists extend the notion of construction to include idioms and fixed expression (*How do you do?*, *spill the beans*, and the like), and even to individual lexical items, indeed, to any kind of symbolic unit (in Langacker’s sense). Focusing on semantic/pragmatic aspects, we might even want to identify a ‘rhetorical question’ construction, exemplified by the following (cf. Wray, 2002)

Is the Pope Catholic?  
Do bears shit in the woods?

What we have here is a yes–no question whose answer is blindingly obvious. The question is asked in response to some previous query, with the implication that the answer to this query is also blindingly obvious.

It is now widely accepted by cognitive linguists that the traditional areas of syntax and morphology, and even phonology, can be adequately and insightfully handled by means of networks of constructions. An important milestone here was Goldberg's monograph *Constructions* (1995), which was followed up by *Constructions at Work* (2006). The underlying idea is that any linguistic expression can be analysed in terms of symbolic units of various sizes and of various degrees of schematicity; the off-with-his-head construction (as we might call it) is not only a construction in its own right, it also contains, as its parts, a PP construction and an NP construction. Not any prepositional phrase, and not any noun phrase, however, can feature in the construction. Although the PP and the NP inherit some properties from the PP and NP constructions in the language at large, the off-with-his-head construction imposes restrictions on the range of instantiations which are tolerated. Not only this, but knowledge of the construction incorporates knowledge of specific instances of the construction, those which are particularly frequent, for example, and therefore liable to be stored in memory as whole units.

A construction-based approach tends to blur the distinction between syntax and lexis, between structures and words, and between semantics and pragmatics. To know a construction is to know, *inter alia*, which words can feature in it; conversely, to know a word is to know the constructions in which it can occur. Moreover, knowing a construction involves knowing the circumstances in which it can be appropriately used.

### **3 Conceptual Semantics**

A distinctive feature of Cognitive Linguistics, and where arguably the most influential developments have taken place, has been its approach to semantics. Semantics has been studied from a conceptual (rather than a logical or formalistic) point of view. The focus is very much on the meaning of language in use and on the ways in which the social context interacts with internalized conceptual schemas. Especially to the fore has been interest in metaphor, metonymy, polysemy, idioms and phraseology, with an eye on the extent to which these phenomena are semantically and conceptually motivated. In other words, what Cognitive Linguistics brings to the study of linguistics in general is a reconsideration of the extent to which language use is non-arbitrary (cf. Panther and Radden, 2011). The aim, in brief, is to identify reasons why particular words and word orders are used by particular languages to refer to certain phenomena; the assumption that the relation of form to meaning is essentially arbitrary is rejected. The explanations that cognitive linguists are able to identify are based on the premise that cognition is embodied and that form-meaning pairings operate within radial categories. There are thought

to be meaningful relationships (usually based on metaphor and metonymy) between the different senses of polysemous words, and this extends to closed class items such as prepositions and articles. Below, we discuss some themes in cognitive semantics.

### 3.1 Metaphor and Metonymy

We have already mentioned the interest in conceptual metaphor and the way in which it motivates much meaning extension; a related topic has been the relation of metonymy. Whereas metaphor – here we are simplifying matters; the issues are quite complex, and are taken up in later chapters on the *Companion* – exploits similarity, metonymy is based on association or co-occurrence, and may even be seen as a particular manifestation of the reference point phenomenon. Metonymy is perhaps even more pervasive in language than metaphor, though its ramifications, often subtle and inconspicuous, are likely to pass unnoticed. The metaphorical nature of *He's a pig* is obvious; the metonymies present in *Are you in the phone book?* are less so. (In case you are wondering, it is not of course the person as such who is in the phone book, but their name, or, more precisely, a written representation of their name; the person thus functions as a reference point for accessing their name, and the name is a reference point for accessing its written representation. Neither is it strictly speaking the case that the name is 'in' the phone book as such; rather it is printed on one of its pages. So this simple everyday expression contains at least three metonymies.) As this example shows, metonymies are often situation-based and thus contribute to the flexibility of language-in-use. We should not, for example, want to claim on the basis of the above example that 'you' and 'phone book' in English are polysemous. *Pig*, on the other hand, we should definitely want to regard as polysemous. In contrast to metonymy, metaphor is commonly implicated in the established senses of a polysemous word.

### 3.2 Image Schemas and Embodiment

An image schema is an abstract conceptual representation that results from our everyday interactions with the world. The 'up-down' conceptual metaphor that was mentioned above has at its core an image schema where one visualizes or experiences the up and down orientation in some other way. Another image schema involves the notion of 'in', which can be extended from a very basic sense (where an object sits in a container) to more abstract, metaphorical senses, where one might find oneself 'in a group', 'in the know' or 'in love'. The same can of course be said for 'out', where a basic sense of not being in a container,



extends metaphorically to form expressions such as 'out of the loop', 'outward looking organization' or 'coming out'.

An interesting comparison is between *The stars came out* and *The lights went out*. Here we have two uses of *out* which appear to be contradictory; in the first example, *out* refers to the stars becoming visible, in the second, *out* has to do with the lights being extinguished. A clue to the paradox lies in the use of *come* and *go* and the implications that these words have for the ways in which the container relation can be conceptualized. *Come* denotes movement (literal or metaphorical) towards the speaker; *go* suggests (though does not always entail) movement away from the speaker. Taking an 'external' perspective on a container, its inside is invisible and inaccessible; 'coming out' thus denotes a transition to a state of visibility and accessibility. (Observe that the same image in present when we 'work out', or 'figure out', the solution to a problem; the solution becomes visible to us.) Conversely, 'going in' denotes a transition to a state of invisibility (*The stars went in*). Taking an 'internal' perspective, however, 'going out' denotes a transition to a state of invisibility or inaccessibility. When the lights 'go out' we are in a state of darkness – until, that is, the lights 'come on' again. Likewise when something 'fizzles out' or 'dies out', or when a topic 'drops out' of the conversation, it ceases to be in our focus of attention. And when someone 'freaks out', they leave the realm of normality. These examples – which can be easily multiplied – give some insight into how a seemingly arbitrary and unprincipled aspect of English, namely the distribution of particles and prepositions in so-called phrasal verbs – may not be so arbitrary and unprincipled after all. (For further discussion, see Lindner, 1981; Rudzka-Ostyn, 2003.)

### 3.3 Mental Spaces and Conceptual Blending

As mentioned earlier, Cognitive Linguistics takes issue with the notion that language maps directly onto objectively verifiable states of affairs in the world. *The cat is sitting on the mat*, we might want to say, refers to a (presently existing) situation in which there is a cat and a mat, with the cat sitting on the mat. What, one might ask, is wrong with this account?

Actually, many things. First, any such statement needs to be filtered through the categories of the language and the conceptualizations of the speaker. Was it a mat? Or a rug? Or a carpet? Why did the speaker select the word 'mat' and the categorization which it implies? Then there is the vagueness of the 'on'-relation; there are a myriad of places 'on the mat' where the cat could have been: in the centre, towards the edge, etc. Second, the sentence implies that the speaker had in mind a specific cat and mat, and assumes that the hearer is able to identify these individuals. Then there is the question of figure-ground organization.

Why did the speaker frame the sentence in terms of the location of the cat? The speaker could just as easily have taken the mat as the figure: *The mat has a cat sitting on it*. 'Objectivist' semantics is unable to capture the difference. A further issue – quite ignored by objectivist semantics – concerns the reasons why a speaker might make such an assertion in the first place. One does not normally go around asserting states of affairs; there has to be some pragmatic reason for doing so.

Another problem (for objectivist semantics) is the fact that the authors of this text have simply made up this sentence about the cat and mat 'out of the blue', in order to make a point – in reality, there are no cats or mats in the indicated configuration. Cat and mat exist solely in fictional mental space set up by the writers of the above paragraph. Proponents of objectivist semantics have tied themselves in knots trying to decide whether the sentence *Sherlock Holmes is an Englishman* is true or false (Seuren, 2009: 127, 181, 187). The problem is that there is no such individual called Sherlock Holmes, so nothing we say about him can be either true or false (rather like sentences about the present king of France). Yet we are inclined to judge the sentence to be true, since Sherlock Holmes does exist, albeit in a fictional world, and notwithstanding the fact that Conan Doyle (to the best of our knowledge) nowhere specifies the nationality of his creation. The theory of mental spaces was developed by Gilles Fauconnier (1994) in order to account for referential phenomena. Referring expressions, such as *Sherlock Holmes*, refer all right – they do not, however, refer to individuals in 'the world', but in a mental space constructed by the speaker and hearer. Often, to be sure, the mental space will correspond, or will be taken to correspond, with 'reality', but often it will not.

A special insight of Fauconnier was that one mental space can be based in another. *She wants to marry a millionaire* can be interpreted in two ways. On one interpretation, both the woman and the millionaire exist in the same mental space; there is a woman, and a millionaire, and the woman wants to marry him. On the other interpretation, the millionaire exists only in the 'want'-space of the woman.

Blending theory (Fauconnier and Turner 1998, 2002) draws on these ideas, proposing that components of different mental spaces (or knowledge configurations more generally) can blend together to create a new conceptualization. The theory offers a way to deal with some old conundrums. On the face of it, and on the standard assumption that *I* and *myself* are co-referential (i.e. refer to one and the same individual), *I'm not myself today* and *I'm trying to catch up with myself* are just nonsense. Yet we easily make sense of these expressions. Note that metaphor theory would not be much help here; it is unclear, for example, what the source and target domains might be and how the mapping from one to the other would work. Rather, it seems that we understand the expressions by appealing to different conceptualizations of the self and creatively combining

aspects of each. As discussed in later chapters, blending theory has applications well beyond language narrowly understood; it offers insights into narrative, storytelling, myth, visual culture, gesture, problem-solving, and even the way we interface with machines and electronic gadgets.

#### **4 A Note on Phonology**

The focus on semantic issues has had an unfortunate consequence, namely, the relative neglect of phonology. (Glance through the back issues of journals such as *Cognitive Linguistics* and the papers on phonology can probably be counted on the fingers of one hand.) Although phonological elements are recruited for the symbolization of semantic representations, phonological elements are not, as a rule, inherently meaningful in themselves. It is, for example, purely by happenstance that the English vowel [a:], or the French vowel [o], symbolize words in the two languages (*are* and *eau* 'water' respectively). Researchers who are focused on semantic issues are therefore not likely to have much to say about phoneme inventories, vowel harmony, diphthongs, consonant clusters or the like.

But while phonological elements might not be available for semantic analysis – notions of metaphor and metonymy, so intensively discussed in the cognitive semantic literature, are obviously not applicable here – they are certainly open to a conceptual analysis, a matter which was emphasized by Langacker and is discussed later in this volume, in the chapter by Jose Mompean. Phonemes, after all, are categories of sounds, created in the minds of language users, and these turn out to have much the same kinds of properties as the semantic categories of a language; for example, some members of a phoneme can be regarded as more prototypical than others. The theoretical apparatus developed for the study of semantic categories can therefore be applied to the study of phonology. Similarly, the phonotactic constraints of a language – roughly, which combinations of sounds are possible in which kinds of context – can be studied from the perspective of phonological constructions. The fact that *samt* [sæmt] is not a possible word in English is due to the fact that there is no phonological schema in English which sanctions the consonant cluster in the syllable coda; in English, a nasal consonant has to have the same place of articulation as the following stop consonant.

Finally, of course, language in its perceptible manifestation – whether as sound, written symbols, or signs – is 'embodied', in a fairly obvious sense of the term. The sound structure of a language is based in the articulatory possibilities of the human vocal apparatus, and is constrained by the perceptual possibilities of the auditory system. The notion of 'motivation' – insightfully applied to the

study of the meaningful constructions of a language– is also valid for its sound system.

## **5 Empirical Grounding**

Langacker characterized Cognitive Grammar as a usage-based model of language. By this he meant that language acquisition proceeds on the basis of encounters with actual data, it is not driven by the setting of parameters of a supposedly Universal Grammar. What is ‘grammatical’ in a language is determined by conformity with schemas and patterns extracted from previous usage, not by reference to abstract innate principles.

The usage-based model constitutes a hypothesis about the nature of linguistic knowledge; it does not in itself define a research methodology. Even so, it is somewhat anomalous that much of the foundational work in Cognitive Linguistics – by Lakoff (1987), Lakoff and Johnson (1980), Langacker (1987, 1991), Talmy (1988), and others – was based almost exclusively on the methodology favoured by Chomskyan linguists, namely, the introspective analysis of invented data. Since then, it has become clear that the usage-based hypothesis can only be substantiated by the study of . . . usage. Indeed, appeal to actual data, in various guises, has been one of the more notable aspects of cognitive linguistic research over the past decade or so.

The empirical focus has been particularly in evidence in language acquisition studies. Researchers in both first and second language acquisition have conducted longitudinal, contextualized research into the impact of shared knowledge and understanding on language acquisition, thus lending support to the usage-based nature of language. In particular, they have found evidence supporting the idea that what people learn is based on what they hear or see; there is no underlying ‘Universal Grammar’ that is simply activated upon exposure to language. People generalize from particular examples to form schematic ‘rules’ concerning possible form-meaning pairings, and then use these ‘rules’ to create and make sense of new language data. These rules constitute implicit, rather than explicit knowledge, and they tend to be flexible and variable, and operate within radial categories with fuzzy boundaries (Roehr, 2010). Researchers such as Nakamura (2008) have shown that learners of a second language acquire schematic knowledge of constructions in much the same way as learners of a first language.

Four types of methodology that are increasingly being used to empirically test the claims put forward by cognitive linguists are corpus studies, the study of authentic spoken, written, and multimodal discourse, experimental studies involving reactions and reaction times, and neuro-linguistic studies including fMRI scans.

## 5.1 Corpus Studies

It is impossible to overestimate the impact of technology on the study of language. Two innovations can be highlighted. One is the ready availability of large electronic corpora, assembled with the aim of being 'representative' of a language or sub-language, along with user-friendly means for interrogating them (Davies, 2008–). The other is the phenomenal growth of the World Wide Web, which hosts billions of pages of authentic text and which, through various search engines, can be interrogated for the occurrence of specific linguistic phenomena. Together, these two resources have revolutionized the way we do linguistics.

In the first place, we have the means for checking our intuitions on grammaticality and usage. One small example will illustrate. Intuition tells us that the verb *explain* is unacceptable in the double object construction; we say *explain it to me*, not \**explain me it*. Yet a search of the Web threw up hundreds of examples of the latter construction (involving, admittedly, more complex NPs than *it*), examples which, in their context, were not at all tainted with any trace of ungrammaticality (and which were not obviously authored by non-native speakers of English). It was even possible to identify preferred configurations of double-object *explain* and the specific discourse contexts in which such expressions were liable to occur (Taylor, 2012: 28–32). Data such as these cast doubt on received notions of grammaticality, and present a challenge not only to authors of grammar books but also any theory of language which aims at descriptive adequacy.

While the Web is an invaluable resource for checking on the occurrence of linguistic expressions, it can give us no reliable information on frequency of occurrence, not least because of the indeterminate size of the Web and the vagaries of the search algorithms. For quantitative information, we need to turn to constructed corpora. These enable us to determine, not only the frequency (e.g. per million words) of a particular linguistic unit (a matter which, in earlier times, would have required of the researcher days and weeks of unspeakable drudgery), but also to correlate the frequency of one item against that of others. In this way, patterns of usage can be established which extend far beyond what might be available to intuition or from introspection. Studies in this vein now make up a good part of contemporary cognitive linguistic research. They concern patterns of collocation, the degree of productivity of morphological and syntactic schemas, the many factors which are liable to influence the choice between roughly synonymous constructions, and the subtle interplays of lexis and syntax. The different senses of a polysemous word, for example, are not equally distributed over different lexico-syntactic environments; this is one reason why polysemy so rarely gives rise to genuine ambiguity (cf. Glynn, 2011; Gries, 2006, on the polysemy of *run*). In a very influential paper, Stefanowitsch

and Gries (2003) explored the degree of attraction (or, conversely, repulsion) between lexical items and the constructions in which they are liable to occur. Thus, to take up an example introduced earlier, not all prepositions are equally likely to occur in the 'off-with-his-head' construction. Careful corpus-based studies are able to quantify and to rank these effects. Corpus-based studies have also enriched our understanding of the processes of metaphor and metonymy, by throwing some light on the relative incidence of these phenomena (see e.g. Deignan and Potter, 2004). Other researchers have used corpus data to explore the relative productivity of different metonymy-producing relationships. For instance, Handl (2011) uses corpus data to show how different types of salience work together to determine what is likely to be chosen as the vehicle in a particular metonymy.

Appeal to corpus data, however, raises a number of fundamental conceptual issues. Students of stylistics and sociolinguistics have long recognized that variation is a ubiquitous feature of language use (whether with regard to individuals or language communities). Researchers have become increasingly aware of the fact that it is very difficult to make generalizations about language 'as a whole' in isolation from the role of genre and register and the discourse communities that are involved. The very existence and pervasiveness of variation thus casts doubt on the notion that a corpus can ever be truly representative of a language, or even of a sub-variety of a language. Moreover, variation exists not only with respect to 'external' language – that is, language as encountered in the world – but also between individual speakers, both with regard to their linguistic productions and to their internalized linguistic knowledge. Here we touch on a paradox of cognitive linguistic investigations of corpora. Patterns and regularities can certainly be discovered in a corpus of texts; but how, if at all, are these represented in the mind of an individual speaker? Early pioneers in corpus studies were keen to emphasize the 'objective' and 'factual' character of their work, and to differentiate it from 'subjective' speculations about what might be in the minds of speakers (Aarts, 1991). However, the focus of Cognitive Linguistics, almost by definition, is language as a cognitive, and therefore mind-internal phenomenon. What, then, is the relation between 'language in the world' and 'language in the mind'? Taylor (2012), for one, has emphasized the dialectic relation between the two. Language in the world is the product of linguistic acts of individuals; these individuals behave in accordance with their acquired knowledge; their acquired knowledge, in turn, is the product of their encounters with external language. Looming over this is the fact that while language is certainly located in the minds of individuals, language is also a social, cooperative endeavour. In order to be able to function in a linguistic community, speakers need to calibrate their internal grammar to the grammars presumed to exist in the minds of other speakers.

## 5.2 Experimental/Psycholinguistic Validation of Claims

Whereas corpus linguistics studies language as an external product, psycholinguistics has always focused on the processing mechanisms of individuals, whether in reception, storage or access (Levelt, 1989; Marslen-Wilson, 1989). For example, it is now widely acknowledged that lexical items are not represented in the mind as isolated units, but enter into complex associative networks of semantic and phonological relations.

Of particular interest to cognitive linguists is research which has attempted to validate some of its specific theoretical claims, concerning such matters as image schemas, embodiment and metaphor. Numerous reaction time studies have shown that there are strong interactions between image schemas and figurative extensions of word meaning. For example, research by Gibbs has shown that participants respond more quickly to an idiom if they have recently been exposed to information relating to its literal equivalent. The contribution by Gibbs to this volume reviews the evidence of the myriad studies that have been conducted in this field. As well as reaction time studies, eye-tracking studies have been used to show that people really do process language in 'chunks' which provides strong empirical grounding for the notion of constructions.

## 5.3 The Study of Spoken, Written and Multimodal Discourse

Another way of verifying claims made by cognitive linguists is to make use of passages of authentic spoken and written discourse. Thus, Kimmel (2010) explored the incidence of so-called mixed metaphors – the occurrence, within short passages of text, of metaphors with conflicting or inconsistent source-target mappings – thereby casting some doubts on strong versions of the conceptual metaphor hypothesis. Discourse-based approaches to Cognitive Linguistics are increasingly popular with researchers such as Elena Semino and Lynne Cameron, who have explored the ways in which metaphor contributes to coherence and shared meaning creation in different types of discourse. In addition to this, a whole field has grown up of cognitively oriented Critical Discourse Analysis (CDA), an example of which can be found in Veronika Koller's contribution to this volume.

A recent development in Cognitive Linguistics, which is in line with major movements in linguistics and communication studies more generally, is a focus on multimodality. It stands to reason that, if language learning and processing involves the exactly same cognitive processes as other types of information about the world, then one would expect to find the same processes at work in other modes of expression, such as gesture, sign language, art and music. There is increasing evidence to show that these forms of expression, like language, are

characterized by metaphor and metonymy. Indeed, in her book, *Metaphors, Dead and Alive, Sleeping and Waking, A Dynamic View*, Cornelia Müller (2008) shows how, in the course of a single conversation, the same concept can be referred to literally, metonymically and metaphorically in both language and gesture. The metaphor may appear to have ‘gone to sleep’, but then re-surface in a slightly different form, in a different modality thus lending coherence to the conversation as a whole. Charles Forceville has shown that the same sort of thing happens in films, where the dialogue, colour, camera angle and music work together to create a particular construal of a scene via metaphor and metonymy.

#### 5.4 Neurolinguistic Approaches

A very recent development has been the introduction of neurolinguistic research into Cognitive Linguistics. fMRI Brain scans are starting to provide a picture of the ways in which different parts of the brain work together to understand metaphor and metonymy. One interesting finding, by Joue et al. (2012), is that the same parts of the brain are involved in the comprehension of novel metaphors that correspond to known conceptual metaphors, regardless of the modality (language, gesture or picture) in which they are presented, suggesting some sort of underlying neurolinguistic architecture that appeals to conceptual metaphors. Conventional metaphors, in contrast, are processed in a different part of the brain.

### 6 Recent Trends in Cognitive Linguistics

Another relatively new trend is the application of Cognitive Linguistics to literary, stylistic and cultural issues. Peter Stockwell’s (2002) book on cognitive poetics has provided analysts working in literary stylistics with a new set of tools that they can use to conduct objective empirical research in order to explore how a reader might respond to and/or interact with a particular text. These involve key concepts in Cognitive Linguistics, such as embodied cognition, construal, conceptual blending, figure/ground alignment and perspective taking.

More and more studies are beginning to investigate the potential application of Cognitive Linguistics to the teaching of foreign languages. A recent edition on the AILA Review (Littlemore and Juchem-Grundmann, 2010) contained reports of a number of studies involving practical classroom applications. These included experimental work on the use of cognitive linguistic ideas on linguistic motivation and metaphoric thinking to teach modal verbs in English (Tyler et al., 2012), a comprehensive review of the work on the motivated form-meaning connections in the teaching of phrasal verbs, taking a critical look at the



role of construal and the thinking-for-speaking hypothesis in second language learning (Alejo, 2010), a practical application of the idea that language is a symbolic representation of the speaker's mental model of the world to the teaching of mood-selection in Spanish (Llopis-Garcia, 2010), a study of the benefits of asking learners to reflect on the potentially motivated nature of the connections between word form and word meaning (Deconinck, Boers and Eyckmans, 2010), and an investigation into how explicit guidance, focusing on key notions such as 'metaphor', 'figurative use' and 'figurative extension', can lead to rapid development in vocabulary use in the course of an academic year (MacArthur, 2010).

Cognitive Linguistics is also beginning to be applied to unexpected areas not normally associated with linguistics. For example, studies have shown how conceptual metaphor and metonymy play a key role in the development of delusions in patients with schizophrenia and related disorders (Rhodes and Jakes, 2004). Because of the way it blends fantasy and reality, metonymy is a particularly pernicious phenomenon in this context. This can of course be turned round and the role of metonymy made explicit during counselling sessions, thus possibly helping patients to identify the source of their delusions. Dennis Tay's chapter in this *Companion* explores the role of metaphor in counselling sessions in more depth.

In recent years, as well as making a significant contribution to the field of linguistics itself, Cognitive Linguistics has been successfully applied to a range of areas including language teaching, translation, intercultural communication, literary criticism, human-computer interaction, psychology and psychotherapy. As research continues, and more is known about cognitive mechanisms underlying language processing and learning, we expect this list to grow.

## **7 Outline of the Rest of the *Companion***

In Section 2, we provide a retrospective view of the development of Cognitive Linguistics, with thumbnail sketches of the main contributions of its major figures. Six key figures are covered. We begin with a chapter on Ronald Langacker (by Phil Bennett), whose work on Cognitive Grammar provides a foundation for just about every aspect of Cognitive Linguistics that has ensued. This is followed by a chapter on George Lakoff (by Dennis Tay), whose work on conceptual metaphor and metonymy has had applications well beyond the field of linguistics. Next we discuss Adele Goldberg (by Kris Ramonda), whose work on Construction Grammar has completely changed the way we think about grammar. In the fourth chapter (by Brian J. Birdsell), we review the work of Gilles Fauconnier, whose work on blending theory goes well beyond language and accounts for the ways in which humans make sense of, and create

new knowledge. In the fifth chapter (by Sarah Turner) we discuss Michael Tomasello's ground-breaking work on first language acquisition, including usage-based approaches and construction-based grammar. In the sixth chapter (by Daniel Sanford) we outline Joan Bybee's work on the effect of usage on language structure. Bybee's work constituted a direct challenge to some of the key assumptions of the generative approach to language, offering a model for analysing the structure of language that links patterns and schemas to meaning rather than using decontextualized syntactic 'rules'.

In Section 3, we provide a thematic overview of topics that have been actively researched by cognitive linguists. The chapters demonstrate the exploitation and development of ideas introduced by 'major figures' of Section 2. We begin with an account by Gerard Steen of the cognitive linguistic revolution in metaphor studies, and move on to the closely related topic of metonymy with a chapter by Francisco José Ruiz de Mendoza Ibáñez on the nature and scope of metonymy in linguistic description and explanation. He shows how metonymy acts as a general cognitive mechanism, leaving traces on the language. The volume then moves on to the topic of embodied metaphor, with a contribution from Raymond W. Gibbs, Jr who surveys the compelling evidence in support of the idea that figurative instantiations of word meaning have a bodily basis and that this is activated when they are encountered and is drawn upon during the comprehension process. In Frank Boers' contribution, we turn to work on idioms and phraseology, and look at how it has been applied to second language teaching classrooms around the world. We stay with an international theme for the contribution by Dirk Geeraerts and Gitte Kristiansen who focus on Cognitive Linguistics and language variation, tracing the various contributions that Cognitive Linguistics has made to this field over the years. We then turn to two areas that have involved the application of cognitive linguistic tools to text analysis. These are Chloe Harrison and Peter Stockwell's contribution on Cognitive poetics, which develops the themes alluded to above, and Veronika Koller's contribution on Cognitive Linguistics and ideology, which provides an interesting case study in which Cognitive Linguistics is used for Critical Discourse Analysis. Finally, we attempt to address the recent neglect of the subject of phonology by including a contribution by Jose Mompean on Cognitive Linguistics and phonology.

In Section 4, 'New Directions and Applications', we address those areas where there is scope for new developments in Cognitive Linguistics. We begin with a chapter from Stefan Gries on corpus and quantitative methods, a field of research which is very much in its infancy but which has great potential. We then have a contribution from Jörn Hurtienne on non-linguistic applications of Cognitive Linguistics. After having provided a survey of work done in this area, he describes an ingenious attempt to make heating controls more intuitive by making them correspond more closely to the cognitive models of the users. The

contribution by Jörg Matthias Roche has an equally practical focus. He outlines the ways in which cognitive linguistic tools such as conceptual transfer, mental spaces, metaphor and constructions can be used in the teaching of grammar to learners of a second language. The volume closes with a contribution from Dennis Tay on the ways in which psychological counselling professionals can usefully employ metaphor use and conceptual metaphor theory in their counselling sessions.

## 8 Cognitive Linguistics Literature

There are now several journals devoted to Cognitive Linguistics, including the *Annual Review of Cognitive Linguistics* (John Benjamins, Amsterdam) and *Language and Cognition* (Cambridge University Press). In addition, a number of textbook introductions are available, including Taylor (2002), Evans and Green (2006), Lee (2001), Ungerer and Schmid (2006), Radden and Dirven (2007), and Croft and Cruse (2004).

Handbooks and anthologies of readings include Geeraerts (2006), Kristiansen et al. (2006), Evans et al. (2007) and Gonzalez et al. (2007) (which focuses on methodology).

Several edited volumes focus on applications of Cognitive Linguistics to second language learning and teaching. These include Achard and Niemeier (2004), Boers and Lindstromberg (2008), De Knop and De Rycker (2008), Pütz et al. (2001) and Robinson and Ellis (2008).

## References

- Aarts, J. (1991). Intuition-based and observation-based grammars. In A. Aijmer and B. Altenberg (Eds), *English Corpus Linguistics*. London: Longman, pp. 44–62.
- Achard, M. and Niemeier, S. (Eds) (2004). *Cognitive Linguistics and Foreign Language Teaching*. Berlin/New York: Mouton de Gruyter.
- Alejo, R. (2010). Making sense of phrasal verbs: A cognitive linguistics account. In J. Littlemore and C. Juchem-Grundman (Eds), *Applied Cognitive Linguistics in Second Language Learning and Teaching*, AILA Review, pp. 50–71.
- Baker, M. (2010). *In Other Words, A Coursebook on Translation*. London: Routledge.
- Boers, F. and Lindstromberg, S. (Eds) (2008). *Cognitive Linguistic Approaches to Teaching Vocabulary and Phraseology*. Berlin: Mouton de Gruyter.
- Brugman, C. (1981). *Story of Over*. MA thesis, University of California, Berkeley.
- Canale, M. and Swain, M. (1980). Theoretical bases of communicative approaches to second language teaching and testing. *Applied Linguistics*, 1(1), 1–47.
- Croft, W. and Cruse, D. A. (2004). *Cognitive Linguistics*. Cambridge: Cambridge University Press.
- Culicover, P. (1999). *Syntactic Nuts, Syntactic Theory, and Language Acquisition*. Oxford: Oxford University Press.

- Davies, M. (2008–). The Corpus of Contemporary American English (COCA). Available online at <http://corpus.byu.edu/coca/>.
- De Knop, S. and De Rycker, T. (Eds) (2008). *Cognitive Approaches to Pedagogical Grammar*. Berlin: Mouton de Gruyter.
- Deconinck, J., Boers, F. and Eyckmans, J. (2010). ‘Sounds like it.’ Fostering engagement with L2 vocabulary through the evaluation of form-meaning matches. In J. Littlemore and C. Juchem-Grundman (Eds), *Applied Cognitive Linguistics in Second Language Learning and Teaching*, AILA Review.
- Deignan, A. and Potter, L. (2004). A corpus study of metaphors and metonyms in English and Italian. *Journal of Pragmatics*, 36, 1231–52.
- Denroche, C. (2013). A metonymic theory of translation, Paper Presented at the 3rd International Conference on Meaning Construction, Meaning Interpretation: Applications and Implications (CRAL, 2013), University of La Rioja, Logrono, Spain.
- Erman, B. and Warren, B. (2000). The idiom principle and the open choice principle. *Text*, 20, 29–62.
- Evans, V. and Green, M. (2006). *Cognitive Linguistics: An Introduction*. Edinburgh: Edinburgh University Press.
- Evans, V., Bergen, B. and Zinken, Z. (2007). *The Cognitive Linguistics Reader*. London: Equinox.
- Fauconnier, G. (1994). *Mental Spaces*. New York: Cambridge University Press.
- Fauconnier, G. and Turner, M. (1998). Conceptual integration networks. *Cognitive Science*, 22(2), 133–87.
- (2002). *The Way We Think: Conceptual Blending and the Mind’s Hidden Complexities*. New York: Basic Books.
- Geeraerts, D. (2006). *Cognitive Linguistics: Basic Readings*. Berlin: Mouton de Gruyter.
- Glynn, D. (2011). The many uses of run. Corpus methods and socio-cognitive semantics. In D. Glynn and J. Robinson (Eds), *Polysemy and Synonymy: Corpus Methods in Cognitive Semantics*. Amsterdam: John Benjamins.
- Goldberg, A. (1995). *A Construction Grammar Approach to Argument Structure*. Chicago: University of Chicago Press.
- Gonzalez-Marquez, M., Coulson, S. and Spivey, M. J. (2007). *Methods in Cognitive Linguistics*. Amsterdam: John Benjamins.
- Gries, S. Th. (2006). Corpus-based methods and cognitive semantics: The many senses of to run. In S. Th. Gries and A. Stefanowitsch (Eds), *Corpora in Cognitive Linguistics. Corpus-based Approaches to Syntax and Lexis*. Berlin and New York: Mouton de Gruyter, pp. 57–99.
- (2011). Phonological similarity in multi-word units. *Cognitive Linguistics*, 22(3), 491–511.
- Handl, S. (2011). *The Conventionality of Figurative Language: A Usage-based Study*. Tübingen: Narr Verlag.
- Jackendoff, R. (2010). *Meaning and the Lexicon: The Parallel Architecture 1975–2010*. Oxford: Oxford University Press.
- Joue, G., Mittelberg, I., Evola, L., Boven, K., Willmes, F. and Schneider, U. (2012). Monomodal metaphors in speech and co-verbal gestures: An fMRI study. Paper presented at the 9th Annual Conference of the International Organisation of Researching and Applying Metaphor, Lancaster, UK.
- Kimmel, M. (2010). Why we mix metaphors (and mix them well): Discourse coherence, conceptual metaphor, and beyond. *Journal of Pragmatics*, 42, 97–115.
- Kristiansen, G., Achard, M., Dirven, R. and Ruiz de Mendoza, F.-J. (Eds) (2006). *Cognitive Linguistics: Current Applications and Future Perspectives*. Berlin: Mouton de Gruyter.
- Lakoff, G. (1987). *Women, Fire and Dangerous Things: What Categories Reveal About the Mind*. Chicago and London: University of Chicago Press.

- Lakoff, G. and Johnson, M. (1980). *Metaphors We Live By*. Chicago: University of Chicago Press.
- (1999). *Philosophy in the Flesh: The Embodied Mind and Its Challenges to Western Thought*. New York: Basic Books.
- Langacker, R. (1982). Space grammar, analysability and the English passive. *Language*, 58(1), 22–80.
- (1987). *Foundations of Cognitive Grammar, Vol. 1: Cognitive Prerequisites*. Stanford, CA: Stanford University Press.
- (1991). *Foundations of Cognitive Grammar, Vol. 2: Descriptive Application*. Stanford, CA: Stanford University Press.
- (2008). *Cognitive Grammar: A Basic Introduction*. Oxford: Oxford University Press.
- Lee, D. (2001). *Cognitive Linguistics: An Introduction*. Oxford: Oxford University Press.
- Levelt, W. J. M. (1989). *Speaking: From Intention to Articulation*. Cambridge, MA: MIT Press.
- Lewis, C. S. (1960). *Studies in Words*. Cambridge: Cambridge University Press.
- Lindner, S. (1981). A lexico-semantic analysis of English verb particle constructions with OUT and UP. PhD dissertation, University of California, San Diego.
- Littlemore, J. (2009). *Applying Cognitive Linguistics to Second Language Learning and Teaching*. Basingstoke: Palgrave Macmillan.
- Littlemore, J. and Juchem Grundmann, C. (Eds) (2010). *Cognitive Linguistics and Second Language Learning and Teaching*. Special Edition of the AILA Review.
- Littlemore, J. and MacArthur, F. (2012). Figurative extensions of word meaning: How do corpus data and intuition match up? In D. Divjak and S. Gries (Eds), *Corpus and Cognition: Converging and Diverging Evidence*. Berlin: Mouton de Gruyter, pp. 195–233.
- Littlemore, J. and Tagg, C. (in prep.). The role of metonymy in text messaging, To be submitted to *Applied Linguistics*.
- Llopis-Garcia, R. (2010). Why cognitive grammar works in the L2 classroom: A case study for mood in selection in Spanish. In J. Littlemore and C. Juchem-Grundman (Eds), *Applied Cognitive Linguistics in Second Language Learning and Teaching*, AILA Review, pp. 72–94.
- MacArthur, F. (2010). One word, one meaning? How differing metaphorical competence is reflected in creative and conventional language use by Spanish learners of English as a foreign language. In J. Littlemore and C. Juchem-Grundman (Eds), *Applied Cognitive Linguistics in Second Language Learning and Teaching*, AILA Review, pp. 155–73.
- Marslen-Wilson, W. (Ed.) (1989). *Lexical Representation and Process*. Cambridge, MA: MIT Press.
- Müller, C. (2008). *Metaphors, Dead and Alive, Sleeping and Waking: A Dynamic View*. Chicago: University of Chicago Press.
- Nakamura, D. (2008). Awareness, input frequency, and construction learning: A replication and extension of Casenhiser and Goldberg (2005) to adult second language acquisition. In *Cognitive Approaches to Second/Foreign Language Processing: Theory and Pedagogy*. Papers from the 33rd International LAUD Symposium, Landau, Germany, March 2008 (Landau, Phalz: LAUD Linguistic Agency), pp. 464–81.
- Panther, K.-U. and Radden, G. (Eds) (2011). *Motivation in Grammar and the Lexicon*. Amsterdam: John Benjamins.
- Pütz, M., Niemeier, S. and Dirven, R. (Eds) (2001). *Applied Cognitive Linguistics II: Language Pedagogy*. Berlin: Mouton de Gruyter.
- Radden, G. and Dirven, R. (2007). *Cognitive English Grammar*. Amsterdam: John Benjamins.
- Rhodes, J. E. and Jakes, S. (2004). The contribution of metaphor and metonymy to delusions. *Psychology and Psychotherapy: Theory, Research and Practice*, 77, 1–17.

- Robinson, P. and Ellis, N. (2008). *Handbook of Cognitive Linguistics and Second Language Acquisition*. London: Routledge.
- Roehr, K. (2010). Explicit knowledge and learning in SLA: A cognitive linguistics perspective. In J. Littlemore and C. Juchem-Grundman (Eds), *Applied Cognitive Linguistics in Second Language Learning and Teaching*, AILA Review, pp. 7–29.
- Rudzka-Ostyn, B. (2003). *Word Power: Phrasal Verbs and Compounds: A Cognitive Approach*. Berlin: Mouton de Gruyter.
- Seuren, P. (2009). *Language in Cognition*. Oxford: Oxford University Press.
- Stefanowitsch, A. and Gries, S. Th. (2003). Collocations: Investigating the interaction of words and constructions. *International Journal of Corpus Linguistics*, 8, 209–43.
- Stockwell, P. (2002). *Cognitive Poetics. An Introduction*. London: Routledge.
- Talmy, L. (1988). Force dynamics in language and cognition. *Cognitive Science*, 2, 49–100.
- Taylor, John R. (1999). Review of Culicover (1999). *Cognitive Linguistics*, 10, 251–61.
- (2003). *Linguistic Categorization*. Oxford: Oxford University Press.
- (2011). Review of Jackendoff (2010). *Studies in Language*, 35, 951–9.
- (2012). *The Mental Corpus: How Language Is Represented in the Mind*. Oxford: Oxford University Press.
- Tomasello, M. (2003). *Constructing a Language: A Usage-based Theory of Language Acquisition*. Cambridge, MA: Harvard University Press.
- Tyler, A. (2012). *Cognitive Linguistics and Second Language Learning: Theoretical Basics and Experimental Evidence*. New York: Routledge, Taylor & Francis Group.
- Tyler, A., Mueller, C. and Ho, V. (2012). Applying Cognitive Linguistics to instructed L2 learning: The English modals. In J. Littlemore and C. Juchem-Grundman (Eds), *Applied Cognitive Linguistics in Second Language Learning and Teaching*, AILA Review, pp. 30–49.
- Ullmann, S. (1964). *Language and Style*. Oxford: Blackwell.
- Ungerer, F. and Schmid, H.-J. (2006). *An Introduction to Cognitive Linguistics* (2nd ed.). Harlow: Pearson Longman.
- Wierzbicka, A. (1997). *Understanding Cultures through Their Keywords*. Oxford: Oxford University Press.
- (2006). *English: Meaning and Culture*. Oxford: Oxford University Press.
- Wray, A. (2002). *Formulaic Language and the Lexicon*. Cambridge: Cambridge University Press.



# 2

## Major Figures in Cognitive Linguistics





# 2.1 Langacker's Cognitive Grammar

*Phil Bennett*

## Chapter Overview

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## 1 Background

'What follows is a minority report', wrote Ronald Langacker in a 1986 introduction to his first ten years of work on the theory of Cognitive Grammar. Having become dissatisfied with the assumptions of the transformational grammar tradition within which his early work had been conducted, Langacker proposed a model of language that diverged from the principles of Chomskyan linguistics and was hugely influential in developing the field of Cognitive Linguistics. Owing to subsequent findings in modern linguistics, cognitive science, and psychology that support its claims, Cognitive Grammar (CG) has lost some of its radical image and gained many adherents, but stark contrasts with other branches of contemporary linguistic theory remain.

One is that rather than being an arbitrary set of rules governing what is possible in a language, grammar is of itself meaningful. It is a structured set of assembled patterns, abstracted from our exposure to language and our

conceptual understanding of the world. Acquisition of language units is seen as being dependent on exposure to recurring forms that gradually become entrenched in the mind and then act as templates from which to develop and comprehend further expressions. In the case of second or subsequent languages, entrenched forms from prior learning experience can facilitate or inhibit this process. Similarities between the two languages may aid acquisition, while differences, such as alternative perceptions or varying emphases, will require learners to override what they have previously learned.

In order for entrenchment to occur, it is also claimed that general cognitive functions (i.e. ones that are not solely used to process language) are utilized. Langacker (2008a) lists four such cognitive functions: association, for building connections; automatization, to access knowledge without conscious effort; schematization, to abstract commonalities from exposure to data; and categorization, to organize language according to perceived similarities.

A third divergence from accepted theory is CG's claim that only semantic, phonological and symbolic structures are necessary to describe a language. In other words, CG denies that grammar can be treated as a separate component of language. All language is symbolic; therefore, all language is meaningful (Langacker, 1987).

This chapter will draw on these positions to elaborate some ways in which language can be described and understood using the CG model. Key concepts used to describe language will be presented and examples will be given of how linguistic elements are analysed. In order to demonstrate how CG, a usage-based model of language, describes authentic communication, all example sentences in this chapter have been taken from the Corpus of Contemporary American English (COCA) or the British National Corpus (BNC).

## **2 Key Concepts in Cognitive Grammar**

### **2.1 Representing Language in Symbolic Structures**

In CG, the units of language comprise semantic, phonological and symbolic structures. The semantic structures derive from conceptualizations and are manifested as linguistic meanings. Phonological structures incorporate not only sounds, but also gestures and orthographic representations (Langacker, 2008a). These semantic and phonological structures represent the two poles of the meaning/form link of a symbolic structure.

CG emphasizes the partially compositional nature of language, and makes extensive use of diagrams to represent the combinations and relations between language structures. Figure 2.1.1 details how forms and meanings are combined, with S, P, and  $\Sigma$  signifying semantic, phonological and symbolic structures

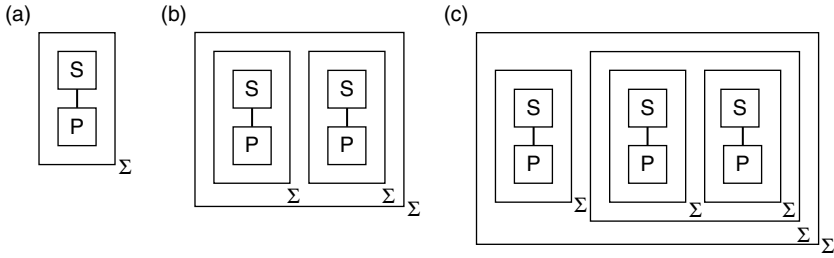


Figure 2.1.1 Combination of symbolic structures

respectively. In the figure, (a) might represent *smoke*, (b) *smoker* (smoke + er), and (c) *non-smoker*.

In this example, increasingly complex lexical items are created through the process of affixation. CG also posits that grammatical constructions can be explained through the same process of composition using the same semantic and phonological structures. The key argument here is that units of language can be graded from the broadly schematic to the highly specific. Lexical items are generally quite specific and are clearly gradable in this manner (e.g. *thing* > *vehicle* > *car* > *Toyota Prius*). It is argued that although grammatical elements tend to be more schematic, they nevertheless possess meaning. Pronouns and prepositions are examples of 'grammatical' elements that maintain relatively specific meanings.

As a corollary of this claim, CG takes the view that instead of being distinct constructs, the lexicon and grammar form a continuum. Evidence for this claim comes partly from multiword units, especially those which contain one or more open 'slots', which pose a problem for linguistic theories that treat lexis and grammar as separate because they can combine specific lexical elements with more schematic grammatical patterning (Moon, 1997). For example, the expression *as I was V-ing* is used as a topic shifter, and *let me start by V-ing* functions as a topic marker (Nattinger and DeCarrico, 1992).

CG takes the view that language contains maximally schematic grammatical elements, highly specific lexis, and multiword units that are both schematic and specific. However, in order to consider how language might be explained symbolically, we must first consider how language caters for different forms of construal.

## 2.2 Construal

One of the tenets of CG is that language is a product of human conceptualization. We are capable of interpreting situations in different ways, and language

offers various ways to convey meaning. In CG, this is referred to as *construal*. Langacker (2008a) gives four classes of construal.

### 2.2.1 Focusing

In order to communicate in an effective, efficient manner, we must decide which elements of our intended message to foreground, and which can remain in the background. One clear example of how this can be achieved is through the use of the passive voice to shift the focus of a message (e.g. *we made mistakes vs mistakes were made*). A similar effect could be obtained by altering the stress on words or syllables to foreground key words, and grammatical ellipsis can be used in discourse to background given information.

Another way to affect the focus of an expression is to alter its *scope*. Scope is defined as ‘the array of content a predication specifically evokes for its characterization’ (Langacker, 1991: 4). In describing a scene in a library, the scope at its narrowest might only include the spine of a single book, but depending on our purpose, it could conceivably be broadened to encompass the whole shelf, an aisle, the fiction section or the building itself.

Scope can be subdivided if we consider *immediate scope* as being that part of an entity which is directly under consideration at present and *maximal scope* as that which falls under the conceptual domain of the entity, but which is not foregrounded at this time. Thus, someone might say:

- (1) *How much did it cost you for the library fine?* [COCA]

In this case, the person’s paying a fine at a library would be considered part of the immediate scope, while the reason for this is a part of the maximal scope; it is left implicit for the hearer to infer.

### 2.2.2 Prominence

Prominence reflects the degree to which something stands out in relation to something else. Two important CG concepts which fall under the domain of prominence are *profiling* and *trajector/landmark alignment*.

While the scope of an expression determines the portion of a scene that is viewed, the profile can be thought of as the particular element in the immediate scope that is the focus of attention. It is the particular referent of that expression. In the phrase *my library books*, the profiled element would be *books*, since the expression refers to books rather than a library. Profiles, which are indicated with a bold line in CG diagrams, can be selected for either *things* or *relationships*, since both can be the focus of an expression. In (2), an owner is profiled chasing the entity which is owned (the dog). Example (3) profiles a pet, giving greater prominence to the animal and its fate than the owner, whose existence must be inferred. Similarly, the state of having a pet implies the involvement

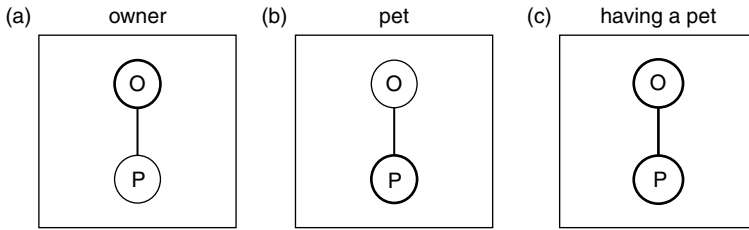


Figure 2.1.2 Profiled things and a relationship

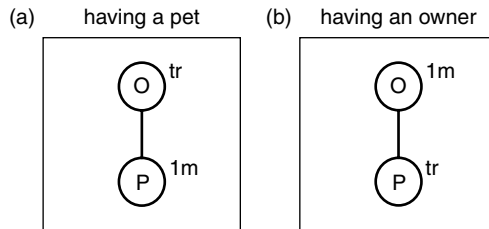


Figure 2.1.3 Profiled relationships with different focuses

of an unstated owner, as shown in (4). These situations are diagrammed in Figure 2.1.2.

- (2) *The owner pursues the dog and eventually catches him.* [BNC]
- (3) *The pet automatically faces death for being unmuzzled in public.* [BNC]
- (4) *Having a pet is a big responsibility.* [COCA]

In the case of profiled relations, the terms *trajector* and *landmark* are useful for distinguishing the primary and secondary focus of the relationship. This is because relationships can have the same profile, yet different focuses, as shown in Figure 2.1.3. Although the same elements are present, the meanings of the expressions in (a) and (b) are different due to their selection of primary and secondary focuses (i.e. their trajectors and landmarks).

### 2.2.3 Specificity

Among the options available to language users is the degree of precision with which we express ourselves. As was stated above, lexis offers a range of items from quite schematic to very specific. However, greater precision can also be achieved through the use of grammatical modification (e.g. *the song* > *the beautiful song* > *the beautiful song you played* > *the beautiful song you played on the piano* > *the beautiful song you played on the piano last night*). This sequence could obviously be further extended, limited only by the contextual details available.

There is a basic level of specificity which is usually sufficient for everyday purposes, but which can be made more specific or schematic as the situation warrants. Langacker (2008b) suggests that the ability to move away from this basic level is one identifying feature of increasing language proficiency.

#### 2.2.4 Perspective

Broadly speaking, perspective can be seen as the *viewing arrangement* of an expression. Langacker (2008a) identifies the situation of a speaker and a hearer being in the same location describing the world around them as the default viewing arrangement, as in (5).

- (5) *Already she was talking about her forthcoming summer holiday plans with Rose.* [BNC]

A point made in CG is that there is a tremendous capacity in human cognition to construe other arrangements (Langacker, 2001). Everyday examples of this are questions, commands or hypothetical situations, but there are further ways in which we can construct a viewing arrangement, as shown in (6–12).

- (6) *It was nice along here, driving down an avenue of oaks.* [COCA]  
(7) *Paxton felt as though the days were flying by . . .* [COCA]  
(8) *I am here in Lafayette, Louisiana tonight.* [COCA]  
(9) *To the north, the land rose slowly from the marshes to Althorne ridge about a mile and a half inland . . .* [BNC]  
(10) *To the south the land fell away, slowly at first then abruptly.* [BNC]  
(11) *Next year will be our 25th anniversary.* [COCA]  
(12) [Father to son] *That's no way to talk to your father. What's got into you?* [BNC]

In (6), *It was nice along here* demonstrates that a scene can be viewed from the path of a viewer's motion. In (7), a period of time is viewed metaphorically as moving past the viewer. Sentence (8) comes from a news broadcast, in which the speaker (presumably a reporter) and the hearer(s) are in different locations, requiring the speaker to establish which of those locations is being described. Sentences (9) and (10) show that directionality plays a role in how a scene can be viewed from different vantage points, with landscape features here being construed metaphorically as moving entities. In (11), the speaker and hearer are positioned in a temporal vantage point – the current year – from which the profiled *next year* is seen as the following item in a series. Finally, there are also cases in which speakers refer to themselves in the third person, placing themselves in a more objective position, as in (12).

When considering perspective, it is helpful to examine the relationship of the speaker and hearer to an expression. In the case of (7), neither the speaker nor hearer is profiled; they are offstage viewers looking on *subjectively*. Paxton, meanwhile, is very much onstage. As a profiled entity, he is being viewed *objectively*. It is not always the case, however, that the speaker and hearer are off-stage. The use of the personal pronouns – as in (8) – can put the speaker or hearer into an objectively viewed position. Also, there are more subtle ways that the interlocutors can be related to an expression. Words such as *here*, *tonight* and *next year* offer a locational or temporal point of reference to the profiled event, so while in (6) the speaker is not viewed completely objectively, neither are they maximally subjective viewers.

This notion, that the speaker and hearer are in some way connected to an expression, is known as *grounding*. The *ground* can be seen as the 'platform' from which the speaker and hearer conceptualize the matter at hand and it encompasses the speech event itself and the time and place of speaking (Langacker, 2008a). The concept of grounding brings us back to the earlier claim about the meaningfulness of language, and that it is non-arbitrary and explicable. Elements that provide grounding, such as articles, determiners, tense markers, and modals, perform an epistemic function, that is, they relate to existence, reality, definiteness or time (Langacker, 2009). It is the combination of epistemic and lexical meanings that offers a full understanding of an expression.

### 3 Grammatical Classes

CG makes the claim that grammatical classes can be defined semantically. While it is conceded that word classes do not directly relate to kinds of entities in a strict sense (e.g. nouns can signify entities other than physical objects), it is argued that grammatical class is not determined by the nature of the entity in question, but by how it is construed by the speaker. Objectively speaking, *parade* describes an action, and as such should only be a verb, but it can be *conceptually reified* as a noun by downplaying those aspects of its content that are process-related and viewing it instead as an abstract thing. Prototypically, nouns are objects and verbs are actions, but each can be viewed more schematically. This brings back the notion of profiling. The profile is that part of the expression which is focused on, and it can be construed in different ways. The conceptualization of *parade* will contain both its interpretation as an action and as a happening, allowing for it to be profiled as a verb in (13) and a noun in (14).

(13) *I parade my men in the surrounding villages a couple of times a year . . .* [COCA]

(14) *The parade of thousands reached the cemetery . . .* [COCA]



As a result, CG adopts highly schematic definitions for its word classes. *Entity* is a general term used for anything that could be described conceptually. Entities are shown as rectangles in CG diagrams, as in Figure 2.1.4. Nouns are defined as expressions that broadly profile *things*. This class includes groupings and abstractions and is symbolized with a circle or an ellipse. Verbs, adjectives, adverbs and prepositions enter the class of *relationships*, since they all depend on more than one entity to express their meanings. Verbs, being processes, are depicted in *temporal* relationships with an arrow showing time and a bold line indicating the scope of the expression. The other relationships are *atemporal*. Figure 2.1.4 demonstrates how CG diagrams can be used to describe parts of speech, using sentence (15) as an example.

(15) *His strong arms gripped me hard and slammed me into the barrels.* [COCA]

In (a), the possessive construction *his arms* is shown, with a conceptualizer C mentally accessing a target T (*arms*) by way of a reference point R (*his*) within a domain D that contains all entities associated with R. Adjectives in CG show relationships between nouns and other entities, with the noun taking the role of trajector. Diagram (b) shows how the trajector *arms* is related to a region in the domain of strength, producing *strong arms*. In (c), the trajector *his strong arms* acts upon the landmark *me* demonstrating the verbal process *his strong arms gripped me*. Adverbs relate entities with other relationships, and (d) shows the verbal process from (c) being related to a region in the domain of pressure, leading to *his strong arms gripped me hard*. Prepositions specify nouns as landmarks, and in (e) the trajector *me* is shown moving *into the barrels*. Finally, (f) demonstrates the use of the conjunction *and* in allowing *his strong arms* to perform the role of trajector in two verbal processes. The dotted lines show the correspondence between *arms* and the trajectors of the two verbal processes.

One further important aspect of grammatical classes is *bounding*. As the name implies, this relates to whether a thing or process is construed as being separated from other entities of the same type by a boundary. Bounding also considers homogeneity (whether the entity is composed entirely of the same substance/process), contractability (whether it can be broken into parts of the same thing/process) and replicability (whether adding more of the entity results in separate entities or more of the same entity). Bounding and replicability are markers of count nouns and perfective (active) verbs, while homogeneity and contractability identify mass nouns and imperfective (stative) verbs.

Figure 2.1.5 shows the CG diagrams for the nouns *pencil* and *wood* and the verbs *cook* and *believe*. In (a), an object (the pencil) is profiled within the immediate scope as a clearly bounded entity. It is neither homogenous, as it contains different materials, nor contractable, as any conceived part of it does

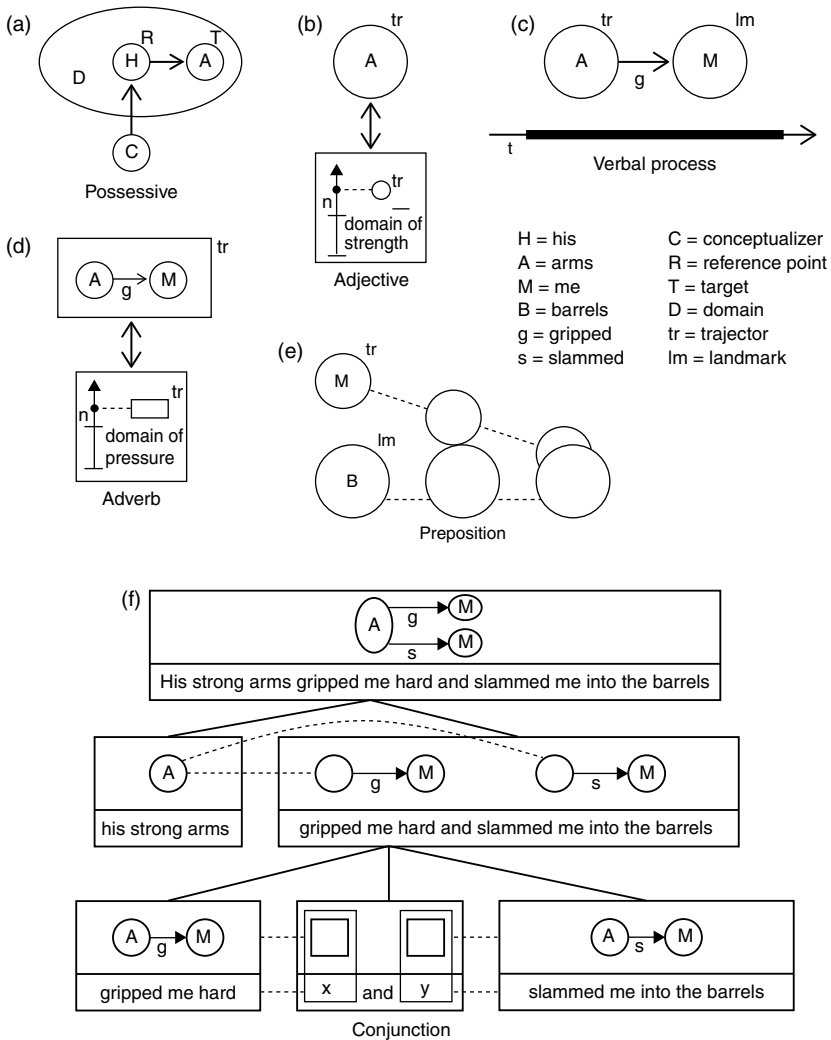


Figure 2.1.4 Word class diagrams

not necessarily constitute a pencil. This can be compared with (b), where the immediate scope falls within the shaded grey area denoting the wood. Thus, the entity is construed as homogenous as it is a uniform substance, contractable because any part of it would also be wood, and unbounded in the sense that its actual bounds lie outside the immediate scope. Langacker (2008a) shows how *lake* differs from *water* in that while both are internally homogenous, a lake is defined by its boundary, and thus *lake* is a count noun.

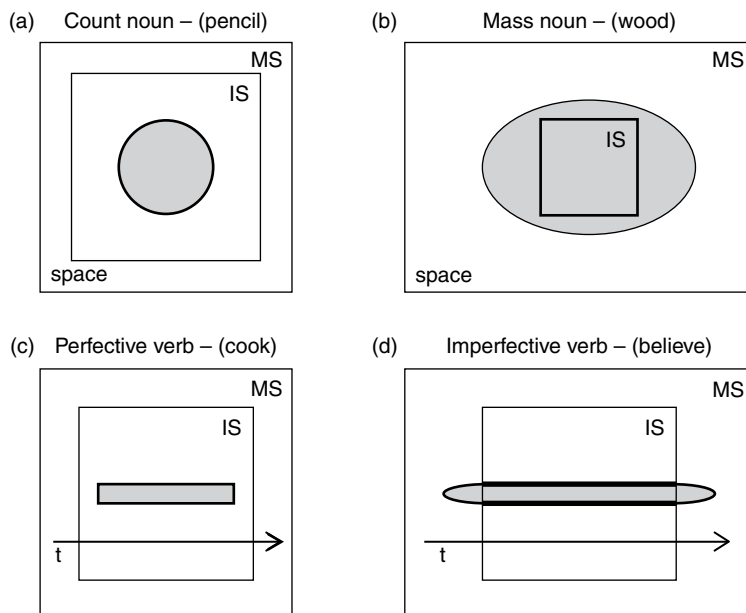


Figure 2.1.5 Bounding diagrams for nouns and verbs

In the previous example, scope was perceived visually, but in the case of verb tenses it can also be used in a temporal fashion. Cooking is seen as a bounded action, so it falls within the immediate scope in (c). Since cooking involves distinct stages, it is construed as neither homogenous nor contractable. Moreover, cooking meals over two consecutive nights would be considered two acts of cooking, so the action is replicable. In the case of *believe*, when used in the present tense, the verb is seen as unbounded, since its onset and conclusion are not considered and hence fall outside the immediate scope in (d). At any point in time within the immediate scope, the believing would still be in effect, as it would if any segment of time were considered, so it is a homogenous and contractable action. Finally, if another act of believing (in the same thing) were added, this would count as continuing the same belief, rather than two separate beliefs, so the action is non-replicable.

However, *cook* can also be construed as unbounded if an immediate scope is imposed which focuses on an internal portion of the bounded event and leaves the inferred bounds to the maximal scope. This imposition of scope on a temporal process demonstrates the effect of the progressive form of a verb, where the addition of *be-ing* to a verb stem in effect foregrounds the event at a particular time and leaves its onset and conclusion implicit, as in (16–17).

The progressive form of *cook* would then be seen as imperfective, and could be diagrammed by 5(d).

- (16) *At the moment Helen is cooking enormous meals for me . . .* [BNC]  
 (17) *Bella was cooking the hare.* [BNC]

Similarly, most nouns are readily construed as either count or mass, this being achieved in CG terms by either restricting the immediate scope to view the entity as an unbounded mass (18), or expanding the scope to view the entity within its bounds (19).

- (18) *Cheese is a food so integrated into the fiber of my being that I can hardly imagine a life without the stuff.* [COCA]  
 (19) *Allen had stolen a cheese and some bread.* [BNC]

#### 4 Syntagmatic Combination

Cognitive Grammar illustrates how individual component structures combine to form the integrated composites of everyday language. The component structures are bound by rules of interaction known as *valence relations*. Langacker describes four factors that govern valence.

*Correspondence* is the identification of shared elements between component and composite structures. CG diagrams use dotted lines to link elements that describe the same entity. *Profiling* explains how the grammatical category of the composite expression is inherited from one of its components. As was shown in Figures 2.1.2 and 2.1.3, bold lines indicate elements acting as profile determinants, or heads, in CG diagrams. *Elaboration* shows the relationships between component structures – how modifiers and complements describe, adapt, or augment the profile determinant, and how components enter into relationships of autonomy and dependence. Arrows are used in CG diagrams to show elaboration, with the head of the arrow pointing towards the elaborating component. Cross-hatching is used to mark the structure that is elaborated. Finally, *constituency* relates to the sequence by which composite structures are formed from their components.

These relations are demonstrated in Figure 2.1.6, in which the formation of the phrase *the fish in the water* is detailed. At the lowest level of the diagram, the noun *water* is bound to the preposition *in* to produce *in the water* (in order to simplify this account we ignore the contribution of the grounding element *the*). This composite form denotes a locational relationship, and hence *in* is marked with a bold line to signify its status as the head, or profile determinant.

A trajector within the boundary of its landmark depicts the conceptualization of *in*. Note the correspondence line identifying the landmark as the entity *water* on the right side of the diagram. Because the preposition is dependent on its object, *the water* can be said to elaborate *in*. In this case, as an autonomous component that elaborates its dependent head, *the water* is known as a complement. The arrow points towards the elaborating entity, and cross-hatching identifies the landmark as the elaborated structure.

At the next level, the noun phrase *the fish* is integrated with the composite *in the water*. The trajector of the prepositional relationship is identified as *the fish*, which also takes over the role of head, as the entire expression denotes a thing, rather than a locational relationship. The head is also an autonomous component, since *the fish* can easily be conceptualized by itself, whereas *in the water* relies on the identification of its trajector to be fully understood. Since it is dependent on its head for full characterization, *in the water* is labelled a modifier. Again, the arrow and cross-hatching indicate elaborating and elaborated elements respectively.

Finally, the expression *the fish in the water* is detailed at the top of the diagram. As a noun phrase, it is shown as an ellipse, with the prepositional relationship detailed inside. Again, the fish is drawn with a bold line as it is the focus, and therefore the profile, of the entire composite. The constituency of the expression can be traced by following the solid lines that connect component elements with composites.

The same relationships described in Figure 2.1.6 can be applied to the formation of lexical items. Figure 2.1.7 details the constituency of the word *non-smoker*. At the lowest level of the diagram, the suffix *-er* is combined with *smoke* to produce *smoker*. *Smoke* is a verbal process in which a human trajector acts on a landmark (a tobacco-derived product) over time. The *-er* box shows a thing (circle) related to an entity (small box), which represents the verbal process. The effect of *-er* is to transform the expression into a noun that conceptualizes the trajector of the process to which it is bound. In other words, *-er* acts as the profile determinant, the component that provides its grammatical category to the composite expression. As such, the circle and the *-er* box are marked with bold lines. A dotted line indicates correspondence between the trajector of the process *smoke* and the circle in the *-er* box.

Although it acts as the head of the expression, *-er* is a conceptually (and phonologically) dependent structure reliant on *smoke* to produce a coherent unit of language. Therefore, *smoke* is elaborating the head, as indicated by the arrow and cross-hatching. As with *the water* above, *smoke* is a complement to *-er*.

Moving up one level in the diagram, the head element *smoker* is now combined with the prefix *non-* to produce *non-smoker*. At this level, *smoker* is the profile determinant, represented by an ellipse since it is a thing, but containing a simplified diagram of the process it has subsumed. With the head now being an autonomous element, the prefix *non-* is classified as a modifier.

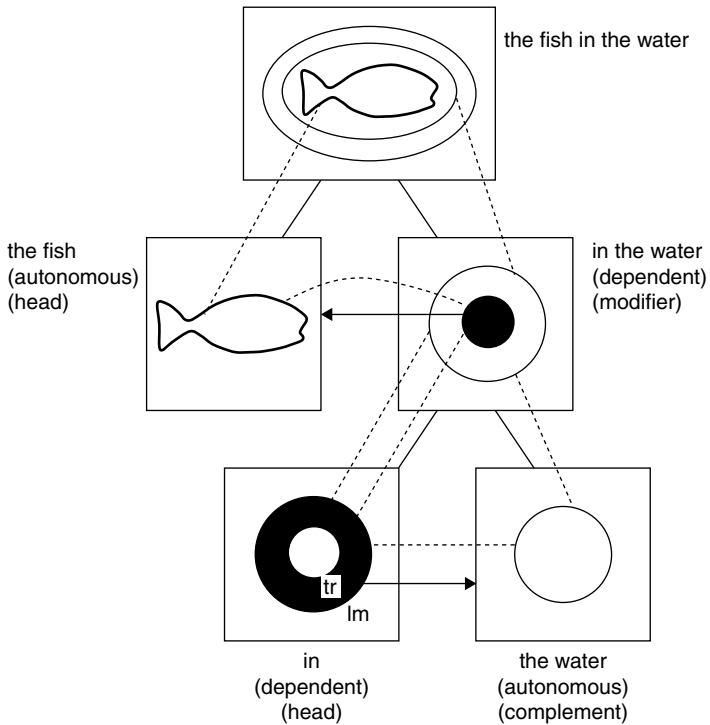


Figure 2.1.6 Valence relations for a noun phrase

At the uppermost level of the diagram, the composite expression *non-smoker* is formed. The effect of *non-* is to negate the process performed, not the individual. Clearly, a non-smoker is still a human being, but one defined by the absence of an activity being performed. The dashed line box, therefore, contains a background conception containing a person (ellipse) demonstrating a process. This background conception is the fictive entity against which *non-* takes its meaning.

That the prefix negates not the profiled element itself but a process subsumed within it may appear slightly anomalous, but this can be accounted for within CG. The word *smoker* is an example of a conceptual reification, in this case from a process to an individual performing the process. When *non-* is integrated with *smoker*, we assign its negation to the process, not the individual. The process within the ellipse is identified as the *active zone* of *smoker* as it relates to the prefix *non-* and is shaded in grey to signify this. Accordingly, the correspondence lines identify *non-* with the process rather than the individual. Thus the entire expression denotes an individual defined by their not partaking in the process of smoking.

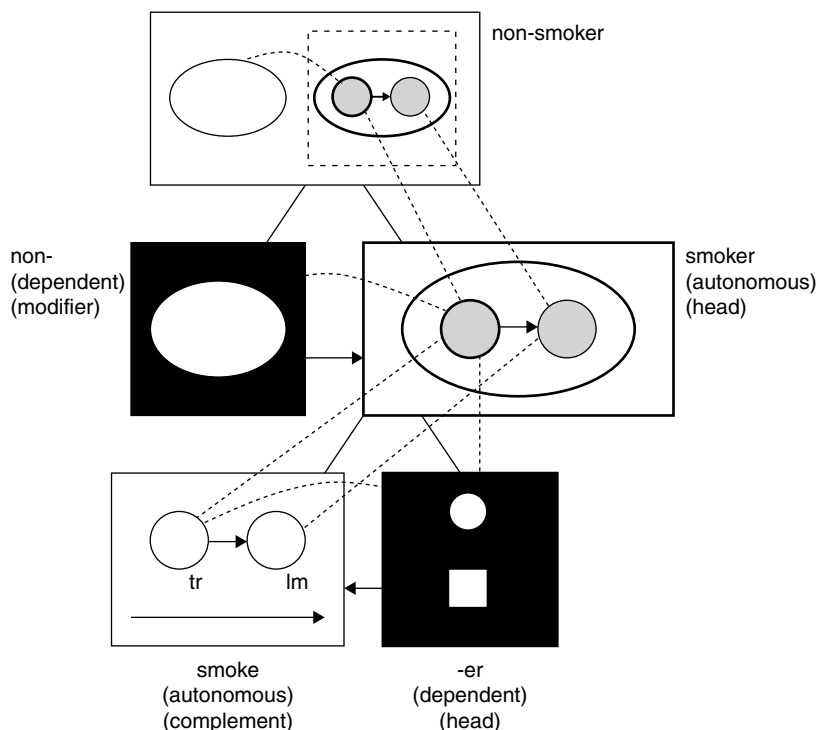


Figure 2.1.7 Valence relations for a noun with affixes

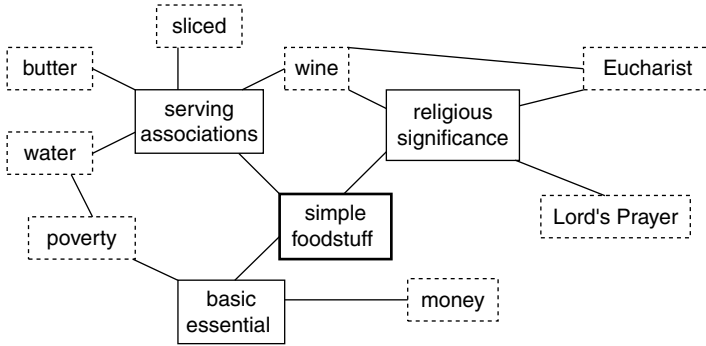
## 5 Conceptual Substrates

CG argues that there is far more to the knowledge of an expression than its explicit meaning. The network of associations, connotations and coherence-forming patterns make up the *conceptual substrate* lying beneath a particular definition. As a product of the situational context, the conceptual substrate is a more fluid notion than can be provided for in a dictionary. This section will describe some ways that the conceptual substrate operates.

### 5.1 Word Knowledge

Consider a word such as *bread*. The immediate conceptualization is of a simple foodstuff, yet with only a little effort it is possible to conceive of several extended meanings that might be sketched out as in Figure 2.1.8.

The prototypical sense is given a bold box. The next ring of boxes (solid lines) are some basic associations that suggest *encyclopaedic knowledge*. Bread

Figure 2.1.8 Word knowledge diagram for *bread*

is often seen as a staple food, it is served in various ways, and it has religious significance. Looking at the outermost items in the diagram (dotted lines), we begin to see how cultural or general knowledge manifests itself through multiword units and idioms (e.g. *bread and water*, *bread and butter*, *put bread on the table*, *our daily bread*, *bread and wine*, *best thing since sliced bread*). The view taken in CG, as in Cognitive Linguistics generally, is that there is no convenient point at which lexical knowledge can be separated from encyclopaedic knowledge, which forms a complex system that is likely unique to each individual (Littlemore, 2009). Langacker (2009) offers a clear demonstration of how encyclopaedic knowledge operates alongside lexical knowledge with cases similar to (20) and (21).

(20) ... *you could see the fish in the water* ... [BNC]

(21) *If you've kept your boat in the water over the winter, you should be cognizant of any water intrusion.* [COCA]

In these cases, the sense of inclusion denoted by *in* is different. It is our encyclopaedic knowledge of fish, boats and water that tells us the fish were most likely fully submerged while the boat was floating on the surface of the water. Of course, either interpretation could be reversed without difficulty if the fish had died and were floating (22) or the boat had suffered some mishap (23).

(22) *Dead fish floating in water discolored by a red tide.* [COCA]

(23) ... *the boat was found in 1986, buried in the lake shore mud* ... [COCA]

What this tells us is that meaning is not constructed in isolation. Each expression relies on a *matrix* of cognitive *domains* for its content. The domains for an expression encompass perceptual information, abstract knowledge (e.g. of



history, purpose or use), and its relations to other entities. From this wealth of information, we are able to communicate successfully by applying our encyclopaedic knowledge to extract the intended meaning of an expression (Langacker, 2008a; Littlemore, 2009). Some information will be considered more central to an expression's content, and some will be more peripheral, although this will vary for individuals. For example, bread's use as a foodstuff is likely to be more central than its role in the Eucharist, especially for non-Christians.

## 5.2 Meaning Construction

Successful communication is dependent on the construction of meaning between interlocutors. It was once the case that literal language was seen as the overriding norm for communication. More recently, however, researchers have recognized the value of *metaphor*, *metonymy* and *implicature* in expressing meaning (Deignan, 2010), as shown in (24–6).

Metaphor lies in the blending of two conceptual domains. The first, the *source domain*, offers a vivid, often concrete, experiential conception that is mapped onto the second domain, the *target*, which is often an abstract quality. In (24), the aggression of a warrior is mapped onto a footballer's playing style. With metonymy, an expression is used as a reference point to a concept or entity to which it itself is related. The example in (25) shows how the White House can be used to invoke the concept of the US government as a whole. In the case of implicature, a meaning is expressed without being directly stated, as in (26).

- (24) . . . *in the Scotland squad were the elegant Manchester United captain Martin Buchan, the toothless warrior Joe Jordan, the mercurial Kenny Dalglish . . .* [BNC]
- (25) *He knows that the White House is loving all of this . . .* [COCA]
- (26) *This time, on this road, the fatal accident might not have been an accident at all.* [COCA]

Non-literal expressions such as these can easily be incorporated into CG, as the semantic relationship between the expression as it is spoken (denoting the source) and the implied meaning can be shown symbolically. Figure 2.1.9 shows how *the White House is loving all of this* can be represented in a CG framework. In the diagram, R is the reference point *the White House*, which is linked to the target T (the US government). The target has been identified from the domain D of possible referents for *the White House*. Dashed arrows show how the target is accessed mentally. This metonymic expression then functions as the trajectory of a relationship in which *all of this* forms the landmark. The verbal process *is loving* has been simplified to a doubled-headed arrow.

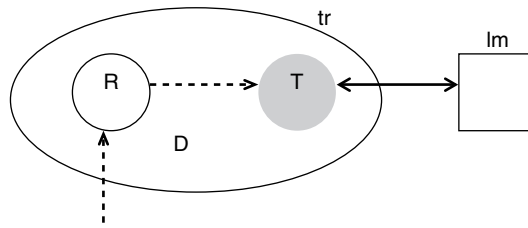


Figure 2.1.9 Metonymic reference

## 6 Linguistic Elements from a CG Perspective

In this final section, two brief explanations will be given of how natural language is explained in CG. Both cases demonstrate key principles of a cognitive view of language: the importance of seeing all language as interrelated, and the necessity of allowing a place for construal in any description of language.

### 6.1 Distributional Classes in CG

While grammatical classes in CG are considered meaningful, there are other classes defined by different principles. Distributional classes are composed of elements that occur in the same constructions; they may share semantic features, but this does not define them.

CG argues that language units are acquired by abstracting from contextualized usage events. Elements that are common enough to be reinforced as a schema will gradually become entrenched, while elements of lesser frequency will be filtered from the language input (Langacker, 2005). Thus, language is constantly in flux, as regular input serves to update, reinforce or contradict emerging schemas. This process will involve both grammatical and lexical elements. Figure 2.1.10 provides an example of how the distributional class for 'species nouns' might intersect with the network for the noun *species*.

The grouping on the left is the species nouns, a group of nouns that enter into patterns similar to quantifiers, but actually perform a classifying function (Biber, Johansson, Leech, Conrad and Finegan, 1999). At the top is the maximally schematic construction, indicating a noun followed by *of* and a noun phrase. The box underneath represents a core meaning linking all cases. The other boxes show more specific examples of this construction, with bold lines indicating more frequent uses. To the right are examples of some constructions with *species*. The construction in the overlapping segment belongs to both networks – it could be viewed as a lexicalized instantiation of the species noun

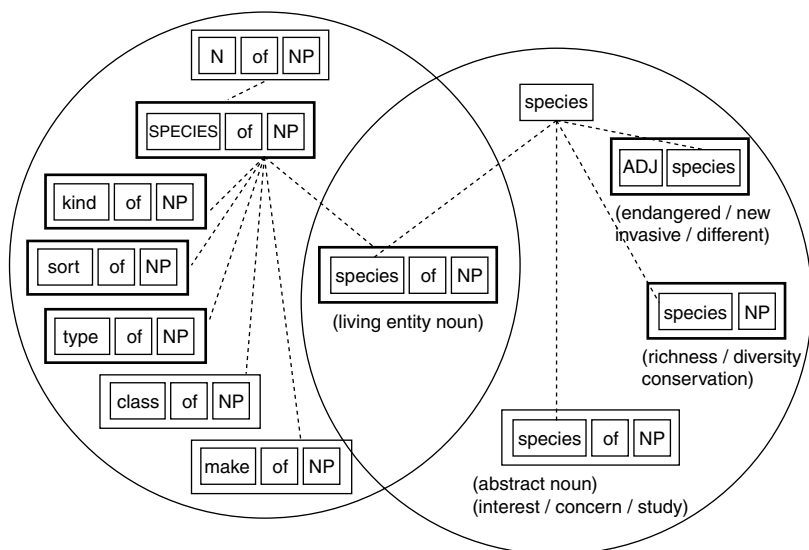


Figure 2.1.10 'Species nouns' and the noun *species*

construction or a grammaticalized pattern containing *species*. On the right are various other common constructions containing *species*.

Here again is evidence of lexicon and grammar interacting: elements traditionally seen as 'grammar' are partially defined by the lexical items they contain. Likewise, the constructions immanent in lexical phrases influence the meanings of lexical items. It is networks such as these that define conventional usage in a language. Some networks are inclusive, allowing great variety of expression, and others have far more restrictive membership, requiring the learning of permitted occurrences. Langacker (2008a) argues that lexemes are partly characterized by 'a set of structural frames representing the constructions [they] occur in', and it is these structural frames that provide the context for learning.

The argument that language is learned by abstraction and that patterning plays a key role in language finds strong support in corpus linguistics (Hoey, 2005) and Cognitive Linguistics more generally. That data from several sub-fields converge on the same point, which is that phraseological constructions are both highly frequent and likely to be crucial in language acquisition, is strong evidence for its validity.

## 6.2 Alternative Viewing Arrangements

In allowing a place for construal, CG offers insights that explain some of the more unusual behaviour in languages. One example is the use of the English

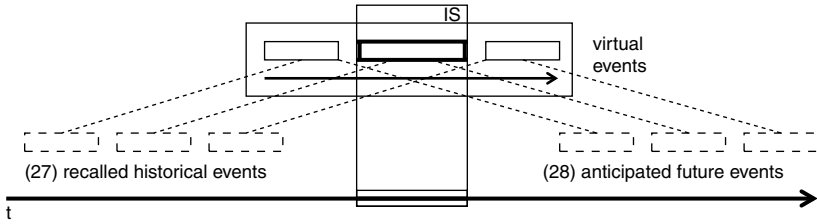


Figure 2.1.11 Virtual document viewing arrangements

present tense for historical, future, habitual, or timeless reference, as exemplified in (27–30).

- (27) . . . *you know, there's been times I leave the show, and I'm walking down Sixth Avenue in a daze, going what did I just talk about?* [COCA]  
 (28) *The next train leaves at six for the eight o'clock ferry.* [BNC]  
 (29) *I leave my heating on during the night because I don't want to get up in a cold flat . . .* [BNC]  
 (30) *HAMLET leaves, dragging the body.* [BNC]

The present tense is not used to describe events in the 'true' present (i.e. right now), except in the cases of imperfective verbs (e.g. *He knows it is true*) and performatives (e.g. *I promise you; I call on the troops not to participate in this coup . . .*), which encode the verbal process at the same time as it occurs. Langacker (2001, 2009) argues, nevertheless, that present tense constructions do indicate present time. Essentially, this is achieved by adopting the *virtual document* viewing arrangement, as shown in Figure 2.1.11. In (27) and (28), the speakers are actually describing virtual representations of events they either recall or foresee. The events are described in current time as they are viewed in this virtual document that exists as a mental construction for the speaker. The situation for (29) and (30) is very similar, except that in (29), the virtual document is based on knowledge of the world and in (30) it is probably a real script.

## 7 Conclusion

This chapter has briefly outlined some of the main aspects of Cognitive Grammar, a work that began over 35 years ago. CG is a description of language as it really is, not of a sanitized textbook language or of an idealized set of rules. By Langacker's own admission, it remains a work in progress, and one of the ways it can be refined is for pedagogical materials incorporating CG principles to be developed so that empirical data can be collected to support or refute its

claims. One text for teachers interested in CG is Radden and Dirven (2007). For readers interested in exploring CG in further detail, the 1987 and 1991 works by Langacker are considered seminal in the field of Cognitive Linguistics, and the 2008a work provides an updated general introduction. Numerous papers have also been compiled to produce the 1999, 2002 and 2009 volumes.

## References

- Biber, D., Johansson, S., Leech, G., Conrad, S. and Finegan, E. (1999). *Longman Grammar of Spoken and Written English*. Harlow: Longman.
- Deignan, A. (2010). The cognitive view of metaphor: Conceptual metaphor theory. In L. Cameron and R. Maslen (Eds), *Metaphor Analysis: Research Practice in Applied Linguistics, Social Sciences and the Humanities*. London: Equinox, pp. 44–56.
- Hoey, M. (2005). *Lexical Priming: A New Theory of Words and Language*. Abingdon: Routledge.
- Langacker, R. W. (1986). An introduction to cognitive grammar. *Cognitive Science*, 10, 1–40.
- (1987). *Foundations of Cognitive Grammar (volume I): Theoretical Prerequisites*. Stanford: Stanford University Press.
- (1991). *Foundations of Cognitive Grammar (Volume II): Descriptive Application*. Stanford: Stanford University Press.
- (1999). *Grammar and Conceptualization*. Berlin: Mouton de Gruyter.
- (2001). Cognitive linguistics, language pedagogy, and the English present tense. In M. Pütz, S. Niemeier and R. Dirven (Eds), *Applied Cognitive Linguistics I: Theory and Language Acquisition*. Berlin: Mouton de Gruyter, pp. 3–39.
- (2002). *Concept, Image, and Symbol: The Cognitive Basis of Grammar (2nd edition)*. Berlin: Mouton de Gruyter.
- (2005). Construction grammars: Cognitive, radical, and less so. In F. J. Ruiz de Mendoza Ibáñez and M. Sandra Peña Cervel (Eds), *Cognitive Linguistics: Internal Dynamics and Interdisciplinary Interaction*. Berlin: Mouton de Gruyter, pp. 101–59.
- (2008a). *Cognitive Grammar: A Basic Introduction*. Oxford: Oxford University Press.
- (2008b). Cognitive grammar as a basis for language instruction. In P. Robinson and N. C. Ellis (Eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*. New York: Routledge, pp. 66–88.
- (2009). *Investigations in Cognitive Grammar*. Berlin: Mouton de Gruyter.
- Littlemore, J. (2009). *Applying Cognitive Linguistics to Second Language Learning and Teaching*. Basingstoke: Palgrave Macmillan.
- Moon, R. (1997). Vocabulary connections: Multi-word items in English. In N. Schmitt and M. McCarthy (Eds), *Vocabulary: Description, Acquisition and Pedagogy*. Cambridge: Cambridge University Press, pp. 40–63.
- Nattinger, J. R. and DeCarrico, J. S. (1992). *Lexical Phrases and Language Teaching*. Oxford: Oxford University Press.
- Radden, G. and Dirven, R. (2007). *Cognitive Linguistics in Practice (Volume 2): Cognitive English Grammar*. Amsterdam: John Benjamins.

# 2.2 Lakoff and the Theory of Conceptual Metaphor

*Dennis Tay*

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## 1 Background

As with many linguists of his generation (at least, in North America), Lakoff's early career was under the spell of the revolutionary ideas of Noam Chomsky. By the 1970s, however, a rift had opened up between those who adhered to what Chomsky referred to as the 'Standard Theory' of transformational-generative grammar, and those who espoused an even more radically 'transformationalist' approach, an approach which came to be known as generative semantics. (A detailed account of the bitter disputes can be found in Randy Harris's aptly named volume, *The Linguistics Wars*.)

The terms of the controversy can be simply illustrated with reference to the contrast between an active sentence, its passive counterpart and its nominalization:

The enemy destroyed the city.  
The city was destroyed by the enemy.  
The enemy's destruction of the city.

The three expressions share a common conceptual substrate, which the generative semanticists sought to capture by means of a common underlying structure. At first glance, this seems reasonable enough. However, on closer examination, a number of problems arise. First, do we in general want to say that expressions which are (roughly) synonymous, even though they might differ very considerably in their wordings, always share a common semantic structure? (Generative semanticists tended to answer in the affirmative.) Second, how is this shared semantic content to be represented? What are its elements, and how are they structured? (The preferred solution involved the formalism of propositional logic.) Third, how do we get from the proposed underlying semantic representation to the surface form of an expression? Given the format of the underlying semantic structure, along with the fact that (roughly) synonymous expressions may differ greatly in their surface organization, it was necessary to postulate a raft of transformations, with the power to delete, to insert, to modify and to reorder elements. These operations were largely ad hoc and item-specific, and subject to very few constraints on their application. Chomsky, in his influential 1970 paper, 'Remarks on nominalization', put paid to these excesses, pointing out, among other things, that nominalizations, such as *destruction*, have a range of idiosyncratic properties – morphological, semantic and syntactic – which need to be specified at the level of the individual lexical item, not with reference to some supposed transformational history. For one thing, there are half a dozen nominalizing suffixes in English, some more frequently used than others, but all of which show restrictions with regard to the stems to which they attach. Largely as a consequence of Chomsky's trenchant criticisms, the generative semantics movement, as a model for grammatical organization, eventually went out of favour, weighed down by its internal problematics.

Even so, we can still perceive traces of the generative semantics programme in Lakoff's subsequent work, namely, in its search for the semantic and conceptual underpinnings of linguistic structures. We first address his work on categorization, with the rest of the chapter presenting an overview of what is arguably his most salient contribution to Cognitive Linguistics to date – the contemporary theory of metaphor.

## **2 Categorization**

A seminal paper is Lakoff (1982). This essay can be seen as a preliminary draft of *Woman, Fire, and Dangerous Things* (1987), a monograph which delivered a multipronged critique of 'objectivist' semantics and of the syntactic theories which underpinned it. Several themes can be highlighted.

First – and as already mentioned in the Introduction to this volume – Lakoff explores the implications for linguistic semantics of the notion of prototype category, which had been investigated by his colleague at Berkeley, the psychologist Eleanor Rosch. Lakoff took the notion of graded category structure far beyond anything that Rosch had envisaged in her empirical work. Take, for example, the title of the volume, an allusion to one of the four noun classes (or ‘genders’) of the Australian language, Dyrirbal. By analogy with the names given to the noun classes in European languages, these can be labelled the ‘masculine’, ‘feminine’, ‘non-animal food’ and ‘everything else’ classes. Things get assimilated to these classes by chains of association, often involving myth and cultural beliefs. Thus, ‘fire’ is in the feminine class, not because women are ‘firey’ or because fires are ‘womanly’, but because fire is associated with the sun, and the sun, in myth, is female. It is not the case, therefore, that all members of the class need to share a common feature. It is worth mentioning, by the way, that Lakoff’s account has not gone unchallenged; Mylne (1995) offers what he claims is a culturally more authentic account of the Dyrirbal data. Even so, Lakoff’s account has emblematic status as an attempt to motivate, via theories of categorization, a set of seemingly arbitrary linguistic facts.

A second important theme is the role of background (or encyclopaedic) knowledge in the specification of concepts. Taking up one of Fillmore’s (1982) examples, Lakoff argues that the concept ‘bachelor’ cannot be adequately defined as ‘unmarried adult male’. Rather, the concept needs to be understood against an Idealized Cognitive Model (ICM) of marriage practices in a society. One aspect is that people are supposed to marry, within a broadly defined age-range. Men who do not do so are ‘bachelors’. The model is ‘idealized’ in that it does not cover all cases in society; it does not, for example, cover Catholic priests. It is for this reason that it would be odd to refer to the Pope as a bachelor. The prototype effects associated with the bachelor concept (whereby some individuals are ‘better’ examples of the category than others) are therefore not to be explained in terms of assemblies of semantic features; rather, they derive from the degree of ‘fit’ between an individual’s circumstances and the ICM.

We have already mentioned in the Introduction the importance of Lakoff’s extension of the prototype notion to accounts of lexical polysemy. The basic insight is that the various uses of a word like English *over* cannot be brought under a single, unitary lexical representation. The *tour de force* of the 1987 volume, however, must be the 120 page-long account of the two dozen or so uses of English *there*. It is not so much that *there* is polysemous; rather, the word features in a range of distinct, though related constructions, each with its own structural, semantic and pragmatic (and even phonological and, in some cases, gestural) properties. (Consider, for example, the raised forefinger which might



accompany the Perceptual Deictic, as in *There's the bell!*: 511.) The account constitutes one of the earliest, and most systemically pursued justifications of the notion of construction in the cognitive linguistics literature.

### **3 The Contemporary Theory of Metaphor**

A fundamental premise of the cognitive linguistics paradigm is that the structuring and organization of language reflect the structuring and organization of cognition. Cognitive linguists have characteristically built upon this premise in two ways. First, knowledge about the nature of human cognition from neighbouring disciplines such as cognitive psychology has been applied to explain various aspects of language structure and use. Second, hypotheses about human cognition have in return been made based on observations of language structure and use. It is apparent that Lakoff (1987) made a significant contribution to the first approach by applying insights from cognitive psychology to explain semantic and syntactic phenomena in various domains of language. Nevertheless, Lakoff's contribution to the second approach has arguably been even more significant, as seen from the impact, development, and proliferation of responses to what he and Mark Johnson called the *Contemporary Theory of Metaphor*, or *Conceptual Metaphor Theory* (CMT).

The foundations and development of CMT are best represented by three hallmark publications, amidst other intermittent commentaries, applications and analyses. These are the seminal *Metaphors We Live By* (Lakoff and Johnson, 1980), *The Contemporary Theory of Metaphor* (Lakoff, 1993) and *Philosophy in the Flesh* (Lakoff and Johnson, 1999). CMT's basic characterization of metaphor is at first glance similar to received wisdom in philosophy and literary studies, and perhaps even a matter of common knowledge. Metaphors are essentially where one thing is described in terms of another thing for rhetorical effect. However, this is as far as the similarity goes. CMT, positioning itself as 'contemporary', 'conceptual', and a major pillar of the cognitive linguistics paradigm, proceeds to argue for the relationship between linguistic metaphors and human cognition. The foundational arguments of CMT can be summarized and termed the *conventionality argument*, the *conceptual structure argument*, and the *embodiment argument*, briefly explained below.

- **The conventionality argument**

Metaphors are not limited to being used in instances of creative writing and speaking (e.g. poetry). Instead, they are pervasively and routinely used in everyday language, and this is likely to be the case for most if not all human languages.

- **The conceptual structure argument**

Metaphor is not just a linguistic phenomenon. Instead, linguistic metaphors reflect how concepts are organized in our minds. We not only *describe*, but also *understand* one thing in terms of another by transferring, or 'mapping' knowledge about one concept (the 'source concept') to another (the 'target concept'). Since a large part of language is metaphoric, as per the conventionality argument, it follows that our conceptual knowledge is also largely metaphoric.

- **The embodiment argument**

According to CMT, source concepts are often experientially concrete and possess some kind of 'bodily basis' (Johnson, 1987), while target concepts are often abstract and cannot be directly experienced or perceived. Since many of our concepts are metaphoric, as per the conceptual structure argument, our conceptual understanding turns out to depend crucially on the nature of our bodies and the physical environment in which they function. The study of the bodily basis of cognition is broadly termed *embodied cognition* (Anderson, 2003), and is keenly discussed in psychology, philosophy and cognitive science.

There is room here for only a brief discussion of stock examples, and readers are urged to consult the mentioned references for a more comprehensive appreciation of these key arguments. Consider English expressions such as *he has come a long way in life*, *this is my ticket to success*, and *we are fellow travellers in the journey of life*. The conventionality argument is made on the basis that such expressions, although metaphoric, are routinely used and understood, and seem to have roughly equivalent counterparts in many languages (see Yu, 1998 for the case of Mandarin Chinese). Furthermore, they converge semantically and thus suggest a tendency to describe aspects of 'life' with the terminology of 'journeys' (e.g. *a long way*, *ticket*, *travellers*). It moreover appears to be very difficult to understand and convey these points about 'life' *without* using metaphor, an observation which, together with a series of psycholinguistic experiments (e.g. Nayak and Gibbs, 1990), lends support to the conceptual structure argument. Lakoff and associates suggest that our conception of the world is structured by numerous such metaphoric associations, other frequently discussed examples being the metaphor of time as space, quantity as verticality, anger as heat and so on. Last but not least, with reference to the embodiment argument, source concepts such as journeys, space, and verticality involve experientially concrete notions such as paths, movement, and physical locations, which provide the inferential logic for understanding their abstract counterparts. For example, the logic underlying the idea of 'passing through' different 'stages' in life is grounded

upon the actual physical experience of moving from one place to another via a number of intermediate locations.

#### **4 Literary, Philosophical, Mathematical and Political Forays**

The arguments above, if taken seriously, have significant practical and theoretical implications which Lakoff and associates have elaborated in a subsequent series of cross-disciplinary forays. If we accept the claim that metaphors reveal how our conceptual systems are structured and embodied, the natural question is how this would relate to virtually any domain of human knowledge. An early foray into the domain of literature with *More Than Cool Reason* (Lakoff and Turner, 1989) was most foreseeable given that CMT would make us ponder the place of 'poetic metaphors' alongside the bulk of 'conventional metaphors' which supposedly pervade everyday language and thought. Along the lines of CMT, Lakoff and Turner demonstrate in *More Than Cool Reason* that metaphors used to conceptualize notions such as life, death, and the great chain of being in the Western literary tradition might appear extraordinarily complex, but are in fact traceable to the same underlying mappings which structure everyday language and thought. This implies that creating, interpreting and appreciating literary metaphors involve the same cognitive processes and mappings which structure our conventional understanding of the world.

The successful treatment of the domain of Western literary concepts augured productive days ahead for CMT. In collaboration with Mark Johnson, Lakoff's next major work, *Philosophy in the Flesh* (Lakoff and Johnson, 1999), attempts to extend the scope of CMT's arguments to a large slice of the Western philosophical tradition itself. Surveying a broad range of fundamental philosophical concepts such as causation, temporality and the 'self', Lakoff and Johnson provocatively challenge the validity of their traditional characterizations by Western philosophers. First, they demonstrate how linguistic expressions used to describe notions like time and causation are typically metaphoric, which according to CMT suggests that the way we conceptualize these notions is also metaphoric. Everyday expressions such as *the week flew by* and *Christmas is approaching*, for example, imply that temporality is conceptualized as spatial movement (see Part II of Lakoff and Johnson, 1999, for more examples from other target notions). Lakoff and Johnson use such examples to problematize the traditional view that there is one objectively correct and 'literal' characterization of time, causation, etc. which is independent of and transcendental to our understanding of it. They point out, however, that this does not imply a relativistic, anything goes situation where one set of metaphors can be arbitrarily substituted with another set to yield a different conception of these fundamental notions. Because such metaphors are *embodied* in the sense of the

embodiment argument outlined above, the way we conceptualize these notions is motivated and constrained by the nature of our bodies and bodily interactions with the world. From an evolutionary perspective, this further suggests that our understanding of these fundamental notions, though inexorably metaphoric and hence not strictly 'objective', is nonetheless naturalistic and adaptive – a situation Lakoff and Johnson refer to as 'embodied realism'. Shortly after *Philosophy in the Flesh*, in the equally ambitious *Where Mathematics Comes From*, Lakoff and Rafael Núñez (2000) once again extend the same line of argument to the non-verbal domain of mathematical concepts. They argue that mathematical reasoning, long thought to be abstract, symbolic, and objectively descriptive of the logical structure of the universe, also turns out to be reducible to metaphors grounded upon human embodiment. Some fundamental 'grounding metaphors' of mathematics include the conceptualization of arithmetic as object collection or object construction, the 'measuring stick' metaphor, and the idea of arithmetic as moving along a path (Lakoff and Núñez, 2000: 50–76), all of which derive from aspects of basic bodily experience. Based on further analyses of mathematical concepts such as set theory, algebra, the notion of infinity and trigonometry, Lakoff and Núñez boldly assert that the notion of a literal, transcendental and objectively correct characterization of the universe is misplaced. Instead, the prevalence of embodied metaphors suggests that philosophical and mathematical truths, insofar as they are human attempts to characterize the universe, must ultimately be constrained by our embodied capacities.

Even as Lakoff and associates focus a large part of their work on explaining the embodied origins of conceptual metaphors, questions about the social effects of metaphors are just as pertinent. How, for instance, might metaphors shape human attitudes, beliefs and ultimately action in our social worlds? Lakoff provides some answers in his analyses of the metaphors ostensibly underlying and shaping American political values and policies.<sup>1</sup> In *Moral Politics: What Conservatives Know that Liberals Don't* (Lakoff, 1996), released in a second edition with a different subtitle in 2002, Lakoff characterizes 'liberals' and 'conservatives' along the two ends of the American political spectrum, and argues that their different worldviews result from how they metaphorically conceptualize America in different ways. While both camps view the nation as a metaphorical family, the liberals conceptualize the ideal family as having a 'nurturant parent', while the conservatives believe in the necessity of a 'strict father'. Crucially, Lakoff attempts to show that these metaphors are not merely ways to label ideological differences, but exert persistent and tangible influence on economic, environmental, healthcare, foreign relations and other such policies. A series of subsequent experimental studies have lent evidence to the idea that metaphors play a role in influencing social behaviours and judgements in domains such as emotion, desire and temporal perception (Boroditsky, 2000; Harmon-Jones, Gable and Price, 2011; Thibodeau and Boroditsky, 2013; Williams and Bargh,

2008; Zhong and Leonardelli, 2008). In sum, Lakoff has been instrumental in charting and inspiring research directions which collectively aim to show that conceptual metaphors arise due to our bodily makeup, manifest themselves both linguistically and non-linguistically, and shape our thoughts, language, values, beliefs and actions.

## **5 Influences and Criticisms**

The influence of CMT is apparent from the vast number of studies exploring its implications and applications. One obvious productive route has been to search for and document conceptual metaphors in languages other than English, including sign language (Kövecses, 2005; Taub, 2010; Yu, 1998), as well as non-linguistic instantiations of conceptual metaphors in visual images (Forceville and Urios-Aparisi, 2009). Another approach has been to probe the conceptual metaphors underlying a whole range of discourses and knowledge systems such as economics (Herrera-Soler and White, 2012), religious and philosophical ideas (Slingerland, 2004), and intellectual history (Shogimen, 2008), just to name a few. On the applied frontier, the facilitating role of conceptual metaphors for activities such as classroom teaching (Cameron, 2003) and psychotherapy (Tay, 2013, this volume) has also been explored.

However, the at times far-reaching claims of CMT have invited their fair share of criticisms which range from healthy scepticism to outright rejection. Perhaps the most fundamental criticism concerns the circularity inherent in regarding linguistic metaphors as both evidence for, and outputs of, conceptual metaphors (McGlone, 2001). In addition, critics take issue with the 'experientialist' philosophy which underlies CMT (Haser, 2005; Rakova, 2002), corpus linguists criticize CMT for relying on introspectively generated examples rather than examples from real-life text and talk (Deignan, 2008; Zanutto, Cameron and Cavalcanti, 2008), anthropologists believe that the role of conceptual metaphors in constructing cultural understandings is exaggerated (Howe, 2008; Quinn, 1991), while some psychologists doubt the psychological reality of conceptual metaphors in the first place (McGlone, 2007; Murphy, 1996, 1997). Lakoff's factual understanding of some philosophical and mathematical concepts which he has used to illustrate the workings of CMT has also been shown to be simply wrong (Anderson, 2003; Auslander, 2001; Voorhees, 2004). Discourse analysts who welcome the application of CMT to their discipline have nonetheless also pointed out that the cognitive dimension of metaphor has to be balanced with a consideration of communicative and contextual factors in metaphor use (Steen, 2011). Readers can refer to Ruiz de Mendoza Ibáñez and Pérez Hernández (2011) for a spirited defense against most of these criticisms.

## 6 New Directions: Neural Theories of Thought, Language and Metaphor

In recent years, Lakoff and associates, most notably Jerome Feldman, have advanced what they call the *Neural Theory of Thought and Language* (NTTL) (Feldman, 2006; Lakoff, 2009, 2012). NTTL draws upon contemporary neuroscientific findings to characterize language and thought processes, including metaphorical thought, in terms of what actually goes on in the physical brain. Implicitly acknowledging the validity of past criticisms of CMT, Lakoff argues that NTTL is now able to provide empirical explanations for phenomena such as the embodiment, processing and contextual properties of conceptual metaphors. The general idea is that metaphors are realized in the form of neural circuits which are activated, inhibited and mutually interacting. Even as NTTL preserves the integrity of CMT's founding claims (i.e. the conventionality, conceptual structure, and embodiment arguments) and places them upon a new neuroscientific basis, the original maxim that we 'live by' metaphor (Lakoff and Johnson, 1980) can only be strengthened if its neural basis can be successfully established. Much remains to be seen as NTTL is still in its infancy.

## 7 Conclusion

George Lakoff has made, and continues to make immense contributions to Cognitive Linguistics with his work on categorization and metaphor, his budding research on the neural theory of language, and the multifaceted and cross-disciplinary research and applications he has inspired. In particular, the contemporary theory of metaphor, and the continued iterations of criticism, refinement, and application it has undergone, will continue to be recognized as a major pillar of Cognitive Linguistics for a long time to come.

## Note

1. It should be noted that Lakoff is personally invested in political affairs, as seen from the concluding sections of *Moral Politics*, a series of his later works (Lakoff, 2004, 2006, 2008; Lakoff and Wehling, 2012), and his founding of the Rockridge Institute think-tank, which reveal his preference for progressive values.

## References

- Anderson, M. (2003). Embodied cognition: A field guide. *Artificial Intelligence*, 149, 91–130.  
Auslander, J. (2001). Embodied mathematics. *American Scientist*, 89, 366–7.

- Boroditsky, L. (2000). Metaphoric structuring: Understanding time through spatial metaphors. *Cognition*, 75, 1–28.
- Cameron, L. (2003). *Metaphor in Educational Discourse*. London: Continuum.
- Chomsky, N. (1970). Remarks on nominalization. In R. Jakobs and P. Rosenbaum (Eds), *Readings in English Transformational Grammar*. Waltham, MA: Ginn, pp. 182–221.
- Deignan, A. (2008). Corpus linguistics and metaphor. In R. W. Gibbs (Ed.), *The Cambridge Handbook of Metaphor and Thought*. Cambridge: Cambridge University Press, pp. 280–94.
- Feldman, G. (2006). *From Molecule to Metaphor: A Neural Theory of Language*. Cambridge, MA: MIT Press.
- Fillmore, C. (1982). Towards a descriptive framework for spatial deixis. In R. J. Jarvella and W. Klein (Eds), *Speech, Place, and Action: Studies in Deixis and Related Topics*. London: John Wiley, pp. 31–59.
- Forceville, C. and Urios-Aparisi, E. (Eds) (2009). *Multimodal Metaphor*. Berlin and New York: Mouton de Gruyter.
- Grady, J. (1997). *Foundations of Meaning: Primary Metaphors and Primary Scenes*. PhD Dissertation, University of California, Berkeley.
- Harmon-Jones, E., Gable, P. A. and Price, T. F. (2011). Leaning embodies desire: Evidence that leaning forward increases relative left frontal cortical activation to appetitive stimuli. *Biological Psychology*, 87(2), 311–13.
- Harris, R. (1993). *The Linguistics Wars*. New York: Oxford University Press.
- Haser, V. (2005). *Metaphor, Metonymy, and Experientialist Philosophy. Challenging Cognitive Semantics*. Berlin and New York: Mouton de Gruyter.
- Herrera-Soler, H. and White, M. (Eds) (2012). *Metaphor and Mills, Figurative Language in Business and Economics*. Berlin and New York: Mouton de Gruyter.
- Howe, J. (2008). Argument is argument: An essay on conceptual metaphor and verbal dispute. *Metaphor and Symbol*, 23(1), 1–23.
- Johnson, M. (1987). *The Body in the Mind: The Bodily Basis of Meaning, Imagination and Reason*. Chicago: University of Chicago Press.
- Kövecses, Z. (2005). *Metaphor in Culture: Universality and Variation*. Cambridge: Cambridge University Press.
- Lakoff, G. (1982). *Categories and Cognitive Models*. Cognitive Science Program, University of California, Berkeley.
- (1987). *Women, Fire and Dangerous Things: What Categories Reveal About the Mind*. Chicago and London: University of Chicago Press.
- (1993). The contemporary theory of metaphor. In A. Ortony (Ed.), *Metaphor and Thought* (2nd ed.). Cambridge: Cambridge University Press, pp. 202–51.
- (1996). *Moral Politics: What Conservatives Know that Liberals Don't*. Chicago: University of Chicago Press.
- (2004). *Don't Think of an Elephant! Know Your Values and Frame the Debate*. Vermont: Chelsea Green.
- (2006). *Whose Freedom? The Battle over America's Most Important Idea*. New York: Farrar, Straus and Giroux.
- (2008). *The Political Mind: Why You Can't Understand 21st-Century American Politics with an 18th-Century Brain*. New York: Viking.
- (2009). *The Neural Theory of Metaphor*. University of California at Berkeley.
- (2012). Explaining embodied cognition results. *Topics in Cognitive Science*, 4(4), 773–85.
- Lakoff, G. and Johnson, M. (1980). *Metaphors We Live By*. Chicago: University of Chicago Press.
- (1999). *Philosophy in the Flesh: The Embodied Mind and Its Challenges to Western Thought*. New York: Basic Books.

- Lakoff, G. and Núñez, R. (2000). *Where Mathematics Comes From: How the Embodied Mind Brings Mathematics into Being*. New York: Basic Books.
- Lakoff, G. and Turner, M. (1989). *More Than Cool Reason: A Field Guide to Poetic Metaphor*. Chicago: University of Chicago Press.
- Lakoff, G. and Wehling, E. (2012). *The Little Blue Book: The Essential Guide to Thinking and Talking Democratic*. New York: Free Press.
- McGlone, M. S. (2001). Concepts as metaphors. In S. Glucksberg (Ed.), *Understanding Figurative Language: From Metaphors to Idioms*. Oxford: Oxford University Press, pp. 90–107.
- (2007). What is the explanatory value of a conceptual metaphor? *Language & Communication*, 27, 109–26.
- Murphy, G. L. (1996). On metaphoric representation. *Cognition*, 60, 173–204.
- (1997). Reasons to doubt the present evidence for metaphoric representation. *Cognition*, 62, 99–108.
- Mylne, T. (1995). Grammatical category and world view: Western colonization of the Dyrirbal language. *Cognitive Linguistics*, 6, 379–404.
- Nayak, N. P. and Gibbs, R. W. (1990). Conceptual knowledge in the interpretation of idioms. *Journal of Experimental Psychology: General*, 119(3), 315–30.
- Rakova, M. (2002). The philosophy of embodied realism: A high price to pay? *Cognitive Linguistics*, 13(3), 215–44.
- Ruiz de Mendoza Ibáñez, F. J. and Pérez Hernández, L. (2011). The contemporary theory of metaphor: Myths, developments and challenges. *Metaphor and Symbol*, 26(3), 161–85.
- Shogimen, T. (2008). Treating the body politic: The medical metaphor of political rule in late medieval Europe and Tokugawa Japan. *The Review of Politics*, 70(01), 77–104.
- Slingerland, E. (2004). Conceptions of the self in the Zhuangzi: Conceptual metaphor analysis and comparative thought. *Philosophy East and West*, 54, 322–42.
- Steen, G. J. (2011). The contemporary theory of metaphor – now new and improved! *Review of Cognitive Linguistics*, 9(1), 26–64.
- Tay, D. (2013). *Metaphor in Psychotherapy: A Descriptive and Prescriptive Analysis*. Amsterdam and Philadelphia: John Benjamins.
- Thibodeau, P. and Boroditsky, L. (2013). Natural language metaphors covertly influence reasoning. *PloS one*, 8(1), 1–7.
- Voorhees, B. (2004). Embodied mathematics. Comments on Lakoff and Núñez. *Journal of Consciousness Studies*, 11(9), 83–8.
- Williams, L. E. and Bargh, J. A. (2008). Experiencing physical warmth promotes interpersonal warmth. *Science*, 322(5901), 606–7.
- Yu, N. (1998). *The Contemporary Theory of Metaphor: A Perspective from Chinese*. Amsterdam and Philadelphia: John Benjamins.
- Zanotto, M. S., Cameron, L. and Cavalcanti, M. C. (Eds) (2008). *Confronting Metaphor in Use: An Applied Linguistic Approach*. Amsterdam and Philadelphia: John Benjamins.
- Zhong, C.-B. and Leonardelli, G. J. (2008). Cold and lonely: Does social exclusion literally feel cold? *Psychological Science*, 19(9), 838–42.



# 2.3 Goldberg's Construction Grammar

*Kris Ramonda*

## Chapter Overview

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### 1 Introduction

How is meaning transmitted through language? Perhaps the most salient marker of semantic information is the words themselves. However, the words alone do not account for the wide range of semantic meaning conveyed in a language. Syntactic organization can encode semantic information as well, in that the way in which words are arranged can impact the meaning of a phrase, independent of the individual words themselves. In fact, as a general principle, any change in syntactic form will entail, to a greater or lesser degree, a difference in meaning (Bolinger, 1968). This is Principle of No Synonymy of Grammatical Forms (Givón, 1985; Langacker, 1985), and it lies behind the development of Construction Grammar. Consider the following examples from Fillmore (1968: 49):

- (1) Bees are swarming in the garden.
- (2) The garden is swarming with bees.

Although very similar in meaning, (1) suggests that bees are limited to one area of the garden, while (2) gives the impression that the entire garden is full of bees. These differences derive from the fact that (2) is a statement about the garden (and, by implication, all of it), while (1) is about bees, and where they are located.

Let us now turn to a case in which the same verb occurs in a typical and an atypical usage (Goldberg, 1995: 29):

- (3) Sam sneezed.
- (4) Sam sneezed the napkin off the table.

In (3), the verb *sneeze* appears in its typical form as an intransitive verb, whereas in (4) we see a more marked, yet still plausible phrase in which *sneeze* takes a direct object in a caused motion construction. This less frequent use of the verb requires an 'imaginative interpretation' (Tomasello, 1998) in which the normally intransitive verb *sneeze* takes on a transitive quality. Although an atypical usage, it is not difficult to imagine a sneeze leading to the displacement of a napkin. The key point here is since the typical usage of the verb *sneeze* is as an intransitive verb, consideration of the verb alone could not predict its semantic value in the caused motion construction. It must therefore be assumed that the semantic notion of motion comes from the argument structure construction itself (Sub V Obj Obl). A defining feature of a construction, then, lies in the fact that the meanings associated with it cannot be fully derived from the meanings of its constituents, whether these be words, morphemes or phrases (Goldberg, 1995). It should be noted that constructions can present themselves in varying sizes and complexities, ranging from full sentence configurations (as in the above case of the caused motion construction), through phrases of various kinds, to patterns of word-formation. Thus, words can count as constructions, in case their meanings cannot be fully derived from their component morphemes. Even monomorphemic words can be regarded as constructions, since their meaning cannot be derived from their phonological makeup.

## 2 Goldberg and Construction Grammar

Although 'construction' as a pretheoretical notion has been long assumed, the theoretical underpinnings of Construction Grammar were developed and outlined in detail by Goldberg (1995). In this seminal work, she argued that sentence meaning was determined not only by the verb and its arguments, but also by the construction in which these occur. Below we illustrate the 'core' constructions studied by Goldberg, along with some of the constraints on their

use. We then discuss some of the differences between the constructionist and generative approaches and the basic tenets of Construction Grammar.

## 2.1 The English Ditransitive Construction

The English ditransitive construction has, at its core, the notion of the intended transfer of something to someone. Intention is one of the important semantic constraints, as is shown in the examples below (Goldberg, 1995: 143):

(5) Joe painted Sally a picture.

In (5), Sally is the intended recipient of Joe's picture. He painted it with the intention of giving it to her.

(6) \*Hal brought his mother a cake since he didn't eat it on the way home.

Example (6), however, sounds odd because presumably if Hal intended the cake for his mother, it would never have crossed his mind to eat it on the way home.

A second constraint requires that the recipient be an animate being, as shown in the following examples (Partee, 1965: 60)

(7) I brought Pat a glass of water.

(8) I brought a glass of water to Pat.

(9) \*I brought the table a glass of water.

(10) I brought a glass of water to the table.

Examples (7), (8) and (10) are all felicitous because in the ditransitive (7), the recipient, Pat, is animate, while in (8) and (10), paraphrases with *to* do not require the animacy of the destination. The ditransitive (9), on the other hand, sounds odd because a table is an inanimate object.

In addition to requiring animacy, the recipient must also be *willing*, which is why the second of the next two examples sounds rather strange (Goldberg, 1995: 146)

(11) Bill told Mary a story.

(12) \*Bill told Mary a story, but she wasn't listening.

While in (11) it is assumed that Mary is a willing participant to Bill's storytelling, (12) is odd and sounds contradictory. How could Bill have told Mary a story if she wasn't listening? The ditransitive implies a willing recipient and that is what is wrong with (12).

## 2.2 The English Caused Motion Construction

The English caused motion construction involves someone or something causing someone or something to move (either literally or metaphorically) to some place. Here are some examples from Goldberg (1995: 152):

- (13) Mary urged Bill into the house.
- (14) Sue let the water out of the bathtub.

The caused motion construction has a number of idiosyncratic exceptions that need to be accounted for. Goldberg has outlined two constraints, one being the causer argument constraint, the other being the direct causation constraint. The causer argument constraint stipulates that the cause must be either an agent or a natural force, but not an instrument. To illustrate this, consider the following (Goldberg, 1995: 165):

- (15) *Chris* pushed the piano up the stairs.
- (16) *The wind* blew the ship off course.
- (17) \**The hammer* broke the vase onto the floor.

The second constraint, direct causation, is tied to a much more nuanced set of principles. Only one of these will be mentioned here. This is that direct causation implies that the object has no opportunity to make a cognitive decision about the scenario. Goldberg (1995: 166) draws attention to this in the following examples:

- (18) Sam coaxed Bob into the room.
- (19) Sam frightened Bob out of the house.
- (20) \*Sam encouraged Bob into the room.

The verbs *coax* and *frighten* are acceptable precisely because the direct object, Bob, is directly under the influence of Sam's control. In other words, Bob's psychological state is such that he has not made any cognitive decision regarding the process of entering the room. In (20), on the other hand, it is clear that Bob, encouraged as he was, made the cognitive choice to enter the room. It is important to sound a note of caution here, however, as this account does not explain the existence of attested examples such as 'we must encourage children into libraries'. This suggests that Goldberg was perhaps relying too heavily on invented examples and that further corpus-based investigations of her theory would be useful.

### 2.3 The English Resultative Construction

The following are examples of the English resultative construction, which describe what someone or something caused someone or something to become (Goldberg, 1995: 192):

- (21) He ate himself sick.
- (22) She cried herself to sleep.

In both (21) and (22) we can observe that someone is causing someone to undergo change. Once again, we will examine two semantic constraints: one dealing with time and the other with adjectival gradability. The first constraint means that the result is inferred to have happened immediately, as can be seen in the next example (Goldberg, 1995: 195):

- (23) Chris shot Pat dead.

Goldberg explains that the death of Pat was an immediate result of Chris shooting her. If, for instance, Chris shot Pat, but she survived for a while, and later died in the emergency room, then the above phrase would be inappropriate.

Adjectival gradability is the crux of the second constraint which we will now observe. Words which are gradable and exist along a continuum of more or less, are disallowed in the resultative construction (Goldberg, 1995: 195):

- (24) \*He drank himself funny/happy.
- (25) \*The bear growled us afraid.
- (26) \*He shot her wounded.

Adjectives such as *funny*, *happy* and *afraid* are all gradable in that one can be very happy or just a little happy; something can be extremely funny, or somewhat funny and so on. Conversely, other adjectives clearly have a binary option of one or the other. For instance, one is either alive or dead, crazy or not crazy, which is why the following phrases are instances of the resultative construction (Goldberg, 1995: 195–6).

- (27) Chris shot Pat dead.
- (28) He drove her crazy.

Some further issues regarding resultatives are addressed in Goldberg and Jackendoff (2004, 2005).

## 2.4 The Way Construction

At its core, the *way* construction involves creation of and movement along a path, sometimes with difficulty, as in the following example (Goldberg, 1995: 199):

(29) Frank dug his way out of the prison.

Here, Frank creates a path and moves along that path. The path itself, however, need not necessarily be concrete, as can be seen in the following (Goldberg, 1995: 205):

(30) Joe bought his way into the exclusive country club.

Here, the path is abstract, meaning that Joe had to manoeuvre around social obstacles in a metaphorical sense. When the *way* construction involves the creation of a metaphorical path, it entails some sort of obstacle to surmount or difficulty to overcome. The two cases below illustrate this nuance of a metaphorical barrier (Goldberg, 1995: 204):

(31) \*Sally drank her way through the glass of lemonade.

(32) Sally drank her way through a case of vodka.

Unless Sally has an intolerant palate for soft drinks, (31) sounds more marked than (32) because the act of drinking lemonade usually doesn't require any special effort. A case of vodka, for obvious reasons, would entail much more effort on Sally's part.

In the above four argument structure constructions (ditransitive, caused motion, resultative and the *way* construction), we have seen examples of the core meanings of each and how semantics serves to constrain these constructions in a highly systematized manner. Later, we will find that those core senses of constructions are also related to and interact with peripheral senses which are less prototypical and more abstract. First, however, we will contrast Construction Grammar with other mainstream theories and discuss some of its basic tenets.

## 3 Theoretical Differences between the Constructionist and Generative Approaches

As a theoretical model, Construction Grammar diverges from a Chomskyan view of language in several important ways. The Chomskyan view maintains that language is an innate capacity and that people are hard-wired to acquire

language. This view of language is proposed in part because of the complexity of grammatical models assumed under Universal Grammar. This complexity renders it implausible that language could be acquired from input alone, but rather that language acquisition is guided by specific constraints and parameters. Construction Grammar, on the other hand, assumes a holistic cognitive approach to language learning involving simpler assumptions regarding syntax, which reduces complexity and thus allows for language to be learnable from input (Goldberg, 2006).

Constructionist and generative approaches differ in terms of their approach to 'peripheral' language. It is widely acknowledged that every language has idiosyncratic structures particular to that language. Given that these structures are not universal and therefore cannot be accounted for by an innate, hard-wired view of acquisition, the generative approach treats idiosyncratic structures as peripheral and they go largely unexamined. In contrast, the constructionist approach views these unusual patterns as being subject to the same learning mechanisms as more general patterns. If idiosyncratic patterns can be acquired through input only, then it is reasonable to assume that more frequent, universal patterns could also be learned in the same manner (Goldberg, 2006).

Another way in which the constructionist approach departs from the generative approach relates to the encoding of argument structure information. Under the generative approach, it is assumed that the verb determines the number of its arguments. Take, for instance, the verb *give*, which specifies three arguments (subject, direct object and indirect object), as in *John gave Jane a letter*. A constructionist approach would attribute argument structures not to the verb, but to syntactic constructions in which it occurs. Goldberg (1995: 11) points out that a major limitation of the verb centred approach is that a verb can often appear in a large number of distinct argument structure constructions, as with the case of *kick*:

1. Pat kicked the wall.
2. Pat kicked Bob black and blue.
3. Pat kicked the football into the stadium.
4. Pat kicked at the football.
5. Pat kicked his foot against the chair.
6. Pat kicked Bob the football.
7. The horse kicks.
8. Pat kicked his way out of the operating room.

Rather than maintain that the verb *kick* has eight different syntactic representations, the constructionist approach accounts for the different complement configurations in terms of the constructions in which the verb occurs. Table 2.3.1 illustrates some of these.

**Table 2.3.1** English argument structure constructions

1. Ditransitive	X causes Y to receive Z	Subj V Obj Obj2 Pat kicked Bob the football.
2. Caused motion	X causes Y to move Z	Sub V Obj Obl Pat kicked the football into the stadium.
3. Resultative	X causes Y to become Z	Subj V Obj Xcomp Pat kicked Bob black and blue.
4. The <i>Way</i> construction	X creates Y to move Z	Subj V Obj(way) Obl Pat kicked his way out of the operating room.
5. Conative	X directs action at Y	Subj V Obl(at) Pat kicked at the football.

#### 4 Key Tenets of Construction Grammar

In addition to establishing syntactical-semantic links, another cornerstone of Construction Grammar is the notion that basic human experiences correspond to central senses in construction argument structure. Goldberg defines this as the Scene Encoding Hypothesis and explains:

Languages are expected to draw on a finite set of possible event types, such as that of someone causing something, someone experiencing something, something moving, something being in a state, someone possessing something, something causing a change of state or location, something undergoing a change of state or location, and something having an effect on someone. (Goldberg, 1995: 39)

Constructions represent basic human experiences through structures which correspond to basic general events such as location, cause, transfer, result and so on, as in the above example (*John gave Jane a letter*) with the notion of transfer. The assumption is that the development and emergence of syntactic constructions in language evolved from a need to linguistically encode these event types (Behrend, 1998).

Another aspect of the constructionist framework is its interest in unusual, low-frequency constructions, for the light they might shed on the acquisition of more general patterns. As mentioned earlier, these idiosyncratic patterns are often disregarded in generative approaches because Universal Grammar cannot account for cross-linguistic anomalies. Indeed, one strength of the input-based, non-nativist view is that idiosyncratic constructions are expected cross-linguistically and support the notion that language can be learned without the need for innate hard-wiring. Goldberg (2003) cites the



covariational-conditional construction (The Xer the Yer; *The more you think about it, the less you understand*) as an example of an unusual, low frequency construction. The word *the* (which is etymologically distinct from the definite article) is not attached to a head noun and there is no conjunction combining the two phrases (which might indeed be verbless: *The more the merrier*). As such, the covariational-conditional is considered a unique construction due to the unpredictability of its form. Yet the construction is learnable, suggesting higher frequency, cross-linguistically attested constructions should be at least as easy, or even easier to learn on an input-based, non-nativist account (Goldberg, 2006).

## 5 Construction Grammar and Polysemy

Just as the lexicon encodes semantic information via form-meaning connections, so does the syntax, by linking distinct formal constructions with a meaning. In other words, there is no stark division between syntactic and lexical constructions, because they obey the same basic structural data arrangement (Goldberg, 1995: 7). It is therefore expected that there will be commonalities between syntactic and lexical constructions. One of these commonalities is the occurrence of polysemy. Polysemous words have more than one meaning. Essentially, a word has a core, prototypical meaning, which is the most frequent and oftentimes most concrete sense of the word. Surrounding this core meaning are other, less concrete, less frequent, and more peripheral senses of the word, organized in terms of a radial category (for further discussion, see Taylor, 2003). At the centre of a radial category lies the prototypical or central sense of the word. Just as individual words can have multiple senses and exist in radial categories, so too can syntactic constructions.

Goldberg (1995) illustrates how argument structure constructions, much like individual lexical items, can exhibit polysemy. Consider the use of the ditransitive, in which there is a transfer of a patient argument to a potential recipient (X causes Y to receive Z) (p. 34):

(33) John threw Jane the ball.

(34) Chris baked Jan a cake.

In (33), it is clear that Jane received the ball. However, in (34) all that is known with surety is that Chris baked a cake and that his intention was for Jan to receive that cake. It is unclear whether or not Jan received the cake. These multiple senses exemplify what Goldberg terms *constructional polysemy*, defined

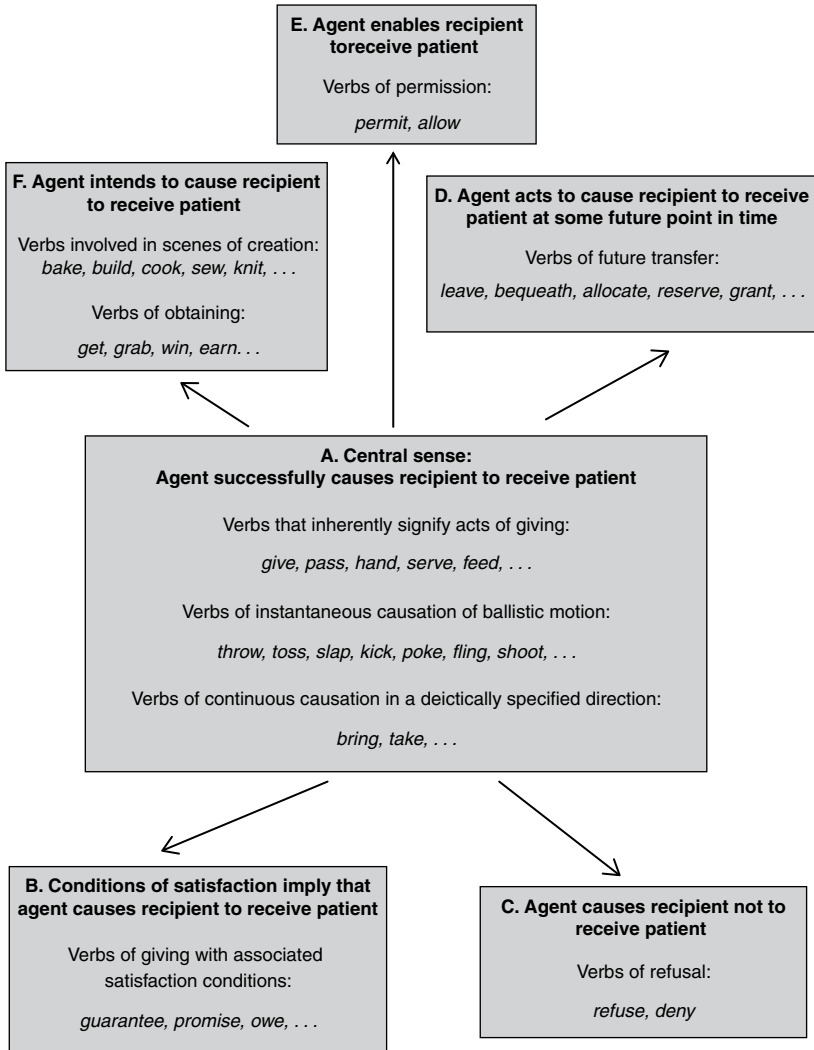


Figure 2.3.1 Constructional polysemy of the ditransitive argument structure construction (adapted from Goldberg, 1995: 38)

as when ‘the same form is paired with different but related senses’ (1995: 33). In spite of having multiple senses, the central sense defines the core meaning of the argument structure construction, as in the above case of the ditransitive with X causes Y to receive Z. Below are some further examples of slightly different senses of the ditransitive:

- (35) Bill promised his son a car.
- (36) Joe allowed Billy a piece of candy.
- (37) Joe refused Bob a raise in salary.

In (35) there is no indication that Bill has given his son a car. (36) implies that a piece of candy was not denied to Billy, but whether Billy acted on Joe's permission is not clear. Finally, (37) is a case in which transfer is denied. These examples deviate from the central sense of the ditransitive, which is to cause transfer, but retain the general sense of transfer (or lack thereof). The examples illustrate how argument structure constructions can behave in much the same way as individual lexical items in that both have core or central meanings, around which multiple other senses reside in radial categories. Figure 2.3.1 illustrates the polysemy of the ditransitive construction.

## 6 Conclusion

Although the pretheoretical notions of construction has been current for many years, Goldberg's landmark work (1995) and subsequent publications have laid out in a systematic manner a unifying theory of argument structure constructions. The theory also offers promising implications for pedagogical application (Holme, 2010; Littlemore, 2009). As mentioned, a major concern of the theory has been the study of 'peripheral', low-frequency, and 'marginal' constructions. However, precisely because they are low-frequency, there is often a lack of authentic data substantiating their use. For example, many of the oft-cited examples of constructions – such as the transitive use of *sneeze*, cited at the beginning of this chapter – yield few or no results in corpus searches. While this fact in itself does not impact on the validity of the theoretical approach, it does raise some questions for its pedagogical application. It is for this reason that Littlemore (2009) has suggested that future research should hone in on the most useful and frequent constructions which do appear in authentic texts and materials so that pedagogically informed research in Construction Grammar can be applied in language classrooms.

## References

- Behrend, D. (1998). Language under constructions. *Journal of Child Language*, 25, 447–50.
- Bolinger, D. (1968). Entailment and the meaning of structures. *Glossa*, 2, 119–27.
- Fillmore, C. (1968). The case for case. In E. Bach and R. T. Harms (Eds), *Universals in Linguistic Theory*. New York: Holt, Rinehart and Winston, pp. 1–88.

- Givón, T. (1985). Function, structure, and language acquisition, In D. I. Slobin (Ed.), *The Crosslinguistic Study of Language Acquisition*, vol. 2. Hillsdale, NJ: Lawrence Erlbaum Associates, pp. 1005–28.
- Goldberg, A. (1995). *A Construction Grammar Approach to Argument Structure*. Chicago: University of Chicago Press.
- (2003). Constructions: A new theoretical approach to language. *Trends in Cognitive Sciences*, 7, 219–24.
- (2006). *Constructions at Work: The Nature of Generalizations in Language*. Oxford: Oxford University Press.
- Goldberg, A. and Jackendoff, R. (2004). The English resultative as a family of constructions. *Language*, 80, 532–68.
- (2005). The end result(ative). *Language*, 81, 474–7.
- Holme, R. (2010). Construction grammars: Towards a pedagogical model. *AILA Review*, 23, 115–33.
- Langacker, R. (1985). Observations and speculations on subjectivity. In J. Haiman (Ed.), *Iconicity in Syntax*. Amsterdam: John Benjamins, pp. 109–50.
- Littlemore, J. (2009). *Applying Cognitive Linguistics to Second Language Learning and Teaching*. Basingstoke: Palgrave Macmillan.
- Partee, B. (1965). *Subject and Object in Modern English*. Published in J. Hankamer (Ed.), *Outstanding Dissertations in Linguistics Series*. New York: Garland, 1979.
- Taylor, J. (2003). *Linguistic Categorization*. Oxford: Oxford University Press.
- Tomasello, M. (1998). The return of constructions. *Journal of Child Language*, 25, 431–42.

# 2.4 Fauconnier's Theory of Mental Spaces and Conceptual Blending

*Brian J. Birdsell*

## Chapter Overview

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Conceptual blending theory (Fauconnier and Turner, 2002) aims to provide a general cognitive model for meaning-making and for how novel concepts emerge. This model stretches across all domains of meaning-making, from language (metaphors, advertisements, jokes) and the use of gesture in discourse, to non-linguistic meaning-making, such as the way people queue for tickets at a theatre (Hutchins, 2005) or the symbolic play of young children (Sinha, 2005) to the use of gestures in communication. The theory has attracted a wide range of attention in diverse fields of research, from discourse analysis (Oakley et al., 2008) and the study of haiku (Hiraga, 1999) to the study of rituals (Sweetser, 2000). The journal *Cognitive Linguistics* had a special issue on conceptual blending (2000, 11: 175–360), while papers from the Odense Symposium on blending theory were published in the *Journal of Pragmatics* (2005, 37: 1507–741). Due to its broad nature, the theory has also met with some criticism (Broccias, 2004; Gibbs, 2000). This chapter provides an overview of the theory (see also Coulson and Oakley, 2000), discusses connections between blending theory and conceptual metaphor theory, provides some examples of non-linguistic forms

of blending and concludes by looking at some possible future directions for blending theory.

## 1 Everyday Blending: From Riddles of a Buddhist Monk to a Ghost Ship

On Turner's (2012) website of blending and conceptual integration, we can see an animated graphic of a Buddhist monk ascending a mountain during the day, meditating overnight and then descending the following day.<sup>1</sup> The graphic is accompanied by a riddle: *'Is there a place on the path that the monk occupies at the same hour of the day on the two separate journeys?'* Fauconnier and Turner (1998, 2002) and Fauconnier (1997) have extensively used this riddle – which is adapted from Koestler (1964) – as an example of how conceptual integration theory works.

To understand blending theory it is first necessary to look briefly at Fauconnier's (1994) earlier work on **mental spaces**. Mental spaces are real-time constructs created during discourse that provide cognitive structure. Fauconnier and Turner (2002: 40) refer to them as 'conceptual packets constructed as we think and talk for purposes of local understanding and action'. These spaces contain elements and relational connections to other elements that can be incrementally added while the spaces dynamically adjust and adapt as the discourse progresses. In the Buddhist riddle example there is a person (a monk) hiking up a mountain, and since most people have either physically experienced hiking up a mountain or vicariously experienced doing so through watching television or reading a book, they are able to bring into this mental space all kinds of background information. While mental spaces exist in our working memory, once they become established they can exist in our long-term memory as a **frame**, which then can be called up into working memory when the context deems it to be necessary. In this way, then, we can speak of the hiking-up-a-mountain frame (Fauconnier and Turner, 2002: 102).

### 1.1 The Making of the Blend

For blending to work, at least two input mental spaces must be present (see Figure 2.4.1). In the Buddhist riddle example one input space is the monk ascending the mountain on one day ( $d_1$ ) and the second input space is the monk descending the mountain the following day ( $d_2$ ).

These input spaces allow the creation of a generic space, that is, a space which captures the similarity between the two input spaces involving such elements

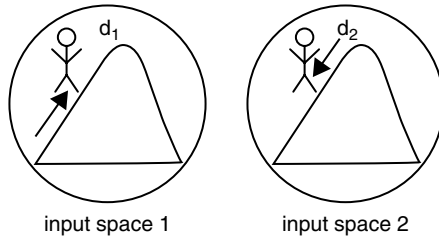


Figure 2.4.1 Input mental spaces (adapted from Fauconnier and Turner, 2002: 41)

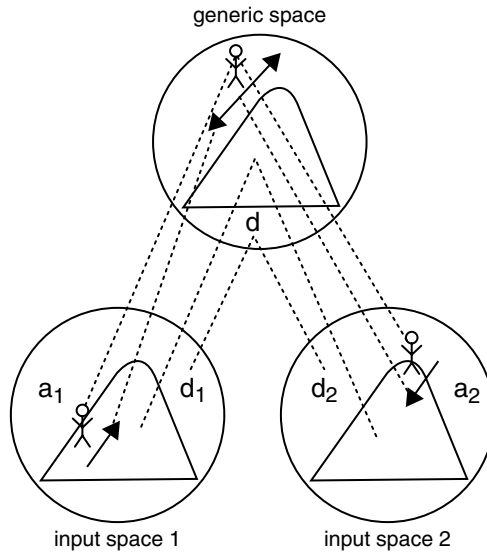


Figure 2.4.2 Generic mental space (adapted from Fauconnier and Turner, 2002: 42)

as an agent (the monk); a location (the mountain); a time (daytime); and an activity (movement upwards and downwards, hiking) (see Figure 2.4.2).

The structure in the blend is not simply derived from the sum of these input spaces, but emerges through a process of composition, completion and elaboration (Fauconnier and Turner, 2002: 48). Cross-space mapping between these two input spaces (see Figure 2.4.3) creates new relations; this is called **composition**.

At the same time, background knowledge, discourse context and basic cognitive abilities provide the reader with additional structure to complete the

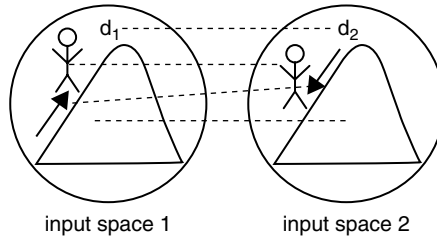


Figure 2.4.3 Cross-space mapping (adapted from Fauconnier and Turner, 2002: 41)

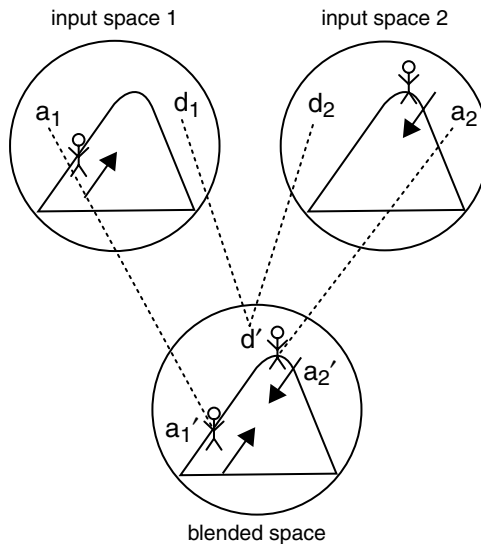


Figure 2.4.4 Blended space (adapted from Fauconnier and Turner, 2002: 43)

blend; this is called **completion**. These input spaces selectively project into a blended space (see Figure 2.4.4).

In the blend, a single monk becomes both the ascending monk ( $a_1'$ ) and the descending monk ( $a_2'$ ) on the same mountain and is therefore able to accomplish the impossible, namely, he can meet himself. It is in this blended space where the answer to the riddle emerges. This final process, which is called **elaboration** involves the selected projection of elements in the two input spaces and the fusion of them in the blend. This is the 'running' of the blend, where the reader simulates and creatively imagines the ascending and descending monks meeting each other on the mountain path.



## 1.2 Vital Relations

Fauconnier and Turner (2002: 93) provide a list of the many different ways that the elements in the input spaces may be related. These conceptual relations are called **vital relations**. They exist in an 'outer space', or the space between the inputs, as compared to the 'inner space', the space in the blend. In the Buddhist riddle, the monk in each of the input spaces is temporarily separated by a night or, in the terminology of vital relations, time. This vital relation gets compressed in the blend and this allows the reader to imagine the same monk simultaneously ascending and descending the mountain and subsequently he or she is able to answer the riddle. There are several kinds of vital relations. Some of the more common are time, space, cause-effect, change, part-whole, representation, role, analogy, and disanalogy. Table 2.4.1 does not provide an exhaustive classification of all the vital relations, but does list some key ones within conceptual blending theory along with an example of each, and the connection that occurs between outer space and inner space vital relations for each type of relation.

Looking at the table one may quickly notice that many outer-space vital relations get compressed into the inner-space vital relation, resulting in **unique-ness**. I will not go into detail for each example, but **uniqueness** is something that we often fail to notice or just assume as self-evident. Consider how **representation** gets compressed into **uniqueness**. In the example provided in the table, a child finds a stick. This stick is simply a piece of wood, but it may have some resemblance to a magic wand that the boy has seen on television. The boy then uses the stick as a magic wand, so these two distinct entities, a stick and a magic wand, are compressed and become a single unique entity in the blend. Compression is one of the key components of blending theory for it is the ability to condense a vast amount of conceptual structure into something that is easier to understand and control. Compressing this diffuse amount of structure in the various input spaces achieves what Fauconnier and Turner (2002) have called **human scale**.

## 1.3 A Race with a Ghost Boat

Fauconnier (1997: 156) uses a boat race as another example of blending. The race in question involved two boats, a catamaran and a clipper. The catamaran (named *Great America II*) was sailing from San Francisco to Boston in 1993 following a route similar to the one that the clipper (named *Northern Light*) took in 1853. Fauconnier (1997: 156–7) cites the following from a magazine article, *Latitude*.

**Table 2.4.1** Vital relations (see Fauconnier and Turner, 2002: 89–101 for more details)

<i>Outer-space vital relations</i>	<i>An example with the compressed inner-space vital relation</i>
<i>TIME</i>	E.g. Time between two events (see the Buddhist riddle example) SCALED TIME: Compressing the time between two events SYNCOPATED TIME: Leaving out events during a period of time
<i>SPACE</i>	E.g. The space between two events (see the following ghost boat example) SCALED SPACE: Compressing the space between two events
<i>CAUSE-EFFECT</i>	E.g. The warm weather melted the snow and now there is a puddle. SCALED TIME: Start of the warm weather until the snow is water. CHANGE INTO UNIQUENESS: The snow now has now become water. E.g. Eat some chocolate, it will make you happy. PROPERTY: Chocolate is a sweet made of sugar and cocoa, but in the blend it has the property of causing the emotion, happiness.
<i>CHANGE</i>	E.g. A child becomes an adult. UNIQUENESS
<i>PART-WHOLE</i>	E.g. The hired hands are here. Hands (PART) for the person (WHOLE) UNIQUENESS
<i>REPRESENTATION</i>	E.g. Playing outside a child takes a stick and uses it as a magic wand. The stick is now representative of a magic wand and though they are distinctive elements in the two input spaces, in the blend the stick in the child's hand is now seen as a magic wand. UNIQUENESS
<i>ROLE</i>	E.g. Steve Jobs was the CEO of Apple. CEO is the ROLE and Steve Jobs is the VALUE UNIQUENESS
<i>ANALOGY</i> (Depends upon role-value compression)	E.g. Ginza is Tokyo's Fifth Avenue. Here we have two blends. Both have the frame <i>large metropolitan area</i> with the ROLE <i>an expensive shopping district</i> . One network has the VALUE Ginza and the other network has a different VALUE, Fifth Avenue. These two ROLE-VALUE vital relations are compressed and create ANALOGY. This ANALOGY is an outer-space vital relation in a new integration network that subsequently gets compressed into IDENTITY in the blend.
<i>DISANALOGY</i>	E.g. 'If I were you, I would hire me.' (F&T, 2002: 255) In this counterfactual, the outer-space DISANALOGY vital relation of 'you' and 'me' gets compressed into UNIQUENESS. For in the blend this new person has both the characteristics of a boss 'you' and the judgement and inner knowledge of the applicant's capabilities 'me'. UNIQUENESS

- (1) As we went to press, Rich Wilson and Bill Biewenga [crew of the *Great America II*] were barely maintaining a 4.5 day lead over the ghost of the clipper *Northern Light*, . . .

Figure 2.4.5 provides a general figural representation of the blending process for the above sentence. There are two input spaces, a generic space and a blended space. I have provided two examples of how the many different vital relations are used in the cross-space mapping between the two input spaces. In this example, TIME, or more precisely the 140 years separating these two events, gets compressed in the blend (SCALED TIME) to the present moment. Also the vital relation, SPACE, the distance between the routes of the two boats, also gets compressed in the blend (SPACE SCALED). Since the exact route of the clipper, *Northern Light*, is not known, compressing the space between the two boats enables them to spatially compete with each other along an identical course, as shown by the expression *4.5 days ahead*.

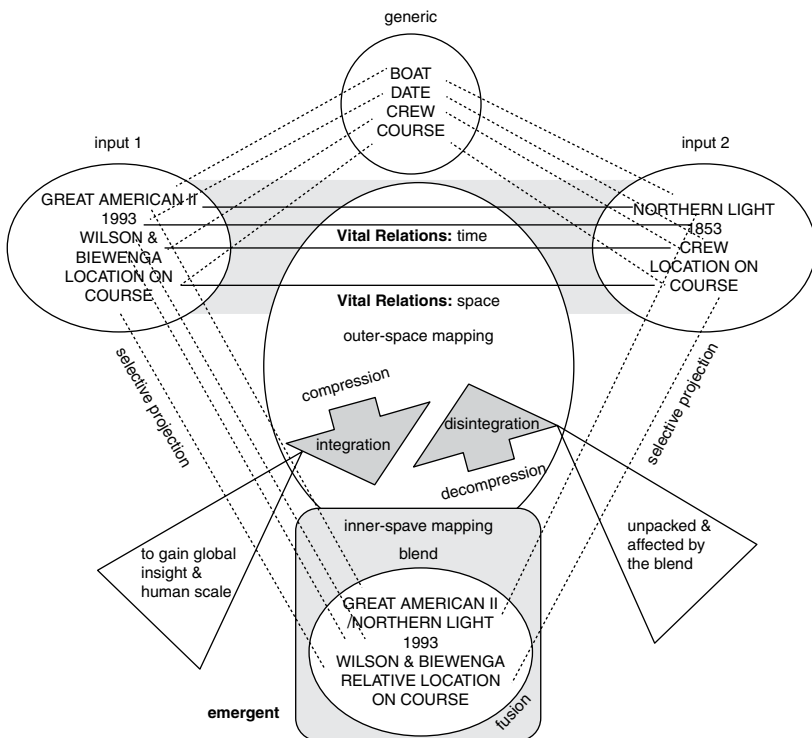


Figure 2.4.5 A race with a ghost boat blend

## 1.4 Types of Blends

Fauconnier and Turner (2002: 120) propose various kinds of integration networks that can vary in complexity along a four-stage continuum of different types, starting with **simplex** networks, followed by **mirror** networks, then **single-scope** networks and finally **double-scope** networks.

### 1.4.1 Simplex Networks

Simplex networks, as in the example *Paul is the father of Sally*, set up the blend with a kinship frame and knowledge about kinship relationships. Simplex networks use the role-value vital relation. One input space has the roles of father and daughter and the other space, the values Paul and Sally. In the generic space we have the gender of each individual. These vital relations of role-value are compressed in the blend into uniqueness. Seemingly straightforward and self-evident, in this blend Paul becomes the distinct individual in this kinship network that can be specifically labelled as being the father of Sally. This simplex network appears so simple that it is often overlooked, and may not even be seen as an integration network at all.

### 1.4.2 Mirror Networks

A mirror network is where the input spaces, the generic space, and the blend have a common organizing frame. Both the previous two examples in this chapter, the Buddhist riddle and the race with a ghost ship, are examples of this type of blend. The Buddhist riddle shares the organizing frame of mountain hiking along a path while the boat race shares the frame of boat sailing along a course.

### 1.4.3 Single-scope Networks

Unlike mirror networks, single-scope networks have different organizing frames. One of the organizing frames gets projected to the blend while the other does not. This type of blend is typical of source-target metaphors. Advertisements often play with linguistic form in order to create a vivid image for the viewer. An advertising example used by the Australia Post<sup>2</sup> had the shape of a human figure extending out of a large handwritten letter and embracing a woman with the following slogan:

(2) If you really want to touch someone, send them a letter.

This slogan plays on the entrenched metaphor in English that communicating with someone (through the phone, email, letter, or nowadays Facebook or Skype) is to touch that person. Here are some linguistic examples of the

COMMUNICATING IS TOUCHING metaphor taken from Corpus of Contemporary American English:<sup>3</sup>

- (3) You know, they get on Facebook, right? They tweet. I mostly **keep in touch with** my friends in kind of the remote parts of the state just by looking at their Facebook page and seeing if they posted a picture . . .
- (4) I hope we do not **lose touch with** each other. The warmth was mutual.

A cross-space mapping occurs between the input spaces of communication (in this example writing a letter) and physically touching someone (in this example a hug). In the communication input space, there are two people, the distance between them is large, and one person is writing to the other a letter. The input space here is organized by a 'writing-a-letter' frame and all that is involved with this frame, such as writing, ink, paper and so on. In the second input space, or the 'touching' input space, again there are two people, but the distance between them has been reduced (i.e. they are physically touching). A frame that involves physical human contact and affection and the cultural norms and customs of showing affection and touching organizes this frame. Only one of the organizing frames gets sent to the blend, in this case, the 'writing-a-letter' frame. To make sense of the image, one must first understand the metaphor in the slogan (writing to someone is metaphorically 'touching' them), and then selectively project the distance from the touching input into the blend with the writing-a-letter frame. Here lies the effectiveness of the advertisement where the letter magically comes to life and reaches out from the paper to embrace the woman.

#### 1.4.4 Double-scope Networks

Whereas single-scope networks have two inputs with different organizing frames and only one gets projected in the blend, double-scope networks have two different organizing frames and parts of both of them are used in the blend as well as in a new emergent structure. Fauconnier and Turner (2002: 131) provide the Computer Desktop interface as an example of this sort of network. There is the 'office work' frame and the 'computer screen' frame. The blend takes elements from each of these frames, such as a trash can and a filing folder from the office frame, and control command keys from the computer frame. Since the blend involves elements from both frames, there is a possibility of clashes, which can supply the blend with imaginative and creative outcomes. Fauconnier and Turner (2002) discuss one instance of a clash in the desktop example in regards to the garbage can being actually on the desktop. We would not normally place a garbage can on our physical desktop. We may place folders and files on it, but not an actual garbage can, yet on the computer desktop we do just this. Also when listening to music, one can insert a compact disc into

the computer and it will appear on the desktop. Then when we want to eject this disc, at least for Macintosh users, we must drag it to the trashcan. So as a further instance of a clash, the trashcan on the desktop can act like a physical trashcan, as a place to throw away unwanted documents, but also as a receptacle for things we remove from the desktop, without actually throwing them away. The **typology**, or the relations between the elements in the input spaces, clashes with **integration**, our knowledge that a computer screen has only two dimensions and cannot extend beyond this. The typology must loosen in order for the integration of the blend in the network to run. It is in these double-scope networks where we 'see the new and fascinating phenomenon of innovation, which is unique to cognitively modern human beings' (Fauconnier and Turner, 2002: 299).

### 1.5 Critiques and Constraints of Blending Theory

One of the most widely known critiques of blending theory is Gibbs (2000). He starts off by stating the need for a theory to be falsifiable (e.g. Popper, 1959), especially when the theory has psychological implications, and asks whether blending theory can be falsified. The difficulty of falsifiability in blending theory is that it is not a single theory, but a broad framework that is difficult to test empirically (Gibbs, 2000: 349). Fauconnier and Turner (2002) provide at the end of each of their chapters a 'zoom out' section, similar to a question-answer dialogue between someone who has some doubts and questions about the theory and the authors' response to such questions. Addressing this issue of falsifiability, Fauconnier and Turner (2002) state that they hope to make falsifiable predictions, such as for example 'predictions about types of blending, what counts as a good or bad blend, how the formation of a blend depends on the local purpose' (Fauconnier and Turner, 2002: 55), although they have not yet done so.

Broccias (2004) also critiques blending theory, arguing that it fails to take alternative analyses into consideration. With respect to the Buddhist riddle, for example, he (2004: 579) provides an alternative interpretation to the riddle where irrelevant features can be removed such as the separation of the time between the ascent and the descent, so the actual time, the *token* concept of time (or the concrete particular time of this occasion) is replaced by time as *type* (or the general abstract nature of time). So he questions whether such a riddle actually involves blending, or whether it simply involves the ability to shift from a 'token' to a 'type' interpretation of time.

To address some of the criticisms of blending theory, especially the idea that blending seems to be unconstrained and has a 'does anything go?' frameset (Fauconnier and Turner, 2002: 309), Fauconnier and Turner provide two kinds of constraint: **constitutive principles**, which are the 'structural and dynamic

principles of conceptual integration' (Fauconnier and Turner, 2002: 310), and emergent **governing principles**. These governing principles act to optimize emergent structure. The aim of both sets of principles is to achieve the overall goal of conceptual blending theory, namely, the achievement of human scale. Fauconnier and Turner (2002) also include a list of subgoals: 'compress what is diffuse, obtain global insight, strengthen vital relations, come up with a story, and go from many to one' (Fauconnier and Turner, 2002: 312, 323, 346).

I will now provide a brief overview of the various governing principles of blending theory. First the **topology** principle states that input spaces do not change by themselves but rather through scaling, syncopation or compression. The **pattern completion** principle aims at completing the running of the blend, which involves recruiting a frame that will provide additional structure to the blend. Recall the ghost boat blend; for this blend to run, one needs to recruit a boat-racing frame that will provide necessary structure through such aspects as the fact that races have starting and end points, that races progress along a course, and that races have leaders. The **integration** principle draws on what we know about the world and our imagination to fill in the gaps in the conceptual network. The **promoting vital relations** principle emphasizes the connections in the blend while downplaying elements in the structure that are dissimilar or not connected. The **web** principle highlights the fact that input spaces in the conceptual network are interconnected and do not stand alone. The **unpacking** principle is the ability to go backwards from an existing blend to the input spaces and reconstruct the entire network simply from the blend. The **relevance** principle refers to the natural human search for meaning and the attempt to establish relations between things.

## 2 Blending Theory and Metaphors

### 2.1 Conceptual Metaphor Theory

Lakoff and Johnson's (1980) conceptual metaphor theory (see Chapter 2.2) involves two-domain mappings from a source domain to a target domain, though this does not fully explain why only certain parts of the source are mapped to the target. For instance, in the following example, infancy is mapped onto a new field in psychology:

- (5) Cognitive psychology is still in its infancy. (Lakoff and Johnson, 1980: 47)

So the question then is why do certain elements of infancy get mapped onto the target (the early stage of life, youthful, not fully developed) while other elements of infancy do not (crying, need for a nap, breastfeeding, babbling, etc.)?

Following on from this argument, Grady, Oakley and Coulson (1999) used one of the more popular examples in Cognitive Linguistics

(6) *The surgeon is a butcher.*

to demonstrate that domain mapping of conceptual metaphor theory fails to explain the metaphorical interpretation of the example, which is that the surgeon is incompetent (butchers are not necessarily incompetent). They show how blending theory can account for such an inference through emergent structure. In Figure 2.4.6 there are two input spaces. Input space one has the role and identity of the surgeon, the role and identity of the patient (a human), the surgeon's tool (e.g. a scalpel), the operating room and the medical procedure. The procedure has a goal, which is to heal the patient, and implies a means, which is the actual surgery. The second input space has the role of the butcher, the role of an animal carcass (a piece of meat), the butcher's tool (e.g. a cleaver), the place (an abattoir) and the procedure. The procedure for the butcher does not involve healing the animal, but rather cutting it up into smaller pieces by butchering it. As can be seen in Figure 2.4.6, the identity of the surgeon is projected into the blend but here it is accompanied by the role of the butcher along with the identity and role of the patient. There is also the juxtaposition of the means of the surgeon with the means of the butcher. The means of the butcher, the act of cutting up meat, replaces the means of surgery, cutting a patient precisely in order to heal them. A doctor who tries to heal a patient with the means of a butcher will surely leave a memorable scar and from a patient's perspective is definitely not a competent doctor!

## 2.2 Metaphors, Haiku and Blending

Blending theory has been applied in the field of cognitive poetics. Hiraga (1999) used it as a way to analyse Japanese haiku by the great master, Basho. Since haiku are very short poems, much of the understanding of the poem involves both having a rich background of cultural knowledge and the ability to project from certain minimal input spaces into a new emergent structure in the blend. It is important to note that the essence of this emergent structure is that 'the blend space often includes structure not projected to it from either input space' (Turner and Fauconnier, 1995: 184). To illustrate how easily this emergent structure surfaces in the blend, Hiraga (1999) looks at two poems. Here is one of them:

(7) 蛤のふたみに別行秋ぞ (hamaguri no /futami ni wakare/ yuku aki zo) *A clam separates lid from flesh as autumn departs.*



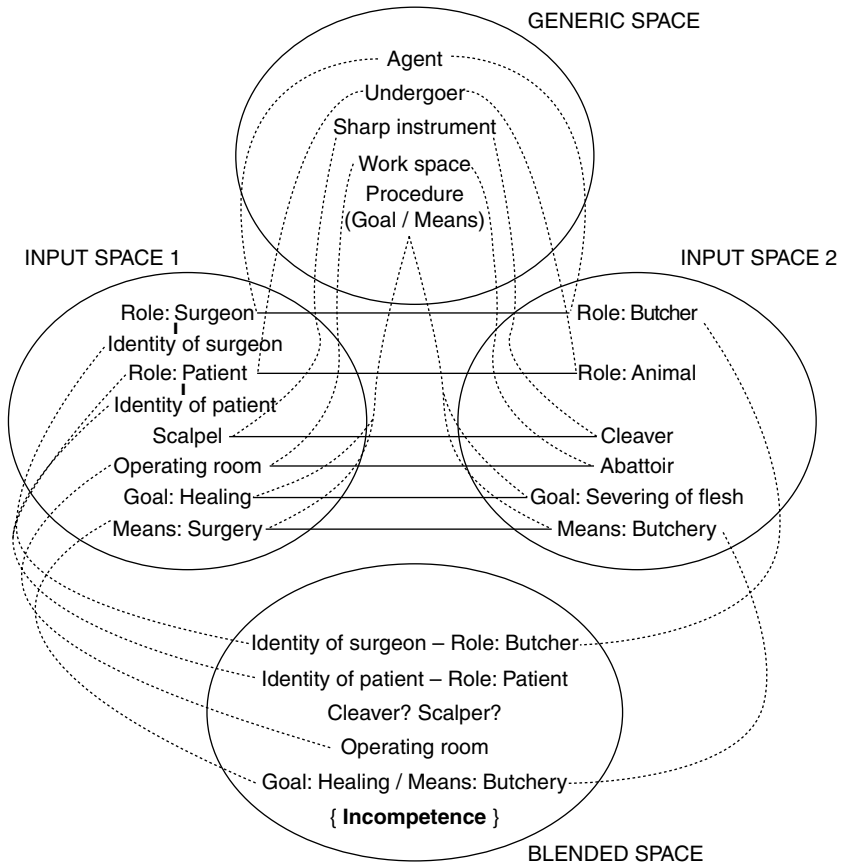


Figure 2.4.6 Surgeon as a butcher blend (adapted from Grady et al., 1999: 105)

Hiraga (1999: 474) sets up the blend in the following way. First we have the two input spaces, the separated clamshell and the human action of departing (note that autumn here plays on the metaphorical reading of *AUTUMN AS A TRAVELLER*). In the generic space, there is an event frame of ‘separation’ that is common to the two input spaces. Certain elements from both input spaces get projected into the blend. In one input space, there is the natural event of a clamshell opening up where the shell divides into two separate parts, revealing the clam meat inside. In the other input space, there is the human action of departure. The emergent structure in the blend involves life and death, permanence and impermanence, where Basho departing from his friends is the clam opening its shell. The safety of a familiar place (the shell) gets replaced with the journey and the unknown. The concept of separation also develops in the emergent structure of the blend; as the two parts of the shell separate, so too

does the traveller have to say farewell (and the difficulty of opening a clam can also supply rich imagery to the difficulty of saying goodbye). This is just a very brief overview of the analysis of a haiku using blending theory, but it provides a glimpse into how it can be applied to the process of making sense of these very short forms of poetry. One of the distinguishing markers of a haiku is the use of a 'cutting word' (*kireji*), which juxtaposes two seemingly independent thoughts and in doing so aims at creating an emergent or new way of looking at some familiar element of nature in a new and unexpected way.

### 3. Beyond Language

#### 3.1 Trashcan Basketball

As mentioned in the introductory paragraph, blending theory is not restricted to a theory of meaning-making in language, but can be extended into non-linguistic domains as well. Coulson (2001: 115) provides a compelling picture of how blending occurs in everyday playful action such as engaging in a game of trashcan basketball. This is a common office activity where workers crumple up a piece of paper and toss it into a trashcan imagining that they are playing a game of basketball. For one to make sense of such an activity, one must have prior knowledge of the game of basketball and also have experienced crumpling up a piece of paper and tossing it into a trashcan. The game of basketball and shooting a ball into a basket acts as one input space and the office environment and divertingly tossing away a piece of trash acts as a second input space. These two spaces then become conceptually integrated into a new blended space. The trash, a crumpled-up piece of paper, is now seen as a basketball and the trashcan is now a hoop. The outer-space vital relation, analogy, is compressed into similarity in the blend. Background knowledge of basketball is especially crucial for this blend to run. Yet once this unique structure begins, it can continuously be elaborated upon in new, novel and creative ways. The office worker can now become Kobe Bryant, the office space can become the Staples Center and even the sound of the printing machines can become the sound of fans cheering. Elaboration shows the imaginative power of blends.

#### 3.2 Standing in a Queue

Hutchins (2005) demonstrates how blends often form through the interaction of mental and material structure. He calls this material structure 'material

anchors', which include objects in our material culture like watches, sundials and money (see Fauconnier and Turner, 2002: 195–216 for more detailed explanation of these material anchors). As blending works with material anchors, selected elements in the input spaces get projected into the blended space and 'the structure contributed by one or more of the input spaces has physical form' (Hutchins, 2005: 1559). A simple example of a blend that uses material anchors is how we construe people standing in a line as a queue, despite the fact that every time we form a line we are not necessarily standing in a queue. Hutchins (2004) explains how the physical bodies of those in line create a linear relationship with others and establishes a sequential order. To turn this line of people into a queue, we must conceptually blend two input spaces. One input space is the people who form the line and the second input space is the trajectory that we imagine starts from some beginning point (the start of the line) and moves outward to some end point (the person at the end of the line). Hutchins (2005) shows how the structure emerges in the blend through *composition*, *completion* and *elaboration*. Elaboration, the running of the blend, makes it possible for those in line to distinguish it from simply a line of people and view it as a queue and as a result they are now conscious of their place in relationship to others. If someone suddenly tries to squeeze into the line in front of them, this will undoubtedly cause stares of disapproval or even a quarrel with others in the line, for it is not just a line, but conceptually viewed as having a trajectory and thus order and placement. So this emergent queue blend has the typical conceptual input space of a trajectory, but also has an input space with material structure, the actual physical people standing in a line.

### 3.3 Rituals and Blending

Sweetser (2000) describes a ritual from a community in Italy, which involves an adult taking the child up a flight of stairs after birth. The obvious metaphorical mapping is *GAINING STATUS IS RISING*. To make sense of this ritual, one sets up a conceptual network. In the first input space the child is moving up the flight of stairs, and the second input space involves the course of the child's future life. In the blend the child's life is the movement of going up a flight of stairs. So what we have now is the child and its entire life following this projected movement of ascent. What makes this interesting, though, is how the actual walking up the steps in the ritual has far-reaching meaning for the course of life for the baby, since a trip on the first couple steps is no longer simply a sign of clumsiness, but symbolic of some future trouble for the child and its future position in society.

## 4. Further Applications of Blending Theory

### 4.1 Blending in Social Interaction

The *Journal of Pragmatics* (2005, 37: 1507–741) presented a collection of articles taken from a symposium on conceptual blending theory. A recurring topic in these articles (see Hougaard, 2005; Hutchins, 2005 and Sinha, 2005) was a search for ways to incorporate a consideration of the social context into blending theory. Sinha (2005) suggests 'a recasting of theory and method to more explicitly encompass the socially collaborative, culturally and materially grounded nature of the *human mind*' (Sinha, 2005: 1538). He points out that most of blending theory involves the individual and how the individual goes about making meaning in a given situation. Taking an alternative perspective from the classical view of the mind–body as being independent from the cultural and the social, he looks at how 'cognition extends beyond the individual' (Sinha, 2005: 1538). In his study, he analyses symbolic play by looking at a transcribed episode of some young girls in Brazil (speaking Portuguese) playing with a hat. The hat on one level is simply an artefact, but as the play progresses the hat assumes greater meaning. The girls set in motion this re-creation of significance through play. Having a shared knowledge of a male theme park character that wears a similar hat, 'Beto Carrero', eventually the girl wearing the hat, assumes the character's name and calls herself 'Bete Carrera'. She dynamically adapts her language to the situation and changes the gender of the character (male 'o') to fit her own gender (female 'e' and 'a') and 'from a collaborative process of conceptual and grammatical blending emerges the new identity signified by "Bete Carrera"' (Sinha, 2005: 1550). Similar to trashcan basketball and the previously mentioned Italian ritual, it is in this blended space where humans can creatively play with their own identity, with language or the material items in the culture, where 'the roles, identities and conventions are continually renegotiated, against the background of a *relatively* stable socially shared norms and representations' (Sinha, 2005: 1553). More recent work has also focused on conceptual integration theory and how it can be applied to social interaction and collaborative discourse using corpora, interviews and audio transcripts (Oakley and Hougaard, 2008).

### 4.2 Blending in Sign Language and Gestures

Sign language and gestures both use the physical space around the individual to communicate through the use of bodily movement, often with the hands, but can be performed by any part of the body like the eyes, forehead, torso, mouth, arms and lips. Interest into American Sign Language, as a formal structured

language, grew in the 1960s after William Stokoe published his *Sign Language Structure: An Outline of the Visual Communication System of the American Deaf*. The study of gesture also has gained notable attention (Kendon, 2004; McNeill, 2000, 2005), especially since McNeil (1992) brought to the forefront the close interrelationship between gesture and language.

Liddell (1998, 2000, 2003) adapted conceptual blending theory to the study of sign language and gestures. Liddell refers to 'the mental representation of the physical elements in one's immediate physical environment' (2000: 342) as **Real Space**. Using this immediate physical environment as one of the input spaces in a blend results in a grounded blend. Liddell provides the following simple example of how this grounded blend may appear:

- (8) Frank was looking for his keys (uttered while pressing the palms against shirt pockets then pants pockets). (Liddell, 1998: 296)

These gestures are what McNeill (1992) has previously labelled iconic gestures, in that they use concrete actions to create a pictorial representation, in this case, of someone physically looking for their keys. In the Real Space hands are simply hands, a part of the body, but in the blend they are interpreted as someone looking for something lost, as they press against the various pockets. Without the words the gesture would belong to a game of charades, but with the spoken words the significance of the gesture becomes obvious. This intricate interconnection between speech and gesture has also more recently been studied in the fields of mathematics and foreign language learning.

Edwards (2009) used the framework of conceptual integration as a way to analyse gestures in the field of mathematics. He collected a large corpus of gestures from video recordings of teachers explaining fractions. Often the teachers would use gestures for cutting or splitting. To understand how meaning is created from such a gesture, Edwards examined the gestures using a conceptual blend. In one input space there is the Real Space of the hand, the shape of it, and the motion of it swinging in the air, while in the second input space there is the mental representation of a knife, the knife's shape and the swinging motion of cutting something. In the blend the hand becomes the knife, cutting something up or dividing it into fractions, thus facilitating the learning of this mathematical concept.

There has also been considerable interest in gestures and foreign language learning (Gullberg, 2006; McCafferty, 2002 and Sueyoshi and Hardison, 2005). In one study, Kelly, McDevitt and Esch (2009) showed how production of co-speech gestures in the foreign language facilitated vocabulary acquisition. They conducted a series of experiments to find out how four different conditions (speech only, repeated speech, speech with incongruent gesture and speech with congruent gesture) would impact the acquisition of a foreign word. They

demonstrated how speech with congruent gestures had the most powerful impact on learning new vocabulary, and conjectured that 'the meaning of congruent gestures is conceptually integrated with the meaning of speech, and the integration creates stronger and more multimodal memory representations' (Kelly et al., 2009: 319–20). In their study they used the Japanese verb, *nomu* (to drink) and the congruent gesture of the hand forming a shape that resembles a cup and the motion of the hand towards the mouth, as if actually drinking something. Conceptual integration can provide a useful method to analyse how meaning is constructed in this example. The gesture is iconic, in that in the blend the hand becomes a cup by way of pictorially representing it and the movement towards the mouth is the act of drinking. It is worth noting that in Kelly et al.'s study, speech with incongruent gestures had the lowest results; incongruent gestures may therefore actually inhibit the learning of the word.

Future research could usefully address how foreign language learners make meaning from more complex gestures. What happens when the teacher uses a less obvious gesture, or one that slightly varies in meaning cross-culturally? Does this gesture then become incongruent for the learner and actually disrupt the learning of a new word? Extending the use of conceptual integration theory to analysing gestures in a foreign language has the potential to help explain how gestures work as a communicative tool in foreign language learning. The teacher's body is a visual resource for the learners and understanding how meaning emerges from the conceptual mappings in a grounded blend could have significant implications in the classroom.

## Notes

- 1 <http://markturner.org/blending.html>
- 2 Due to copyright restrictions a photo of this advertisement cannot be provided in this book, but it is widely available to view online by searching for 'Australia Post: hug'.
- 3 <http://corpus.byu.edu/coca/>

## References

- Brandt, L. and Brandt, P. A. (2005). Making sense of a blend: A cognitive-semiotic approach to metaphor. *Annual Review of Cognitive Linguistics*, 3, 216–49.
- Broccias, C. (2004). Review of Fauconnier and Turner: The way we think. Conceptual blending and the mind's hidden complexities (2002). *Cognitive Linguistics*, 15, 575–94.
- Coulson, S. (2001). *Semantic Leaps: Frame-shifting and Conceptual Blending in Meaning Construction*. New York: Cambridge University Press.
- Coulson, S. and Oakley, T. (2000). Blending basics. *Cognitive Linguistics*, 11–3/4, 175–96.
- Edwards, L. D. (2009). Gestures and conceptual integration in mathematical talk. *Educational Studies in Mathematics*, 70(2), 127–41.
- Fauconnier, G. (1994). *Mental Spaces*. New York: Cambridge University Press.

- Fauconnier, G. and Turner, M. (1998). Conceptual integration networks. *Cognitive Science*, 22(2), 133–87.
- (2002). *The Way We Think: Conceptual Blending and the Mind's Hidden Complexities*. New York: Basic Books.
- Gibbs, R. W., Jr (2000). Making good psychology out of blending theory. *Cognitive Linguistics*, 11–3/4, 347–58.
- Grady, J. (2005). Primary metaphors as inputs to conceptual integration. *Journal of Pragmatics*, 37, 1595–614.
- Grady, J. E., Oakley, T. and Coulson, S. (1999). Blending and metaphor. In R. W., Jr Gibbs and G. Steen (Eds), *Metaphors in Cognitive Linguistics*. Amsterdam and Philadelphia: John Benjamins, pp. 101–24.
- Gullberg, M. (2006). Some reasons for studying gesture and second language acquisition. *International Review of Applied Linguistics in Language Teaching (IRAL)*, 44, 103–24.
- Hiraga, M. (1999). Blending and the interpretation of Haiku. *Poetics Today*, 20(3), 461–82.
- Hougaard, A. (2005). Conceptual disintegration and blending in interactional sequences: A discussion of new phenomena, process vs. products, and methodology. *Journal of Pragmatics*, 37, 1653–85.
- Huchins, E. (2005). Material anchors for conceptual blends. *Journal of Pragmatics*, 37, 1555–77.
- Kelly, S. D., McDevitt, T. and Esch, M. (2009). Brief training with co-speech gesture lends a hand to word learning in a foreign language. *Language and Cognitive Processes*, 24(2), 313–34.
- Kendon, A. (2004). *Gesture: Visible Action as Utterance*. Cambridge: Cambridge University Press.
- Koestler, A. (1964). *The Art of Creation*. New York: Macmillan.
- Lakoff, G. and Turner, M. (1980). *Metaphors We Live By*. Chicago: University of Chicago Press.
- Liddell, S. K. (1998). Grounded blends, gestures, and conceptual shifts. *Cognitive Linguistics*, 9, 283–314.
- (2000). Blended spaces and deixis in sign language discourse. In D. McNeill (Ed.), *Language and Gesture*. Cambridge, MA: Cambridge University Press, pp. 331–57.
- (2003). *Grammar, Gesture, and Meaning in American Sign Language*. Cambridge, MA: Cambridge University Press.
- McCafferty, S. G. (2002). Gesture and creating zones of proximal development for second language learning. *The Modern Language Journal*, 86(2), 192–203.
- McNeill, D. (1992). *Hand and Mind: What Gestures Reveal About Thought*. Chicago: University of Chicago Press.
- (2000). *Language and Gesture*, vol. 2. Cambridge: Cambridge University Press.
- (2005). *Gesture and Thought*. Chicago: University of Chicago Press.
- Oakley, T. and Hougaard, A. (2008). *Mental Spaces in Discourse and Interaction*. Amsterdam and Philadelphia: John Benjamins.
- Popper, K. (1959). *The Logic of Scientific Discovery*. London: Allen.
- Sinha, C. (2005). Blending out of the background: Play, props and staging in the material world. *Journal of Pragmatics*, 37, 1537–54.
- Sueyoshi, A. and Hardison, D. M. (2005). The role of gesture and facial cues in second language listening comprehension. *Language Learning*, 55, 661–99.
- Sweetser (2000). Blended spaces and performativity. *Cognitive Linguistics*, 11–3/4, 305–33.
- Turner, M. (2012) <http://markturner.org/blending.html> retrieved 3 December 2012.
- Turner, M. and Fauconnier, G. (1995). Conceptual integration and formal expression. *Metaphor and Symbolic Activity*, 10, 183–204.

# 2.5 Tomasello's Theory of First Language Acquisition

*Sarah Turner*

## Chapter Overview

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Michael Tomasello is best known in linguistics for developing what is known as 'a usage-based theory of language acquisition'. In this chapter, we explore the features of this theory and show how Tomasello uses it to explain different aspects of child language acquisition. The information contained in this chapter is presented in detail and elaborated upon in Tomasello's book, *Constructing a Language; A Usage-Based Theory of Language Acquisition* (2003). Further reading is also recommended at the end of this chapter.

### 1 Context

Chomsky (1968) proposed that human beings were born with a 'Universal Grammar', a type of innate faculty for acquiring grammatical knowledge, which operates on only minimal exposure to grammatical data. His rationale for this hypothesis stemmed from what he called 'the poverty of the stimulus'; some



grammatical structures, he claimed, are so abstract that it would be impossible for a child to infer the rules from the utterances that she hears without such an innate Universal Grammar. However, detailed studies of acquisition have shown that children use a wide range of cognitive and social-cognitive skills in their language learning, suggesting that the hypothesized Universal Grammar is not the only resource that is available to them.

Developments in linguistic theory have also led to new approaches to language acquisition. In Chomskyan theory, the syntax is constituted by abstract, algebraic rules which have no meaning in themselves and which do not make reference to the meanings of the words of a sentence. Word meanings reside in the lexicon, and are 'plugged in' to the structures generated by the syntactic rules. These algebraic rules work on the same principles across languages, thanks to the existence of the aforementioned 'Universal Grammar'. Universal Grammar makes up the 'core' of linguistic competence. Opposed to the core is the 'periphery', to which belongs the idiosyncratic meanings of lexical items, the language's idiomatic expressions and irregular constructions, as well as pragmatic aspects of language use. This dichotomy led to a two-fold approach to language acquisition; the core is innate and embedded in the human mind, whereas the peripheral elements – words, idioms, pragmatics and the like – are learned using the same learning processes as the child uses in the other facets of her development.

This dichotomy is now being questioned, since the idea of an in-built grammatical system leads to two significant problems. The first, the *linking problem*, questions how a child can use her Universal Grammar to help her with the numerous idiosyncrasies and inconsistencies of the language she is learning. The second, *the problem of continuity*, asks why children's language develops in a non-linear fashion, often changing in unpredictable ways, if their Universal Grammar remains the same. On the basis of these and other questions, recent theories have rejected the dichotomous approach to language acquisition.

Some of the most recently developed ideas that have emerged as a challenge to the dichotomous process approach can be grouped into a set of theories known as *cognitive-functional linguistics*, or *usage-based linguistics*. Proponents of these theories hold that language structure emerges from language use. At its heart, language is symbolic; humans use symbols, first and foremost, to communicate with each other, and it is from these symbols that grammatical patterns emerge through a process of *grammaticalization*. According to these theories, there is no innate predefined grammatical system, only that which emerges from language use, and it is the linguistic symbols, not the grammar, that are at the heart of human language. Such a viewpoint therefore conceptualizes language acquisition in a very different way to the Chomskyan paradigm. Linguistic competence, according to this usage-based approach, arises from mastery of the items and structures of the language, from the frequently used

and regular to the idiosyncratic and rare, without the help of an in-built grammatical system.

It is from this vantage point that we can view Tomasello's usage-based theory of language acquisition.

## 2 Tomasello's Approach to Language Acquisition

Before investigating Tomasello's theories on the ways in which different aspects of language, such as lexis and grammar, are acquired by children, it is important to note that his theories are based on the idea that children use a wide range of cognitive and social-cognitive skills in their linguistic development, and, unlike in Chomskyan theories, these skills are not specific to language. Tomasello identifies two main sets of skills that are fundamental (Tomasello, 2003). The first, *intention-reading*, begins to develop around 9–12 months of age, and includes such skills as sharing attention to objects and events of mutual interest with others, and directing others' attention to objects through non-linguistic gestures. These skills are seen as precursors of linguistic development, necessary for children to begin their language development and ultimately acquire an appropriate use of language. This is because linguistic communication is essentially a matter of attempting to manipulate another's intentions and mental states, and it is learning to accomplish this through non-linguistic means that paves the way to the development of language.

The second set of skills is related to *pattern-finding* and categorization. These include the ability to group similar objects and events into categories and to create analogies. The development of these skills enables children to find patterns in the use of linguistic symbols, and thereby construct the grammatical regularities of language.

Let us now look more closely at Tomasello's theories of the processes of first language acquisition in children. 'Intention-reading' refers to the social-cognitive skills developed by children at the age of around 1 year that enable them to begin to engage in symbolic communication. Put simply, it is around this age that infants seem to gain a new understanding of their social worlds. They begin to follow adults' gazes, use adults as social reference points and begin to imitate the ways in which adults interact with objects. These are all actions which show that the child is beginning to notice an adult's interaction with an object, can share the experience and can direct their attention towards other objects. In sum, the child seems to be developing an awareness of other people as 'intentional agents', just like them.

Tomasello (2003) outlines three main manifestations of this new understanding which he claims are especially important for language acquisition.

They are 1) the joint attentional frame, 2) understanding communicative intentions, and 3) role reversal imitation. Let us look at each of these skills in turn.

## 2.1 The Joint Attentional Frame

By the age of 1, children are able to interact 'triadically' with others; they can interact with both objects and people, sharing their attention between an object and the adult who is part of the interaction. The 'joint attentional frame' refers to the common ground, or the aspects of the situation on which both participants are concentrating. This creation of common ground helps the child to begin to understand the language an adult uses, by providing a frame of reference and a context to the language.

## 2.2 Understanding Communicative Intentions

Another skill being developed at this age is the ability to understand communicative intentions. At this stage, children are beginning to realize that the sounds adults make have a purpose; they are using them to ask the child to attend to something. In this way, they learn that language can be used to manipulate the intentional states of others. This understanding is gained most easily within the joint attentional frames described above.

## 2.3 Role Reversal Imitation

The final skill to be considered is related to the way in which children learn through imitation. At around 9 months of age, children begin to imitate the ways in which adults interact with objects. Significantly, however, they are aware of the adults' intentions regarding the objects, and seek to reproduce these intentions; studies have shown, for example, that children will reproduce intentional actions but not accidental ones (cf. Carpenter, Akhtar and Tomasello, 1998; Meltzoff, 1995).

When it comes to imitative learning in communication, however, the process is slightly different. In imitating an adult's interactions with an object, the child need only substitute herself for the adult, as the way in which the child and the adult treat the object are the same. However, when an adult expresses communicative intentions using language, the child cannot merely replicate this, as this would result in pronoun reversal (i.e. she would use 'you' to refer to herself, and 'I' to refer to the adult). To successfully communicate, a process of role

reversal imitation must take place; the child must use the symbol in the same way as the adult used it towards her.

These three skills are crucial for a child's developing understanding of the symbols that make up linguistic communication and are the prerequisites of language development. However, in order to begin to develop a grammatical understanding, children must also possess pattern-finding skills. These skills enable children as young as 8 months old to recognize nonsense words that they had been pre-exposed to when these words are presented in a stream of other syllables. These skills are not in themselves adequate to acquire grammatical structures, as without knowledge of the symbols themselves they have no way of contextualizing the constructions, but as soon as the child begins to be able to understand linguistic symbols, the pattern-matching skills are in place to begin to acquire grammar. These pattern-matching skills also prove beneficial in discerning the meanings of words, as they enable children to infer rules based on the situations in which they hear a particular word.

So far, therefore, we have looked at the main cognitive and social-cognitive skills that enable children to begin to acquire language. We can now go into a little more detail about Tomasello's theories on the acquisition of different aspects of linguistic competence.

### 3 The Acquisition of Words

As regards word learning, Tomasello (2003: 91) adopts what he refers to as a 'social-pragmatic' approach. Such an approach is based on the three core skills described above; joint attention, understanding communicative intentions and role reversal imitation. These skills, Tomasello argues, provide children with the support they need to accomplish the formidable task of learning a huge number of words from hearing language which is relatively unexplained. That is to say, adults do not explicitly name all the objects a child comes across, and even when this does occur, it is usually only for nouns and it is rarely made explicit exactly what part of the object the name may refer to.

Learning a word requires many different cognitive and social-cognitive processes, which Tomasello separates into three types; Prerequisite processes, foundational processes and facilitative processes. *Prerequisite processes* are those that emerge before linguistic development proper has begun. They include a child's ability to process speech, isolating particular phonological sequences from the input they receive. Children must also learn at this stage to conceptualize the world in a more flexible and abstract way than merely perceiving it directly, and to be able to sort objects into categories of similar kinds. This is very important for linguistic development, because most nouns in a language

do not refer to specific objects but to whole categories of objects, such as the words *dog* or *tree*.

The *foundational processes* to which Tomasello refers are the skills of joint attention and intention-reading described above. He and his colleagues conducted research into the extent to which joint attentional interactions impacted on children's early language development (Tomasello and Farrar, 1986; Tomasello and Todd, 1983). They found a very high correlation between the amount of time children in the study spent in joint attentional interactions with their mothers and their vocabulary size at the end of the study, showing that such interactions are extremely important for language acquisition.

As for the skill of intention-reading, there seems to be a difference between its roles in learning object and action words. Tomasello, along with several other researchers (Akhtar, Dunham and Dunham, 1991; Dunham, Dunham and Curwin, 1993; Tomasello and Farrar, 1986), found that learning object words is easier for young children when adults name objects that are already in their focus of attention, rather than using the new language to draw their attention to another object. However, even when the child's attention is drawn elsewhere, and they hear a novel word outside their focus of attention, they are still able to identify the object the adult is referring to. Children are thus able to determine the adult's communicative intentions, even in quite complex situations in which there is no joint attentional frame.

Learning verbs presents challenges to children because, unlike for many nouns to which the child is exposed, verbs refer to situations that are transient and frequently not therefore perceptually available to the child when the words are spoken. In one study, for example, Tomasello (1992) found that many early verbs acquired by a child did not relate to perceptually present actions, but instead were related to completed actions ('I broke it'), requests of the child by adults ('Move!'), or checking the child's intentions ('Do you want to go?') (Tomasello, 2003: 69). Even so, children as young as 24 months are able to determine whether a novel word is functioning as a noun or a verb in a given context, implying that they are able to read adult communicative intentions even when the situation is more complex than for noun learning (Tomasello and Akhtar, 1995).

The three foundational processes therefore describe how children are able to match a novel word with a particular object or action. However, they do not attempt to address the problem of how a child ascertains a word's extension, that is, the range of things or actions that it can be used to refer to. It is this question that the *facilitative processes* seek to answer, and Tomasello identifies two of these processes.

The first facilitative process, *lexical contrast*, refers to the way in which children contrast novel words they encounter with known words that could have

been used instead. For example, while a moose and a deer may appear similar enough for a child to simply use the word 'deer' to refer to both, when an adult refers to the former as a 'moose', it provides the child with evidence that the word 'deer' cannot be extended to refer to a moose (Tomasello, 2003: 72). Lexical contrast also helps children to identify an adult's intended referent in a situation and thereby learn novel words. Take, for example, a situation in which an adult shows a child two objects, one novel and one familiar, and uses a novel word to describe one. In this case, the child assumes that the adult is referring to the novel object, as she already knows the term that would normally be used for the familiar object. The child is therefore better able to learn the term for the novel object, through a process of elimination. Children in the early stages of language learning will tend to overextend familiar words, using, for example, the word 'dog' to refer to all four-legged animals. As they hear other, novel words being used to refer to different animals, they are able to contrast the use of these new words with the use of the familiar word 'dog', thus honing its use more appropriately (Tomasello, 2003: 74).

The second facilitative process, *linguistic context*, refers to the use children make of the whole utterance in which a novel word is embedded in order to understand it. To give an example from an early study, Brown (1957) showed a group of children a picture of an unconventional action being performed with an unusual tool on an unusual substance. He then presented a novel word in different grammatical contexts; for example, he would tell one group of children 'In this picture you can see sipping', whereas another group would be told that they could see 'a sip' in the picture. The children were then shown new pictures showing a similar action, tool, or substance and asked to pick out another picture of 'sipping' or 'a sip'. The children who had been told that they could see 'sipping' would choose the picture depicting the action, whereas the children who could see 'a sip' would choose the picture of the tool (Tomasello, 2003: 75).

These three types of processes – prerequisite, foundational and facilitative – thus come together to form Tomasello's social-pragmatic approach to word learning. He proposes that word learning is founded on two fundamental elements in the child's life; their social world, and their social-cognitive capacities for participating in it. The joint attentional frames that a child is exposed to, and her attempts to understand adult communicative intentions both within and outside those frames, enable a child to begin to acquire words. This acquisition is then facilitated and speeded up by their ability to contrast the novel words they hear with those they already know. However, another factor also comes into play – the child's developing syntactic knowledge. In fact, the acquisition of lexis cannot be separated from the acquisition of grammatical structures. With this in mind, we now turn to Tomasello's theories of grammatical acquisition.

## 4 The Acquisition of Grammar

Before detailing Tomasello's theories of grammatical acquisition, it will be helpful to contrast it with the *generative grammar* approach. This approach to grammatical acquisition in children holds that once a child is able to understand an utterance, she will be able to infer its correct grammatical structure and will be able to apply it to all similar utterances almost immediately. Likewise, once a child shows evidence that she knows a grammatical structure – say, by producing a passive sentence correctly – she will be able to apply this structure across the board, no matter what lexical items are involved. The child, in other words, will be able to produce passive sentences using any of the transitive verbs so far in her vocabulary. The usage-based approach, in contrast, proposes that the acquisition of grammatical structures is highly dependent on the language to which the child is exposed, and it is only after a significant level of exposure to relevant instances that generalizations can occur. The acquisition of grammar thus proceeds in a rather piecemeal fashion, not at all in the linear process that generative approaches predict.

Children typically begin to produce multiword utterances between the ages of 18 and 24 months. Some of these early multiword items then begin to show a pattern, forming what Braine (1963) terms *pivot schemas*. In a pivot schema, a single word is used in combination with a variety of object labels, leading to children producing utterances such as *more milk, more grapes, more juice*, etc. (Tomasello, 2003: 114). These pivot schemas then develop as new words are added to the child's lexicon, as Tomasello, Akhtar et al. (1997) demonstrated; they found that 22-month-old children who were taught a novel noun were then able to use this noun in their existing pivot schemas.

It should be noted that pivot schemas do not have syntax; their word order does not affect their meaning, so 'more juice' and 'juice more' have the same meaning. The fact that children tend to be consistent in the word orders they produce, Tomasello argues, is thanks to direct reproduction of adult word order and does not have communicative significance. However, what Tomasello refers to as *item-based constructions* begin to emerge at around 2 years of age, which differ from pivot schemas in that they do have syntactic marking. Here, children begin to produce utterances with a conventional English word order. For example, it is at this stage that children can comprehend and produce transitive phrases that depend on conventional English word order such as 'Make the bunny push the horse' (Tomasello, 2003: 117). It should still be noted, however, that at this stage these utterances are still very much item-specific, in that they are still based on a set number of verbs – those that have appeared most often in the language to which the child is exposed. For example, if a child who can produce many transitive utterances is taught a new verb, she cannot generalize the transitive construction to be used with the new verb until she actually hears

it being used in this way. It is not until the age of 3 that children can generalize in this way. Until then, it seems that each verb in a child's lexicon develops independently, at different rates, depending on the child's prior encounters with each verb (Tomasello, 1992).

This represents significant evidence against the generative grammar approach described above, as it shows that early grammatical development takes place at the level of the individual verb and thus rule generalization does not play as great a role as the generative grammar approach would claim. It also highlights the importance of social context, not only in a child's lexical development, but in the acquisition of grammatical structures too.

Similarly to the theories he proposes regarding word acquisition, Tomasello's theories on grammatical acquisition very much emphasize the importance of the child's general cognitive and social-cognitive skills. The social world also has a crucial role to play, as grammatical structures are constructed out of the language the child is exposed to through interaction with adults. But if, like lexical development, grammatical development depends on certain general cognitive skills, what are these skills?

The first skill that Tomasello identifies is the pre-linguistic ability to mentally plan a multiple-step procedure with a goal in mind, before performing it. This skill is evident from around 14 months of age in problem-solving scenarios, and would seem to be a necessary prerequisite skill to have developed before being able to construct word combinations.

The second skill concerns the way in which children form pivot schemas. Similarities can be observed in the child's formation of sensory-motor schemas. For example, in research conducted by Brown and Kane (1988), children were taught to perform a particular action with a particular object, then were presented with other scenarios in which they could perform the same action but with a different object. The fact that they could do this indicates that the children had acquired the skills necessary to do the same with words. Once again, these two skills are not exclusive to linguistic development, but represent general social-cognitive faculties that are used for various actions.

Of course, adult language is significantly more complex than these early utterances that children produce, and they must therefore acquire increasingly sophisticated grammatical structures. It is, therefore, worth discussing some of the main cognitive and social-cognitive skills a child uses as they advance in their linguistic development.

The first set, *schematization and analogy*, are skills children use to create abstract constructions, and develop an abstract conceptualization of grammar. We have seen how young children create schemas, learning which linguistic structures can be used to fulfil which purposes, and identifying a relatively abstract 'slot' in these structures which can be filled in response to the demands of the situation. *Analogy*, however, refers to the skill by which children can identify the



relationships between components in different constructions. For example, in the two constructions 'X is Y-ing the Z' and 'A is B-ing the C', the relationships between components are the same in each case, with X being analogous to A, Y to B, and Z to C (Tomasello, 2003: 298). As a child learns to recognize these relationships, they can begin to develop a recognition of abstract constructions, and thus a level of abstract grammatical competence.

The second set of skills Tomasello identifies, *entrenchment and competition*, refer to the ways in which children generalize based on prior knowledge. *Entrenchment*, quite simply, refers to the fact that if a child does something successfully enough times, it becomes habit. However, if an adult communicates in a contrasting way, the familiar way is *pre-empted*; there must be a reason for the adult's choice, which motivates the child to distinguish between the two forms and thus further develop their linguistic competence. For example, if a child hears an adult say 'He made the rabbit disappear', while expecting to hear 'He disappeared the rabbit', the heard construction *pre-empts* the child's generalization, encouraging her to infer that the verb *disappear* cannot occur in a simple transitive construction (Tomasello, 2003: 178). Pre-emption and entrenchment together form a single process of *competition*, in which different linguistic forms compete with each other on several bases, including frequency and entrenchment.

As children gain an increasingly sophisticated level of linguistic knowledge, they begin to categorize linguistic items based on the communicative functions they perform. This process is known as *functionally based distributional analysis*, and enables children to effectively build up an abstract knowledge of the language they are acquiring. Put simply, as a child progresses in her linguistic development, she gains the ability to build up paradigmatic categories of linguistic items according to the communicative functions that they serve. The *noun* category, for example, is made up of words that serve particular functions within nominal constructions. The child can then use her knowledge of the *noun* category to inform her use of newly learned nouns. Even though she has no direct experience of the new noun being used as, say, the object of a sentence, she can use her knowledge of how nouns 'normally' behave to infer that this new noun will probably behave no differently.

## **5 Summary and Recommended Reading**

This chapter has aimed to provide a brief overview of Tomasello's usage-based theory of language acquisition. We have seen how children acquire language through a set of general cognitive and sociocognitive skills, building up an increasingly complex knowledge of language. The fundamental idea underpinning usage-based language acquisition, at whatever level, is that children's

acquisition of language is not based on any separate, purpose-built language learning faculty in the brain; it is reliant on general cognitive and social-cognitive skills that develop independently of language acquisition, and on the social context through which the child is exposed to language.

For more information on Tomasello's theories, his 2003 publication *Constructing a Language – A Usage-Based Theory of Language Acquisition* presents a clear and detailed account of the ideas introduced in this chapter and is highly recommended. For a more detailed case study of early grammatical development, *First Verbs: A Case Study of Early Grammatical Development* (1992) is a book-length study of a child's acquisition of verbs. Tomasello has also worked on the cultural and evolutionary origins of human language. His 2008 book, *Origins of Human Communication*, provides a thorough and accessible account of his research in this area.

It is not only human language acquisition that Tomasello has addressed; readers interested in primate cognition and communication – and possible continuities between animal and human communication and cognition – are recommended to consult his 1997 publication written with Josep Call, *Primate Cognition*, which gives a critical review of research into the cognitive skills of primates. Tomasello's own research on this topic is addressed in numerous research articles (cf. Liebal, Pika and Tomasello, 2007; Tomasello, Call and Gluckman, 1997; Tomasello, Call et al., 1997), and his 1999 book, *The Cultural Origins of Human Cognition*, identifies the possible links between human and animal cognition.

## References

- Akhtar, N., Dunham, F. and Dunham, P. (1991). Directive interactions and early vocabulary development: The role of joint attentional focus. *Journal of Child Language*, 18, 41–50.
- Braine, M. (1963). The ontogeny of English phrase structure. *Language*, 39, 1–14.
- Brown, A. and Kane, M. (1988). Preschool children can learn to transfer: Learning to learn and learning from example. *Cognitive Psychology*, 20, 493–523.
- Brown, R. (1957). Linguistic determinism and the part of speech. *Journal of Abnormal and Social Psychology*, 55, 1–5.
- Carpenter, M., Akhtar, N. and Tomasello, M. (1998). Sixteen-month-old infants differentially imitate intentional and accidental actions. *Infant Behavior and Development*, 21, 315–30.
- Chomsky, N. (1968). *Language and Mind*. New York: Harcourt Brace Jovanovich.
- Dunham, P., Dunham, F. and Curwin, A. (1993). Joint attentional states and lexical acquisition at 18 months. *Developmental Psychology*, 29, 827–31.
- Liebal, K., Pika, S. and Tomasello, M. (2006). Gestural communication of orangutans (*Pongo pygmaeus*). *Gesture*, 6(1), 1–38.
- Meltzoff, A. (1995). Understanding the intentions of others: Re-enactment of intended acts by 18-month-old children. *Developmental Psychology*, 31, 838–50.

- Tomasello, M. (1992). *First Verbs: A Case Study of Early Grammatical Development*. New York: Cambridge University Press.
- (1999). *The Cultural Origins of Human Cognition*. Cambridge, MA: Harvard University Press.
- (2003). *Constructing a Language – A Usage-Based Theory of Language Acquisition*. Cambridge, MA: Harvard University Press.
- (2007). If they're so good at grammar, then why don't they talk? Hints from apes' and humans' use of gestures. *Language Learning and Development*, 3(2), 133–56.
- (2008). *Origins of Human Communication*. Cambridge, MA: MIT Press.
- Tomasello, M. and Akhtar, N. (1995). Two-year-olds use pragmatic cues to differentiate reference to objects and actions. *Cognitive Development*, 10, 201–24.
- Tomasello, M. and Call, J. (1997). *Primate Cognition*. Oxford: Oxford University Press.
- Tomasello, M. and Farrar, J. (1986). Joint attention and early language. *Child Development*, 57, 1454–63.
- Tomasello, M. and Todd, J. (1983). Joint attention and lexical acquisition style. *First Language*, 4, 197–212.
- Tomasello, M., Call, J. and Gluckman, A. (1997). Comprehension of novel communicative signs by apes and human children. *Child Development*, 68(6), 1067–80.
- Tomasello, M., Akhtar, N., Dodson, K. and Rekau, L. (1997) Differential productivity in young children's use of nouns and verbs. *Journal of Child Language*, 24, 373–87.
- Tomasello, M., Call, J., Warren, J., Frost, G. T., Carpenter, M. and Nagell, K. (1997). The ontogeny of chimpanzee gestural signals: A comparison across groups and generations. *Evolution of Communication*, 1(2), 223–59.

# 2.6 Bybee's Usage-based Models of Language

*Daniel Sanford*

## Chapter Overview

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Joan Bybee's work on the effect of usage on language structure directly challenged key assumptions of the generative approach to the study of language, offering a model for analysing the structure of language that links patterns and schemas to meaning rather than using rules to derive surface from underlying forms. Proceeding from her early work in phonology that challenged the psychological plausibility of rule-based models, Bybee's work was ultimately to fully invert the performance/competence model, arguing that the stored form of language is a result of individual language users' exposure to language in use. Her work presents a view of linguistic structure as arising from the interaction of language use (in terms of processing, as well as of social and interactional concerns) with language substance (both phonetic and semantic), challenging the generative view of language as an abstract system. Her models for the interacting effects of type and token frequency have implications across all levels of linguistic structure, grounding important features of and diachronic patterns in language to effects that are well-attested in cognition more generally.

## 1 Natural Generative Phonology

In Bybee's early work on Natural Generative Phonology (1973, 1976a, 1979), she reacts to Chomsky and Halle's *Sound Pattern of English* (SPE). SPE asserts a theory of phonology that generated the surface forms of language through the algorithmic operation of rules upon the stored units of language contained in the lexicon – in the case of sound systems, underlying representations at the systematic phonemic level. As a formal system, Chomsky and Halle's generative phonology ably predicted surface forms based on the interactions of strictly ordered phonological rules upon underlying phonemes. Analyses within the model often accounted, however, for surface variation with an appeal to underlying phonemes that, in their phonetic form, were distinct from the segments attested in language itself. The theorized underlying forms, and the rules that operated upon them, were highly *abstract*: they involved determining factors and phonetic detail that were unattested at the surface level (i.e. that were not in fact the sounds of speech).

Natural Generative Phonology was an attempt to impose constraints on the abstractness of analyses and thereby create more cognitively plausible rules and underlying structures. Building on the work of Theo Vennemann (1971), Bybee theorized with the True Generalization Condition (1976a) that the phonological rules in speakers' minds are both surface-true and transparent: underlying forms that aren't also attested as surface forms, and phonological rules with exceptions, or that depend on complex rule-ordering relations that supply or rob one another of conditioning environments, are highly suspect as cognitively plausible mechanisms. And in contrast to the abstractness of SPE, NGP asserted that the phonetic substance of language matters in phonological analyses: syllable structure, the sonority hierarchy, and other factors that follow from the nature of language as a production of the human apparatus for speech, make a difference in the 'naturalness' of rules that can and should have a role in analyses and explanations. The True Generalization Condition also distinguishes, from phonetically conditioned processes, rules with morphological or lexical conditioning, each of which further challenges the generative assertion that rules at the phonemic level do not interact with other levels of linguistic structure.

While Bybee had not yet re-examined many of the current assumptions about language, NGP contained strands of thought that were to run throughout Bybee's corpus of work, and eventually to the argument that the stored units of language are phonetically detailed, and identical to surface forms (Hooper, 1981). NGP anticipated the cognitive research model in seeking accounts of linguistic structure that invoke credible, testable accounts of how language proceeds from its stored to surface forms, and in challenging the discreteness of any one level of language from every other in accounting for

observed patterns. Many of these issues are taken up again in *Phonology and Language Use*, 2001.

## 2 Morphology

With her work on morphology (1985, 1987), Bybee established a clean break from generative, rule-based models, and advanced three major ideas. First, Bybee argued for a semantic motivation for recurring cross-linguistic patterns in morphology: much as, within NGP, the stored units of language cannot be understood without appeal to their basis in the vocal apparatus through which they are expressed, the structure of words can't be understood without linking language structure to its roots in the systems of meaning that language captures. Second, Bybee developed an approach to explaining morphological patterns using the concept of a schema. Third, Bybee argued that regular and irregular patterns in morphology result from the effects of the frequencies of linguistic forms and patterns upon the stored form of language. In arguing for each of the above, she advanced a model for grammar tied in with other aspects of human thought, and rooted in general cognitive processes rather than abstract processes specific to language.

The Chomskian generative view holds that grammar is independent of meaning, and that language processing takes place discretely from the rest of cognition. With respect to morphology, this view runs contrary to Sapir's (then 40-year-old) observations that elements of meaning within a word could be broadly divided between the material (or lexical) and the relational (or grammatical), and that the former tends to occur in stems while the latter tends to occur in affixes. Bybee returned to and elaborated this point, presenting in the 1985 volume *Morphology: A Study of the Relation between Meaning and Form* the results of an extensive survey (including 50 genetically and geographically diverse languages) cataloging recurring cross-linguistic patterns in morphological systems with respect to tense, aspect and mood. In addition to supporting the view (previously articulated by Comrie, 1976) that there are regularities, across languages, as to the semantic content expressed in grammatical categories, as well as providing pioneering categorizations for modality, the study yielded important repercussions for the view that grammar is shaped by the cognitive systems of speakers. Alongside Talmy and others who noted connections between linguistic structure and linguistic meaning, and basing her argument on the type of large-scale empirical study innovated by scholars such as Joseph Greenberg, she asserted that the determining factors of such patterns were semantic, motivated by the conceptual systems of speakers. Bybee describes, for example, the likelihood that semantic elements will be combined in a single stem as a function of their relevance to one another: the extent to

which the meaning of one is inherently modified by the meaning of the other (e.g. the meaning 'through water', which is highly relevant to the meaning 'to go on foot by taking steps' is combined in English into the single stem *wade* rather than expressed in an affix). The likelihood of a meaning being coded within an inflectional category, on the other hand, is related to both its relevance and to its *generality*: the extent to which it applies to a wide number of items within a category. Inflectional units relating to tense, for example, are overwhelmingly expressed as affixes because of their generality: the idea of something having occurred in the past, present or future applies to any verb. Such relationships aren't generally expressed within verb stems because of their low relevance: while they provide information about the verb, they don't impinge greatly on the meaning of the verb itself. In a similar fashion, Bybee posits many intuitive relationships between semantic parameters and morphological patterns – the ordering of morphemes, inflectional categories, the distribution of verbal categories, degree of fusion with stems and others – attested across a large number of languages.

Bybee's approach to morphological form is organized around the idea of a *schema* – a term borrowed from cognitive psychology, to which it was first introduced by Piaget (1926). In Cognitive Linguistics (and elsewhere) the term is still used in a way broadly in accord with the way outlined by Piaget, and in accord with his view of the human mind as being shaped primarily by experience as opposed to innate tendencies. A schema is a pattern that organizes the human understanding of experience, acquired by humans (and particularly children) as they interact with both their physical and social environments. Schemas act as bases for the understanding of concepts, for structuring experience, for organizing information, and for taking action in thought and deed. New information is processed on the basis of existing frameworks, which in turn are acted upon by the new information.

Working on a track parallel to Langacker who was developing a similar model for syntax, Bybee (along with Dan Slobin and Carol Moder) used schemas – defined for morphology as an 'emergent generalization' over 'words having similar patterns of semantic and phonological connections' (1985: 430) – as a structuring concept for a wholly new conception of the grammar of words. Schemas, within Bybee's model, take the form of generalizations over sets of related forms. For example, the forms *snuck*, *struck*, *strung*, *spun* and *hung* are linked by a semi-productive schema that comprises connections between similarities across lexical items: the past tense and the medial vowel and to lesser extents the final and initial consonants (or consonant clusters) (Bybee, 1985; Bybee and Moder, 1983; Bybee and Slobin, 1982). The class of items linked by a schema are, like cognitive categories more generally, defined prototypically. *Strung*, for example, is the prototypical member of the category presented above, sharing the maximum number of connections across shared properties

with other members of the class. And while certain features are more relevant than others in determining alignment with a schema, it is proximity to the prototype that defines participation in the schema rather than a set list of defining traits. Critically, the past tense forms above are not derived from the present tense forms (or vice versa). They exist alongside one another in the lexicon, and both forms are accessed in online processing. In a generative model, irregular forms such as the forms listed above are given lexical status because they can't be derived by a regular rule from a more basic form; Bybee's model of morphology uses the lexical status of such items as a starting point and organizes the hypothesized structure of language around it. Forms such as the class of irregular verbs above are sanctioned by a *product-oriented* schema (Zager, 1980): while no regular rule can easily account for the various past tense forms of the class as derived forms, they have shared features that are, if not predictable, coherent with one another. The schema captures the coherence of the outcomes of a hypothetical rule that produces the related forms, hence it is product-oriented. Regular morphological patterns, instantiated by items that are more easily treated as the outcome of a regular rule in a generative approach (e.g. third-person past tense forms sharing the ending [d]), correspond to *source-oriented* schemas: the set of items that would form the inputs (i.e. the source) of a hypothetical rule converting basic to derived forms are fully as schematic as the set of items forming the hypothetical derived forms.

Bybee makes a distinction (following the use of type/token ratios as a measure of lexical diversity in the study of child language acquisition by researchers such as Brian MacWhinney) between *type frequency* and *token frequency* (Bybee, 1985, 1995, 2001a). Token frequency refers (within morphology) to the frequency of a given form in running text – for example, the frequency of the verb *string*, or of *strung*. Type frequency, on the other hand, refers to the frequency of distinct items that occur in a pattern – past tense verbs of the VERB + [d] pattern ('tied'), for instance, or of the form C(C)(C)Λŋ (*strung*, *hung*). Both refer formally to the frequency of linguistic forms as counted in a given corpus or text, but these tallies are important insofar as they point to the frequencies with which speakers of a language encounter patterns and instances of patterns as they engage in language use. Words, as speakers are repeatedly exposed to them, increase in token frequency and gain in their *lexical strength*. With each instance of a connection made between the stored form of a word and a token being processed, the word becomes more easily and quickly accessed. Words become more likely to serve as a basis for analogy in new formations, and forms become increasingly *autonomous*: lexical connections to forms sanctioned by the same schema weaken as the direct processing route becomes more entrenched. As a result, autonomous forms tend to resist change (resulting in the often-observed pattern that the most irregular verbs are commonly the most frequent as well – good examples can reliably be found in verbs corresponding to *make*, *go*, *be* and



*do* across languages). In extreme cases, autonomous forms can become semantically opaque, due to weakened connections to related forms.

High type frequency corresponds to the strength of the schema itself. Every instance of a pattern being invoked as a basis for mapping a form being processed strengthens the pattern itself. As schemas become entrenched, they become more *productive*: more likely to be applied to new items that have sufficient semantic and phonological similarities to prototypical forms in the schema (Bybee, 1985, 1995, 1999). This applies both to new words entering the language (e.g. the productive weak verb pattern that creates the past tense for the overwhelming majority of new English words) and regularization in language change (as seen in the growing use of the past tense form *creeped* relative to *crept* as the word is reanalysed according to the more productive pattern of weak verbs). Token frequency entrenches forms, causing them to be analysed less, as direct access to the word itself (irrespective of related words or schemas) is routinized. Type frequency entrenches schemas, causing items sanctioned by schemas to be analysed more, as lexical connections between related forms are routinized. High token frequency acts to create idiosyncrasy and resistance to change in language as forms become autonomous from schemas; high type frequency effects regularization as schemas come to be applied to new forms.

### **3 Grammaticalization**

The study of grammaticalization (whereby semantically complex collocations become, over time, encoded in the grammar of a language as default ways of expressing concepts) had a great influence on Bybee's work, in that it pointed towards the more general applicability of usage effects in language. Bybee's model for the effects of frequency upon language over time has in turn become an essential part of the study of the creation of grammar. Bybee, Perkins and Pagliuca (1994) present the results of a large cross-linguistic survey, following in large part from the methods of Bybee, 1985, cataloging the use of grams (encompassing both grammatical morphemes and constructions) to indicate tense, aspect and modality across 76 languages. Extant variation in how morphosyntactic systems handle these categories is rooted in well-attested diachronic patterns by which grams come into being and become more abstract and functionally oriented over time. The work argues directly for one of the key claims of Bybee's career: that a synchronic description of language is best understood as the outcome of diachronic processes, not as an internally coherent system, and that linguistic universals are to be found in diachronic patterns rather than the features catalogued in synchronic analyses.

Bybee (2003) roots the universality of the diachronic patterns whereby grammar is created in fundamental aspects of human cognition. Habituation, whereby

repetition of a stimulus leads to decreased response, leads to the bleaching of semantic content for grams. Emancipation, whereby elements assume properties inferred from their context, leads to grams assuming meanings originally associated with semantic substance and pragmatic functions with which they co-occurred. The development and ongoing change of grammatical constructions is contingent on categorization, with the acceptability of a given word for filling a slot in a construction determined by speaker's previous experience of use on their prototypically defined category for the slot. The phonetic reduction of high-frequency items (Bybee, 2001b; Bybee and Scheibman, 1999) is a function of routinization. The creation of grammar in language results from the effect of language use (and in particular, repetition and use in context) upon the semantic substance encoded in language.

#### **4 Usage-based Theory**

In the approach to morphology that Bybee developed, the relationship (as it was understood at the time) between language in its stored form and language in its expressed form was fundamentally altered. Bybee's early work in morphology inverted the generative paradigm whereby knowledge of language is knowledge of stored units and rules that act upon them (Chomsky, 1957, 1965), innovating an approach that gave primacy to the empirical form of language. It did so by asserting that the stored form of language comprises generalizations that emerge, in the minds of individual speakers, over the patterns to which they are exposed on a daily basis in linguistic interactions. With her work on grammaticalization indicating the applicability of a usage-based model beyond morphology, Bybee proceeded in subsequent work to outline a theory of language with strong predictive value across all levels of linguistic structure, grounding an account of both variation within a language and universals across languages in the effect of repetition on storage and processing. Taking frequency of use into consideration exemplifies the cognitive approach in accounting for the facts of language with principles that apply to cognition more generally. The effect of frequency upon processing is a basic, domain-general phenomenon, equally at play in the diachrony of English strong verbs as in, for example, the act of inserting a key in to a car's ignition and turning it to the 'on' position becoming a single, routinized motion through repetition.

Within Exemplar Theory – a model for perception and categorization developing out of cognitive psychology, applied to speech perception by researchers such as Keith Johnson, Francisco Lacerda, and Stephen Goldinger in the last two decades of the twentieth century, and articulated by Bybee in her written work beginning in 2000 as the architecture for her observations on linguistic frequency effects – similarity is at the core of category formation. Two long-

standing assumptions regarding categories in the human mind have been 1) that categories have firm boundaries with membership determined by the criteria that define the category, and 2) that categories are abstractions, comprising general information rather than specific memory of instantiating examples. Work on prototype theory and its implications for language (see Taylor, 2003, 2008 and Taylor and Littlemore, this volume) have challenged the former. The latter has been challenged by a host of experimental evidence indicating that experienced instances of a category aren't discarded from memory once they are aligned with a category (Hintzman, 1986; Medin et al., 1982; Nosofsky, 1986). Rather, they're stored in rich detail, and shape the category itself in ways that account for prototype effects. For language, it means that instances of linguistic experience (sounds, words, constructions, etc.) are categorized according to similarity to other experienced tokens. Experienced instances that are effectively identical accumulate with repetition as exemplars that contain not only phonetic information, but semantic, contextual and pragmatic details as well. All of this information contributes to connections between exemplars, with exemplars containing similar information stored in clusters of proximate items. These clusters (which might contain anything from, for example, experienced tokens of the phoneme /p/, or of a syntactic construction like *On one hand . . . on the other . . .*) are the stored units of language, and exhibit the characteristics of prototypically defined categories (Bod, 2006; Connine and Pinnow, 2006; Docherty and Foulkes, 2000; Hay and Bresnan, 2006; Pierrehumbert, 2001). The effects of frequency upon language arise from the ways in which instances accrete into exemplars. Every token added to the representation of an exemplar increases the weight of the exemplar, causing it to be more easily accessed. Critically, then, every experienced token of the category will have some effect, however small, on the processing of subsequent tokens.

In the last 20 years the theory has been articulated by Bybee (2010), her students, and others working within the framework in ways that highlight the implications of the approach across all levels of linguistic structure, and that further explore the ways in which diachronic patterns follow from the influence of usage on the storage and processing of language. Bybee's work on syntactic constructions has been particularly influential.

## **5 Form-meaning Pairings in Syntax: Constructions**

In Bybee's account of morphology, words can be processed either on the basis of constituent elements or via a direct association between form and meaning for the word itself, with the interacting effects of type and token frequency playing a primary role in determining which takes place. A significant strength of the theory, then, is that it accounts well for morphologically complex words with

meanings that don't equate to the sum of their parts. At the level of syntax as well, there are many examples of units that defy an analysis whereby the whole proceeds compositionally from parts. Idioms such as *let the cat out of the bag* or *crack the whip* provide the most straightforward example of this, as they are syntactically complex utterances with a conventionalized meaning that requires, in nearly any analysis, some degree of lexical status. Such examples, however, are not the outliers that they were once taken to be. Syntax is rife with examples of patterns that don't simply provide a framework for creating grammatical relationships among the words within them, but directly instantiate a pairing of form to meaning (Barlow and Kemmer, 1994; Croft, 2001; Goldberg, 1995; Wray, 2002). Such patterns are referred to as constructions, and they can range anywhere along a continuum from highly schematic (allowing for a high degree of variation in word choice and inflectional possibilities) to highly fixed (admitting only minor variations upon a relatively fixed string). Constructions, as recurring patterns, lend themselves well to an exemplar-based analysis. Exemplars take the form of strings of words, with schemas forming across related exemplars such that lexical connections form between instances of the same word, and across words that share similarities on the grammatical, phonological and/or semantic level (Bybee, 2001a, 2001c; Bybee and Thompson, 2000). The semantic idiosyncrasy of idioms and as well as more schematic constructions can arise as high token frequency licenses autonomy from the source-oriented schema by which meaning is derived from constituent elements, and constructions assume elements of meaning from semantic contexts in which they frequently occur.

Bybee argues that chunking, a general cognitive principle whereby sequences to which people are repeatedly exposed come to be stored as units (Miller, 1956; Newell, 1990), is the basis for the formation of constructions. In language, such units can be strings at any level: phonetic sequences, morphemes, words or larger units. Chunking is both recursive and redundant: chunks that co-occur come to be stored together, such that a unit of memory can itself contain many units. Chunking has the effect of streamlining processing, providing an immediate route for accessing the largest possible string. At the same time, however, that chunking of longer sequences may provide a more direct processing route than analysis from constituent elements, routinized processing for longer sequences does not preclude the same effect taking place for shorter sequences within them. Accordingly, exemplars for chunks have complex sets of lexical connections to related items, at the level not only of, for example, constructions, but also for frequent word collocations, words, morphemes and phonetic sequences within them. Chunking plays an important role within the cognitive programme to account for important features of language using more general principles. Bybee (2002) argues that the phenomenon underlies the constituent structure of language, and played an essential role in the historical development of language from pre-language.

## 6 Conclusion

Bybee's work on frequency effects in language has had several important implications for the study of language, beyond even the explicit predictions of the model for cross-linguistic and diachronic patterns. Her work underscores the constantly changing nature of language, rooting an understanding of how a given language exists at any point in time as a function of the operation of (among other factors) type and token frequency across time. Her development of a cognitively plausible system for modelling the effect of repetition on language processing has been instrumental in the shared development of a usage-based approach to language, whereby the units of use are the units of storage and the stored representations of language are shaped by the facts of language in use. The accompanying reconceptualization of grammar as mutable and affected by experience is a direct challenge to the Chomskian paradigm whereby the language faculty is innate and hard-wired, existing irrespective of language as it is spoken. Her approach explores the possibility that the facts of language – diachronic patterns, language universals, tendencies in the ordering of morphemes or words, or of the distribution of irregular versus regular forms – aren't only facts to be observed and attributed to the abstract structure of language. They are phenomena that can and should be accounted for, and linguists, in seeking such explanations, should cross disciplinary boundaries and ground theories of language in more general theories of how memory and mental processing work.

Perhaps most importantly, and extending the relevance of the work beyond the cognitive sciences to complex systems more widely, Bybee's career has contributed to a view of language as an emergent, self-organizing phenomenon. The operation of frequency effects in language, developed by Bybee and others influenced by her approach across all levels of linguistic structure, are key to an understanding of language that shares with our understanding of other natural systems how complexity arises out of the recursive operation of invariable principles.

## References

- Barlow, M. and Kemmer, S. (1994). A schema-based approach to grammatical description. In S. D. Luna, R. L. Corrigan and G. K. Iverson (Eds), *The Reality of Linguistic Rules*. New York and Philadelphia: John Benjamins.
- Bod, R. (2006). Exemplar-based syntax: How to get productivity from examples. *Linguistic Review*, 23, 291–320.
- Bybee, J. (1985). *Morphology: A Study of the Relation between Form and Meaning*. Amsterdam and Philadelphia: John Benjamins.

- (1994). A view of phonology from a cognitive and functional perspective. *Cognitive Linguistics*, 5(4), 285–305.
- (1995). Regular morphology and the lexicon. *Language and Cognitive Processes*, 10(5), 425–55. Reprinted in Bybee, 2007, pp. 167–93.
- (1999). Use impacts morphological representation. *Behavioral and Brain Sciences*, 22(6), 1016–17.
- (2000a). Lexicalization of sound change and alternating environments. In M. Broe and J. Pierrehumbert (Eds), *Papers in Laboratory Phonology V: Acquisition and the Lexicon*. Cambridge: Cambridge University Press, pp. 250–68.
- (2000b). The phonology of the lexicon: Evidence from lexical diffusion. In M. Barlow and S. Kemmer (Eds), *Usage-based Models of Language*. Stanford, CA: CSLI, pp. 65–85. Reprinted in Bybee, 2007, 199–215.
- (2001a). *Phonology and Language Use*. Cambridge: Cambridge University Press.
- (2001b). Phonological evidence for exemplar storage of multiword sequences. *Studies in Second Language Acquisition*, 24, 215–21.
- (2001c). Frequency effects on French liaison. In J. Bybee and P. Hopper (Eds), *Frequency and the Emergence of Linguistic Structure*. Amsterdam: John Benjamins, pp. 337–59.
- (2002). Sequentiality as the basis for constituent structure. In T. Givón and B. Malle (Eds), *The Evolution of Language from Pre-language*, pp. 109–32. Amsterdam and Philadelphia: John Benjamins. Reprinted in Bybee, 2007, pp. 313–35.
- (2003). Cognitive processes in grammaticalization. In M. Tomesello (Ed.), *The New Psychology of Language, Volume 2*. Mahwah, NJ: Lawrence Erlbaum Associates, pp. 145–65.
- (2005). Language change and universals, in *Linguistic Universals*, ed. R. Mairal and J. Gil. Cambridge: Cambridge University Press.
- (2007). *Frequency of Use and the Organization of Language*. Oxford: Oxford University Press.
- (2010). *Language, Usage, and Cognition*. Cambridge: Cambridge University Press.
- Bybee, J. and Moder, Carol L. (1983). Morphological classes as natural categories. *Language*, 59, 251–70. Reprinted in Bybee, 2007, pp. 127–47.
- Bybee, J. and Scheibman, J. (1999). The effect of usage on degrees of constituency: The reduction of *don't* in English. *Linguistics*, 37–4, 575–96. Reprinted in Bybee, 2007, pp. 294–312.
- Bybee, J. and Slobin, D. (1982). Rules and schemas in the development and use of the English past. *Language*, 58, 265–89. Reprinted in Bybee, 2007, pp. 101–26.
- Bybee, J. and Thompson, S. (2000). Three frequency effects in syntax. *Berkeley Linguistic Society*, 23, 65–85. Reprinted in Bybee, 2007, pp. 269–78.
- Bybee, J., Perkins, R. and Pagliuca, W. (1994). *The Evolution of Grammar: Tense, Aspect and Modality in the Languages of the World*. Chicago: University of Chicago Press.
- Chomsky, N. (1957). *Syntactic Structures*. New York: Mouton de Gruyter.
- (1965). *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.
- Chomsky, N. and Halle, M. (1968). *The Sound Pattern of English*. New York: Harper and Row.
- Comrie, B. (1976). *Aspect*. Cambridge: Cambridge University Press.
- Connine, C. and Eleni, P. (2006). Phonological variation in spoken word recognition: Episodes and abstractions. *The Linguistic Review*, 23, 235–45.
- Croft, W. (2001). *Radical Construction Grammar: Syntactic Theory in Typological Perspective*. Oxford: Oxford University Press.
- Docherty, G. and Foulkes, P. (2000). Speaker, speech, and knowledge of sounds. In N. Burton-Roberts, P. Carr and G. Docherty (Eds), *Phonological Knowledge: Conceptual and Empirical Issues*. Oxford: Oxford University Press, pp. 105–29.

- Goldberg, A. (1995). *Constructions: A Construction Grammar Approach to Argument Structure*. Chicago: University of Chicago Press.
- Hay, J. and Bresnan, J. (2006). Spoken syntax: The phonetics of giving a hand in New Zealand English. *The Linguistic Review*, 23(3), 321–49.
- Hintzman, D. (1986). Schema abstraction in a multiple-trace memory model. *Psychological Review*, 93, 411–28.
- Hooper, J. (1973). Aspects of natural generative phonology. Doctoral dissertation, UCLA.
- (1976a). *An Introduction to Natural Generative Phonology*. New York: Academic Press, Inc.
- (1976b). Word frequency in lexical diffusion and the source of morpho-phonemic change. In W. Christie (Ed.), *Current Trends in Historical Linguistics*. Amsterdam: North Holland. Reprinted in Bybee, 2007, 23–34.
- (1979). Substantive principles in natural generative phonology. In D. Dinnsen (Ed.), *Current Approaches to Phonological Theory*. Bloomington: Indiana University Press, pp. 106–25.
- (1981). The empirical determination of phonological representations. In T. Myers et al. (Eds), *The Cognitive Representation of Speech*. Amsterdam: North Holland, pp. 347–57.
- Piaget, J. (1926). *The Language and Thought of the Child*. London and New York: Routledge.
- Pierrehumbert, J. (2001). Exemplar dynamics: Word frequency, lenition, and contrast. In J. Bybee and P. Hopper (Eds), *Frequency and the Emergence of Linguistic Structure*. Amsterdam and Philadelphia: John Benjamins, pp. 137–57.
- Miller, G. (1956). The magical number 7, plus or minus two: Some limits on our capacity for processing information. *Psychological Review*, 63, 81–97.
- Newell, A. (1990). *Unified Theories of Cognition*. Cambridge, MA: MIT Press.
- Nosofsky, R. (1986). Attention, similarity and the identification-categorization relationship. *Journal of Experimental Psychology: General*, 115(1), 39–57.
- Talmy, L. (1978). The relation of grammar to cognition – a synopsis. In D. Waltz (Ed.), *Proceedings of TINLAP-2 Conference [Theoretical Issues in Natural Language Processing]*. New York: Association for Computing Machinery. pp. 14–24.
- Taylor, J. R. (2003). *Linguistic Categorization: Prototypes in Linguistic Theory* (3rd ed., 1st ed. 1989). Oxford. Oxford University Press.
- (2008). Prototypes in cognitive linguistics. In P. Robinson and N. C. Ellis (Eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*. Mahwah, NJ: L. Erlbaum Associates, pp. 39–65.
- Vennemann, T. (1971). Natural generative phonology. Paper presented at the winter meeting of the linguistic Society of America (Saint Louis).
- Wray, A. (2002). *Formulaic Language and the Lexicon*. Cambridge: Cambridge University Press.
- Zager, D. (1980). A real-time process for morphological change. PhD dissertation, State University of New York at Buffalo, New York.

# 3

## Topics in Cognitive Linguistics Research





# 3.1 The Cognitive-Linguistic Revolution in Metaphor Studies

*Gerard Steen*

## Chapter Overview

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### 1 Introduction

Cognitive Linguistics was partly founded on Lakoff and Johnson's Conceptual Metaphor Theory (Lakoff and Johnson, 1980, 1999). In their view, metaphor is not just a matter of language but first and foremost a matter of thought: metaphor involves understanding one thing in terms of something else, such as time as motion, ideas as food, arguments as war or organizations as plants. Our concepts of time, ideas, arguments, or organizations are partly structured by metaphorical projections, or 'mappings', from the knowledge we have about motion, food, war or plants: time can fly, ideas need to be digested, arguments can be won or lost and organizations can grow or need to be pruned. The explanation of this pervasive and systematic presence of metaphor in thought is that the former, 'target', concepts are typically abstract, less well-understood and hard to delineate in comparison with the latter, 'source', concepts, which are typically more concrete, better understood and easier to specify. Since humans have a need for many such less concrete concepts, many parts of our conceptual

systems are partly metaphorical. Cognitive linguists consequently claim that metaphor is not the deviant language of poets, politicians, and patients, as was the dominant view for more than two millennia, but one basic building block of a lot of language, thought and communication.

What is essential for Cognitive Linguistics is that the ubiquitous presence of metaphor in thought is reflected in the polysemous nature of many of the corresponding lexical units in language: the above examples *fly*, *digest*, *win*, *lose*, *grow* and *prune* all display conventionalized metaphorical senses that can be looked up in a dictionary of English. Moreover, these patterns in language structure are not just limited to the semantics of lexical units but have been revealed in other lexico-grammatical constructions as well (Panther, Thornburg and Barcelona, 2009). Thus, the relation between *Bill gave me an apple* and *Bill gave me a headache* has been analysed as involving more than just the lexical semantics of *give*, raising questions about the syntactic, semantic and pragmatic properties of entire constructions that are used metaphorically. Conceptual metaphors also work across most languages and cultures, suggesting that metaphor in thought and language may involve general anthropological and cultural processes of conceptualization and expression, which considerably broadens the agenda as well as appeal of the cognitive-linguistic approach (e.g. Kövecses, 2005). For instance, happiness is expressed with lexis suggesting that HAPPINESS IS UP, HAPPINESS IS LIGHT OR HAPPINESS IS A FLUID IN A CONTAINER in completely unrelated languages like English, Chinese, Hungarian. The expression of metaphor in thought by some semiotic system is finally not limited to language but may also be found in gesture, visuals, rituals and so on (e.g. Cienki and Müller, 2008; Forceville and Urios-Aparisi, 2009). One visual advertisement, for instance, juxtaposes an image of the mushroom cloud of a nuclear explosion on the left to an image on the right of a Gibson guitar placed in an analogous position to the shape of the cloud. The point of this metaphorical visual is obvious. These variations on the study of metaphor have therefore both deepened and broadened the conceptual dimension of language research that is characteristic of Cognitive Linguistics.

It is the aim of this chapter to chart some of the most exciting developments triggered by the cognitive-linguistic approach to metaphor. In Section 2, I will discuss the most important conceptual aspects of metaphor as theorized via the novel cognitive-linguistic notions of (a) conceptual metaphor and (b) complex versus primary metaphor. In Section 3 I will then continue with a discussion of the most important aspects of the use of metaphor in discourse, (a) connecting its use with frames, scenarios and other aspects of discourse; (b) and discussing the most recent issues that have arisen from this work, the notions of discourse metaphor and deliberate metaphor use. Section 4 will then address issues of reliability and validity in cognitive-linguistic metaphor theory and

research, centring on what counts as metaphor in thought. This will lead to a brief concluding comment that looks forward into the future.

## 2 Conceptual Aspects of Metaphor: The Model

### 2.1 Conceptual Metaphors

The cognitive-linguistic approach to metaphor launched by Lakoff and Johnson (1980) revolutionized the study of metaphor because until then dominant traditional views held that metaphor was an isolated, seldom occurring poetic or rhetorical quirk. Lakoff and Johnson reconceptualized metaphor in language as the systematic and frequently visible tips of lots of icebergs of massive underlying conceptual structures of metaphor in thought. They claimed that metaphor is not a deviant phenomenon in language but a fundamental cornerstone in cognition. Their evidence came from numerous examples in language such as the following (Kövecses, 2010: 6):

THEORIES ARE BUILDINGS

Is that the *foundation* for your theory?

The theory needs more *support*.

We need to *construct* a *strong* argument for that.

We need to *buttress* the theory with *solid* arguments.

The theory will *stand or fall* on the *strength* of that argument.

So far we have *put together* only the *framework* of the theory.

What psychologists have called the 'linguistic structure' of these examples (e.g. Gibbs, 2006: 90, 119) suggests that there is a systematic correspondence between our knowledge of theories and our knowledge of buildings and that we exploit our knowledge of buildings to think and talk about aspects of theories. The general explanation of this type of correspondence holds that we have more direct experience with buildings than with theories which enables us to utilize the resulting knowledge for conceptualizing theories along the same lines. This phenomenon occurs across many semantic fields, giving rise to postulated conceptual metaphors like LIFE IS A JOURNEY, LOVE IS A JOURNEY, UNDERSTANDING IS SEEING, ORGANIZATIONS ARE PLANTS and so on. By way of critical comment, however, it has been pointed out that a marked feature of this early cognitive-linguistic work was a reliance on intuition and on specially selected invented examples; only more recently has the focus shifted to authentic, discourse data, revealing less neat, more messy relations between metaphor in thought and language (e.g. Deignan, 2005).

Our knowledge of buildings is said to function as a conceptual 'source' domain from which correspondences are mapped onto our knowledge of theories, the conceptual 'target' domain. Thus, when theories are buildings, we know they must have foundations, which must be solid and strong; if the foundations of a theory are not solid and strong enough, it may need buttressing by other kinds of support; and so on. Each of these aspects of buildings are systematically organized in a conceptual domain that displays their mutual relations, including relations that are manifested in language as synonymy, antonymy and hyponymy. Thus, *foundation* can be replaced by *base* (synonymy), a theory can *stand* or *fall* (antonymy), and a building is a solid *structure* (superordinate concept, hypernym in language *structure*) which can manifest itself as a *house*, *palace*, *factory* and so on (subordinate concepts, hyponyms in language). This would predict the possibility of for instance a *ramshackle theory*, which is attested by a brief search on the internet: '. . . Pavlov spent the last thirty years of a long life *erecting a ramshackle theory* of "higher nervous activity" upon conditional reflexes' (Davenport, 2001: 273).

All of this knowledge may be recruited when thinking and talking about theories, in order to indicate, for instance, the quality of the arguments in a theory, or the way they are related to each other in a coherent theoretical whole. A useful overview of many of these conceptual metaphors and detailed examinations of their structure, as well as their main function as a device for reasoning, may be found in Kövecses (2010). A computational model of the lexical semantics expressing the elements, relations and levels of these conceptual structures is now available through WordNet, which is best approached through the webpage <http://wordnet.princeton.edu>. WordNet presents the semantic relations between the four main word classes of English in conceptually justified ways, and is now expanded into a Global WordNet for many other languages in the world. It can in principle be used to examine many of the assumptions and conclusions put forward by cognitive linguists about the linguistic and conceptual structures of the two domains involved in all metaphor, but this is an opportunity that remains to be explored in empirical detail in the near future.

A particularly attractive feature of the cognitive-linguistic revolution was its ability to include the more spectacular, superficially deviant cases of metaphor as exploitations of the postulated conventional metaphors in thought. Thus, Bob Dylan's 'Time is a jet plane, it moves too fast' is clearly a novel linguistic expression of the conventional metaphorical idea that time can move, regularly expressed in language by words like *pass*, *go by*, *crawl by*, and *fly* that display systematic, metaphorically motivated polysemy between motion and time. A more upscale illustration would be Andrew Marvell's 'But at my back I always hear/ Time's winged chariot hurrying near.' Specially poetic and rhetorical uses of metaphor, which used to be the focus of pre-cognitive linguistic metaphor research, can therefore be accounted for as special cases of the more general

approach to metaphor in all language and thought as involving conventionally established ways of understanding of one thing in terms of something else.

One crucial issue about Conceptual Metaphor Theory (from now on, 'CMT') is the question what is precisely meant by 'metaphor in thought'? Do the metaphorical structures in language function as evidence that people also construct or retrieve metaphorical conceptual structures in language processing, when speaking, writing, reading or listening? In other words, do people activate and access knowledge about buildings to construct mappings to knowledge about theories in order to comprehend conventionally metaphorical utterances about theories? This was the original, strong CMT claim proposed in Lakoff and Johnson (1980), but it has since been criticized by psychologists as amounting to a structure-process fallacy (e.g. Gibbs, 2006; McGlone, 2007). It is now generally held that cognitive-linguistic conclusions about the way metaphor works in on-going language and thought processes should be tested independently by psychological research of language processing (psycholinguistics) and metaphorical cognition in general (cognitive psychology). The overall picture is that it is not quite clear yet when metaphor in language is in fact processed metaphorically in people's individual minds, that is, by activation of two distinct conceptual domains that are then connected to each other by some cross-domain mapping.

Another crucial issue about CMT is how a particular conceptual domain happened to get selected and become conventionalized as a source domain for a particular target domain. For even though it may in retrospect look sensible for the domain of buildings to serve as a source domain to think and talk about theories as a target domain, why buildings, and not, for instance, organisms like trees and plants, or conversations? Thus, how did speakers of English get to use buildings to think and talk about theories, and what does the assumption mean that they have easier access to knowledge about buildings than about theories? Answering these questions about the motivation of conceptual metaphor inevitably leads to the more recent distinction between complex metaphor and primary metaphor, to which we will now turn.

## 2.2 New Challenges: Complex and Primary Metaphor

THEORIES ARE BUILDINGS was subjected to further scrutiny in Grady (1997), with tremendous impact on the field. Grady showed that THEORIES ARE BUILDINGS is in fact a 'complex' metaphor, comprising two 'primary' metaphors: ORGANIZATION IS PHYSICAL STRUCTURE and PERSISTING IS REMAINING ERECT. The two primary metaphors can be combined to produce a more specific and complex conceptual metaphor, THEORIES ARE ERECT PHYSICAL STRUCTURES. This account explains why some linguistic expressions of the THEORIES ARE BUILDINGS metaphor are

conventionally available, for instance that it has *foundations*, whereas others are not, for instance that it might have *walls*: the latter is not included in the combination of the two primary metaphors, THEORIES ARE ERECT PHYSICAL STRUCTURES, argues Grady, whereas the former is. This account also explains how an alternative metaphorical conceptualization of theories, THEORIES ARE FABRICS, is different from THEORIES ARE BUILDINGS: it shares some of the same metaphorical structure, namely the primary metaphor ORGANIZATION IS PHYSICAL STRUCTURE, but not all of it, including PERSISTING IS REMAINING ERECT. Instead, THEORIES ARE FABRICS accounts for other things we can say about a theory, for instance that it has holes in it, that it can be tightly knit, can fray at the edges and that you can try to stitch it up. It will be clear that these aspects of theories do not require the primary metaphor PERSISTING IS REMAINING ERECT.

The most important advantage of Grady's proposal is that all primary metaphors can be directly related to experience (which is not the case for all complex metaphors, including THEORIES ARE BUILDINGS). Complex physical objects also display functional, organizational architecture between their parts, which we know because we interact with them; things that stay alive or continue to exist typically remain standing, which, again, is a fact from individually lived experience. The correlation between source and target domains in the real life of individuals is crucial to what was called the experiential motivation of metaphors in CMT, a corner stone in the theory (Lakoff and Johnson, 1980). Grady showed that this is based in experiential correlations in primary metaphors such as ORGANIZATION IS PHYSICAL STRUCTURE and PERSISTING IS REMAINING ERECT, which have to be distinguished from complex metaphors THEORIES ARE BUILDINGS or THEORIES ARE FABRICS, which are built from them.

Lakoff and Johnson (1999) elaborated on Grady's proposal: 'From a conceptual point of view, primary metaphors are cross-domain mappings, from a *source domain* (the sensorimotor domain) to a *target domain* (the domain of subjective experience), preserving inference and sometimes preserving lexical representation' (1999: 58). Lakoff and Johnson presented an illustrative list in which 24 primary metaphors (including ORGANIZATION IS PHYSICAL STRUCTURE) were explained as combining the domains of sensorimotor experience and subjective judgement, giving rise to an established linguistic manifestation, while all being related to an encompassing so-called primary experience:

*Affection Is Warmth*

Subjective Judgement: Affection

Sensorimotor Domain: Temperature

Example: 'They greeted me *warmly*'

Primary Experience: Feeling warm while being held affectionately

*Time Is Motion*

Subjective Judgement: The passage of time

Sensorimotor Domain: Motion

Example: 'Time *flies*'

Primary Experience: Experiencing the passage of time as one moves or observes motion

*Purposes Are Destinations*

Subjective Judgement: Achieving a purpose

Sensorimotor Experience: Reaching a destination

Example: 'He'll ultimately be successful, but he isn't *there yet*'

Primary Experience: Reaching destinations throughout everyday life and thereby achieving purposes (e.g. if you want a drink, you have to go to the water cooler)

The list is typical in its invented nature and meant to illustrate 'hundreds of primary metaphors' (1999: 59). The important point is that all primary metaphors are assumed to arise from our individual experience from our early days, becoming neurally entrenched in our brains as correlations between distinct conceptual domains. The conclusion is drawn that metaphorical cognition, like all cognition, is embodied.

This is also because the sensorimotor parts of the primary metaphors discussed above are all based in so-called image schemas, including 'Physical Structure of Entities', 'Remaining Erect', 'Warmth', 'Motion', 'Arriving at a Destination/Goal' (Johnson, 1987; Lakoff, 1987). Image schemas are knowledge units based in direct sensory perception and motor experience, displaying imagistic qualities (such as part-whole relations) turning them into cognitive gestalts. The relation between these image schemas and primary metaphor, and their grounding in embodied cognition, has not only led to ground-breaking cognitive-linguistic theory and research (Hampe, 2005) but also contributed to further-reaching debates in cognitive science (Gibbs, 2006).

Psychological evidence for primary metaphors and their basis in image schemas has been collected by psychologists Casasanto (2009), Pecher et al. (2011) and others. These studies expressly examined the conceptual nature of primary metaphors in tasks that had nothing to do with language, in order to establish the psychological, language-independent existence and functioning of primary metaphors. Developmental psychologist Jean Mandler (2004) has used primary metaphor theory as a basic building block in her new theory and research programme of cognitive development in infancy, mapping the interaction between perception, concept development and language acquisition. During early language acquisition, the above correlations may indeed be acquired by metaphorical mapping processes going from sensorimotor experience to subjective experience, getting reflected in associated language



structures. This research shows that the primary metaphor correlations between sensorimotor concepts and subjective experience appear to be valid. What is not clear, however, is whether these correlations would in fact keep driving the production and processing of related metaphorical expressions in linguistic utterances in adult language use: it is perfectly possible that words like *warmly*, *flies* and *there* in the illustrations from Lakoff and Johnson above are directly used in their metaphorical sense after a process of lexical disambiguation has simply discarded the irrelevant non-metaphorical, more basic sensorimotor sense (cf. Giora, 2008). Future research will have to home in on this rather critical question.

One deep question about primary metaphors is whether they are indeed metaphors. Since primary metaphors are based in correlations between sensorimotor experience and subjective judgements of encompassing primary experiences, they are based on association. Such correlations do not necessarily involve two conceptual domains that are analogous to each other, affording the mapping of a set of correspondences based in some form of perceived similarity, whether created or pre-existing. Even though it is probably always possible to detect at least one or two parameters that are similar between the two domains, such as the scalar or gradable quality of both 'more' and 'up', this does not mean that the basic mechanism of understanding quantity is grounded in the conceptual structure of height: a more plausible argument may be made that the two are instead related via correlation and association. The problem is, however, that this is very close to the notion of contiguity, which is the traditional structuralist criterion for metonymy.

Discussions of this issue have also emerged in Cognitive Linguistics (cf. Barcelona, 2000; Dirven and Pörings, 2003; Panther and Thornburg, 2003). Grady (2005: 48–9) has adopted the most sophisticated position about the alleged metaphorical nature of the mappings in primary metaphors: he accepts that not all mappings in primary metaphors are metaphoric, but notes that 'the patterns that can be identified as metaphoric involve a more specific mapping' (footnote 12). He subsequently suggests that this might just be 'a terminological question' (p. 49), but this seriously underestimates the importance of the issue: the terminological decision that all of these patterns are called 'primary metaphors' entails that a particular kind of conceptual mapping between the sensorimotor and subjective domains is involved, namely a metaphorical one. Yet not all primary metaphors are in fact metaphorical – as Grady acknowledges, and as is entirely accepted by Gibbs (2006: 96):

This discussion of image schemas and metaphor runs contrary to the popular view that there is some abstract similarity existing between literal and metaphorical concepts, such as our understanding of difficulty in terms of heavy physical weights (Murphy, 1996). There is not an objectively similar

set of attributes for concepts such as difficulty and physical weight, nor are there similar features that connect 'sunny dispositions,' 'bright words,' and 'radiant smiles.' Conceptual metaphor theory demonstrates, alternatively, that concepts from different domains are related to one another by virtue of how people are physically constituted, their cognitive abilities, and their interactions with the world.

This alternative view would therefore boil down to the conclusion that the patterns involved in primary metaphors are not based in some general notion of similarity but in correlation (association, contiguity), in which case primary metaphors are in fact primary metonymies (cf. Steen, 2007).

What happens, therefore, if we reconceptualize primary metaphors as primary metonymies, which only occasionally display metaphorical qualities? Some cognitive linguists have gone down this road and explored its implications in deeply probing theoretical reflections (see contributions in Dirven and Pörings, 2003), with John Barnden radically questioning the possibility of making the distinction between metaphor and metonymy in a useful way in the first place (Barnden, 2010). What should be noted here is that reconceptualizing primary metaphors as primary metonymies also raises new questions about the presumable motivation of complex metaphors, the original issue that led to the discovery of primary metaphors. If complex metaphors cannot be seen as compounds of primary metaphors (supposing that primary metaphors are not metaphorical but metonymic), the motivation of complex metaphor needs to be addressed anew.

Whatever the answer to the metonymic issue of primary metaphors, there is another problem that needs to be addressed. *Primary* metaphor may be motivated by correlations in experience that may have led to neural entrenchment of cognitive correlations, yet this does not explain why specific *complex* metaphors have the particular source and target domains they do. Even if it were granted that primary metaphors are metaphorical, how does the availability of ORGANIZATION IS PHYSICAL STRUCTURE and PERSISTING IS REMAINING ERECT lead to an established complex metaphor THEORIES ARE BUILDINGS? The distinct primary metaphors do not explain or motivate the complex metaphor; they simply constrain it. This is also true of their combination in THEORIES ARE ERECT PHYSICAL STRUCTURES, which again does not explain or motivate THEORIES ARE BUILDINGS. A comparable example is why we talk about ARGUMENT IS WAR, and not ARGUMENT IS FIGHTING OR VIOLENCE? There are clearly different knowledge components in all three of these source domain categories, with different experiential bases, but the way they can be distinguished and evaluated as most adequate, motivated by underlying combinations of primary metaphors, has not been addressed yet. Moreover, most people have more personal experience with argument than with war, so that the question of motivation becomes even

more convoluted. The question of the experiential motivation of complex metaphor remains a 'difficult' matter (cf. Kövecses, 2010: 95).

Lakoff (2008: 26) seems to have formulated the problem in its most acute form: 'By best fit, different cultural frames will combine with those primary metaphors and give rise to different metaphor systems. The Love Is a Journey metaphor is a good example.' But how 'by best fit' works, and what it really means, is not explained. The motivation of complex metaphor, which constituted a sensational new discovery of Conceptual Metaphor Theory in 1980, has therefore not been resolved by the proposal of primary metaphor, although it is true that the nature of the motivation problem has been identified more precisely, as occupying some middle ground between experientially motivated primary metaphors (or primary metonymies) on the one hand and non-figurative cultural frames on the other.

It is at this point that we have to make the transition from a conceptual consideration of metaphor to the way it is used in discourse. For Lakoff's individually entrenched primary metaphors on the one hand and eligible cultural frames that display different degrees of fit on the other are only brought together in complex metaphor in actual events of discourse. Lakoff's own work on metaphor in politics has shown as much (e.g. 2002), but it should be seen in the context of a large field of discourse-analytical work on metaphor that has been inspired by the cognitive-linguistic approach. It should moreover be noted that this inspiration also came from the noted absence of attested examples in early CL studies of metaphor. It is the aim of the next section to sketch the most important developments in that field in their relationship to the cognitive-linguistic approach to metaphor.

### **3 Discourse Aspects of Metaphor**

#### **3.1 Metaphor in Discourse**

We have seen that the conceptual analysis of metaphor has led to an increasingly detailed structural model: conceptual metaphors like *THEORIES ARE BUILDINGS* are complex conceptual structures comprising distinct primary metaphors that in turn are based in image schemas and their correlations with subjective judgements in primary experiences. It is moreover claimed by many cognitive linguists that both these image schemas and their roles in primary metaphors are neurally entrenched, which would ground metaphor in embodied cognition. The way these structures and processes of grounded cognition in primary metaphor are to be related to the original proposal of conceptual metaphors, however, remains unclear and difficult. This has raised new questions about the processing of metaphor in discourse.

Gibbs (2006: 121; 2011a: 550) has suggested that primary metaphors may be processed metaphorically because of their neural entrenchment whereas complex metaphors may arise as a result of metaphor processing in discourse, instead of as a cause. A careful reading of Lakoff suggests that he even doubts whether all primary metaphors are always processed metaphorically:

Does *up* in *Prices went up* always activate the *More is up*? It depends. In our neural systems, the *More is up* metaphor is always present in the neural system, always physically linked to the concept of greater quantity – connected and ready to be activated. But it is possible for the metaphorical mapping to be inhibited and for *up* to be directly activated. (2008: 35)

Cognitive linguists are beginning to realize that these questions pose a serious threat to the strong version of CMT, which depends on the presumed cognitive drive of complex conceptual metaphors in language use. It is possible that automatic cross-domain inferences are only used at the level of primary metaphor processing, perhaps in a metonymic rather than metaphoric fashion, and it is possible that they are not necessarily used at the level of complex metaphor processing, and it is even possible that the ubiquitous activation of primary metaphors as figures is a matter of specific conditions. Further research will have to show how the distinctions and interactions between primary and complex metaphor in processing can be made in empirically testable ways. But the alleged conceptual power of metaphor may be more limited than originally claimed.

Partly as a result of these questions about the relation between complex and primary metaphor, a new picture about metaphor in language and thought is now emerging. This development has also been stimulated by relatively independent work on metaphor in discourse analysis that has been inspired by CMT. Thus, around the turn of the millennium, authentic examples of complex conceptual metaphors were analysed in the linguistic and conceptual structures and functions of discourse by many discourse analysts, as extensively discussed in Semino (2008). Some of these researchers, like Don and Margaret Freeman examining the role of conceptual metaphor in Shakespearean drama and the poetry of Emily Dickinson, assume that their textual analyses of the role of conceptual metaphor have cognitive validity (cf. Semino and Steen, 2008). More often, however, researchers avoid making empirical claims about the cognitive validity of conceptual metaphors at the level of individual discourse processing. Many discourse-analytical researchers explicitly go on record that they have been inspired by the cognitive-linguistic approach but do not necessarily underwrite its psychological tenets about the role of complex conceptual metaphor in language processing (e.g. Charteris-Black, 2004). Their most important reason is that they do not want to commit the structure-process

fallacy mentioned above. Although this is mostly independent of the distinction between primary and complex metaphor discussed above, the tendency converges on the same question: whether and how the still sensational proposal of complex conceptual metaphors in Lakoff and Johnson (1980, 1999) is a psychological reality in individual language users' minds.

Gibbs (2011a) has reviewed the psychological evidence for CMT. He concludes that there is ample evidence suggesting that conceptual metaphors do affect online processing of verbal metaphor. For instance, when verbal metaphors in a text come from different conceptual metaphors they are understood more slowly than when they come from the same underlying conceptual metaphor. Gibbs engages with publications by sceptical psychologists and argues that their criticism is ill-directed or unfounded.

Complementary to this development, Cameron (2007) and others have promoted a social view of metaphor. This is to be distinguished from the psychological view supporting much of cognitive-linguistic theorizing (as in Gibbs, 2011a) and the structural-functional semiotic approach characterizing the discourse-analytical work applying the cognitive-linguistic view (as in Semino, 2008). The social approach focuses on metaphor use in face-to-face conversation, examining the ways in which metaphors are introduced, taken up, developed and altered between language users. Cameron promotes a form of 'metaphor-led discourse analysis' which looks at patterns of metaphor use across a discourse event, 'without assuming the existence of conceptual metaphors in the minds of individual discourse participants' (2007: 130). The bottom line of this approach involves the detection of how metaphors are shared between language users involved in the same discourse event, which is why it is a social as opposed to psychological and semiotic approach.

A fourth approach that has emerged focuses on the use of metaphor between discourse events rather than within them. One well-known example developing this line of research is Musolff's work on conceptual metaphors and scenarios in political discourse. In one study, Musolff (2004a) showed how a familiar conceptual metaphor in Western culture, A POLITICAL ENTITY IS A (HUMAN) BODY, was applied in a debate about European politics in such a way as to reveal its dependence on two distinct if related scenarios. In the first scenario, it gives rise to the more specific metaphor THE CENTRE OF POLITICS IS THE HEART OF THE BODY, so that it was natural for the British Government to make statements like the following (Musolff, 2004a: 65):

John Major last night signaled a decisive break with the Thatcherite era, pledging to a delighted German audience *that Britain would work 'at the very heart of Europe'* with its partners in forging an integrated European community. (*The Guardian*, 12 March 1991)

When the political climate deteriorated, however, another scenario emerged, in which THE CENTRE OF BAD POLITICS IS A DYSFUNCTIONAL HEART IN THE BODY. This time, the conceptual metaphor could give rise to a sentence in the media like the following:

[. . .] if Mr Major wanted to be *at the heart of Europe*, it was, presumably, as a *blood clot*. (*The Independent*, 11 September 1994)

What becomes particularly clear from this work is the fact that, in discourse, there is an inevitable interaction between the conceptual structures of conceptual metaphor and the conceptual structures of broader cultural frames or knowledge of scenarios. Moreover, these content issues also interact with considerations of contextual knowledge such as the positive or negative political climate, which can even favour one scenario as opposed to another within one domain. Furthermore, these content issues also interact with aspects of text type, where argumentation and narration impose encompassing constraints on the use of conceptual metaphor in text, facilitating humorous exploitation of possible argumentative structures ('if you want to be at the heart of Europe, then as a blood clot'). Text types like argumentation and narration hence typically exhibit discourse functions like persuasion and information or entertainment, which all display specific properties in different domains of discourse, like the media versus for instance literature or science. These typically go together with rhetorical exploitations of language potential, as in the deliberately humorous development of the heart metaphor above. If cognitive linguists have typically zoomed in on the conceptual and embodied qualities of primary metaphor that are generally recognized in cognitive science, discourse analysts are typically zooming out from the conceptual characteristics of complex metaphor to its inevitable interaction with other aspects of discourse in text and talk that are generally distinguished in discourse analysis.

In sum, no fewer than four distinct approaches to the use of metaphor in discourse have arisen since the turn of the millennium:

1. The semiotic approach focuses on the linguistic and conceptual structures and functions of metaphor in text and talk (Semino, 2008)
2. The psychological approach examines the mental processes and products of metaphor use in, typically, text comprehension (Gibbs, 2011a)
3. The social approach studies metaphor patterns in, typically, face-to-face interaction in order to examine the way metaphors are shared between language users (Cameron, 2007)
4. The historical approach addresses metaphor patterns across distinct discourse events in order to trace the evolution of metaphor over time (Musolff, 2004a).

This variegated discourse-analytical research has shown that the same complex metaphor such as *LIFE IS A JOURNEY*, *BUSINESS IS WAR* or *THEORIES ARE BUILDINGS* typically occurs in many diverging structures and functions across a wide range of usage situations in discourse. This differentiation has contributed to the above-mentioned hesitation about the validity of the notion of conceptual metaphor as a cognitively stable and real phenomenon in language users' individual minds. The typical discourse-analytical emphasis on metaphor's situated structure and function, often the result of the on-going dynamics of discourse, has promoted a sceptical attitude to the value of all conceptual metaphors as genuinely operative conceptual structures in discourse.

This has also had methodological consequences for doing research on metaphor in discourse, in that not all researchers set out from the prior existence of conceptual metaphors anymore. One cogent alternative view starts out from the linguistic data, where metaphorical expressions in the structures of language are first identified in order to then inductively infer conceptual generalizations that may or may not remind us of classic conceptual metaphors (Cameron and Maslen, 2010). This so-called complex systems approach has been endorsed by Gibbs (2011a) in his positive evaluation of CMT, signalling the need for alternative or at least complementary approaches to conceptual metaphor analysis than the cognitive-linguistic deductive one which posits the existence of conceptual metaphors in order to then check for evidence that supports this tenet.

This radically situated and dynamic view of metaphor in typically spoken discourse works in a bottom-up way that is influenced by Conversation Analysis. It needs to be contrasted with another, more top-down approach, which does allow room for an empirical investigation of the role of conceptual metaphors, as for instance illustrated by the work by Musolff. Such a top-down approach holds that the use of frames and scenarios involving conceptual metaphors is a decently testable hypothesis that requires analysis from a wide range of discourse parameters. These can be ordered by adopting a genre-analytical approach to discourse (Steen, 2002, 2011a), which assumes that all discourse events can be described with reference to a limited set of genre variables, including context variables (participants, domains, settings, medium), text variables (content, type, form, structure), and code variables (language, register, style and rhetoric). A discourse event like reading a news report on European politics sets up these variables in such a genre-specific way that it constrains the language structures and functions that are used, including metaphorical language structures and functions. We saw above that the Musolff example of conceptual metaphor use does indeed involve the genre variables of text content (scenario of heart as centre vs heart as malfunctioning organ), text type (argument), discourse domain (politics in media), discourse goal (persuasion) and rhetoric (deliberately humorous metaphor talking about blood clots in the heart). This is an illustration of the way in which conceptual metaphor use in

discourse may be explained by 'top-down' assumptions about the type of genre event in which it is studied, assumptions which can be tested in performing hypothetic-deductive research on metaphor in discourse. This makes it possible for discourse-analytical researchers of metaphor to remain close collaborators of cognitive-linguistic researchers of metaphor and keep contributing to the debate about Conceptual Metaphor Theory.

### 3.2 New Challenges: Discourse Metaphor and Deliberateness

When Musolff (2004a) discussed the relation between conceptual metaphor and scenarios for Western politics, he framed his discussion as a question about the evolution of conceptual metaphors. His question was whether variation of conceptual metaphors across discourse events and over time could be seen as a matter of evolution. Which conceptual metaphors rise and fall, which ones do not rise or do not fall, and why? This question goes back to the question we posed in the first section of this overview, bearing on the motivation of conceptual metaphor as a useful link between a selected source domain and target domain to enable us to categorize and reason about more 'difficult' phenomena in human experience.

Musolff's work has contributed to the rise of the notion of 'discourse metaphor', theoretically expounded in for instance Zinken (2007), Zinken, Hellsten and Nerlich (2008), and Hellsten (2009). Discourse metaphors are relatively stable conceptual metaphors over time that are part of metaphorical frames and scenarios used in discourse events such as we have seen illustrated by the debate about European politics. Discourse metaphors are characterized by popular expressions and phrases, such as the *heart of European politics* in our above example, which in turn enable further conceptual developments in discourse such as the positive and negative exploitations of the heart image in the media also reported above. Such discourse exploitations are guided by contextual, sociocultural forces and constrained by genre-specific expectations, as we have also seen, and they eventually lead to the conventionalization of some specific metaphorical expressions (but not others) that can be related to the central conceptual metaphor.

Discourse metaphors therefore seem to be based in conceptual metaphors such as originally proposed in CMT, but seem to have a slightly different theoretical value. They approach the status of relatively negotiable shared metaphorical models that are elaborated to a greater degree in explicit terms by language users in a particular linguistic community, as, again, with the *heart of European politics* metaphor. A more recent example is the fiscal cliff metaphor that plagued American politics around 2012/2013. In US media, discussion took place as to whether it was not more appropriate to speak of a 'fiscal slope'



or a 'fiscal hill', while in Dutch media the term was occasionally translated as a *belastingafgrond* ('tax abyss'). The conceptual adequacy and aptness of these discourse metaphors seem to be explored for a while by language users in different versions and entailments of the underlying conceptual metaphor, both seriously and in jest. One outcome may be a final version that is accepted as 'the' conceptual metaphor that will be conventionally used for a while until other versions or models challenge it. The description and explanation of all of these aspects of discourse metaphor, and their relation to conceptual metaphor, including its division into complex and primary metaphors, is one of the most exciting challenges for future research.

What is also interesting about this account is that discourse metaphor seems to display a degree of deliberate metaphor use, or even exploitation (Steen, 2008; cf. Musolff, 2011b). The perspective of the source domain in the metaphor is deliberately exploited as an alien perspective to generate new information or expressions about the target domain, for a wide range of genre-specific discourse purposes. An example from Musolff's data is the following:

The pound's *shotgun separation* from the exchange rate mechanism is proving painful for both Britain and the rest of Europe. *The two-year marriage itself was unhappy* [. . .]. *As in most marriage break-downs, there have been faults on both sides.* Sterling and the German mark – both big internationally traded currencies – were always going to be *uneasy bedfellows* [. . .]. (Musolff, 2004b: 27)

These are metaphors that are deliberately used *as* metaphors to serve specific communicative goals, in contrast with the bulk of metaphor which does not have such a special rhetorical status. In deliberate metaphor use, metaphors do seem to require online cross-domain mapping, the linguistic structures inviting or forcing language users to attend to both source and target domain in order to adopt a different perspective as they are processing the sentences of the text. Non-deliberate metaphor use may not work in this way as it may make do with lexical disambiguation. Thus, when people talk about *the heart of politics* while not intending to use the metaphor *as* a metaphor, they may simply and directly access the 'inner central part' sense of the word; but when they read the above *blood clot* example, they need to access and use the 'organ' sense of the word *heart* in order to build a coherent representation of the sentence.

This raises the question when we really do see and understand one thing in terms of something else. Does metaphor always cause an individual language user to access one conceptual domain to understand another? Or do they only do so when metaphors are used deliberately *as* metaphors, that is, as perspective changers in communication? These questions have prompted the formulation of a three-dimensional model for metaphor, in which metaphor is not

just a matter of language and thought, but also of communication (Steen, 2008, 2011b). Thus, linguistic properties of metaphors have to do with, for instance, their expression as metaphors or similes – which appears to affect their processing (Bowdle and Gentner, 2005). Conceptual properties of metaphors have to do with, for instance, the conventional or novel nature of the cross-domain mapping, which also appears to affect their processing (Bowdle and Gentner, 2005). And the communicative properties of metaphors have to do with, for instance, their deliberate or non-deliberate use *as* metaphors – whose effect on processing is currently being investigated. All metaphor use involves these three dimensions and should be analysed not just with reference to language and thought, as has been the core business of Cognitive Linguistics so far, but also with reference to communication, which has been neglected.

The idea that metaphor can be used deliberately or not deliberately has aroused a controversy about the notion of deliberateness which goes to the heart of Cognitive Linguistics. When deliberateness is equated with consciousness, researchers object that language use is hardly ever conscious, and that a lot of cognition and behaviour are hardly ever conscious (Gibbs, 2011b). However, when we make a distinction between consciousness and deliberateness, the situation changes. Even though it is possible to assert that we do not know anything about Shakespeare's consciousness when he wrote 'Shall I compare thee to a summer's day', it does not make sense to deny that he wrote this metaphor deliberately, as a metaphor. Nor does it make sense to assert that he did not deliberately write the extended metaphorical comparison that follows and makes up the body of his famous Sonnet 18. This type of metaphor is deliberate because it insists in positioning the reader in some source domain by forcing the reader to mentally attend to the source domain as a referent in its own right: 'Shall I compare thee to a summer's day?' There are particular linguistic structures that clearly signal deliberate metaphor use, including the use of a verb like *compare* in between two incomparable entities that are each presented in their own right. The rest of the poem features comparative structures in an extended comparison (*thou art more lovely and more temperate*) and so on. Deliberate metaphor hence does not have to be conscious to be deliberate. In fact, it is the other way around, deliberate metaphor *affords* conscious metaphorical cognition (Steen, 2013).

In the structuralist-functionalist paradigm in which Cognitive Linguistics is located (Butler, 2003), all metaphor is by definition intentional, in the general sense of 'intentional' that applies to all language use as intentional. At the same time, only some metaphors are deliberately used as a metaphor, which is not a contradiction. Deliberate metaphor use is probably generally unconscious, in the sense of language users not paying any metalinguistic attention to the fact that they are doing metaphor, as has been correctly claimed by cognitive linguistic theories of metaphor from the start. However, since deliberate metaphor

is based in attending to the source domain, creating a change of perspective on the target domain, this kind of attention can afford conscious metaphorical cognition – triggering deliberate thought about one domain in terms of another. This impingement on consciousness probably depends on the amount of time and attention that are spent on the alien role of the source domain within the confines of the target domain of the text. These are exciting new questions for theoretical and empirical research about the cognitive foundations of varied metaphor use (Steen, 2013).

#### **4 Reliability and Validity**

Over the past 30 years, the clear examples in the cognitive-linguistic classics, such as *THEORIES ARE BUILDINGS*, have done their job as rhetorical devices converting many academics to CMT. Over the past decade, the stakes have been raised, as we have seen. Next to the issue of the psychological validity of conceptual metaphors, which we will come back to in a moment, reliable metaphor identification in discourse has become the other big issue placed on the agenda for CMT. It is more than ‘just’ a methodological issue, and goes to the heart of the matter of CMT: when does something count as a metaphor in language if metaphor is defined as a matter of thought, understanding one thing in terms of something else?

As hinted above, when metaphor is to be identified in discourse as opposed to being illustrated in cognitive-linguistic theoretical work, two options are generally distinguished, a deductive and an inductive approach (Steen, 2007). An example of the deductive approach, characteristic of the first stage of discourse-analytical work on CMT, is Koller (2004), who establishes a number of metaphors conceptualizing business and derives a closed set of conventionalized linguistic expressions of those conceptual metaphors for corpus analysis. Three sets of lexical fields were defined as expressions of just as many source domains for two topics of discourse: *WAR*, *SPORTS*, and *GAMES* for marketing and sales, and *FIGHTING*, *MATING*, and *FEEDING* for mergers and acquisitions. *ROMANCE* was selected as an alternative source domain for the first topic. For each of these 7 fields, 35 lemmas were then selected, including the main grammatical categories of noun, verb and adjective/adverb. For instance, for the lexical field of ‘games’, use was made of words like *ace*, *bet/to bet*, and *play*, *player/to play*, *to outplay*, *playful*. The advantage of such an approach is the acknowledgement of a need for a clear conceptual-cum-linguistic model of the metaphorical structures, which can then be used to examine related distributions and functions across a large set of discourse data. The disadvantage is that the deductively formulated model may not be entirely adequate or miss too many interesting, subtle manifestations of the presumed underlying

conceptual metaphor and will never become aware of this failure. However, as a serious empirical test of theoretical proposals elsewhere in the cognitive-linguistic literature, this approach is eminently warranted, at the same pointing out the need and function of responsible prior theoretical proposals. Application of such a model in empirical research may lead to adjustments of the original model for the conceptual model under investigation that can then be researched anew.

The inductive approach starts at the other end, the language data, and from there works its way up, to either linguistic metaphors or, going one step further, their relation to underlying conceptual metaphors. The past decade has seen the development of the first reliable variant of a metaphor identification procedure, called MIP (Pragglejaz Group, 2007). The method is not dependent on the assumption of conceptual metaphors and does not aim at identifying them. It offers an operational definition of linguistic metaphor that is intended to be completely compatible, however, with the cognitive-linguistic definition of metaphor as indirect meaning based on cross-domain mapping. MIP has been statistically tested for reliability and the output of the procedure can be easily connected to conceptual metaphor research.

MIP comprises the following steps:

1. Read the entire text to understand the general context.
2. Decide about lexical units.
- 3a. Establish the contextual meaning of the examined lexical unit, that is its application in the situation evoked by the text, taking into account the words surrounding the examined lexical unit.
- 3b. Determine the basic meaning of the word. The basic meaning is usually the most concrete, body oriented, specific (as opposed to vague) and historically older meaning.
- 3c. Decide whether the basic meaning of the word is sufficiently distinct from the contextual meaning.
- 3d. Decide whether the contextual meaning of the word can be related to the more basic meaning by some form of similarity.
4. If the answers to 3c and 3d are positive, the lexical unit should be marked as metaphorical.

Consider the following example, from BNC news text A1H: 'He fearlessly attacked convention, which caused problems when he pitched into established reputations.'

*Step 3a Contextual meaning*

In this context, the verb *attacked* indicates the expression of strong criticism towards an idea.

*Step 3b Basic meaning*

The basic meaning of the verb *to attack* is to use violence to harm a person or to use weapons to try to defeat an enemy. This involves concrete physical interaction, whereas argument does not.

*Step 3c Contextual meaning vs. basic meaning*

The two senses are distinct: the contextual sense of *attack* in this sentence differs from the basic sense of the verb.

*Step 3d Contextual meaning vs. basic meaning*

The two senses are related by similarity: verbal attacking is like physical attacking.

*Step 4 Metaphorically used or not?*

Yes, the contextual sense of 'to attack' is distinct from the basic sense of this verb but they are related by similarity.

MIP has since been refined and developed by Steen et al. (2010), leading to a 16-page manual that can cover all manifestations of metaphor in discourse, including simile, explicit comparison, analogy and so on. The extended procedure is called MIPVU and has higher reliability coefficients than MIP. It has been applied to a substantial set of excerpts from the British National Corpus, yielding the VU Amsterdam Metaphor Corpus, comprising 187,000 words annotated for all words related to metaphor Steen et al. (2010). This is a unique resource that may be of help for future studies of words presumably involved in particular conceptual metaphors. The crucial issue here is how specific linguistic expressions can be classified as instantiations of underlying conceptual metaphors. Or, more broadly, how linguistic metaphors recruit which conceptual metaphors in the structures and functions of discourse (Steen, 2007).

Metaphor identification is crucial for assessing the quality of metaphor research: if cognitive linguists cannot agree on what counts as an instance of a particular phenomenon by independent observations, then their findings are not much less than personal constructions and interpretations. Yet reliable metaphor identification is not 'just' an important methodological issue, but also leads us to the heart of the matter of CMT, its validity. Some psychologists have denied that many of the linguistic illustrations of conceptual metaphor, now also included in the cases identified by MIP and MIPVU, are metaphorical. They argue that they are simply lexically polysemous and may presumably be handled in processing by lexical disambiguation, therefore not involving any online cross-domain mapping. When words like *attack* in the above example are accessed by the reader, both their metaphorical ('criticize') and non-metaphorical ('fight') senses are activated and the metaphorical sense may then simply be retained and used in the context of the rest of the sentence (cf. Giora, 2008). It follows that there is no need for a mapping across two conceptual domains

to establish the metaphorical meaning of *attack*: it is already available in the mental lexicon of the language user. This is presumably even more so for those words where the metaphorical sense is more salient than the non-metaphorical one (Giora, 2008). Even though temporary activation of the non-metaphorical source domain sense ('fight') of the word *attack* may be observable in brain research, this does not mean that it is needed or used for accessing the domain of fighting in order to construct the required metaphorical target domain meaning ('criticize') in context. As a result, some psychologists like Sam Glucksberg argue, words like *attack* do not function metaphorically; in addition, he concludes, they should not be included in the study of metaphor.

The psychological criterion for metaphor is based in what happens during online processing. This implies that the above criterion for metaphor identification in MIP and MIPVU of indirectness and comparison, inspired by Cognitive Linguistics, is a conceptual semantic one – it applies to language structure and, as we have just seen, not necessarily to processing. This is indeed a specification that has been deliberately adopted by many discourse analysts studying CMT today, as I have noted. To cognitive linguists, however, both the criterion of processing and the criterion of language structure are important – that is why they are 'cognitive' 'linguists'. The cognitive-psychological and conceptual semantic criteria therefore need to be brought together in one non-contradictory model if Cognitive Linguistics wishes to be taken seriously by researchers of cognitive processes, psychologists. For if much metaphor is not processed metaphorically then Cognitive Linguistics faces a paradox of metaphor (Steen, 2008).

This issue in fact goes back to a discussion in the late nineties, when Gibbs (1999) made a distinction between four different interpretations of CMT. His interpretations essentially boiled down to the question (a) whether cross-domain mapping was necessary for online metaphor processing, (b) whether it was an optional phenomenon perhaps following online processing, or (c) whether it had nothing to do with online processing in many cases but was a matter of the ideal native speaker having to deal with polysemous lexical structures in the language, or (d) whether it was a matter of the historical emergence of metaphor via cross-domain mappings in the past, which then lost their use as an active cross-domain mapping because of the resulting conventionalization of metaphor via for instance polysemy. In my opinion, too little attention has been given to these insightful alternative interpretations of CMT and the role they can play in driving the programme of cognitive linguistic research on metaphor (Steen, 2007).

The fourth, historical view is in fact the one that has since been developed and supported by empirical evidence in the so-called Career of Metaphor theory proposed by Bowdle and Gentner (2005). It offers a psycholinguistic (and eventually historical) basis for a more encompassing discourse-analytical view of the career of metaphor, which may be fruitfully connected to the work on metaphor

in discourse as well as discourse metaphor discussed above. In particular, the course of conventionalization of metaphor in language and thought is not just a matter of language change but also of the way this happens in concretely developing series of discourse events. As we have seen, these involve language use in specific genres with varying goals, settings, domains, participants, contents, forms, types, structures, languages, registers, styles, and rhetorics, tying the cognitive-linguistic study of metaphor in to a wide range of sciences in the humanities, cognitive and social sciences.

This theoretical integration can also resolve the paradox of metaphor (Steen, 2008). Although many metaphors in language may not, as a rule, be processed metaphorically in thought, they should still be included in what counts as metaphor because of the historical argument about their emergence as well as the contemporary argument about their capacity for being used deliberately *as* a metaphor. Both of these aspects are needed to explain how metaphor can be deliberately revitalized as metaphor in cognitive processing, a phenomenon which is probably central to the processes of discourse metaphor. In this way, cognitive psychological and conceptual semantic criteria of metaphor can be held together in one extended model of CMT. This model needs to incorporate the communicative dimension with its contrast between deliberate and non-deliberate metaphor use while allowing for theoretical and methodological distinctions between semiotic, psychological, social and historical approaches to the analysis of metaphor in real use, or discourse (Steen, 2011b).

## **5 Concluding Comment**

The previous section has brought us to the cutting edge of contemporary metaphor theory and research. The cognitive-linguistic revolution in metaphor studies has produced a wealth of research that has changed our outlook on what metaphor is and what it does. It has revealed new patterns in language and thought and raised new questions about their relationship. It has also influenced work in other disciplines which are now feeding back into the cognitive-linguistic enterprise, considerably complicating the original picture presented in Lakoff and Johnson (1980). The most important issues appear to be the following:

1. A distinction has emerged between primary, complex and discourse metaphor, which requires further theoretical modelling, both regarding the structure and function of each of these phenomena separately as well as regarding their interaction. For primary metaphor, the basic question remains whether it is metaphorical instead of metonymic; for complex metaphor, the basic question remains how it is motivated, both by

primary metaphors (or metonymies) as well as by cultural frames; and for discourse metaphor, the question arises how it interacts with considerations of discourse events modelled via genre as well as their position in encompassing cultural and historical contexts. These questions have to be answered to clarify the overall theoretical definition of metaphor and how it can be related to its diverse manifestations in reality.

2. For all of these phenomena, the relation between structural-functional semiotic analysis in Cognitive Linguistics and research on cognitive processes and their products in the behavioural sciences remains a crucial issue. What is a metaphor in the structures of language and thought as semiotic systems does not have to be realized as a cross-domain mapping in on-going cognition in individual people's minds. It does not have to be shared as a mapping involving two conceptual domains between interlocutors or language users either. These are empirical issues that require precise behavioural research that goes beyond the semiotic structures and functions of metaphor that can be observed. It is needed to answer the question when metaphor is really a matter of thought.
3. Given the above considerations about primary, complex, and discourse metaphor, we can assume that complex metaphor remains a central notion in cognitive-linguistic metaphor theory. The crucial new issue here is that it does not only display a linguistic and a conceptual dimension but also a communicative one, which raises new and fundamental questions about metaphor in language use and deliberateness, intentions, attention and consciousness. These questions have to be addressed if the cognitive-linguistic approach to metaphor wants to live up to its status as a truly cognitive endeavour.
4. Attention has also been drawn to issues of reliability and validity in order to enable closer alignment of cognitive-linguistic analyses of metaphor and its use with the standards in the cognitive and social sciences. Cognitive linguists do not have to do experiments to be taken seriously outside the humanities, but they do have to make their own theoretical and empirical work more open to interdisciplinary criticism. Of particular importance here is the demarcation of specific conceptual metaphors and the way they relate to their expression in language: given that the primary data of linguists consist of utterances in context, the central question here is how specific linguistic expressions can be related to which conceptual metaphors in which ways. Methods and techniques for metaphor identification and analysis as linguistic, conceptual and communicative phenomena are dearly needed.

New opportunities for researching metaphor have opened up in cognitive neuroscience, in corpus linguistics, and in computational linguistics, but these may



only be fruitfully exploited if they take on board the above central issues about the way metaphor relates to cognition. These issues are the result of the cognitive-linguistic revolution in metaphor studies triggered by Lakoff and Johnson (1980), but they also show how much progress has been made since.

## References

- Barcelona, A. (2000). *Metaphor and Metonymy at the Crossroads: A Cognitive Perspective*. Berlin: Mouton de Gruyter.
- Barnden, J. A. (2010). Metaphor and metonymy: Making their connections more slippery. *Cognitive Linguistics*, 21(1), 1–34.
- Bowdle, B. F. and Gentner, D. (2005). The career of metaphor. *Psychological Review*, 112(1), 193–216.
- Butler, C. (2003). *Structure and Function: A Guide to Three Major Structural-functional Theories*. Part 1, 2. Amsterdam: John Benjamins.
- Cameron, L. (2007). Confrontation or complementarity? Metaphor in language and cognitive metaphor theory. *Annual Review of Cognitive Linguistics*, 5, 107–36.
- Cameron, L. J. and Maslen, R. (Eds) (2010). *Metaphor Analysis: Research Practice in Applied Linguistics, Social Sciences and the Humanities*. London: Equinox.
- Casasanto, D. (2009). When is a linguistic metaphor a conceptual metaphor? In V. Evans and S. Pourcel (Eds), *New Directions in Cognitive Linguistics*. Amsterdam: John Benjamins, pp. 127–46.
- Charteris-Black, J. (2004). *Corpus Approaches to Critical Metaphor Analysis*. London: Palgrave Macmillan.
- Cienki, A. and Müller, C. (Eds) (2008). *Metaphor and Gesture*. Amsterdam and Philadelphia: John Benjamins.
- Davenport, H. W. (2004). Pavlov's physiological factory: An essay review. *Journal of the History of Medicine and Allied Sciences*, 59(2), 273–89.
- Deignan, A. (2005). *Metaphor and Corpus Linguistics*. Amsterdam: John Benjamins.
- Dirven, R. and Pörrings, R. (Eds) (2003). *Metaphor and Metonymy in Comparison and Contrast*. Berlin: Mouton de Gruyter.
- Forceville, C. and Urios-Aparasi, E. (Eds) (2009). *Multimodal Metaphor*. Berlin and New York: Mouton de Gruyter.
- Gibbs, R. W., Jr (1999). Researching metaphor. In L. J. Cameron and G. D. Low (Eds), *Researching and Applying Metaphor*. Cambridge: Cambridge University Press, pp. 29–47.
- (2006). *Embodiment and Cognitive Science*. New York: Cambridge University Press.
- (2011a). Evaluating conceptual metaphor theory. *Discourse Processes*, 48(8), 529–62.
- (2011b). Are 'deliberate' metaphors really deliberate? A question of human consciousness and action. *Metaphor and the Social World*, 1(1), 26–52.
- Giora, R. (2008). Is metaphor unique? In R. W. Gibbs (Ed.), *The Cambridge Handbook of Metaphor and Thought*. Cambridge: Cambridge University Press, pp. 143–60.
- Grady, J. (1997). THEORIES ARE BUILDINGS revisited. *Cognitive Linguistics*, 8(3), 267–90.
- (2005). Image schemas and perception: Refining a definition. In B. Hampe (Ed.), *From Perception to Meaning: Image Schemas in Cognitive Linguistics*. Berlin and New York: Mouton de Gruyter, pp. 35–56.
- Hampe, B. (Ed.) (2005). *From Perception to Meaning: Image Schemas in Cognitive Linguistics*. Berlin and New York: Mouton de Gruyter.

- Hellsten, I. (2009). Metaphors as time capsules: Their uses in the biosciences and the media. In B. Nerlich, R. Elliott and B. Larson (Eds), *Communicating Biological Sciences: Ethical and Metaphorical Dimensions*. Farnham: Ashgate.
- Johnson, M. (1987). *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason*. Chicago: University of Chicago Press.
- Koller, V. (2004). *Metaphor and Gender in Business Media Discourse: A Critical Cognitive Study*. Basingstoke and New York, NY: Palgrave Macmillan.
- Kövecses, Z. (2005). *Metaphor in Culture: Universality and Variation*. Cambridge and New York: Cambridge University Press.
- (2010). *Metaphor: A Practical Introduction* (2nd ed.). Oxford: Oxford University Press.
- Lakoff, G. (1987). *Women, Fire, and Dangerous Things: What Categories Reveal About the Mind*. Chicago: University of Chicago Press.
- (2002). *Moral Politics: How Liberals and Conservatives Think* (2nd ed.). Chicago: University of Chicago Press.
- (2008). The neural theory of metaphor. In R. W. Gibbs, Jr (Ed.), *The Cambridge Handbook of Metaphor and Thought*. Cambridge: Cambridge University Press, pp. 17–38.
- Lakoff, G. and Johnson, M. (1980). *Metaphors We Live By*. Chicago: Chicago University Press.
- (1999). *Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought*. New York: Basic Books.
- Mandler, J. (2004). *The Foundations of Mind*. Oxford: Oxford University Press.
- McGlone, M. (2007). What is the explanatory value of a conceptual metaphor? *Language & Communication*, 27, 109–26.
- Musolff, A. (2004a). Metaphor and conceptual evolution. *metaphorik.de*, 07/2004, 55–75.
- (2004b). *Metaphor and Political Discourse: Analogical Reasoning in Debates About Europe*. Houndmills, Basingstoke: Palgrave Macmillan.
- (2011). Migration, media, and ‘deliberate’ metaphors. *metaphorik.de*, 2011/2, 7–19.
- Panther, K.-U. and Thornburg, L. (Eds) (2003). *Metonymy and Pragmatic Inferencing*. Amsterdam: John Benjamins.
- Panther, K.-U., Thornburg, L. and Barcelona, A. (2009). *Metonymy and Metaphor in Grammar*. Amsterdam: John Benjamins.
- Pecher, D., Boot, I. and van Dantzig, S. (2011). Abstract concepts: Sensory-motor grounding, metaphors, and beyond. In B. Ross (Ed.), *The Psychology of Learning and Motivation*, vol. 54. Burlington: Academic Press, pp. 217–48.
- Pragglejaz Group (2007). MIP: A method for identifying metaphorically used words in discourse. *Metaphor and Symbol*, 22(1), 1–39.
- Semino, E. (2008). *Metaphor in Discourse*. Cambridge: Cambridge University Press.
- Semino, E. and Steen, G. J. (2008). Metaphor in literature. In R. W. Gibbs, Jr (Ed.), *The Cambridge Handbook of Metaphor and Thought*. Cambridge: Cambridge University Press, pp. 232–45.
- Steen, G. J. (2002). Metaphor in Bob Dylan’s ‘Hurricane’: Genre, language, and style. In E. Semino and J. Culpepper (Eds), *Cognitive Stylistics: Language and Cognition in Text Analysis*. Amsterdam: John Benjamins, pp. 183–209.
- (2007). *Finding Metaphor in Grammar and Usage: A Methodological Analysis of Theory and Research*. Amsterdam: John Benjamins.
- (2008). The paradox of metaphor: Why we need a three-dimensional model of metaphor. *Metaphor and Symbol*, 23(4), 213–41.
- (2011a). Genre between the humanities and the sciences. In M. Callies, W. Keller and A. Lohöfer (Eds), *Bi-directionality in the Cognitive Sciences – Examining the Interdisciplinary Potential of Cognitive Approaches in Linguistics and Literary Studies*. Amsterdam and Philadelphia: John Benjamins.

- (2011b). The contemporary theory of metaphor – now new and improved! *Review of Cognitive Linguistics*, 9(1), 26–64.
  - (2013). Deliberate metaphor affords conscious metaphorical cognition. *Journal of Cognitive Semiotics*, 5(1–2), 179–97.
- Steen, G. J., Dorst, L., Herrmann, B., Kaal, A., Krennmayr, T. and Pasma, T. (2010). *A Method for Linguistic Metaphor Identification: From MIP to MIPVU*. Amsterdam and Philadelphia: John Benjamins.
- Zinken, J. (2007). Discourse metaphors: The link between figurative language and habitual analogies. *Cognitive Linguistics*, 18(3), 445–66.
- Zinken, J., Hellsten, I. and Nerlich, B. (2008). Discourse metaphors. In R. Dirven, R. Frank, T. Ziemke and J. Zlatev (Eds), *Body, Language, and Mind*. Vol. 2: *Sociocultural Situatedness*. Berlin: Mouton, pp. 363–85.

# 3.2 On the Nature and Scope of Metonymy in Linguistic Description and Explanation: Towards Settling Some Controversies<sup>1</sup>

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## Chapter Overview

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### 1 Introduction

With the publication of *Metaphors We Live By*, by Lakoff and Johnson (1980), the study of metaphor became one of the main concerns of cognitive semanticists. Lakoff and Johnson (1980) made only passing reference to metonymy, a situation which did not change much with Lakoff and Turner's (1989) *More than Cool Reason*. While Lakoff and his collaborators placed emphasis on the conceptual

character of both metaphor and metonymy, which they regarded as processes of thought rather than language, only metaphor was paid significant attention. This situation slowly changed in the late 1990s and early 2000s, when a number of European linguists started a serious debate on the role of metonymy in language and thought. Two seminal papers in this respect are Croft (1993) and Kövecses and Radden (1998), after which many other studies followed, including the collections in the books *Metonymy in Language and Thought* (Panther and Radden, 1999), *Metaphor and Metonymy at the Crossroads* (Barcelona, 2000a) and *Metaphor and Metonymy in Comparison and Contrast* (Dirven and Pörings, 2002).

Since metaphor had been the focus of attention for almost 20 years, it was only natural that the initial debate on metonymy was centred on setting up the dividing line between metaphor and metonymy and discussing their degree of centrality in language and thought. Subsidiary topics were the metonymic grounding of metaphor, the interaction between metaphor and metonymy and the role of metonymy (often vs metaphor) in semantic change and lexical polysemy, in language-based inferential activity, and in grammar. More recent topics of study include the connections between metonymy and construal phenomena such as zone activation and facetization (Geeraerts and Peirsman, 2011; Paradis, 2004), the usefulness of metonymy in discourse (Barcelona, 2005, 2011) and the existence of metonymic complexes (Ruiz de Mendoza and Pérez, 2011). In the present contribution, we will centre our discussion of metonymy on the related definitional and demarcation issues, the interactional problem and the role of metonymy in grammar and in deriving pragmatic inferences. As we will see, settling the controversies around these topics is essential in order to understand the nature of metonymy and its crucial role in language and thought.

## **2 Defining Metonymy**

How to define metonymy is still a matter of controversy in Cognitive Linguistics (cf. Benczes et al., 2011). There are, however, three basic positions, which we will show to be compatible.

On one view, metonymy is, like metaphor, a conceptual mapping, that is one or more correspondences between conceptual domains or elements of a domain, where by 'conceptual domain' we understand an internally coherent knowledge construct or 'any kind of conception or realm of experience' (Langacker, 2008: 44), which is the equivalent of what Fillmore refers to as a 'frame' (cf. Fillmore, 1982; Taylor, 1995: 83–7). However, metonymy differs from metaphor in two significant ways. First, metonymy happens within the boundaries of a single conceptual domain, while metaphor is a mapping across discrete conceptual domains. Second, metonymy involves a 'stands for' relationship between related parts of a conceptual domain, or between the whole

domain and one of its parts, or between part of a domain and the whole of it. By contrast, metaphor is based on an 'is a' relationship where one conceptual domain allows us to think and reason about another conceptual domain. This is the original position taken by Lakoff and Johnson (1980) and Lakoff and Turner (1989). For example, in the metaphor CHANGE IS GETTING/LOSING A POSSESSION, acquiring or losing a property is seen as getting or losing a possession, regaining a property is regaining a possession and purposes are desired possessions. This conceptual system underlies expressions such as *I keep getting these terrible headaches; He has lost his mind; She regained her strength; He'd like to have some more courage*. Metonymy is not used for such reasoning purposes. Instead, it serves a referential function. For example, in the sentence *The guitar has been drinking heavily*, uttered by a concerned member of a rock music band right before a concert, the expression 'the guitar' (the metonymic source domain) both stands for and refers to the 'musician that plays the guitar' (the target domain). In this view, the referential value of 'the guitar' and the 'stands for' connection between the metonymic source and target are felt to be related: if A stands for B, and A is a referential expression, it follows that A refers to B.

One problem with this position is that metonymy is not necessarily referential. For example, as noted by Brdar (2009: 269) the sentence *I'll be brief* stands for 'I will speak briefly.' This is not a referential use of the 'stands-for' metonymic relationship. Instead, we have a situation in which one proposition stands for another related proposition. Another problem is that it is not always clear when a mapping is carried out inside a domain (metonymy) or across domains (metaphor), since sometimes domains are 'conflated' on the grounds of frequent co-occurrence in our experience, a phenomenon that is known as experiential correlation. This is the case of correlation metaphors such as MORE IS UP (based on seeing levels rise and fall as quantity increases and decreases; for example *His wealth is continually on the rise*), AFFECTION IS WARMTH (based on feeling warm while being held affectionately; for example *They couldn't possibly be any warmer to me on my homecoming party*), and GOALS ARE DESTINATIONS (based on the fact that people travel to destinations they plan to reach; for example *He can't find his way in life*) (cf. Grady, 1999; Lakoff and Johnson, 1999). As discussed in Grady (1999), correlation metaphors are different from resemblance metaphors, which exploit similarities between the source and target domains (e.g. *Her hair is gold*). In this respect Barnden (2010) has argued that, since the two domains in correlation metaphors are contiguous (i.e. although different from each other, they co-occur in our experience and are thus put together in our minds), linguistic expressions based on these correlations can be considered metonymic. Thus, since quantity and height are closely associated in our minds, it is possible to argue that 'upward motion' can stand for its experientially contiguous notion of 'increasing'. The relevance of the notion of contiguity to define metonymy has been seriously questioned in Ruiz de Mendoza (2000). Contiguity usually

suggests spatial continuity, although, admittedly, this notion can be extended to refer to conceptual continuity. Whatever the case, since metonymy is based on domain-internal conceptual connections, the notion of 'contiguity', whether applied to non-spatial relations or not, follows naturally as a consequence of domain inclusion, thus becoming theoretically inconsequential. But even if we were to accept its relevance, we could still argue that experiential correlation only gives rise to metaphor, since it allows us to use the source domain to reason about the target, which is not the case with metonymy. For example, in connection with MORE IS UP, we reason that prices can go up and down, either slowly or quickly, or that they can stagnate. In turn, on the basis of AFFECTION IS WARMTH, we reason that people can be 'warm' or 'cold' to different degrees (cf. *She's as cold as ice; She's warmer than the summer/cooler than a breeze*) and with different effects (e.g. *She's so cold that I start shivering every time she's by me/ that I can barely tell when she's angry at all*). Finally, GOALS ARE DESTINATIONS is a rich source of metaphorical inferences. For example, two business partners whose common venture is not making progress could reason: *We have come to a standstill; perhaps we could retrace our steps a bit and look for a better way to move ahead*. Meeting goals presupposes making progress in one among several possible ways; in a parallel fashion, reaching a destination presupposes moving forward along the right path, which often has to be chosen from among a number of options.

From a second perspective, which arises from considerations of perceptually based mental scanning, metonymy has also been discussed as a 'reference point' phenomenon (cf. Langacker, 1993, 2000). In reference-point relationships the entity first perceived and invoked allows us to establish 'mental contact' with another (spatially or otherwise) related entity. The possessor-possessed relationship is a clear case since conceiving the possessor makes it possible to mentally access the possessed object (e.g. in *Mary's best friend*, we first focus our attention on Mary, but then shift our attention to her best friend thereby relegating Mary to the background). The same holds for metonymy, where one entity affords access to another entity with which it is related, thus giving rise to a change in focus too. For example, in *It's a small museum with just one Picasso and a few el Greco's*, the artist acts as a reference point for part of his work.

A number of cognitive linguists, among them Kövecses and Radden (1998), Barcelona (2000b), and Langacker (2000), have noted that the idea of 'affording mental access' is compatible with treating as metonymy a broader range of phenomena than just referential expressions. It can cover predicative uses (*He's a real brain* 'He is a person with high intellectual ability'; Ruiz de Mendoza, 2000), propositional metonymy (*I'll be brief*), and illocutionary metonymy (*I'm thirsty* 'Give me something to drink'; Ruiz de Mendoza and Baicchi, 2007). In all these cases, it can be argued that speakers use one conceptual construct as a point of access to another such construct to which the former is related. However, as Panther (2005) has argued, this 'afford access' view of metonymy

overgeneralizes since it cannot tell the difference between metonymy and other non-metonymic phenomena. For example, in the sentence *The loss of my wallet put me in a bad mood*, 'the loss of my wallet' affords access to the idea of 'non-possession of the wallet'. But this connection is qualitatively different from metonymic links. It is an entailment, and as such it is non-contingent or conceptually necessary, whereas metonymic relations are contingent. Consider in this respect the relationship between 'piano' and 'piano player': the existence of the former does not entail the existence of the latter. However, in the sentence *The piano is in a bad mood*, 'piano' affords access to 'piano player'.

There is still a third way of understanding metonymy, which can be considered a refinement of the initial Lakoffian position discussed at the beginning of this section. According to it, metonymy is a domain-internal conceptual mapping where the target domain is either the result of an expansion or of a reduction of the conceptual material in the source domain. A consequence of his thesis, which has been propounded by Ruiz de Mendoza (2000) and supported by Dirven (2005) and Geeraerts and Peirsman (2011), is the distinction between two basic metonymy types, called *source-in-target* (part of a domain stands for the whole domain) and *target-in-source* (a whole domain stands for part of it). Metonymies of the first kind make use of conceptual expansion processes while those of the second type are based on reduction (cf. Ruiz de Mendoza, 2011, for further discussion). One possible advantage of this emphasis on the two basic metonymy types is found in the domain of metonymic anaphora, as discussed in detail in Ruiz de Mendoza and Díez (2004). These authors argue that anaphora is essentially a conceptual phenomenon, which is the reason why anaphoric devices not always agree in gender and number with a metonymic noun phrase. When the metonymic noun phrase that acts as the antecedent for anaphora is of the target-in-source kind, the anaphoric operation is likely to preserve so-called grammatical agreement, as in (1a) below. However, when anaphora is based on a source-in-target metonymy, there is no grammatical agreement, as in (1b).

- (1) (a) *General Motors* plans to stop advertising on Facebook after determining *its* paid ads had little impact on consumers.<sup>2</sup> (emphasis added)
- (b) *Table 4* has complained again that *his* meal is cold.

In (1b) 'table 4' is metonymic for the 'customer sitting at table 4', which is the domain that supplies the conceptual material for anaphoric reference through 'his'. This correlation is captured by the *Domain Availability Principle* (DAP), according to which only the matrix domain (i.e. the most encompassing domain) of a metonymic mapping is available for anaphoric reference.<sup>3</sup>



The DAP seems to be consistent with other agreement phenomena. Consider the following examples, (2a) from Italian, and (2b) together with (2c), from Croatian (Brdar, 2003: 97):

- (2) (a) lo                      sono                      parcheggiato/a                      all'angolo.  
 I MASC/FEM    am-1SG:MASC/FEM    park-PAST PART MASC/FEM    round the corner.  
 'I am parked round the corner'.
- (b) Washington    se    složio    s    Prijedlogom,    ali    je    još.  
 Washington    REFL    agreed    with    proposal,    but    is    still  
 uvijek oprezan.    ?On/\*ona    je    spreman/spremna    na    sve.  
 ever cautious.    he/ she    is ready-3SG:?MASC/\*FEM    for    everything.  
 'Washington agreed to the proposal, but is still cautious. It is ready for everything'.
- (c) Spreman                      je                      na sve.  
 Ready-3SG:MASC    COP-3SG    for everything.

In (2a), which mimics a well-known example by Nunberg (1995), the gender of the participle depends on the gender of the subject (masculine or feminine) but not of the intended referent, that is the speaker's car. In fact, the speaker's car is a subdomain of what we know about the speaker, which means that the subject pronoun in (2a) contains a target-in-source metonymy where the speaker-possessor is the matrix domain. In terms of the DAP this is the domain that is available for anaphoric reference, which is consistent with the fact that the matrix domain is also the domain used for agreement between the subject and the past participle of the passive verbal predicate.

In (2b) 'Washington' is masculine in Croatian, while its metonymic target, *americka vlada* ('US government') is feminine. Since Croatian is a pro-drop language, there is a strong preference to dispense with the anaphoric pronoun but the predicate needs to agree with 'Washington' rather than with its target. For this reason, the second sentence prefers the form in (2c) where masculine 'spreman' is used.

The three basic views of metonymy that we have distinguished are not necessarily incompatible. First, consider the claim that metonymy is a 'mapping'. Mapping conceptual structure means associating it or parts of it to other conceptual structures or to elements of it. Metaphor is very clearly a mapping where target elements, that is what we want to talk about, are found to correspond to source elements, that is what we use to reason and talk about the target. The target is often implicit, although there are metaphorical realizations where it is made explicit. Compare *We are at a crossroads*, where 'a crossroads'

(the source), allows us to talk about a moment of hesitation or uncertainty (the target), which is implicit, with *Here are some pearls of wisdom*, where 'wisdom' (the target), is seen in terms of the brightness and value of pearls (the source), both of which are explicit. Metonymy is also a mapping since there is an association of conceptual structure. However, in the case of metonymy, the source is not used as a way of reasoning about the target but as a way of affording access to the target, which is always implicit, independently of the kind of metonymy we have. This observation links up with our previous claim that metonymy can be broken down into two more basic operations, domain expansion and reduction, which give rise to source-in-target and target-in-source metonymies respectively. Below are some stock examples of different kinds of metonymy. The ones in (3) are source-in-target metonymies, while those in (4) are target-in-source metonymies; (3d–e) and (4e) are non-referential. However, in all of them, the source is explicit in the linguistic expression and the target is implicit.

- (3) (a) The ham sandwich is waiting for his check ('ham sandwich' for 'the customer that has ordered a ham sandwich')
- (b) What's that smell? ('that smell', the effect, for 'the cause of that smell')
- (c) I need a hand here ('hand' for 'someone that can help me as if with his/her hands')
- (d) He said this with his tongue in his cheek ('tongue in cheek' for 'the associated facial expression that indicates a humorous attitude').
- (e) I can see the river from my window ('I can see' for 'I actually see', i.e. the ability to perform the action for the actual performance of the action that one can perform).
- (4) (a) She broke the window ('window' for 'window pane').
- (b) Chrysler has fired four workers ('Chrysler' for 'the people in charge of employment policy in Chrysler').
- (c) There is a lot of America in this record ('America' for 'American music styles', i.e. an entity stands for one or more of its properties).
- (d) She's on the pill ('pill' for 'birth control pill', i.e. a whole category stands for one of its members).
- (e) You don't want him to be upset ('a person becoming upset' stands for 'the consequences [for the addressee] of the person being upset', i.e. the cause stands for the effect).

In view of the discussion above, it is not unsafe to conclude that metonymy is a domain-internal conceptual association or mapping whereby the source domain affords access to the target domain either through a domain expansion or a domain reduction cognitive operation. Metaphor, in contrast, is a domain-external mapping where the source is used to understand and reason about the target on the basis of resemblance or correlation.

This approach to metonymy sidesteps some of the problems posed by Barnden (2010) on the division between metaphor and metonymy. The first problem concerns the idea of 'contiguity', which has been classically used as a hallmark of metonymy. This notion was uncritically taken over by Lakoff and Johnson (1980) and by most cognitive linguists dealing with this phenomenon, although its actual value to identify metonymy can be seriously questioned, as we have argued above. In any event, Barnden (2010) sticks to this notion and finds that there can be contiguity both in correlation and resemblance metaphors. We have already discussed the problem of correlation metaphor and argued that experiential correlation does not give rise to metonymy even though such notions as quantity and height can become 'contiguous' through frequent co-occurrence. As for resemblance metaphor, consider Barnden's discussion of an example borrowed from Gibbs (1990):

- (5) The creampuff didn't even show up.

In its context, the 'creampuff' in (5) refers to a boxer. There is resemblance between the physical weakness and sweetness of a creampuff, often filled in with whipped cream, and corresponding attributes in the boxer. According to Barnden, this similarity link is used to achieve indirect reference to the boxer (the target) through direct reference to the creampuff (the source item) in the same way as we use the contiguity link in a metonymy to achieve indirect reference to a target via a direct reference to the source item. However, there is nothing in the definitions of metaphor and metonymy given above that restricts metaphor to non-referential uses or that makes metonymy exclusively referential. We have listed some non-referential uses of metonymy above, and we can also have referential uses of metaphor like the following: *There goes the rat that betrayed Jim; My tender rose bud abandoned me; That's the pig that touched her*. It must be noted that in these sentences, as well as in (5) above, the metaphor is not intrinsically referential, but is used within the referential framework provided by such constructions as *There Goes X, NPdef VP, That's the X + relative clause*. When the variable part of one of these constructions is filled in by a linguistic expression designating a metaphorical source, the construction turns the metaphorical source into a point of access to its corresponding target.

A second purported problem, according to Barnden (2010), is that sometimes metonymy is based on resemblance, just like metaphor. A case in point is

the metonymy REPRESENTATION FOR REPRESENTEE, illustrated by the sentence *In Goldfinger Sean Connery saves the world from a nuclear disaster*. Here, the actor (the representation) bears resemblance to his character (the representatee). Similarly, in *Tony Blair is on the left hand side of the photo*, the representatee (Tony Blair) and the representation (the image in the picture) are also similar. However, in the first example, the similarity is subsidiary to the role-character relationship, which is what determines the metonymy (i.e. 'Sean Connery', the actor, stands for 'the character played by Sean Connery'; cf. Ruiz de Mendoza, 2000, for a detailed study of this metonymy). In the second example, 'Tony Blair' stands for 'Tony Blair's image', but the resemblance between the politician and his image is immaterial for the metonymic connection. Imagine that the picture has been damaged to the extent that Tony Blair's image cannot be seen. One can still say that Tony Blair is on the left of the picture, which will be understood to mean that his image must have been there when the picture was taken.

A third apparent problem arises in connection to the question of the domain-internal versus domain-external nature of the mappings. Barnden (2010) makes his point on the basis of two different uses of the word 'snake' in the sentence *There's a snake on the left-hand side of the drawing*. In one, there is a wavy line intended to depict a snake, so the word 'snake' is metonymic, that is it stands for the sketchy representation of a snake in a drawing; in the other, the same word is simply used to describe a wavy line (not a snake) metaphorically. So, according to this author, the mapping is domain-external in the two cases despite the fact that scholars claim that metonymy requires a domain-internal mapping. But there is no such problem, since the use of 'snake' is arguably metaphorical in the two cases. In the first case, the notion of 'snake' (the metaphoric source) allows us to reason about the topology of the wavy line (the target), thereby facilitating its identification with a snake, which is the real focus of attention. This calls for a referential use of the *there* construction. In the second case, the speaker wants to draw the hearer's attention to the topological properties of a line, which resemble those of a snake. Since there is no referential intention, this case is an existential use of the *there* construction.

### **3 The Interaction Issue**

Scholars such as Taylor (1995) and Radden (2000) have argued that metaphor can be grounded in metonymy. According to Radden (2000), this can happen through experiential correlation, pragmatic implication, category structure and cultural models. Radden's point is that these processes create 'contiguity' between conceptual domains. Experiential co-occurrence provides a straightforward example. Think again of the correlation between quantity and height. If both concepts make up one single domain in the speaker's mind, it follows

that the metaphor MORE IS UP is not in fact domain-external. Pragmatic implication can also be illustrative. Radden (2000) gives the example of the development of the meaning of 'going to' future markers, which is based on the correlation metaphor TIME IS SPACE (motion takes place over time). The literal sense of spatial movement (e.g. *He is going to the book store*) may lead to the implicature of intention (e.g. *Are you going to the book store?*) and then to intention without motion (e.g. *Are you going to buy another book?*), which may lead to prediction with intention (e.g. *I am going to do my best to get hold of that book*) and without intention (e.g. *The book is going to appear next week*). The first of these metonymic extensions (motion to a destination stands for the intention to reach the destination) underlies the use of the TIME IS SPACE metaphor to understand 'going to' forms as markers of intentional future. The rest of the meaning extensions develop from the initial metonymy. Consider now category structure in connection to the metaphor CAUSES ARE FORCES (*He brought the water to a boil*). Physical forces are salient examples of causes of change and thus belong to the category of causal agents. Since a category can stand for one of its members (e.g. 'the pill' can stand for 'the birth control pill'), it follows that CAUSES ARE FORCES is grounded in metonymic thinking. Finally, metaphors are sometimes constructed on the basis of cultural models that have a clear metonymic component. For example, emotion metaphors such as ANGER IS HEAT (*You make my blood boil*) are based on the folk theory of the physiological effects of emotions, which are made to stand for the emotions. The redness of the face and excessive perspiration, which suggest heat, are seen as symptoms of anger. This metonymy motivates the metaphor ANGER IS HEAT.

By now, the reader will be aware that pragmatic implication, category structure and cultural models can give rise to metaphors grounded in metonymy simply because these are ways of correlating experience: going and planning to go somewhere correlate; physical forces are experienced as evident causes of change; and symptoms of anger include an apparent elevation in body temperature. This points to a highly pervasive role of metonymy in thought, whose actual extent is a matter of controversy. However, we must note that the kind of metonymic grounding of metaphor explored by some cognitive linguists is more a conceptual prerequisite than a metonymic thinking strategy intended to have a specific communicative purpose. Thus, ANGER IS HEAT is possible because we associate physiological symptoms of anger with an increase in bodily heat. The symptoms stand for the emotion and this licenses the metaphor. But there is a second, more strategic way in which metonymy and metaphor can interact. The first study in this respect was carried out by Goossens (1990), on the basis of a restricted corpus of body-parts, sound items and violent action predicates. Goossens, who coined the label *metaphonymy* to refer to metaphor and metonymy in combination, identified four such interaction patterns (we have tried to clarify Goossens's own explanations where we felt this was necessary):

- (i) Metaphor from metonymy, which takes place when an original metonymy develops into a metaphor. For example, beating one's breast stands for the open show of sorrow associated with this action. This scenario acts as a source domain for any situation where a person makes his sorrow public, whether sincerely or not (no breast beating is necessary): *He beat his breast about his infidelity.*
- (ii) Metonymy within metaphor, as in *I wanted to argue but I had to bite my tongue.* Here, the tongue stands for a person's ability to speak and biting one's tongue is a metaphor for 'refraining from speaking'.
- (iii) Demetonymization inside a metaphor. For example, in English slang 'lip' generally stands for 'dishonest/impudent talk' (e.g. *Don't give me any of your lip*). But in the metaphor *pay lip service* ('give insincere support') 'lip service' means 'service as if with the lips only', so 'lip' no longer stands for 'dishonest/impudent talk'.
- (iv) Metaphor within metonymy, which occurs when a metaphor is used to add expressiveness to a metonymy. For example, in *to be on one's hind legs*, 'hind' incorporates the metaphor PEOPLE ARE ANIMALS inside the source of a metonymy whereby standing up invokes the overall scene of a person standing up and saying something publicly, often to defend his views emphatically.

The role of metonymy in these examples is not to make metaphor possible, but to assist in constructing the metaphor or in shaping its range of meaning effects. In this connection, Ruiz de Mendoza and Díez (2002), and Ruiz de Mendoza and Otal (2002), working on the basis of a larger sample of data, have refined Goossens's account. In their analysis there is no essential difference between the four metaphonymy cases discussed above, all of which are regarded as a matter of *metonymic expansion of the source domain of a metaphor*. Thus, 'beating one's breast' is not a metonymy that has developed into a metaphor, but a metaphor whose source domain has been described partially as an economy strategy; in other words, it is a metaphor whose source is accessed through a source-in-target metonymy. Similarly, 'biting one's tongue' is a metaphor whose source describes part of the situation in which a person bites his or her tongue in order to refrain from speaking. This situation maps onto one where a person decides not to disclose some information. It is true that the tongue can stand for the ability to speak, but this metonymy is subsumed within the overall 'biting one's tongue' scenario, part of which is accessed metonymically. Then, the case of 'pay lip service' is not one where 'lip' loses its original metonymic import to acquire a new interpretation within the metaphorical context into which it has been inserted. Rather, 'lip' means 'by making use of the lips to speak' (i.e. 'by speaking' in contrast to 'by acting') as a result of the application of the source-in-target metonymy INSTRUMENT FOR ACTION. The metonymy is made part of the

metaphoric source in order to highlight the contrast between words and deeds. Once constructed, the source idea of giving service only with words but not with deeds maps onto the target idea of giving insincere support. Finally, ‘be on one’s hind legs’ requires a source domain where a horse rears up its forelegs in order to defend itself or to attack another animal. As with other examples discussed above, the linguistic expression only describes part of the scenario that maps metaphorically onto any situation where a person publicly defends his views with a sudden display of energy and aggressiveness.

There are three other interaction patterns between metaphor and metonymy. One of them involves the metonymic expansion of the target domain of a metaphor. For example, *He knit his eyebrows* maps a situation in which a person knits articles of clothing (the metaphoric source) onto another situation in which a person puts his eyebrows closely together (the metaphoric target), which is expanded by adding the usual reason why this happens: the person frowns because he is angry (see Figure 3.2.1).

In another pattern, the amount of conceptual material that is relevant to construct the source of a metaphor is reduced by means of a target-in-source metonymy. This is a case of metonymic reduction of the metaphoric source. In the sentence *Humboldt is the Shakespeare of travelers* (borrowed from Brdar, 2007: 111), we have the situation depicted in Figure 3.2.2 below.

The role of reduction is to highlight the most relevant elements of the metaphoric source, which, in virtue of the mapping, bring our attention to the most relevant target elements, which are understood in terms of their corresponding source elements and their implications.

Finally, the fourth pattern, metonymic reduction of a metaphoric target, is used to make us see an element of the metaphoric target not only in terms of its corresponding source element but also in terms of its matrix domain. In *She*

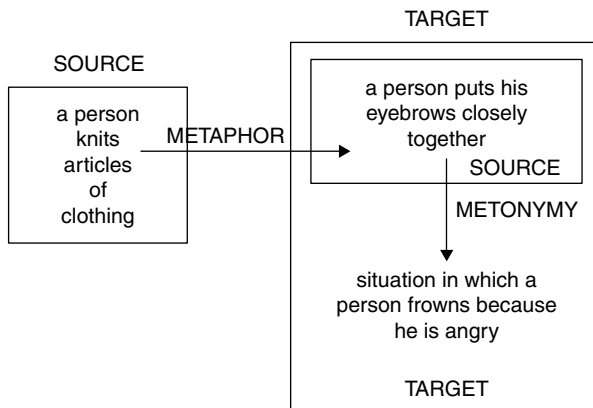


Figure 3.2.1 He knit his eyebrows

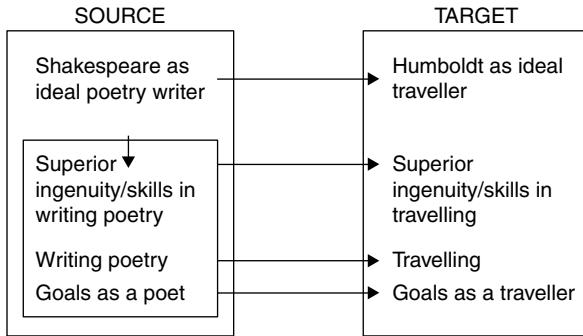


Figure 3.2.2 Humboldt is the Shakespeare of travellers

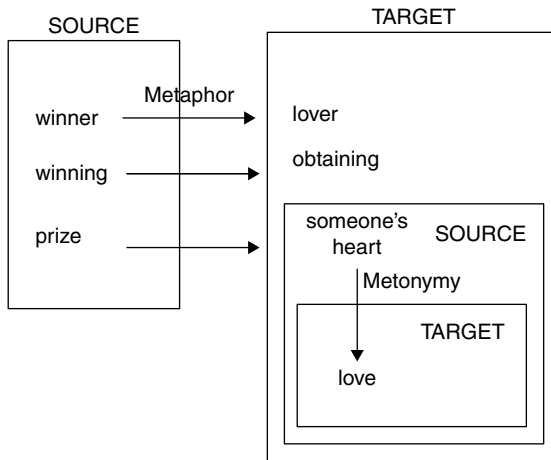


Figure 3.2.3 She won my heart

*won my heart*, 'heart' is metonymic for the love feelings associated with it, but it is also seen as a prize the lover obtains (see Figure 3.2.3).

Another interactional phenomenon that is worth mentioning is so-called double metonymy, first recognized in Ruiz de Mendoza (2000) and Ruiz de Mendoza and Pérez (2001). For space reasons, we will examine only two cases. Compare:

- (6) (a) Wall Street will never lose its prestige.
- (b) Wall Street is in panic.
- (7) (a) Shakespeare is not easy to read.
- (b) Shakespeare is on the top shelf.



Wall Street is home to the New York Stock Exchange. In (6a) the name of the street is used to stand for the stock exchange. This is an example of the metonymy PLACE FOR INSTITUTION (cf. *Madrid* for the government of Spain, *the White House* for the US Government, *Hollywood* for the film industry), where the institution is a subdomain of the place in which it is based. In (6b) we have an additional metonymy in which the institution (i.e. the New York Stock exchange) stands for one of its relevant subdomains, that is stockbrokers and other financial traders working in it. As a result, the interpretation of (6b) requires two target-in-source metonymic mappings in a row: PLACE FOR INSTITUTION FOR PEOPLE ASSOCIATED WITH THE INSTITUTION.

Shakespeare in (7a) stands for his literary work. This is a target-in-source metonymy. In (7b) there is a second metonymy that maps Shakespeare's work onto its medium of presentation (e.g. a book). This one is a source-in-target metonymy. The metonymic complex can be labelled AUTHOR FOR WORK FOR MEDIUM. The implications of this analysis for metonymic anaphora are evident:

- (8) Wall Street is in panic and *it* will be in panic for some time.
- (9) Shakespeare is not easy to read at first but *he* gets easier once you get into the story.
- (10) Shakespeare was on the top shelf but someone took *him/it* from there.

In (8) Wall Street is the first and most comprehensive of two matrix domains, which makes it the best candidate for anaphoric reference in terms of the DAP. Note that it is possible to make use of non-metonymic anaphora through implicative reference, which is very usual when dealing with collective nouns: *Wall Street is in panic and they will be in panic for some time*, where 'they' is loosely anaphoric to a frame element rather than the last target. For another case of implicative reference that does not involve metonymy, take:

- (11) I called the garage this morning and *they* said they don't know when my car will be ready.

It might be argued that (11) does involve metonymic anaphora, with 'they' referring back to the workers in the garage, which would violate the DAP. However, this is not the case. The metonymy in *I called the garage* is from garage (matrix domain) to the person answering the phone (the relevant subdomain consistent with the verbal predicate cue 'called'), as in the following attested example:

- (12) I have called the garage and *he* is going to take a look at it tomorrow for me to check for leaks, water pump, etc.<sup>4</sup>

This means that in (11) the metonymy is abandoned in favour of implicative reference to a 'garage' frame element (the workers).

Now, contrast (9) and (10). In (9) 'Shakespeare' is the only available matrix domain, so the anaphoric pronoun (*he*) is linked to it. However, in (10) there are two matrix domains, 'Shakespeare' and 'the medium of presentation', which licenses two possible anaphoric pronouns (although conceptual compatibility leads to a preference for the second domain as more readily available for anaphora; cf. Ruiz de Mendoza and Díez, 2004).

#### **4 Metonymy as an Inferential Schema**

Gibbs (1994, 1999), Thornburg and Panther (1997), Panther and Thornburg (1998, 2003), Ruiz de Mendoza and Pérez (2003), Panther (2005), Ruiz de Mendoza (2007), and Ruiz de Mendoza and Baicchi (2007), among others, have argued that metonymy lies at the basis of so-called pragmatic inferences. This is easy to show with reference to the interpretation of indirect speech acts. Panther and Thornburg (1998) postulate the existence of speech act scenarios whose structure comes quite close to the well-known Searlean conditions for speech acts (cf. Searle, 1975). According to Panther and Thornburg (1998: 759), a request scenario consists of three components:

- (i) Before component:  
The hearer (H) can do the action (A). The speaker (S) wants H to do A.
- (ii) Core component:  
S puts H under a (more or less strong) obligation to do A.  
H is under an obligation to do A (H must/should/ought to do A).
- (iii) After component: H will do A.  
S has emotional response.

On the basis of a metonymic operation, any of the components of the scenario can stand for the whole speech act. The examples below, which are indirect ways of asking for something to drink, are but the source domains of a metonymy whose target domain is the actual request:

Before component: Can you give me something to drink?

Core component: Give me something to drink.

After component: Will you give me something to drink?

However, this account does not explain well other ways of conveying the same illocutionary value, which are not strictly based on the before, core and after components of the request scenario. This is the case of statements of need such

as *I'm thirsty/hungry/tired, I have a terrible headache, We need a doctor here*, etc. Ruiz de Mendoza and Baicchi (2007) have argued that underlying Panther and Thornburg's illocutionary scenarios there are more general cultural conventions that can be exploited metonymically too. A statement of need, in this approach, can be interpreted as a request on the grounds of its ability to afford access to the following cultural convention:

If it is manifest to A that a particular state of affairs is not beneficial to B, and if A has the capacity to change that state of affairs, then A should do so.

If the linguistic expression, in combination with contextual information, realizes the 'if' part of the above convention, it follows that the addressee is expected to comply with the 'then' part, which is a call for remedial action. Since part of the convention (the condition) is used to first give access to the whole convention and then to another part of it (the consequence), what we have here is a case of double metonymy based on combining a source-in-target mapping with a target-in-source one.

Ruiz de Mendoza (2007) has also argued that situation-based implicatures are a matter of metonymic thinking. Let us discuss B's part in the following exchange about a baseball game in terms of its implied meaning:

- (13) A: Did your team win?  
B: I'm sure the umpire was bought off.

The implication of B's assertion is that he believes that his team should have won the game. Since this did not happen, he puts the blame on the umpire's dishonesty. Evidently, A's question activates the final part of the baseball game scenario, while B's answer addresses the umpire's impartial enforcement of the rules. The statement that the umpire was bought off thus affords access to a scenario in which the umpire's dishonesty has led to an unfair result. Traditionally, in inferential pragmatics, this kind of activation has been the object of a premise-conclusion analysis (cf. Sperber and Wilson, 1995), which here takes the form of a reasoning schema:

- Premise (implicit assumption): An unfair umpire in a game will favour the team that plays worse.  
Explicit assumption: The umpire was bought off (so he was not fair to the team that played better).  
Conclusion (implicated assumption): The result of the game was unfair to the team that played better.

Of course, this implicated conclusion is not the only one that can be derived. Speaker B is probably disappointed or upset about the situation, which would

call for an additional reasoning schema where the implicated assumption of the first schema becomes part of a complementary reasoning process: an unfair result can disappoint the supporter of the best team; the result was unfair to the best team; so, the supporter of this team felt disappointed. Note that, as with illocution, the reasoning process of the schemas is based on the combination of a source-in-target with a target-in-source metonymic mapping. In the case of the first reasoning schema, through domain expansion, the explicit assumption that the umpire was unfair gives access to a baseball game scenario in which the rules are not enforced correctly and, as a consequence, the contender that deserved to win is treated unfairly and loses the game; through domain reduction, this whole scenario in turn stands for the part of it in which the best team actually loses the game.

What this analysis means is that metonymy works essentially in the same way whether we are dealing with implicature or with illocution. The only difference is the nature of the scenarios involved: in the case of implicature, metonymy acts on low-level situational cognitive models or scenarios, whereas in the case of illocution, we have higher level (i.e. more generic) situational structure as captured by the convention for requests formulated above.

## **5 Metonymy in Grammar**

As some cognitivists have discussed in detail, metonymy is a ubiquitous phenomenon (cf. Radden, 2005; Barcelona, 2011, and the references therein). In the previous section, we have argued that it definitely plays a role in the production and comprehension of pragmatic inferences. In the present section, we will briefly discuss its role in grammar (for details on this discussion, we refer the reader to Ruiz de Mendoza and Pérez, 2001 and the collection of papers in Panther et al., 2009). Consider the examples in (14) below.

- (14) (a) Be quiet!  
(b) The door opened with the wind.  
(c) These clothes wash well.  
(d) There is quite a lot of Spain in her.  
(e) He began the beer.  
(f) What's that smell?  
(g) I must speak to you, please.  
(h) I can see the spire from my bedroom window.

These sentences illustrate linguistic phenomena that have been discussed in the literature without appeal to metonymy, but each of them can be argued

to use metonymy as a motivating factor of some grammatical property. Let us start with (14a), where a stative predicate ('quiet') is used within an imperative framework, which would call for an action predicate (e.g. *Come here!*, *Bring me my slippers*, *Don't wake me up*). While *Be quiet* is possible, however, other stative predicates are not: *\*Be tall/rich/sad*, etc. Panther and Thornburg (2000) have accounted for this situation in terms of the licensing of some stative predicates, but not others, into the imperative construction through the metonymy RESULT FOR ACTION. Thus, 'quiet', 'nice', 'cruel', which are resultative (i.e. there are previous actions that lead to the states designated by these predicates), can be used in imperative predications, but not 'tall', 'rich', and 'sad', except in pragmatic contexts. For example, think of TV commercials where the advertiser of a miracle product or self-help book asks the audience to be tall, rich or not to be sad. As noted in Ruiz de Mendoza and Pérez (2001: 330), postulating this metonymy helps to explain apparent irregularities or asymmetries in the use of stative predicates in directive formulations. The key issue is the (cultural or factual) appropriateness of asking someone to perform an action that will have a given result. By way of illustration, while *#Be sad!* is a strange directive act, *Don't be sad!* or *He told me not to be sad* are acceptable uses. For cultural reasons, we do not ask people to act in ways that will lead them into negative states or situations, such as being unhappy. Similarly, the asymmetry between the oddity of saying *#Fall asleep!* and the felicity of saying *Don't fall asleep!* is a matter of people generally having greater control over how to remain alert than over how to go to sleep.

Let us now take (14b) and (14c). These two examples have something in common: they talk about an action as if it were a process. Then, they use the process to refer to the action, which suggests a metonymic process. Doors do not open and clothes do not wash by themselves. There is a covert agent. The difference between the two sentences is that (14c) has an assessment or evaluative ingredient that is missing in (14b). This calls for an additional mapping in (14c) from the covert action to its assessed result. So, we can postulate PROCESS FOR ACTION for (14b) and PROCESS FOR ACTION FOR (ASSESSED) RESULT FOR (14c).

In (14d) we have a case of so-called 'subcategorical' conversion whereby a countable noun becomes uncountable. Metonymy can disclose some of the conditions for this process to be possible. In (14d) 'Spain' refers to 'Spanish values and lifestyle', in application of the metonymy A UNIQUE ENTITY FOR ONE OF ITS HIGHLIGHTED PROPERTIES. An entity (countable) can also stand for the material (uncountable) of which it is made (OBJECT FOR MATERIAL): *There was cat all over the road*. This example is a matter of construal, since the smashed cat is no longer perceived as an entity but as 'cat matter'.

We now come to (14e). Verbs like 'begin' and 'enjoy' select for an activity. This would require expressing (14e) as *He began drinking the beer*. But, of course, other elaborations are possible: *He began bottling/selling/distributing, etc. the beer*.

This elaboration requires us to look into the world knowledge structure of the nominal complement for an extension of the complement which includes the right action verb in terms of the context. Put more simply, what we have is the licensing activity of the metonymy AN OBJECT FOR AN ACTION (IN WHICH THE OBJECT IS INVOLVED).

The question in (14f) is based on a conventional construction: *What's that N?*, discussed in Panther and Thornburg (2000). In this example the speaker is not asking about the identity of the smell, but about its origin or its cause. An appropriate paraphrase could be 'What is the cause of that smell?' or 'What causes that smell?' The paraphrase reveals the activity of the EFFECT FOR CAUSE metonymy.

Within the domain of deontic modality, there are frequent metonymic shifts from obligation to desire. (14g) is an easy example where 'I must speak' means 'I want to speak'. The rationale for the OBLIGATION FOR DESIRE mapping is that sometimes people force themselves to a course of action (obligation) on the grounds of their own free will (desire).

Another modality type is concerned with evaluating the potentiality or actuality of a state of affairs. Panther and Thornburg (1999) have proposed in this respect the metonymy POTENTIALITY FOR ACTUALITY, which motivates (14h), where 'I can see' stands for 'I actually see'. This mapping is substantiated by the fact that having the ability to perform an action is a prerequisite for us to perform the action. Other expressions that make use of this metonymy involve promises and pledges: *I can promise* (i.e. I actually promise) *that you will be treated fairly*; *I can guarantee* (i.e. I actually guarantee) *your safety*.

## 6 Final Remarks

The accumulation of literature on metonymy in language and thought points to the highly pervasive nature of this phenomenon. It not only underlies much of metaphorical thought, but it also interacts with metaphor yielding complex thought patterns. Besides this, its presence in grammar and in pragmatic inferring is now undisputable. However, much of our metonymic activity has become so entrenched in our conceptual systems and so conventional in our use of language that it could be argued that metonymy is not such an active phenomenon. For this reason, the extent to which our minds make productive use of metonymy turns into an empirical question to be determined on the grounds of psycholinguistic experimenting (cf. Gibbs, 1999).

What cognitive linguists have been able to do so far is detect possible metonymic processes on the basis of linguistic evidence. But this work has to be complemented and refined not only with further linguistic discussion but also with psycholinguistic evidence and a careful examination of how metonymy is

used in many different languages. The nature and scope of metonymy and its role in linguistic description and explanation are still to be determined, since potential metonymic activity can be affected by various grammatical and language use factors. To give a quick example, Nunberg's (1979) famous 'ham sandwich' metonymy, popularized by cognitive linguists following Lakoff and Johnson (1980), does not work well in Spanish, which prefers another conceptual shortcut, which is part of Spanish grammar: the nominalization, through the use of the definite article, of a non-nominal phrase (or even of a whole clause). For this reason, Spanish does not require a metonymy from 'ham sandwich' to 'customer', but simply the following nominalization: *el del bocadillo de jamón* (approx. 'the (one) with the ham sandwich'). Cross-linguistic research is very limited in the cognitive approach to metonymy (some exceptions are Brdar, 2003; Panther and Thornburg, 1999; Ruiz de Mendoza and Peña, 2008) but it is a much needed line of future research, which at some point, as evidence accumulates, will hopefully integrate metonymy theory into broader typological concerns.

Within the context of the present developments in the cognitivist approach to metonymy, the present contribution has provided a critical overview of positions held by cognitive linguists with respect to such controversial issues as the dividing line between metonymy and metaphor, the way these two phenomena interact, and the role of metonymy in pragmatic inferencing and grammar. It has defended the thesis that opposing views on metonymy as a conceptual mapping or a reference point phenomenon can be reconciled. Thus, metonymy can be seen as a domain-internal conceptual mapping whose source domain, which can either include the target or be part of it, is used as a point of access to the target domain. This position solves apparent demarcation problems like those posed by Barnden (2010), since it avoids the use of the notions of contiguity and referentiality as distinctive of metonymy. Additionally, since it argues for a distinction between two basic metonymy types, one where the source is a subdomain of the target and another where the target is a subdomain of the source, it allows the analyst to draw a clear picture of conceptual interaction processes involving metonymy. Thus, the present chapter has revised previous work on metaphor-metonymy interaction by Goossens (1990) and it has postulated that metonymy can be built into the source or the target of a metaphor (cf. Ruiz de Mendoza and Díez, 2002). The expansion-reduction view has proved applicable to cases of double metonymy like those discussed in Ruiz de Mendoza (2000) and Ruiz de Mendoza and Pérez (2001). Then, on the basis of pioneering work by Panther and Thornburg (1998) on the metonymic grounding of indirect speech acts, we have discussed the role of metonymy in illocutionary interpretation. The account proposed improves on Panther and Thornburg's work by drawing parallels between illocutionary interpretation and implicature derivation. The former is based on a double metonymic combination whereby part of

a high-level (or generic) scenario acts as a point of access to (and thus stands for) the whole scenario, which in turns affords access (and stands for) a highlighted part of it. The latter uses the same cognitive mechanism, but on the basis of a low-level (or non-generic) scenario. Finally, on the basis of work by Panther and Thornburg (2000), Ruiz de Mendoza and Pérez (2001), Brdar (2009), Barcelona (2011), among others, we have discussed the role of metonymy as a licensing factor in a number of grammatical processes involving constructional coercion (e.g. an imperative construction can take in a non-dynamic predicate provided that it can be regarded as the result of an action for which it stands) and different cases of categorial and subcategorial conversion.

The interactional, inferential and grammatical motivation issues that have been chosen for discussion in the present chapter still deserve further exploration, carried out on the basis of larger amounts of attested examples and in connection to empirical research into mental processes and the various constraining factors in the use of metonymy across languages.

## Notes

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2. <http://online.wsj.com/article/SB10001424052702304192704577406394017764460.html> (accessed 18 July 2012).
3. Warren (2004) argues that this correlation does not account for metonymic anaphora. Instead she postulates that the antecedent of an anaphoric pronoun is whatever we perceive to be the topic of an utterance. However, this view is but complementary of the Domain Availability Principle, since the matrix domain is cognitively more salient and thus an easy object of topicalization. Warren's example *The boots [their laces] were neatly tied and they [the boots] were clean* follows the DAP since 'boots' is the matrix (or main) domain in the 'boots-boot laces' metonymic relationship. Note that it is not possible to say *\*The boots were neatly tied and they were flat woven ones*.
4. This does not mean that the metonymy ORDER FOR CUSTOMER or other comparable metonymies (e.g. ROOM FOR PATIENT, ROOM FOR CUSTOMER), constructed on the basis of stereotyped scenarios where service is provided, like a hospital or a hotel, are impossible in Spanish. However, the existence of an alternative conceptual shortcut based on the nominalization of non-nominal phrases, which is a productive grammatical resource, creates a tension between the two options, which so far seems to favour the grammatical solution. A diachronic – and possibly a sociolinguistic – study of this tension could establish the way in which Spanish is developing in this respect with a focus on sociocultural contexts. Thus, it is not uncommon to hear now Spanish sentences such as *La vesícula de la 34 necesita calmantes* ('The gallbladder in (room) 34 needs some painkiller') instead of *El de la vesícula de la 34 necesita calmantes* (approx. 'The one with the gallbladder in (room) 34 needs some painkiller'), or *La (habitación) 140 se queja de exceso de ruido* (approx. '(Room) 140 complains that there is excessive



noise') for *El de la (habitación) 140 se queja de exceso de ruido* (approx. 'The one at (room) 140 complains that there is excessive noise'). However, this kind of metonymic use seems to be less appropriate (although not impossible) in more formal contexts, such as legal practice, both in English and Spanish: #*Last month's rape has declined to file charges*/#*La violación del mes pasado no pondrá denuncia*. Of course, cross-linguistic analysis will be more accurate to the extent that such diachronic and socio-cultural factors are taken into account.

## References

- Barcelona, A. (Ed.) (2000a). *Metaphor and Metonymy at the Crossroads: A Cognitive Perspective*. Berlin: Mouton.
- Barcelona, A. (2000b). On the plausibility of claiming a metonymic motivation for conceptual metaphor. In A. Barcelona (Ed.), *Metaphor and Metonymy at the Crossroads*. Berlin: Mouton, pp. 31–58.
- (2005). The multilevel operation of metonymy in grammar and discourse with particular attention to metonymic chains. In F. Ruiz de Mendoza and S. Peña (Eds), *Cognitive Linguistics: Internal Dynamics and Interdisciplinary Interaction*. Berlin: Mouton, pp. 313–52.
- (2011). Metonymy is not just a lexical phenomenon. In C. Alm-Arvius, N.-L. Johannesson and D. C. Minugh (Eds), *Selected Papers from the 2008 Stockholm Metaphor Festival*, pp. 3–42.
- Barnden, J. A. (2010). Metaphor and metonymy: Making their connections more slippery. *Cognitive Linguistics*, 21(1), 1–34.
- Benczes, R., Barcelona, A. and Ruiz de Mendoza, F. (2011). *Defining Metonymy in Cognitive Linguistics. Towards a Consensus View*. Amsterdam: Benjamins.
- Brdar, M. (2003). Referential metonymy across languages: What can cognitive linguistics and CONTRASTIVE LINGUISTICS learn from each other? *International Journal of English Studies*, 3(2), 85–105.
- (2007). *Metonymy in Grammar: Towards Motivating Extensions of Grammatical Categories and Constructions*. Osijek: Faculty of Philosophy, Josip Juraj Strossmayer University.
- (2009). Metonymies we live without. In K.-U. Panther, L. Thornburg and A. Barcelona (Eds), *Metonymy and Metaphor in Grammar*. Amsterdam: Benjamins, pp. 259–74.
- Croft, W. (1993). The role of domains in the interpretation of metaphors and metonymies. *Cognitive Linguistics*, 4, 335–70.
- Dirven, R. (2005). Major strands in cognitive linguistics. In F. Ruiz de Mendoza and S. Peña (Eds), *Cognitive Linguistics: Internal Dynamics and Interdisciplinary Interaction*. Berlin: Mouton, pp. 69–100.
- Dirven, R. and Pörings, R. (Eds) (2002). *Metaphor and Metonymy in Comparison and Contrast*. Berlin: Mouton.
- Fillmore, Charles J. (1982). Frame semantics. In The Linguistic Society of Korea (Ed.), *Linguistics in the Morning Calm*. Seoul: Hanshin Pub. Co., pp. 111–37.
- Geraerts, D. and Peirsman, Y. (2011). Zones, facets, and prototype-based metonymy. In R. Benczes, A. Barcelona and F. Ruiz de Mendoza (Eds), *Defining Metonymy in Cognitive Linguistics: Towards a Consensus View*. Amsterdam: Benjamins, pp. 89–102.
- Gibbs, R. W. (1990). Comprehending figurative referential descriptions. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 16(1), 56–66.
- (1994). *The Poetics of Mind: Figurative Thought, Language, and Understanding*. Cambridge: Cambridge University Press.

- (1999). Speaking and thinking with metonymy. In K.-U. Panther and L. Thornburg (Eds), *Metonymy and Pragmatic Inferencing*. Amsterdam: Benjamins, pp. 61–76.
- Goossens, L. (1990). Metaphonymy: The interaction of metaphor and metonymy in expressions for linguistic action. *Cognitive Linguistics*, 1(3), 323–40.
- Grady, J. (1999). A typology of motivation for conceptual metaphor: Correlation vs. resemblance. In R. W. Gibbs and G. Steen (Eds), *Metaphor in Cognitive Linguistics*. Amsterdam: Benjamins, pp. 79–100.
- Kövecses, Z. and Radden, G. (1998). Metonymy: Developing a cognitive linguistic view. *Cognitive Linguistics*, 9, 37–77.
- Lakoff, G. and Johnson, M. (1980). *Metaphors We Live By*. Chicago: Chicago University Press.
- (1999). *Philosophy in the Flesh*. New York: Basic Books.
- Lakoff, G. and Turner, M. (1989). *More than Cool Reason: A Field Guide to Poetic Metaphor*. Chicago: University of Chicago Press.
- Langacker, R. W. (1993). Reference-point constructions. *Cognitive Linguistics*, 4, 1–38.
- (2000). *Grammar and Conceptualization*. Berlin: Mouton.
- (2008). *Cognitive Grammar. A Basic Introduction*. Oxford: Oxford University Press.
- Nunberg, G. (1979). The non-uniqueness of semantic solutions: Polysemy. *Linguistics and Philosophy*, 3, 143–84.
- (1995). Transfers of meaning. *Journal of Semantics*, 12, 109–32.
- Panther, K.-U. (2005). The role of conceptual metonymy in meaning construction. In F. Ruiz de Mendoza and S. Peña (Eds), *Cognitive Linguistics: Internal Dynamics and Interdisciplinary Interaction*. Berlin: Mouton, pp. 353–86.
- Panther, K.-U. and Radden, G. (Eds) (1999). *Metonymy in Language and Thought*. Amsterdam: Benjamins.
- Panther, K.-U. and Thornburg, L. (1998). A cognitive approach to inferencing in conversation. *Journal of Pragmatics*, 30, 755–69.
- (1999). The potentiality for actuality metonymy in English and Hungarian. In K.-U. Panther and G. Radden (Eds), *Metonymy in Language and Thought*. Amsterdam: Benjamins, pp. 333–57.
- (2000). The EFFECT FOR CAUSE metonymy in English grammar. In A. Barcelona (Ed.), *Metaphor and Metonymy at the Crossroads: A Cognitive Perspective*. Berlin: Mouton, pp. 215–31.
- (2003). Metonymies as natural inference and activation schemas: The case of dependent clauses as independent speech acts. In K.-U. Panther and L. Thornburg (Eds), *Metonymy and Pragmatic Inferencing*. Amsterdam: Benjamins, pp. 127–47.
- Panther, K.-U., Thornburg, L. and Barcelona, A. (Eds) (2009). *Metonymy and Metaphor in Grammar*. Amsterdam: Benjamins.
- Paradis, C. (2004). Where does metonymy stop? *Metaphor and Symbol*, 19(4), 245–64.
- Radden, G. (2000). How metonymic are metaphors In A. Barcelona (Ed.), *Metaphor and Metonymy at the Crossroads*. Berlin: Mouton, pp. 93–109.
- (2005). The ubiquity of metonymy In J. L. Otal, I. Navarro and B. Bellés (Eds), *Cognitive and Discourse Approaches to Metaphor and Metonymy*. Castelló: Universitat Jaume I, pp. 11–28.
- Ruiz de Mendoza, F. (2000). The role of mappings and domains in understanding metonymy. In A. Barcelona (Ed.), *Metaphor and Metonymy at the Crossroads*. Berlin: Mouton, pp. 109–32.
- (2007). High-level cognitive models: In search of a unified framework for inferential and grammatical behavior. In K. Kosecki (Ed.), *Perspectives on Metonymy*. Frankfurt: Peter Lang, pp. 11–30.

- (2011). Metonymy and cognitive operations. In R. Benczes, A. Barcelona and F. Ruiz de Mendoza (Eds), *Defining Metonymy in Cognitive Linguistics: Towards a Consensus View*. Amsterdam: Benjamins, pp. 103–23.
- Ruiz de Mendoza, F. and Baicchi, A. (2007). Illocutionary constructions: Cognitive motivation and linguistic realization. In I. Kecskes and L. Horn (Eds), *Explorations in Pragmatics: Linguistic, Cognitive, and Intercultural Aspects*. Berlin: Mouton, pp. 95–128.
- Ruiz de Mendoza, F. and Diez, O. (2002). Patterns of conceptual interaction. In R. Dirven and R. Pörings (Eds), *Metaphor and Metonymy in Comparison and Contrast*. Berlin: Mouton, pp. 489–532.
- (2004). Metonymic motivation in anaphoric reference. In G. Radden and K.-U. Panther (Eds), *Studies in Linguistic Motivation*. Amsterdam: Benjamins, pp. 23–50.
- Ruiz de Mendoza, F. and Galera, A. (2011). Going beyond metaphonymy: Metaphoric and metonymic complexes in phrasal verb interpretation. *Language Value*, 3(1), 1–29.
- Ruiz de Mendoza, F. and Otal, J. L. (2002). *Metonymy, Grammar and Communication*. Albolote, Granada: Comares.
- Ruiz de Mendoza, F. and Peña, S. (2008). Grammatical metonymy within the ‘action’ frame in English and Spanish. In M. A. Gómez, J. L. Mackenzie and E. M. González-Álvarez (Eds), *Current Trends in Contrastive Linguistics: Functional and Cognitive Perspectives*. Amsterdam: Benjamins, pp. 251–80.
- Ruiz de Mendoza, F. and Pérez, L. (2003). Cognitive operations and pragmatic implication. In K.-U. Panther and L. Thornburg (Eds), *Metonymy and Pragmatic Inferencing*. Amsterdam: Benjamins, pp. 23–49.
- (2001). Metonymy and the grammar: Motivation, constraints, and interaction. *Language and Communication*, 21, 321–57.
- Searle, J. R. (1975). A taxonomy of illocutionary acts. in K. Gunderson (Ed.), *Language, Mind and Knowledge. Minnesota Studies in the Philosophy of Science*, vol. VII. Minneapolis: University of Minnesota Press, pp. 344–69.
- Sperber, D. and Wilson, D. (1995). *Relevance: Communication and Cognition*. Oxford: Basil Blackwell.
- Taylor, J. (1995). *Linguistic Categorization: Prototypes in Linguistic Theory* (2nd ed.). Oxford: Clarendon Press.
- Thornburg, L. and Panther, K.-U. (1997). Speech act metonymies. In W.-A. Liebert, G. Redeker and L. Waugh (Eds), *Discourse and Perspectives in Cognitive Linguistics*. Amsterdam: Benjamins, pp. 205–19.
- Warren, B. (2004). Anaphoric pronouns of metonymic expressions. *metaphorik.de* 07.

# 3.3 Embodied Metaphor

*Raymond W. Gibbs, Jr*

## Chapter Overview

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## 1 Introduction

The possibility that metaphor has something to do with mundane bodily experience was once seen as a shocking idea in the world of metaphor scholarship. Metaphors in language, after all, presumably express creative thoughts that are transcendent from ordinary thinking and must be distinct from the physical, literal world, including bodies in action. Yet the revolution in cognitive linguistic studies, supported by research in cognitive science, has placed metaphor centre stage within everyday cognition, and demonstrated that many aspects of metaphoric language and action are deeply tied to embodiment or recurring patterns of bodily experience (Gibbs, 2006; Johnson, 1987; Lakoff and Johnson, 1999).

The bodily nature of metaphoric thought can be seen in many ordinary and extraordinary facets of language. Consider one example of this from literature, in this case from the writings of the twentieth-century Portuguese author Fernando Pessoa. In his famous 'factless autobiography', titled 'The Book of Disquietude', Pessoa wrote of his dreams and consciousness, and offered

many philosophical commentaries on life, such as the following (Pessoa, 1996: 29–30):

To live a dispassionate and cultured life in the open air of ideas, reading, dreaming and thinking about writing. A life that's slow enough to be forever on the verge of tedium, but pondered enough so as never to find itself there. To live life far from emotions and thought, living it only in the thought of emotions and in the emotions of thought. To stagnate in the sun goldenly, like a dark pond surrounded by flowers. To possess, in the shade, that nobility of spirit that makes no demands on life. To be in the whirl of the worlds like dust of flowers, sailing through the afternoon air on an unknown wind and falling, in the torpor of dusk, wherever it falls, lost among longer things. To be with a sure understanding, neither happy nor sad, grateful for the sun and for its brilliance and to the stars for their remoteness. To be no more, have no more, want no more . . . The music of the hungry, the song of the blind the relic of the unknown wayfarer, the tracks in the desert of the camel without burden or destination.

Pessoa talks here of different metaphoric, even allegorical, possibilities that are rooted in our everyday bodily movements as we take different journeys and experience the 'open air of ideas', 'stagnate in the sun', 'possess . . . the spirit of nobility', feel the power of the 'whirl of the worlds', 'sailing through the afternoon', 'falling lost among longer things', wanting 'no more', and recognizing that some journeys are 'without burden or destination'. These metaphoric ideas are not completely novel suggestions, but, once more, as intimately tied to our ongoing embodied actions in the world that we use to better understand more abstract topics, in the case of Pessoa's philosophical speculations about the meaning of his own life.

The claim that some metaphoric discourse, such as that produced by Pessoa, emerges from recurring bodily actions suggests to many scholars, including those within Cognitive Linguistics, that common metaphoric themes are 'embodied' and that 'embodied metaphor' is at the root of much thought, language and other expressive human actions (e.g. gesture, art, music) (Forceville and Urios-Aparisi, 2009; Gibbs, 2008). Metaphor arises unconsciously from experiential gestalts relating to the body's movements, orientation in space and its interactions with objects (Johnson, 1987). These fundamental gestalts reflect recurring dynamic patterns of bodily interactions which structure how we understand the world. Conceptual metaphors extend experiential gestalts to structure and organize abstract concepts. Embodied metaphors are, therefore, part of who we are and serve as the underlying cause of why our language, gestures, music, art and so on seem so grounded in everyday bodily actions.

The study of embodied metaphor is part of the larger project in cognitive science to show how human minds are situated and embodied, such that many aspects of language and cognition are grounded in people's ongoing sensorimotor interactions with the world (Gibbs, 2006). Embodied cognition challenges the traditional view of human minds as being discrete, amodal, ahistorical, symbolic processing system that are typically independent of any physical instantiation in biological or synthetic materials. Embodied metaphor theory specifically details significant links between bodily experience, abstract thought, and metaphoric language and action.

This chapter describes some of the empirical evidence from linguistics, psychology, neuroscience and the expressive arts on the importance of embodied metaphor in human expressive action. However, I will also advance a more radical thesis in suggesting that embodied metaphors should be properly understood as full bodied expressive performances and not merely as private, inner mental representations that are sometimes overtly manifested as metaphoric language, gesture and other actions. This perspective suggests that embodied metaphors unfold, or come into being, through human action and are not merely the single underlying causal basis for why people metaphorically speak and act as they sometimes do.

## **2 Ubiquity of Embodied Metaphor**

Empirical research from Cognitive Linguistics first shed light on the possibility that many metaphors have embodied source domains. Consider the following ways that English speakers sometimes talk about different life situations (obtained from the internet):

Al Jazeera America got off to a good start with climate change coverage.

We make big plans but get sidetracked along the way!

Here are 10 stories highlighting students who have overcome obstacles, discovered new dimensions and doggedly pursued their academic goals.

After high school, it seems that everyone goes their own separate ways.

Cognitive linguistic analyses argue that these individual expressions are not clichéd, idioms expressing literal meaning, but reflect different aspects of the enduring conceptual metaphor *LIFE IS A JOURNEY*. There is a tight mapping according to which entities in the domain of life (e.g. the people, their goals, the ways they try to attain these goals) correspond systematically to entities in the domain of journeys (e.g. the traveller, the vehicle, destinations, etc.). Each linguistic expression above refers to a different correspondence that arises from

the mapping of familiar, often embodied, understanding of journeys onto the more abstract idea of a different life situation (e.g. difficulties in life are conceived of as obstacles on the physical journey).

The source domains in embodied metaphors are structured by 'image schemas' that reflect enduring patterns of bodily experience across different sensory modalities. For instance, the JOURNEY source domain is structured in terms of the SOURCE-PATH-GOAL schema that emerges from people's varied experiences of starting off from some source, moving along some path, in an attempt to reach some specific goal. Image schemas have internal structure that provides constraints on the meanings that emerge from metaphoric mappings.

There are now hundreds of linguistic studies, from dozens of different languages that provide evidence in support of the idea of embodied conceptual metaphors such as LIFE IS A JOURNEY (Gibbs, 2008, 2011). These studies have revealed the fundamental importance of embodied metaphors in other areas of linguistic structure and behaviour, including historical language change, polysemy, the creation and interpretation of novel metaphors, and child language acquisition (Gibbs, 2011). One important development in the study of embodied metaphor is the discovery of primary metaphors (Grady, 1997). Primary metaphors arise from our experiential correlations on the world. Thus, similarity is not the basis of primary metaphor but co-occurrence. For instance, the conceptual metaphor MORE IS UP (e.g. 'Inflation is up this year') correlates having more of some objects or substance (i.e. quantity) with seeing the level of those objects or substance rise (i.e. verticality). Primary metaphors include mappings such as INTIMACY IS CLOSENESS (e.g. 'We have a close relationship'), DIFFICULTIES ARE BURDENS (e.g. She's weighed down by responsibilities), and ORGANIZATION IS PHYSICAL STRUCTURE (e.g. How do the pieces of the theory fit together). In each case, the source domain of the metaphor comes from the body's sensorimotor system.

Various cognitive linguistic studies show the pervasiveness of primary metaphors in metaphoric talk. To take an example, one project examined the embodied metaphors, including primary ones, which a group of women employed in their narratives about their experiences with cancer (Gibbs and Franks, 2003). Six women in recovery from different forms of cancer were interviewed and asked to talk about their learning they had cancer, their treatments and subsequent recovery. These interviews lasted from 20–35 minutes. Overall, the women produced 796 individual linguistic metaphors (an average of 132 metaphors per person). These diverse linguistic metaphors were structured by just 22 conceptual metaphors such as CANCER IS AN OBSTACLE ON LIFE'S JOURNEY and the primary metaphor EMOTIONAL EFFECT IS PHYSICAL IMPACT. 77 per cent of the women's metaphorical language reflected embodied metaphors in the sense that the source domains (e.g. obstacles on a journey) involved some aspect of recurring sensorimotor experience.

For example, the women employed language like 'to get through it', 'to get over it', and talked of 'moving into a new space'. One woman comments that 'having cancer was like walking off the face of the earth'. A different woman described her cancer experience in the following manner: 'When people say that the world is round, it is a lie. It's flat and I know what the edge looks like.' Another person noted that 'cancer is something that pulls you back to the core of life itself', and another woman said that 'cancer forced me to begin stripping away a lot of things that don't matter'. Finally, one woman talked of her experiences in particularly poetic terms when she personified cancer as a dance partner: 'I felt like my spirit was able to sing again and that I have taken off the cloak of disease – that I had been carrying this cloak of disease for about six months and that in dancing I had taken it off and my spirit was singing again.' Note the skin-like quality of the emotional experience mentioned here as the woman soon learned to take off 'the cloak of disease'.

These brief examples illustrate the power of embodied metaphor in women's understanding of their cancer experiences. Most notably, these instances show the primacy of the body in movement through affective space in people's descriptions of their emotions. A separate analysis revealed, in fact, that 82 per cent of the language these women used to talk about their emotions involved embodied movement as textured experience. These findings provide support for the claim that our emotions are often experienced, even if metaphorically, in terms of the body in action.

One concern about embodied metaphor is the extent to which it is universal or possibly shaped by culture. Differences in embodied metaphoric conceptualizations across cultures may depend on variation in 'experiential focus' (Kövecses, 2006). People in different geographical and social contexts are attuned to different aspects of their bodily experience, which partly motivates differences in the ways that people express themselves metaphorically about certain topics. For example, consider some metaphoric expressions used in talk about the economy like 'healthy economy', 'economic recovery', 'sickly firm', 'a financial injection', 'arthritic economy' and so on. These expressions may arise from people's experiences of their bodies in particular environments in the form of the *ECONOMY IS HEALTH* metaphor. One possibility is that people use more health metaphors in talking about the economy during times of the year when they were more likely to be ill, such as when experiencing common ailments of colds, the flu, pneumonia and bronchitis. In fact, one ten-year analysis of 'The Economist' showed that the use of health metaphors in talking about the economy was far more evident during the winter months of December to March, which is when people most often experience illness, compared to any other time period (Boers, 1999). Overall, the physical setting in which talk occurs, and what is most salient to people's bodily experience in those contexts, shapes the momentary selection of metaphorical



source domains when creatively describing abstract target domains such as the economy.

Cognitive linguistic studies clearly advanced the idea that much metaphoric talk is rooted in sensorimotor experience. But many metaphor scholars, especially those within Psychology and Cognitive Science, have questioned the validity of linguistic analyses which argued in support of embodied, metaphoric cognition (McGlone, 2007; Murphy, 1996; Pinker, 2007). They argue that linguistic studies are based solely on individual linguists' intuitive analyses, that there are no reliable schemes for identifying conceptual metaphors, that there is a need for non-linguistic evidence on embodied metaphors, and that conceptual metaphor theory, more generally, is too reductive and is unable to account for the more creative uses of metaphoric language (see Gibbs, 2011 for a summary of these arguments).

Yet now there exists a continually growing body of research in experimental psycholinguistics and social psychology that responds to some of the critical reactions to embodied metaphor theory. The next two sections outline this work.

### **3 Embodied Metaphoric Language Use and Interpretation**

Many psycholinguistic studies have been conducted over the last 25 years to explore the ways that embodied metaphors may be recruited during people's use and understanding of metaphoric language. These varied psychological findings, collected using a variety of experimental methods, indicate that the metaphorical mappings between embodied source domains and abstract target domains partly motivate people's understanding of the specific figurative meanings of many conventional and novel metaphors, and preserve the structural, or image-schematic, characteristics of the source domains. For example, one study showed how both Americans and Brazilians' previous bodily experiences of hunger partly predicts their use and understanding of metaphorical expressions about difference forms of desire, as seen in more abstract statements like 'I hunger for fame' or 'I craved her affection' (Gibbs, Lima and Francuzo, 2004). For example, people's previous experiences of feeling light-headed, body weakness, pains in their stomachs and joint, and being psychologically upset motivated their metaphorical interpretations of statements such as 'I craved her affection'. Studies like this examining people's tacit understandings of conceptual metaphors first explore people's ordinary bodily experiences of hunger (e.g. its effects on body parts, overall body sensations, and its psychological impacts) and use this information to make predictions as to what gets mapped when structuring abstract, metaphorical concepts. Overall, these data demonstrate that people have specific metaphorical conceptions of abstract ideas (e.g.

desires for affection or fame) that are shaped by recurring bodily experiences (e.g. bodily experiences of hunger), mappings that are quite similar across two cultural contexts (e.g. California and Brazil).

But demonstrating that embodied metaphors motivate the meanings of some verbal metaphors does not imply that people always access these metaphoric concepts each time they produce or interpret relevant metaphoric language. Different types of experiments, employing online methodologies, indicate a positive answer to this possibility (Gibbs, 2011). Thus, people find it relatively easy to read verbal metaphors whose meanings are motivated by conceptual metaphors identical to those structuring the previous text or discourse. Priming tasks revealed that conceptual metaphors (e.g. ANGER IS HEATED FLUID IN A CONTAINER) are accessed during people's immediate processing of idioms motivated by those conceptual metaphors (e.g. 'John blew his stack').

Furthermore, how do people's immediate bodily experiences influence metaphor interpretations? To take one example again, in one series of studies on metaphorical talk about time, students waiting in line at a café were given the statement 'Next Wednesday's meeting has been moved forward two days' and then asked 'What day is the meeting that has been rescheduled?' (Borodistky and Ramscar, 2002). Students who were farther along in the line (i.e. who had thus very recently experienced more forward spatial motion) were more likely to say that the meeting had been moved to Friday, rather than to Monday. Similarly, people riding a train were presented the same ambiguous statement and question about the rescheduled meeting. Passengers who were at the end of their journeys reported that the meeting was moved to Friday significantly more than did people in the middle of their journeys. Although both groups of passengers were experiencing the same physical experience of sitting in a moving train, they thought differently about their journey and consequently responded differently to the rescheduled meeting question. These results suggest how ongoing sensorimotor experience has an influence on people's comprehension of metaphorical statements about time.

Various neuroscientific experiments have also examined whether there is a sensorimotor basis for metaphor comprehension, particularly with metaphors having sensory source domains. For example, one study employed fMRI to investigate people's comprehension of literal (e.g. 'Sam had a bad day') and metaphoric (e.g. 'Sam had a rough day') sentence pairs (Lacey, Stilla and Sathian, 2012). Participants lay in a scanner, and read the different sentences as they individually appeared, and pushed a response button as soon as they understood each statement. Analysis of the fMRI data showed clear evidence of localized, domain-specific cortical areas during the processing of metaphor, but not literal paraphrases. Thus, some metaphor processing appears to activate selective sensory areas that are related to the source domain which the metaphors originated (e.g. 'rough' is related to touch or texture). Other studies

also indicate somatotopic activation (i.e. activation for brain areas responsible for body part sensations) for both literal and metaphoric cases (Boulenger et al., 2009), while other experiments have demonstrated that literal and metaphoric action sentences produced increased activity in the motor regions of the left anterior inferior parietal lobe and the cerebellum (Desai et al., 2011). These findings are inconsistent with theories that assume metaphors are understood through rote linguistic conventions, and do not access the bodily basis for their figurative meanings.

Several different behavioural studies provide support for the view that embodied simulations play some role in people's immediate processing of verbal metaphors (Gibbs, 2006b). People may create partial embodied simulations of speakers' metaphorical messages that involve moment-by-moment 'what must it be like' processes that make use of ongoing tactile-kinesthetic experiences (Gibbs, 2006b). Understanding abstract, metaphorical events, such as 'grasping the concept', for example, is constrained by aspects of people's embodied experience as if they are immersed in the discourse situation, even when these events can only be metaphorically and not physically realized (i.e. it is not physically possible to grasp an abstract entity such as a 'concept').

For instance, people's mental imagery for metaphorical phrases, such as 'tear apart the argument', exhibit significant embodied qualities of the actions referred to by these phrases (e.g. people conceive of the 'argument' as a physical object that when torn apart no longer persists) (Gibbs, Gould and Andric, 2006). Furthermore, people's speeded comprehension of metaphorical phrases, like 'grasp the concept' are facilitated when they first make, or imagine making, a relevant bodily action, such as a grasping motion (Wilson and Gibbs, 2007). One unique study revealed that people walked further towards a target when thinking about a metaphorical statement 'Your relationship was moving along in a good direction' when the context ultimately suggested a positive relationship than when the scenario alluded to a negative, unsuccessful relationship (Gibbs, 2013). This same difference, however, was not obtained when people read the non-metaphorical statement 'Your relationship was very important' in the same two scenarios. People appear to partly understand the metaphorical statement from building an embodied simulation relevant to LOVE RELATIONSHIPS ARE JOURNEYS, such that they bodily imagine taking a longer journey with the successful relationship than with the unsuccessful one. Finally, another test of embodied simulation asked people to read sentences conveying literal (e.g. 'She climbed up the hill'), metaphoric (e.g. 'She climbed up in the company'), and abstract (e.g. 'She succeeded in the company') meanings (Santana and de Vaga, 2011). As they read the sentences, participants made single hand movements, up or down, which matched or mismatched the sentence meanings. Analysis of the hand movement times showed that people performed these faster when these matched the meanings for all three types of sentences. These findings suggest

that both metaphoric and abstract sentence meanings recruit embodied representations related to, in this case, vertical spatial movements.

These different empirical studies suggest that people do not just access passively encoded conceptual metaphors from long-term memory during online metaphor understanding. Instead, people may spontaneously create a particular construal of metaphors that are 'soft-assembled' via embodied simulation processes operating during thinking, speaking and understanding.

#### **4 Embodied Metaphor and Social Judgements**

One of the most important sources of empirical evidence on embodied metaphor comes from research in social psychology. These studies explore how non-linguistic associations in experience influence people's social perceptions and judgements. Many of these studies implicitly examine the influence of primary metaphoric experience on different social behaviours. For example, there is the widespread set of metaphors suggesting that GOOD IS UP and BAD IS DOWN (e.g. 'He is feeling up today', and 'There was a downturn in his luck'). Experiments suggest that these correlations in experience effect different evaluative judgements. Thus, people evaluate positive words faster if these are presented in a higher vertical position on a computer screen and recognize negative words faster if they appear in the lower part of the screen (Meier and Robinson, 2004). People judge a group's social power to be greater when these judgements are made at the top of a computer screen than when presented in the lower part of the screen (Schubert, 2005). Finally, participants remember emotionally positive images better when these appeared at the top of a computer screen, with negative images being recalled better when they were seen towards the bottom of the screen (Crawford et al., 2006). These findings are consistent with the idea that people conceive of good and bad as being spatially located along some vertical dimension, a concept that arises from good experiences being upward (e.g. being alive and healthy) and bad ones being downward (e.g. sickness and death).

When people physically engage in certain actions, this also can lead them to adopt metaphoric concepts that influence their social judgements. Having people hold warm, as opposed to cold, cups of coffee, for a few minutes led them to judge another person's interpersonal traits as being warmer (Williams and Bargh, 2008), a finding that is completely consistent with primary metaphor AFFECTION IS WARMTH. Within a different experiential domain, having people make judgements about people's behaviour in a dirty work area caused them to rate the behaviour as more immoral than when the same judgements were made in a clean work area (Schnall, Benton and Harvey, 2008). Similarly, asking people to recall an immoral deed, as opposed to an ethical one, made

them more likely to choose an antiseptic wipe as a free gift after the experiment (Zhong and Lilgenquist, 2006). People who exhibit a greater desire for cleanliness even have a stronger association between morality/immorality and the colours white/black than do people with less interest in cleanliness (Storbeck and Clore, 2008). These effects may be modality specific, because lying by speaking will prompt people to select the gift of mouthwash rather than hand sanitizer, but they pick the hand sanitizer over the mouthwash when they lie with their hands (Lee and Schwartz, 2010). All of these different empirical results are consistent with people's experiences with the primary metaphors GOOD IS CLEAN and BAD IS DIRTY.

Other bodily actions also affect people's social judgements. When asked to determine whether a fictitious person is suitable for a job, people judged job applicants to be better if they were also holding a heavier, rather than lighter, clipboard (Ackerman, Nocera and Bargh, 2010), which surely reflects the common idea that IMPORTANCE IS WEIGHT. Having people physically moving backward or forward prompts their recollection of past events or thoughts about future events, respectively (Miles, Ninh and Macrae, 2010), results showing the primary metaphors FORWARD IS THE FUTURE AND BACK IS THE PAST. SIMILARITY IS CLOSENESS is a primary metaphor that presumably motivates metaphoric expressions such as 'Their opinions in this case couldn't be further apart.' One study presented participants pairs of abstract words (e.g. 'grief' and 'justice') and asked them to rate their similarity/dissimilarity in meaning (Casasanto, 2008). The two words were presented side-by-side, horizontally on a computer screen, where the distance between the words was quite close, somewhat separated, or far apart. People judged the words as being more similar when they were closer to one another than more distant. Moreover, when people make similarity judgements for pairs of unfamiliar faces, they saw faces presented further apart as being less similar than those presented closer together.

Research on embodied metaphor and social judgements has also been extended to olfactory experiences. One study with English speakers examined whether smelling something fishy would raise people's suspicions about others when playing a trust game (e.g. 'There was something fishy about John's new business scheme') (Lee and Schwarz, 2012). People were led to a room that had been sprayed with fish oil, a fart spray or odourless water. Most notably, when people smelled something fishy, as opposed to the other smells, they were less willing to contribute money towards a publically shared resource, indicating greater social suspicion in the fishy smelling condition.

Embodied metaphor also plays an important role in creative cognition. One set of studies demonstrated how physical and psychological embodiment of metaphors for creativity facilitates people's problem-solving abilities (Leung et al., 2012). Thus, the expression 'think outside the box' is frequently employed as a way of urging others to come up with atypical, novel solutions to problems.

But does physically thinking outside of a box enhance creativity? One test of this idea had participants sit comfortably inside a 5 foot square box, sit outside of the box, or sit in a room without any box, and then complete a 10-item Remote Associates Test (RAT). The RAT presented people with three clue words (e.g. 'room', 'blood', 'salts') and have them then think of a word (e.g. 'bath') that was related to each one of the clues. Participants who were physically sitting outside the box generated more correct associates to the clue words than did people sitting either inside the box, or in a room without a box. A related study in this series asked students to walk along a fixed rectangular path, similar to being inside a box, or to walk freely, or simply sit down as they contemplated solutions to two divergent thinking tasks. The Doodle task had people generate captions for a drawing while the Lego task asked people to come up with object names for three novel lego block assemblies. People who walked freely generated the most original solutions on both the Doodle and Lego tasks than did people who walked in a fixed manner along a path or who merely sat. The findings of both of these studies are consistent with the idea that embodied metaphors for creativity, such as 'thinking outside the box' can facilitate people's creative problem-solving abilities.

Social psychological research adds significant empirical evidence in favour of the claim that embodied metaphors emerge in everyday experiences and not just language alone (also see Forceville and Urios-Aparisi, 2009). But to what extent are these social judgement findings due to people's previous exposure to metaphoric language? For example, people employ many linguistic statements that refer to this association between affection and warmth as seen in 'Darren Daulton greeted warmly during emotional appearance at Phillies reunion' and 'Obama's call for tolerance of gays gets cold shoulder in Africa.' People's experiences with these statements may enable them to evolve the primary metaphors *AFFECTION IS WARMTH* and *DISLIKE IS COLD* in addition to their embodied experiences per se. Embodied and linguistic experience may both continually contribute to the emergence of different embodied metaphors, a possibility that few linguists or psychologists have seriously considered.

A second issue with the social psychology research focuses on the causal basis for the catalogue of experimental effects noted between sensory experiences and different social judgements. These findings could be due to people activating a previously encoded primary metaphor once they have felt some specific sensorimotor activity (e.g. warmth, moving forward, dirt). But people may only enact the primary metaphor as a full-bodied action given the presences of both (a) a sensory experience and (b) the requirement to make a certain social judgement. This alternative perspective sees embodied metaphors as unfolding in bodily expressive action rather than being activated from memory to shape people's social perceptions.

## 5 Embodied Metaphor in Creative Movement

One way to assess the idea that embodied metaphor unfolds as people aim to express themselves in speaking and acting is to explore people's creative movements. For example, one study of a group of psychology students, dance movement therapists in training, and clinical patients were asked to bodily improvise some aspect of their life in a short 10-minute period (Kappelhoff and Mueller, 2011). After doing so, the participants had to select one feature of their movements, repeat it several times, and then talk about the movement as they continued enacting it. For example, one participant enacted the movement pattern in which she swung her upper body to the left and then to the right, eventually swinging her arms in the same direction. As she started the second swinging motion she verbally described her present life circumstances as being like a wave (e.g. 'one's life is like a wave'). Thus, the swinging motions preceded the verbal metaphor suggesting that the metaphoric concept of one's life is like a wave arises from felt bodily movement of the swinging motions of her arms and body.

As the participant continued to swing back and forth, she elaborated on her multimodal metaphor by noting how her life 'sometimes it goes up' and 'sometimes it goes down', and coordinated these comments precisely with her body actions such that the upward movement reached its peak as she said 'it goes up' and the downward movement was synchronized with the statement 'it goes down'. The participant's speech and action do not merely reflect an outward manifestation of an inner, previously encoded conceptual metaphor as she is both conceptualizing and expressing life as a wave in the very moment of her movements and speech.

Later on in the sequence, the same participant enacted a spiral movement downward with her left hand. Soon after that, she said 'and to spiral downward' to provide a verbal metaphoric description of her multimodal experience of the course of life as moving downward in a specific spiral manner, and as she continued to make the same gestural motion said, 'it always goes from up to down I have just noticed'. Finally, the participant moved her hand upward, again in a spiral manner and said, 'doesn't go from down to up' suggesting that her coordinated enactment of the upward spiral was not appropriate for her momentary conceptualization of life. In fact, after completing the upward gestural movement, she held her hand above her head, looked at her hand and laughed, then meeting her eye gaze with the person observing her so as to ensure that her enactment had been fully understood by her audience.

Overall, the sequence of bodily action and speech is dynamically composed and visibly expressed by the participant so that 'what we see is a metaphoric process of meaning construction which oscillates between verbal, gestural, and verbo-gestural realizations of metaphoric content' (Kappelhoff and Mueller,

2011: 132–3). The possibility exists that embodied metaphors such as *life is a wave*, which is related to the primary metaphors *GOOD IS UP* and *BAD IS DOWN*, represent ideas ‘in’ the minds of individuals which are then recruited to motivated speech and actions. As listeners and observers, one might argue that our understanding of people’s metaphoric meanings demands some inferences about the causal bases of these overt behaviours. Positing the existence of some specific conceptual metaphor, even an embodied conceptual metaphor, is precisely how many metaphor scholars presume metaphoric meanings are interpreted.

But a different perspective maintains that the felt sensations enacted by a person are the way metaphoric conceptualizations are created. People’s speech and gestures are themselves metaphors and not just outward manifestations of private, inner mental processes of metaphoric thought. The interplay of language and gesture/action highlights the degree to which metaphor is spread out across the entire body in action. In this way, embodied metaphor is an aesthetic and affective process that unfolds over time and is not merely encoded ‘in’ language or bodily action.

Another demonstration of embodied metaphor in expressive action is seen in contact improvisation dance. Consider just the first few minutes of a Contact Improvisation dance, entitled ‘Hilary’, by Julyen Hamilton and Alito Alessi originally performed as a part of *Cappella Motion* (1995) (Gibbs, 2003). Julyen and Alito’s performance begins with the two dancers walking onto the stage and Julyen lying face down on the floor, arms extended in front. Alito moves over to squat on the back of Julyen’s thighs. Julyen then raises his head and shoulders and looks behind to observe Alito, simultaneously extending his arms in front of him. Julyen lies back down and Alito moves upward onto Julyen’s back, balancing himself, arms extended, then standing on Julyen’s back as Julyen once more rises, this time to his hands and knees. Alito sits on top of Julyen, riding him. Soon Julyen couples his hands around Alito’s feet as Alito wraps his legs around Julyen’s trunk. Julyen stands, walks around the stage and twirls Alito around in circles as Alito twists on Julyen’s back, extending arms and legs outward in different directions, sometimes using Julyen’s one extended arm as a guide. Julyen then stops his walking and slowly pulls Alito around in front of him, and while still standing, cradles Alito in his arms.

Even within these first few minutes of Julyen and Alito’s duet, movements across the stage reflect aspects of the *LIFE IS A JOURNEY* metaphor with embodied experiences of physical journeys as the source domain. Here the movement from point A along some path to point B expresses progress towards some concrete or abstract, sometimes personal, goal. One sees the struggle when the dancers first begin a journey (some movement from point A to point B), the obstacles they encounter along the way, how they try, and sometimes fail, to support each other, the times when they seem to be spinning their wheels (including one



moment later in the performance when Alito actually walks briskly in place) until they break free and almost fly towards their long-anticipated goal.

Other aspects of Julyen and Alito's performance make use of body-based metaphors. For example, various body postures and movements express via metaphor different embodied metaphors. Upward movements, following the conceptual metaphors of HAPPINESS IS UP, GOOD HEALTH IS UP and HAVING CONTROL IS UP, are suggestive of positive affect and of greater conscious control of one's body and, more generally, one's life. For instance, there are many moments in Julyen's and Alito's dance, when their upward movement, both while on the ground and while standing, signifies positive emotion, especially when they are in balanced positions of contact. On the other hand, downward body postures and movements reflect the metaphors of SADNESS IS DOWN, SICKNESS IS DEATH, SICKNESS AND DEATH ARE DOWN and BEING SUBJECT TO CONTROL FROM PEOPLE IS DOWN, suggesting negative affect when individuals are under stress, experience poor health, and have little control over their movements and their lives. The opening of Julyen and Alito's performance, when Julyen lies prone with Alito on top of him, suggests, even if for a moment, Alito's control over Julyen. At the very beginning Julyen lifts his head and looks over his shoulder at Alito as if to question this control. Some of their unsteady movements and positions reflect the metaphor of UNEASINESS IS NEAR FAILURE, and suggests uncertainty. Falling reflects the FALLING IS FAILURE metaphor, and represents lack of control, illness and feelings of debasement. At a later moment in Julyen and Alito's dance, Alito runs towards Julyen and leaps into his arms, as if wishing to establish a more personal bond between them. But the movement fails because the dancers are immediately unbalanced and the two dancers tumble onto the stage very gracefully and start anew to establish contact.

The movements Julyen and Alito perform are not interpreted by observers simply as arbitrary physical acts with no sense of purpose or communicative meaning. Instead, the basic images in their dance are movement structures that are imaginatively patterned and flexible, both in terms of their physical instantiations and their symbolic interpretation. The beauty of contact improvisation is that the embodied metaphors are enacted in-the-moment as the dancers react to their immediate bodily situation. It seems unlikely that the dancers' movements are directed by internal, private embodied metaphoric concepts, as their metaphoric meaning emerges throughout their full-bodied actions. Embodied metaphor is the very full-bodied performances people express and not just conceptually encoded idea in their heads.

Finally, research in whole body computing has explored embodied metaphoric experience in the context of creating musical sequences. One study used an interactive audio environment, the Sound Maker, in which the system sensed people's location and movements to produce different sound effects (Antle, Corness and Druvmeva, 2009). Pairs of people were asked to make different

sounds through their body positions and movements in this space. The system was designed so that it would produce sounds given embodied metaphor-based mappings, or mappings that did not follow standard body and sound correlations. For the embodied metaphor-based mappings, for example, speed was linked with tempo (fast is fast, slow is slow), activity with volume (more is loud, less is silent), proximity with pitch (near is high, farther is low), and flow was linked with rhythm (smooth is rhythmic, choppy is chaotic). For the non-embodied mappings, flow was linked to tempo (smooth is fast, choppy is slow), proximity with volume (farther is quiet, near is loud), speed with pitch (slow is high, fast is low), and activity with rhythm (higher is rhythmic, lower is chaotic).

The participant pairs were given a series of sounds to make that varied with a single parameter (e.g. volume, tempo, pitch and rhythm), or combined two parameters at once (e.g. volume and tempo). They also had to verbally explain their movements after completing the desired sound sequence. Most generally, people were far more able to bodily demonstrate and explain correct sound sequences when using the embodied metaphor-based mappings than with the non-embodied mappings. Some of this success using the embodied metaphors was through people's reflective thinking about the mappings required and not just through their body movements alone. Still, the 'embodied metaphor based system facilitated a proportional mix of experiential and reflective intuitions that resulted in users more successfully learning to control and understand the system' (Antle et al., 2009: 248). Once again, people's intuitive discovery of how to make certain music sounds in Sound Maker was significantly based on their bodily actions facilitated by their past experiences of embodied metaphor.

## **6 Conclusion: Embodied Metaphor as Expressive Performance**

Metaphors are to a significant degree tied to bodily experiences that are part of how people speak, think and act in a variety of adaptive contexts. This chapter has outlined just some of the linguistic, psychological and creative movement evidence that supports the idea that embodied metaphor is critical to many aspects of human life. Most scholars who embrace the concept of 'embodied metaphor' or 'embodied meaning' talk of these notions in terms of symbol grounding. Thus, the meanings, and even the existence of many pervasive patterns of metaphor are seen as being 'grounded' in the body. Being grounded in the body typically implies that the source domains in certain metaphor have a sensorimotor basis, which provides the concrete, familiar knowledge to better structure what are usually more abstract or less delineated target domains (e.g. physical journeys are used to structure vaguer qualities of life).

My argument, however, is that embodied metaphors are not grounded or embodied in the sense of originating from a limited set of bodily experiences. Rather, embodied metaphors are always embodied in the sense of being actions that people do with their bodies, such as speaking, understanding or moving in various expressive ways. Embodied metaphors are not encoded in conceptual representations that serve as the underlying causal bases for different human cognitive and expressive actions. But embodied metaphors unfold over time throughout the course of bodily activity as people aim to express themselves meaningfully in words or movements, either alone or with others. Thus, embodied metaphors are full-bodied actions, incorporating the interaction of brain, body and world, that come into being only by their enactment.

This perspective on embodied metaphor aims to push against the reductionist tendency to situate metaphors as part of brains or minds, and to recognize how metaphors reflect how a person is adopting a position in the world in relations to others and the environment. People may have other material means by which they adapt to different real problems, especially communicative ones, but metaphor is a supreme way of being in the world by expressing ourselves via our bodies. Even a simple act of understanding a linguistic metaphor in context is a matter of adopting a specific bodily position in relation to others. We can study metaphor as part of language, and acknowledge its cognitive and bodily foundations. Still, bodily experience is not something from which metaphor emerges, but it is the basis upon which metaphors continue to unfold and be enacted in everyday life.

There are many possible directions for new research on embodied metaphor. First, scholars should focus more on relating the empirical findings from experimental social psychology on embodied metaphor with the vast literature from Cognitive Linguistics. How do the experimental results advance thinking and research on primary metaphor theory, for example? From a different perspective, how might cognitive linguistic studies on primary metaphor suggest new hypotheses to be examined within experimental psychology? Second, much more attention can be given to the way our linguistic experience of embodied metaphor shapes our understanding of bodily action. Might the fact that we are exposed to various embodied metaphorical phrases prime our understanding of our own, or others', bodily actions as expressing metaphorical meaning? Most cognitive linguistic studies assume that embodiment serves as the grounding of metaphorical language and meaning, yet the languages we speak and hear may also help make certain bodily behaviours feel metaphorical. Exploring the effect of metaphorical language, past or immediately present, on our bodily sensations and meanings should be a fruitful arena for study. Finally, embodied metaphor is not relegated to individual minds and bodies. People share embodied metaphors through their discourse and bodily interactions, some of which are implicit, with others being explicitly negotiated (e.g. metaphors used

to define marriage). How do metaphors come to be shared and inhabited by two or more people, within and across different domains (e.g. speech, writing, gesture, music, art)? And at what points do we become aware of these embodied metaphors as ones we actually live by? These, and many other, questions are likely to draw significant attention in future research.

## References

- Ackerman, J., Nocera, C. and Bargh, J. (2010). Incidental haptic sensations influence social judgments and decisions. *Science*, 328, 1712–15.
- Antle, A., Corness, G. and Droemeva, M. (2009). What the body knows: Exploring the benefits of embodied metaphors in hybrid physical digital environments. *Interacting with Computers*, 21, 66–75.
- Boers, F. (1999). When a bodily source domain becomes prominent: The joy of counting metaphors in the socio-economic domain. In R. Gibbs and G. Steen (Eds), *Metaphor in Cognitive Linguistics*. Amsterdam: John Benjamins, pp. 47–56.
- Boroditsky, L. and Ramscar, M. (2002). The roles of body and mind in abstract thought. *Psychological Science*, 13, 185–9.
- Boulenger, V., Hauk, O. and Pulvermüller, F. (2009). Grasping ideas with the motor system: Semantic somatotopy in idiom comprehension. *Cerebral Cortex*, 19, 1905–14.
- Casasanto, D. (2008). Similarity and proximity: When does close in space mean close in mind? *Memory & Cognition*, 36, 1047–56.
- Crawford, L., Margolies, S., Drake, J. and Murphy, M. (2006). Affect biases memory of location: Evidence for the spatial representation of affect. *Cognition and Emotion*, 20, 1153–69.
- Desai, R., Binder, J., Conant, L., Mano, Q. and Seidenberg, M. (2011). The neural career of sensory-motor metaphors. *Journal of Cognitive Neuroscience*, 23, 2376–86.
- Forceville, C. and Urios-Aparisi, E. (Eds) (2009). *Multimodal Metaphor*. Berlin: Mouton De Gruyter.
- Gibbs, R. (1994). *The Poetics of Mind: Figurative Thought, Language, and Understanding*. New York: Cambridge University Press.
- (2003). Embodied meanings in performing, interpreting and talking about dance improvisation. In C. Albright and D. Gere (Eds), *Taken by Surprise: A Dance Improvisation Reader*. Middletown, CT: Wesleyan University Press.
- (2006). *Embodiment and Cognitive Science*. New York: Cambridge University Press.
- Gibbs, R. (Ed.) (2008). *The Cambridge Handbook of Metaphor and Thought*. New York: Cambridge University Press.
- Gibbs, R. (2011). Evaluating conceptual metaphor theory. *Discourse Processes*, 48, 529–62.
- (2013). Walking the walk while thinking about the talk: Embodied interpretation of metaphorical narratives. *Journal of Psycholinguistic Research*, 42, 363–78.
- Gibbs, R. and Colston, H. (2012). *Interpreting Figurative Meaning*. New York: Cambridge University Press.
- Gibbs, R. and Franks, H. (2002). Embodied metaphors in womens' narratives about their experiences with cancer. *Health Communication*, 14, 139–65.
- Gibbs, R., Gould, J. and Andric, M. (2006). Imagining metaphorical actions: Embodied simulations make the impossible plausible. *Imagination, Cognition, and Personality*, 25, 221–38.
- Gibbs, R., Lima, P. and Francuzo, E. (2004). Metaphor is grounded in embodied experience. *Journal of Pragmatics*, 36, 1189–210.

- Giessner, S. and Schubert, T. (2007). High in the hierarchy: How vertical location and judgments of leaders' power are interrelated. *Organizational Behavior and Human Decision Processes*, 104, 30–44.
- Johnson, M. (1987). *The Body in the Mind*. Chicago: University of Chicago Press.
- Kappelhoff, H. and Müller, C. (2011). Embodied meaning construction: Multimodal metaphor and expressive movement in speech, gesture, and in feature film. *Metaphor and the Social World*, 2, 121–53.
- Kövecses, Z. (2006). *Language, Mind and Culture*. New York: Oxford University Press.
- Lakoff, G. and Johnson, M. (1999). *Philosophy in the Flesh*. New York: Basic Books.
- Lee, W. S. and Schwarz, N. (2010). Washing away postdecisional dissonance. *Science*, <http://www.sciencemag.org/cgi/content/full/328/5979/709?ijkey=bbvydj14mBw92&keytype=ref&siteid=sci>, 05–19–2010)
- (in press). Bidirectionality, mediation, and moderation of metaphorical effects: The embodiment of social suspicion and fishy smells. *Journal of Personality and Social Psychology*.
- Leung, A. et al. (2012). Embodied metaphor and creative acts. *Psychological Science*, 23, 502–9.
- McGlone, M. (2007). What is the explanatory value of a conceptual metaphor? *Language & Communication*, 27, 109–26.
- Meier, B. and Robinson, M. (2004). Why the sunny side is up. *Psychological Science*, 15, 243–7.
- Murphy, G. (1996). On metaphoric representations. *Cognition*, 60, 173–204.
- Pesso, F. (1996). *The Book of Disquietude*. Manchester, UK: Carcanet.
- Pinker, S. (2007). *The Stuff of Thought*. New York: Basic Books.
- Schnall, S., Benton, J. and Harvey, S. (2008). With a clean conscience: Cleanliness reduces the severity of moral judgments. *Psychological Science*, 19, 1219–22.
- Schubert, T. (2005). Your highness: Vertical positions as perceptual symbols of power. *Journal of Personality and Social Psychology*, 89, 1–21.
- Storbeck, J. and Clore, G. (2008). Affective arousal as information: How affective arousal influences judgments, learning, and memory. *Social and Personality Psychology Compass*, 2, 1824–43.
- Williams, L. and Bargh, J. (2008). Experiencing physical warmth influences interpersonal warmth. *Science*, 322, 606–7.
- Wilson, N. and Gibbs, R. (2007). Real and imagined body movement primes metaphor comprehension. *Cognitive Science*, 31, 721–31.
- Zhong, C. and Liljenquist, K. (2006). Washing away your sins: Threatened morality and physical cleansing. *Science*, 313, 1451–2.

# 3.4 Idioms and Phraseology

*Frank Boers*

## Chapter Overview

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### 1 Introduction

In this chapter we look at Cognitive Linguistic approaches to figurative idioms and to multiword expressions (for which we use the umbrella term phraseology) in general. As was explained in the introduction to this volume, Cognitive Linguistics views language as a structured inventory of symbolic units of various sizes (Langacker, 1990). This view replaces the old grammar + dictionary view of language (Taylor, 2010), where grammar rules were thought to provide sentence templates and the lexicon the meaning-bearing elements to fill the slots in those templates. Cognitive Linguistics rejects this lexis-grammar dichotomy and treats all constructions as symbolic and thus as meaning-bearing (although the meaning may be quite abstract). This view of language as an inventory of symbolic units on a cline from small to large naturally brings to the fore what lies between single words and syntactic patterns on that cline, namely a plethora of multiword units.

Interest from a cognitive linguistics perspective in multiword units in general was preceded by an interest in figurative idioms in particular. An important impetus to the study of that subset of multiword expression was the recognition by Cognitive Linguists of the ubiquity of metaphor in everyday language and thought. It was convincingly argued in Lakoff and Johnson's seminal book *Metaphors We Live By* (1980) and subsequent books that helped

shape Conceptual Metaphor Theory (CMT) (e.g. Kövecses, 1990; Lakoff, 1987) that people try to comprehend intangible domains of experience by seeking correspondences with concrete domains of experience (See Chapter 2.2). These systematic mappings of the structure of concrete domains onto abstract ones – *Conceptual Metaphors* – were believed to be manifested in language, most notably in conventionalized figurative expressions – idioms. Conversely, it could be argued that much of the evidence for conceptual metaphors actually came from the study of idioms. For example, idioms such as *being hot under the collar*, *losing one's cool* and *blowing off steam* all refer to anger in terms of heat, and thus suggest the existence of an overarching metaphor theme, ANGER IS HEAT. According to CMT, this metaphor theme is not just a linguistic phenomenon; it reflects one of the ways in which people *think* about the emotion concept. It is a metaphor that is grounded in bodily experience (a rising body temperature is symptomatic of agitation). As we shall see further below, the tenet that conventional figurative expressions instantiate conceptual metaphors has stimulated investigations of the stocks of figurative idioms of languages, with a view to identifying conceptual metaphors and comparing these across language communities (e.g. Kövecses, 2005).

Since those early days, Cognitive Linguistics has found powerful allies in the disciplines of corpus linguistics and psycholinguistics to promote research on multiword units. The scope of interest has expanded beyond the kind of units that are listed in an idiom dictionary (e.g. *Grasp the nettle*; *Take a back seat*). Corpus data show the prevalence of what Sinclair (1991) called the Idiom Principle in natural discourse. Discourse abounds with word partnerships (often called collocations), such as *commit suicide*, *give someone a warm welcome* and *utterly disgusting*. It abounds with fixed and semi-fixed phrases (e.g. *Nice to meet you*; *Last but not least*; *On the other hand*) that characterize discourse as native-like (Pawley and Syder, 1983). We shall use the term phraseology to refer to this myriad of multiword expressions. According to some counts, over 50 per cent of everyday text is 'idiomatic' in that broad, phraseological sense (Erman and Warren, 2001).

The Idiom Principle manifests itself when substituting a word by a synonym would render a given phrase 'unusual'. For example, *I'm having second thoughts about it* is interpreted smoothly as an institutionalized, that is, idiomatic, way of expressing hesitation. *I'm having second ideas about it*, however, would be unusual to express this idea. Also the grammatical behaviour of a word will often be restricted when the word is part of a conventionalized phraseological unit. For example, *I'm having a second thought about it* would sound odd to most native speakers of English.

The importance of multiword units has been confirmed in the discipline of psycholinguistics, too (Wray, 2002). If it is true that multiword expressions are processed as *units*, then they need not be assembled word by word during

language production. Instead they can be retrieved from the mental lexicon as prefabricated chunks of discourse, and this fosters fluency in real-time language output. Knowledge of multiword units also facilitates processing of incoming messages, as hearing or reading part of a phraseological unit is often sufficient to predict the rest. For example, a native speaker of English will be able to guess the ending of *I'll help you through thick and \_\_\_\_* and *Please stop beating about the \_\_\_\_*. Indeed, psycholinguistics experiments reveal that idiomatic expressions are read faster (by native speakers) than non-idiomatic phrases (e.g. Siyanova et al., 2011; Tremblay et al., 2011; and see further below). But again, the phenomenon extends beyond idioms in a narrow sense. Although *wide awake* and *blow your nose* are unlikely to feature in an idiom dictionary, they do belong to the myriad of phraseological units that make discourse predictable and that therefore facilitate communication: *It was 3am and I was still wide \_\_\_\_*; *Tommy, please blow your \_\_\_\_*.

In this chapter, we will first discuss some of the work on multiword units that was inspired by Conceptual Metaphor Theory, and that focuses on idioms. After that we will look at the more recent ventures of Cognitive Linguistics into the area of phraseology more generally. What all Cognitive Linguistic approaches have in common, and what distinguishes them from other approaches, is the quest for *motivation*, that is, the quest for factors that help explain why a given expression has become conventionalized with a particular meaning or function. While mainstream linguistics will say that the form-meaning connections in language are arbitrary and that the formation and entrenchment of particular multiword units in a given language is purely a matter of chance, Cognitive Linguists will endeavour to find rhyme and reason. In what follows we will try to demonstrate the extent to which Cognitive Linguistics has been successful at this.

## 2 Cognitive Semantic Approaches to Idioms

### 2.1 Figuring Them Out

Idioms are traditionally characterized as fixed multiword expressions whose overall meaning cannot be predicted from the sum of their constituents. Put technically, idioms are said to be non-decomposable (or non-compositional). A classic example to illustrate this point is the idiom *kick the bucket*, whose meaning ('to die') does not follow from combining the individual meanings of *kick* and *bucket*. If you were not already familiar with the expression and if you encountered it out of context, you would likely fail to figure out its meaning. That is why idioms are also often characterized as semantically non-transparent. In this view, then, idioms are distinct from collocations (e.g. *make an effort*),



because the meaning of the latter type of multiword unit is said to correspond to the sum of the meanings of the constituents (but see further below).

Cognitive Linguists, however, have pointed out that not all idioms are by definition non-decomposable or opaque. For example, the idiom *Add fuel to the fire* ('make someone angrier') becomes transparent once one knows that *fire* is used metaphorically for anger. Our conventional knowledge of what fuel does to fires helps us interpret the idiom as 'inciting anger'. The constituent words thus definitely contribute to the idiomatic meaning of the expression. Moreover, the presence of this expression in the English idiom repertoire and its particular meaning are motivated by the aforementioned conceptual metaphor ANGER IS HEAT, which is instantiated by dozens more figurative expressions (e.g. *being hot-tempered*). In a similar vein, the idioms *lend someone a hand*, *have your hands full*, *sit on your hands* and several more 'hand' expressions are motivated by our shared understanding that we typically use our hands (rather than other body parts) to *manipulate* things. In other words, the use of 'hand' as a metonym for 'doing an activity' is again underpinned, that is, motivated, by physical experience. The meanings of phrasal and prepositional verbs, which are also sometimes subsumed under 'idioms', are motivatable as well, as they reflect orientational metaphors that are grounded in physical experience, too. For example, *cheer up*, *feeling down*, *feeling up to a task* and *living up to high expectations* can all be related to a GOOD IS UP; BAD IS DOWN metaphor. Likewise, *figuring something out* and *finding out* may reflect KNOWING IS SEEING (and what is outside a container can be seen and is accessible).

Motivating the meaning of an idiom thus involves an appreciation of the correspondence between a literal reading of the expression (including its inferences) and the idiomatic, figurative meaning, which has over time become institutionalized as the principal meaning. It follows that in order for an idiom to be clearly motivatable, the literal reading must be congruent with the idiomatic meaning. If it is, then recognition of the scene evoked by a literal reading of an idiom facilitates interpretation of its figurative use. For instance, recognition that *Take a back seat* literally means taking the role of passenger in a car can help one relate the idiom to a conceptual metaphor such as AN ACTIVITY IS A JOURNEY – a metaphor that is probably universally shared – and subsequently add the inference that comes with not being in the driver's seat.

It is when the link with a congruent literal scene is ruptured that idioms become truly opaque for language users in the sense that the meaning of the idiom appears unrelated to the meaning of the words it is composed of. That is the case with idioms such as *through thick and thin*, whose literal origins are unknown to most contemporary language users. However, if one finds etymological information about these (e.g. in an idiom dictionary), they can become motivatable as well. An explanation that *through thick and thin* originally referred to arduously making one's way through dense bush and forest helps to see

why the expression means what it means ('persevere despite difficult circumstances'). Ultimately, it seems that only a very small proportion of the idiom repertoire of English defies the motivation of their idiomatic meaning (Grant and Bauer, 2004).

This does not mean, of course, that language users are always aware of the literal underpinnings of the idioms they encounter and use, especially during online processing. Most native speakers have no knowledge of the origin of idioms such as *kick the bucket*, *having a chip on one's shoulder* or *a red herring*. They have acquired the idiomatic meaning of the expression directly, without recourse to information about the idioms' origins. Nevertheless, a number of experiments by Ray Gibbs and associates (Gibbs, 1994, for a review) suggest that native speakers activate not only the idiomatic meaning of idioms but also their literal meaning. For example, native speakers – when they are prompted – can describe the mental images evoked by idioms such as *spill the beans* ('reveal a secret'). Moreover, participants in these experiments tend to share roughly the same mental images per idiom. Native speakers also find combinations of idioms in texts that are congruent with the same conceptual metaphor easier to process than 'clashing metaphors', which suggests that their imagery is indeed activated. Other experiments, however, suggest that native speakers process the idiomatic meaning of idioms so fast that it is unlikely that they process their literal meaning as well (e.g. Laurent et al., 2005; Tabossi et al., 2009). Under the exigencies of real-time, message-focused communication, native speakers seem to immediately activate the meaning of an expression that is most salient to them (Giora, 1997), and in the case of idioms, it is the idiomatic meaning that is the most common one (e.g. one does not often encounter *spill the beans* with reference to a scene where someone has physically spilled beans). It stands to reason that the likelihood of a language user being conscious that a literal reading of an idiom is available too will depend on the nature of the idiom and on the circumstances in which it is used. Several researchers now endorse a hybrid model of idiom processing, according to which language users will sometimes process idioms as single lemmas connected directly to an idiomatic meaning and sometimes process idioms in a way that also activates the (literal) meaning of the constituent parts (Sprenger et al., 2006; Titone and Connine, 1999).

Learners of an additional language, however, appear more prone than native speakers to compositional processing of idioms in the additional language. This is manifested by priming effects brought about by literal readings of the constituent words (e.g. Cieslicka, 2006) and slower processing in general (Siyanova-Chanturia et al., 2011). If language learners encounter an idiom they are not yet familiar with, they are likely to attempt to figure out the idiomatic meaning of the expression not only on the basis of contextual clues but also on the basis of a literal reading of the words. If left to their own devices, learners can easily get the wrong end of the stick when they try to work out the figurative meaning

of the idiom on the basis of individual words, however. This is because many idioms are made up of words that are themselves multi-interpretable. For example, second language learners may mistake *suit* in *follow suit* for clothing (instead of a kind of card in a card game) and wrongly infer that the idiom means something like obeying authority. They may mistake *gun* in *jump the gun* for a weapon (instead of the starting pistol used in racing contests) and wrongly infer that the idiom denotes an act of self-defence. They may mistake *ropes* in *show someone the ropes* for the ropes used by an executioner (instead of ropes on a sailing vessel) and wrongly infer that the idiom expresses a threat. And so on.

It may help readers whose mother tongue is English to appreciate some of the challenges of second language idiom interpretation by giving some examples from another language. The meaning of the following Dutch idioms, for instance, is motivated, and yet – I presume – far from straightforward if one is not already familiar with them: (1) *een steek laten vallen* (lit. ‘drop a stitch’), (2) *er geen gras over laten groeien* (lit. ‘let no grass grow on it’), and (3) *zijn mannetje staan* (lit. ‘stand your man+diminutive’). The idiomatic meaning of (1) is ‘make a mistake’ and its origin is knitting (where dropping a stitch will make the knitwear imperfect). The meaning of (2) is ‘act swiftly’. The word ‘grass’ in the expression substitutes ‘weeds’, and we know it is advisable to remove weeds at the first sight of them. The expression would probably be more transparent if the word *onkruid* (‘weeds’) had been retained in it, but this transparency seems to have been sacrificed for the sake of a catchy sound pattern – alliteration (*gras* \_\_\_ *groeien*). (We will say more about the role of sound patterns in phraseology further below.) In the case of (3), transparency is compromised by the elliptic nature of the expression. Its origin is in one-on-one combat where you try to stay on your feet despite your adversary’s blows. The idiomatic meaning is thus ‘be capable of handling a conflict’. The transparency of the expression is further compromised by the diminutive form of ‘man’, which was added to the original idiom, again perhaps for reasons of euphony.

Taking the perspective of the second language learner is a useful reminder that the term linguistic motivation must not be equated with predictable (see the Introduction to this volume). Several studies have shown that language learners indeed tend to be put on the wrong foot by the idiomatic expressions they encounter in their additional language, despite the presence of contextual clues (Boers et al., 2007; Littlemore et al., 2011; Martinez and Murphy, 2011) and, interestingly, they are seldom aware of their misinterpretations.

On the upside, some Cognitive Linguists with an interest in language pedagogy have proposed ways of turning language learners’ inclination towards a literal reading of idioms into a mnemonic advantage. Encouraging learners to consciously connect the idiomatic meaning of expressions to the context in which they were originally used in a literal sense is argued to be beneficial for

retention. This view is in accordance with models of memory such as Levels of Processing (e.g. Cermak and Craik, 1979) and Dual Coding (e.g. Paivio, 1986). There is a growing body of evidence suggesting that informing learners of the origins or source domains of idioms (and also of the metaphors underlying the meaning of phrasal verbs) significantly improves comprehension and retention of their idiomatic meanings (Boers, 2011, for a review).

## 2.2 Counting and Comparing

The idiom repertoires of languages are a rich source of information for cognitive linguists interested in identifying conceptual metaphors and conceptual metonymies. They are also the first port of call for cross-linguistic (and cross-cultural) comparisons regarding common source domain – target domain mappings and, more generally, regarding which experiential source domains are drawn upon relatively often in a given linguistic community. Idiom dictionaries are supposedly a good representation of a language's repertoire of idioms, and so serve as a useful starting point. An English idiom dictionary, for example, will quickly reveal the presence in English of a considerable number of expressions from the theatre domain (e.g. *Set the stage for something*, *Be waiting in the wings*, *Take centre stage*, *In the limelight*, *Play to the gallery*, *Behind the scenes* and *The curtain comes down*).

Comparisons of the idiom repertoires of different languages suggest both similarities and variation in the metaphors that have become institutionalized in different communities. If one accepts the premise that these metaphors are indeed *conceptual*, the variation suggests cross-cultural differences in the way abstract domains of experience are habitually conceived. An example of a potential cross-cultural difference in metaphoric thought is the way different communities may construe the domains of reason and emotion. In Western culture, the Cartesian division between the mind and the body still reigns and so does the Jamesian view of emotion: The mind (associated with the head) is the seat of reason, while the emotions reside in the body, especially the heart. This is reflected in the high number of 'heart' expressions used to talk about emotions in the idiom repertoire of a language such as English (e.g. *a bleeding heart*, *a broken heart*, *lose heart*, *wear your heart on your sleeve* and *eat your heart out*). In other cultures, a division between reason and emotion need not correspond to a mind/head versus body division. In Mandarin Chinese, the concept of mind actually coincides with the concept of heart (*xin*), and so Mandarin Chinese idioms with *xin* ('heart') do not instantiate the same conceptual metaphor as English idioms with *heart* (Hu, 2002). Note, however that, although the metaphorical mapping may be different, it is an organ that is obviously vital – the heart – that has been selected in many languages to refer to what are felt to be

important things in life. In that sense, also, the abundance of 'heart' idioms in a language's idiom repertoire is motivated. It needs to be acknowledged, of course, that the heart is not unique in this role in and across languages. Other organs associated with emotions include the stomach (in Japanese; Matsuki, 1995) and the liver (in Malay; Charteris-Black, 2001).

Cross-linguistic differences between languages' idiom repertoires can also be noted even if the conceptual metaphors represented in them are congruent between the languages. Some metaphors may be more popular in one language than the other, for example because certain source domains of experience from which the metaphors are drawn are more salient in one community than another. Obvious examples are sports that do not share the same popularity across cultures. For example, the Spanish idiom repertoire contains many more expressions derived from bull fighting than the English repertoire. Conversely, the English idiom repertoire contains more expressions derived from ball games such as cricket in British English (e.g. *off your own bat* and *hit someone for six*) and baseball in American English (e.g. *go in to bat for someone* and *touch all the bases*) (Boers and Stengers, 2008). English is also comparatively rich in seafaring idioms (e.g. *clear the decks, on an even keel, take something on board, when my ship comes in, give a wide berth, plain sailing, a shot across someone's bows, in the doldrums, walk the plank, left high and dry, in the wake of, a leading light* and *out of your depth*), which is not surprising given the English seafaring history. Spanish, by contrast, is much richer than English in idioms derived from the domain of religion, as though preoccupations with religion (cf. the Spanish Inquisition) left a stronger mark on this language. The relative contribution of particular source domains to a language's idiom repertoire can thus be said to be motivated by the relative salience of those source domains as experienced by the language community whose repertoire one is charting. Four important caveats must be made in this regard, however. The first caveat is that a comparison of languages' idiom repertoires via a comparison of idiom dictionaries relies on the assumption that these dictionaries are similar in scope and representativeness. Given different dictionary-making traditions, this cannot be taken at face value. Second, carving up the world into distinct domains of experience with a view to categorizing idioms is an epistemologically dubious exercise. But even if the taxonomy were to go unquestioned, the third caveat must be that any alleged link with 'culture' that is manifested by a language's repertoire of idioms is an indirect one in the sense that the repertoire reflects preoccupations of the past rather than the present. The fourth, related caveat is that an inventory of idioms available to a given language community does not as such tell us which of the available idioms are actually used comparatively often. That is one of the reasons why corpus investigations of idiom use are so insightful (e.g. Deignan, 2005; Moon, 1998). For example, while a count of seafaring idioms in a corpus of English confirms a strong presence of this source domain

in contemporary English, a count of religion-derived idioms in an analogous corpus of Spanish suggests that many of these idioms are no longer in vogue (Boers and Stengers, 2008).

Another important contribution of corpus investigations of idiom use has been to help refute three myths regarding idioms. One assumption has been that idioms are a marginal phenomenon in language. Corpus evidence shows that, as a class, idioms are in fact quite common, albeit not in all genres (e.g. academic writing). It is now also recognized that idioms fulfil vital functions in discourse, including conveying an evaluative stance and signalling topic changes (O’Keeffe et al., 2007). In other words, idioms are not just a colourful but dispensable way of conveying a message that could also be conveyed by literal means. The second traditional assumption has been that idioms are formally fixed expressions, although occasionally a word can be substituted, as in *at the end of your tether/rope*. In actual usage, many idioms display far greater variability than what dictionary entries lead one to assume (e.g. Herrera and White, 2010). This holds true also for a class of institutionalized metaphorical expressions that are sometimes distinguished from idioms owing to their status as ‘full sayings’ – proverbs. In actual usage these are seldom used in their full canonical form. Instead, they are typically used elliptically (e.g. *The last straw* as shorthand for *The last straw that broke the camel’s back*) and their keywords suffice to transfer the proverbial meaning to novel expressions (e.g. *Early bird registration*, importing part of the proverb *The early bird catches the worm*) (e.g. Charteris-Black, 1999). Given the different guises in which an idiom can be instantiated, it is also likely that automatic searches for idioms in electronic corpora yield underestimations of their frequency in discourse. Finally, the availability of large corpora of languages compiled according to the same principles has helped refute the folkloric claim that English is exceptionally idiomatic. Counts of idiom use in corpora of English, Spanish and German reveal no difference whatsoever regarding the overall frequency at which these languages deploy their idiom repertoires (Stengers et al., 2011).

### 3 Cognitive Linguistic Approaches to Phraseology

#### 3.1 Beyond Figurative Idioms

As mentioned in the Introduction, language abounds with (relatively) fixed multiword expressions that fall beyond the scope of what is commonly called ‘idioms’: *bunk bed, road rage, run a risk; make a move, tell the time, private property, live and learn, first and foremost, the more the merrier, publish or perish, last but not least, by common consent; from dawn till dusk, I’m so sorry, Trick or treat!* and so on. Idioms are just the tip of the phraseological iceberg, so to speak.

Thanks to corpus linguistics it has become possible to develop inventories of phrasal expressions that are especially frequent in a particular genre (e.g. Biber et al., 2004; Liu, 2012; Shin and Nation, 2008; Simpson-Vlach and Ellis, 2010) or across genres (e.g. Martinez and Schmitt, 2012). For some corpus linguists (e.g. Biber et al.) frequency of co-occurrence of words in a corpus is a sufficient criterion for inclusion in the phrasal inventory. This leads to inclusion of strings such as *of the* and *are of a*, that is, strings that are highly frequent simply because their constituent parts are themselves highly frequent. These are not likely to be recognized by language users as multiword units, however, and so may come across as bizarre in a phrase inventory. By contrast, strings such as *peer pressure* and *rule the roost*, which most language users are likely to point out as multiword units, are probably not frequent enough in a corpus to make it into a frequency-based inventory. An approach from a psycholinguistics angle is to search the corpus for the above-chance co-occurrence of words (e.g. Simpson-Vlach and Ellis, 2010). Although neither *movers* nor *shakers* are particularly frequent words, their co-occurrence (in the expression *the movers and shakers*) in a (large enough) corpus is likely to be higher than would be predicted by chance. Combining frequency with this measure of mutual cueing (called mutual information score) in corpus searches throws up word strings that seem to correspond better to language users' impressions of what counts as phrasal vocabulary (Ellis et al., 2008).

Psycholinguistics experiments have shown that such formulaic word strings tend to be processed faster than non-formulaic controls, with shorter reaction times in lexical decision and grammaticality judgement tasks (Arnon and Snider, 2009; Durrant and Doherty, 2010; Ellis et al., 2008, 2009), and faster reading (Conklin and Schmitt, 2008; Ellis et al., 2008; Siyanova et al., 2011; Tremblay et al., 2011). This experimental evidence suggests that the strings are processed holistically, and are thus readily accessible as single lexical units. According to Wray (2002), a great many word sequences that are so easily retrievable from memory were acquired in childhood as unanalysed chunks in the first place. This does not preclude post-hoc analysis, however, although the likelihood of a language user giving pause to the word-per-word composition of a phrase must be influenced by many factors. One of the likely factors is the nature of the phrase (Cieslicka, 2010; Columbus, 2010), with opaque, non-compositional idioms (e.g. *by and large*) seldom being analysed, and transparent, compositional phrases (e.g. *drink and drive*) being de-composed more often. Also, since we are not all exposed to the same samples of language, some word strings may qualify as units to some but not to others. For example, *statistically* is more likely to cue *significant* in a person who regularly reads research studies than in a person who does not. Another likely factor is the circumstance of communication, with real-time speech relying more on prefabricated phrases than planned speech (Kuiper, 1996; Skehan, 1998). At any rate, it is not really possible to tell from the

available evidence whether the fast processing of any given phrase reflects its storage in the mental lexicon as a unitary item or rather the fast priming of one constituent part by another as a result of their frequent co-activation. If it is true that high-frequency formulas in child-directed speech help children construct their mother tongue (see Chapter 2.5 on Tomasello's model of usage-based language acquisition), then a certain degree of analysis at some point in time of at least those formulas that exemplify regular language patterns seems required for children to recognize those patterns and extract schemas from them.

Is a language's phraseology merely the outcome of a process of conventionalization of accidentally formed word partnerships whose form-function mapping is arbitrary? Cognitive Linguists will argue that, if language is an integral part of cognition, then there must be some rhyme and reason also in the composition of multiword units and what these units have come to express. Take, for example, the phrase *I was wondering if* as a standardized introduction to a tentative request (e.g. *I was wondering if you would mind [ . . . ]*). Cognitive Linguists will argue that this phrase is motivated in various ways. First, it is iconic in the sense that it creates some distance in the utterance between the subject who is requesting something and the actual request. Taken metaphorically, this distance underscores the tentative nature of the request (Littlemore and Low, 2006: 167). Second, the choice of lexis (*wonder*) is not accidental as a means of expressing that a positive response to the request is not taken for granted. Third, the tentative nature of the request is underscored by the use of the past tense (*was wondering*), which again creates a figurative distance between the requester and the proposition because metaphorically, NOW IS HERE. In short, it is not entirely accidental that *I was wondering if* has had a better chance to become established as a standard phrase to introduce a tentative proposition than, say, *I'm asking you if*.

Motivations have also been suggested for why certain words seek each other's company and form collocations. In a number of cases it is clearly a matter of semantic analogies. *Conduct*, for example, collocates with a host of nouns denoting research activities (e.g. *research, a study, an investigation, an experiment* and *an interview*). *Commit* quite systematically collocates with nouns denoting criminal behaviour (e.g. *a crime, an offence, murder, an assault and fraud*). *Commit suicide* fits the pattern, too, because in Catholic religion taking one's own life is considered an offence. Collocations with *perform* also show this chaining of partnerships with nouns that are semantically associated (e.g. *a play, a concert, a song* and *a miracle*). *Perform surgery* fits, too, if one remembers that famous surgeons would give demonstrations of surgery (in an operation *theatre*) before an audience. In all of these cases, one could argue that the collocational behaviour of the verbs is motivated by their core meaning. Alternatively (but not contradictorily), the meaning of words can be said to be inseparable from the collocations in which they occur (Hoey,



2005; Taylor, 2006). It can indeed be argued that *conduct*, *commit* and *perform* – being transitive verbs – derive their meaning from the collocations in which they habitually occur. Polysemy, then, will also be inextricably connected to phraseological patterning. For example, when the noun *ride* is used in its core, literal sense, it can be preceded by diverse adjectives, such as *slow*, *fast*, *long*, *boring*, *pleasant*, *tiring* and so on, but when *ride* is used metaphorically, its occurrence seems confined to collocations with *rough*, *bumpy*, *easy* and *difficult* (e.g. *The PM was given a rough ride in Parliament yesterday*). Extended senses of a word tend to occur in a smaller range of collocational patterns than the basic, core senses (Deignan, 2005; Gries, 2006).

The aforementioned motivations of the collocations *commit suicide* and *perform surgery* suggest that historical, diachronic information may be a rich source for motivational accounts. For example, some French-origin words in English tend to collocate more often than Anglo-Saxon synonyms with other French-origin words. Corpus data show that *rapid* collocates more strongly with other French-origin words, such as *descent* and *deterioration*, than *fast* does (Boers and Lindstromberg, 2009: 153).

More motivation for the lexical composition of multiword units is proposed by a relatively new strand in cognitive linguistics research, which explores motivation at the level of phonology rather than semantics. This is what we turn to in the next section.

### 3.2 The Sound of Phraseology

There is growing evidence that word strings that display salient phonological repetition (such as rhyme and alliteration) have a competitive advantage over word strings that do not display such salient sound pattern in the competition for becoming established multiword units (other things being equal).

In English phraseology, alliteration appears a particularly common sound pattern. In a bank of 5,667 multiword units sampled from the *Macmillan English Dictionary*, Boers and Lindstromberg (2009: 106–25) counted no fewer than 737, that is, 13 per cent, alliterative expressions (e.g. *time will tell*, *peer pressure*, *cut corners*, *wage war*, *beer belly*, *lifelong learning*). They calculated that this is much higher than would be predicted by chance. If rhyme and assonance (i.e. vowel repetition) are added to the mix (e.g. *brain drain*, *small talk*), the proportion of phonologically repetitive multiword lexis in this sample reaches almost 20 per cent. Some types of formulaic sequences, such as binomial phrases (e.g. *part and parcel* and *out and about*) and similes (e.g. *good as gold* and *fit as a fiddle*) appear particularly prone to these phonological repetitions (32% and 54%, respectively). It thus seems safe to say that in the development of word partnerships, sameness attracts. Using corpus linguistics tools, Gries (2011) has also calculated that

alliterative word combinations occur much more often in English than would be predicted by chance.

At least two accounts may help explain why word strings that display sound repetition are particularly likely to become stock phrases. First, when the sound pattern is salient (or catchy) enough, it may render the word string comparatively memorable, and thus comparatively likely to be reproduced. The memorability of rhyme and alliteration is certainly what is assumed in the worlds of advertising and political rhetoric, and it has also been one of the tenets in research on oral storytelling traditions (Rubin, 1995: 194–226). There is some evidence indeed that English alliterative word pairs stand a better chance of being recalled than non-alliterative ones, although that evidence was obtained in experiments with second language learners rather than native speakers (e.g. Boers et al., 2012). The second account is that phonological repetition can reduce articulatory effort (cf. Zipf's Law of Least Effort). In cases of assonance, for example, the vowel sound can be kept constant (e.g. *make waves; feel free; high time; hot shot; hit list; cook the books, wear and tear*). It is possible, of course, that different mechanisms influence the standardization of sound-repetitive phrases to different degrees. Given that beginnings (and, to a lesser extent, endings) of words are better cues for recall than the middle of words (cf. Aitchison's 'bathtub' effect; 2003: 138–40, 210–11), it is possible that alliterative phrases benefit more from a mnemonic advantage than assonant phrases. Conversely, the latter may be more likely to be privileged thanks to their relative articulatory economy.

Recognizing the role of phonology among the factors that shape the phraseology of a language clearly furthers the cognitive linguistics quests for motivation. It helps in finding plausible reasons for the lexical makeup of multiword units beyond the realm of figurative idioms. It may also help explain why a substantial number of idioms have been preserved in language despite their opacity to many contemporary language users. Examples may include *through thick and thin; chop and change; carry the can; get short shrift; spick and span; shape up or ship out; fly a kite; by hook or by crook; the gift of the gab; dish the dirt and the cream of the crop*. The sound pattern may be catchy enough not only to help phrases get entrenched but also to preserve them.

Comparisons of idiom dictionaries of different European languages suggest that alliteration, while common in general, is particularly prevalent in English (Boers and Stengers, 2008). It is indeed well known that English has a long tradition in the use of alliteration, but might contemporary English have properties that heighten the perceptibility and consequently the popularity of alliteration? Perhaps it does. Due to the paucity of inflection, English words tend to be relatively short. As a result, the word-initial consonants are not likely to be far apart (and this will help perception of the consonant repetition). It is then not surprising that short multiword units in particular, such as binomials

and similes, feature alliteration. Also, first syllable word stress is dominant in English, and so alliteration is highly likely to involve stressed syllables in English phraseology. Consonants at the onset of a stressed syllable are more perceptible (Ladefoged, 2001). In comparison, French, for example, has word final stress, and its phraseology seems to privilege rhyme more, as exemplified in expressions such as *sage comme une image* (good as gold), *quand on veut, on peut* (where there's a will, there's a way), *qui se ressemble s'assemble* (birds of a feather flock together), *beau parleur, petit faiseur* (not to put your money where your mouth is), and *tout passe, tout lasse, tout casse* (nothing lasts forever).

## 4 Conclusion

In this chapter we have given a brief overview of the cognitive linguistics approach to the phraseological dimension of language, a dimension which was ignored in generative linguistics but which has been fully acknowledged in Cognitive Linguistics from its early beginnings. After a first wave of interest in figurative idioms (and phrasal verbs) under the momentum of conceptual metaphor theory, Cognitive Linguists have in recent years started to investigate the nature and function of phraseological units at large. They share this interest with researchers in the domains of psycholinguistics – particularly those who endorse the view that language acquisition is usage-based – and corpus linguistics. With this broader scope of interest, however, have come new challenges for Cognitive Linguists who wish to uphold the view that much in language is motivated, that is, explainable in retrospect. We hope to have demonstrated that Cognitive Linguistics is embracing those challenges, and is continuing to provide plausible answers to the question 'Why do we phrase things this way in our language?'

## References

- Aitchison, J. (2003). *Words in the Mind* (3rd ed.). Oxford: Blackwell Publishing.
- Arnon, I. and Snider, N. (2009). More than words: Frequency effects for multi-word phrases. *Journal of Memory and Language*, 62, 67–82.
- Biber, D., Conrad, S. and Cortes, V. (2004). 'If you look at . . .': Lexical bundles in university teaching and textbooks. *Applied Linguistics*, 25, 371–405.
- Boers, F. (2011). Cognitive semantic ways of teaching figurative phrases: An assessment. *Review of Cognitive Linguistics*, 9, 227–61.
- Boers, F. and Lindstromberg, S. (2009). *Optimizing a Lexical Approach to Instructed Second Language Acquisition*. Basingstoke, UK: Palgrave Macmillan.
- Boers, F. and Stengers, H. (2008). Adding sound to the picture: An exercise in motivating the lexical composition of metaphorical idioms in English, Spanish and Dutch. In L. Cameron, L. M. Zanotto and M. Cavalcanti (Eds), *Confronting Metaphor in Use: An Applied Linguistic Approach*. Amsterdam: John Benjamins, pp. 63–78.

- Boers, F., Eyckmans, J. and Stengers, H. (2007). Presenting figurative idioms with a touch of etymology: More than mere mnemonics? *Language Teaching Research*, 11, 43–62.
- Boers, F., Lindstromberg, S. and Eyckmans, J. (2012). Are alliterative word combinations comparatively easy to remember for adult learners? *RELC Journal*, 43, 127–35.
- Cermak, L. S. and Craik, F. I. M. (1979). *Levels of Processing in Human Memory*. Hillsdale, NJ: Lawrence Erlbaum.
- Charteris-Black, J. (1999). The survival of English proverbs: A corpus-based account. *DeProverbio*, 5(2). Available at <http://www.deproverbio.com/display.php?a=3&r=96> (accessed 5 May 2012).
- (2002). Second language figurative proficiency: A comparative study of Malay and English. *Applied Linguistics*, 23, 104–33.
- Cieslicka, A. (2006). Literal salience in on-line processing of idiomatic expressions by second language learners. *Second Language Research*, 22, 115–44.
- (2010). Formulaic language in L2: Storage, retrieval and production of idioms by second language learners. In M. Putz and L. Sicola (Eds), *Cognitive Processing in Second Language Acquisition*. Amsterdam: John Benjamins, pp. 149–68.
- Columbus, G. (2010). Processing MWUs: Are MWU subtypes psycholinguistically real? In D. Wood (Ed.), *Perspectives on Formulaic Language: Acquisition and Communication*. New York, NY: Continuum, pp. 194–210.
- Conklin, K. and Schmitt, N. (2008). Formulaic sequences: Are they processed more quickly than nonformulaic language by native and nonnative speakers? *Applied Linguistics*, 29, 72–89.
- Deignan, A. (2005). *Metaphor and Corpus Linguistics*. Amsterdam: John Benjamins.
- Durrant, P. and Doherty, A. (2010). Are high-frequency collocations psycholinguistically real? Investigating the thesis of collocational priming. *Corpus Linguistics and Linguistic Theory*, 6, 125–55.
- Ellis, N. C., Frey, E. and Jalkanen, I. (2009). The psycholinguistic reality of collocation and semantic prosody (1): Lexical access. In U. Römer and R. Schulze (Eds), *Exploring the Lexis-grammar Interface*. Amsterdam: John Benjamins, pp. 89–114.
- Ellis, N. C., Simpson-Vlach, R. and Maynard, C. (2008). Formulaic language in native and second language speakers: Psycholinguistics, corpus linguistics, and TESOL. *TESOL Quarterly*, 42, 375–96.
- Erman, B. and Warren, B. (2001). The idiom principle and the open choice principle. *Text*, 20, 87–120.
- Gibbs, R. W. (1994). *The Poetics of Mind: Figurative Thought, Language and Understanding*. Cambridge: Cambridge University Press.
- Giora, R. (1997). Understanding figurative and literal language: The graded salience hypothesis. *Cognitive Linguistics*, 7, 183–206.
- Grant, L. and Bauer, L. (2004). Criteria for redefining idioms: Are we barking up the wrong tree? *Applied Linguistics*, 25, 38–61.
- Gries, S. (2006). Corpus-based methods and cognitive semantics: The many senses of to run. In S. Gries and A. Stevanowitsch (Eds), *Corpora in Cognitive Linguistics: The Syntax-Lexis Interface*. Berlin: Mouton de Gruyter, pp. 57–99.
- (2011). Phonological similarity in multiword units. *Cognitive Linguistics*, 22, 491–510.
- Herrera, H. and White, M. (2010). Canonicity and variation in idiomatic expressions: Evidence from business press headlines. In S. De Knop, F. Boers and A. De Rycker (Eds), *Fostering Language Teaching Efficiency through Cognitive Linguistics*. Berlin: Mouton de Gruyter, pp. 167–87.
- Hoey, M. (2005). *Lexical Priming: A New Theory of Words and Language*. London: Routledge.
- Hu, Y.-H. (2002). *A Cross-Cultural Investigation of Mandarin Chinese Conceptual Metaphors of Anger, Happiness and Romantic Love*. Unpublished PhD Dissertation. University of Edinburgh, Edinburgh, UK.

- Kövecses, Z. (1990). *Emotion Concepts*. New York: Springer.
- (2005). *Metaphor in Culture: Universality and Variation*. Cambridge: Cambridge University Press.
- Kuiper, K. (1996). *Smooth Talkers: The Linguistic Performance of Auctioneers and Sportscasters*. Englewood Cliffs, NJ: Lawrence Erlbaum.
- Ladefoged, P. (2001). *Vowels and Consonants: An Introduction to the Sounds of Languages*. Malden, MA and Oxford: Blackwell.
- Lakoff, G. (1987). *Women, Fire and Dangerous Things: What Categories Reveal About the Mind*. Chicago: University of Chicago Press.
- Lakoff, G. and Johnson, M. (1980). *Metaphors We Live By*. Chicago: University of Chicago Press.
- Langacker, R. W. (1990). *Foundations of Cognitive Grammar, Volume 2: Descriptive Applications*. Stanford, CA: Stanford University Press.
- Laurent, J.-P., Denhières, G., Passerieux, C., Iakimova, G. and Hardy-Baylé, M.-C. (2005). On understanding idiomatic language: The salience hypothesis assessed by ERPs. *Brain Research*, 1068, 151–60.
- Littlemore, J. and Low, G. (2006). *Figurative Thinking and Foreign Language Learning*. Basingstoke, UK: Palgrave Macmillan.
- Littlemore, J., Chen, P. T., Koester, A. and Barnden, J. (2011). Difficulties in metaphor comprehension faced by international students whose first language is not English. *Applied Linguistics*, 32, 408–29.
- Liu, D. (2012). The most frequently-used multiword constructions in academic written English: A multi-corpus study. *English for Specific Purposes*, 31, 25–35.
- Martinez, R. and Murphy, V. A. (2011). Effect of frequency and idiomaticity on second language reading comprehension. *TESOL Quarterly*, 45, 267–90.
- Martinez, R. and Schmitt, N. (2012). A phrasal expressions list. *Applied Linguistics*, 33, 299–320.
- Matsuki, K. (1995). Metaphors of anger in Japanese. In J. Taylor and R. MacLaury (Eds), *Language and the Cognitive Construal of the World*. Berlin: Mouton de Gruyter, pp. 153–79.
- Moon, R. (1998). *Fixed Expressions and Idioms in English: A Corpus-Based Approach*. Oxford: Clarendon Press.
- O’Keeffe, A. M., McCarthy, M. and Carter, R. (2007). *From Corpus to Classroom: Language Use and Language Teaching*. Cambridge: Cambridge University Press.
- Paivio, A. (1986). *Mental Representations: A Dual Coding Approach*. New York: Oxford University Press.
- Pawley, A. and Syder, F. (1983). Two puzzles for linguistic theory: Nativelike selection and nativelike fluency. In J. Richards and R. Schmidt (Eds), *Language and Communication*, London: Longman, pp. 191–226.
- Shin, D. and Nation, P. (2008). Beyond single words: The most frequent collocations in spoken English. *ELTj*, 62, 339–48.
- Simpson-Vlach, R. and Ellis, N. C. (2010). An academic formulas list: New methods in phraseology research. *Applied Linguistics*, 31, 487–512.
- Sinclair, J. (1991). *Corpus, Concordance, Collocation*. Oxford: Oxford University Press.
- Siyanova, A., Conklin, K. and Schmitt, N. (2011). Adding more fuel to the fire: An eye-tracking study of idiom processing by native and non-native speakers. *Second Language Research*, 27, 251–72.
- Siyanova-Chanturia, A., Conklin, K. and van Heuven, W. (2011). Seeing a phrase ‘time and again’ matters: The role of phrasal frequency in the processing of multiword sequences. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 37, 776–84.

- Skehan, P. (1998). *A Cognitive Approach to Language Teaching*. Oxford: Oxford University Press.
- Sprenger, S. A., Levelt, W. J. M. and Kempen, G. (2006). Lexical access during the production of idiomatic phrases. *Journal of Memory and Language*, 54, 161–84.
- Stengers, H., Boers, F., Housen, A. and Eyckmans, J. (2011). Formulaic sequences and L2 oral proficiency: Does the type of target language influence the association? *International Review of Applied Linguistics*, 49, 321–43.
- Tabossi, P., Fanari, R. and Wolf, K. (2009). Why are idioms recognized fast? *Memory & Cognition*, 37, 529–40.
- Taylor, J. (2006). Polysemy and the lexicon. In G. Kristiansen, M. Achard, R. Dirven and J. Ruiz de Mendoza Ibanez (Eds), *Cognitive Linguistics: Current Applications and Future Perspectives*. Berlin: Mouton de Gruyter, pp. 51–80.
- (2010). Language in the mind. In S. De Knop, F. Boers and A. De Rycker (Eds), *Fostering Language Teaching Efficiency through Cognitive Linguistics*. Berlin: Mouton de Gruyter, pp. 29–57.
- Titone, D. A. and Connine, C. M. (1999). On the compositional and noncompositional nature of idiomatic expressions. *Journal of Pragmatics*, 31, 1655–74.
- Tremblay, A., Derwing, B., Libben, G. and Westbury, C. (2011). *Language Learning*, 61, 569–613.
- Wray, A. (2002). *Formulaic Language and the Lexicon*. Cambridge: Cambridge University Press.

# 3.5 Cognitive Linguistics and Language Variation

*Dirk Geeraerts and Gitte Kristiansen*

## Chapter Overview

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### 1 Introduction

What is the role of variationist linguistics within Cognitive Linguistics, and what does Cognitive Linguistics have to offer to variationist linguistics? In this chapter, we will argue that studying cultural and lectal linguistic variation is an essential aspect of Cognitive Linguistics, for reasons relating to the historical position of Cognitive Linguistics in the development of contemporary linguistics. Further, we will offer a brief survey of the state of the art in variationist Cognitive Linguistics, with a specific focus on the area of lectal variation (a field known as Cognitive Sociolinguistics).

### 2 Motivations for Variationist Cognitive Linguistics

When we try to understand why the study of linguistic variation might be of specific interest to Cognitive Linguistics, we need to take into account two

perspectives: a theoretical one and a methodological one. The first is to some extent the more important of the two, because the methodological reasons for paying attention to linguistic variation derive from the theoretical ones, as we will see.

## 2.1 Theoretical Motivations for Variationist Cognitive Linguistics

To get a clear grip on the theoretical reasons for looking at language variation, then, we need to understand the position of Cognitive Linguistics in the history of linguistics. We will argue that Cognitive Linguistics embodies a far-reaching paradigm shift in linguistics, and that the interest in interlinguistic and intra-linguistic language variation constitutes the cornerstone of that paradigm shift. This is a bold statement that undoubtedly needs a longer and more detailed argumentation than we can offer in these pages, but we believe we can bring across the bottom line of the argument if we concentrate on just a few essential features of the development of linguistics in the course of the twentieth and the early twenty-first century. That development is broadly characterized by a succession of three stages of theory formation: the structuralist one, the generative one and the cognitive-functional one. The structuralist era symbolically took off with the publication of De Saussure's *Cours de linguistique générale* in 1916, and if we stay within such a symbolical framework, we can situate the beginning of the generativist stage in 1957 with the publication of Chomsky's *Syntactic Structures*, and the emergence of Cognitive Linguistics in 1987, a year that saw the landmark publication of both Lakoff's *Women, Fire and Dangerous Things* and Langacker's 1987 *Foundations of Cognitive Grammar*. (We deliberately use the word 'emergence' to characterize the landmark year 1987, because the actual birth of Cognitive Linguistics should be situated about a decade earlier. See Geeraerts, 2010 for details.) Clearly, we are not suggesting that Cognitive Linguistics superseded generative grammar in the final quarter of the previous century in the same way in which the latter replaced structuralist linguistics in the third quarter: generative linguistics is still a strong tradition, but it now exists alongside a broad family of functional and cognitive approaches. That is a second point we have to emphasize: we focus on Cognitive Linguistics, but in the context of the history of linguistics, Cognitive Linguistics is just a member of a more extensive set of cognitive-functional approaches including approaches like Systemic Functional Grammar in the Hallidayan sense, the Amsterdam school of Functional Linguistics founded by Simon Dik, functional-typological approaches in the sense of Talmy Givón, and many others: see Nuyts (2007) for an insightful overview. Now, we do believe that Cognitive Linguistics is not just a member of that family of approaches, but that it actually is a central member – both in terms of the appeal it exerts on large numbers of linguists and in



terms of the conceptual and descriptive contributions it is making. Again, this is a point that would have to be established at a more leisurely pace, but for now, let us take it for granted that Cognitive Linguistics embodies if not epitomizes the post-generativist cognitive-functional approaches.

Crucially, these cognitive-functional approaches reverse the underlying drift of the development of linguistics in the two preceding stages of theory formation. As in Geeraerts (2010), we may identify that trend as one of *decontextualization*. When linguistic theorizing reaches the generative stage, the core of linguistics (that subfield of linguistics that concentrates on what is considered essential to language) is conceived of as 'autonomous syntax', that is the study of an innate and universal endowment for building formal syntactic structures. Disappearing from the centre of attention are aspects of language like meaning and function (and the lexicon as a major repository of meaning), context of use and social variation. In a more analytic fashion, we can identify three conceptual oppositions that were formulated in the successive stages of theory development, each of which contributes to the decontextualizing tendencies by the specific hierarchy of preferences that they are introduced with.

First, structuralism introduces the distinction between language as system – *langue* – and language as usage – *parole*. *Langue* is defined as a social system, a set of collective conventions that constitutes a common code shared by a linguistic community. *Parole* on the other hand is an individual activity that takes the form of producing specific combinations from the elements that are present in the code. *Langue* is epistemologically prior to *parole*: the use of a semiotic code logically presupposes the existence of that code.

Second, generative grammar puts an emphasis on the universal aspects of language: in the opposition between the universal and the diverse, language variation is the losing party. Shifting the emphasis from language as a social code to language as a psychological phenomenon (and, in fact, largely ignoring the relevance of the social aspects of language), Chomsky emphasizes the innate, genetically given (and hence universal) aspects of language.

Third, generative grammar takes shape as a formal model of grammar, both in its adoption of symbolic formalization as the descriptive method of linguistics, and its outspoken preference for form over function (or meaning) as the starting-point of linguistic analysis.

These three oppositions articulate the decontextualizing trend that leads from structuralism to generativism. The features of language that are deemed central to linguistic theorizing abstract away from meaning and function, from cultural and social diversity, from the actual contexts of language use in action and in interaction. We acknowledge that there might be other ways of spelling out the decontextualizing tendencies, but for our present purposes, these oppositions are particularly pertinent, because they help us to clarify how decontextualization implies a diminished relevance of the study of language

variation. In particular, if the essence of language is genetically universal, the study of *interlinguistic* variation is not relevant per se, but only to the extent that it helps to determine what is typologically invariant in the diversity of languages. Similarly, when we think of languages as systems, such systems will have to be internally homogeneous, and *intralinguistic* variation takes the form of a network of dialects that are each (homogeneous) linguistic systems in their own right: the unit of variation, to the extent that variation is considered at all, is the homogeneous, self-contained linguistic system.

The three oppositions also help us to understand why we can think of Cognitive Linguistics as a recontextualizing approach to language. On each of the three counts, in fact, Cognitive Linguistics and functional approaches more generally take exactly the antithetical position to the structuralist and generativist traditions. Working through the three oppositions in reverse order, it hardly needs to be argued, first, that meaning and function take precedence over form in cognitive linguistics theorizing: if anything, Cognitive Linguistics is a systematic attempt to give meaning and function a central role in the description of natural language – by looking at language as a tool for categorization and cognitive construal.

Second, Cognitive Linguistics embraces an experiential view of meaning. The meaning we construct in and through the language is not a separate and independent module of the mind, but it reflects our overall experience as human beings. There are at least two main aspects to this broader experiential grounding of linguistic meaning. On the one hand, we are embodied beings, not pure minds. Our organic nature influences our experience of the world, and this experience is reflected in the language we use. On the other hand, we are not just biological entities: we also have a cultural and social identity, and our language may reveal that identity, that is, languages may embody the historical and cultural experience of groups of speakers (and individuals). What is interesting about language is then not just the universal features: the diversity of experience expressed in language matters at least as much.

Third, Cognitive Linguistics adopts a usage-based model of language, in the sense that there is a dialectal relationship between structure and use: individual usage events are realizations of an existing systemic structure, but at the same time, it is only through the individual usage events that changes might be introduced into the structure. 'System', in fact, is primarily an observable commonality in the behaviour of language users, and as such, it is the result of social interaction. People influence each other's linguistic behaviour, basically by cooperative imitation and adaptation, and in some cases by opposition and a desire for distinctiveness.

It follows from this radical reversal of the decontextualizing mainstream positions that the study of language variation is a compelling field of research for Cognitive Linguistics. The interest in experiential diversity that comes with

the second assumption translates into an interest in interlinguistic variation: to what extent do different cultures express a different construal of the world in their language use? And the usage-based model implies a concern with intralinguistic variation: 'usage-based implies variational' (Geeraerts, 2005). When we say that common linguistic behaviour derives from the interaction between language users, it needs to be established just how common that behaviour actually is, and how the existing variation is structured by social factors – precisely the kind of questions that are central within dialectology and sociolinguistics.

In other words, if Cognitive Linguistics is indeed a recontextualizing model of linguistics par excellence, and if that recontextualization involves reversing a number of preferences that seemed ingrained in mainstream twentieth-century linguistics – a preference for system over use, for universality over diversity, for form over function – then a thorough investigation of interlinguistic and intralinguistic variation is an integral part of the cognitive linguistics enterprise.

## 2.2 Methodological Motivations for Variationist Cognitive Linguistics

The usage-based nature of Cognitive Linguistics also implies that there are methodological reasons for taking variation into account variation (see also Tummers et al., 2005). If one believes in the existence of a homogeneous linguistic system, then there is at least some justification for the generativist preference for an introspective methodology: if all users of a given language have the same system in their heads, then any given language user constitutes a representative sample of the population – and which language user's internal grammar is more accessible than that of the linguist himself? Condoning armchair linguistics, in other words, fits in with the assumptions of a 'system before use' approach. When that assumption is rejected, however, homogeneity cannot be assumed, and armchair linguistics becomes anathema: there is no way in which the linguist could claim representativity for the linguistic population at large, and thus, data will have to be sampled in a way that ensures a broad coverage of the behaviour in a linguistic community. This explains the rise of corpus linguistics in Cognitive Linguistics: as archives of non-elicited, spontaneous language behaviour, text corpora constitute a suitable empirical basis for a usage-based linguistics. Similarly, there is a growing interest in experimental methods for studying the online aspects of language usage. But within this family of empirical – corpus-based and experimental – methods, it is specifically the adoption of a corpus approach that draws the attention to lectal variation.

More often than not, in fact, the corpus will not be internally homogeneous: because the texts collected for the corpus come from various sources, it will not be known in advance whether the variation that may be observed in the

corpus is due to lectal factors or not. (The term *lectal* is used here to refer to all types of language varieties or *lects*: dialects, regiolects, national varieties, registers, styles, idiolects, whatever.) As such, determining the effects of such factors will be necessary for any cognitive linguistic attempt to analyse the usage data – even if the analysis is not a priori interested in lectal variation. That is to say, even if the analysis of lectal variation is not the primary concern of the investigation, filtering out lectal effects requires an analysis of variation. Methodologically speaking, an awareness of variation is thus indispensable for a data-oriented usage-based analysis.

### **3 Domains of Investigation**

Having established that an investigation of interlinguistic and intralinguistic variation should come naturally to Cognitive Linguistics, we may address the question where the field actually stands. If we look back at the three oppositions with which we started, we may note that Cognitive Linguistics did not effectuate the reversal of the three perspectives at the same time. A shift from form to function and meaning has obviously been there all along; it was definitional for the cognitive linguistics approach from the very start. But it is the other two oppositions that interest us more. We may note then that the domain of interlinguistic and cultural variation is fairly well-established, but that the study of intralinguistic and lectal variation has been slower to develop. (To avoid misunderstanding, the classificatory combination we make in the following between ‘interlinguistic’ and ‘cultural’ is one of convenience only. Surely, there can be cultural differences within one language: Lakoff’s 1996 analysis of the distinction between a ‘stern father’ and a ‘nurturing parent’ model of political organization would be a well-known case in point.)

#### **3.1 Interlinguistic and Cultural Variation**

An interest in cultural effects at the level of interlinguistic variation existed from an early date in the history of Cognitive Linguistics. For instance, Rosch’s research on prototype categorization (e.g. Rosch, 1977), which had a major influence on theory formation in Cognitive Linguistics, had an anthropological background, like Berlin’s research on colour terms and ethnobiological classification from which it derived (Berlin and Kay, 1969; Berlin, Breedlove and Raven, 1974). Questions of cultural relativity play a natural role in this kind of investigation, although the research endeavours are very much motivated by an interest in universal patterns of variation – we will come back to the point in a moment. The notion of ‘cultural model’ (which invokes the notion of ‘frame’ and

'conceptual metaphor', that other pillar of semantics in Cognitive Linguistics, next to prototypicality) also made an early entrance: see Holland and Quinn (1987) for an influential early volume. Cross-cultural studies of metaphorical patterns and conceptual metaphors are by now an established line of research: for representative examples, see Boers, 2003; Dirven, 1994; Dirven, Frank and Ilie, 2001; Dirven, Frank and Pütz, 2003; Dirven, Hawkins, and Sandikcioglu, 2001; Littlemore and Low, 2006; Sharifian, Dirven, Yu and Niemeier, 2008; Yu, 1998, 2009. The existence of a book series entitled *Cognitive Linguistic Studies in Cultural Contexts* (with Sharifian, 2011 as its first volume) points in the same direction. A broadly anthropological view on cultural linguistics is developed by Palmer (1996) and Kronenfeld (1996).

At the same time, for an adequate representation of the field, we would like to point to two shifts that occurred in the course of this development. In the first place, the traditional preference for universality ('traditional' from the point of view of mainstream twentieth-century linguistics as represented by generative theory, that is) seems to some extent to have influenced the introduction of a cultural perspective. As we noted earlier, the experiential nature of a Cognitive Linguistic conception of semantics involves both a physiological and a cultural kind of experience: embodiment and socialization, so to speak. But the physiological perspective suggests a universality that the cultural perspective lacks. In some domains of enquiry both perspectives opposed each other. This applies specifically to the study of conceptual metaphors for the emotions, which has always been one of the main areas of attention within Conceptual Metaphor Theory. In contrast with the predominantly physiological explanation for 'anger' metaphors suggested by Kövecses (1986), Geeraerts and Grondelaers (1995) drew the attention to the culture-specific background of at least some of the anger expressions, which turn out to have a historical background in the theory of humours that dominated Western medical and psychological thinking from antiquity to the early modern period. Although Kövecses, in line with the tradition, at first opposed the cultural interpretation in favour of a physiological one, more recent work shows a wholehearted acceptance of the cultural perspective; in particular, see Kövecses (2005). As the 'anger' studies suggest, a consequence of this cultural turn of Conceptual Metaphor Theory could well be an increase in diachronic metaphor studies. Cultural models, that is the more or less coherent sets of concepts that cultures use to structure experience and make sense of the world, are not reinvented afresh with every new period in the culture's development. But if it is by definition part of their cultural nature that they have a historical dimension, it is only by investigating their historical origins and their gradual transformation that their contemporary form can be properly understood. Diachronic research into the history of metaphors (as in the work of Gevaert, 2005 or Allan, 2009) is however still an underdeveloped area of cross-cultural work in Cognitive Linguistics.

In the second place, investigations into the relation between language diversity and thought exhibit an increasing methodological sophistication, as in the experimental approaches illustrated by the work of Boroditsky (2001) and Levinson (2003). A naïve approach might assume that the presence of certain expressions in a given language suffices to establish a difference of semantic outlook between that language and others that display a different set of expressions. However, from a usage-based perspective, it needs to be established on independent grounds whether language indeed influences thought at the level of actual usage. (For a discussion at greater length, see Kristiansen and Geeraerts, 2007 in a confrontation with Wierzbicka, 2003.)

### 3.2 Intralinguistic and Lectal Variation

Within Cognitive Linguistics, the first decade of the present century has seen a growing interest for language-internal variation in all its dimensions, as witnessed by several publications referring to ‘Cognitive Sociolinguistics’ or ‘social cognitive linguistics’ as the study of lectal variation in the context of Cognitive Linguistics: Kristiansen and Dirven (2008), Croft (2009), Geeraerts, Kristiansen and Peirsman (2010), Kristiansen and Geeraerts (forthcoming). Cognitive Sociolinguistics as demarcated by these publications strives towards a convergence of the usage-based traditions of language studies, as represented by pragmatics and sociolinguistics, and the post-generative theories of grammar illustrated by Cognitive Linguistics. The field of intralinguistic variation studies in Cognitive Linguistics may be broadly divided into three areas of research.

The first area is concerned with general theoretical models of the role of social factors in language, the other two areas cover the descriptive contributions of Cognitive Linguistics to the study of linguistic variation. Theoretical and programmatic studies falling within that first area of research analyse the way in which the emergence of language as such and the presence of specific features in a language can only be adequately conceived of if one takes into account the socially interactive nature of linguistic communication. Important representatives of this strand of research include Croft (2000) on a socio-evolutionary view of language, Sinha (2007, 2009) on language as an epigenetic system, Zlatev (2005) on situated embodiment, Itkonen (2003) on the social nature of the linguistic system, Verhagen (2005) on the central role of intersubjectivity in language, Harder (2003, 2010) on the socio-functional background of language, and Beckner et al. (2009) on language as a complex adaptive system. Regardless of their differences, these approaches share a foundational perspective: they present high-level models of the principled role of social factors and usage-based phenomena in language and linguistic evolution.

But if Cognitive Linguistics aims to contribute to variationist linguistics, it should also produce studies with the empirical detail and the methodological rigour that is customary in sociolinguistics and dialectology. This entails the question of what Cognitive Linguistics may specifically have to offer to variationist linguistics: we may be convinced of the relevance of a social perspective for Cognitive Linguistics, but can the latter convince variationist linguistics of its specific relevance? Two specific perspectives come to mind, which we may refer to in a lapidary way as studies in the *variation of meaning* and studies in the *meaning of variation*.

The basic question for the *variation of meaning* approach will be obvious: how does language-internal variation affect the occurrence of linguistic phenomena that have the specific attention of Cognitive Linguistics, notably meaning, and more generally, conceptual construal by linguistic means? The question is relevant for variationist linguistics at large because meaning is probably the least studied aspect of language in mainstream sociolinguistics (which, like mainstream grammar studies, favours formal variables). Variationist studies within Cognitive Linguistics, then, involve issues such as the social distribution of prototype-based meaning extensions (Robinson, 2010), the lectal productivity of metonymical patterns (Zhang, Speelman and Geeraerts, 2011), the variable use of metaphor in discourse (Semino, 2008), lexical variation in pluricentric languages (Glynn, 2008; Soares da Silva, 2005), usage-based approaches to borrowing (Zenner, Speelman and Geeraerts, in press), spatial semantics at dialect level (Berthele, 2006), and lectal variation of constructions and constructional semantics (Colleman, 2010; Grondelaers et al., 2002; Speelman and Geeraerts, 2009; Szmrecsanyi, 2010).

We should note that the importance of meaning for sociolinguistics goes well beyond descriptive comprehensiveness, because questions of meaning implicitly lie at the heart of the sociolinguistic enterprise. Consider the concept of a 'sociolinguistic variable' as a cornerstone of the standard methodology of socio-variationist research. Simply put, a sociolinguistic variable in the sense of contemporary sociolinguistics is a set of alternative ways of expressing the same linguistic function or realizing the same linguistic element, where each of the alternatives has social significance: 'Social and stylistic variation presuppose the option of saying "the same thing" in several different ways: that is, the variants are identical in reference or truth value, but opposed in their social and/or stylistic significance' (Labov, 1972: 271). As such, a sociolinguistic variable is a linguistic element that is sensitive to a number of extralinguistic independent variables like social class, age, sex, geographical group location, ethnic group, or contextual style and register. This automatically raises the question of semantic equivalence: if we are interested in the contextual choice between synonymous (functionally equivalent) expressions as a reflection of sociolinguistic factors, we first need to control for meaning – but how? Within

the field of sociolinguistics, the methodological problem of semantic equivalence was recognized early on by Beatriz Lavandera. She argued that 'it is inadequate at the current state of sociolinguistic research to extend to other levels of analysis of variation the notion of sociolinguistic variable originally developed on the basis of phonological data. The quantitative studies of variation which deal with morphological, syntactic, and lexical alternation suffer from the lack of an articulated theory of meanings' (Lavandera, 1978: 171). In the mainstream development of sociolinguistics, however, the question of semantic equivalence, as a methodological prerequisite for the sociovariationist study of lexis and grammar, was not systematically explored. An important issue for Cognitive Sociolinguistics, then, is a renewed look at Lavandera's question and the interplay between semantic and formal variation. In practice, this research line is primarily being pursued by Geeraerts and his associates, with a focus on onomasiological variation within the lexicon: see the long-term development going from Geeraerts, Grondelaers and Bakema (1994) via Geeraerts, Grondelaers and Speelman (1999), Speelman, Grondelaers and Geeraerts (2003), to Heylen, Peirsman and Geeraerts (2008) and Ruetten, Speelman and Geeraerts (2011).

The third main area of investigation for Cognitive Sociolinguistics is concerned with what we have called the *meaning of variation*, that is to say, with the way in which language variation is perceived and categorized by the language user. This is a field of research that links up with perceptual dialectology and folk linguistics in the sense of Preston and Niedzielski (2000) and related work. Relevant questions about the processing and representation of linguistic variation include the following: How do language users perceive lectal differences, and how do they evaluate them attitudinally? What models do they use to categorize linguistic diversity? How does linguistic stereotyping work: how do language users categorize other groups of speakers? What is the role of subjective and objective linguistic distances: is there a correlation between objective linguistic distances, perceived distances and language attitudes? Are there any cultural models of language diversity: what models of lectal variation, standardization and language change do people work with? To what extent do attitudinal and perceptual factors have an influence on language change? How do language users acquire lectal competence, how is it stored mentally and how does it work in language production?

Again, in the context of this overview, we particularly need to ask ourselves what the specific contribution of Cognitive Linguistics to the field could be. In general, if the cognitive representation of language variation by the language user is of the same type as other types of categorization, then the categorization phenomena that Cognitive Linguistics typically focuses on should also be relevant for an analysis of the way in which language users mentally represent linguistic variation – in other words, we expect phenomena like prototypicality,



metaphor and metonymy to play a role in the cognitive representation of variation. In practice, two strands of research so far stand out, concentrating on prototypicality effects and metaphorical conceptualization.

To begin with the latter, metaphorical models of lectal structure are concerned with the question to what extent metaphors frame people's perception of language varieties. Work in this direction covers both high-level cultural models of language variation and normativity in general (Geeraerts, 2003; Polzenhagen and Dirven, 2008), and attitudinal metaphors involving specific dialect and standard language environments (Berthele, 2008, 2010).

Prototype-based models of lectal structure (Kristiansen, 2003) emphasize that lects are not internally homogeneous, but are rather characterized by centrality effects: some aspects have a more central role than others, and will be more saliently represented in the mind of the language users. These central features can be linguistic phenomena: some pronunciation habits, or elements of lexis and grammar, are more typical than others. Such an approach corresponds with the principles of frequency-based and exemplar-based approaches to language variation and change (Bod, Hay and Jannedy, 2003; Bybee, 2006; Kretzschmar, 2009). But the typical aspects can also be speakers of a variety: in Kristiansen's research into the acquisition of accent recognition in children, familiarity with iconic speakers appears to play a decisive role (2010), and Clark and Trousdale (2010) demonstrate how the cognitive identification with a specific social group correlates with the realization of linguistic features expressing that identity.

The latter type of research chimes with the interest that has been growing in sociolinguistics at large in the interactive and flexible use of social variables, as surveyed in Kristiansen (2008). Whereas mainstream sociolinguistics of the Labovian type tends to focus on the more or less stable structural correspondences between social groups and linguistic variables, the so-called third wave of sociolinguistic studies explores what individuals actively do with group-related variables in order to do meaningful things with variants. Because this is a kind of variationist linguistics that is specifically situated at usage level, interactional sociolinguistics is of specific interest to Cognitive Linguistics, all the more so since up to a point, it combines the 'variation of meaning' and 'meaning of variation' perspectives: social variation of language that is perceived as meaningful by the language users is itself used in a situationally variable process of expressing and creating social meaning. This process is crucial in the dialectic relationship of structure and use: if linguistic structure emerges from language use, socially structured language use will result in lectal subsystems – but once set up, these structured sets of choices become available to the individual user for imitation or for creative modulation. In spite of the overall relevance, though, the interactional perspective is not yet strongly represented in the actual descriptive practice of Cognitive Sociolinguistics.

## 4 Concluding Remarks and Future Directions

We have shown that the study of cultural and lectal linguistic variation is an essential aspect of Cognitive Linguistics, for reasons deriving from the historical position of Cognitive Linguistics in the development of contemporary linguistics: as a usage-based, recontextualizing model of linguistics, interlinguistic and intralinguistic variation are a crucial element of the theory. With an emphasis on what the specific contribution of Cognitive Linguistics consists of, we have offered a survey of the field of variationist studies in Cognitive Linguistics by distinguishing four domains of enquiry: cross-cultural variation of meaning, general models of the socially mediated dialectic relationship between system and use, the study of ‘variation of meaning’ and the study of the ‘meaning of variation’. At the same time, we have suggestively indicated topics that should be high on the agenda of variationist Cognitive Linguistics: the diachronic aspects of cultural differences, the methodology of cross-cultural comparison and the interactional approach to Cognitive Sociolinguistics.

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## References

- Allan, K. (2009). *Metaphor and Metonymy: A Diachronic Approach*. London: Wiley-Blackwell.
- Beckner, C., Blythe, R., Bybee, Joan L., Christiansen, Morten H., Croft, W., Ellis, Nick C., Holland, J., Jinyun Ke, Larsen-Freeman, D. and Schoenemann, T. (2009). Language is a complex adaptive system. *Language Learning*, 59, 1–26.
- Berlin, B. and Kay, P. (1969). *Basic Color Terms: Their Universality and Evolution*. Berkeley: University of California Press.
- Berlin, B., Breedlove, Dennis E. and Raven, Peter H. (1974). *Principles of Tzeltal Plant Classification: An Introduction to the Botanical Ethnography of a Mayan-speaking People of Highland Chiapas*. New York: Academic Press.
- Berthele, R. (2006). *Ort und Weg: Die sprachliche Raumreferenz in Varietäten des Deutschen, Rätoromanischen und Französischen*. Berlin and New York: Walter de Gruyter.
- (2008). A nation is a territory with one culture and one language: The role of metaphorical folk models in language policy debates. In G. Kristiansen and R. Dirven (Eds), *Cognitive Sociolinguistics*. Berlin and New York: Mouton de Gruyter, pp. 301–31.
- (2010). Investigations into the folk’s mental models of linguistic varieties. In D. Geeraerts, G. Kristiansen and Y. Peirsman (Eds), *Advances in Cognitive Sociolinguistics*. Berlin and New York: De Gruyter Mouton, pp. 265–90.

- Bod, R., Hay, J. and Jannedy, S. (Eds) (2003). *Probabilistic Linguistics*. Cambridge, MA: MIT Press.
- Boers, F. (2003). Applied linguistics perspectives on cross-cultural variation in conceptual metaphor. *Metaphor and Symbol*, 18, 231–8.
- Boroditsky, L. (2001). Does language shape thought? Mandarin and English speakers' conceptions of time. *Cognitive Psychology*, 43, 1–22.
- Bybee, Joan L. (2006). *Frequency of Use and the Organization of Language*. Oxford: Oxford University Press.
- Chomsky, N. (1957). *Syntactic Structures*. The Hague: Mouton.
- Clark, L. and Trousdale, G. (2010). A cognitive approach to quantitative sociolinguistic variation: Evidence from th-fronting in Central Scotland. In D. Geeraerts, G. Kristiansen and Y. Peirsman (Eds), *Advances in Cognitive Sociolinguistics*. Berlin and New York: Mouton de Gruyter, pp. 291–321.
- Colleman, T. (2010). Lectoral variation in constructional semantics: 'Benefactive' ditransitives in Dutch. In D. Geeraerts, G. Kristiansen and Y. Peirsman (Eds), *Advances in Cognitive Sociolinguistics*. Berlin and New York: Mouton de Gruyter, pp. 191–221.
- Croft, W. (2000). *Explaining Language Change: An Evolutionary Approach*. Harlow: Longman.
- (2009). Towards a social cognitive linguistics. In V. Evans and S. Pourcel (Eds), *New Directions in Cognitive Linguistics*. Amsterdam: John Benjamins, pp. 395–420.
- De Saussure, F. (1916). *Cours de linguistique générale*. Paris: Payot.
- Dirven, R. (1994). *Metaphor and Nation: Metaphors Afrikaners Live By*. Frankfurt: Peter Lang.
- Dirven, R., Hawkins, B. and Sandikcioglu, E. (Eds) (2001). *Language and Ideology 1: Theoretical Cognitive Approaches*. Amsterdam: John Benjamins.
- Dirven, R., Frank, R. and Ilie, C. (Eds) (2001). *Language and Ideology 2: Descriptive Cognitive Approaches*. Amsterdam: John Benjamins.
- Dirven, R., Frank, R. and Pütz, M. (Eds) (2003). *Cognitive Models in Language and Thought: Ideology, Metaphors and Meanings*. Berlin: Mouton de Gruyter.
- Geeraerts, D. (2003). Cultural models of linguistic standardization. In R. Dirven, R. Frank and M. Pütz (Eds), *Cognitive Models in Language and Thought: Ideology, Metaphors and Meanings*. Berlin and New York: Mouton de Gruyter, pp. 25–68.
- (2005). Lectoral variation and empirical data in cognitive linguistics. In F. Ruiz de Mendoza Ibáñez and S. Peña Cervel (Eds), *Cognitive Linguistics: Internal Dynamics and Interdisciplinary Interactions*. Berlin and New York: Mouton de Gruyter, pp. 163–89.
- (2010). Recontextualizing grammar: Underlying trends in thirty years of cognitive linguistics. In E. Tabakowska, M. Choinski and L. Wiraszka (Eds), *Cognitive Linguistics in Action: From Theory to Application and Back*. Berlin and New York: Mouton de Gruyter, pp. 71–102.
- Geeraerts, D. and Grondelaers, S. (1995). Looking back at anger: Cultural traditions and looking back at anger: Cultural traditions and metaphorical patterns. In J. R. Taylor and R. E. MacLaurry (Eds), *Language and the Cognitive Construal of the World*. Berlin and New York: Mouton de Gruyter, pp. 153–79.
- Geeraerts, D., Grondelaers, S. and Bakema, P. (1994). *The Structure of Lexical Variation: Meaning, Naming, and Context*. Berlin and New York: Mouton de Gruyter.
- Geeraerts, D., Grondelaers, S. and Speelman, D. (1999). *Convergentie en divergentie in de Nederlandse woordenschat: Een onderzoek naar kleding- en voetbaltermen*. Amsterdam: Meertens Instituut.
- Geeraerts, D., Kristiansen, G. and Peirsman, Y. (Eds) (2010). *Advances in Cognitive Sociolinguistics*. Berlin and New York: Mouton de Gruyter.
- Gevaert, C. (2005). The anger is heat question: Detecting cultural influence on the conceptualisation of anger through diachronic corpus analysis. In N. Delbecque, J. van

- der Auwera and D. Geeraerts (Eds), *Perspectives on Variation. Sociolinguistic, Historical, Comparative*. Berlin: Mouton de Gruyter, pp. 195–208.
- Glynn, D. (2008). *Mapping Meaning: Towards a Usage-based Methodology in Cognitive Semantics*. PhD Thesis, University of Leuven.
- Grondelaers, S., Brysbaert, M., Speelman, D. and Geeraerts, D. (2002). 'Er' als accessibility marker: On- en offline evidentie voor een procedurele interpretatie van presentatieve zinnen. *Gramma/TTT*, 9, 1–22.
- Harder, P. (2003). The status of linguistic facts: Rethinking the relation between cognition, social institution and utterance from a functional point of view. *Mind and Language*, 18, 52–76.
- (2010). *Meaning in Mind and Society: A Functional Contribution to the Social Turn in Cognitive Linguistics*. Berlin and New York: Mouton de Gruyter.
- Heylen, K., Peirsman, Y. and Geeraerts, D. (2008). Automatic synonymy extraction. In S. Verberne, H. van Halteren and P.-A. Coppen (Eds), *Computational Linguistics in the Netherlands 2007*. Amsterdam: Rodopi, pp. 101–16.
- Holland, D. and Quinn, N. (Eds) (1987). *Cultural Models in Language and Thought*. Cambridge: Cambridge University Press.
- Itkonen, E. (2003). *What is Language? A Study in the Philosophy of Linguistics*. Turku: Åbo Akademis tryckeri.
- Kövecses, Z. (1986). *Metaphors of Anger, Pride and Love: A Lexical Approach to the Structure of Concepts*. Amsterdam and Philadelphia: John Benjamins.
- (2005). *Metaphor in Culture: Universality and Variation*. Oxford: Oxford University Press.
- Kretzschmar, W. A. (2009). *The Linguistics of Speech*. Cambridge: Cambridge University Press.
- Kristiansen, G. (2003). How to do things with allophones: Linguistic stereotypes as cognitive reference points in social cognition. In R. Dirven, R. Frank and M. Pütz (Eds), *Cognitive Models in Language and Thought: Ideologies, Metaphors, and Meanings*. Berlin and New York: Mouton de Gruyter, pp. 69–120.
- (2008). Style-shifting and shifting styles: A socio-cognitive approach to lectal variation. In G. Kristiansen and R. Dirven (Eds), *Cognitive Sociolinguistics*. Berlin and New York: Mouton de Gruyter, pp. 45–88.
- (2010). Lectal acquisition and linguistic stereotype formation. In D. Geeraerts, G. Kristiansen and Y. Peirsman (Eds), *Advances in Cognitive Sociolinguistics*. Berlin and New York: Mouton de Gruyter, pp. 225–64.
- Kristiansen, G. and Dirven, R. (Eds) (2008). *Cognitive Sociolinguistics: Language Variation, Cultural Models, Social Systems*. Berlin and New York: Mouton de Gruyter.
- Kristiansen, G. and Geeraerts, D. (2007). On non-reductionist intercultural pragmatics and methodological procedure. In I. Kecskes and L. R. Horn (Eds), *Explorations in Pragmatics: Linguistic, Cognitive and Intercultural Aspects*. Berlin and New York: Mouton de Gruyter, pp. 257–86.
- Kristiansen, G. and Geeraerts, D. (Eds) (Forthcoming). Contexts in use in cognitive sociolinguistics. Special Issue of the *Journal of Pragmatics*.
- Kronenfeld, David B. (1996). *Plastic Glasses and Church Fathers: Semantic Extension from the Ethnoscience Tradition*. New York: Oxford University Press.
- Labov, W. (1972). *Sociolinguistic Patterns*. Philadelphia: University of Pennsylvania Press.
- Lakoff, G. (1987). *Women, Fire and Dangerous Things: What Categories Reveal About the Mind*. Chicago: University of Chicago Press.
- (1996). *Moral Politics: What Conservatives Know That Liberals Don't*. Chicago, IL: University of Chicago Press.
- Langacker, Ronald W. (1987). *Foundations of Cognitive Grammar 1: Theoretical Prerequisites*. Stanford: Stanford University Press.

- Lavandera, B. (1978). Where does the sociolinguistic variable stop? *Language in Society*, 7, 171–83.
- Levinson, Stephen C. (2003). *Space in Language and Cognition: Explorations in Cognitive Diversity*. Cambridge: Cambridge University Press.
- Littlemore, J. and Low, G. (2006). *Figurative Thinking and Foreign Language Learning*. Basingstoke: Palgrave Macmillan.
- Nuyts, J. (2007). Cognitive linguistics and functional linguistics. In D. Geeraerts and H. Cuyckens (Eds), *The Oxford Handbook of Cognitive Linguistics*. New York: Oxford University Press, pp. 543–65.
- Palmer, Gary B. (1996). *Toward a Theory of Cultural Linguistics*. Austin: University of Texas Press.
- Polzenhagen, F. and Dirven, R. (2008). Rationalist and romantic models in globalisation. In G. Kristiansen and R. Dirven (Eds), *Cognitive Sociolinguistics*. Berlin and New York: Mouton de Gruyter, pp. 237–99.
- Preston, D. and Niedzielski, N. (2000). *Folk Linguistics*. Berlin and New York: Mouton de Gruyter.
- Robinson, Justyna A. (2010). Awesome insights into semantic variation. In D. Geeraerts, G. Kristiansen and Y. Peirsman (Eds), *Advances in Cognitive Sociolinguistics*. Berlin and New York: Mouton de Gruyter, pp. 85–110.
- Rosch, E. (1977). Human categorization. In N. Warren (Ed.), *Studies in Cross-cultural Psychology*. New York and London: Academic Press, pp. 1–49.
- Ruette, T., Speelman, D. and Geeraerts, D. (2011). Measuring the lexical distance between registers in national varieties of Dutch. In A. Soares da Silva, A. Torres and M. Gonçalves (Eds), *Línguas Pluricêntricas. Variação Linguística e Dimensões Sociocognitivas*. Braga: Publicações da Faculdade de Filosofia, Universidade Católica Portuguesa, pp. 541–54.
- Semino, E. (2008). *Metaphor in Discourse*. Cambridge: Cambridge University Press.
- Sharifian, F. (2011). *Cultural Conceptualisations and Language: Theoretical Framework and Applications*. Amsterdam: John Benjamins.
- Sharifian, F., Dirven, R., Ning Yu and Niemeier, S. (Eds) (2008). *Culture, Body, and Language: Conceptualizations of Internal Body Organs Across Cultures and Languages*. Berlin: Mouton de Gruyter.
- Sinha, C. (2007). Cognitive linguistics, psychology and cognitive science. In D. Geeraerts and H. Cuyckens (Eds), *The Oxford Handbook of Cognitive Linguistics*. New York: Oxford University Press, pp. 1266–94.
- (2009). Language as a biocultural niche and social institution. In V. Evans and S. Pourcel (Eds), *New Directions in Cognitive Linguistics*. Amsterdam: John Benjamins, 289–309.
- Soares da Silva, A. (2005). Para o estudo das relações lexicais entre o Português Europeu e o Português do Brasil: Elementos de sociolinguística cognitiva e quantitativa do Português. In I. Duarte and I. Leiria (Eds), *Actas do XX Encontro Nacional da Associação Portuguesa de Linguística*. Lisboa: Associação Portuguesa de Linguística, pp. 211–26.
- Speelman, D. and Geeraerts, D. (2009). Causes for causatives: The case of Dutch ‘doen’ and ‘laten’. In T. Sanders and E. Sweetser (Eds), *Causal Categories in Discourse and Cognition*. Berlin: Mouton de Gruyter, pp. 173–204.
- Speelman, D., Grondelaers, S. and Geeraerts, D. (2003). Profile-based linguistic uniformity as a generic method for comparing language varieties. *Computers and the Humanities*, 37, 317–37.
- Szmrecsanyi, B. (2010). The English genitive alternation in a cognitive sociolinguistics perspective. In D. Geeraerts, G. Kristiansen and Y. Peirsman (Eds), *Advances in Cognitive Sociolinguistics*. Berlin and New York: Mouton de Gruyter, pp. 141–66.

- Tummers, J., Heylen, K. and Geeraerts, D. (2005). Usage-based approaches in cognitive linguistics: A technical state of the art. *Corpus Linguistics and Linguistic Theory*, 1, 225–61.
- Verhagen, A. (2005). *Constructions of Intersubjectivity: Discourse, Syntax, and Cognition*. Oxford: Oxford University Press.
- Wierzbicka, A. (2003). *Cross-Cultural Pragmatics: The Semantics of Human Interaction* (2nd ed.). Berlin: Mouton de Gruyter.
- Yu, N. (1998). *The Contemporary Theory of Metaphor: A Perspective from Chinese*. Amsterdam: John Benjamins.
- (2009). *The Chinese Heart in a Cognitive Perspective: Culture, Body, and Language*. Berlin: Mouton De Gruyter.
- Zenner, E., Speelman, D. and Geeraerts, D. (2012). Cognitive Sociolinguistics meets loanword research: Measuring variation in the success of anglicisms in Dutch. *Cognitive Linguistics*, 23, 747–92.
- Zhang, W., Speelman, D. and Geeraerts, D. (2011). Variation in the (non)metonymic capital names in mainland Chinese and Taiwan Chinese. *Metaphor and the Social World*, 1, 90–112.
- Zlatev, J. (2005). What's in a schema? Bodily mimesis and the grounding of language. In B. Hampe (Ed.), *From Perception to Meaning: Image Schemas in Cognitive Linguistics*. Berlin and New York: Mouton de Gruyter, pp. 313–42.

# 3.6 Cognitive Poetics

*Chloe Harrison and  
Peter Stockwell*

## Chapter Overview

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### 1 The Origins and Principles of Cognitive Poetics

The explicit application of cognitive science to literary studies has a fairly recent history. The term ‘cognitive poetics’ was coined by Reuven Tsur in the 1970s to refer to his own research in the perceptual effects of literary works in readers (see Tsur, 1992). Over the last two decades, the term has expanded its application to include the study of literary texts and readings which draws on cognitive psychology and Cognitive Linguistics. Even more broadly, a ‘cognitive literary studies’ has emerged in which more general matters of evolutionary criticism, embodiment and social cognition have been brought to bear as part of a critical theory of literature. In this chapter, we take what is probably the most consensual view of the field of cognitive poetics: the study of literary texts and readings which draws centrally on cognitive psychology and Cognitive Linguistics. Central to this view of the field is a stylistic concern that any readerly or interpretative account must be underpinned by transparent textual evidence.

Of course, the implicit understanding that matters of readerly perception and cognition are pertinent to the reading of literature is a practice as old as the most ancient observations on literary activity. To this extent, a consistent thread can be delineated stretching from ancient Greek, Roman, Indian and Chinese

rhetorical arts to the present account (which has even occasionally been termed 'cognitive rhetoric'). In our own time, however, the scholarly study of literature has been seized by successive crises of confidence throughout the twentieth century, culminating in an anxiety about its own 'Theory' that has most recently been resolved by a retreat into historiography: obscurantism has been replaced by a rather simple 'history of the book' and literary scholarship has essentially become a narrow form of cultural studies. In other fields, methodological discussions are handled relatively calmly, but in literary studies these debates have removed the field increasingly from anything that non-academic readers of literature would recognize.

Cognitive poetics offers a reconnection of literary scholarship with natural readers, at first glance paradoxically because it aims to professionalize the discipline (Turner, 1991). It is necessary to know the principles of Cognitive Linguistics, for example, and have a systematic notion of how language and communication works, in order to be able to provide a proper, rational account of literary meanings and effects. It is not good enough to arrive with an outdated understanding of language (such as Saussurean linguistics), or an incoherent pseudo-science (psychoanalysis), or a metaphorically poetic but vacuous set of gestures (deconstruction), or any briefly fashionable paradigm imported from other fields without genuine understanding (whether from evolution, quantum physics, neuroscience, sociology, anthropology or any of the other ill-fitting frames into which literary scholarship has tried to fit itself).

There are basic facts which entail a systematic cognitive poetics. First, literature is composed in language and so its proper study should focus on language. This is not to say that literary study should be formalist, because it is clear that the workings of language involve not only the text itself but also contextual matters such as intention, interpretation, social negotiation, history and value, and so on. This means that the field of linguistics – traditionally narrowly institutionalized – cannot alone deal with literature, and a broader sociocognitive linguistics is necessary.

Cognitive poetics takes its basic principles from the cognitive sciences on which it draws. There are general scientific methodological principles that apply: the object of investigation (whether an emotional effect in a reading or a textual feature) should be available for analysis, and not simply be an imaginary or desirable phenomenon; the account should be supported by evidence of some sort; assertions made about a literary text and its reading should be clear, open and falsifiable; as far as possible, readings presented of a literary work should be replicable, rather than uniquely idiosyncratic or eccentric; terms for description should have a generally accepted and disciplined currency. All of these principles make cognitive poetics a scientific practice.

Aside from these principles common to all sciences, there are also foundational assumptions that are particular to Cognitive Linguistics and cognitive



psychology. First, the centrality of mind as the location of interest is important: though the brain and the sensory perceptual system are of contributory interest, cognitive poetics tends not to be absolutely materialist in its approach. So, for example, while MRI scans and anatomical measurements during reading might tell us things about the brain or body, they can tell us little about the particular literary work being read, except in the most general of terms. The principle of conceptual embodiment, and the continuities between mind and body (see Lakoff, 1987; Lakoff and Johnson, 1999) are generally regarded as central to cognitive poetics. The nature of metaphor or conceptual projection and compression in general are key. Prototypicality and situatedness are important factors in cognitive poetics. Empirical approaches to literary reading are also common in the field, with an emphasis on controllable and measurable evidential data (see Gerrig, 1993; Miall, 2006; van Peer, 1986). Cognitive poetics can be seen in these regards as being like a social science.

However, it is important to recognize that literature itself is an artistic enterprise and social perceptions of literature are important factors in reading and evaluation. The literary work is a phenomenon for exploration not comprised solely of the text itself nor solely of the reader or reading themselves but as a heteronymous object involving the interaction of the two. Some effects generated in literary reading are extremely subtle and subjective; some are very difficult to articulate, and some are at the most delicate level of conscious awareness, if not part of a subconscious domain with very indirect or fleeting effects. Cognitive poetics has therefore been described as an 'artful science' (Stockwell, 2012). Anyone working in cognitive poetics thus needs to possess both a scientific sensibility and also a firm grounding in history, aesthetics, interpretation and literary criticism.

## **2 Key Work in Cognition and Literature**

Although a great deal of work in cognitive science has been adapted for literary critical purposes, there have been a few key areas which have proven particularly productive over the last two decades. Lakoff and Johnson's (1980) work on conceptual metaphor can be regarded as a seminal foundational text for cognitive poetics, and work in Conceptual Metaphor Theory (CMT) continues to be produced. Fauconnier and Turner's (2002) work on 'blending' or 'conceptual integration' theory was in part a development of CMT and a response to some of its problematic aspects – particularly articulated in relation to literary texts (see Gross, 1997; Stockwell, 1999). Work in cognitive poetics drawing on CMT and blending includes exemplary studies of allegory (Crisp, 2008), literary emotion (Kövecses, 2002), lyric poetry (Freeman, 2002) and narrative fiction (Dancygier, 2011; Turner, 1991, 1996).

Both CMT and blending theory (via Fauconnier's (1985, 1997) work on *mental spaces*) have drawn on *schema theory* (Schank and Abelson, 1977), adapted for literary purposes as a schema poetics (Cockcroft, 2002; Cook, 1994). Schema analyses of literary reading capture the difficult fact that readers bring different sets of knowledge to the same text to produce a spectrum of readings. Steen (2003), for example, shows how an instantiation of the LOVE schema allows readers to understand and engage with a range of love poems and song lyrics.

The key questions for literary reading of how systematically to reconcile text and context, and generic value and readerly subjectivity, have also been addressed within text world theory (Gavins, 2007; Werth, 1999). Briefly, this is a discourse framework that is structured around the notion that states-of-affairs are conceptualized as embedded worlds, with textual triggers initiating a world-switch. Text world theory has been particularly focused from its outset on accounting for the sort of projection and displacement afforded by literary fiction. It is a particularly good way of mapping the relationships between authors and readers, and different versions of characters which are termed 'enactors'. Text world theory has been used successfully to account for literary plot twists as world-repairs, dramatic staging and the poetics of absurdist literature (Cruickshank and Lahey, 2004; Gavins, 2000, 2013; Hidalgo Downing, 2000).

Contextual Frame Theory (CFT) is closely associated with text world theory (Emmott, 1997), and draws on the psychology of episodic attention to build an account of how readers negotiate their way through a literary world. At a corresponding textual level, researchers in cognitive poetics have also found work in Deictic Shift Theory (DST) useful (Duchan, Bruder and Hewitt, 1995). This sets out a cognitive linguistic means of keeping track of particular viewpoints and 'voices' in a text, and has proven to be highly insightful for the analysis of drama (McIntyre, 2006), and complex literary narratives (Stockwell, 2002, 2009a).

Lastly, scholars in recent years have become interested in the striking effects that literary experiences can bring, as a form of literary *resonance* (Stockwell, 2009a, 2009b). Combining cognitive psychological studies in visual field perception and memory with cognitive linguistic instantiations of agency and foregrounding, for example, an attention-resonance model (Stockwell, 2009b), has proven to be potentially a way of accounting for these experiences. Resonance is a matter of the *texture* of the literary reading experience, which aims to integrate text and cognition according to the same principles. Like several of the models sketched above, it aims at an account of subjective experience within the institutional schema of literature. Subjectivity and its personal effects are a central issue for cognitive poetics; in the next section, we consider a case study in which we address the issue directly.

### 3 Subjectivity: A Case Study

At the end of *Cognitive Poetics in Practice* (Gavins and Steen, 2003), a collection of practical analyses, Keith Oatley (2003: 162) focused on three ‘roads under construction’ in the field of cognitive poetics: mimesis, the emotions and the personal, and the uses of literature. Oatley was looking to the future, and certainly, a decade on, these aspects of cognitive poetics have become central to the discipline. The middle aspect here – emotional and subjective effects – has become particularly important. There is in general a feeling that early cognitive poetics has provided a good account of meaningfulness, and is now engaged in a systematic account of personal features such as aesthetics and interpersonal features such as ethics. At the end of this chapter, we present a few of the most recent ideas that attempt to capture such features of literary reading. First, though, we present an exemplary case study that illustrates and applies Oatley’s appeal for a cognitive poetics of emotional engagement.

Oatley (2003: 170) proposed ‘to distinguish between general processes of cognitive construction from the discourse structure, and idiosyncratic processes of each reader’. In this differentiation, he suggests bearing in mind two aspects of reading, which he sees as part of the combined creative reading process, or ‘writingandreading’, in his formulation:

#### *Reading 1*

A *suggestion* structure that depends on the resonances a piece of literature has for each reader personally.

An *association* structure, which affects the suggestion structure, and comprises autobiographical memories, cultural knowledge and personal preoccupations of writer and reader.

#### *Reading 2*

The realization of a story or poem drawing together the two aspects of *Reading 1*: the reader’s own interpretation, that also includes its personal significance.

It will be apparent, from earlier in this chapter, that several frameworks including schema theory and text world theory are involved here. In general, Oatley (1992a) himself approaches the emotions from a perspective which encompasses both literary criticism and cognitive psychological theory, asserting that ‘psychology in cognitive poetics is not solely based on the work of laboratories or on psychometric questionnaires’ but ‘includes the psychology of lives lived by people in relation to each other, to culture, and to circumstances’ (Oatley, 2002: 162).

These founding concepts will be applied to readings of the cult novel, *Naïve. Super*, by Erlend Loe (2005), originally published in 1996 in Norwegian.

### 3.1 Reading 1: Suggestion

Emotions and suggestions are, for the writer and reader, as Oatley (2003: 168) puts it, ‘places of personal significance, not necessarily the same as emotions mentioned in the text’. The *suggestion structure* therefore concerns a reader’s individual literary reading of a text, and idiosyncratic resonances; essentially, the notion of *readerliness* (Stockwell, 2002). Oatley points out (in relation to Steen’s (2003) sketch of a schema for a literary LOVE scenario) that it is important to be aware of both cultural schemas and individual readerly resonance. Schema poetics is thus useful for both suggestion and association structures in the aspect of *Reading 1*.

The cultural schema on which *Naïve. Super* is built is a *Bildungsroman* – a ‘coming-of-age’ novel. This is apparent in the following passage from near the beginning of the novel:

A few weeks have passed.

I am sitting in my brother’s flat.

Once a day I go down to buy some food. And if there is any mail, I open it and fax it to my brother. It is an amazingly long fax number. I feel increasingly sure he is in Africa.

I’ve been looking for the note on which I wrote down his address, but I can’t find it.

Besides this, I hardly do anything at all.

I flip through the newspaper or lie on the couch staring into space.

I have no plans.

I still have the feeling it’s all pretty meaningless.

It’s no inspiring feeling.

I’ve turned the tempo all the way down. To zero.

I am thinking that I need to start from scratch. How does one start from scratch? (Loe, 2005: 8)

This activates the genre-level *Bildungsroman* schema as follows:

SINGLE PROTAGONIST MEETS SITUATION X, CAUSES THEM TO QUESTION ‘MEANING OF LIFE’

EXPERIENCES SOCIAL ISOLATION/ LONELINESS/ LACK OF MEANING/ DEPRESSION

FEELS 'LOST', BEGINS 'QUEST FOR IDENTITY'

EXPERIENCES PIVOTAL MOMENT – THINGS START TO 'MAKE SENSE' AGAIN. (Structure adapted from Steen, 2003)

Schemas are useful for emotional narratives, for they 'are complex conceptual structures consisting of sequences of action concepts, which actions are to be performed in recurrent situations with a particular goal' (Steen, 2003: 68). In addition, Steen's analysis also uses conceptual metaphors, which help explain some of the underlying emotions of a particular schema. In relation to this *Bildungsroman* schema, for example, the LIFE IS A JOURNEY conceptual metaphor is clearly the mega-metaphor, plus other conventional vector metaphors such as HAPPINESS IS UP and SADNESS IS DOWN ('I've turned the tempo all the way down. To zero'), which describe the orientation of emotions attached to the genre-schema.

Readers seem to understand literary emotions through *orientating* themselves around the situation of a reading, and this enacted metaphor has been demonstrated on the principle of embodiment and simulation by Gibbs (2006: 27), who observes that the 'affective space' of texts is vital to an emotive reading. Developing work by Gerrig (1993), Stockwell (2009a: 78–81) noticed that readers tended to frame their own experiences in one of three metaphorical ways:

- Reading as transportation
- Reading as control
- Reading as investment

Each of these conceptual metaphors condition the emotional experience. For illustration, here are the three top-rated reviews of *Naïve. Super* from the online book store *Amazon*:

After having ordered this item off Amazon, I read the blurb and I seriously thought I'd made a wrong decision in ordering it because although I tend to like most books I read, I'm only sixteen and I was in need of something light to read, not something about a struggling twenty-five year old.

After reading the first couple of lines, however, I was hooked on to it and now I am in need of something similar to read.

This is definitely one of the best books I've ever read.

Because it made me re-believe.

In trees, and bikes and in people.

It's simple. Nothing too bad happens. Nothing too exciting.

It's real. (Review 1: 29 Jan. 2007)

I think I enjoyed this while I was reading it, but hindsight keeps on telling me it wasn't that good. It was easy to read and I couldn't help but think of the protagonist as some 'Lindstrom'-looking guy who you just want to give a big hug.

Hipsters no doubt love this book, from its sleek cover design to its nods toward European philosophy. And also, everyone loves making lists don't they? This book has lots of lists in it. And loads of pages towards the end which were just results from a library computer which you don't even have to read! Just imagine, you think you're half way through a book and are thinking you want to start reading something else soon and then you get 20 pages of nothing! Maybe it's this that's nagging my retrospective view of the book and making me feel like I got conned somewhere.

There are people I can think of who I would recommend it to and I'd imagine them enjoying it but at the same time I don't think I'd ever reread it. (Review 2: 5 April 2009)

The narrator of this story is a 20-something, and with the use of simple sentences and his naive/childlike take on the world around him, gains him a certain empathy from the reader that makes this book a joy to read.

The story concerns the narrator and his attempts to figure out 'what it's all about'. It takes in a trip to New York, making new friends, sorting out his love life, a hammer and peg, and trying to understand the theory of relativity.

At times sad, at times laugh out loud funny yet always beautifully written . . . a must read. (Review 3: 25 Dec. 2002)

The first review predominantly shows 'reading as control' because of the individual's interpretation of the generic conceptual metaphors surrounding the term 'struggling': EMOTION IS A FORCE (macro) EMOTION IS AN OPPONENT (micro), and the reference to being 'hooked'. However, the reference to the changed state after reading ('made me re-believe') also creates empathy as a result of investment: in self-improvement, the reader receives a return on the effort-input that was required of the reading process (Stockwell, 2010). This change in reviewer 1's beliefs also ties in with Oatley's (1992b) *reading as transformation* metaphor; for it creates not only a return on emotional investment, but also an alteration of the reader's emotional state. This alteration is textually manifest in the reviewer's use of Loe's simplistic writing style.

For the second reviewer, the recognition of the schema-character brought about *resistance* in the reading, in that there is a disjunction between readerly disposition and literary disposition (Stockwell, 2009a): the text made them view the character negatively, from an almost patronizing stance. The review fully demonstrates the investment model, for the reference to being 'conned' reflects how the reviewer feels that they 'lost' something from their emotional investment; a point compounded through the fact that the use of multimedia is seen to create '20 pages of nothing!', and that the reviewer would not *re-invest* ('I don't think I'd ever re-read it'), or urge others to do the same.

The third reviewer discusses an integral part, I would like to argue, of an individual's association structure: the creation of a 'certain empathy'. The level of investment in this reading, when considered alongside the first review, is comparatively high; demonstrating the significance of empathy in the creation of a depersonalized and personalized reading. It could be argued therefore that the higher level of emotional investment in a reading, the more likely empathy is a product of the process (Stockwell, 2010).

Sympathy and empathy evidently appear under the *reading as an investment* conceptual metaphor; for 'in the investment framework, sympathy is modelled as a distance from the readerly stance [. . .] The feedback loop that produces empathy as a return on investment indicates a shift back, as a result of the mapping, towards a realignment of the readerly stance' (Stockwell, 2010). Both Oatley (2003) and Stockwell (2009a) observe that text world theory (Gavins, 2007; Werth, 1999) is a useful analytical framework for measuring readerly distance from fictional worlds and characters in terms of emotional distance. Distancing and closeness can be tracked through embedded world-switches, internalized viewpoints and the number of deictic markers between reader and character.

Goldie (2000: 178) discusses how empathy is often confused with 'emotional contagion', and how 'empathising with another person is an essentially simulationist approach, and involves *imagining the experience of a narrative* from that other person's point of view'. This change of focalization demonstrates how issues of orientation are integral to the comprehension of emotions, concerning *where* the reader experiences a narrative in respect to the author and character, for issues of distance, proximity and positioning, are integral to understanding emotions: does the reader feel *of*, *for* or *with*? Essentially, then, the more closely the reader becomes displaced to a literary character or literary situation, the more likely they are to feel empathy. Finally, Stockwell (2009a: 78) maintains that, 'where sensation is largely located in individual subjectivity, empathy is a social matter'. In this way, sensation is inherently within the suggestion structure, and empathy within the association.

### 3.2 Reading 1: Association

Where the suggestion structure of a reading is highly personal and subjective, the association structure that readers also bring to a reading is more inter-subjective. For example, the reviewers cited above are bringing their own systems of value, literary genre expectations, and literary critical opinions, and are sharing them with others in the anticipation of some sort of dialogue or response.

If you had read the above reviews before reading the novel, this knowledge would likely have affected your own *association structure* of the reading experience. Oatley's notion of association structure essentially means the discourse structure of reading. In text world theory terms (see above), the associations that readers bring are inputs into the top-level *discourse world*, where readers' memories and experiences and social conventions collide with author's texts to allow a text world to be 'incremented' in the reader's mind (Werth, 1999).

Further, returning to the notion of simulation, the creation of these worlds demonstrates how we can *attenuate* our emotions in the reading process: we can temporarily enter into the imagined world and carry our emotional and intertextual baggage in both directions. For the reviewers of *Naïve. Super*, this is evident:

It was easy to read and I couldn't help but think of the protagonist as some 'Lindstrom'-looking guy who you just want to give a big hug. (Amazon Review 2)

Loe certainly has some of Salinger's lightness of touch, and the often comic voice of his unnamed narrator recalls Holden Caulfield. (Publisher's blurb on Loe, 2005)

The difference in character-schema attachment across the two opinions here demonstrates how schema can be personalized as well as generalized. It seems to us that the strong schema surrounding this character-type creates a strong vector relationship between a reader and the character (who remains unnamed), and he becomes a sort of everyman *bildungsroman* figure. In this way, *Naïve. Super* is a cooperative text (Gavins, 2007: 143): it helps the reader with the process of identification, for they can *choose* the particular schema on which to model the protagonist, proffering a figure with simultaneously both an anonymous and a strong identity with which to identify. This strong prototype-matching therefore creates a book which is 'easy to read', because the reader can identify the character-stereotype with similar characters in their reading history. It is the reader's 'creative response' (Oatley, 1992a) to this construction – to the linguistic cues made by the writer – that orients the reader around the emotions and characters in a text; suggesting reader-*creativity* as they simultaneously have to construct, as well as infer, characters – they must write and read to understand



the narrative. This self-implication of readers in literary characters and worlds has been extensively studied by Kuiken et al. (2004).

Personal resonances are integral to any reading. For one of the authors of this chapter (Chloe Harrison), the bildungsroman experience was strongly evocative of teenage life, and the fact that the book was recommended by a friend brought an extra layer of expectation and personal significance. These aspects cannot be bracketed-off from the reading; they are an integral part of the subjective experience.

### 3.3 Reading 2: Realization

Finally, the second reading aspect that Oatley (2003: 170) identifies is termed the *realization* of a story or poem: 'the reader's own writing of it, using all the resources of the mind' – a reading which draws on the story structure, the discourse structure and the suggestion structure. It might be regarded as a reader's final, 'take-away' interpretation, but it is more than that: it also encompasses the reader's sense of the work's social *and* personal significance. This *writingandreading* process is inherently bi-directional, creative and integrated. Realization, in this sense, is not necessarily a global consequence of what happens after reading the whole text; realizations are happening throughout the text itself. Here is another excerpt from the novel:

Yesterday I made a list of what I have and what I don't have.

This is what I have:

A good bike

A good friend

A bad friend

A brother (in Africa?)

Parents

Grandparents

A large study loan

A BA degree

A camera

A handful of (borrowed) money

An almost new pair of trainers

This is what I don't have:

Plans

Enthusiasm

A girlfriend

The sense that things fit together and that everything will be all right in the end

A winning personality

A watch

Every time I have looked at the list today, I've noticed that I have more than what I don't have. I have 11 things. I lack 6 things. This ought to be a source of optimism.

But having read the list closely it has become clear to me that it is altogether an unbalanced and bad piece of arithmetic.

It won't even out. (Loe, 2005: 8–9)

Clearly, our account of this is likely to be subjective, but we can temper that by deploying some of the analytical frames we have mentioned so far.

Most of the narrative of the novel is sequential in orientation, with a simple style of voice based on simple, minor and declarative sentences: we already have a degree of empathy for the character being portrayed. The list, here, presents us the character's thinking as a *summary scan* (Langacker, 2008) of the narrative. This format mirrors the fact that the protagonist is worried about time – a feature he notes on his next list, wanting to buy an object with the ability to make him 'forget about time'. Lists are not spatiotemporally bound (lexically, at least), and therefore form a sort of time-vacuum.

The list format here is schematically child-like. The choice of items in the list, describes a subjective world experience because the objects he describes are positive and negative world builders which have particular emotional value to him. Here, negatives are created in the list of positives ('things I have'): the list comprises the conceptually negative: 'a large study loan'; the semantically negative: 'a bad friend'; and negation by absence: 'a brother (in Africa)'. In this way, negation itself becomes profiled (Langacker, 2008: 67), conceptually in line with the SADNESS IS DOWN spatial metaphor. Further, the very fact that the protagonist starts to play with the numbers by using 'unbalanced arithmetic' that 'won't even out' shows a misapplication of knowledge frames – an impossible conjunction of LOGIC and EMOTION. In the context of the novel, these early passages establish readerly empathy for the unnamed character that largely drives the emotional response to the rest of the narrative.

## 4 Recent and Future Advances

The attempt to address subjective and inter-subjective aspects of literary reading represents the main current challenge for cognitive poetics. While the field continues to expand, and also revises its earlier achievements as well, we would like to finish (in Oatley's spirit) by identifying five (related) areas which seem to us good prospects for imminent innovative work.

First, within cognitive poetics recently there has been a particular interest in *multimodal* literature: that is, those texts in which traditional linear narratives are subverted by the incorporation of graphics and images, hyperlinks, or diagrams, or in art installations and objects that incorporate text. Such literary works are of particular interest in cognitive poetics because they highlight many of the key features of traditional texts by disrupting them. Those who analyse such works often need to make very precise and minute distinctions – for example between the 'voice' of the narrating consciousness and the 'voice' of the organizing authorial consciousness, in texts where this distinction is unreliable, experimental or playful. These deictic centres can be tracked within DST by noticing a distinction between textual deictic elements and compositional deictic elements (Stockwell, 2009a) – a distinction that is rarely needed in analysing more traditional literary work.

Gibbons (2012), in particular, has brought a cognitive poetic analysis to multimodal and experimental fiction. For example, she explores the curious effects of second person narratives, where 'you' has a doubly-deictic (Herman, 2004) function in pointing at the imagined fictional addressee as well as the actual addressed reader. Such effects cannot be accounted for by a traditional stylistic account, since they are inherently concerned with the ways that the text interacts and alters the reader's sense of self and of characterization. (See also Page, 2010; and Bell, 2010; Bell et al., 2013).

This exploration of *character* and *characterization* is also a current and developing interest. Characters have been a constant preoccupation for natural readers throughout literary history, but the notion has been dismissed or neglected by critical theory. Since the sense of people in fictional worlds is nevertheless so strong, the phenomenon is of interest to cognitive poetics. Again, this is because the object of a character is neither purely a textual nor purely a psychological matter, but is an interanimated effect of both. We currently do not have a systematic account of the degrees to which fictional characters can evoke sympathy, empathy or revulsion; nor of the fact that characters in fiction appear to be 'portable' – having the capacity apparently to take on a virtual life outside their source texts in the lives of readers; nor even of how as readers we can feel strong emotions and make moral judgements on people whom we know are not real. Culpeper (2001) has drawn on schema theory to address characterization particularly in drama. Vermeule (2010) and Keen (2007) have explored character

and empathy in narrative fiction. Zunshine (2006) has discussed character by drawing on the cognitive psychology of 'Theory of mind' and 'mind-reading', which Stockwell (2009a) has framed more actively as 'mind-modelling'.

The moral and *ethical* senses in which characters, narrators and authors can be positioned have also been an interest within the broad cognitive approach to literature. Phelan (1996, 2005), in particular, has set out a framework for the analysis of ethical positioning. He brings a systematic sense, informed by cognitive science, to this much discussed area of literary theorizing. There is a great deal of work (see Gibbs, 2006) arising from cognitive psychology which shows that there are very close connections between ethical judgements and aesthetic ones (crudely, that ugliness is aligned with immorality and beauty with truth). The way in which these general framing judgements are articulated and manipulated by literary texts is obviously of interest in cognitive poetics ethics.

One of the most promising recent advances has been the deployment of *Cognitive Grammar* (Langacker, 2008) as a means of undertaking a readerly oriented stylistics of texture. This approach to the linguistic style of literary works allows analysts to explore matters of foregrounding, agency, action and reflection, within a grammatical framework that is consistent with general cognitivist principles. Harrison et al. (2013) represents a collection of this work. While textual patterns can be described systematically, the emphasis given in *Cognitive Grammar* to readerly matters of profiling, construal, scanning, attenuation and projection (Langacker, 2008) offers cognitive poetics a uniquely seamless incorporation of readerliness into the communicative process. This work suggests the potential for being able to account for very subtle stylistic effects in literature.

This capacity for *Cognitive Grammar* to explore effects that are delicate, rarefied or difficult to articulate might allow us to explore those experiences of literary reading that are fleeting, transient, almost ineffable, subliminal or subconscious. *Ambient* features of literary works such as the atmosphere of fictional worlds, or the tone of a narration, or the particularly striking resonance of a passage, are all potentially within the grasp of the literary stylistician who adopts a cognitive poetic approach. Stockwell (2013) explores these matters by bringing together the psychologically based theory of lexical priming from corpus linguistics and Langacker's (2008) notion of 'dominion'; Deggan approaches the same phenomena by drawing on Talmy's (2000) concept of 'fictive motion'. Both offer the beginnings of an account of literary and experiential ambience that could not have been available to previous accounts of literary style.

While these emerging threads in cognitive poetics have much promise, almost certainly there will be further, unanticipated developments that will appear over the next few years. When Oatley (2003) set out his vision of the future, it was from a discipline still fresh and new and enthusiastic; a decade later, that sense of innovation and opportunity remains – the sense that, even taking all of the impressive work in cognitive poetics into account, there is more to be done than has yet been achieved.

## References

- Bell, A. (2010). *The Possible Worlds of Hypertext Fiction*. Basingstoke: Palgrave Macmillan.
- Bell, A., Ensslin, A. and Rustad, H. (Eds) (2013). *Analyzing Digital Fiction*. New York: Routledge.
- Cockcroft, R. (2002). *Renaissance Rhetoric: Reconsidered Passion: The Interpretation of Affect in Early Modern Writing*. London: Palgrave.
- Cook, G. (1994). *Discourse and Literature*. Oxford: Oxford University Press.
- Crisp, P. (2008). Between extended metaphor and allegory: Is blending enough? *Language and Literature*, 17(4), 291–308.
- Cruikshank, T. and Lahey, E. (2010). Building the stages of drama: Towards a text world theory account of dramatic play-texts. *Journal of Literary Semantics*, 39(1), 67–91.
- Culpeper, J. (2001). *Language and Characterisation: People in Plays and Other Texts*. Harlow: Longman.
- Dancygier, B. (2011). *The Language of Stories*. Cambridge: Cambridge University Press.
- Deggan, M. (2013). What is literary ‘Atmosphere’? The role of fictive motion in understanding ambience in fiction. In M. Borkent, B. Dancygier and J. Hinnell (Eds), *Language and the Creative Mind: Proceedings of the 11th Conceptual Structure in Discourse and Language Conference*. Chicago: CSLI: University of Chicago Press.
- Duchan, J. F., Bruder, G. A. and Hewitt, L. E. (Eds) (1995). *Deixis in Narrative: A Cognitive Science Perspective*. Hillsdale: Lawrence Erlbaum.
- Emmott, C. (1997). *Narrative Comprehension: A Discourse Perspective*. Oxford: Clarendon Press.
- Fauconnier, G. (1985). *Mental Spaces*. Cambridge: Cambridge University Press.
- (1997). *Mappings in Thought and Language*. Cambridge: Cambridge University Press.
- Fauconnier, G. and Turner, M. (2003). *The Way We Think: Conceptual Blending and the Mind’s Hidden Complexities*. New York: Basic Books.
- Freeman, M. H. (2002). Cognitive mapping in literary analysis. *Style*, 36, 466–83.
- Gavins, J. (2000). Absurd tricks with bicycle frames in the text world of *The Third Policeman*. *Nottingham Linguistic Circular*, 15, 17–33.
- (2007). *Text World Theory*. Edinburgh: Edinburgh University Press.
- (2013). *Reading the Absurd*. Edinburgh: Edinburgh University Press.
- Gavins, J. and Steen, G. (Eds) (2003). *Cognitive Poetics in Practice*. London: Routledge.
- Gerrig, R. J. (1993). *Experiencing Narrative Worlds: On the Psychological Activities of Reading*. New Haven: Yale University Press.
- Gibbons, Al. (2012). *Multimodality, Cognition, and Experimental Literature*. London and New York: Routledge.
- Gibbs, R. W. (2006). *Embodiment and Cognitive Science*. New York: Cambridge University Press.
- Goldie, P. (2000). *The Emotions: A Philosophical Exploration*. Oxford: Oxford University Press.
- Gross, S. (1997). Cognitive readings or the disappearance of literature in the mind. *Poetics Today*, 18(2), 271–97.
- Harrison, C., Nuttall, L., Stockwell, P. and Yuan, W. (Eds) (2013), *Cognitive Grammar in Literature*. New York: Benjamins.
- Herman, D. (2004). *Story Logic: Problems and Possibilities of Narrative*. Lincoln: University of Nebraska Press.
- Hidalgo Downing, L. (2000a). *Negation, Text Worlds and Discourse: The Pragmatics of Fiction*. Stanford: Ablex.
- Keen, S. (2007). *Empathy and the Novel*. New York: Oxford University Press.
- Kövecses, Z. (2002). *Metaphor and Emotion: Language, Culture, and Body in Human Feeling*. Cambridge: Cambridge University Press.

- Kuiken, D., Miall, D. S. and Sikora, S. (2004). Forms of *self-implication* in literary reading. *Poetics Today*, 25(2), 171–203.
- Lakoff, G. (1987). *Women, Fire and Dangerous Things: What Categories Reveal about the Mind*. Chicago: University of Chicago Press.
- Lakoff, G. and Johnson, M. (1980). *Metaphors We Live By*. Chicago: University of Chicago Press.
- (1999). *Philosophy in the Flesh*. Chicago: University of Chicago Press.
- Langacker, R. (2008). *Cognitive Grammar: A Basic Introduction*. New York: Oxford University Press.
- Loe, E. (2005). *Naïve. Super*, trans. T. K. Solberg. London: Canongate.
- McIntyre, D. (2006). *Point of View in Plays*. Amsterdam: John Benjamins.
- Miall, D. (2006). *Literary Reading: Empirical and Theoretical Studies*. New York: Peter Lang.
- Oatley, K. (1992a). *Best-Laid Schemes: The Psychology of Emotions*. New York: Cambridge University Press.
- (1992b). Emotions and the story worlds of fiction. In T. Brock, M. Green and J. Strange (Eds), *Narrative Impact*. Mahwah: Erlbaum, pp. 36–69.
- (2003). Writing and reading: The future of cognitive poetics. In J. Gavins and G. Steen (Eds), *Cognitive Poetics in Practice*. London: Routledge, pp. 161–73.
- Page, R. (Ed.) (2010). *New Perspectives on Narrative and Multimodality*. London: Routledge.
- van Peer, W. (1986). *Stylistics and Psychology: Investigations of Foregrounding*. London: Croom Helm.
- Phelan, J. (1996). *Narrative as Rhetoric: Technique, Audiences, Ethics, and Ideology*. Columbus: Ohio State University Press.
- (2005). *Living to Tell About It: A Rhetoric and Ethics of Character Narration*. Ithaca: Cornell University Press.
- Schank, R. C. and Abelson, R. (1977). *Scripts, Plans, Goals and Understanding*. Hillsdale: Lawrence Erlbaum.
- Steen, G. (2003). ‘Love stories’: Cognitive scenarios in love poetry. In J. Gavins and G. Steen (Eds), *Cognitive Poetics in Practice*. London: Routledge, pp. 67–82.
- Stockwell, P. (1999). The inflexibility of invariance. *Language and Literature*, 8(2), 125–42.
- (2002). *Cognitive Poetics: An Introduction*. London: Routledge.
- (2009a). *Texture: A Cognitive Aesthetics of Reading*. Edinburgh: Edinburgh University Press.
- (2009b). The cognitive poetics of literary resonance. *Language and Cognition*, 1(1), 25–44.
- (2010). The eleventh checksheet of the apocalypse. In D. McIntyre and B. Busse (Eds), *Language and Style*. London: Palgrave, pp. 419–32.
- (2012). The artful science of literary study (original in Chinese, translated by J. Ma). *Journal of Foreign Language and Literature* (Sichuan).
- (2013). Atmosphere and tone. In P. Stockwell and S. Whiteley (Eds), *The Handbook of Stylistics*. Cambridge: Cambridge University Press.
- Talmy, L. (2000). *Towards a Cognitive Semantics. Vol. 1*. Cambridge: MIT Press.
- Tsur, R. (1992). *Toward a Theory of Cognitive Poetics*. Amsterdam: Elsevier.
- Turner, M. (1991). *Reading Minds: The Study of English in the Age of Cognitive Science*. Princeton: Princeton University Press.
- (1996). *The Literary Mind*. New York: Oxford University Press.
- Vermeule, B. (2010). *Why Do We Care About Literary Characters?* Baltimore: Johns Hopkins University Press.
- Werth, P. (1999). *Text Worlds*. Harlow: Longman.
- Zunshine, L. (2006). *Why We Read Fiction: Theory of Mind and the Novel*. Columbus: Ohio State University Press.

# 3.7 Cognitive Linguistics and Ideology

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## Chapter Overview

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### 1 Introduction<sup>1</sup>

This chapter will outline the relatively new direction in Cognitive Linguistics that seeks to study the structure and expression of ideology in language and cognition. As such, it draws on notions introduced throughout the book in discussions of lexical semantics, metaphor and metonymy, conceptual blending and aspects of Cognitive Grammar such as figure-ground organization or profile-base gestalts.

To begin with, it is necessary to briefly delineate the chapter's topic: that is cognitive linguistic endeavours to study ideology, from the ideologies surrounding the discipline of Cognitive Linguistics itself. These come to the fore when proponents of the area seek to demarcate it from other paradigms, for example generative semantics (Huck et al., 1995), chart the discipline's history, or argue for a particular direction that it should take, for example explore the neurological aspects of cognition (Peeters, 2001). While such discussions help to advance Cognitive Linguistics as a research paradigm, this chapter will rather review definitions of the contents, structure, genesis and functions of ideology

as they have been advanced in cognitive approaches to language.<sup>2</sup> In addition, I will outline how theoretical frameworks developed within Cognitive Linguistics have been harnessed to account for the phenomenon of ideology. While work has been done on how ideology can be traced in the various systems of language, such as the ways sexism is reflected in grammar (Nesset, 2001), the cognitive linguistic focus on the use and function of language entails an emphasis on the ideological work done in language use as a social practice, for example by (re-)producing group schemata through social actor representation. A cognitive linguistic approach complements systemic-functional linguistic accounts in that it allows for inferences to be drawn about the conceptual structure of ideology. Section 2 will outline work in Cognitive Sociolinguistics, critical metaphor analysis and cognitive critical discourse studies beyond metaphor. This will be followed by sketching my own framework for identifying ideology in discourse and exemplifying this with an extract from a radio interview.

First, however, I will compare and contrast various definitions of ideology as they can be found in cognitive approaches to language.

## **2 Ideology: Contents and Structure, Genesis and Functions**

Speaking from the vantage point of social psychology, Moscovici states that its 'main task . . . is to study . . . representations, their properties, their origins and impact' (1984/2001: 27). If we see ideologies as networks of social, or sociocognitive, representations, then we can make the case that cognitive linguistic investigations into ideology should address its contents and structure as well as its genesis and functions. Indeed, although definitions of ideology in Cognitive Linguistics, and other neighbouring disciplines, are diverse, they typically cover all of these four aspects, even if models of the structure of ideology are relatively underdeveloped.

### **2.1 Contents of Ideology**

As for what ideology encompasses, many authors agree that it is an accumulation of conceptual entities, although they differ on what these components are and how they could be defined. At the most basic level, we find a view of ideology as 'a system of ideas' (Hawkins, 2001: 8) or 'a large number' of ideas and beliefs (Moscovici, 1998/2001: 132). For van Dijk, one of the most prolific advocates of cognitive critical discourse studies, ideologies are 'clusters of beliefs in our minds' (1998: 26), and he specifies that such beliefs are general, that is abstract and context-independent, as well as socially shared (1998: 32, 46). He further defines beliefs in very general terms as '[a]nything that can be thought'



(1998: 18) and sub-divides the notion into 'the products of judgements based on values or norms', that is opinions, on the one hand, and knowledge, that is those beliefs "'we" . . . take to be "true beliefs" according to certain . . . socially, culturally and historically variable [criteria]', on the other (1998: 19). According to van Dijk, sociocultural knowledge is shared by members of a community, while ideologies are shared and defended by particular groups within that community, for example feminists or racists. (Obviously, individuals can belong to more than one group.) It follows that ideologies are ultimately based on socio-cultural knowledge. They also control the 'domain-specific social opinions of a group, namely, attitudes' (1998: 33); for example a socialist ideology would control attitudes on taxation (see van Dijk, 2012 for a detailed account). This sociocognitive definition of ideology should be seen in contrast to the (neo-) Marxist notion of false consciousness.

While there is some consensus that ideologies also include 'moral conceptual systems' (Lakoff in Pires de Oliveira, 2001: 34) and are informed by 'the culturally shared moral order' (van Dijk, 1998: 40), views differ as to whether emotions also form part of ideologies. On the one hand we find the view that the socially situated nature of ideology means that it involves 'affect and stance' (Verschuieren, 2012: 9), but others (van Dijk, 1998: 62) argue that

since emotions . . . are strictly personal and contextual, they cannot be part of socially shared, abstract group attitudes. They may, however, become triggered and mingled with the actual uses of attitudes in concrete situations by individual members . . . Socially shared, continuous 'affect' . . . is not . . . an emotion, but a form of strong evaluation (which may of course be expressed in the language of emotions).

Finally, some social psychologists (e.g. Augoustinos et al., 2006: 272) also include social practices among the components of ideology. However, if we accept that ideologies are expressed in language use and moreover see the latter as a social practice, it seems helpful to distinguish between ideologies and the means of communicating them.

This sub-section has elaborated on the constituent elements of ideology, but we have not yet seen how the 'clusters', 'systems' and 'sets' of specific beliefs that make up ideology actually relate to each other and what they are about. That is, we have yet to learn about the structure and functions of ideologies.

## 2.2 Structures of Ideology

In terms of structure, van Dijk (1998: 67) identifies 'problem/solution, conflict and group polarization' as making up the format of ideologies. Other authors

have focused mostly on the latter aspect, that is the 'antonymy *US VS. THEM*, which is obviously part and parcel of ideological categorization' (Dirven et al., 2003: 8). This dichotomy usually – but not always – takes the form of positively representing the in-group while casting the out-group in a negative light. It should be noted that the notion of antonymy specifies the *IDEOLOGY IS STRUCTURE* metaphor in that it conceptualizes the structure as being made up of two opposite parts. Other specifications model ideology as a centre-periphery or, alternatively, a network structure. Thus, Moscovici advances a model of social representations – here seen as constituting ideology – as 'similar to theories which order around a theme' and 'whose kernel consists of beliefs' (1998/2001: 152 and 136). The *IDEOLOGY IS NETWORK* metaphor has proved popular with a number of scholars; for example, van Dijk conceives of ideology as 'beliefs [that] are represented . . . in terms of relations between nodes in a mental network' (1998: 20). It is particularly the dynamic and flexible formation of mental models that these authors have found useful for a sociocognitive account of ideology. For example, Moscovici contrasts the static centre-periphery model of social representations as theories grouped around a topic with a dynamic view of them 'as a "network" of ideas . . . more or less loosely tied together, and therefore more mobile and fluid' (1998/2001: 153). For him, the static or dynamic nature of representations – which we can theorize to make up ideologies – depends on whether they are constituted by beliefs or knowledge, where beliefs 'are generally more homogeneous, affective, impermeable to experience and contradictions' while knowledge is 'more fluid' (1998/2001: 136). It is important, however, to be clear about what exactly is posited as being flexible and dynamic: For Moscovici it is social representations that are constituted by knowledge, while van Dijk equally sees the components and also the expressions of ideology as 'variable, strategic and context-sensitive' (1998: 56), but posits that ideology as such is comparatively stable at the group level, 'a context-free resource for many group members in many situations' (1998: 55). However, this is not to say that ideologies are monolithic or that all large social formations are organized by a hegemonic ideology; indeed, both ideas would be counter-intuitive in the age of postmodernism (Augoustinos et al., 2006: 288).

Drawing on network models for the constituent elements of ideology also leads to views on how these elements, and the ideologies they make up, come about in the first place and how they change and develop.

### 2.3 Genesis of Ideology

A representation, for example of a social group, can come into being through 'flexible generalizations', that is through the mind 'generat[ing] a typical set of

properties' for the group, even if no individual member of the group in question actually instantiates all of those properties (Gee, 1992: 41). Such generalization results in radial categories with prototypes at their centre. The dynamic nature of representations thus understood also means that they 'emerge at the moment they are needed from the interaction of the units in the network all working in concert' (Gee, 1992: 43), an idea that is reminiscent of blending theory and its notion of mental spaces as 'small conceptual packets constructed as we think and talk, for purposes of local understanding and action' (Fauconnier et al., 1998: 137). By contrast, the larger structures that are ideologies 'do not vary from one moment to the next, and are not strategically adapted to individual recipients' (van Dijk, 1998: 55), although speakers will be governed by a context model in adapting their ideologically informed language use to the communicative situation (van Dijk, 2008). According to this view, not only would overly flexible ideologies defeat their purpose of acting as sociocognitive resources to group members across contexts, but their proposed genesis also makes it unlikely that they change easily.

Following Moscovici (1984/2001: 42, 44), anchoring and abstracting are two of the main processes by which social representations are formed. While anchoring involves comparing an event, person or idea to a category and 'readjust[ing it] to fit within it', abstracting means 'select[ing] a feature at random and us[ing] it as a category'.<sup>3</sup> In cognitive terms, the latter conceptualization is metonymic, in that an instance of the category comes to stand in for the category itself. As van Dijk (1998: 84) elaborates, 'this process consists in the change from constants into variables . . . that represent the beliefs in the . . . social representations', where variables can, in frame-semantic terms, be redefined as slots. From a discourse analytical viewpoint it is finally important to note that the experiences that impact on representations, and thus on ideology, are not restricted to actual events or encounters with, for example, a member of a social group, but that receiving text and talk on events and encounters also qualifies as experience. While representations change with new experiences, the ideologies they constitute are rather more stable. However, they can change as a result of changing social factors, such as macro-level interests and circumstances of a given group or even society as well as persistent everyday experiences of group members at the micro-level (van Dijk, 1998: 95). In cognitive and discursive terms, 'interaction between different frames of interpretation' can also lead to change in ideologies, as can 'occasional explicit questioning' (Verschuere, 2012: 12) and more implicit but 'persuasive ideological discourse' (van Dijk, 1998: 95). Detailed text and social context analysis is therefore essential, but cognitive linguistic interpretations of the results are needed for a rich account of the reciprocal relation between discourse and cognition. Cognitive linguists have developed a number of models – such as scenarios, schemas and conceptual metaphor – that can enrich critical approaches to discourse.

## 2.4 Functions of Ideology

This section started by looking at the elements of ideologies as identified in previous literature, but has not yet addressed the function of ideologies. Dirven et al. (2003: 1–2) offer a rather general answer when saying that ideologies are based on cognitive models of ‘recurrent phenomena and their interpretations in culture and society’. A more specific indication of the functions of ideologies is provided by Gee (1992: 111), who sees ideologies as addressing ‘the social and political (power) relationships between people and the distribution of social goods (at the very least about who is an insider and who isn’t)’. There is broad agreement that ideologies serve to organize social relations, often in discriminatory ways. As such, ideologies are seen to ‘rationalize, legitimate, maintain and (re)produce particular . . . power relations within a society’ (Augoustinos et al., 2006: 272) but also to ‘oppose power and dominance’ (van Dijk, 1998: 5). In any case, they are intended to ‘advantage one’s self and one’s groups at the expense of . . . the interests of others’ (Gee, 1992: 37). Ideologies meet this function through their epistemic, deontic and evaluative content,<sup>4</sup> that is by ‘social beliefs about what is the case, good or bad, right or wrong’ (van Dijk, 1998: 8; see also Lakoff in Pires de Oliveira, 2001: 34). More generally, ideologies fulfil the essential cognitive function of ‘enabl[ing] things or persons to be classified, their characters [to be] described, their feelings and actions to be explained’ (Moscovici, 1998/2001: 152), in short, making sense of experience. This is achieved through conventionalization, which is in turn an effect of generalization as the main process by which representations are brought about: If generalization means that ‘persons and events we encounter [are] locate[d] . . . in a given category and gradually establish[ed] . . . as a model of a certain type’ (Moscovici, 1984/2001: 22), we can subscribe to the view that ‘the purpose of all representations is to make something unfamiliar . . . familiar [so that] objects, individuals and events are perceived and understood in relation to previous encounters or paradigms’ (Moscovici, 1984/2001: 37).<sup>5</sup> The effect of such conventionalization is to ‘make the efforts of individuals converge and to unite them through beliefs’ (Moscovici, 1998/2001: 124–5) such that ‘ideologies . . . control . . . the opinions or attitudes of the group’ (van Dijk, 1998: 40). This again makes ideologies relatively stable, although their social function is not only to reproduce but also to resist the status quo.

Drawing on the literature reviewed above, we can advance a notion of ideology as a (metaphorical) network of beliefs that gives rise to expectations, norms and values about events, ideas and people. When we<sup>6</sup> take part in events, encounter people and hear ideas expressed, we compare those experiences against our ideologically informed expectations, norms and values, and thereby evaluate and categorize experiences. While this process is cognitive, it also has emotional effects: for instance, categorizing an individual as member

of a social group, whether done consciously or unconsciously, may raise feelings of like or dislike for that person. Importantly, ideologies organize social life both by giving sense to encounters between people and, crucially, by being shared among people and thus constituting coherent, if not totally homogeneous, groups. Ideology is therefore 'a fully integrated sociocultural-cognitive phenomenon' (Verschueren, 2012: 8). In the next section, I will highlight some work that has acknowledged ideology as both social and cognitive in nature and traced it in language and discourse.

### **3 Cognitive Linguistic Research into Ideology**

In an interview carried out by Pires de Oliveira, Lakoff expresses the intrinsic links between cognition, language as a system and society when he states that

we use our conceptual systems to function socially and to comprehend social life. Since language reflects our conceptual systems, it will reflect the social aspects of our conceptual systems. Thus, seeing language from a cognitive perspective entails seeing language from a social perspective. (Pires de Oliveira, 2001: 37)

This three-way link is increasingly being acknowledged in various areas of linguistics, with scholars seeking to reconcile social and cognitive approaches to language in conversation analysis (te Molder and Potter, 2005), pragmatics (Schmid, 2012; Verschueren, 2012), critical discourse studies (Hart, 2011a) and sociolinguistics (Geeraerts et al., 2010). Implicitly or explicitly, such integrated approaches locate ideology at the interface between mind, discourse – understood as language in use as a social practice – and society.

One area in which cognitive linguists are seeking, via language, to uncover ideology at the conceptual level, is the emerging field of Cognitive Sociolinguistics (Croft, 2009; Geeraerts et al., 2010; Kristiansen et al., 2008; Pishwa, 2009; see also Geeraerts and Kristiansen, this volume, and Hollmann, 2012 for an overview). In its applied form, Cognitive Sociolinguistic work addresses both the cognitive underpinnings of semantic, lexical, morphosyntactic and phonological variation across and within languages ('lectal variation') as well as attitudes towards such variations and mental representations of language (varieties) and, by extension, their speakers. Researchers in this paradigm have utilized the notions of stereotypes and prototypes, figure-ground gestalts, frequency effects, schemas, frames with their slots-and-fillers structure, and metaphor.

Critical metaphor analysis (Charteris-Black, 2004) is perhaps the most obvious application of Cognitive Linguistics to ideology research, and certainly a very prolific one. This research paradigm combines conceptual metaphor

theory with critical discourse analysis, and sometimes rhetoric, to investigate the ideological role of metaphor in the construction of social reality and, related to this, the inculcation of specific mental models that serve the interests of specific, usually dominant, social groups. Critical metaphor analysts see metaphoric expressions as an entry point into studying the sociocognitive, including ideological, aspects of discourse. Due to the ubiquitous nature of conceptual metaphors, the metaphoric expressions that derive from them account for much of the cognitive construction of social relations and thus serve a crucial ideological function. What is more, the fact that discourse producers highlight and hide particular semantic features through metaphor (Lakoff and Johnson, 1980: 156) makes it possible to trace ideologically vested choices in the generation and usage of complex metaphors. Metaphor thus not only proves to be a window on the cognitive structure underlying discourse, but as it is realized in surface-level metaphoric expressions, it also links discourse and its manifestation in text. It follows that any discourse is cognitively structured by the metaphors prevailing in the respective discourse domain while at the micro-level, texts are structured by the metaphoric expressions deriving from those prevailing metaphors. As such, metaphoric expressions may help to reify cognitive models governing discourse, and underlying metaphors may partly determine the surface structure of text, while texts will reify and conventionalize particular conceptual metaphors. This notion of the metaphor as an interface between discourse and cognition, and as a carrier of ideology, has been applied in studies on business magazines (Koller, 2004), immigration discourse (Hart, 2008), economics (Goatly, 2007: 335–83) and debates about Europe (Musolff, 2008), to give only a few examples.

While critical metaphor analysis is certainly a fruitful way to study ideology from a cognitive linguistics perspective, it is by no means the only one. As Dirven et al. (2003: 4) observe, ‘cognitive linguistics has much more to contribute to the study of ideology than its know-how on metaphor’. Rather, the authors see the scope of Cognitive Linguistics as identifying the structures of concepts and how they come into being (although such structures can of course take the special form of metaphoric structures). In particular, they claim, Cognitive Linguistics should, next to this ‘inward orientation’ towards language-as-system, also look outward and ‘serve as a tool for the . . . critical analysis of social structures and processes’ (Wolf and Polzenhagen, 2003: 248), that is investigate language-in-use as a social practice. The political implications of such research are stressed by Lakoff in the above-mentioned interview, when he holds that Cognitive Linguistics ‘provides a methodology for understanding the conceptual basis of harmful social and political policies and allows us to articulate better the moral basis of more helpful . . . policies’ (Pires de Oliveira, 2001: 43–4).

The latter objective is of course a cornerstone of critical discourse studies, and a number of researchers have advocated an integrated critical, cognitive

approach to discourse (e.g. Chilton, 2005; Koller, 2012; O'Halloran, 2003; van Dijk, 2009). While metaphor remains an important analytical parameter at the interface between language/discourse and cognition, other concepts from Cognitive Linguistics, such as non-metaphoric blends and figure-ground *gestalts*, have also been borrowed. The latter has also been used to model the relation between discourse and ideology itself, in that 'the figure/ground *gestalt* enables discourse to be interpreted in relation to the background ideological context in which it occurs' (Grundy and Jiang, 2001: 107). More broadly, Hart (2011b, forthcoming) has developed a taxonomy that integrates discourse strategies such as identification/framing and positioning on the one hand with basic cognitive processes like focusing, comparing and perspectivizing on the other. In his model, cognitive processes are linked to discursive strategies through construal operations in that, for example, profiling/backgrounding as expressed in patterns of grammatical agency serves identification, while deixis links perspective to positioning. These operations serve obvious ideological functions in that they aid in the categorization and evaluation of social groups.

The emerging nature of work that seeks to combine Cognitive Linguistics with other approaches to language and discourse, notably sociolinguistics and critical discourse studies, means that there is still considerable uncharted territory. In the last section of this chapter, I will make a foray into that territory by proposing a framework for identifying ideology in discourse and illustrating it with examples from a specific text.

## **4 Identifying Ideology in Discourse**

### **4.1 Parameters of Analysis**

If we assume that discourse is a central means of circulating ideologies in society, we should take Moscovici's (1998/2001: 133) advice 'to search for [social] representations through the most trivial aspects of language . . . in order to discover their efficacy and their meaning'. To this end, I propose to distinguish between discourse goals, discourse strategies and linguistic features. A discourse goal is the overall aim that the discourse producer pursues by using language as a social practice, for example out-group derogation or self-enhancement. Such discourse goals are clearly informed by the beliefs and the expectations, norms and values that they entail, that is by ideologies. The notion of the ideological square (van Dijk, 1998: 267) holds that speakers express or emphasize information that is positive about themselves or the in-group and negative about others, for example through overlexicalization or, in conversational genres, strategic

turn allocation, while suppressing or de-emphasizing information that is positive about others and negative about the self or in-group, for example through generic rather than specific reference to social actors. This widely observed discourse goal of in-group favouritism and/or out-group derogation<sup>7</sup> ties in with construals of fore- and backgrounding, which convey implicit meanings, for example through cleft constructions or scalar notions that establish 'conceptual hierarchies' (Hawkins, 2001: 18; see also Verschueren, 2012).

In a top-down model, discourse strategies are the means, as effects of language use, by which discourse goals are realized.<sup>8</sup> If we see ideology as comprising categories of membership, activities, goals, values/norms, position and group-relations (van Dijk, 1998: 69–70) some strategies suggest themselves for analysis:

- modality, both in its epistemic and deontic forms, which serves ideology in that it 'balances description and prescription [and] involves theories of how things are in combination with theories of how things should be' (Verschueren, 2012: 8); that is, modality expresses values and norms as well as the objectives they give rise to;
- tense and aspect, which can work in concert with modality to represent objectives;
- evaluation, to express values again, to convey attitudes and opinions, that is evaluative beliefs about what the speaker (dis)likes and/or considers good or bad for him/herself and the in-group (van Dijk, 1998: 34); also to assign features to groups and individuals;
- social actors (see van Leeuwen, 1996, and 2008: 23–54), to represent group membership categories as well as inter- and intra-group relations;
- processes, which represent social actors in particular types of activity, and as either actors or recipients/beneficiaries of the activity of others; they therefore contribute to characterization and categorization.

Of further importance are evidentiality, which displays sources of knowledge, and deixis, to identify 'indexical ground or deictic anchoring point of the speaker' (Grundy and Jiang, 2001: 114, drawing on Hanks, 1992); this operation also (metaphorically) positions the self or in-group in relation to others again. Obviously, person deixis overlaps with social actor representation, as indeed do processes and evaluation. Finally, linguistic features are the concrete forms that discourse strategies take, for example attributes to convey evaluation. In a tripartite model of discourse and cognition (Koller, 2012: 23–7; see also Fairclough, 2010: 133), discourse goals, and the strategies and features that they entail at the micro-level, can be explained in terms of ideologies at the social macro-level.



Various researchers have made the point that ideology cannot be 'read off' a text in a straightforward fashion but is mediated by both discourse structures and (social) cognition. In addition, Verschueren (2012: 23) cautions that

[b]efore an aspect of meaning can be seen as an ingredient of ideology, it should emerge coherently from the data, both in terms of conceptual connectedness with other aspects of meaning and in terms of patterns of recurrence or of absence.

A similar point about coherence and cumulative evidence is made by Wolf and Polzenhagen (2003: 251), who state that 'the textual expression of ideology need [sic] to appear in distribution that is, in systematic linguistic relationships, to be indicative of a particular . . . ideological position'. Keeping these caveats in mind, this chapter will close with a summative analysis of a radio interview on the role of the police force in the United Kingdom, to illustrate how notions taken from Cognitive Linguistics and social cognition can aid the study of ideology in language use.<sup>9</sup>

## 4.2 Illustration

The text chosen to briefly illustrate the above is the closing part of an interview on BBC Radio 4's flagship news programme *Today*, broadcast on 3 May 2007 at 7.30 a.m. The interview was conducted by John Humphrys (JH), a senior presenter, with detective chief superintendent David Tucker (DT), of the National Association of Chief Police Officers, about the investigation into the murder of Paul Kelly, who was stabbed to death outside a pub in Bath on New Year's Day that year. A transcript can be found in the appendix. In the following, I will combine cognitive linguistic notions such as backgrounding and foregrounding, framing, blending and metaphor with discourse analytical tools like modality, social actor representation and interdiscursivity to provide an integrated account of how the text represents an example of ideological contest.

The police representative, DT, starts out (lines 1–8) with the discourse goal of informing the public, as represented by the programme's listeners, about what the police are doing to address the problem of unreported crime and encourage witnesses to contact the police. In doing so, he cites the programme itself as evidence in order to invoke knowledge shared by himself and the audience. He thus establishes a relationship with the audience, as he does through the use of the inclusive 'we' (lines 1, 2 and 4). However, the discourse goal of informing the public gets reframed by the interviewer's intervention and his subsequent metalinguistic comment (lines 7–11). For the next few turns, DT defends himself against JH's repeated criticism and in the process shifts his discourse goal

to redefining the relation between the police and the public (lines 12–13, 17–18 and 23–26), while still seeking to pursue his original goal of informing listeners about police initiatives (lines 26–34). He employs several strategies that meet both these goals, notably deontic modality, metaphor and social actor representation for redefining, and metaphor as well as tense and aspect for informing. Thus, the interviewee's insistence that '*we need to build* those sorts of relationships with . . . *all of the people of the UK*' (lines 12–13) redefines the police's relationship with the public, while '*what we're trying to do is deliver that*' (lines 26–27) informs listeners about ongoing efforts. The interviewer on the other hand seeks to resist a redefinition of the relationship between police and public, using the main discourse strategies of deontic modality and negation, the latter in connection with social actor representation. For example, he states explicitly that '*we're not customers of the police . . . we should all be working together as a community*' (lines 14–15). At the same time, he tries to save DT's face by employing negative politeness as realized in apologies (line 9), tag questions (lines 10 and 14) and mitigating adverbs (line 21). However, given the force of his resistance, this may be no more than a token gesture. Both speakers also use interruptions to background their interlocutor's beliefs and foreground their own, with the interviewer also using paralinguistic cues, interjection and pitch to that end.

The deontic modality employed by both speakers reflects their values and goals, which are in turn informed by their mental representation of the police as either a service provider (DT) or a judiciary institution (JH). Both are adamant in their position, claiming that '*we need to build those sorts of relationships*' (line 12; see also lines 17–18), that is ones like those between customers and service-providers, and countering that '*we should all be working together as a community*' (line 15), respectively. Social actor representation is remarkably complex in this short data extract and perhaps best captured in the form of a diagram (Figure 3.7.1, in which solid lines indicate explicit mentions and broken lines implicit links).

Picking out only two aspects of this representation, we can first note the three levels of 'we' that are graded for exclusivity/inclusivity. More importantly, the most inclusive level, while mentioned by both speakers, is referred to by DT as '*all of the people of the UK*' (lines 12–13), while JH uses the more abstract terms '*community*' and '*society*' (lines 15 and 21), which can typically be found in political discourse. By contrast, DT recontextualizes lexis that is typical of corporate discourse – which leads to the disagreement between the speakers in the first place –, such as '*customer focus*'/'*customers*', '*service*', '*consume*' (lines 6, 18 and 24) and, more indirectly, '*choosing*' (line 24). Another discourse drawn upon by DT is that of emotion and relationships, realized in the words '*relationship(s)*' (lines 12 and 17), '*confident*' (line 26) and '*trust*' (line 32). We are here dealing with a case of multiple interdiscursivity (Koller, 2010) in that

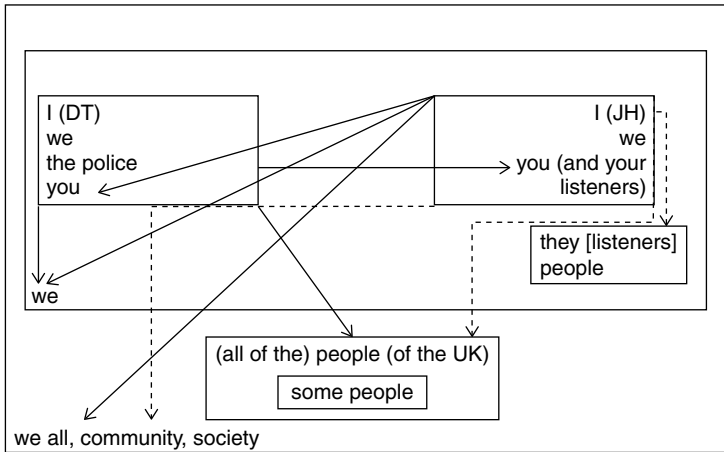


Figure 3.7.1 Social actor representation in the interview

corporate discourse is integrated into news discourse via a third discourse, that is that on relationships, which has become characteristic of corporate discourse. The lexis from corporate discourse is taken up by JH in his social actor representation, but coupled with negation to refute the redefinition of the police-public relationship that DT attempts. Thus, we find JH stating that ‘we’re not customers of the police . . . you’re not selling us a service . . . we’re not your customers and you’re not our suppliers . . . we have no choice’ (lines 14–16 and 19).

This stark contrast between the first and the second person plural brings us to the second aspect of the speakers’ social actor representation, namely the fact that JH identifies with some of the groups he mentions whereas DT largely represents his in-group as acting on others. The interviewer constructs himself as representative of the inclusive ‘we’ when repeating a deontic proposition while changing the social actor, in ‘I have to have the policy it’s essential for the wellbeing of society’ (lines 20–21).<sup>10</sup> He also relates to the programme’s listeners when ascribing his own reaction to the interviewee’s use of business terminology to the audience: ‘I could hear people wincing when you said customer focus there’ (lines 9–10); this example constitutes a conceptual blend in that the speaker projects himself into a hypothetical space in which he is physically, or at least aurally, co-present with the audience, thus making him closer to listeners than he actually is while at the same time seeking to gain credibility from their ascribed reaction. By contrast, DT only uses the initial instance of evidentiality and person deixis to draw on shared knowledge with the audience, as discussed above. Otherwise, he enacts the corporate ‘we’ and represents it as impacting on others, realized most obviously in the transitive process ‘we are delivering you a service’ (lines 17–18).

The word 'deliver' is repeated by DT later (line 27), again with an abstract direct object, that is the anaphoric 'that' referring back to 'trying to make people confident'. We therefore have a metaphoric expression that is once more reminiscent of corporate discourse,<sup>11</sup> as indeed are some other instantiations of the JOURNEY metaphor in DT's turns, that is 'to bring forward' and 'the way forward' (lines 6 and 34). This metaphor combines with continuous aspect when the speaker pursues his discourse goal of informing listeners about how the police address the issue of lacking support from the public: 'what we're trying to do is . . . to bring forward customer focus', 'we are delivering you a service', 'what we're trying to do is deliver that' (lines 5–6, 17–18, 26–27). Together, the two features convey a sense of a dynamic organization and thus lend persuasive overtones to the information.

The above analysis throws a spotlight on an ideological conflict that erupts over an instance of language use. What is at stake are two belief systems about what the police is or should be, and, underlying that, beliefs about the appropriate place of corporate norms in contemporary society. In their encounter, both participants speak as representatives of a social group or institution and see their ideologically informed expectations about each other confounded: That the police officer appropriates features of corporate discourse leads to a strongly evaluative, even emotional reaction, by the interviewer, while for his part, said officer reacts with confusion and surprise to see his views contested (evidenced implicitly in the false start in line 12 and explicitly in lines 33–34). Ideology organizes this instance of social life by giving sense to the encounter as a clash between proponents of two incompatible belief systems.

## **5 Conclusion**

In this chapter, I have outlined how notions from Cognitive Linguistics and social cognition can be drawn upon to analyse ideology in language use. In the process, I arrived at a definition of ideology as a network of beliefs that leads to expectations, norms and values, can entail emotional effects and is a crucial means of organizing social life. After briefly reviewing the recent, if not nascent, areas of Cognitive Sociolinguistics and critical metaphor analysis, I identified the study of ideology as the central question of cognitive critical discourse studies. I then proposed a top-down model of analysis that operates with the notions of discourse goals, discourse strategies and linguistic features to describe naturally occurring language use, and elaborated how discourse strategies including modality, social actor representation, and tense and aspect, plus parameters from Cognitive Linguistics, such as blending and conceptual metaphor, help to uncover the expression of ideology. The sample analysis of an ideological struggle between two interlocutors in a radio interview showed

that ideology cannot be read off texts, but comes in at the interpretation stage of analysis, when findings are linked to the wider sociocognitive context of the text. Overall, I hope to have made the case that cognitive and social approaches need to be combined if we are to analyse the expressions and workings of ideology in language.

## Appendix

DT: This morning I was listening to your programme and we were hearing that 70 per cent of violent crime goes unreported we know that the British Crime Survey

JH: hm

DT: shows us that there is more crime than figures in police statistics. so we know that but what we're trying to do is to use ehm local policing through the neighbourhood policing initiative to bring forward customer focus to try and get

JH: [sharp intake of breath] ooh

DT: more information in to understand crime issues

JH: You'll forgive me for saying so but I could hear people wincing when you said customer focus there. It's an odd sort of language to use in this context isn't it that's the language of commerce trying to flog people things

DT: I think it's- we need to build those sorts of relationships with ehm with all of the people of the UK-

JH: [raisedvoice] But we're not customers of the police are we . you're not selling us a service we should all be working together as a community you're- we're not your customers and you're not our . suppliers

DT: But I think that we need to have a relationship that is built upon the idea that we are delivering you a service and you consume that service

JH: Yea but we have no choice you see . if I'm a customer of various organisations and I buy their product or not as I choose . I have to have the police it's essential for the wellbeing of society . it's a great misnomer surely to talk about you as supplying us with a service and us being your customers we've no choice

DT: but but I think the whole thrust of this conversation is that some people are choosing not to be our customers and I think that that's a major problem . you may not like the terminology and- but that's what it's about . it's trying to make people confident to come forward and what

we're trying to do is deliver that by creating very good relationships at local level through neighbourhood policing and then at a more national level we have an initiative to make the skills of our officers available to support local investigations where officers have particular skills around faith language and culture we try and make those skills available to all of our colleagues . and this is trying to make us more responsive so that we are trying to get this idea of service so that people will trust us more and come forward with information . and I would have thought that you and your listeners would be very interested and would agree with that as a way forward

JH: We'll see what they have to say about it (1) Detective chief superintendent David Tucker . many thanks for joining us

### Key

- . short pause of less than one second
- (x) longer pause, number of seconds in brackets
- (self-)interruption

### Notes

1. I would like to thank the editors of this volume, especially Jeannette Littlemore, as well as Willem Hollmann and Teun van Dijk, for their helpful comments on an earlier version of this chapter.
2. As Hart (2011b: 172) notes, Cognitive Linguistics should not be mistaken for 'any cognitively-oriented language study'. If the review of models of ideology that I present in Section 2 rests mostly on such cognitively oriented work in discourse analysis and social psychology, it is because ideology, despite being 'a vast research field outside linguistics' (Dirven et al., 2007: 1222), has yet to be extensively theorized in Cognitive Linguistics.
3. Note that, by contrast, cognitive approaches to grammar and semantics see abstraction as setting up a schema that abstracts away from the distinctive properties of its members (Langacker, 2009).
4. Deontic and evaluative content are linked in that only positively evaluated states and groups are represented as those that should be aspired to or supported, respectively.
5. Familiarization is also one of the main functions of conceptual metaphor, as it reconceptualizes an abstract entity in terms of concrete one that is typically encountered earlier in life.
6. My use of the inclusive 'we' reflects my belief (*sic!*) that ideology is omnipresent.
7. It should be noted, however, that the us versus them distinction is less often realized in discourse and text than much of cognitive critical work would suggest. Thus, I have shown elsewhere (Koller, 2008) that negative out-group representation can occur without positive in-group representation, and that, vice versa, positive representation of the in-group need not be linked to denigrating an out-group.
8. Note that my definition here overlaps with, but is not convergent with, Reisigl and Wodak's (2009) notion of discursive strategies.

9. For larger-scale studies, Verschuere advocates triangulation, noting that data should vary ‘horizontally’, that is represent various genres, as well as ‘vertically’, that is be subject to various levels of semiotic and content analysis (2012: 26). If corpus analytical tools are used, ‘[w]hatever is found throughout a wide corpus should also be recoverable in . . . individual instances of discourse’ (Verschuere, 2012: 28).
10. Incidentally, ‘wellbeing’ is another borrowing from political discourse, realizing as it does the BODY POLITIC metaphor (Musolff, 2009).
11. In the British context, ‘deliver’ is strongly associated with New Labour’s public sector policies (Fairclough, 2000: 17–18), which even became known as ‘deliverology’ (ascribed to Nicholas Macpherson, senior civil servant at the Treasury).

## References

- Augoustinos, M., Walker, I. and Donaghue, N. (2006). *Social Cognition: An Integrated Introduction* (2nd ed.). London: Sage.
- Charteris-Black, J. (2004). *Corpus Approaches to Critical Metaphor Analysis*. Basingstoke: Palgrave Macmillan.
- Chilton, P. (2005). Missing links in mainstream CDA: Modules, blends and the critical instinct. In R. Wodak and P. Chilton (Eds), *A New Agenda in (Critical) Discourse Analysis*. Amsterdam: John Benjamins, pp. 19–51.
- Croft, W. (2009). Towards a social cognitive linguistics. In V. Evans and S. Pourcel (Eds), *New Directions in Cognitive Linguistics*. Amsterdam: John Benjamins, pp. 395–420.
- Dirven, R., Frank, R. and Pütz, M. (2003). Introduction: Categories, cognitive models and ideologies. In R. Dirven, R. Frank and M. Pütz (Eds), *Cognitive Models in Language and Thought: Ideology, Metaphors and Meanings*. Berlin: Mouton de Gruyter, pp. 1–21.
- Dirven, R., Wolf, H.-G. and Polzenhagen, F. (2007). Cognitive linguistics, ideology, and critical discourse analysis. In D. Geeraerts and H. Cuyckens (Eds), *The Oxford Handbook of Cognitive Linguistics*. Oxford: Oxford University Press, pp. 1222–40.
- Fairclough, N. (2000). *New Labour, New Language?* London: Routledge.
- (2010). *Critical Discourse Analysis* (2nd ed.). London: Longman.
- Fauconnier, G. and Turner, M. (1998). Conceptual integration networks. *Cognitive Science*, 22(2), 133–87.
- Gee, J. P. (1992). *The Social Mind: Language, Ideology, and Social Practice*. New York: Bergin & Garvey.
- Geeraerts, D., Kristiansen, G. and Peirsman, Y. (Eds) (2010), *Advances in Cognitive Sociolinguistics*. Berlin: Mouton de Gruyter.
- Goatly, A. (2007). *Washing the Brain: Metaphor and Hidden Ideology*. Amsterdam: John Benjamins.
- Grundy, P. and Jiang, Y. (2001). Ideological ground and relevant interpretation in a cognitive semantics. In R. Dirven, B. Hawkins and E. Sandikcioglu (Eds), *Language and Ideology: Theoretical Cognitive Approaches*. Amsterdam: John Benjamins, pp. 107–40.
- Hanks, W. H. (1992). The indexical ground of deictic reference. In A. Duranti and C. Goodwin (Eds), *Rethinking Context*. Cambridge: Cambridge University Press, pp. 43–76.
- Hart, C. (2008). Critical discourse analysis and metaphor: Toward a theoretical framework. *Critical Discourse Studies*, 5, 91–106.
- Hart, C. (Ed.) (2011a). *Critical Discourse Studies in Context and Cognition*. Amsterdam: John Benjamins.
- Hart, C. (2011b). Moving beyond metaphor in the cognitive linguistic approach to CDA: Construal operations in immigration discourse. In C. Hart (Ed.), *Critical Discourse Studies in Context and Cognition*. Amsterdam: John Benjamins, pp. 172–92.

- (forthcoming). Construing contexts through grammar: Cognitive models and conceptualisation in British newspaper reports of political protests. In J. Flowerdew (Ed.), *Discourse(s) and Context(s)*. London: Continuum.
- Hawkins, B. (2001). Incorporating tensions: On the treatment of ideology in cognitive linguistics. In R. Dirven, B. Hawkins and E. Sandikcioglu (Eds), *Language and Ideology: Theoretical Cognitive Approaches*. Amsterdam: John Benjamins, pp. 1–22.
- Hollmann, W. B. (2012). Constructions in cognitive sociolinguistics. In T. Hoffmann and G. Trousdale (Eds), *The Oxford Handbook of Construction Grammar*. Oxford: Oxford University Press, pp. 491–509.
- Huck, G. J. and Goldsmith, J. A. (Eds) (1995), *Ideology and Linguistic Theory: Noam Chomsky and the Deep Structure Debates*. London: Routledge.
- Koller, V. (2004). *Metaphor and Gender in Business Media Discourse: A Critical Cognitive Study*. Basingstoke: Palgrave Macmillan.
- (2008). *Lesbian Discourses: Images of a Community*. New York: Routledge.
- (2010). Lesbian Nation: A case of multiple interdiscursivity. In R. de Cillia, H. Gruber, M. Krzyżanowski and F. Menz (Eds), *Discourse, Politics, Identity*. Tübingen: Stauffenburg, pp. 369–81.
- (2012). How to analyse collective identity in discourse: Textual and contextual parameters. *Critical Approaches to Discourse Analysis Across Disciplines*, 5(2), 19–38.
- Kristiansen, G. and Dirven, R. (Eds), *Cognitive Sociolinguistics: Language Variation, Cultural Models, Social Systems*. Berlin: Mouton de Gruyter.
- Lakoff, G. and Johnson, M. (1980). *Metaphors We Live By*. Chicago: University of Chicago Press.
- Langacker, R. (2009). A dynamic view of usage and language acquisition. *Cognitive Linguistics*, 20(3), 627–40.
- Moscovici, S. (1984). The phenomenon of social representations, trans. S. Rabinovitch, in R. Farr and S. Moscovici (Eds), *Social Representations*. Cambridge: Cambridge University Press, pp. 3–69 (reprinted in S. Moscovici, 2001, *Social Representations: Explorations in Social Psychology*, ed. G. Duveen. New York: New York University Press, pp. 18–77).
- (1998). The history and actuality of social representations, trans. G. Duveen, in U. Flick (Ed.), *The Psychology of the Social*. Cambridge: Cambridge University Press, pp. 209–47 (reprinted in S. Moscovici, 2001, *Social Representations: Explorations in Social Psychology*, ed. G. Duveen. New York: New York University Press, pp. 120–55).
- Musolff, A. (2004). *Metaphor and Political Discourse: Analogical Reasoning in Debates About Europe*. Basingstoke: Palgrave Macmillan.
- (2009). *Metaphor, Nation and the Holocaust: The Concept of the Body Politic*. London: Routledge.
- Nesset, T. (2001). How pervasive are sexist ideologies in grammar? In R. Dirven, B. Hawkins and E. Sandikcioglu (Eds), *Language and Ideology: Theoretical Cognitive Approaches*. Amsterdam: John Benjamins, pp. 197–226.
- O'Halloran, K. (2003). *Critical Discourse Analysis and Language Cognition*. Edinburgh: Edinburgh University Press.
- Peeters, B. (2001). Does cognitive linguistics live up to its name? In R. Dirven, B. Hawkins and E. Sandikcioglu (Eds), *Language and Ideology: Theoretical Cognitive Approaches*. Amsterdam: John Benjamins, pp. 83–106.
- Pires de Oliveira, R. (2001). Language and ideology: An interview with George Lakoff. In R. Dirven, B. Hawkins and E. Sandikcioglu (Eds), *Language and Ideology: Theoretical Cognitive Approaches*. Amsterdam: John Benjamins, pp. 23–47.
- Pishwa, H. (Ed.) (2009). *Language and Social Cognition: Expression of the Social Mind*. Berlin: Mouton de Gruyter.



- Reisigl, M. and Wodak, R. (2009). The discourse-historical approach (DHA). In R. Wodak and M. Meyer (Eds), *Methods of Critical Discourse Analysis* (2nd ed.). London: Sage, pp. 87–121.
- Schmid, H.-J. (2012). *Cognitive Pragmatics* (Handbooks of Pragmatics 4). Berlin: Mouton de Gruyter.
- te Molder, H. and Potter, J. (Eds) (2005). *Conversation and Cognition*. Cambridge: Cambridge University Press.
- van Dijk, T. A. (1998). *Ideology: A Multidisciplinary Approach*. London: Sage.
- (2008). *Discourse and Context: A Sociocognitive Approach*. Cambridge: Cambridge University Press.
- (2009). Critical discourse studies: A socio-cognitive approach. In R. Wodak and M. Meyer (Eds), *Methods of Critical Discourse Analysis* (2nd ed.). London: Sage, pp. 62–86.
- (2012). *Ideology and Discourse: A Multidisciplinary Introduction*. Unpublished booklet. Available at <http://www.discourses.org/OldBooks/Teun%20A%20van%20Dijk%20-%20Ideology%20and%20Discourse.pdf>
- van Leeuwen, T. (1996). The representation of social actors. In C. R. Caldas-Coulthard and M. Coulthard (Eds), *Texts and Practices: Readings in Critical Discourse Analysis*. London: Routledge, pp. 32–71.
- (2008). *Discourse and Practice: New Tools for Critical Analysis*. London: Routledge.
- Verschueren, J. (2012). *Ideology in Language Use: Pragmatic Guidelines for Empirical Research*. Cambridge: Cambridge University Press.
- Wolf, H.-G. and Polzenhagen, F. (2003). Conceptual metaphor as ideological stylistic means: An exemplary analysis. In R. Dirven, R. Frank and M. Pütz (Eds), *Cognitive Models in Language and Thought: Ideology, Metaphors and Meanings*. Berlin: Mouton de Gruyter, pp. 247–75.

# 3.8 Cognitive Linguistics and Phonology

*Jose A. Mompean*

## Chapter Overview

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### 1 Introduction

Apart from accepting Langacker's well-known assumption that language is an open-ended set of linguistics signs or expressions, each of which associates a semantic representation with a phonological representation, few cognitive linguists ever devote any systematic attention to phonology. And yet, phonology is in no way less amenable to a cognitive treatment than the study of word meaning or grammatical constructions. This is due, for example, to the fact that phonological structures are, alongside semantic and symbolic units, one of the three kinds of units permitted by the Content Requirement (Langacker, 1987, 2007).

Although phonology in the cognitive linguistics enterprise is still a much neglected field, attention to it is growing. The aim of this chapter is to provide a thematic overview of phonology work within Cognitive Linguistics. The chapter discusses how main ideas of this approach have been developed or at least sketched by researchers. The chapter has two main sections. The first section discusses the guiding assumption in Cognitive Linguistics that language, including phonology, is the outcome of general properties of cognition. The second section deals with the assumption that linguistic organization (phonological

inclusive) is also the outcome of the bodies humans have and how they interact with the sociophysical world.

## **2 Phonology and General Cognitive Processes**

Cognitive Linguistics is an approach to the study of language that endeavours to explain facts about language in terms of known properties and mechanisms of the human mind. Its guiding principle is that use of language employs similar cognitive abilities and processes to those used in other non-linguistic tasks. Given this assumption, phonology, like other areas of study, can also be said to operate on the same cognitive mechanisms as used by other faculties of the mind. Section 2 provides examples of three cognitive abilities – categorization, perception and conceptual combination – that have received some attention in phonology within Cognitive Linguistics. The section also discusses the implication that the cognitive linguistics assumption about the language-cognition relationship has for the study of different levels of linguistic analysis.

### **2.1 Phonology and Categorization**

Categorization is the cognitive process whereby items are classified into categories based on commonalities, usually for some specific purpose. Categorization is a central issue in Cognitive Linguistics where it is considered as one of primary principles of conceptual and linguistic organization (Taylor, 2003) and where phonological units are considered as categories themselves (Fraser, 2006).

Apart from considering categorization as a basic cognitive process in language and thought, Cognitive Linguistics also assumes all the characteristics that the modern study of human categorization has revealed (see Rosch, 1975). More specifically, Cognitive Linguistics challenges the main claims of the classical or Aristotelian model of categorization, which underlies much work in linguistics and other disciplines. Cognitive Linguistics challenges the views: a) that categories are discrete entities characterized by a set of necessary and sufficient properties shared by all entities classified as category members; b) that members of a category should not differ in how representative or typical of the category they are;<sup>1</sup> c) that categories should have clear, non-overlapping boundaries; and d) that no level of abstraction in hierarchical organization is more salient than the others. Work in Cognitive Linguistics has not only questioned these assumptions of the classical view for semantic and grammatical categories (Coleman and Kay, 1981; Corrigan, 1991; Dirven and Taylor, 1988), but also for phonological categories. In the rest of this section, relevant work is

discussed in relation to the phonological entities such as phonemes, features and syllables.<sup>2</sup>

### 2.1.1 Phonemes

In Cognitive Linguistics, phonemes – and even allophones – are considered as mental categories of sounds that are classified as somehow ‘the same’ (Nathan, 1986). Given this, research has shown that these segment-sized categories can hardly ever be defined by necessary and sufficient conditions. The various phoneme categories discussed in the literature, from the oral plosives /t, d/ in English (Eddington, 2007; Mompean, 2004; Nathan, 1986, 1996, 2007; Taylor, 2003) to the nasal plosives /n/ and /m/ in Spanish (Cuenca and Hilferty, 1999; Fraser, 2004; Mompean and Mompean, 2012) appear to lack features shared by all category members. It is relevant to mention at this point that a well-known view of category structure widely used in Cognitive Grammar, that is the instance-schema network view (Bybee, 1999; Langacker, 1988, 1991, 1999, 2007; Taylor 1990, 2002), considers that speakers may extract schemas at various levels of schematicity/specificity, but these are never bundles of distinctive features (Taylor, 1990).<sup>3</sup>

Rather than positing a set of defining features for phonemes (or phoneme categories), the instance-schema network view and the earlier ‘radial’ view of category structure (Cuenca and Hilferty, 1999; Nathan, 1986, 1996, 2007) claim that phoneme categories have a prototype, or central member as well as context-induced extensions. In the case of the phoneme /t/ in English, for example, a voiceless alveolar stop [t] (Nathan, 1987, 1996; Taylor, 2003) is considered as the prototype while other types of allophones like taps, glottalized stops, etc. are extensions from that prototype.<sup>4</sup> In the absence of defining features and with features being unevenly distributed across category members, category coherence and cohesion are attained by overlapping similarities with different category members or similarity to a central or prototype member of the category (Bybee, 1999; Mompean, 2004; Nathan, 1999; Taylor, 1989, 1990). This explains why phoneme category sometimes overlap, as some segments may be similar to the members of two or more phoneme categories. Typical cases of phoneme category overlappings are alveolar taps for the phonemes /t, d/ in English (Mompean, 2004; Nathan, 1986, 2007; Taylor, 2003) or the labiodental nasal [ɱ] for the nasal phonemes /m, n/ in English (Mompean, 2004; Taylor, 2002) and Spanish (Cuenca and Hilferty, 1999; Mompean and Mompean, 2012).

### 2.1.2 Features

Like phonemes, features are considered to be categories instantiated by different types of sounds or sound combinations. These features can include one single dimension, traditional ‘phonological features’ such as [voiced] or [voiceless] or more than one, the so-called traditional natural classes (Langacker, 2007: 445).

For example, natural classes like ‘voiceless stop’ in English are feature schemas that capture the similarity in the allophony and distributional behaviour of /p, t, k/ (Taylor, 2002: 147). One common view is also that feature categories are abstracted from speakers’ encounters with language-specific events in the course of cognitive development and language acquisition rather than being hard-wired universals (Taylor, 2002: 160).

Cognitive feature categories exhibit the same properties as other categories. To start with, feature categories lack defining features. As a case in point, a feature like [sonority] lacks defining features that can be applied to all segments labelled ‘sonorous’ (Nathan, 1989). Research has also revealed the existence of category overlaps in features categories. Contrasting feature categories like [consonant]/[vowel] or [voiceless]/[voiced] overlap in some of their category members. For example, approximants /w/ and /j/ are variably categorized as vowels or consonants by speakers (Mompean, 2002). Similarly, /b, d, g/, typically devoiced in many of their realizations in English, are variably categorized as instances of [voiced] and [voiceless] (Jaeger and Ohala, 1984). Finally, members of feature categories differ in their degree of prototypicality. Standard accounts of distinctive features assign binary +/- values to most features, but in those accounts it makes no sense to ask whether a given segment exemplifies a distinctive feature better or worse. Instead the feature is present in the segment (‘being a category member is being a good member’) or not (‘the segment is not a category member’). Classical phonological distinctive feature accounts admit that the specific realization of phonemes have scalar – or continuous – phonetic values for a given distinctive feature, but they have no interest in those values in view of the strict distinction between phonetics and phonology. However, work in Cognitive Linguistics has shown that some segments exemplify feature categories better than others (Mompean, 2002; Nathan, 1989, 1994, 2008). As a case in point, the consonants /b, d, g/ are considered to be less prototypical members of the category [voiced] than liquids or nasals (see also Jaeger and Ohala, 1984).

### 2.1.3 Syllables

Research in Cognitive Linguistics conceives of syllables as categories instantiated by sound sequences that can themselves be conceived of as sequences of segments (Nathan, 2008; Taylor, 2004), and that their unit status may be grounded in speech production, being motor units that are the beats that make up rhythmic behaviour (Nathan, p.c.). Syllable categories can be abstracted at a relatively low and specific level of abstraction (e.g. *bead* [bi:d]) or at a very high and schematic level, that is the syllable schemas often referred to as syllable templates (e.g. *bead* [CVC]). In other words, particular sequences of sounds that count as syllables can also be regarded as instances of syllable schemas (e.g. CVC, CV, CCVC, etc.). Thus, CVC is a consonant-vowel-consonant

generalization over specific syllables like *till*, *pot*, *mug*, etc. The abstraction of intermediate levels of specificity can also capture the different phonotactic patterns and constraints in a given language (Kumashiro, 2000; Langacker, 1999: 129; 2007: 445–6). Thus, the schema [hVC] captures the generalization that syllables in English can have the phoneme /h/ in the onset and a consonant in the coda (e.g. *head*, *hop*, *ham*, etc.). However, the schema \*[CVh] is not attested in English, as there are no syllables that end in /h/.

Research on syllables reveals that syllables, like phonemes or features, are not the classical categories they once were thought to be. The very concept of ‘syllable’ in specific languages may itself be a category that lacks defining features. Thus, in English, syllable nuclei tend to be vowels, and they are often specified as V in syllable templates, but the existence of syllabic consonants in English – for example *button* /'bʌt̩n/– shows that a syllable nucleus need not be a vowel. Similarly, syllables need not have an onset and may have no coda either. Thus a syllable in English can be conceived of as a complex category with syllable templates or members connected by a network of overlapping similarities but with no common features other than having a nucleus that can be a vowel or a syllabic consonant. As to syllable boundaries, it should be noted that although syllabification is often straightforward and strictly categorical (see e.g. Nathan, 2008: 44, 53), this is not always the case. The phenomenon of ‘ambisyllabicity’ shows that syllable boundaries may overlap on certain occasions. For example, subjects variably assign the /l/ of *melon* to the coda of the preceding syllable – that is /'mel.ən/– or to the head of the following syllable – that is /'me.lən/– (Treiman and Danis, 1988). Taylor (2002) considers that ambisyllabicity can be due in some cases to the requirement in English that all syllables have an onset. Thus /z/ in *these are* can be assigned to both *these* and *are* (p. 88). Finally, different syllable schemas or templates may vary in their degree of prototypicality. For example, the CV template has long been claimed to be a prototypical syllable structure in the world’s languages (Nathan, 2008: 36), and it is certainly more prototypical in English than the VCCC template (e.g. *sixths* /sɪksθs/), which occurs only in a few words.

#### 2.1.4 Phonological Categories and the Basic Level

Given a hierarchical organization of categories, the Aristotelian or classical view of categorization does not assign any special status to any particular level of abstraction in the hierarchy. However, empirical research on the cognitive organization of categories has shown that there is a level of abstraction that is the most perceptually and conceptually salient. Categories at this level are commonly referred to as ‘basic-level’ categories, a phenomenon extensively shown for taxonomies (see e.g. Rosch et al., 1976) and to a lesser degree in partonomies (see e.g. Tversky, 1990; Tversky and Hemenway, 1991).

As far as phonological categories are concerned, researchers have tried to identify a basic level of phonological abstraction, with features, phonemes and syllables as possible candidates. In this respect, the first type of unit claimed to have basic-level status were features (Chomsky and Halle, 1968; Jakobson et al., 1952; Trubetzkoy, 1939). However, features were considered to be 'basic' due to their descriptive adequacy, or capacity to capture many phonological generalizations, not to their alleged explanatory adequacy or capacity to offer a plausible description of mental phonological representations. In fact, research carried out so far seems to suggest that phonemes might have basic-level status in feature-segment taxonomies in alphabetic societies as opposed to superordinate feature or subordinate allophone categories (Mompean, 2006a; Nathan, 2007, 2008; Taylor, 2002, 2006). The basic-level status of phonemes might be due both to structural and cultural factors. On the one hand, it has been claimed that phonemes achieve an optimal balance between informativeness and distinctiveness as they maximize within-category similarity while minimizing between-category similarity. On the other hand, cultural phenomena like literacy and alphabetic systems, based on grapheme-phoneme associations, enhance the cognitive relevance of the phoneme taxonomic level. And, of course, the original orthographies were primarily either segment or syllable-based, which means they created the cultural phenomena, rather than the other way around.

The fact that phonemes may have basic-level status in phonological taxonomies does not mean that phonemes need to have that status in phonological partonomies. After all it is only through decontextualization that phonemes emerge as distinct cognitive entities. According to Langacker (1999: 129), 'from actual syllables, an array of schemas are presumably extracted representing a p-like sound in various syllabic contexts: syllable initial, syllable final, before or after particular vowels, as part of certain consonant clusters, etc. We can identify these p-like sounds with phones or allophones of the complex category defining /p/ . . .' (see also Taylor, 2006). Thus, as Fraser (2010: 371) points out, phonological theory can accommodate the existence of different 'basic-level' units in different phonological hierarchies, derived themselves from the process of abstraction and categorization. This is made possible given the conceptualization of symbolic units differently in different contexts. In this respect, it should be borne in mind that the relationship between allophones, phonemes, and features is of a taxonomic nature. Thus, a voiceless aspirated bilabial plosive [p<sup>h</sup>] is a type (or realization) of /p/, which is in turn a type of [plosive], itself a type of [consonant] (Mompean, 2006a). In contrast, the relationship between phonemes, syllables, feet, and tone units is of a partonomic (or syntagmatic) nature. Thus, the phoneme /ð/ is part of the syllable /ðis/, itself part of the foot *this is the* |'ðis ɪz ðə|, one of the four feet in the tone unit *This is the house that Jack built* |'ðis ɪz ðə| 'hæʊs ðæt| 'dʒæk| 'bɪlt| (Taylor, 2002: 85).<sup>5</sup> In this respect, although alphabetic writing encourages us to think of speech in terms of letter-sized

segments, it has been claimed that certain features of syllables make them better candidates than phonemes for basic-level status in phonological paronomies. Thus, syllables are the smallest units normally uttered and heard, and awareness of syllables and phonological words precedes phonemic awareness (see Fraser, 2010; Taylor, 2002: 149 for discussions).<sup>6</sup>

## 2.2 Phonology and Perception

It is now widely accepted that our perception of the world is inseparable from our cognition. Sensory stimuli only become meaningful by association with something familiar (Lakoff, 1987: 126). In this respect, perception can be considered to be a cognitive ability assisted by sensory organs.

One perceptual capacity particularly relevant in language is recognition of similarity. The human ability of viewing different things as similar and, as a result, grouping them together is known as categorization (see Section 2.1). Recognition of similarity is also relevant in iconicity, or the perception of similarity between phenomena in conceived reality and the linguistic expressions describing them. Iconicity has received some attention in Cognitive Linguistics, including phonology. For example, *imitative iconicity* leads to a small set of onomatopoeic words such as *cuckoo*, *hiss* or *splash*, felt to resemble animal or natural sounds. In addition, *structural iconicity* leads to the arrangement of phonological structure that reflects aspects of semantic structure (Radden and Panther, 2004; Taylor, 2002: 46; van Langendonck, 2007). Examples of structural iconicity include onomatopoeic reduplications such as *choo-choo* in English (Radden, 2008) or *hoep-hoep*<sup>7</sup> in Afrikaans (van Huyssteen, 2004). Structural iconicity is also exemplified by reduplications marking collectivity, such as *orang* 'man' → *orang orang* 'people' in Indonesian (Radden, 2008) or intensity, such as *xōtla* 'burn' → *xō-xōtla* 'burn intensely' in Nahuatl (Tuggy, 2003a).

Apart from recognition of similarity, another perceptual capacity particularly relevant in language is attention to salience, which leads to the distinction between 'figure' – a salient entity – as opposed to 'ground' – a less salient entity. In this respect, an important cognitive process used in language is the principle of figure-ground perceptual organization/alignment as well as the so-called prominence principle, which explains why some objects are singled as perceptually prominent figures standing out from the ground.

Cognitive Linguistics has acknowledged the relevance of the figure-ground distinction in areas such as the study of spatial relations (Brugman and Lakoff, 1988), events (Croft, 2001) or grammar (Langacker, 1987, 1991). In phonology, the principle of figure-ground organization has been called upon to explain why sonorants, particularly high sonority (and therefore louder) segments such as vowels, tend to be chosen as the nucleus of syllables, functioning as figures,



while the less sonorous consonants tend to be chosen as syllable margins, that is onsets and codas (Nathan, 2007), representing the background. Syllable structure also exemplifies one of the features of figure-ground alignment such as figure-ground reversal, or the potential manipulation, with appropriate contextualization, of figure-ground relations (Talmy, 1983; see also Paradis, 2003). Thus, although syllable nuclei tend to be the figures of syllables with very sonorous segments, when syllables are at the beginning or end of words their onsets and codas may be more salient. Thus, if a monosyllabic word is spoken in isolation, both onset and coda may be more salient than the nucleus. This has been referred to as the 'bathtub effect' in the psycholinguistic literature (Aitchison, 2003). Speakers remember the beginnings and ends of words and sentences better than the middles. Thus, syllable margins can attain figure status as opposed to the syllable nuclei. The finding that letters representing vowels are deleted more often than consonants in text messages is in line with the expectations of the bathtub effect predicting that consonants can be the retained figures and vowels the deleted grounds (Sharifi, 2011).

Apart from syllable structure, figure-ground organization also seems to explain prosodic stress and rhythmic foot structure (Farrell, 1990). Lexical stress is comparable to semantic prominence, in particular profiling (Langacker, 2007: 445). In this respect, Kumashiro and Kumashiro (2006) and Langacker (1987: 331) consider that the strong, lexically stressed syllables in phonological units such as *avocado* and *macaroni* can be considered as figures of their own rhythmic feet, that is  $|\sigma\sigma|\sigma|$ , while the weak unstressed syllables represent the background and necessitate a schematic reference to the strong syllables as part of their inherent characterization.

Figure-ground organization also applies in higher-order prosodic domains. The examples of *avocado* and *macaroni* can also be used to point out that the figure-ground organization also applies to rhythmic foot structure. In the examples at hand, the second foot is more prominent than the first. The strong, lexically stressed syllable in the second foot is considered to carry primary stress, while the stressed syllable in the first foot is considered to carry secondary stress. The second foot is then a figure as opposed to the first foot in a phonological word. Finally, *tonicity* or the choice of the nuclear stress or tonic syllable in tone units, represents a foregrounding and backgrounding process equivalent to figure-ground organization. As is the case with lexical stress, tonic syllables stand out by means of a combination of pitch movement, length and loudness as cues to accentual prominence. Similarly to the figure in perceptual organization, the tonic syllable in a tone unit like *John lent me his bike* is perceptually more salient than the background, that is the rest of the syllables in the tone unit. The use of tonicity also exemplifies figure-ground reversal, or the potential manipulation, with appropriate contextualization, of figure-ground relations. Thus, the same tone unit, pronounced with different tonic syllables

on different occasions, can convey different meanings, for example *John lent me his bike* (John did, not somebody else), *John lent me his bike* (John lent me his bike, not somebody else's), etc.<sup>8</sup>

### 2.3 Phonology and Conceptual Combination

Conceptual combination, variously referred to as conceptual composition, integration, etc., is a basic cognitive capacity of the human mind, and it is assumed to be ubiquitous in everyday language and thought. The ability to conjoin simple structures (i.e. component structures) to form structures that are more complex (i.e. composite structures) has been extensively researched in the cognitive sciences. Within Cognitive Linguistics it has been suggested that both lexical items and other syntactic structures or constructions combine form and meaning directly. For example, different semantic approaches like Conceptual Metaphor Theory (Lakoff and Johnson, 1980; Lakoff and Turner, 1989) or Conceptual Integration Theory (Fauconnier and Turner, 1998, 2002) have looked at processes of semantic conceptual combination. Similarly, different grammar approaches such as Langacker's Cognitive Grammar (Langacker, 1987) or Goldberg's Construction Grammar (Goldberg, 1995) have looked at constituency structure.

Despite the great attention to semantic conceptual combination in Cognitive Linguistics, little effort has been made to study phonological conceptual combination. The widespread tendency to consider 'conceptual' as exclusively synonymous with 'cognitive' or 'semantic', partly explains this neglect, although phonology is no less cognitive or conceptual than semantics in Cognitive Linguistics. However, the cognitive linguistics literature has provided some examples of phonological conceptual combination. In this respect, one interesting example of phonological conceptual combination is that of the word-formation process in English commonly referred to as lexical blending and exemplified by units such as *brunch* (*breakfast+brunch*) or *smog* (*smoke+fog*). Kelly (1998), for example, found different frequency and prototypicality effects of the contributing lexical items in lexical blends. Kelly also found that the boundaries between blend components fell primarily at major phonological joints, such as onset/rhyme boundaries, providing further support to the special psycholinguistic status of onset-rhyme intrasyllabic structure in English (Treiman and Kessler, 1995).<sup>9</sup>

The study of phonological conceptual combination within Cognitive Linguistics can also be extended to higher-order phonological constructions. In this respect, the phonological structure of a word may undergo certain modifications as the word is integrated into the stream of speech (Taylor, 2002: 88). These changes can be accounted for by a type of schema known as phonological

processes (Nathan, 1996: 110; 2008: 74; Taylor, 2002: 88). For example, the process in English known as ‘alveolar stop deletion’ can be considered as a phonological schema predicting the elision of alveolar stops /t, d/ between consonants at internal – for example *han(d)z* – or external – for example *more an(d) more* – morpheme boundaries.

In the study of phonological combination several issues require special attention. These include the issues of the nature of combinatory processes, the interaction between processes or the compositionality of composite phonological schemas. For example, there is agreement over the fact that phonological process schemas should not be considered as subsidiary motor events in the physical execution of speech, but as universal cognitive processes that languages have at their disposal (Nathan, 1996). There is disagreement, however, over whether phonological process schemas are used by speakers to construct pronunciations in real time (Nathan, 2008), or whether they are simply abstractions over stored individual instances (Bybee, 2001a; Langacker, 2007: 446; Taylor, 2002: 155–9). Nathan (2007, 2008) accommodates both views, following the tradition of Natural Phonology, which distinguishes between ‘processes’ as general tendencies with articulatory and auditory grounding which operate automatically, and ‘rules’ or simple morphophonemic relationships among related words and conventionally imposed by the language. Thus, the kind of alternations in the Vowel-Shift rule such as *divine-divinity*, *extreme-extremity*, *sane-sanity* could be treated as pure schematizations over stored instances, while the patterns of bilabial/alveolar stop assimilation described by Taylor (2002: 156), although amenable to schematization, can be considered to be the product of articulatory readjustments in the course of speech.

Another interesting aspect regarding phonological process schemas is the relationship or interaction – even competition – between different schemas (Taylor, 2002: 298–320). For example, a phonological construction like *more an(d) more* [mɔːr\_ə'm:ɔː] exemplifies the deletion of alveolar /d/, assimilation of /n/ to /m/, and coalescence of [mm] giving rise to a geminated long bilabial nasal [m:]. In this respect, it can be claimed that if phonological processes are considered to be used to create outputs in real time, the issue of ‘rule ordering’ – or schema ordering – must be considered. However, Nathan (2008; see also Lakoff, 1993) has argued that the idea of serial derivations has no cognitive reality, converging with the view held in classical Optimality Theory (Prince and Smolensky, 2004).

Another interesting aspect deserving further attention is the degree of compositionality of phonological schemas. In this respect, it may be the case that phonological conceptual combination may sometimes involve no more than phonological juxtaposition – for example *towtruck* /'təʊtrʌk/ –, although this is often not the case – for example *breakfast* /'breɪkfəst/, but \*/'breɪkfa:st/ (Tuggy, 2003b). Similarly, the construction *more an(d) more* shows that the features of

phonological conceptual composite structures are only partially determined by the phonological features of their constituent parts, exhibiting emergent properties, as is the case of other semantic and grammatical expressions (e.g. Lakoff, 1987). After coalescence, the geminated nasal [m:] becomes a long consonant, unlike the short nasal of the lexical item *more* /mɔ:/ outside the *more an(d) more* construction. The claim that partial compositionality represents the norms for expressions of all sizes, both fixed and novel (Langacker, 1999: 379) certainly deserves further attention in phonology research.

## 2.4 Phonology and Levels of Linguistic Analysis

The claim that language makes use of general cognitive processes leads to the position held in Cognitive Linguistics that language is not an autonomous linguistic faculty emerging from a specific language-acquisition module of the mind. Related to this, Cognitive Linguistics endorses the so-called *Generalization Commitment* (Evans and Green, 2006; Gibbs, 1996; Lakoff, 1990). This implies that although it may be useful to treat different areas of language study as notionally distinct, it is convenient to investigate how the various aspects of linguistic knowledge emerge from a common set of human cognitive abilities, rather than assuming that they are produced in encapsulated modules of the mind. A practical implication of the Generalization Commitment is that different areas of study like phonology, morphology, semantics, syntax, etc., can be integrated in the same theoretical description.

Within Cognitive Linguistics, the relationship between phonology and other levels of linguistic analysis has attracted some attention. Studies have shown, for example, that there is a strong tendency for intonational breaks to align with the edges of syntactic constituents at all levels of recursive syntactic structure (Croft, 1995), or a tendency for some non-morphemic strings of phonemes, the so-called *phonesthemes*, to have meaning associations (Bergen, 2004). However, research has so far mainly looked at the relationship between phonology and morphology, often referred to as *morphonology* or *morphophonemics*. Accounts such as Nessel's study of Russian verbal system (Nessel, 2008) or Rubba's study of phonotactic constraints and morphological contexts in modern Aramaic (Rubba, 1993) are cases in point. In English, attention has gone to phenomena like regular plural and regular past formation (Croft and Cruse 2004; Kumashiro and Kumashiro, 2006; Nathan, 2008; Taylor, 2002), vowel alternations between present and past forms in irregular verbs like *sing-sang*, *ring-rang*, etc. (Bybee and Moder, 1983; Bybee and Slobin, 1982), or vowel alternations in Vowel-Shift pairs (Nathan, 2008) mentioned above. These 'morphological' schemas – what in other theories are regarded as morphophonological rules – are considered to be generalizations over relations among words and patterns

already stored. The difference between phonetically based phonological schemas and these morphophonological schemas is that while the former are purely phonological in the sense that the schemas make no reference to any particular morphological context, the latter incorporate that context (Langacker, 1988: 143–5, 1999: 129) and are the left-overs of earlier phonetically based processes that have lost their phonetic basis (Nathan, 2007, 2008).

### **3 Phonology and the Embodiment Thesis**

One key idea in Cognitive Linguistics is that language is not structured arbitrarily but, instead, it is embodied and motivated. Linguistic and non-linguistic categories are not abstract, human-independent and objectively ‘out there’ in the world but they are rooted or grounded in people’s concrete physical, social, and cultural experiences and under the constraints imposed by their bodies (Johnson, 1987; Lakoff, 1987; Lakoff and Johnson, 1980, 1999; Rohrer, 2007). These experiences and constraints shape as well as affect speakers’ linguistic behaviour, which may then become conventional/entrenched in the language community or in specific groups of speakers in the shape of recurrent and stable ‘motivated’ linguistic structures. Cognitive Linguistics tries to characterize the functioning of such an embodied and cultured mind in relation to language and beyond it in our social and cultural world at large.

Phonological work in Cognitive Linguistics, like other areas of study such as semantics or grammar, embraces the experientialist assumption that language is embodied and motivated. Cognitive Linguistics still lacks a unitary theory of motivation, but it acknowledges that motivation in language can be triggered by a linguistic source or by language-independent factors that operate in language as well as in other cognitive or semiotic systems (Radden and Panther, 2004). The rest of Section 3 focuses on some of the different linguistic and language-independent factors leading to a number of claims that elaborate on the general ideal that phonological categories and units are embodied.

#### **3.1 Phonology and Phonetic Grounding**

The sharp distinction between phonetics and phonology has gone largely unquestioned for many decades. Introductory linguistics textbooks still maintain that distinction, which dates back to the early days of structuralist phonology and its attempt to make phonology an independent discipline from phonetics (Bloomfield, 1933; Trubetzkoy, 1939). It is true that Chomsky and Halle (1968), based on previous work (Jakobson et al., 1951), attempted a universal inventory of distinctive features phonetically grounded in human

capabilities for speech production and perception. Their interest was, however, in abstract representations and phonological rules and processes, which were not in any way grounded in facts about the physical world. However, since the late 1970s, there have been increasing appeals to the role of phonetics in explaining various aspects of phonology, synchronic or diachronic (e.g. Blevins, 2004). For example, Natural Phonology characterizes production and perception of speech in terms of a set of universal phonetically motivated phonological processes (Donegan and Stampe, 1979, 2009). In Optimality Theory (Prince and Smolensky, 2004), structural (or ‘markedness’) constraints are phonetically motivated constraints on outputs.

The claim that phonological categories, units, constructs, etc. are phonetically explainable makes it hard to maintain the traditional distinction between phonetics and phonology. In contrast, it seems that phonetics and phonology have a symbiotic relationship whereby phonetics offers explanations of phonological phenomena and phonology helps structure physical phenomena. Following similar claims in the phonetics literature (e.g. Ohala, 1990; Pierrehumbert, 2000), Cognitive Linguistics easily incorporates the claim that phonetic motivation is a necessity in phonological accounts (Bybee, 1994; Nathan, 2007: 614; 2008: 154) and that there is no principled distinction between phonetics and phonology. This claim is in line with the cognitive linguistics rejection of traditional dichotomies such as semantics/pragmatics, linguistic/encyclopaedic knowledge, literal/figurative language, or synchrony/diachrony.

The phonetic motivation of phonological categories and units has already been referred to above. Thus, syllables may not only be considered as purely mental storage categories but also as based on speech production (Section 2.1.). Physical correlates such as pitch, length, and loudness, for example, explain the figure status of stressed syllables in words and tone units (see Section 2.3). Three further phonetic explanations of phonological organization described below are the phonetic grounding of phonetics features, sonority in syllable structure, and the shaping of the prototype structure of phoneme categories and a language’s phoneme inventory.

In Cognitive Linguistics, features are not considered to be hard-wired phonological primes, part of an innate human language capacity. They are considered, instead, to be grounded in human capabilities for speech production and perception and constructed from scratch in the course of cognitive development and language acquisition (Taylor, 2002: 160; see also Hurst, 2003). Nathan (1996, 1999, 2006) takes this view assuming that phonemes, for example, are fully specified sets of mental images of physical – articulatory and acoustic – reality called features.<sup>10</sup> As is the case in Cognitive Linguistics with other phenomena like locative relations (Johnson, 1987; Lakoff, 1987), phonetic features have been regarded as basic image schemas directly derived from everyday bodily experience in articulating and/or perceiving speech (Nathan, 1996, 2007). As a case in

point, a feature like [alveolar] would not be simply a way of defining membership in a given set but would instead be the mental embodiment of a particular tongue-body gesture.<sup>11</sup>

Taking for granted that features are image schemas, Nathan (1996) goes on to claim that phonological processes are instances of image-schema transformations in the phonological, rather than the semantic domain (Lakoff, 1987). These image-schema transformations imply, according to Nathan (1996), some mental alteration of a complex of physical gestures by the addition, subtraction, or subtle alteration of one of the gestures. For example, a voiced alveolar flap in intervocalic position (e.g. *city*) would involve a reduction in the length and solidity of the contact between the apex of the tongue and the alveolar ridge as well as elimination of a separate voicelessness gesture.

A second example of the attention paid to the phonetic grounding of phonology in Cognitive Linguistics is the issue of sonority in syllable structure, now a classical case of phonetic explanation in phonology. Essentially, accounts of sonority in syllable structure claim that sounds functioning as syllable peaks (i.e. nuclei) are maximally sonorous while the sounds that function as syllable margins (i.e. onsets and codas) are less sonorous, with decreasing sonority as sounds move away from the peak. Within Cognitive Linguistics, Nathan (1989, 2008; see also Díaz-Vera, 2008) has also stressed the importance of sonority in explaining and providing a general phonetic basis for syllable structure, pointing out that sonority itself is a prototype category.

The last example given here of a phonetic grounding of phonology is the shaping of the prototype structure of phoneme categories and a language's phoneme inventory (Nathan, 1986, 1994, 1996, 2007). On the one hand, the prototype status of specific allophones in phoneme categories has been suggested to depend on inherent features of human production and perception. These can be considered as prototypicality effects selecting one among a number of alternative sounds as the one ideal instance or prototype of the phoneme category. Thus, the prototype of the phoneme category /t/ in English is likely to be a voiceless unaspirated alveolar plosive, that is [t]. More specifically, the fact that the prototype is unaspirated is due to the fact that lack of aspiration predominates in the stops of the world's languages, in language acquisition, and in the realization of the different allophones of /t/ in English, being therefore more articulatorily 'natural', less marked or more optimal than aspiration (Nathan, 1996: 114–15).<sup>12</sup> On the other hand, a language's selection of the phonemes that it uses, that is its phoneme inventory, also seems to be phonetically grounded. In this respect, it seems that there are limits to the possibilities for phoneme inventories in the languages of the world. This is due to the universality of the human vocal tract, subject to constraints imposed by the structure of the anatomy and physiology that produces sounds, and its acoustic consequences. These constraints explain certain tendencies in phoneme inventories across the

world's languages such as the preference for oral vowels over nasalized vowels, front unrounded vowels over front rounded ones, etc. (Nathan, 1996, 2007, 2008).

### 3.2 Phonology and the Usage-based Approach

The usage-based conception of language is a major tenet in Cognitive Linguistics. The essential idea of a usage-based approach (Barlow and Kemmer, 2000; Langacker, 1999) is that a language's grammar does not only constitute a knowledge repository to be employed in language use, but it is also itself the product of actual language use, continuously redefined in a dynamic way. Given this view, a usage-based conception of language requires the study of real language use (Saussure's *parole* or Chomskyan *performance*) and it is a strong motivation for empirical research in Cognitive Linguistics (González-Marquez et al., 2007).

Given its focus on actual language use, the usage-based approach fosters interest not only in morphology (Booij, 2010), grammar (Goldberg, 2006; Langacker, 1999), or semantics (Glynn, 2010), but also in fields like language acquisition (Tomasello, 2003) or language change (Croft, 1996). In phonology, the usage-based conception of phonology has been explored by Bybee (1994, 1999, 2001), who shows that over time the phonetic properties of lexical items are significantly influenced by language use.

One of Bybee's claims is that phonemes are generalizations built upon existing stored entities. By way of example, Bybee (2001) suggests that the 'clear-l' and 'dark-l' allophones of the phoneme /l/ in some varieties of English are not stored – and might not be even categorized – as being in any sense 'the same' (p. 88). This view of the phoneme has been contested by Nathan (2006, 2007, 2008), who claims that Bybee's view fails to explain, among other phenomena, a number of conscious and subconscious language processing facts and general linguistic phenomena such as systematic sound changes. Reservations such as Nathan's are directed at a 'strong' view of language as a usage-based product where *all* linguistic units, including phonemes, are simply generalizations over massively stored individual instances. In contrast, a 'weak' sense of the usage-based approach may simply involve the idea that language is the product of actual language but allowing for potential top-down categorization as well as some production in real time, not 'recollected in tranquility' in cases like phonemes (Nathan, 2008: 154).

The usage-based approach, even in a weak sense, fits in very well with the general tenet in Cognitive Linguistics that language is grounded in and motivated by people's experience and encounters with language. In this respect, one of the most representative variables highlighted by this approach is that of



token frequency of occurrence of linguistic expressions (Bybee, 2007). Thus, it is generally claimed that the higher the frequency of occurrence of an expression, the more likely it is to become entrenched, acquiring unit status (Langacker, 1987). Research invoking token frequency to explain – at least part of – the data are studies on the variation in the phonetic realization of the first singular possessive pronoun *my* (Hollmann and Siewirska, 2007) and reduction of the definite article *the* in the Lancashire dialect of English (Hollmann and Siewierska, 2011), as well as the use of th-fronting – that is the use of /f, v/ instead of /θ, ð/ – in east-central Scotland (Clark and Trousdale, 2009, 2010). These studies show, for example, that frequent nouns co-occur significantly more often with reduced possessives/articles and that th-fronting also occurs more often in more frequent words. Other research invoking token frequency is, for example, the study of the non-categorical phenomena of liaison in French and non-rhotic English, where frequent collocations or phrases such as *c'es[t] à dire* (Bybee, 2001b), or *fo[r] example* (Mompean and Mompean, 2009), tend to have more liaison than less frequent ones.

### 3.3 Phonology and Social/Cultural Motivation

The embodiment thesis that Cognitive Linguistics endorses claims not only that language arises from bodily functioning but also that language is at the same time imbued by our social and cultural world at large. Within Cognitive Linguistics, and following the rich development of sociolinguistic work from the 1970s onwards, increasing attention has been paid to the social and cultural aspect of language and language-internal variation (Geeraerts et al., 2010; Kristiansen and Dirven, 2008). Thus, Cognitive Linguistics may be said to integrate the Saussurean and Chomskyan positions, as shown by their interest in *langue/competence*, and *parole/performance*, that is between social system, individual knowledge of the system and actual use of the system (Geeraerts, 2010).

Phonology work in Cognitive Linguistics is gradually incorporating the social dimension of language into the theoretical framework. Two examples of this are the importance of social factors such as speaker variables (gender, age, ethnicity, socio-economic status, etc.) and the importance of cultural factors such as literacy.

An example of the importance of speaker variables is provided by Cognitive Sociolinguistic studies diverting from traditional analyses carried out at the high level of abstraction of 'a language'. One reason for this is that hearers do have receptive competence of lectal varieties, so this should be incorporated in descriptive accounts (Kristiansen, 2003, 2006). Clark (2008) discusses the case of the [ʌ ʌ̃] variation in the OUT lexical set in Scottish English. Using a schema-instance network framework, Clark identifies a lower schema that corresponds

to the level of allophones, which share some common phonetic quality similarities, but also a higher level schema corresponding to the sociolinguistic variable that is the result of further abstraction over allophonic variation.

Another important cultural aspect is the role of literacy and its development. For example, as mentioned in Section 2.1., alphabetic systems play a role in the basic-level status of phoneme categories in alphabetic societies. Moreover, literacy and the evolution of children's spellings can have an impact on the assignment and eventual reassignment of certain allophones to phoneme categories once conventional spelling is learned. Thus, children learning to read and write often spell intervocalic alveolar taps in words like *letter* with <d>, that is *ledr*, given the phonetic similarity, sometimes even phonetic identity, of voiced taps to members of the /d/ phoneme category. However, children end up spelling taps in words like *letter* with <t> according to standard adult spelling, reassigning then the tap to /t/ because of the conventional spelling (Mompean, 2004; Taylor, 2006; Treiman et al., 1994). The same occurs with oral stops after tautosyllabic /s/. For example *spill*, *still*, and *skill* are often spelt with <b, d, g> by children given the phonetic similarity between those oral stops and other members of the /b, d, g/ phoneme categories (Jaeger, 1980; Mompean, 2006b). The fact that spelling may be influential in speakers' conceptualizations of phoneme categories has led to the view, similar to Clark's (2008), that higher-level phonological schemas should capture not only phonetic information, but also other types of linguistic knowledge such as sociolinguistic variation and orthographic representation of the category members (Mompean, 2004; see also Nathan, 1979).

### 3.4 Phonology and Ecological Motivation

Ecological motivation can be defined as the motivation of a linguistic unit due to its place, or 'ecological niche' (Lakoff, 1987: 487) within a language. The idea behind this type of motivation is that language is a type of ecological system in much the same way as a natural system in which species interact with one another (Radden and Panther, 2004). In this respect, the ecology of a linguistic unit is to be understood in the sense that it has 'pointers' to other units and, to the extent that the unit is related to and influenced by other units in the language, it is motivated (Taylor, 2004). Since each linguistic unit is related to other units within a system, all units are ecologically motivated to some extent. Ecological motivation is in tune with the embodiment thesis embraced by cognitive linguists in that language categories and units are not abstract symbols but are rooted or grounded in people's bodies and experiences. Linguistic experiences, in this respect, may shape as well as affect speakers' linguistic behaviour and units.

Although further attention is needed regarding the ecological motivation of phonological structure, this type of motivation has been exemplified for cases of folk etymology such as *(ham)burger*, imitative/onomatopoeic iconicity such as *bang*, phonesthemic sequences such as /sp-/ in words such as *spit*, *spew*, *spam*, etc., or taboo-avoiding units such as *gosh!* or *(what the) heck!* (Radden and Panther, 2004; Taylor, 2004). For cases of ecological motivation where only form is involved, discussions have focused on regular sound chain shifts like the Great Vowel Shift or the Northern Cities shift (Díaz-Vera, 2008; Nathan, 2006, 2008; Radden and Panther, 2004). The ecological motivation of language can also be seen in the effect of phonological neighbourhood density (PND), or the number of words that are similar in sound to a target word (e.g. words like *skill* count as phonological neighbours of *will*, *spill* since they share the same rhyme). Phonological neighbourhood density effects have been shown, for example, in the learning of new past tense verbs by Finnish children (Kirjavainen et al., 2012).

## 4 Conclusion

One of the remaining challenges of the cognitive linguistics enterprise is to expand its attention to phonology. By focusing on two of the guiding assumptions in the cognitive linguistics enterprise, that is that language is the outcome of general properties of cognition, and that language is the outcome of the bodies humans have and how they interact with the sociophysical world, the present chapter has tried to provide a thematic overview of phonology work within Cognitive Linguistics, thereby laying out programmatic directions for further research.

One of the main conclusions that can be reached is that any comprehensive and truly explanatory account of phonology in Cognitive Linguistics should take into account the general cognitive processes that shape and give rise to phonological units as well as the various factors – linguistic and language-independent – which motivate those units (phonetic, usage-based, sociocultural, ecological, etc.). Future research should therefore include further exploration of the simultaneous contribution of different factors in the motivation of linguistic units.

## Notes

1. There is a similarity, however, between the concepts of prototypicality and that of ‘markedness’ (Nathan, 2008: 35). The main difference between the concepts is that markedness is a structural relationship within a grammar while prototypicality is a fact about cognitive representation.

2. Other phonological entities like tones are also amenable to a Cognitive Linguistics analysis like, for example, the meanings of falling and rising tones in English intonation (e.g. Taylor, 2003, chap. 10).
3. For example, it is not always possible to abstract a viable, psycholinguistically plausible schema that is fully compatible with all the members of a category. Some commonality between certain members of a phoneme category may exist but the commonality may not extend to the totality of the members. One such local schema for /t/ could contain the features [voiceless], [alveolar], and [stop], shared by many members of the category but not by all.
4. Prototypes can also be found in phoneme inventories (e.g. Nathan, 1994, 1996, 2007, 2008). Thus, just as there are nonprototypical birds in the category 'birds', '... there are nonprototypical phonemes – clicks, implosives, nasalised vowels, and so on' (Nathan, 2007: 622).
5. The inventory of units may also include intrasyllabic units such as onsets and rhymes or suprasyllabic units such as phonological words or moras (see e.g. Langacker, 1999: 128; 2007: 443; Nathan, 2008: 47, 56–8).
6. It has also been claimed that some syllabaries or idiographic writing systems – for example Chinese, Sumerian, etc. – developed before alphabetic ones, although alphabetic systems –Phoenician, Mayan, etc. – also developed quite early.
7. '*Upupa africana*' (name of a common South African garden bird).
8. In writing, non-default tone units like these are often highlighted by means of various typographical means like italics, boldface, small caps, different sizes of type, different colour, etc.
9. This preference, though widespread in the world's languages, is not universal. In Korean, for example, speakers seem to prefer a division of the syllable between body (onset+nucleus) and coda (e.g. Yoon and Derwing, 2001). Also Chinese, which traditionally divides syllables (morphemes) into initials (onset + nucleus) and finals (typically, a nasal).
10. There has been a long debate on the relative importance of articulatory and perceptual facts, with arguments and evidence favouring either view (Fowler, 2007: 494).
11. According to Langacker (1999: 129), segments could even be regarded as being modelled on constellations of articulatory gestures, as proposed by Browman and Goldstein (e.g. 1992). These constellations of articulatory gestures can be thought of as constellations of image schemas.
12. For the rest of the category members that have unit status, linguistic distance of phonetic features from the prototype is considered to play a role in the construal of prototypicality (e.g. Taylor, 1990, 2002, 2003), although other linguistic factors such as perceived word frequency, spelling, etc. cannot be ruled out in some cases (e.g. Jelaska and Machata, 2005; Mompean, 2001).

## References

- Aitchison, J. (2003). *Words in the Mind: An Introduction to the Mental Lexicon*. Malden, MA: Wiley-Blackwell.
- Barlow, M. and Kemmer, S. (Eds) (2000). *Usage-Based Models of Language*. Stanford: CSLI.
- Bergen, B. (2004). The psychological reality of phonaesthemes. *Language*, 80(2), 290–311.
- Blevins, J. (2004). *Evolutionary Phonology: The Emergence of Sound Patterns*. Cambridge: Cambridge University Press.
- Bloomfield, L. (1933). *Language*. New York: Henry Holt.

- Bolinger, D. (1986). *Intonation and Its Parts: Melody in Spoken English*. Stanford: Stanford University Press.
- Booij, G. (2010). *Construction Morphology*. Oxford: Oxford University Press.
- Brugman, C. (1990). What is the invariance hypothesis? *Cognitive Linguistics*, 1(2), 257–66.
- Brugman, C. and Lakoff, G. (1988). Cognitive topology and lexical networks. In S. Small, G. Cottrell and M. Tanenhaus (Eds), *Lexical Ambiguity Resolution*. Palo Alto, CA: Morgan Kaufmann, pp. 477–507.
- Bybee, J. L. (1994). A view of phonology from a cognitive and functional perspective. *Cognitive Linguistics*, 5(4), 285–305.
- (1999). Usage-based phonology. In M. Darnell et al. (Eds), *Functionalism and Formalism in Linguistics, Volume 1: General Papers*. Amsterdam and Philadelphia: John Benjamins, pp. 211–42.
- (2001a). *Phonology and Language Use*. Cambridge: Cambridge University Press.
- (2001b). Frequency effects on French liaison. In J. Bybee and P. Hopper (Eds), *Frequency and the Emergence of Linguistic Structure*. Amsterdam: John Benjamins, pp. 337–59.
- (2007). *Frequency of Use and the Organization of Language*. Oxford: Oxford University Press.
- Bybee, J. L. and Moder, C. L. (1983). Morphological classes as natural categories. *Language*, 59, 251–70.
- Bybee, J. L. and Slobin, D. S. (1982). Rules and schemas in the development and use of the English past tense. *Language*, 58, 265–89.
- Chomsky, N. and Halle, M. (1968). *The Sound Pattern of English*. New York: Harper & Row.
- Clark, L. (2008). Re-examining vocalic variation in Scottish English: A cognitive grammar approach. *Language Variation and Change*, 20(2), 255–73.
- Clark, L. and Trousdale, G. (2009). The role of frequency in phonological change: Evidence from th-fronting in east-central Scotland. *English Language and Linguistics*, 13(1), 33–55.
- (2010). A cognitive approach to quantitative sociolinguistic variation: Evidence from th-fronting in central Scotland. In G. Dirk, G. Kristiansen and Y. Peirsman (Eds), *Advances in Cognitive Sociolinguistics*. Berlin and New York: Mouton de Gruyter, pp. 291–322.
- Coleman, L. and Kay, P. (1981). Prototype semantics: The English word *lie*. *Language*, 57, 26–44.
- Corrigan, R. (1991). Sentences as categories: Is there a basic-level sentence? *Cognitive Linguistics*, 2(4), 339–56.
- Croft, W. (1995). Intonation units and grammatical structure. *Linguistics*, 33(5), 839–82.
- (1996). Linguistic selection: An utterance-based evolutionary theory of language change. *Nordic Journal of Linguistics*, 19, 99–139.
- Croft, W. and Cruse, D. A. (2004). *Cognitive Linguistics*. Cambridge: Cambridge University Press.
- Cuenca, M. J. and Hilferty, J. (1999). *Introducción a la Lingüística Cognitiva*. Barcelona: Ariel Lingüística.
- Díaz Vera, J. E. (2008). How the phoneme inventory changes its shape: A cognitive approach to phonological evolution and change. *Miscelanea: A Journal of English and American Studies*, 37, 11–22.
- Dirven, R. and Taylor, J. (1988). The conceptualization of vertical space in English: The case of *tall*. In B. Rudzka-Ostyn (Ed.), *Topics in Cognitive Linguistics*. Amsterdam and Philadelphia: John Benjamins, pp. 379–402.
- Donegan, P. J. and Stampe, D. (1979). The study of natural phonology. In D. A. Dinnsen (Ed.), *Current Approaches to Phonological Theory*. Bloomington: Indiana University Press, pp. 126–73.

- (2009). Hypotheses of natural phonology. *Poznań Studies in Contemporary Linguistics*, 45 (1), 1–31.
- Eddington, D. (2007). Flaps and other variants of /t/ in American English: Allophonic distribution without constraints, rules, or abstractions. *Cognitive Linguistics*, 18(2), 23–46.
- Evans, V. and Green, M. (2006). *Cognitive Linguistics: An Introduction*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Farrell, P. (1990). Spanish stress: A cognitive analysis. *Hispanic Linguistics*, 4, 21–56.
- Fauconnier, G. and Turner, M. (1998). Conceptual integration networks. *Cognitive Science*, 2(1), 133–87.
- (2002). *The Way We Think*. New York: Basic Books.
- Fowler, C. A. (2007). Speech production. In M. G. Gaskell (Ed.), *The Oxford Handbook of Psycholinguistics*. Oxford: Oxford University Press, pp. 489–501.
- Fraser, H. (2004). Constraining abstractness: Phonological representation in the light of color terms. *Cognitive Linguistics*, 15(3), 239–88.
- (2006). Phonological concepts and concept formation: Metatheory, theory and application. *International Journal of English Studies*, 6(2), 55–75.
- (2010). Cognitive theory as a tool for teaching second language pronunciation. In S. de Knop, F. Boers and T. de Rycker (Eds), *Fostering Language Teaching Efficiency through Cognitive Linguistics*. Berlin and New York: Mouton de Gruyter, pp. 357–80.
- Geeraerts, D. (2010). Recontextualizing grammar: Underlying trends in thirty years of cognitive linguistics. In E. Tabakowska, M. Chojiński and Ł. Wiraszka (Eds), *Cognitive Linguistics in Action: From Theory to Application and Back*. Berlin and New York: Mouton de Gruyter, pp. 71–102.
- Geeraerts, D., Kristiansen, G. and Peirsman, Y. (Eds) (2010). *Advances in Cognitive Sociolinguistics*. Berlin and New York: Mouton de Gruyter.
- Gibbs, R. W. (1996). What's cognitive about cognitive linguistics? In E. H. Casad (Ed.), *Cognitive Linguistics in the Redwoods*. Berlin and New York: Mouton de Gruyter, pp. 27–53.
- Glynn, D. (2009). Synonymy, lexical fields, and grammatical constructions. Developing usage-based methodology for cognitive semantics. In H. J. Schmid and S. Handl (Eds), *Cognitive Foundations of Linguistic Usage Patterns*. Berlin and New York: Mouton de Gruyter, pp. 89–118.
- Goldberg, A. (1995). *Constructions: A Construction Grammar Approach to Argument Structure*. Chicago: Chicago University Press.
- (1996). *Constructions at Work: The Nature of Generalization in Language*. Oxford: Oxford University Press.
- Gonzalez-Marquez, M., Mittelberg, I., Coulson, S. and Spivey, M. (Eds) (2007). *Methods in Cognitive Linguistics*. Amsterdam and Philadelphia: John Benjamins.
- Gries, S. Th. (2011). Phonological similarity in multi-word units. *Cognitive Linguistics*, 22(3), 491–510.
- Hollmann, W. B. and Siewierska, A. (2007). A construction grammar account of possessive constructions in Lancashire dialect: Some advantages and challenges. *English Language and Linguistics*, 11, 407–24.
- (2011). The status of frequency, schemas, and identity in cognitive sociolinguistics: A case study on definite article reduction. *Cognitive Linguistics*, 22(1), 25–54.
- Hulst, H. G. van der (2003). Cognitive phonology. In J. Koster and H. van Riemsdijk (Eds), *Germania et alia: A linguistic Webschrift for Hans den Besten on the Occasion of His 55th Birthday*. Tilburg and Groningen: University of Groningen, pp. 1–24.
- Jaeger, J. J. (1980). *Categorization in Phonology: An Experimental Approach*. PhD dissertation, University of California, Berkeley.
- Jaeger, J. J. and Ohala, J. J. (1984). On the structure of phonetic categories. *Proceedings of the Annual Meeting of the Berkeley Linguistic Society*, 10, 15–26.

- Jakobson, R., Fant, C. M. and Halle, M. (1952). *Preliminaries to Speech Analysis*. Cambridge, MA: MIT Press.
- Jelaska, Z. and Machata, G. (2005). Prototypicality and the concept of phoneme. *Glossos*, 6, 1–13.
- Johnson, M. (1987). *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason*. Chicago: University of Chicago Press.
- Kelly, M. H. (1998). To 'brunch' or to 'brench': Some aspects of blend structure. *Linguistics*, 36(3), 579–90.
- Kirjavainen, M., Nikolaev, A. and Kidd, E. (2012). The effect for frequency and phonological neighbourhood density on the acquisition of past tense verbs by Finnish children. *Cognitive Linguistics*, 23(2), 273–316.
- Kristiansen, G. (2003). How to do things with allophones: Linguistic stereotypes as cognitive reference points in social cognition. In R. Dirven et al. (Eds), *Cognitive Models in Language and Thought. Ideology, Metaphors and Meanings*. Berlin and New York: Mouton de Gruyter, pp. 69–120.
- (2006). Towards a usage-based cognitive phonology. *International Journal of English Studies*, 6(2), 107–40.
- Kristiansen, G. and Dirven, R. (Eds) (2008). *Cognitive Sociolinguistics. Language Variation, Cultural Models, Social Systems*. Berlin and New York: Mouton de Gruyter.
- Kumashiro, F. (2000). *Phonotactic Interactions: A Non-reductionist Approach to Phonology*. PhD dissertation, University of California, San Diego.
- Kumashiro, F. and Kumashiro, T. (2006). Interlexical relations in English stress. *International Journal of English Studies*, 6(2), 77–106.
- Lakoff, G. (1987). *Women, Fire and Dangerous Things: What Categories Reveal About the Mind*. Chicago: University of Chicago Press.
- (1990). The invariance hypothesis: Is abstract reason based on image-schemas? *Cognitive Linguistics*, 1(1), 39–74.
- (1993). Cognitive phonology. In J. Goldsmith (Ed.), *The Last Phonological Rule: Reflections on Constraints and Derivations*. Chicago: University of Chicago Press, pp. 117–45.
- Lakoff, G. and Johnson, M. (1980). *Metaphors We Live By*. Chicago: University of Chicago Press.
- (1999). *Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought*. New York: Basic Books.
- Lakoff, G. and Turner, M. (1989). *More than Cool Reason: A Field Guide to Poetic Metaphor*. Chicago: University of Chicago Press.
- Langacker, R. W. (1987). *Foundations of Cognitive Grammar, Vol. 1: Theoretical Prerequisites*. Stanford, CA: Stanford University Press.
- (1988). A usage-based model. In B. Rudzka-Ostyn (Ed.), *Topics in Cognitive Linguistics*. Amsterdam and Philadelphia: John Benjamins, pp. 127–61.
- (1991). *Concept, Image, and Symbol: The Cognitive Basis of Grammar*. Berlin: Mouton de Gruyter.
- (1999). *Grammar and Conceptualization*. Berlin and New York: Mouton de Gruyter.
- (2007). Cognitive grammar. In D. Geeraerts and H. Cuyckens (Eds), *The Oxford Handbook of Cognitive Linguistics*. Oxford: Oxford University Press, pp. 421–62.
- Mompean, J. A. (2001). A comparison between English and Spanish subjects' typicality ratings in phoneme. *International Journal of English Studies*, 1(1), 115–56.
- (2002). *The Categorization of the Sounds of English: Experimental Evidence in Phonology*. PhD dissertation, University of Murcia, Murcia (Spain).
- (2004). Category overlap and neutralization: The importance of speakers' classifications in phonology. *Cognitive Linguistics*, 15(4), 429–69.

- (2006a). The phoneme as a basic-level category: Experimental evidence from English. *International Journal of English Studies*, 6(2), 141–72.
- (2006b). The phonological status of English oral stops after tautosyllabic /s/: Evidence from speakers' classificatory behaviour. *Language Design: Journal of Theoretical and Experimental Linguistics*, 8, 69–101.
- Mompean, J. A. and Mompean, P. (2009). /r/-liaison in English: An empirical study. *Cognitive Linguistics*, 20(4), 733–76.
- (2012). La fonología cognitiva. In I. Ibarretxe-Antuñano and J. Valenzuela (Eds), *Lingüística Cognitiva*. Barcelona: Anthropos, pp. 305–26.
- Nathan, G. S. (1979). Towards a literate level of language. In P. R. Clyne et al. (Eds), *The Elements: A Parasession on Linguistic Units and Levels, April 20–21, 1979*. Chicago: Chicago Linguistic Society, pp. 144–51.
- (1986). Phonemes as mental categories. *Proceedings of the Annual Meeting of the Berkeley Linguistic Society*, 12, 212–23.
- (1989). Preliminaries to a theory of phonological substance: The substance of sonority. In R. Corrigan et al. (Eds), *Linguistic Categorisation*. Amsterdam and Philadelphia: John Benjamins, pp. 55–67.
- (1994). How the phoneme inventory gets its shape: Cognitive grammar's view of phonological systems. *Rivista di Linguistica*, 6(2), 275–87.
- (1996). Steps towards a cognitive phonology. In B. Hurch and R. Rhodes (Eds), *Natural Phonology: The State of the Art*. Berlin and New York: Mouton de Gruyter, pp. 107–20.
- (1999). What functionalists can learn from formalists in phonology. In M. Darnell et al. (Eds), *Functionalism and Formalism in Linguistics, Volume I: General Papers*. Amsterdam and Philadelphia: John Benjamins, pp. 305–27.
- (2006). Is the phoneme usage-based? Some issues. *International Journal of English Studies*, 6(2), 173–94.
- (2007). Phonology. In D. Geeraerts and H. Cuyckens (Eds), *The Oxford Handbook of Cognitive Linguistics*. Oxford: Oxford University Press, pp. 611–31.
- (2008). *Phonology: A Cognitive Grammar Introduction (Cognitive Linguistics in Practice [CLP] 3)*. Amsterdam and Philadelphia: John Benjamins.
- Nesset, T. (2008). *Abstract Phonology in a Concrete Model: Cognitive Linguistics and the Morphology-Phonology Interface*. Berlin and New York: Mouton de Gruyter.
- Ohala, J. J. (1990). There is no interface between phonology and phonetics: A personal view. *Journal of Phonetics*, 18, 153–71.
- Paradis, C. (2003). Between epistemic modality and degree: The case of really. In R. Facchinetti, M. Krug and F. Palmer (Eds), *Modality in Contemporary English*. Berlin and New York: Mouton de Gruyter, pp. 191–220.
- Pierrehumbert, J. (2000). The phonetic grounding of phonology. *Bulletin de la communication Parlée*, 5, 7–23.
- Prince, A. and Smolensky, P. (2004). *Constraint Interaction in Generative Grammar*. London: Blackwell.
- Radden, G. (2008). The cognitive approach to language. In J. Andor, B. Hollósy, T. Laczko and P. Pelyvás (Eds), *When Grammar Minds Language and Literature*. Debrecen: Institute of English and American Studies, pp. 387–412.
- Radden, G. and Panther, K.-U. (2004). Introduction: Reflections on motivation. In G. Radden and K.-U. Panther (Eds), *Studies in Linguistic Motivation*. Berlin and New York: Mouton De Gruyter, pp. 1–46.
- Rohrer, T. (2007). Embodiment and experientialism. In D. Geeraerts and H. Cuyckens (Eds), *Oxford Handbook of Cognitive Linguistics*. Oxford: Oxford University Press, pp. 611–31.
- Rosch, E. (1975). Cognitive representations of semantic categories. *Journal of Experimental Psychology: General*, 104, 192–233.



- Rosch, E., Gray, W. D., Johnson, D. M. and Boyes-Braem, P. (1976). Basic objects in natural categories. *Cognitive Psychology*, 8, 382–439.
- Rubba, J. (1993). *Discontinuous Morphology in Modern Aramaic*. PhD dissertation, University of California, San Diego.
- Sharifi, L. (2011). Phonological deletion in text messages: A cognitive view. *International Journal of Linguistics*, 3(1), 1–9.
- Taylor, J. R. (1990). Schemas, prototypes, and models: In search of the unity of the sign. In S. L. Tsohatzidis (Ed.), *Meanings and Prototypes: Studies in Linguistic Categorisation*. London: Routledge, pp. 521–34.
- (2002). *Cognitive Grammar*. Oxford: Oxford University Press.
- (2003). *Linguistic Categorisation: Prototypes in Linguistic Theory* (3rd ed., 1st ed. 1989). Oxford: Oxford University Press.
- (2004). The ecology of constructions. In G. Radden and K.-U. Panther (Eds), *Studies in Linguistic Motivation*. Berlin and New York: Mouton De Gruyter, pp. 49–73.
- (2006). Where do phonemes come from: A view from the bottom. *International Journal of English Studies*, 6(2), 19–54.
- Tomasello, M. (2003). *Constructing a Language: A Usage-Based Theory of Language Acquisition*. Harvard: Harvard University Press.
- Treiman, R. and Danis, C. (1988). Syllabification of intervocalic consonants. *Journal of Memory and Language*, 27, 87–104.
- Treiman, R. and Kessler, B. (1995). In defense of an onset–rime syllable structure for English. *Language and Speech*, 38, 127–42.
- Treiman, R., Cassar, M. and Zukowski, A. (1994). What types of linguistic information do children use in spelling? The case of flaps. *Child Development*, 65, 1310–29.
- Trubetzkoy, N. S. (1939). *Principles of Phonology*, trans. and ed. C. A. M. Baltaxe, 1969. Berkeley, LA: University of California Press.
- Tuggy, D. (2003a). Reduplication in Nahuatl: Iconicity and paradoxes. In E. H. Casad and G. B. Palmer (Eds), *Cognitive Linguistics and Non-Indo-European Languages*. Berlin and New York: Mouton de Gruyter, pp. 91–133.
- (2003b). Abrelatas and scarecrow nouns: Exocentric verb-noun compounds as illustrations of basic principles of cognitive grammar. *International Journal of English Studies*, 3(2), 25–61.
- Tversky, B. (1990). Where partonomies and taxonomies meet. In S. L. Tsohatzidis (Ed.), *Meanings and Prototypes: Studies on Linguistic Categorization*. London: Routledge, pp. 334–44.
- Tversky, B. and Hemenway, K. (1991). Parts and the basic level in natural categories and artificial stimuli: Comments on Murphy (1991). *Memory and Cognition*, 19, 439–42.
- van Huyssteen, G. B. (2004). Motivating the composition of Afrikaans reduplications: A cognitive grammar analysis. In G. Radden and K.-U. Panther (Eds), *Studies in Linguistic Motivation*. Berlin and New York: Mouton de Gruyter, pp. 269–92.
- van Langendonck, W. (2007). Iconicity. In D. Geeraerts and H. Cuyckens (Eds), *The Oxford Handbook of Cognitive Linguistics*. Oxford: Oxford University Press, pp. 394–418.
- Yoon, Yeo B. and Derwing, B. (2001). A language without a rhyme: Syllable structure experiments in Korean. *Canadian Journal of Linguistics*, 46, 187–237.

# 4

## New Directions and Applications



# 4.1 Corpus and Quantitative Methods

*Stefan Th. Gries*

## Chapter Overview

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The behavior of the speaker, listener, and learner of language constitutes, of course, the actual data for any study of language. Chomsky (1959: 59)

## 1 Introduction

The core question at the heart of nearly all work in cognitive/usage-based linguistics is, how do characteristics of the cognitive system affect, or at least correlate with, the acquisition, representation, processing, use and change of language? Thus, ever since Lakoff's (1990: 40) formulation of the cognitive commitment – the 'commitment to providing a characterization of general principles for language that accords with what is known about the mind and brain from other disciplines' – cognitive/usage-based approaches have revolved around notions such as:

- exemplars and entrenchment;
- chunking and learning;

- association and contingency;
- categorization, prototypicality and schematicity, as well as cue and category validity;
- productivity and creativity;
- analogy and similarity.

Even though these notions all involve human cognition and have been addressed with quite some empirical rigour in, say, psychology or psycholinguistics, the first wave of cognitive-linguistic research was largely and explicitly based on introspection just as the generative approach against which much of Cognitive Linguistics was arguing. For example, the early network analyses of highly polysemous words (most notoriously, *over*) liberally used the language of mental networks but came with little to no empirical data, and introspection or speculation was defended as a necessary element of cognitive-linguistic analysis (e.g. Langacker, 1987 or Talmy, 2000 or recent statements at the retrospective panel of the ICLC, 2013).

However, in the last 20–25 years or so, there has been a greater recognition of the problems that arise when linguists provide both the theory and the data. With regard to polysemy networks, for instance, Sandra and Rice (1995) has been a wake-up call in how they discuss both corpus-linguistic and experimental ways (combined with statistical analyses) to put the study of polysemy networks etc. on firmer empirical grounds. Nowadays, cognitive/usage-based linguistics is characterized by a more widespread adoption of corpus data as a source of relevant linguistic data and quantitative/statistical tools as one of the central methodologies, and the field is now brimming with new corpus-based methods and statistical tools (cf. Ellis, 2012 for a recent comprehensive overview). This chapter will provide a brief overview of how corpus data and statistical methods are used in increasingly sophisticated ways in Cognitive Linguistics. While Cognitive Linguistics does not make a principled distinction between syntax and lexis anymore but rather assumes a syntax-lexis continuum, for expository reasons I will discuss (more) lexical examples in Section 2, (more) syntactic examples in Section 3, and I will then turn to selected applications of quantitative corpus linguistics in phonology and morphology in Section 4. Section 5 will then conclude with a brief discussion of necessary future developments.

This last point leads me, with some slight trepidation, to make a comment on our field in general, an informal observation based largely on a number of papers I have read as submissions in recent months. In particular, we seem to be witnessing as well a shift in the way some linguists find and utilize data – many papers now use corpora as their primary data, and many use internet data. (Joseph, 2004: 382)

## 2 Syntax-lexis, with an Emphasis on Lexis

Given its historical association with dictionary-making, corpus linguistics has always had a strong emphasis on the analysis of lexical items. Concordances – lists of uses of words in their authentic contexts – and collocations – tables of words that are used in slots around a word of interest – have long helped lexicographers to tease apart multiple senses of polysemous words or differences in how near synonymous words are used. Especially for collocations, corpus linguists also increasingly rely on association measures to separate the wheat – frequent co-occurrence that reflects interesting semantic and/or functional characteristics – from the chaff – frequent co-occurrence that reflects little of semantic interest, such as the fact that most nouns co-occur a lot with *the*. A syntactically more informed perspective then also studied colligation, that is, the co-occurrence of words or senses with elements in syntactically defined slots; early examples in Cognitive Linguistics are Schmid (1993), Kishner and Gibbs (1996) on *just*, and Gibbs and Matlock (2001) on *make*. While under-appreciated (and ground-breaking) at the time, these studies were still largely monofactorial in nature: Uses of (senses of) words were annotated for, and cross-tabulated with, co-occurrence patterns, but no real quantitative analyses were conducted on the distributional data thus obtained. The current state of the art is that such multidimensional co-occurrence data are also statistically analysed in multidimensional ways. Gries (2010b) distinguishes two different ways in which analyses can be multidimensional, which will be exemplified in the following two sections.

### 2.1 Multidimensional<sub>1</sub> Approaches: Behavioural Profiles and Cluster Analyses

The first sense of *multidimensional*, multidimensional<sub>1</sub>, refers to the fact that concordance lines of (senses of) a word are annotated for many different characteristics – morphological, syntactic, semantic, discourse-pragmatic – and all of these dimensions are used in a statistical analysis at the same time, but *separately* from each other. One example for this approach that has become more widely used is the behavioural profile (BP) approach (cf. Gries, 2010b for a detailed overview). In this approach, concordance lines are annotated for many features on many dimensions, and then the senses of polysemous words, or the near synonyms in point, are compared with regard to the percentages with which different features are attested with a sense/word. Consider Figure 4.1.1, which represents this process. The upper part illustrates how, in this case, three concordance lines of the verb lemmas *begin* and *start* are annotated for a variety of features. For example, the first concordance line was a line where *begin* was

used in the progressive (*ing*) and the entity that is beginning something was something abstract; the same is done for other concordance lines and for many other features. The lower part of Figure 4.1.1 is then the result of cross-tabulating the frequencies with which types of features are attested with the two lemmas. For instance, 20 per cent of all instances of the lemma *begin* were in the progressive, and 40 per cent of all instances of the lemma *start* were in the progressive, which means the two lemmas are rather different on that dimension. On the other hand, they are quite similar with regard to their past tense use: *begin* and *start* are used in the past tense 40 per cent and 38 per cent respectively. It is the columns of the lower part of Figure 4.1.1 that are referred to as behavioural profiles, since they summarize the percentages with which a lemma is used with/in something else.

Gries (2006) applied this method to the many senses of *to run*, Divjak (2006) studied Russian verbs meaning ‘to intend’, and both find that the percentages of co-occurrence phenomena reliably distinguish senses and near synonyms respectively. In addition, Gries (2006) also showed how co-occurrence percentages can be used to study the similarity of senses, their positions in networks, whether to lump or split them, and how more generally different types and aspects of corpus data help identify the prototypical senses of words (*viz.* type and token frequencies, earliest historical attestations, earliest language acquisition attestations, etc.).

A variety of more complex follow-up approaches to BP analyses have been pursued, too. For example, the behavioural profiles of, say, near synonyms with linguistic patterns in their contexts can be submitted to exploratory statistical tools such as hierarchical cluster analyses. Divjak and Gries (2006) is a case in point. They studied nine Russian verbs meaning ‘to try’ and analyse the similarity of BP co-occurrence percentages with cluster analyses and follow-up exploration in terms of average silhouette widths, *t*- and *F*-scores, etc. They found that this lexical field falls into three different groups (of three verbs each), which reflect different idealized cognitive models of trying. Even more interestingly, though, is that Divjak and Gries (2008) showed that the clusters obtained on the basis of the corpus analysis are very strongly replicated in sorting and gap-filling experiments with native speakers of Russian, a finding that testifies to the reliability and validity of the BP approach. Finally, Janda and Solovyev (2009) used a downsized version of BP data – the constructional profile, the relative frequency distribution of the grammatical constructions a word occurs in – to explore synonyms.

A final BP example to be mentioned showcases the potential of the BP approach for cross-linguistic analysis. Divjak and Gries (2009) studied phasal verbs in English (*begin* vs *start*) and Russian (*načinat’/načat’*, *načinat’sja/načat’sja*, and *stat’*). Computing, among other things, pairwise differences between behavioural profiles – as discussed above for progressive and past

Concordance line	Verb lemma	Verb form	What begins	...
1	<i>begin</i>	ing	abstract	...
2	<i>start</i>	past	human	...
3	<i>start</i>	infin	human	...
...	...	...	...	...

↓↓↓↓↓

ID tag	ID tag level	<i>begin</i>	<i>start</i>
Verb form	ing	0.2	0.4
	past	0.4	0.38
	infin	0.3	0.1
	...	...	...
What begins	abstract	0.15	0.2
	human	0.4	0.2
	...	...	...
...	...	...	...

Figure 4.1.1 Schematic representation of a BP analysis (fictitious numbers)

tense uses of *begin* and *start*, within English, they found that *start* is more frequent than *begin* with scenarios where human instigators start (esp. communicative) actions, and within Russian, *načínat'/načat'* prefers imperfective aspect and situations with a clear beginning whereas *stat'* prefers perfective aspect and actions instigated by humans. This is represented in dotcharts in Figure 4.1.2 and Figure 4.1.3: the percentage differences between the verbs being compared are on the *x*-axis, the differences are sorted by features and then by size, and the three vertical lines indicate the mean of all differences and its confidence interval. Thus, differences outside of this interval can be easily identified and point to potentially interesting distributional differences of the verbs.

However, since the annotated features are cross-linguistically comparable, Divjak and Gries also compared specific English to Russian verbs and, more generally, explored the features that make English speakers choose one of the synonyms as compared to Russian speakers. For instance, they found that English speakers' choices are driven by semantic characteristics of the beginners and beginnees whereas Russian speakers' choices are driven by aspectual and argument-structural characteristics.



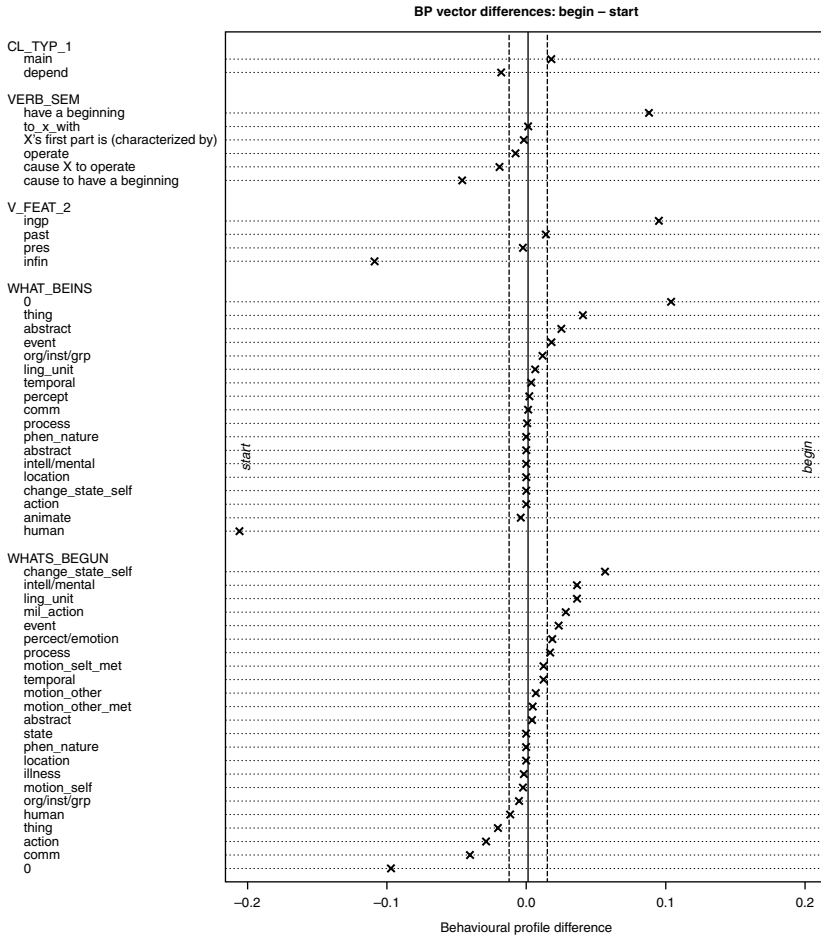


Figure 4.1.2 BP vector preferences contrasting *begin* and *start* (based on data from Divjak and Gries, 2009)

## 2.2 Multidimensional<sub>2</sub> Approaches: Regression and Correspondence Analysis

The second sense of *multidimensional*, multidimensional<sub>2</sub>, refers to the fact that concordance lines of (senses of) a word are annotated for many different characteristics – morphological, syntactic, semantic, discourse-pragmatic – and all of these dimensions are used in a statistical analysis *together*. That is, multidimensional<sub>1</sub> uses the information of how a linguistic item – a morpheme, a word, a sense, . . . – behaves on each of many dimensions such as

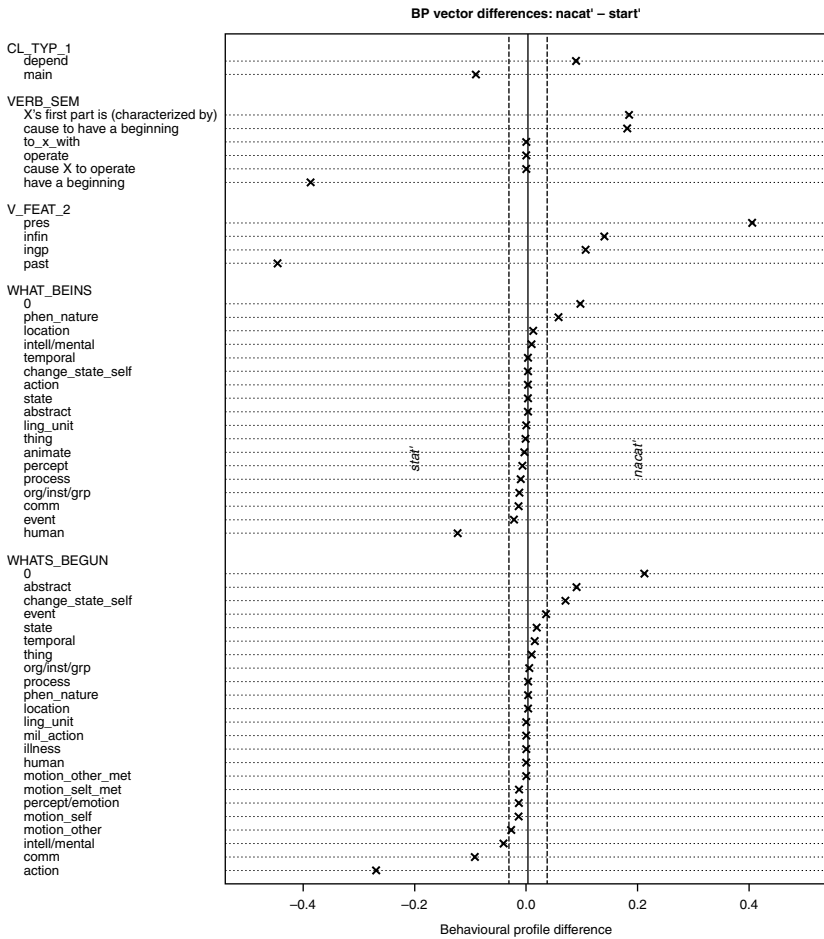


Figure 4.1.3 BP vector preferences contrasting *nacat'* and *stat'* (based on data from Divjak and Gries, 2009)

- what are the percentages with which sense *x* has different kinds of subjects?
- what are the percentages with which sense *x* has different kinds of objects? etc.

For example, if one annotates  $n=2$  dimensions of variation – for example, the percentages of different subjects of senses *a* to *f* and the percentages of different objects of senses *a* to *f* – then multidimensional<sub>1</sub> analysis uses that information in the shape of combining results from  $n=2$  two-dimensional frequency/percentage tables. But what is not included are the co-occurrence percentages of sense *x*'s different subjects *with its different objects* – this is what multidimensional<sub>2</sub>

does in the shape of one three-dimensional table: sense (*a* to *f*) × subject (all subject types) × object (all object types). The advantage over the BP analysis is, therefore, that higher-level co-occurrence information is included, which is more precise and cognitively more realistic (although, recall the strong experimental validation of the BP approach). The disadvantage is that this can easily lead to very sparse data sets, as when many features are annotated so that any actual combination of features is very rare.

Two types of multidimensional<sub>2</sub> applications are particularly interesting. First, exploratory approaches such as those using (multiple) correspondence analysis (MCA), a method applied to multidimensional frequency data that is similar to principal component analysis. One such application to a polysemous word is Glynn's (2010) study of *bother*. Glynn followed the work discussed in Section 2.1 and annotated uses of *bother* for a large number of features and applied MCAs to different parts of the multidimensional frequency table. The results revealed different clusters and 'semantically motivated distinction[s] between two sets of syntactic patterns' (Glynn, 2010: 256), an agentive and a predicative construction. In order to test the patterns suggested by the exploratory tool, Glynn then added the second type of multidimensional<sub>2</sub> application, confirmatory approaches based on regression analyses. In this case, he ran a binary logistic regression to determine to what extent the co-occurrence features of *bother* distinguish between the two constructions. His analysis resulted in a good classification accuracy, showing that, just like BPs, a careful multidimensional analysis of corpus data with powerful statistical tools can reveal cognitively and constructionally interesting regularities impossible to discover by intuition or eyeballing of data. Additional applications of this approach in the domain of semantics include Glynn (2012), a replication of Gries (2006) and, with a fascinating interpretation of the notion of *corpus*, Levshina's (in prep.) study of how an MCA discovers structure in the semantic field of seating furniture, where the different words for pieces of furniture are annotated for characteristics taken from German online furniture catalogues such as 'ab-/presence of armrests', 'use of upholstery', 'back recline', 'seat surface recline', etc.

Additional examples for similar multidimensional<sub>2</sub> applications involve binary as well as multinomial or polytomous logistic regressions. As for the former, Deshor and Gries (2012) compared the uses of *may* and *can* by native speakers of English and French to see how well syntactic and semantic features allow to predict speakers' choices, but also to determine which variables distinguish the native speaker's from the learners' use of *may* and *can*; the results were then interpreted against the background of processing principles. As for the latter, Arppe (2008) studied four common Finnish verbs meaning 'to think' by, as usual, annotating them for a variety of linguistic characteristics and then identifying the linguistic characteristics that best allow to predict speakers' choices; later work by Divjak and Arppe (e.g. 2010) extended such regression

approaches to the identification of prototypes in a way inspired by, but not referencing, Gries (2003b), who uses linear discriminant analysis to the same end (a classifier mathematically different from, but nonetheless comparable to, the now common regression models).

Regardless of which multidimensional approach is chosen, the combination of comprehensive annotation and multifactorial/-variate analysis has yielded insightful results regarding a variety of the above-mentioned central notions of Cognitive Linguistics on the level of lexical items, including the degree to which words/senses are entrenched, the association/contingency of formal and functional elements, matters of categorization (graded similarity vs discreteness of senses, prototypes of senses) and many more. For more examples regarding the corpus-based exploration of metaphor and metonymy, the reader is referred to the collection of papers in Stefanowitsch and Gries (2006); for more examples highlighting in particular statistical applications, see Glynn and Fischer (2010) and Glynn and Robinson (2012). The following section will now turn to the more syntactic side of the syntax-lexis continuum.

Linguistics has always had a numerical and mathematical side [. . .], but the use of quantitative methods, and, relatedly, formalizations and modeling, seems to be ever on the increase; rare is the paper that does not report on some statistical analysis of relevant data or offer some model of the problem at hand. (Joseph, 2008: 687)

### 3 Syntax-lexis, with an Emphasis on Syntax

Not unsurprisingly, the corpus-linguistic tools used on the more syntactic side of the continuum are quite similar to those on the more lexical side of things. Again, concordances are used to explore the use of syntactic patterns, or constructions, in their context, and colligations/collexemes – tables of words occurring in syntactically defined slots of constructions – are used to explore the ways in which constructional slots are filled. One major difference of course is concerned with the searchability of constructions, since corpora that are annotated for constructions in the general sense of the term do not exist. Thus, corpus searches for constructions typically rely on words (searching for *way* or *into* [a-z] *ing* to find the *way* construction or the *into*-causative), part of speech tags (searching for *DPS way* [*DPS* = possessive determiner] or *into VVG* [*VVG* = lexical verb in the progressive] to find the *way* construction or the *into*-causative), parsed corpora, or combinations of all these things with lots of subsequent manual disambiguation. In the following sections, I will first discuss a recent development in the study of colligations/collexemes, which is a simple monofactorial topic, before I turn to corpus-linguistically and quantitatively more involved topics.

### 3.1 Monofactorial Approaches: Frequencies, Percentages and Collostructions

One recent prominent approach in the study of constructions – the way they fill their slots and what that reveals about their semantics/function – is collostructional analysis (Stefanowitsch and Gries, 2003, 2005 and Gries and Stefanowitsch, 2004a, b). By analogy to collocations, Gries and Stefanowitsch proposed to study the functions of constructions by not just looking at how frequently words occur in their slots (e.g. which verbs occur in the verb slot of the *way* construction how often?) but by computing measures of association (most often  $p_{\text{Fisher-Yates exact test}}$ ) that quantify how strongly (or weakly) a word and a construction are attracted to, or repelled by, each other. This family of methods has some psycholinguistic foundation and has been widely adopted in studies on near-synonymous constructions (alternations), priming effects (Szmrecsanyi, 2006), first and second language acquisition and learning of constructions (cf. Ellis and Ferreira-Junior, 2009; Goldberg, 2006 and Gries and Wulff, 2005, 2009 for insightful discussion of many compatible findings), constructional change over time (Hilpert, 2006, 2008), etc. For alternations, for instance, the method was precise enough to discover the iconicity difference between the ditransitive (small distances between recipient and patient) and the prepositional dative (larger distances between recipient and patient; cf. Thompson and Koide, 1987).

In the last few years, a variety of studies have been published which also document the validity of the method experimentally. Gries, Hampe and Schönefeld (2005) demonstrated how collexeme analysis outperforms frequency and conditional probabilities as predictors of subjects' behaviour in a sentence completion task, and the follow-up of Gries, Hampe and Schönefeld (2005) provided additional support from self-paced reading times; cf. also Gries (2012) for a comprehensive overview and rebuttal of Bybee (2010: Section 5.12). Lastly, collostructions have been coupled with more advanced statistical tools – such as cluster analysis or correspondence analysis – to discover sub-senses of constructions (cf. Gries and Stefanowitsch, 2010) or structure in lexical fields (when this tool is applied to lexical items, cf. Desagulier, 2012).

### 3.2 Multidimensional<sub>2</sub> Approaches: Regression and Correspondence Analysis

The previous section already mentioned the use of advanced statistical tools in the analysis of constructions; in the terminology of Section 2, these tools are multidimensional<sub>2</sub> and I will again discuss examples using exploratory and confirmatory approaches; for expository (and historical) reasons, I will begin with the latter.

As far as I can see, the first multifactorial approaches in cognitive corpus linguistics were Gries's (2000, 2003a) studies of the constructional alternation of particle placement, that is the two constructions instantiated by *Picard picked up the tricorder* and *Picard picked the tricorder up*. On the basis of corpus data from the British National Corpus (BNC), he annotated examples of both constructions for a large number of phonological, morphological, syntactic, semantic, and discourse-functional parameters and used a linear discriminant analysis to identify the factors that make speakers choose one construction over another in a particular discourse context, discuss their implications for language production and identify prototypical instances of both constructions. Since then, this type of approach – multifactorial modelling syntactic, but now also lexical, alternatives with regression-like methods – has become very prominent both within and outside of cognitive linguistics proper and within Cognitive Linguistics there are at least some studies that show how well this approach helps explore such alternations; Szendrői (2006), Gries and Wulff (2009) are two cases in point using logistic regressions, Levshina, Geeraerts, Speelman (2012) for the additional tool of classification and regression trees, and Gries (2003b) showed that the predictions of such methods correlate very strongly with results from acceptability ratings.

There are also exploratory approaches to be discussed, and again they involve the method of multiple correspondence analysis. One particularly interesting example involves the cross-linguistic corpus-based study of analytic causatives in English and Dutch. On the basis of data from the newspaper component of the BNC (approx. 10m words) for English and an equally large sample from the Twente and the Leuven News corpora, Levshina, Geeraerts and Speelman (2013) retrieved approx. 4,000 examples of causatives from both languages, which were annotated for the semantic classes of the causer and the causee as well as for one of many different semantic verb classes. An MCA was then used to determine the conceptual space of the causatives in the two languages. Among other things, this bottom-up procedure provided a two-dimensional representation (of an ultimately three-dimensional) conceptual causative space with clear support for a previous merely theoretical typology of causative events. In addition, a follow-up analysis of the results of separate analyses of the English and the Dutch data showed that the two languages' conceptual causative space is overall similar, but not identical, and the authors discussed how both languages' data points are located differently in causative space.

### 3.3 Straddling the Boundaries of Lexis and Syntax: Idioms and Multiword Units

As mentioned above and for purely expository reasons, Sections 2 and 3 in this chapter upheld a distinction that cognitive linguists – and many corpus

linguists – do not usually make anymore, the one between syntax and lexis. In fact, many of the earliest studies in Construction Grammar focused on items straddling the ‘syntax-lexis boundary’, namely constructions that were traditionally called idioms (cf. Wulff, 2008 for the probably most rigorous cognitive and corpus-linguistic study of idiomaticity). At that time, and in fact until recently, it was part of the definition of construction that an expression considered a candidate for constructionhood exhibited something that was not predictable from its constituent parts and other constructions already postulated. While, in Goldbergian Construction Grammar, this notion of unpredictability is no longer a necessary condition, there is now also a growing body of research on the psycholinguistic status multiword units (MWUs, also often called *lexical bundles*), that is expressions consisting of several contiguous words. On the one hand, MWUs do not seem good candidates for constructionhood since they are often not even ‘proper’ phrasal elements, do not have a particularly unified semantic/functional pole, and have little that is unpredictable about them, but on the other hand many of them, at some point, became retained in speakers’ minds and, thus, most likely also gave rise to processes of chunking (cf. Bybee, 2010: Ch. 3, 8). Many such studies are experimental in nature but usually take their starting point from corpus frequencies of MWUs. For instance, Bod (2000) showed that high-frequency 3-grams (e.g. *I like it*) are reacted to faster than lower-frequency 3-grams (e.g. *I keep it*), and Lemke, Tremblay and Tucker (2009) provided evidence from lab-induced speech that the last word of a 4-gram is more predictable than expected by chance, which they interpreted as showing that MWUs are stored as lexical units; similar findings are reported by Huang, Wible and Ko (2012) based on the comparison of transitional probabilities in corpus data and eye-tracking data; cf. for more discussion Arnon and Snider (2010), Snider and Arnon (2012), and Caldwell-Harris, Berant and Edelman (2012).

Again, the analysis of many of the central notions of the cognitive/usage-based approach to language benefits in multiple ways from the combination of fine-grained annotation of corpus data and powerful statistical tools, which elucidate complex patterns and interactions in the data that defy introspective or simple monofactorial analysis: notions such as chunking and entrenchment of words into MWUs, association and contingency of words in constructional slots (which are based on the validity of cues and constructional categories), the implications of this for learnability and processing . . . all these are areas where state-of-the-art quantitative corpus linguistics can be very useful. For more examples, see Stefanowitsch (2010a) and the papers in Gries and Stefanowitsch (2006), Rice and Newman (2010), Schönefeld (2011), Divjak and Gries (2012), and Gries and Divjak (2012).

Now that corpus linguistics is turning more and more into an integral part of mainstream linguistics, [. . .] we have to face the challenge of complementing

the amazing efforts in the compilation, annotation and analysis of corpora with a powerful statistical toolkit and of making intelligent use of the quantitative methods that are available. (Mukherjee, 2007: 141)

## **4 Phonology and Morphology**

For purely technological reasons, corpus linguistics has been particularly involved in studies on lexis and syntax. However, given increasingly more and larger resources as well as the ongoing development of new techniques and tools, there is now also a considerable body of corpus-based cognitive-linguistic research in domains such as phonology and morphology. Space does not permit an exhaustive discussion but the following sections highlight some examples.

### **4.1 Phonology**

Some of the more influential recent studies on phonological reduction were not cognitive-linguistic in a narrower sense, but certainly compatible with current cognitive-linguistic work on processing. As one example, Bell et al. (2003) is a comprehensive study using regression analyses on how the pronunciation of monosyllabic function words (in the Switchboard corpus) is affected by disfluencies, contextual predictability (measured in terms of transitional probabilities, and earlier studies used the association measure *MI*), and utterance position.

To mention one more recent example, Raymond and Brown (2012) used binary logistic regression to study initial-fricative reduction in Spanish. Their study is remarkable for the range of variables they take into consideration to shed light on why many studies of frequency effects come to contradictory results. Maybe the most important conclusion is that, once contextual probabilities are taken into account, non-contextual frequencies did not yield any robust results, a finding strongly supporting the view that simple frequencies of occurrence are often not enough.

### **4.2 Morphology**

Another area in which corpus-based studies have had a lot to offer to Cognitive Linguistics is morphology. There is a large number of studies by Bybee and colleagues (nicely summarized in Bybee, 2010) that revealed how frequency of (co-)occurrence affects chunking or resistance to morphosyntactic change, to



name but some examples, and that have been integrated into a usage-based network model of morphology. A different though ultimately related strand of research is work on morphological productivity, specifically on how to measure it best and how relative frequency – the difference in frequency of derived words (e.g. *inaccurate*) and their bases (e.g. *accurate*) – affects productivity as well as morphological processing, which in turn informs theoretical discussions of decompositional vs non-decompositional approaches; cf. Hay and Baayen (2003) or Antić (2012) for a more recent contribution.

Let me finally mention a few smaller case studies. On the basis of a small corpus of Dena'ina narratives, Berez and Gries (2010) explored the factors that trigger the ab-/presence of the middle marker *d* in iterative verbs. Traditionally, *d* was considered a reflex of syntactic transitivity, with semantics playing a less important role. However, a binary logistic regression and a hierarchical configurational frequency analysis of their data showed that, while transitivity is a relevant predictor, the semantic type of iterativity (and its position on a scale from concrete to abstract) resulted in an even higher degree of predictive power.

Lastly, Teddman (2012) showed how subjects' decisions on which part of speech to assign to ambiguous words in an experiment are very strongly correlated ( $r_s=0.87$ ) with the words' preferences in the CELEX database. On the whole, words such as *pipe* and *drive* (mostly used nominally and verbally respectively) were typically assigned to be nouns and verbs respectively.

### 4.3 Straddling the Boundaries of Phonology and Morphology

Just as there are phenomena somewhere between, or in both lexis and syntax, so there are phenomena somewhere between, or in both phonology and morphology. An example of the former is Bergen (2004) on phonaesthemes. While the main point of his study involved a priming experiment, one section of it showed how some phonaesthemes such as *gl-*, *sn-*, and *sm-* are significantly more often attested with their phonaesthetic meanings of 'light' and 'nose/mouth' than expected by chance, which raises interesting issues for classical morphological theory, into which phonaesthemes do not fit very well, and statistical learning by speakers.

An example of the latter, a phenomenon 'in' both phonology and morphology is blends, formations such as *motel* (*motor* × *hotel*) or *brunch* (*breakfast* × *lunch*). In a series of studies, Gries showed how coiners of such blends have to strike a balance between different and often conflicting facets of phonological similarity and semantics while at the same time preserving the recognizability of the two source words entering into the blend. Again, this corpus-informed

work sheds light on a phenomenon that traditional morphology finds difficult to cope with.

We constantly read and hear new sequences of words, recognize them as sentences, and understand them. It is easy to show that the new events that we accept and understand as sentences are not related to those with which we are familiar by any simple notion of formal (or semantic or statistical) similarity or identity of grammatical frame. (Chomsky, 1959: 59)

## 5 Concluding Remarks and Future Developments

As the previous sections have demonstrated, corpus linguistic methods have become an important component of cognitive/usage-based linguistics. This methodological development seems to have happened in tandem with a shift in linguistics in general, as evidenced by some epigraphs in this chapter, but also with a shift within Cognitive Linguistics, as evidenced by the fact – unthinkable ten years ago – that Mouton just published a reader called *Cognitive Linguistics: The Quantitative Turn* (Janda, 2013). While Cognitive Grammar had a strong commitment to being usage-based ever since Langacker's *Foundations of Cognitive Grammar*, other parts of Cognitive Linguistics – that is, the Lakovian 'branch' of Cognitive Linguistics and/or early Construction Grammar – put much less emphasis on the usage-based nature of grammar/language. Now that the theory of Cognitive Linguistics as a whole has become much more usage-based, it is only fitting that analyses of actual usage – corpus data – play a much more central role. The type of exemplar-based approaches that many cognitive linguists now embrace are particularly compatible with the distributional data that corpora provide, and it is especially in this way that corpus linguistics and cognitive/usage-based linguistics inform each other. For instance, the following are examples of how the theoretical framework of usage-based linguistics relies on, and is advanced and informed by, corpus linguistic tools:

- the overall frequency of elements is a proxy to their entrenchment;
- the degree to which elements are more frequent in combinations with other elements or behave differently from when they are used in isolation informs our thinking of how elements are chunked into units;
- the way in which corpus data allows us to measure predictive co-occurrence allows us to explore the multidimensional exemplar space that, according to usage-based linguists, contains both linguistic and encyclopedic knowledge;

- the way how frequency data from corpora give rise to clusters in multi-dimensional space reflects our views of prototypes (as densely populated regions of space with configurations of highly predictive features, which can often just be cue and category validities directly measured from corpus data; cf. Goldberg, 2006); etc. etc.

At the same time, cognitive/usage-based linguistics provides a much-needed dose of a theoretical framework to corpus linguistics, a field that is still often merely descriptive and even reluctant to embrace (certain more theoretical) generalizations (cf. Gries, 2010c for much discussion).

In these next brief sections, I would like to very briefly provide some comments on where I think Cognitive Linguistics can and should evolve and mature further by incorporating insights from quantitative corpus linguistics.

## 5.1 More and Better Corpus-linguistic Methods

One important area for future research is concerned with refining the arsenal of corpus-linguistic tools. First, there is a growing recognition of the relevance of association measures in cognitive/usage-based linguistics. However, with very few exceptions, such association measures are bi-directional or symmetric: they quantify the attraction of  $x$  and  $y$  to each other as opposed to the attraction of  $x$  to  $y$ , or of  $y$  to  $x$ , which would often be psychologically/psycholinguistically more realistic. Gries (2013b), following Ellis (2007) and Ellis and Ferreira-Junior (2009), discussed and validated a directional association measure from the associative learning literature on the basis of corpus data, which should be interesting for anybody dealing with association and contingency, say in language learning/acquisition. Similarly, the entropies of the frequencies of linguistic elements are an important element qualifying the effect of type frequencies in corpus data (cf. Gries, 2013a, b), which in turn affects productivity and flexibility/creativity of expressions (cf. Zeschel, 2012 and Zeldes, 2012) as well as their learnability.

Second, there is now also a growing recognition that corpus frequencies of  $x$  and  $y$  can be highly misleading if the dispersion of  $x$  and  $y$  in the corpus in question is not also considered: if  $x$  and  $y$  are equally frequent in a corpus but  $x$  occurs in every corpus file whereas  $y$  occurs only in a very small section of the corpus, then  $y$ 's frequency should perhaps be downgraded, and Gries (2008, 2010) discussed ways to measure this as well as first results that indicate that, sometimes, dispersion is a better predictor of experimental results than frequency.

Finally, there will be, and should be, an increase of corpus-based studies that involve at least some validation against experimental data, as in many of the studies from above.

## 5.2 More and Better Statistical Tools

Another area that is much in flux involves the development of statistical tools. One approach that is gaining ground rapidly is the technique of new regression-like methods. On the one hand, the technique of mixed-effects (or multi-level) modelling is becoming more frequent, since it allows the analyst to handle subject/speaker-specific and, for example, word-specific variation as well as unbalanced data much better than traditional regression tools. On the other hand, new classification tools such as Bayesian network and memory-based learning (cf. Theijssen et al., to appear) with its ability to model causal effects in a way reminiscent of structural equation modelling and naïve discriminative learning (cf. Baayen, 2010) with its higher degree of cognitive realism are becoming important promising new alternatives. Finally, I hope that exploratory/bottom-up techniques will become more frequently used.

## 5.3 Additional Developments

I would finally like to offer a few more diverse suggestions as to where the field will, and/or should be going. For instance, I expect that the field of usage-based language acquisition will benefit increasingly more from more and better resources and techniques. Corpus-based studies on the development of early syntax using the traceback method (Dąbrowska and Lieven, 2005), for example, showcase the potential for computational corpus-linguistic work. Similarly, in order to study word and construction learning and the role of preemption, corpus data have and will become more and more important (cf. Stefanowitsch, 2011 and Goldberg's 2011 response).

In addition, I think the field can benefit from a greater recognition of individual differences. Studies such as Street and Dąbrowska (2010) or Caldwell-Harris, Berant and Edelman (2012) and others show clearly that the 'native speaker' to which all linguistic theories like to generalize is little more than a convenient fiction, given the huge individual diversity that both corpus and experimental data reveal very clearly (esp. with mixed-effects models).

To wrap up, Stefanowitsch (2010b) discussed cognitive semantics with regard to three steps of the evolution of a discipline from art to science, (i) adopt the protocols/practices of empirical research, (ii) adopt those to the object of research and operationalize theoretical concepts, and (iii) relegate to metaphysics all concepts that resist such operationalization. While this chapter could only provide the briefest of overviews of the impact that corpora and quantitative methods have had on Cognitive Linguistics, it is probably fair to say that they are conquering the field by storm in how they facilitate steps (i) and (ii). It is to be hoped that this development/maturation of the field continues as individual

scholars increase their repertoire of corpus and quantitative skills (cf. Gries, 2013a and Gries and Wulff, in progress) and as more and more fruitful connections with neighbouring disciplines – corpus linguistics or psycholinguistics, to name just two examples – provide ever more opportunities for interdisciplinary research.

## References

- Antić, E. (2012). Relative frequency effects in Russian morphology. In S. Th. Gries and D. S. Divjak (Eds), *Frequency Effects in Language Learning and Processing*. Berlin and New York: Mouton de Gruyter, pp. 83–107.
- Arnon, I. and Snider, N. (2010). More than words: Frequency effects for multi-word phrases. *Journal of Memory and Language*, 62(1), 67–82.
- Arppe, A. (2008). Univariate, bivariate and multivariate methods in corpus-based lexicography – a study of synonymy. PhD dissertation, University of Helsinki.
- Baayen, R. Harald (2010). Corpus linguistics and naïve discriminative learning. *Brazilian Journal of Applied Linguistics*, 11(2), 295–328.
- Bell, A., Jurafsky, D., Fosler-Lussier, E., Girand, C., Gregory, M. and Gildea, D. (2003). Effects of disfluencies, predictability, and utterance position on word form variation in English conversation. *Journal of the Acoustical Society of America*, 113(2), 1001–24.
- Berez, Andrea L. and Gries, Stefan Th. (2010). Correlates to middle marking in Dena'ina iterative verbs. *International Journal of American Linguistics*, 76(1), 145–65.
- Bergen, Benjamin K. (2004). The psychological reality of phonaesthemes. *Language*, 80(2), 290–311.
- Bod, R. (2000). The storage vs. computation of three-word sentences. Paper presented at AMLaP-2000.
- Bresnan, J., Cueni, A., Nikitina, T. and Baayen, R. Harald (2007). Predicting the dative alternation. In G. Bouma, I. Krämer and J. Zwarts (Eds), *Cognitive Foundations of Interpretation*. Amsterdam: Royal Netherlands Academy of Arts and Sciences, pp. 69–94.
- Bybee, J. L. (2010). *Language, Usage, and Cognition*. Cambridge: Cambridge University Press.
- Bybee, J. L. and Scheibman, J. (1999). The effect of usage on degrees of constituency: The reduction of *don't* in English. *Linguistics*, 37(4), 575–96.
- Caldwell-Harris, C., Berant, J. and Edelman, S. (2012). Measuring mental entrenchment of phrases with perceptual identification, familiarity ratings, and corpus frequency statistics. In D. S. Divjak and S. Th. Gries (Eds), *Frequency Effects in Language Representation*. Berlin and New York: Mouton de Gruyter, pp. 165–94.
- Chomsky, N. A. (1959). A review of B.F. Skinner's *Verbal Behavior*. *Language*, 35(1), 26–58.
- Dąbrowska, E. and Lieven, Elena V. M. (2005). Towards a lexically specific grammar of children's question constructions. *Cognitive Linguistics*, 16(3), 437–74.
- Desagulier, G. (2012). Visualizing distances in a set of near-synonyms. In D. Glynn and J. Robinson (Eds), *Polysemy and Synonymy: Corpus Methods and Applications in Cognitive Linguistics*. Amsterdam and Philadelphia: John Benjamins.
- Divjak, D. S. (2006). Ways of intending: Delineating and structuring near synonyms. In S. Th. Gries and A. Stefanowitsch (Eds), *Corpora in Cognitive Linguistics: Corpus-based Approaches to Syntax and Lexis*. Berlin and New York: Mouton de Gruyter, pp. 19–56.

- Divjak, D. S. and Arppe, A. (2010). Extracting prototypes from corpus data: A distributional account of representing near-synonymous verbs. Paper presented at the interdisciplinary workshop on verbs 'The identification and representation of verb features', Pisa.
- Divjak, D. S. and Gries, S. Th. (2006). Ways of trying in Russian: Clustering behavioral profiles. *Corpus Linguistics and Linguistic Theory*, 2(1), 23–60.
- (2008). Clusters in the mind? Converging evidence from near synonymy in Russian. *The Mental Lexicon*, 3(2), 188–213.
- (2009). Corpus-based cognitive semantics: A contrastive study of phasal verbs in English and Russian. In K. Dziwirek and B. Lewandowska-Tomaszczyk (Eds), *Studies in Cognitive Corpus Linguistics*. Frankfurt am Main: Peter Lang, pp. 273–96.
- Ellis, N. C. (2007). Language acquisition as rational contingency learning. *Applied Linguistics*, 27(1), 1–24.
- (2012). What can we count in language, and what counts in language acquisition, cognition, and use? In S. Th. Gries and D. S. Divjak (Eds), *Frequency Effects in Language Learning and Processing*. Berlin and New York: Mouton de Gruyter, pp. 7–33.
- Ellis, N. C. and Ferreira-Junior, F. (2009). Constructions and their acquisition: Islands and the distinctiveness of their occupancy. *Annual Review of Cognitive Linguistics*, 7, 187–220.
- Gibbs, R. W. and Matlock, T. (2001). Psycholinguistic perspectives on polysemy. In H. Cuyckens and B. Zawada (Eds), *Polyemy in Cognitive Linguistics*. Amsterdam and Philadelphia: John Benjamins, pp. 213–39.
- Glynn, D. (2010). Testing the hypothesis: Objectivity and verification in usage-based cognitive semantics. In D. Glynn and K. Fischer (Eds), *Quantitative Methods in Cognitive Semantics: Corpus-driven Approaches*. Berlin and New York: Mouton de Gruyter, pp. 239–629.
- (2012). The many uses of *run*: Corpus methods and socio-cognitive semantics. In D. Glynn and J. Robinson (Eds), *Polysemy and Synonymy: Corpus Methods and Applications in Cognitive Linguistics*. Amsterdam and Philadelphia: John Benjamins.
- Glynn, D. and Fischer, K. (Eds) (2010). *Quantitative Methods in Cognitive Semantics: Corpus-driven Approaches*. Berlin and New York: Mouton de Gruyter.
- Glynn, D. and Robinson, J. (Eds) (2012). *Polysemy and Synonymy: Corpus Methods and Applications in Cognitive Linguistics*. Amsterdam and Philadelphia: John Benjamins.
- Goldberg, A. E. (2006). *Constructions at Work: The Nature of Generalization in Language*. Oxford: Oxford University Press.
- (2011). Corpus evidence of the viability of statistical preemption. *Cognitive Linguistics*, 22(1), 131–53.
- Gries, S. Th. (2000). *Multifactorial Analysis in Corpus Linguistics: The Case of Particle Placement*. PhD dissertation, University of Hamburg.
- (2003a). *Multifactorial Analysis in Corpus Linguistics: A Study of Particle Placement*. London and New York: Continuum Press.
- (2003b). Towards a corpus-based identification of prototypical instances of constructions. *Annual Review of Cognitive Linguistics*, 1, 1–27.
- (2008). Dispersions and adjusted frequencies in corpora. *International Journal of Corpus Linguistics*, 13(4), 403–37.
- (2010a). Dispersions and adjusted frequencies in corpora: Further explorations. In S. Th. Gries, S. Wulff and M. Davies (Eds), *Corpus Linguistic Applications: Current Studies, New Directions*. Amsterdam: Rodopi, pp. 197–212.
- (2010b). Behavioral profiles: A fine-grained and quantitative approach in corpus-based lexical semantics. *The Mental Lexicon*, 5(3), 323–46.
- (2010c). Corpus linguistics and theoretical linguistics: A love-hate relationship? Not necessarily . . . *International Journal of Corpus Linguistics*, 15(3), 327–43.

- (2012). Frequencies, probabilities, association measures in usage-/exemplar-based linguistics: Some necessary clarifications. *Studies in Language*, 36(3), 477–510.
- (2013a). *Statistics for Linguistics with R*. (2nd rev. and exp. ed.). Berlin and New York: Mouton de Gruyter.
- (2013b). 50-something years of work on collocations: What is or should be next. . . . *International Journal of Corpus Linguistics*, 18(1), 137–65.
- Gries, S. Th. and Stefanowitsch, A. (2004a). Extending collocation analysis: A corpus-based perspective on ‘alternations’. *International Journal of Corpus Linguistics*, 9(1), 97–129.
- (2004b). Co-varying collexemes in the *into*-causative. In M. Achard and S. Kemmer (Eds), *Language, Culture, and Mind*. Stanford, CA: CSLI, pp. 225–36.
- (2010). Cluster analysis and the identification of collexeme classes. In S. Rice and J. Newman (Eds), *Empirical and Experimental Methods in Cognitive/functional Research*. Stanford, CA: CSLI, pp. 73–90.
- Gries, S. Th. and Wulff, S. (2005). Do foreign language learners also have constructions? Evidence from priming, sorting, and corpora. *Annual Review of Cognitive Linguistics*, 3, 182–200.
- (2009). Psycholinguistic and corpus linguistic evidence for L2 constructions. *Annual Review of Cognitive Linguistics*, 7, 163–86.
- (in progress). *Corpora in Cognitive Linguistics*. Amsterdam and Philadelphia: John Benjamins.
- Gries, S. Th., Hampe, B. and Schönefeld, D. (2005). Converging evidence: Bringing together experimental and corpus data on the association of verbs and constructions. *Cognitive Linguistics*, 16(4), 635–76.
- (2010). Converging evidence II: More on the association of verbs and constructions. In S. Rice and J. Newman (Eds), *Empirical and Experimental Methods in Cognitive/functional Research*. Stanford, CA: CSLI, pp. 59–72.
- Hay, J. B. R. Baayen, H. (2003). Phonotactics, parsing and productivity. *Italian Journal of Linguistics*, 1, 99–130.
- Hilpert, M. (2006). Distinctive collexeme analysis and diachrony. *Corpus Linguistics and Linguistic Theory*, 2(2), 243–57.
- (2008). *Germanic Future Constructions: A Usage-based Approach to Language Change*. Amsterdam and Philadelphia: John Benjamins.
- Janda, L. A. (Ed.) (2013). *Cognitive Linguistics: The Quantitative Turn*. Berlin and New York: Mouton de Gruyter.
- Janda, L. A. and Solovyev, S. D. (2009). What constructional profiles reveal about synonymy: A case study of Russian words for SADNESS and HAPPINESS. *Cognitive Linguistics*, 20(2), 367–93.
- Joseph, B. D. (2004). On change in language and change in language. *Language*, 80(3), 381–3.
- (2008). Last scene of all. . . . *Language*, 84(4), 686–90.
- Kisnher, J. M. and Raymond, W. Gibbs Jr (1996). How *just* gets its meanings: Polysemy and context in psychological semantics. *Language and Speech*, 39(1), 19–36.
- Lakoff, G. (1990). The invariance hypothesis: Is abstract reason based on image schemas? *Cognitive Linguistics*, 1(1), 39–74.
- Langacker, R. W. (1987). *Foundations of Cognitive Grammar, Vol. 1: Theoretical Prerequisites*. Stanford, CA: Stanford University Press.
- Lemke, S., Tremblay, A. and Tucker, Benjamin V. (2009). Function words of lexical bundles: The relation of frequency and reduction. *Proceedings of Meetings on Acoustics*, 6, 060009.
- Levshina, N. (in prep). Lexical fields and constructional spaces: A quantitative corpus-based model of semantics.

- Levshina, N., Geeraerts, D. and Speelman, D. (2012). Dutch causative constructions with *doen* and *laten*: Quantification of meaning and meaning of quantification. In D. Glynn and J. Robinson (Eds), *Polysemy and Synonymy: Corpus Methods and Applications in Cognitive Linguistics*. Amsterdam and Philadelphia: John Benjamins.
- (2013). Mapping constructional spaces: A contrastive analysis of English and Dutch analytic causatives. *Linguistics*, 51(4), 825–54.
- Mukherjee, J. (2007). Corpus linguistics and linguistic theory: General nouns and general issues. *International Journal of Corpus Linguistics*, 12(1), 131–47.
- Raymond, W. D. and Brown, E. L. (2012). Are effects of word frequency effects of context of use? An analysis of initial fricative reduction in Spanish. In S. Th. Gries and D. S. Divjak (Eds), *Frequency Effects in Language Learning and Processing*. Berlin and New York: Mouton de Gruyter, pp. 35–52.
- Rice, S. and Newman, J. (Eds) (2010). *Empirical and Experimental Methods in Cognitive/functional Research*. Stanford, CA: CSLI.
- Sandra, D. and Rice, S. (1995). Network analyses of prepositional meaning: Mirroring whose mind – the linguist's or the language user's? *Cognitive Linguistics*, 6(1), 89–130.
- Schmid, H.-J. (1993). *Cottage and co., idea, start vs. begin*. Tübingen: Max Niemeyer.
- Schönefeld, D. (Ed.) (2011). *Converging Evidence: Methodological and Theoretical Issues for Linguistic Research*. Amsterdam and Philadelphia: John Benjamins.
- Snider, N. and Arnon, I. (2012). A unified lexicon and grammar? Compositional and non-compositional phrases in the lexicon. In D. S. Divjak and S. Th. Gries (Eds), *Frequency Effects in Language Representation*. Berlin and New York: Mouton de Gruyter, pp. 127–63.
- Stefanowitsch, A. (2010a). Cognitive linguistics meets the corpus. In M. Brdar, S. Th. Gries and M. Žic Fuchs (Eds), *Cognitive Linguistics: Convergence and Expansion*. Amsterdam and Philadelphia: John Benjamins, pp. 257–90.
- (2010b). Empirical cognitive semantics: Some thoughts. In D. Glynn and K. Fischer (Eds), *Quantitative Methods in Cognitive Semantics: Corpus-driven Approaches*. Berlin and New York: Mouton de Gruyter, pp. 355–80.
- (2011). Constructional preemption by contextual mismatch: A corpus-linguistic investigation. *Cognitive Linguistics*, 22(1), 107–29.
- Stefanowitsch, A. and Gries, S. Th. (2003). Collostructions: Investigating the interaction between words and constructions. *International Journal of Corpus Linguistics*, 8(2), 209–43.
- (2005). Covarying collexemes. *Corpus Linguistics and Linguistic Theory*, 1(1), 1–43.
- Stefanowitsch, A. and Gries, S. Th. (Eds) (2006). *Corpus-based Approaches to Metaphor and Metonymy*. Berlin and New York: Mouton de Gruyter.
- Street, J. A. and Dąbrowska, E. (2010). More individual differences in language attainment: How much do adult native speakers of English know about passives and quantifiers? *Lingua*, 120(8), 2080–94.
- Szmrecsanyi, B. (2006). *Morphosyntactic persistence in spoken English: [ . . . ]*. Berlin and New York: Mouton de Gruyter.
- Talmy, L. (2000). *Toward a Cognitive Semantics. Vol. 1. Concept Structuring Systems. Vol. 2. Typology and Process in Concept Structuring*. Cambridge, MA: MIT Press.
- Teddiman, L. (2012). Conversion and the lexicon: Comparing evidence from corpora and experimentation. In D. S. Divjak and S. Th. Gries (Eds), *Frequency Effects in Language Representation*. Berlin and New York: Mouton de Gruyter, pp. 235–54.
- Theijssen, D., Bosch, Louis ten, Boves, L., Cranen, B. and Halteren, Hans van (to appear). Choosing alternatives: Using Bayesian networks and memory-based learning to study the dative alternation. *Corpus Linguistics and Linguistic Theory*.



- Thompson, S. A. and Koide, Y. (1987). Iconicity and 'indirect objects' in English. *Journal of Pragmatics*, 11(3), 309–406.
- Wulff, S. (2008). *Rethinking Idiomaticity: A Usage-based Approach*. London and New York: Continuum.
- Zeldes, A. (2012). *Productivity in Argument Selection: A Usage-based Approach to Lexical Choice in Syntactic Slots*. PhD dissertation, Humboldt University Berlin.
- Zeschel, A. (2012). *Incipient Productivity: A Construction-based Approach to Linguistic Creativity*. Berlin and New York: Mouton de Gruyter.

# 4.2 Non-linguistic Applications of Cognitive Linguistics: On the Usefulness of Image-schematic Metaphors in User Interface Design

*Jörn Hurtienne*

## Chapter Overview

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### 1 Introduction

Other disciplines than linguistics have used cognitive linguistic findings to their advantage. This chapter describes how these findings have been used to build more understandable products for their users. Not only conceptual blending, but also image-schematic metaphors are of interest to product designers, because they show how abstract information (i.e. the target domains of metaphors) can

be conveyed by using concrete sensorimotor information (i.e. image schemas as the source domain of metaphors). The chapter starts with a model of intuitive interaction with technology. Central to this model is the assumption that a user interface that matches the mental models of its users is more intuitive to use. In accordance with Lakoff's invariance principle and Grady's theory of primary metaphor it can be claimed that the subconscious parts of users' mental models can be described with image-schematic metaphors that then can be instantiated in a user interface design to make it better understandable. This idea has been tested in various studies and it can be assumed that using image-schematic metaphors in designing user interfaces for technology is a very promising way to create technology that is intuitive to use.

## **2 Cognitive Linguistics and Intuitive Use**

Interactive technological products such as smartphones, navigation systems or interactive games have become ubiquitous. This means that new user groups have emerged (from technical experts to virtually everyone) as have new areas of application (from work to home) and new content (from financial data and company information to health statistics and romantic chatter). We are increasingly dependent on technology: our conversations are via email, our money is administered via online-banking, our mobility is mediated by ticket machines, and developments like e-government or e-health make clear that more and more services will move towards technology. We accrue ever more electronic devices without having the time to fully use their potential or even read the manuals. With such a diverse background in user groups, underlying technologies and applications, user interfaces need to be designed to be easily learned and intuitive to use.

### **2.1 A Simple Model of Intuitive Use**

In user interface design it has become common to distinguish between the implementation model, the represented model and the mental model of the user (Figure 4.2.1; Cooper and Reimann, 2003). The implementation model is the model of the technical system, of its working principle, the mechanics, or in the case of software, the algorithms or the database.

The user's mental model represents what the user knows of the workings of the system and of the purposes he or she wants to achieve by using it. Mental models may be created explicitly by formal training or implicitly by repeated use of the system. Mental models neither contain all the details of how a product works nor do they correctly represent the underlying implementation model

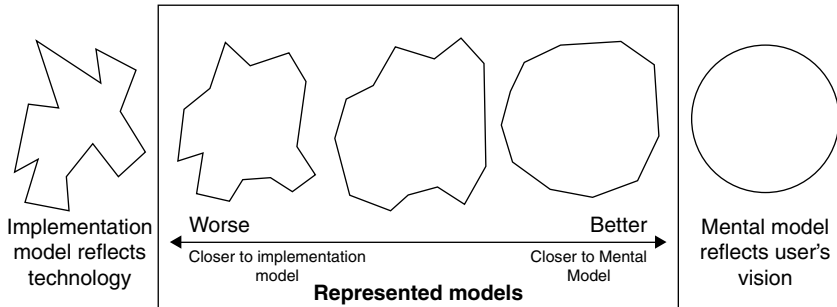


Figure 4.2.1 Good user interface design matches the mental model of the user (from Cooper and Reimann, 2003: 23)

(Norman, 1983). They are used as a cognitive shorthand covering purposeful interactions. When using a telephone, for instance, users expect the same behaviour regardless of whether it is a mobile or a landline phone, even though the two types are based on very different implementation models, that is principles of transmission. In software, the decoupling of the mental model from the implementation model can be particularly strong. The users' mental model of using the Google search engine is simple. Its underlying implementation model is tremendously complex, involving communication protocols, databases and retrieval algorithms.

By designing the user interface, designers make decisions on how the product represents its functioning. That is, they determine how the user interface looks, sounds, feels and behaves. This representation of the technology in the user interface is captured in the represented model (Figure 4.2.1).

The represented model can be chosen to be close to the true actions of the product determined by algorithms and mechanical constraints. Alternatively, the designer can choose to hide much of the inner workings of the technology from the users. The closer the represented model is to the users' mental model, the easier a user will find the product to use and understand. As the users' mental model of their tasks is bound to differ from the inner workings of the product, a represented model that is close to the implementation model may burden the users with the task of learning and re-learning to operate the product each time they use it. Represented models that are close to implementation models are therefore less likely to be intuitive to use.

User interface designers have more control over the represented model than over the other two models. They should therefore try to design the represented model to be as close as possible to the mental model of the user. Although this may sound trivial, too many user interfaces do not follow this philosophy. A bookkeeping application, for example, mirrors the structure of its database

tables on the user interface rather than the steps needed for posting invoices. A computer-aided design (CAD) application requires the designer to enter exact numbers when specifying the geometry of objects, although the user only wants a rough sketch for visualizing an idea.

Of course, if the users need to know about or are interested in the actual workings of the product, then the product can profit from a transparent implementation model. In investment goods (e.g. in process control or aviation) it is sometimes necessary to understand the technology behind the user interface. In consumer products this might enlighten technology enthusiasts, but it will not make a user interface intuitive for most of the other users.

So what is going wrong, when even products that are labelled *intuitive to use* do not live up to their promise? Often, designers lack appropriate guidance on how to design for intuitive use. It still seems that many user interface designs are technology-driven. New technologies open up new interaction possibilities and these are applied to almost any task domain. The basic principle of design suggests that design should be driven by the tasks of the users and the users' mental models of these tasks. User interfaces should be structured in the same way as these mental models, and the technological implementation needs to follow. Although several approaches exist to discern the contents and the structure of tasks and users' mental models, they currently are of limited scope, usefulness or practicability. The results of current tools for analysis do not easily translate into a prescription on how to match the represented model to the mental model of the user.

## 2.2 The Power of Cognitive Linguistics: Metaphor, Blends and the Invariance Hypothesis

The field of Cognitive Linguistics provides powerful ideas about the conscious and subconscious content of mental models. The idea of conceptual metaphors (Lakoff and Johnson, 1980), in particular, is fruitful for designers seeking to understand how they can make abstract content more accessible to users by the physical and spatial means of computer input and output possibilities. A direct application could be to use structural metaphors like *MONEY IS WATER AS* instantiated in expressions like *cash flow*, *liquidity*, *a frozen account* to inspire the design of a banking application. The resulting application would probably not be pleasing; it would even seem to enhance the complexity of financial transactions if the user interface depicted money/water flowing through a pipe system fully equipped with pumps and valves and reservoirs.

The theory of conceptual integration networks, or, in short, conceptual blending, is another powerful approach that can be used to describe how conceptual structure is projected between domains. While metaphor theory claims

that there are two domains and conceptual structure is projected from a more concrete and physical to a more abstract domain, conceptual blending theory considers a network of mental spaces with projections going from any space to any other (the major route being from two input spaces to a blended space). This theory proves to be useful in describing how users form new mental models of technology without assuming the rigid one-way projections from one mental space into another that metaphor theory implies. As an example, Fauconnier and Turner (1998) discuss the desktop blend. For many computer operating systems, users find familiar objects from their office environment on the computer screen: post-in and post-out boxes, a trashcan, folders, documents and a calculator. The desktop is a blend between the mental spaces of office management and computer technology. Rather than representing a one-way projection from the world of real desktops to a computer operating system, both spaces draw from each other to arrive at a comprehensible mental model of the user interface.

Thus, taking the perspective of conceptual blending, one avoids the discussion of whether the desktop metaphor is too wide (in that not everything can be usefully transferred from the office environment to the operating system) or too narrow (in that 'magic' features like 'undo' that make the operating system more efficient cannot be explained via the target domain). The blending of the two spaces recognizes the users' knowledge about both domains and considers their mutual constraints when fused in the blended space. Blending also allows for emergent structure: icons can be dragged on the computer screen – an action that would not make sense in the real world, but also was not in the mental space of operating systems based on command language that came before the desktop blend. Blending allows for a flexible handling of constraints that appear in one domain but may be violated without consequences in the blend. A widely discussed example is the trashcan sitting on instead of under the desktop.

In general, blending theory has been useful as a theoretical umbrella and is often used as an underlying philosophy in interaction design. Benyon and Imaz (1999; Imaz and Benyon, 2007) were the first to discuss its analytic value for software engineering and user interface design, but failed to provide convincing examples for the synthesis stage of design. Hoshi et al. (2012) discuss how the concept of the generic space in a blend (reflecting abstract structure and organization shared by the input spaces) can help to blend sensor-based input techniques with physical activity in everyday life for the purpose of rehabilitation exercises and for communicating with family members. Jetter et al. (2012) discuss how the two input spaces of real-world furniture and digital displays can be blended into interactive desks of a control room. In a later paper, Jetter et al. (2013) even create a vision of 'blended interaction' guiding the design of future human–computer interactions.

Although these recent accounts of blending theory in user interface design are very optimistic, the question remains, how concrete design guidance can be derived from blending two input spaces. In our 'money is water' example, both spaces – that of financial transactions and of the flow of water – may contribute to a blend that is applied to the user interface of the financial transaction software. However, how these blends are arrived at and what specific structures get projected from one space to another, remains an open question. Although Fauconnier and Turner (1998) describe some constraining rules (termed 'optimality principles'), they are eager to point out that blending cannot be described by fixed algorithms. But user interface design needs to be specific and, ideally, prescriptive. The openness of the blending approach makes it less useful in practice. Rather than supporting the specific design of new user interfaces, the main strength of the theory lies in a retrospective analysis or description of existing or emerging user interfaces. Thus, with conceptual blending, designers can analyse the pitfalls of specific user interface blends and point out potential areas of conflict. It may also serve to justify a design post hoc, but it will not help designers predict the specifics of a good design. In our money is water example, the theory cannot predict whether it is the valves that should be left out of the blend or whether the blend should be about water flow only.

Again, conceptual metaphor theory may help. In particular, dead and conventional metaphors, as Imaz and Benyon (2007) recognize, may be used to constrain what is projected between mental spaces: 'Metaphor offers a ready-made material of mapping' (p. 49). Thus, the search could be for such ready-made material to find concrete mapping rules that designers can use to generate new interfaces.

The idea of ready-made material used for mappings in cognitive blends is further specified by the *invariance hypothesis*. According to the invariance hypothesis, 'Metaphorical mappings preserve the cognitive topology (this is, the image-schema structure) of the source domain' and 'a great many, if not all, abstract inferences are actually metaphorical versions of spatial inferences that are inherent in the topological structure of image schemas' (Lakoff, 1990: 54). An image schema, another powerful concept, is defined as 'a recurring, dynamic pattern of perceptual interactions and motor programs that gives coherence and structure to our experience' (Johnson, 1987: xiv).

The invariance hypothesis means that in the MONEY IS WATER metaphor the image-schematic structure is characterized by FORCE-dynamics and PATH image schemas. Thus, the designer can get rid of pumps, valves and pipes. Using image schemas as the invariants of the mapping the designer can choose to more abstractly depict PATHS, UP-DOWNS, DIVERSIONS, and BLOCKAGES to visualize financial transactions and thus to make the user interface more intuitive to use.

Grady's (1997a, 1997b) *theory of primary metaphor* supports this approach. Primary metaphors evolve from correlations in sensorimotor experience. For example, they form conceptual connections between an image schema (e.g. UP-DOWN) and abstract judgements (e.g. quantity). These primary metaphors (e.g. MORE IS UP – LESS IS DOWN) can then be instantiated in language, behaviour or the design of artefacts. Several primary metaphors can combine to form more complex (or compound) metaphors. Image-schematic metaphors are only a subset of primary metaphors, because the source domains of primary metaphors can also include bodily activities, for example *see, jump, run* (see Zlatev, 2005, on mimetic schemas).

In summary, the promises of image schemas and their metaphorical extensions for designing intuitive use are manifold. First, intuitive use results from a match between the users' mental model and the represented model at the user interface. The invariance hypothesis suggests that image schemas form a significant part of the structure of the mental model when thinking about abstract domains. Therefore, analysing the image schemas in the tasks and mental models of the users and applying them to designing user interfaces should enhance intuitive use.

Second, image schemas and their metaphorical extensions are forms of prior knowledge that are applied subconsciously, because they are learned early, experienced repeatedly and can be evoked automatically. Therefore, evoking image schemas and their metaphorical extensions through user interface design should support effective, mentally efficient and satisfying interaction. This is in contrast to many conceptual blends that may need to be consciously reconstructed (unpacked) in order for us to understand them.

Third, image schemas can meet several demands for intuitive use. They are assumed to be suitable for heterogeneous user groups, flexibly applicable to hardware and software, and enable physical-to-abstract mappings (from user interface element to user interface content or meaning) via primary metaphors.

Therefore, the goal is to learn whether it is possible to apply image schemas to the analysis of users' tasks and mental models and transfer the findings to the design of user interfaces, that is to the location, appearance and behaviour of user-interface elements. The next sections first look at the user-centred design process and discuss how image schemas and their metaphorical extensions have been used in different phases of this process. Then research is presented that identifies how designers can be supported in using image schemas and their metaphorical extensions. The final section draws together the research findings and suggests areas of possible cross-fertilization between Cognitive Linguistics and user interface design.



### 3 Image Schemas in User Interface Design

It is useful to structure the previous work on image schemas in user interface design in accordance with the activities in a standard human-centred design process (e.g. ISO 9241–210, 2010; Figure 4.2.2). In the first phase, the context in which the product is later used is analysed and specified. The results are fed into the second phase, requirements specification. In the third phase, design solutions are produced. These are evaluated in the fourth phase. The process is iterative so that it can be repeated until the product meets the specified goals.

#### 3.1 Image Schemas in the Analysis and Requirement Phases

In the first phase of the human-centred design cycle, the context of use is typically analysed in situ. Characteristics of the task to be solved (including user goals), the current technological support, the characteristics of the target user group, and the general organizational context of the users are analysed. In the first phase of the process, image schemas can be applied in understanding and specifying the context of use. Here, image schemas can describe the structure of the task, the mental model of the user and the current user interface design.

In the second phase, user and organizational requirements are derived and specified from the results of the context-of-use analysis. Here, image-schema

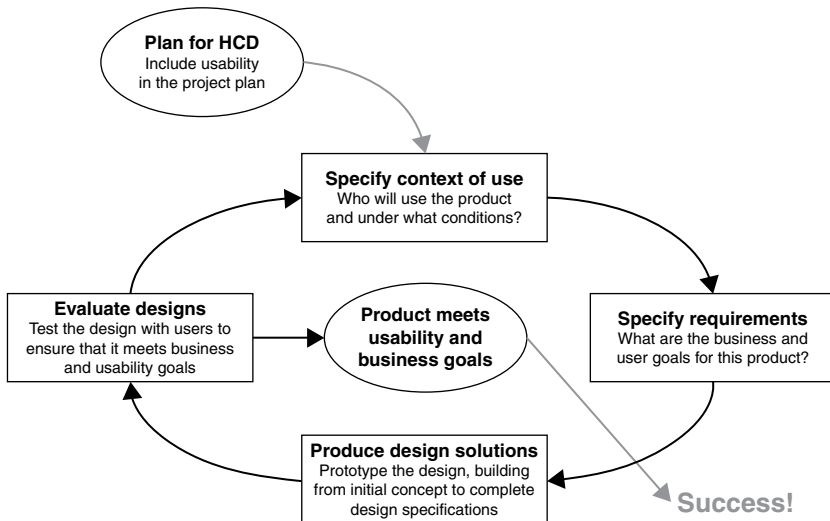


Figure 4.2.2 The human-centred design (HCD) process after ISO 9241–210 (ISO, 2010)

analysis can inform the specification of requirements in the sense that the abstract structure of the task and the mental model described in image-schema vocabulary are used as a prescription for the later design phase.

Previous studies show, for example, that image schemas can be extracted from users' utterances, thus revealing parts of their mental models. Maglio and Matlock (1999) analysed users' mental models of the World Wide Web (WWW) using image schemas. Although the Web is usually described as a COLLECTION of websites (LOCATIONS) that are connected via LINKS, the users' language about the Web reveals many instances of the image schemas SELF-MOTION, CONTAINER and PATH. The use of PATH metaphors even increases when the participants were more experienced with using the Web.

In other studies, the mental models were examined by extracting image schemas from the utterances made by users navigating simulations of airports. Image schemas could be extracted from almost all utterances of the participants, and suggestions for the redesign of the airport navigation system could be derived from the results (Raubal, 1997; Raubal and Worboys, 1999).

The conceptual nature of image-schematic metaphors suggests that they are not only instantiated in language, but also in gesture and body movement (e.g. Cienki and Müller, 2008; McNeill, 1992, 2005). With the prospect of building interactive environments for learning musical concepts, Bakker, Antle, and van den Hoven (2009) extracted image-schematic mappings from the body movements of 7- to 9-year-old children. The children were asked to move their body or an object to enact musical samples in each of which one of eight sound concepts was changing (i.e. volume, tempo, pitch, tone duration, timbre, rhythm, harmony and articulation). The results identified 27 metaphorical mappings whereby many target domains mapped to multiple image schemas, for example LOUD SOUNDS ARE BIG – SOFT SOUNDS ARE SMALL, and LOUD SOUNDS ARE UP – SOFT SOUNDS ARE DOWN. Sound concepts with a broader spectrum, for example articulation and timbre, were difficult to enact in a coherent way. Although the results did not enter a formal requirements specification, the outlook was to use the results to inform the design of a learning system that can be used via whole-body interaction or via manipulating tangible objects.

Image schemas were also used to analyse and describe graphical user interface metaphors (Kuhn and Frank, 1991). The act of zooming images, for instance, instantiates a NEAR–FAR image schema that mediates a PART–WHOLE image schema. Similarly, desktops and clipboards are instances of the SURFACE image schema, and folders and trashcans instantiate the CONTAINER image schema. Indeed, whole user interfaces can be analysed image-schematically as has been done for an Airbus cockpit (Hahn, 2007) as well as for cash and ticket machines (Dong, 2007).

These studies show that it is possible to extract image schemas from users' utterances, user interfaces, interaction with user interfaces and even body

movements. They do not show, however, that different analysts will come to the same conclusion as would be required when using image schemas as a meta-language in design. More recent studies have addressed this issue (Hurtienne, 2011, studies 5 and 6). For example, when classifying sentences describing simple episodes of human-technology interaction (e.g. *The driver released the hand-brake*) into force-dynamic image-schema categories (e.g. RESTRAINT REMOVAL), coders achieve moderate agreement (Cohen's  $\kappa = .59$ ).<sup>1</sup> In another study using a great variety of image-schema categories, coders achieved substantial agreement coding users' utterances ( $\kappa = .68$ ) and almost perfect agreement when coding user interface screens ( $\kappa = .94$ ).

Only moderate agreement was obtained for coding the observed behaviour of users: task steps ( $\kappa = .40$ ) and steps of the user-system interaction ( $\kappa = .45$ ). Overall, the reliability of image-schema categorizations depends on the type of information coded (utterances, graphical user interface representations or user behaviour), the number of coders (higher reliability with more than one coder), and the image schemas used for evaluation (some are easy to classify, others more difficult). To enhance reliability scores, it is suggested to provide better access to context-of-use information for coders, to establish categorization rules, and to train coders on image-schema definitions and categorization rules (Hurtienne, 2011). Although there is room for improvement in inter-coder reliabilities, these early results are promising. Using image schemas in the analytic phases of the design process, therefore, can be encouraged – at least when designers are aware of the limitations and implications.

### 3.2 Image Schemas in the Design and Evaluation Phases

In the third phase of the cycle, producing design solutions, image-schematic prescriptions from the requirements phase can be instantiated in variants of a user interface concept. Finally, in the fourth phase, image schemas can be used in the evaluation of user interfaces by comparing the image schemas instantiated in the user interface with the image schemas in the requirements specification. When they match, intuitive use of a system is more likely than when they do not match.

Image schemas and their metaphorical extensions have proven effective in the design phase of prototypical applications. One application, SchemaSpace (Lund, 2003), is a collection of internet bookmarks organized in a hierarchy (Figure 4.2.3). Semi-transparent cones in an information landscape represent different categories of bookmarks, thus drawing on the metaphor CATEGORIES ARE CONTAINERS. The more bookmarks there are in one category, the taller the cone is (MORE IS UP). The relevance of single bookmarks in a category is conveyed by

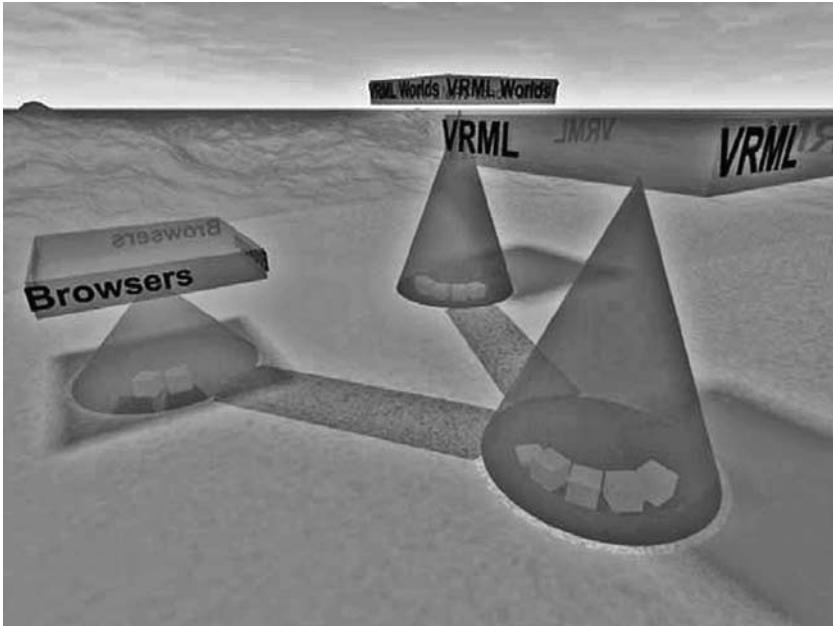


Figure 4.2.3 SchemaSpace, a personal information browser, the picture illustrates the image-schematic metaphors CATEGORIES ARE CONTAINERS, MORE IS UP and CONNECTEDNESS IS LINKAGE (Lund, 2003: 150)

the metaphor IMPORTANT IS CENTRAL. Connections between cones (LINKS) indicate the relations between subcollections of bookmarks. Higher-level categories were located higher in the landscape (e.g. on a hill) and lower-level categories were located lower in the landscape drawing on the metaphor ABSTRACT IS UP – CONCRETE IS DOWN. Finally, similar categories (cones) are located near each other and dissimilar items are located far from another (SIMILAR IS NEAR – DIFFERENT IS FAR).

The SchemaSpace prototype was evaluated with a number of users solving information finding tasks and was compared with an information-equivalent hypertext prototype (Lund, 2003). The results show that the SchemaSpace prototype elicited significantly more comments from the users that contained the image schemas CENTRE-PERIPHERY, CONTAINER, LINK, NEAR-FAR, PART-WHOLE, PATH and UP-DOWN than the hypertext prototype. The hypertext prototype, in contrast, elicited only more comments containing the image-schema SURFACE. The author concludes that implementing metaphorical instantiations in user interfaces profoundly influences how users think about the interface. A second study comparing ego-moving and time-moving instantiations of the metaphor THE PASSAGE OF TIME IS MOVEMENT THROUGH SPACE did not lead to clear results,

which might be due to the concrete application used in this study (time-planning for mobile workers; Lund, 2003).

Based on the metaphor *MUSIC IS BODY MOVEMENT*, the Sound Maker system was built enabling users to interact with sound via moving their bodies (Antle, Droumeva and Corness, 2008). Based on pilot studies and interviews with experts in music and movement, mappings between body movements and sounds were developed that were labelled either 'metaphoric' or 'non-metaphoric'. These mappings were implemented in different versions of the Sound Maker system. After a free exploration phase, pairs of children (between 7- and 10 years old) listened to samples of music and were asked to re-enact these with the system. Results showed that children in the metaphoric condition could solve more tasks correctly and (although not significantly) faster than children in the non-metaphoric condition. There were also trends (albeit non-significant) in which children rated the metaphoric version easier to learn, more intuitive and requiring less concentration to use. The main results on time and accuracy were later confirmed in a study with an adult sample (Antle, Corness and Droumeva, 2009). Unfortunately, it is unclear whether the mappings labelled 'non-metaphoric' in these studies were not just alternative 'metaphoric' mappings. For example, the 'non-metaphoric' mapping *LOUD SOUNDS ARE NEAR – SOFT SOUNDS ARE FAR* can be a viable primary metaphor, because the loudness and the distance of objects are frequently related in our experience. This unclear status of the 'metaphorical' and 'non-metaphorical' versions of the system renders the results difficult to interpret.

In another study, image-schematic metaphors were used to evaluate a software tool for playing, analysing, and learning about musical harmony (Wilkie, Holland and Mulholland, 2009). The evaluation elicited conceptual metaphors and image schemas from the dialogues of experienced musicians discussing the harmonic progressions in a piece of music, for example *HARMONIC PROGRESSION IS MOVEMENT ALONG A PATH* and *A CHORD IS A CONTAINER FOR NOTES*. The authors then discuss where the software user interface supports the conceptual metaphors and where support could be improved.

Image schemas are not only useful for conveying functional information; they can also be used for conveying aesthetic information. The instantiation of the image schemas *UP-DOWN*, *CONTAINER*, and *BALANCE* was manipulated in jugs and alarm clocks (van Rompay, Hekkert, Saakes and Russo, 2005). The image-schema *UP-DOWN*, for instance, was instantiated by manipulating the height of the objects. Participants rated their impression of the objects on nine dimensions, for example, secure-insecure, introvert-extravert, and constricting-liberating. The results showed that the image-schematic variations in product appearance influenced the ratings on the abstract dimensions.

In summary, these studies show that image schemas can be fruitfully applied in all of the four phases of the user-centred design process. What is missing,

however, is proof that they can also be used *throughout* the cycle. This would show their potential as a meta-vocabulary that can be used to describe users' mental models and to prescribe represented models at the same time.

### 3.3 Going the Full Cycle with Image Schemas

If image schemas are to be used as a design vocabulary, it must be feasible to apply them throughout the human-centred design cycle and the benefits and costs of application need to be favourable. Some studies have done the full cycle, for example in the redesign of an invoice verification and posting system, and found that user interfaces that were created using the image-schema methodology receive better ratings from users with regard to their pragmatic and experiential qualities as well as their attractiveness (Hurtienne, Weber and Blessing, 2008; Hurtienne, Israel and Weber, 2008). While the previous studies only looked at how users rated the new systems on the basis of product *concepts*, in the following section, a study is presented that used a running prototype of a central heating controller for evaluation. Again, the human-centred design cycle (Figure 4.2.2) and its phases were used as the backdrop of the study.

#### 3.3.1 Context-of-use Analysis and Requirements Specification for Heating Controls

In the first part of the study (context-of-use analysis and requirements specification), interviews were conducted at people's homes. The interviews revolved around how people kept warm in winter, and specifically, how they set their heating systems to do what they wanted. Altogether ten people took part in these interviews, who were between 26 and 84 years old (median = 65 years). They used a wide range of heating systems: night storage heaters, central oil or gas heating systems and a mixture of portable electric heaters.

The results revealed much information about different heating needs, different strategies for keeping warm in winter, different technical layouts of the heating systems and strategies for fuel-efficient heating. By far the most comments were about how to control the heating systems and how easy or difficult that was for the participants.

The conclusion was that today's heating controllers are not very intuitive to use and can be enhanced by redesigning them. Hence, in the requirements specification phase, a list of 32 core requirements were formulated that basically covered three basic tasks in using a heating system: (1) switching the system on and off, (2) setting the desired room temperature, and (3) setting the times the system should go on and off.

The audio-recordings of the interviews were transcribed and the language of the users was tagged with image schemas. For instance, in the interview

many participants talked about temperature and temperature settings in terms of UP-DOWN movements: 'When the outside temperature *falls below* 20°, I *push* the thermostat *up* to 22.' Or they talked about time periods as if they were CONTAINERS: 'I need a little heat *in the morning* and a little heat *in the evening*.' Time periods also seemed to extend on a PATH from a specific point in time to another: 'I need the heat *from 6 to 9* in the morning and *from 6 to 10* in the evening.' And, finally, when talking about enabling and disabling the system, they said something like 'I turn it *off* in the afternoon, put it back *on* when we go to bed' in which the original sense of *on* and *off* means to be *in contact* with something or *out of contact* with something. These linguistic observations pointed to the metaphors WARM IS UP – COLD IS DOWN, TIME PERIODS ARE CONTAINERS, TIME IS ON A PATH, POINTS IN TIME ARE LOCATIONS and OPERATION IS CONTACT.

The image schemas found in the language of the users were added to the requirements. In addition, the extracted image-schematic metaphors were listed and grouped according to their target domain (e.g. temperature metaphors, time metaphors).

### 3.3.2 Designing Heating Controller Prototypes

In the design phase, three prototypes of heating controllers were developed that fulfilled the 32 core requirements, but differed in appearance and usage style. First, acting as the baseline, a *familiar-tool prototype* was designed by taking the most familiar design and layout of existing heating controllers and by combining these into a new device. To achieve this, the market of heating controllers was scanned and the most frequent user interface elements were combined. The result was a digital controller (Figure 4.2.4) featuring:

- a slider for switching between central heating (CH), hot water (HW), central heating and hot water (CH+HW), and an OFF mode that switches the system off altogether
- an LCD display showing the current time, current temperature, the set temperature, the current mode the system is in (Automatic, Manual, or Programming mode) and the current timeslot the system is in (e.g. ON1, OFF2, etc.)
- several buttons to control the temperature and times, as well as buttons for switching between the modes (SET) and entering information (ENTER)

Second, on the basis of the image-schema analyses, a touch-screen-based prototype was built that instantiates the image-schematic metaphors (Figure 4.2.5). Here, the different timeslots are CONTAINERS on a 24-hour timeline (PATH). The CONTAINERS have diamond-shaped controls on their left and right edges where users can touch them and drag them out to another time setting on the timeline (LOCATION). A third diamond in the timeslot-container can be moved UP

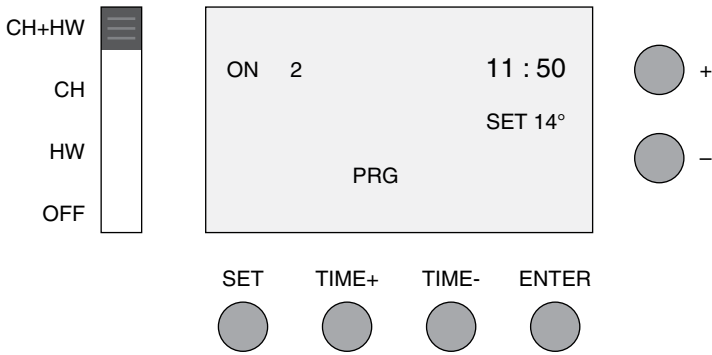


Figure 4.2.4 The 'familiar-tool' user interface of a digital heating controller, here in programming (PRG) mode

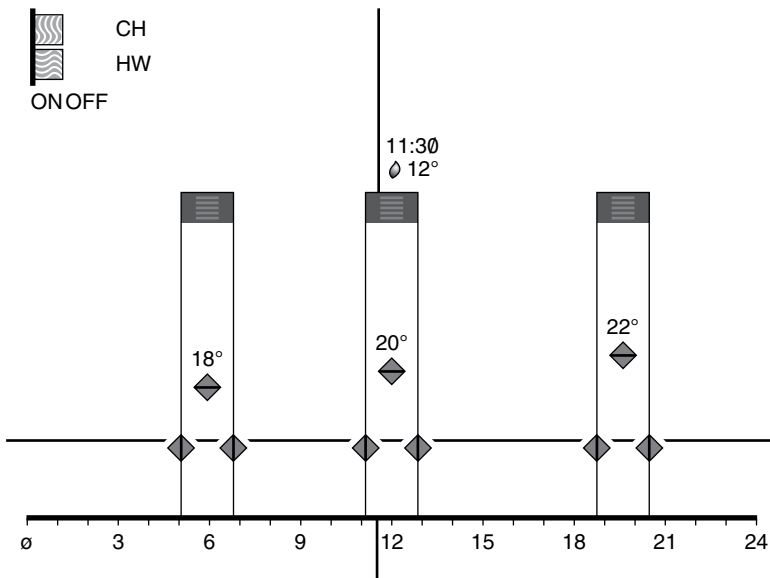


Figure 4.2.5 The image-schematic user interface of a heating controller that works on a touch screen where buttons can be touched and dragged to their desired positions

and DOWN and is for setting the temperature in that timeslot. The current time and room temperature are shown above the timeslots. They are also indicated by the positions of a vertical line (current time, moving on the timeline PATH from left to right) and a horizontal line (current room temperature, moving UP-DOWN) in the display. Central heating and hot water can be switched on and off separately and in a way so that they are either in CONTACT ('on') or not in



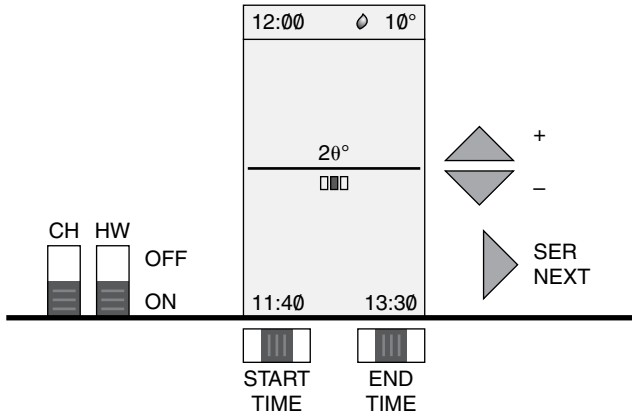


Figure 4.2.6 The image-schematic user interface with a more familiar interaction style and cheaper-to-build LCD display and buttons

CONTACT ('off') with a vertical line in the upper left of the display. Note that this image-schematic design still has the same functionality as the familiar-tool version and fulfils the same requirements.

Third, because the image-schematic prototype might be too unfamiliar and touch-screen devices are expensive to build, another version of the image-schematic prototype was devised, building on the same metaphors as the touch-screen version. This third prototype sports a more familiar interaction style with buttons and an LCD display (Figure 4.2.6). Here, the LCD display shows only one timeslot at a time (CONTAINER). Users can switch to the next timeslot by pressing the triangular SET NEXT button (introducing a virtual TIME-PATH extending from left to right). Timeslots can be narrowed and extended by shifting the positions of the sliders labelled START TIME and END TIME. Temperature can be regulated using the UP-DOWN buttons to the right of the display. Again the current time and temperature were always visible on the LCD display. The sliders for central heating and hot water were made more obvious, but still used the idea of CONTACT or NON-CONTACT with the black horizontal line.

### 3.3.3 Evaluation of the Heating Controllers

In the evaluation phase, the prototypes were tested with 36 participants. Half of the participants were between 20 and 40 years old, the other half were older than 60 years. Each participant solved the same 14 tasks with each of the three systems. The tasks ranged from easy ('Tell me the current time and room temperature in this device') to more difficult to achieve ('Set the system so that it operates constantly at 18°). After the tasks the participants rated how familiar the device was and filled in a questionnaire on intuitive use.

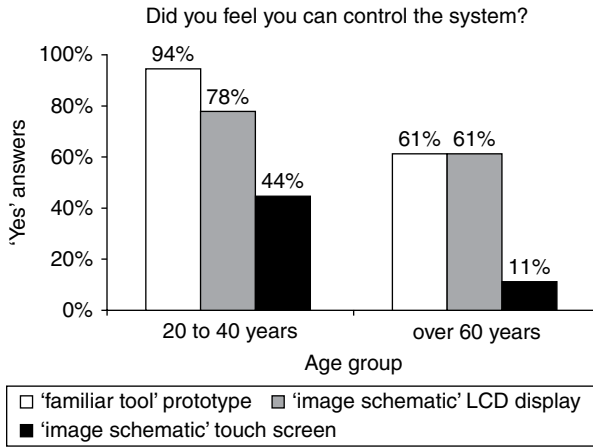


Figure 4.2.7 Average percentage of people responding 'Yes' to the question 'Did you feel you can control the system?'

As expected, the 'familiar-tool' prototype seemed familiar to most of the participants (71%, measured after the tasks were completed). Indeed, many participants said that this prototype was just like the one in their house. The 'image-schematic' prototype with the touch screen was the least familiar (13%) and the image-schematic prototype with the LCD screen was between the other prototypes (32%).

Despite its familiarity, the familiar-tool prototype did worse than the other two on almost all measurements. On average, fewer tasks were correctly solved with this prototype. People had to put more mental effort into solving the tasks and they took longer. Also on the questionnaire, the familiar-tool prototype was rated worse than the other prototypes.

A typical result is shown in Figure 4.2.7. After testing each prototype, the participants were asked 'Did you feel you can control the system?' The diagram shows the number of 'yes' answers to that question. In the younger group, 44 per cent said they could control the familiar-tool system. In the older group only 11 per cent said that they could control it. The numbers are much better for the image-schematic prototypes: 78 per cent 'yes'-answers in the younger group and 61 per cent in the older group for the LCD screen version and 94 per cent 'yes'-answers in the younger group and 61 per cent in the older group for the touch screen version.

When asked which of the three devices the participants would prefer to have in their house, only 8 per cent said that they would like to have the familiar-tool prototype. Sixty-one per cent said that they wanted the image-schematic touch-screen version and 31 per cent would prefer the image-schematic LCD

screen version. The age groups differ somewhat in that more people in the older group liked the image-schematic LCD screen version (39%) and fewer liked the image-schematic touch-screen version (50%) than in the younger group. For some, using the touch screen was either too unfamiliar or it was too fiddly to set the exact times and temperatures with the relatively small buttons that were difficult to control.

Although the age groups differed in that the older group was less effective and efficient in solving the tasks and gave less favourable judgements in the questionnaire, the overall pattern of the results is the same for both age groups. The familiar-tool version did worse than the two image-schematic prototypes. But it was also clear from the results that there is still room for improvement, even for the versions that did best. For example, the image-schematic touch-screen version needs more work on the actual handling of the buttons to make it less fiddly to alter the settings. Also the meaning of the two lines that go vertically and horizontally across the display seemed to be puzzling for many users.

In conclusion, familiar user interfaces do not guarantee the most effective, efficient and satisfying use. The image-schema solutions were consistently better on all usability measures in both age groups. This shows that designing with image schemas can lead to novel and successful user interface solutions with robust advantages across different user populations.

## **4 Design Support**

Previous studies, such as the heating controller example, show that designers should not rely on mimicking existing technology alone. If they are mimicking less successful technology, usability might be reduced. Using image schemas as design vocabulary produced novel and successful user interface prototypes. Therefore, designers might be well advised to try image-schema methodology to arrive at fresh ideas that make a design more intuitive to use. The above studies show a way of using image schemas in a user-centred design process. The largest cost lies in the analysis phase, when image schemas must be extracted from the different components of the context of use. The largest benefit can be gained in the design phase, when the designer produces design solutions to meet the requirements. Here, image schemas prescribe the structure of the user interface and, at an abstract level, free the designer from applying less suitable pre-configured solutions.

To support designers in applying image schemas, several approaches are currently being investigated. First, building on findings in Cognitive Linguistics, a number of image-schematic metaphors have been investigated for their use in the context of user interface design. Documenting and validating frequently

recurring linguistic metaphors (e.g. for the target domains of time, importance, quantity) would allow designers to shortcut the need for extensive linguistic analyses in the context-of-use phase of the design cycle.

This work of validating and documenting linguistic metaphors has already begun. Experiments showed that user interfaces congruent with metaphors of the UP-DOWN image schema (e.g. GOOD IS UP – BAD IS DOWN, MORE IS UP – LESS IS DOWN) led to faster reaction times and were rated more suitable than user interfaces that were incongruent with these metaphors (Hurtienne, 2011, studies 1 and 2). There might also be scenarios in which two metaphors make contradicting predictions. For example, the metaphors SIMILAR IS NEAR – DIFFERENT IS FAR and CONSIDERED IS NEAR – NOT CONSIDERED IS FAR make contradicting predictions for the relative placement of objects when dissimilar objects are to be jointly considered in a task. It could be shown that the task of the user (here judgements of similarity) influences which metaphor is more influential on users' response times and errors (Hurtienne, 2011, studies 3 and 4).

Furthermore, a number of image-schematic metaphors found in cognitive linguistic analyses have been validated in simple hear-and-show experiments. For example, 29 metaphors involving the 5 attribute image schemas BIG-SMALL, WARM-COLD, BRIGHT-DARK, HEAVY-LIGHT and SMOOTH-ROUGH were validated with objects that instantiated the poles of these image schemas (e.g. big and small Lego blocks; two bottles filled with warm or cold water). Participants were instructed to select the object they felt corresponded most closely to adjectives that were presented to them verbally (i.e. the respective target domain of the metaphors). A self-set threshold of 80 per cent metaphor-congruent responses was achieved for more than half of the metaphors (e.g. MORE IS BIG – LESS IS SMALL, EMOTIONAL IS WARM – UNEMOTIONAL IS COLD, UNPROBLEMATIC IS SMOOTH – PROBLEMATIC IS ROUGH, IMPORTANT IS HEAVY – UNIMPORTANT IS LIGHT). These metaphors were recommended as design guidelines. The remaining metaphors need further investigation regarding the contexts under which they can be applied reliably. For example, metaphors using the image-schema BRIGHT-DARK only worked with black or white objects but not with objects that were light and dark blue or light and dark green (Hurtienne, Stößel and Weber, 2009).

In a similar study, 12 primary metaphors of the spatial image schemas NEAR-FAR, UP-DOWN, FRONT-BACK and CENTRE-PERIPHERY were shown to be valid for the design of gesture interaction with mobile devices (Hurtienne et al., 2010). The participants followed verbal instructions to visualize abstract domains either with a touch gesture on a smartphone or a free-form gesture moving the whole device. The proportions of metaphor-congruent gestures were above chance level (50%) for all abstract target domains. In almost all cases, they also exceeded the self-set threshold of 80 per cent agreement with the predictions of the linguistic metaphors. Furthermore, there were no differences between free-

form and touch gestures and no differences between younger and older users, showing the universal applicability of these metaphors.

Second, to support research and the practical application of image schemas, the database ISCAT (image-schema catalogue) was developed as a repository of image-schema definitions, their metaphorical extensions to abstract domains, and their application to user interface design. Here, designers can look up image-schema definitions and metaphorical extensions in language and user interface design. To date, over 200 linguistic image-schematic metaphors have been collected. The database also provides researchers with a central repository of image schemas and documented metaphors that holds the potential, to discover implicit rules of image-schema syntax, semantics and pragmatics in user interfaces.

Third, in a more recent project ([www.ibis-projekt.de](http://www.ibis-projekt.de)) the image-schema methodology was applied in software development practices found in small and medium enterprises (Löffler et al., 2013). Furthermore, to support the dissemination of the method, a number of workshops have been held for practitioners in which a user-centred design process with image schemas was taught and applied in small projects. It could be shown that a three-day workshop clustered around a practical problem is sufficient to teach the methodology, to convey a feeling of the strengths and weaknesses of the method, and to prepare practitioners to apply the method themselves.

Further work needs to focus on the effort required in the analysis phase, for example by providing tools that automate the image-schema tagging in transcripts of user interviews. The concrete benefits of the image-schema methodology in terms of the enhanced quality of both the designed product and the design process will be addressed in further studies. The question also remains, how the methodology can be integrated into a range of different user-centred design processes.

## **5 Conclusions and Future Challenges**

Cognitive Linguistics has much to offer to the design of technology that is intuitive to use. The theories of conceptual metaphor and of conceptual blending, the invariance hypothesis, and the theory of primary metaphors are used to describe the content of users' mental models and to derive what should be represented at the user interface. Image schemas and their metaphoric extensions have so far attracted the most elaborate research in user interface design. The evidence shows that it is feasible to apply image schemas in the analysis of users' mental models and of user interfaces. Similarly, designing instantiations of image schemas into the user interface influences the perception of the product, how users solve and how they talk about their tasks. It was also found that

task times and error rates are lower when using a version of a product instantiating image-schematic metaphors than when using traditional versions of the same product.

Using image schemas and their metaphorical extensions in user-centred design is not only beneficial with regard to the final product, but also for the design process itself. The transition from requirements to design solutions has been identified as a problem for design, because here the switch from analysis to synthesis must take place (cf. Dubberly, Evenson and Robinson, 2008; Pahl, Beitz, Feldhusen and Grothe, 2007). Applying image schemas was shown to be able to close the 'design gap' (Wood, 1998) by constraining the possible design space without constraining the designer's choice about the concrete instantiation in hardware or software. Thus, although prescriptive, the abstract nature of image-schema suggestions leaves enough room for the creativity of the designer.

Image schemas seem to be easily understood and easily applied by designers. They produce convincing qualitative and quantitative results. As a design language, image schemas provide a holistic view of the design process and are easily compatible with other methods in user-centred design.

Other approaches borrowed from Cognitive Linguistics like conceptual metaphors in general or conceptual blending tend to be useful, too, but they usually offer too little guidance for the designer and are poorly researched with regard to their actual impact on intuitive use.

User interface design has thus greatly profited from concepts, theories and findings in Cognitive Linguistics. But cognitive linguists may also profit from work in user interface design. First, these studies can be used to counter the arguments that cognitive linguists engage in circular reasoning. One of the major objections, for example, is that cognitive linguists claim that they find *conceptual* metaphors in linguistic data, but only provide linguistic expressions as support for their claim (Glucksberg and McGlone, 2001; Peeters, 2001). Many of the studies reported here show that conceptual metaphors proposed in Cognitive Linguistics also work in graphical representations and gesture.

Second, tools developed in the domain of user interface design might also help cognitive linguists with their work. Especially the ISCAT database – a collection of current knowledge about image schemas, linguistic examples of their metaphorical extensions and attempts of their validation in the wider cognitive sciences – may be a useful reference tool. Other tools such as automatic image-schema extraction algorithms, developed to shorten the time analysing linguistic data for image schemas, may find useful applications in Cognitive Linguistics.

Finally, work in user interface design shows that basic research in Cognitive Linguistics has enormous value in an applied and increasingly important context – the design of technology that is intuitive to use.

## Note

1. Inter-coder agreement is often measured with Cohen's kappa (Cohen, 1960; Eugenio and Glass, 2004). In contrast to raw percentage values, kappa takes into account that a proportion of the agreement can occur purely by chance. Kappa values can vary between  $-1$  (complete disagreement) to  $+1$  (complete agreement). A kappa value of 0 indicates chance agreement.

## References

- Antle, A. N., Corness, G. and Droumeva, M. (2009). What the body knows: Exploring the benefits of embodied metaphors in hybrid physical digital environments. *Interacting with Computers*, 21(1–2), 66–75.
- Antle, A. N., Droumeva, M. and Corness, G. (2008). Playing with the sound maker: Do embodied metaphors help children learn? In *Proceedings of the 7th International Conference on Interaction Design and Children, IDC '08*. New York: ACM, pp. 178–85.
- Bakker, S., Antle, A. N. and van der Hoven, E. (2009). Identifying embodied metaphors in children's sound-action mappings. In P. Paolini and F. Garzotto (Eds), *Proceedings of the 8th International Conference on Interaction Design and Children*. Como, Italy: ACM, pp. 140–9.
- Benyon, D. and Imaz, M. (1999). Metaphors and models: Conceptual foundations of representations in interactive systems development. *Human-Computer Interaction*, 14, 159–89.
- Cienki, A. and Müller, C. (2008). Metaphor, gesture, and thought. In R. W. Gibbs (Ed.), *The Cambridge Handbook of Metaphor and Thought*. Cambridge, UK: Cambridge University Press, pp. 483–500.
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement*, 20(1), 37–46.
- Cooper, A. and Reimann, R. (2003). *About Face 2.0: The Essentials of Interaction Design*. Indianapolis, IN: Wiley.
- Dong, S. (2007). *Catalog of User Interface Elements for Intuitive User Interfaces*. Unpublished student project, Technische Universität, Berlin.
- Dubberly, H., Evenson, S. and Robinson, R. (2008). The analysis-synthesis bridge model. *interactions*, 15(2), 57–61.
- Eugenio, B. D. and Glass, M. (2004). The kappa statistic: A second look. *Computational Linguistics*, 30(1), 95–101.
- Fauconnier, G. and Turner, M. (1998). Conceptual integration networks. *Cognitive Science*, 22(2), 133–87.
- Glucksberg, S. and McGlone, M. S. (2001). *Understanding Figurative Language: From Metaphors to Idioms*. Oxford and New York: Oxford University Press.
- Grady, J. (1997a). *Foundations of Meaning: Primary Metaphors and Primary Scenes*. PhD dissertation, University of California at Berkeley.
- (1997b). Theories are buildings revisited. *Cognitive Linguistics*, 8(4), 267–90.
- Hahn, L. (2007). *Analyse eines Cockpits zur Erstellung eines Kataloges von Interaktionselementen*. Unpublished student project, Technische Universität, Berlin.
- Hoshi, K., Öhberg, F. and Nyberg, A. (2011). Designing blended reality space: Conceptual foundations and applications. In *Proceedings of the 25th BCS Conference on Human-Computer Interaction*. Swinton: British Computer Society, pp. 217–26.

- Hurtienne, J. (2011). *Image Schemas and Design for Intuitive Use. Exploring New Guidance for User Interface Design* (Doctoral dissertation, Technische Universität Berlin). Retrieved from [http://opus.kobv.de/tuberlin/volltexte/2011/2970/pdf/hurtienne\\_joern.pdf](http://opus.kobv.de/tuberlin/volltexte/2011/2970/pdf/hurtienne_joern.pdf)
- Hurtienne, J., Israel, J. H. and Weber, K. (2008). Cooking up real world business applications combining physicality, digitality, and image schemas. In A. Schmidt, H. Gellersen, E. van den Hoven, A. Mazalek, P. Holleis and N. Villar (Eds), *TEI'08. Second International Conference on Tangible and Embedded Interaction*. New York: ACM, pp. 239–46.
- Hurtienne, J., Stöbel, C. and Weber, K. (2009). Sad is heavy and happy is light – population stereotypes of tangible object attributes. In N. Villar, S. Izadi, M. Fraser, S. Benford, D. Kern and A. Sahami (Eds), *TEI'09 Third International Conference on Tangible and Embedded Interaction*. New York: ACM, pp. 61–8.
- Hurtienne, J., Weber, K. and Blessing, L. (2008). Prior experience and intuitive use: Image schemas in user centred design. In P. Langdon, P. J. Clarkson and P. Robinson (Eds), *Designing Inclusive Futures*. London: Springer, pp. 107–16.
- Hurtienne, J., Stöbel, C., Sturm, C., Maus, A., Rötting, M., Langdon, P. and Clarkson, P. J. (2010). Physical gestures for abstract concepts. Inclusive design with primary metaphors. *Interacting with Computers*, 22, 475–84.
- Imaz, M. and Benyon, D. (2007). *Designing with Blends: Conceptual Foundations of Human-computer Interaction and Software Engineering*. Cambridge, MA: MIT Press.
- ISO (2010). *Ergonomics of Human-system Interaction – Part 210: Human-centred Design for Interactive System*. Berlin: Beuth.
- Jetter, H.-C., Geyer, F., Schwarz, T. and Reiterer, H. (2012). Blended interaction. Toward a framework for the design of interactive spaces. In *Proceedings of the Workshop on Designing Collaborative Interactive Spaces, AVI2012*. Capri.
- Jetter, H.-C., Dachselt, R., Reiterer, H., Quigley, A., Benyon, D. and Haller, M. (2013). Blended interaction: Envisioning future collaborative interactive spaces. In *CHI '13 Extended Abstracts on Human Factors in Computing Systems*. New York, NY, USA: ACM, pp. 3271–4. doi:10.1145/2468356.2479664
- Johnson, M. (1987). *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason*. Chicago: University of Chicago Press.
- Kuhn, W. and Frank, A. U. (1991). A formalization of metaphors and image-schemas in user interfaces. In D. M. Mark and A. U. Frank (Eds), *Cognitive and Linguistic Aspects of Geographic Space*. Dordrecht, NL: Kluwer Academic, pp. 419–34.
- Lakoff, G. (1990). The invariance hypothesis: Is abstract reason based on image-schemas? *Cognitive Linguistics*, 1, 39–74.
- Lakoff, G. and Johnson, M. (1980). *Metaphors We Live By*. Chicago: University of Chicago Press.
- Löffler, D., Hess, A., Maier, A., Hurtienne, J. and Schmitt, H. (2013). Developing intuitive user interfaces by integrating users' mental models into requirements engineering. In *The 27th International British Computer Society Human Computer Interaction Conference*. London: Brunel University.
- Lund, A. (2003). *Massification of the Intangible: An Investigation into Embodied Meaning and Information Visualization*. Doctoral Thesis. Umeå: Umeå universitet.
- Maglio, P. P. and Matlock, T. (1999). The conceptual structure of information space. In A. Munro, D. Benyon and K. Höök (Eds), *Social Navigation of Information Space*. London: Springer, pp. 155–73.
- McNeill, D. (1992). *Hand and Mind: What Gestures Reveal About Thought*. Chicago: University of Chicago Press.
- (2005). *Gesture and Thought*. Chicago: University of Chicago Press.
- Norman, D. A. (1983). Some observations on mental models. In D. Gentner and A. Stevens (Eds), *Mental Models*. Hillsdale, NJ: Erlbaum, pp. 7–14.



- Pahl, G., Beitz, W., Feldhusen, J. and Grothe, K. H. (2007). *Engineering Design: A Systematic Approach* (3rd ed.). London: Springer.
- Peeters, B. (2001). Does cognitive linguistics live up to its name? In R. Dirven, B. Hawkins and E. Sandikcioglu (Eds), *Language and Ideology: Theoretical Cognitive Approaches*, vol. 1. Amsterdam: John Benjamins, pp. 83–106.
- Raubal, M. (1997). *Structuring Wayfinding Tasks with Image Schemata*. Unpublished Master's Thesis, University of Maine, Orono.
- Raubal, M. and Worboys, M. (1999). A formal model of the process of wayfinding in built environments. In C. Freksa and D. M. Mark (Eds), *Spatial Information Theory: Cognitive Computational Foundations of Geographic Information Science: International Conference COSIT'99. Stade, Germany, August 1999*. Heidelberg: Springer, pp. 381–400.
- Rompay, T. van, Hekkert, P., Saakes, D. and Russo, B. (2005). Grounding abstract object characteristics in embodied interactions. *Acta Psychologica*, 119(3), 315–51.
- Wilkie, K., Holland, S. and Mulholland, P. (2009). Evaluating musical software using conceptual metaphors. In *Proceedings of the 23rd British HCI Group Annual Conference on People and Computers: Celebrating People and Technology*. Cambridge, United Kingdom: British Computer Society, pp. 232–7.
- Wood, L. E. (1998). *User Interface Design: Bridging the Gap from User Requirements to Design*. Boca Raton: CRC Press.
- Zlatev, J. (2005). What's in a schema? Bodily mimesis and the grounding of language. In B. Hampe and J. E. Grady (Eds), *From Perception to Meaning: Image Schemas in Cognitive Linguistics*. Berlin and New York: Mouton de Gruyter, pp. 313–42.

# 4.3 Language Acquisition and Language Pedagogy

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## Chapter Overview

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## 1 Introduction

Language acquisition research and language pedagogy often appear to be like two reclusive woodsmen, often crossing paths but stubbornly refusing to acknowledge their common ground. While acquisition research has always been influenced by or oriented towards psycholinguistic, psychological and cognitive issues, language pedagogy tends to be preoccupied with issues of grammar teaching and instructional methodologies. Despite the fact that modern language education and language teacher training programmes are well-grounded in acquisition research, the fact remains that language classes, textbooks and review grammars tend to be slow in accepting such research findings. The purpose of this chapter is to show that the application of Cognitive Linguistics to language acquisition research and language instruction offers an intriguing venue for bridging the gap between these estranged disciplines (cf. Achard, 2008; Holme, 2009; Littlemore, 2009; Robinson et al., 2008; Tyler, 2008).

After situating language pedagogy in the context of current methodological developments, this chapter explores how various strands of Cognitive Linguistics can be brought to fruition in a model of ‘cognitive language pedagogy’. As this model is far from being coherent, complete, or unified, only a few eclectic aspects of an as yet undiscovered potential are portrayed here. The extent of this potential will then be illustrated using the case example of grammar animations based on conceptual metaphor theory.

## **2 Language Pedagogy – Shades of Grey**

If one were to name the three most prominent areas of attention in language pedagogy, grammar would no doubt rank first, followed by teaching methodologies and the use of technology and media – and, at the same time, these areas could hardly be more thoroughly governed by spurious myths, idiosyncratic preferences and beliefs (cf. the ‘Credo’ of the American Council of Teachers of Foreign Languages, ACTFL guidelines 1983, and Achard, 2008 for an overview of widely debated issues in L2 pedagogy). In the larger view of the field of language teaching, one thing can be seen as certain: the fashionable variations of the moment may change over time in the classroom or in teaching materials and media, but the fundamental orientation towards structures and structural elements so far remains unchanged. There are notable exceptions of course: there is a substantial and growing body of advanced research on teaching and acquisition, and a wide interest on the part of instructors in modern advances on research and teaching. However, a look at current textbooks and commercial media products easily confirms that the practice of mainstream language pedagogy hardly reflects research advances, such as process-based and usage-based models of acquisition sequences. The presentation of grammar in language teaching has moved increasingly from prescriptive to descriptive (mainly structuralist and contrastive) approaches, with occasional references to, and examples of, everyday usage of language. However, the structuralist compartmentalization of language into smaller and smallest linguistic units (syllables, phonemes) with the sentence often being the largest one has changed little over time, as has the belief that teaching linguistic structures, in one palatable way or the other, addresses the primary needs of the learners. The debates on implicit versus explicit grammar teaching, focus on form, focus on forms and focus on meaning, various input hypotheses and models, and language awareness reflect this kind of orientation on grammatical structures. Moreover, input models which attempt to match the learners’ linguistic needs in the sense of *i+1* structured input activities etc. (Krashen, 1985; Schmidt, 1990; Wong, 2004; cf. Roche et al., 2006; Sharwood Smith, 1993; VanPatten, 2004 for critical presentations) not only operate on structural aspects of learner progress, but assume

that controlled frequency effects of input features ought to play the crucial role in language instruction, a claim contested by acquisition experts such as Klein (1986). If the amount and mere frequency of input played the crucial role in language acquisition, migrants living in target-language environments would acquire the new language easily – if not automatically – in a short period of time. This, unfortunately, has proven not to be the case. Rather, rudimentary acquisition and fossilization in the acquisition process occur frequently, in all observed languages and under various environmental conditions. Obviously, input models frequently underestimate the fact that ‘natural’ foreign language acquisition is less governed by formal concerns and effects of quantity than it is driven by non-linguistic interests of the learner to communicate meaning. After all, language acquisition can occur under restricted conditions and without any formal instruction. Almost all people learn their first languages without instruction and most people who use second or foreign languages on a more advanced level have learned them through a motivation to communicate meaning rather than through instruction.

### **3 Research and Teaching: The Missing Links – Cognition and Pragmatics**

In an exemplary survey of the presentation of modals in current English grammar books Tyler (2008) investigates how strongly the books are based in traditional approaches to grammar and to what extent they recognize findings of Cognitive Linguistics. The results are disenchanting. Tyler concludes that textbooks continue to be restricted to presenting the root meanings of the modals, for example, but do not deal with their dual meanings as epistemic expressions. She finds no other evidence of cognitive aspects of grammar being portrayed in modern grammar books.<sup>1</sup>

Predominantly structure-oriented approaches seem to fit perfectly with a pedagogical orientation towards interventionist methodologies. In the wake of such interventionist or instructionist methodologies, language teaching approaches that focus on truly autonomous, task-based, functional (competence-oriented) and other aspects typically accorded to constructivist models continue to remain an exception. This applies even more to approaches that focus on rich, authentic cultural and linguistic environments as a precondition of the learner’s ability to use language creatively. The fact that Papert’s constructionist model of language learning (understood as a specification of constructivist learning theory) opens a wider usage- and task-based horizon to modern language teaching approaches is little known in language pedagogy. Papert not only emphasizes the importance of rich context for understanding the input but also stresses the catalytic significance of public domains for the production of

learner output. It is through the presentation of products (texts) that the learner receives rich, authentic, interactive feedback which contains vital cues for linguistic accuracy and the communicatively appropriate embedding of the productions (Beers, 2011; Fischhaber, 2002; Goldman-Segall, 1998; Papert, 1980). Common modern approaches to task-based learning, by contrast, are often reduced to the aspect of content teaching which is undoubtedly important but not sufficient (Roche et al., 2012). The recent European movement on Content and Language Integrated Learning (CLIL) is a good illustration of the fact that previous foci on content initiatives dating back to Comenius' didactic approach of the seventeenth century (Comenius, 1981), the reform movement of the turn of the nineteenth/twentieth century (Gouin, 1880; Jespersen, 1922; Viëtor, 1882) and including more recent communicative approaches on foreign languages in/ across the curriculum (FLIC/FLAC; Krueger et al., 1993) in the 1970s and 1980s have had little effect on mainstream language instruction. Again, the evidence is disenchanting: had content orientation been established as a fundamental component of the dominant movement of communicative language instruction in the 1970s, it would not have to be reinvented by the CLIL-initiative today. Besides, the mere orientation towards content ignores the fact that language use – and hence language learning – do not emerge from content alone but rather are propelled by task-based actions. 'How to do tasks with words' is the most essential issue in any pragmatic paradigm of language use and language learning.

A look at commercial language learning software is revealing: It shows that the pragmatic understanding of language (doing things with language) is far from being accepted in language teaching. In fact, quite the contrary seems to apply: it is fair to say that basic methodological advancements in media applications (e.g. towards the communicative approaches to language teaching since the 1970s) often have been pulled back several generations to the audio-visual era of the 1950s army method and the grammar-translation approach of previous times. Tyler (2008: 458) gives a sobering but accurate account of the predominant views on language in language pedagogy as she states the following:

This traditional view of language, which underlies most L2 grammars and texts, treats language as a system unto itself, separate from other cognitive and social abilities. Being an isolated system, disconnected from general cognitive processes and conceptual structure, language has traditionally been understood as operating under its own set of rules and properties, most of which have been assumed to be largely arbitrary, idiosyncratic, and mysterious. This view tends to represent language as a set of rules (often attempting to represent 'alternating,' 'synonymous' sentence patterns, such as so-called dative alternation or active-passive alternation, as transforms of a basic pattern), a list of vocabulary items that plug into the rules, and a list of

exceptions to the rules. Lexical items with multiple meanings are presented as homophones, with virtually no attempt to demonstrate any motivated connections among the meanings. The approach to language learning that accompanies this view of language emphasizes the need for the learner to memorize forms, master the rules, and memorize the exceptions.

In light of the lack of empirical studies supporting the prevalent interventionist teaching philosophies, Goldberg/Casenhiser (2008: 210) caution that '[. . .] of course, there are other factors that play a role in a classroom setting. It is possible that focused training exclusively on a narrow subtype of a pattern could lead to excessive boredom.'

#### **4 The Emergence of New Horizons in Language Pedagogy**

To avoid such consequences, a fresh approach to the linguistic basis of language pedagogy would appear to be needed. Clearly, this approach would have to take into account what insights on language acquisition Cognitive Linguistics has to offer. Arguably, this includes a pragmalinguistic foundation of language teaching and constructionist methodologies. How such approaches may impact language pedagogy in general has been stated concisely by Langacker (2008: 66).

Few would maintain that language instruction is easy. Nor can the advice of linguists always be counted on to make it any easier. Unless they are themselves experienced language teachers, the advice of linguists on language pedagogy is likely to be of no more practical value than the advice of theoretical physicists on how to teach pole vaulting. What they can offer, *qua* linguists, is insight into the structure of particular languages and the properties of language in general. But even when limited in this fashion, the input of linguists cannot necessarily be trusted. They quarrel with one another about the most fundamental issues, suggesting that some of them (at least) must be fundamentally wrong. It is therefore unsurprising that the impact of linguistic theory on language pedagogy has been less than miraculous and sometimes less than helpful.

Among the few notable exceptions of experimental studies that apply Cognitive Linguistics to language learning are the volumes edited by Achard and Niemeier (2004), Littlemore and Juchem-Grundmann (2010), Tyler and Evans (2003), the unpublished studies by Hama (2005) and Abbuhl (2005) reported in Tyler (2008), Scheller (2008), and Roche/Scheller (2008). While we are indeed far from conceiving a unified, complete and operational approach to Applied Cognitive

Linguistics, Cognitive Linguistics has highlighted a number of areas – and produced a number of results – which are transferable to language learning and instruction. Unfortunately, many of the suggestions by cognitive linguists on just how the transfer could be managed – as freely admitted by the respective authors – remain tied to the traditional input-oriented and interventionist methodologies described above (e.g. most contributions in the volume edited by Robinson et al., 2008).<sup>2</sup> Language pedagogy and Cognitive Linguistics need a viable interface which allows the application of mental models of grammar to task-based, pragma-oriented learning and teaching.

## **5 Usage-based Orientation Towards Language and Language Learning**

Achard (2008) suggests that the teaching of structural properties of languages ought to parallel the teaching of lexical (meaningful) units. Syntax in this line of thought does not represent an independent organizational system in its own right (as it is commonly treated in language teaching) but rather ought to be treated by instructors, and explained to learners, as a system of meaningful mental constructions. Learners do not map language along the lines of reference grammars. Rather, they construct interim grammars as mental models similar to, and compatible with, the way Cognitive Linguistics treats linguistic means as mental constructions.<sup>3</sup> An environment which is not considered relevant by the learner tends to pass unnoticed while input which is simplified or otherwise manipulated for pedagogical reasons tends to forego the benefits of authentic input. Such input often leads to a rather abstract knowledge of grammatical rules which learners find difficult to apply in real-time communication.

The usage-based approach to language appears to be particularly productive for language learning and teaching as it traces form to underlying meanings. In fact, this is where Cognitive Linguistics comes into play: it seems to provide the best framework for the transfer of grammatical schemata into immediate, everyday language use by the learner.

While generative theories take constructions to be the output of abstract and autonomous rule applications and constraints, constructions from a usage-based perspective are conceived as what speakers of a language infer from the input (Tomasello, 2008). The inference of the input is grounded in speakers' immediate perceptual experience. Constructions, that is patterns of smaller or bigger linguistic units, such as words, morphemes and phrases, can thus be described both from the semantic and functional perspective ('What is the meaning conveyed by the construction?', 'What is its function in the given context?') and from the formal perspective ('What kinds of items are likely to occur in the construction, and in what kind of configuration?').<sup>4</sup> With such a foundation, the

transparency of usage-based categories can avoid the most fundamental misconception of traditional approaches to language teaching: overburdening the learners with a distracting amount and degree of abstract rules.

A great advantage of Usage-Based Theory over Generative Theories is that it does not rely on innateness to explain linguistic categories but rather proposes that much of grammar can be explained on the basis of the domain-general abilities of humans [ . . . ]. Given these very generalized cognitive abilities, usage factors themselves become part of the explanation for the properties evident in human language. (Bybee, 2008: 233)

Grammatical rules can, therefore, be processed easily by a learner when they carry meaning that contributes to the construction of mental models and schemata. Such mental constructions, according to Langacker (2008: 68), are dependent on, and reflect, various cognitive factors: specificity (as expressed by specific lexical items), prominence in terms of profiling (e.g. the different focus expressed in the general message 'she flew' versus the more explicit specification of the means of travelling in 'she travelled by plane'), and in terms of focal prominence of relational participants, that is, the relationship of trajector and landmark, and perspective (the expression of vantage point, orientation, local vs global perspective as expressed by the temporal aspect in 'the road is winding' vs. 'the road winds through the mountains'). Consequently, the specific shape of mental constructions is largely dependent on the speaker's attention to specific details.

Applying a usage-based approach to (authentic) language promises to have many advantages for language pedagogy. Among the most apparent are the following: (1) language is embedded in authentic and, therefore, relevant contexts (including visual and gestural expressions), (2) structures become more transparent and accessible to the learner, (3) naturally occurring language variation resulting from contextualized uses of language in specific situations can be traced back to its pragma-linguistic functions, (4) specific textual patterns are inherently represented in genres and registers, (5) language occurs in larger constructions (chunks) reflecting meaning (form-meaning pairings), (6) these chunks are easier to grasp and faster to apply and, therefore, advance and increase the learner's linguistic mobility and motivation, (7) at the same time, chunks form the necessary basis for further grammatical analysis and expansion (cf. Goldberg et al., 2008), and finally (8) form-meaning constructions can be better related by the learner to the reactions (feedback) of the communicative environment, allowing the learner to benefit from communicative interaction. As a result, an authentic, usage-oriented language environment increases the learner's chances to keep grammatical principles and rules in active memory, especially when the language is relevant to the speaker/learner. After all, the



speaker's attention is governed by his/her assessment of relevance in a given situation and under given circumstances. In other words: language use has a conceptual motivation (grounding) which itself is influenced by pragmatic experience (environment, culture). When confirmed through communicative interaction, it becomes entrenched. It needs to be stressed that there is no reason to assume that learners in this respect act differently from 'native speakers'. Meaningful constructions increase transparency and produce a stronger and more lasting effect on long-term memory.

## **6 Possible Fields of Application**

This section portrays some of the theoretical implications arising from a cognition-based approach to language learning and teaching. This includes aspects of the development of syntax, morphology, textuality, semantics and the lexicon.

### **6.1 The Basic Variety and the Learner's Path to Grammar**

Common basic organizing principles of rudimentary language systems such as pidgins, aphasia and learner varieties were originally proposed by Givón in his language typology (1979: 98). The principles were later refined by Klein/Perdue (1997) to form the pragmatic organizing framework of the 'Basic Variety'. Klein and Perdue's research on learner varieties has shown that the pragmatic mode is more than just a transient mode in language acquisition, as had long been thought. According to Klein/Perdue (1997), the Basic Variety is in itself a language that has all the features of a complete natural language and, therefore, may be considered the first major fossilization option in the process of acquiring a foreign language. In fact, the grammar of the Basic Variety and the macro structures of learner utterances and texts can be represented as a set of cognitive principles: topic-comment structures consistently represent gestalt figure ground principles, the transfer of concepts of time, space, and motion determines the expression and sequence of essential grammatical categories, and grammar is lexicalized (cf. Langacker, 1999; Reinhart, 1984; Roche et al., 2008; Rosch, 1975). As a result, grammar in the learner language is often expressed lexically or, especially in the very early phases, manifests itself in implicit organizing principles. Klein/Perdue (1997) argue that all essential aspects of natural languages are represented in the Basic Variety.

While the organizing principles of the Basic Variety allow the speaker to communicate within the range of essential everyday topics and functions this range is somewhat limited by the constraints of a largely situation-based framework of communication. For many speakers who never exceed the grammatical

range of the Basic Variety, language expansion may nevertheless occur in the realm of the lexicon. In other words, the lexicon may be adapted to increased communicative needs while the basic grammar remains the same or fossilizes. However, while the Basic Variety can describe the pragmatic language system it cannot explain how a learner moves on from the purely pragmatic mode (with optional expandable lexical bases) to more sophisticated, target-adequate rules.

This process can be explained best by the chunking/de-chunking model applied to foreign language acquisition by Handwerker/Madlener (2009) in an exemplary manner. The model is based on Tomasello's well-documented account of chunking processes in L1 acquisition (Tomasello, 2003, 2006).

In fact, much of the language import from the language to be acquired has been shown to be presented to and represented by the learner in chunks. As acquisition progresses, the language of the learner will become more and more diversified and entrenched provided the input is demanding, sufficient, salient and relevant. As has been presented above, mere frequency in this process is not a sufficient condition for acquisition to occur. Research has shown that the noticing of salient features in the input by the learner is more important than the mere frequency of elements in the input (cf. Ellis, 2006a on aspects of selective attention and transfer phenomena in L2 acquisition, Ellis, 2006b; Klein, 1986; Schmidt, 1990). Bybee's assessment of the role of frequency (sufficient exposure), therefore, appears to be too optimistic unless sufficient exposure refers to the quality and relevance of the input rather than the mere quantity.

The only requirement is sufficient exposure to the categories of the L2. And finally, the chunking and automatization processes needed to gain fluency occur naturally with practice of both linguistic and non-linguistic tasks. (Bybee, 2008: 233)

The holistic meaning of chunks is of critical importance as learners manage to interpret it in a specific pragmatic context, and subsequently use it with increasing accuracy in the aforementioned acquisition sequences. The chunks are stored and remain available at the learner's disposal, initially for identical contexts only, and later on for merely similar contexts as well. Through receptive processing of further, similar, and (as the case may be) actively modified input, the learner begins to identify and subsequently analyse individual parts with respect to their grammatical functions. Concurrently, this allows the learner to generate applicable paradigms that enable him or her to recognize and identify individual elements again. Since these elements appear in other contexts and in other chunks, the result is a certain familiarity with the elements as well as a certain proficiency in analysing strategies that allow the learner to reconstruct various meanings and pragmatic functions even though they may contain a

significant amount of unknown elements. After the complete or partial analysis of the input structures, also called 'de-chunking', parts or entire elements may be resynthesized for active use by the learner. Ultimately, the structures may come to be embedded in the existing language system of the learner. This is a process which becomes more refined and accurate through further feedback and practice.

Somewhat more elaborated chunks, for example, provide slots for variable elements (Lieven et al., 2008). This phase is later expanded into forming something even more sophisticated: basic rules. For instance, a basic chunk may display the form 'I'm gonna x' before it is elaborated into 'I want to x'. In other words, learners are not only copying chunks but building them – a task which requires at least some metalinguistic awareness. As learners progress even further they develop their skills in the de-chunking of larger elements in order to develop and test new grammatical rules. It is, of course, to be expected that learners would also employ these forms in contexts that are not entirely appropriate; a certain degree of overgeneralization is typically the result.

Bybee (2008) points to the importance of pre-acquired tokens in L1 to influence chunking in L2. According to Bybee's model, it can be assumed that L2 learners activate pre-acquired language elements from their linguistic storage in order to use them productively in L2. However, while this strategy can be observed in reading and listening in a foreign language – if the learner shows a certain kind of (courageous) disposition vis-à-vis foreign elements – the strategy obviously does not apply to the same extent in the realm of productive skills of speaking and to an even lesser extent to writing. In fact, previously acquired structures may produce interferences that inhibit language development. L1 and L2 acquisition in this respect are certainly not identical. While Bybee (2008: 232) interprets this observation as an expression of the learner's willingness to integrate into the foreign culture, L3 acquisition research shows that foreign language learners often deliberately refrain from modelling utterances in the new language based on L1 structures (cf. Grosjean, 1988; Bot, 2004; cf. Roche, 2013 on the ecological-economic/organic model of language acquisition).<sup>5</sup>

## 6.2 Conceptual Transfer: Temporality, Space and Motion

The extent to which mental models determine language acquisition can best be understood by examining the existential categories of space and time. This presupposes the assumption that L1-entrenched and conventionalized mental concepts, such as those of temporality, space and motion, form the matrix in the acquisition of new linguistic systems (cf. Lieven et al., 2008 on L1 acquisition). The cognitive basis of this approach is rooted in the sequences (and the variational parameters) by which L2 learners approach new temporal and spatial

target systems (Becker et al., 1997; Perdue, 1982; Ramat et al., 1995; Stutterheim, 1986; Véronique, 1990; Vogel et al., 1993).

The morphological rules for expressing temporality with German as the target language, for example, are usually acquired by learners in the following sequence (cf. Stutterheim, 1991: 145):

- First, perfect participles appear as mechanical forms of verbs. These have an inherent perfect meaning (e.g. *gefunden* 'found'). In this phase, the learner has not yet recognized the morphological structure.
- Next, a formal comparison of perfect form as a global marker for past and unmarked form for all other cases. The learner acquires a rule which only applies to a small number of verbs (e.g. *fund* – *finden*).
- The next step involves expanding the rule to include further verbs. In this phase, the perfect category is marked selectively in conversation (strong verbs formed according to the aforementioned pattern, but differentiation between perfect and infinitive use).
- A further step is necessary to align the verb to the target language rules of obligatory markings of temporal categories (tense). This can also mean a change or expansion of the meaning of the form in question, such as the switch from an aspect system to a tense system (e.g. the gradual conversion to the target language tense system).

This basic temporal system can be developed further at a later point in time, as long as the acquisition process does not fossilize beforehand.<sup>6</sup>

Like the acquisition of temporal concepts, the acquisition of spatial concepts also proceeds through several stages (Becker et al., 1988). Based on both experimental lab data from description tasks and narratives from storytellings, story recountings, and descriptions of scenes from silent movies, learning how to express location and spatial relationships can be described as the process of acquiring two different reference systems, that is, topological reference (e.g. 'on', 'in', and other prototypical descriptors in a direct reference system), and, subsequently, projective reference. Projective reference is not concerned with the immediate origo of the speaker, but rather projects it onto a second reference system, as in 'die tasche die stuhl' / 'the bag the chair' ('the bag next to the chair'), according to the construction principle of 'x = where y is'. This development process is composed of six parts:

1. Basic topological designations with a clear speaker reference (origo) belong to the standard configuration of the Basic Variety and appear first. Nominal statements appear before other categories.
2. Core designations are acquired before peripheral designations. Deictic expressions ('here', 'there', 'da') become the first markers in this respect.

The differentiation between speaker inclusion ('here'/'hier') and speaker exclusion in the reference area using 'there'/'da' appears subsequently.

3. The designation of the proximity of objects, such as, 'book inside the glass' (= 'beside'), 'côté de la chaise' (= 'side of the chair'), 'seine tasche in die seite' (= 'his bag in the side') (Becker et al., 1988: 130) remains relatively constant throughout the further acquisition process, as the learner does not perceive problems in the basic system and it therefore appears to be adequate.
4. Verticality is realized as the first referential axis, presumably because it allows for clear form-function assignments.
5. The lateral axis follows as the second referential axis.
6. The sagittal axis is the last to be implemented, presumably because of the high variability and flexibility in possible form-function assignments.

Usually, directional markers appear before location markers. This may be due to the presumably higher complexity of expressing location versus direction, as Becker/Carroll/Kelly (1988) propose. Another reason may be that directional markers contain specific information which is not intrinsically accessible in the reference area and, therefore, requires a larger linguistic inventory.

Several experiments using artificial languages have shown that learners tend to concentrate on a single element when acquiring new forms, often for prolonged periods of time (Ellis, 2006a). Semantically transparent (non-salient) forms with no clear referent are generally acquired late and slowly. Acquisition occurs faster only when the expressions represent fundamental (ontological) functions. However, stages cannot be skipped. If variation does occur, it plays out within a stage.

Interestingly, the general core inventory of expressions shows many similarities across various learner varieties, regardless of background languages, but learners judge the relevance of the focus to be expressed and the accuracy of how to express it in individually different ways. These idiosyncratic differences result in much of the linguistic variation that can be observed across learner varieties. At the same time, a number of commonalities in learner varieties define what unites and what distinguishes certain groups of learners.

As with the acquisition of temporal markers, the acquisition of spatial markers in general shows no specific mappings of concepts onto specific grammatical categories. Rather, the available acquisition data displays particular differences in the meaning-form mappings of various languages. While the prevalence of meaning and function remains central for all learners regardless of their language, the preference for grammatical categories differs to a certain degree. When choosing grammatical categories, interestingly, learners are often guided by the structures of the target language rather than those of the L1. For instance, adult learners of L2 French prefer to use, as is customary for colloquial French,

verb-based forms such as 'sort-' (derived from 'sortir', expressing a motion away from the referent), 'mont-' (from 'monter', expressing an upward motion), 'arriv-' (from 'arriver', expressing a motion towards the referent).<sup>7</sup>

By contrast, adult L2 learners of German, Dutch, or English favour prepositions, prepositional prefixes and similar constructions ('auf'/'on', 'raus'/'out', 'weg'/'away' and others) as is customary for the target language. Remarkably, the preposition 'auf' ('on') is a special case for both L1 and L2 learners: this preposition appears later than its equivalents in other languages. The reason for this can presumably be found in the complex and multifunctional system of this preposition in German.

There are, however, exceptions to the major acquisition principles: not all learner groups use an approach that is oriented to the same degree towards principles of the target language. Learners with L1 Punjabi, for example, favour overgeneralizations over direct transfers from the target language. This diversified picture shows that source language (L1), target language (L2), and learner language interact during the acquisition process to a varying extent (Becker et al., 1997).

It is important to remember that the acquisition of basic spatial perception principles, like any other perception principles, begins in childhood and, consequently, affects further acquisition with respect to and through primary languages (L1s). The resulting conceptual transfer affects spatial dimensions as well as spatial relations and functions (cf. Coventry et al., 2008: 132; Pederson et al., 1998).<sup>8</sup>

As learners acquire a temporal or spatial system in particular sequences following specific strategies, language pedagogy would be well advised to focus on conceptual transfer and make concrete suggestions on how languages could be taught along those lines, not in conflict with them.

### 6.3 Text as Cognitive Process

It is a commonly observed phenomenon that learners may be able to recite grammatical rules or manipulate inflectional morphology, but at the same time are not able to communicate adequately in coherent and cohesive language. Moreover, in language classes – and textbooks to be sure – it is often overlooked that a text is not as so much a linear (additive) product comprised of unrelated phonemes, words and sentences as it is a cognitive, that is a hypertextual, process. If we consider a text to be a mental construct rather than a physical product (Bühler, 1934; Foschi Albert, 2012; Schnotz, 2006, 1994; Talmy, 2008) the consequences for the teaching of languages would mark a significant paradigm shift similar in extent to the focus on conceptual transfer described in the previous paragraph. The explicit treatment of aspects of textuality in teaching

materials for foreign language instruction has so far restricted itself to establishing textual references through pronominal links (cohesion), and so remains firmly entrenched in a traditional perspective on structural grammar. The acquisition of language, however, entails the acquisition of skills for comprehending and producing texts that go far beyond the grammatical rules of linking sentences through means of cohesion. For a reader or listener to understand a text properly not only requires the knowledge of key lexical elements and cohesion principles; it also requires complex knowledge of the lexicon's grounding in cultural contexts as well as its connectedness with pragmatic principles of coherence construction. Only the ability to decode the cultural embedding and the pragmatic framework of a text provide the necessary means to reconstruct or produce coherence. A model that encapsulates the cognitive reality of texts as mental constructs of author and reader has been proposed by Schnotz (2006, 1994) in reference to Bühler's organon model (Bühler, 1934, see Figure 4.3.1).

In this model, a text has a physical structure, which emerges through the interconnection of individual elements (syntax, cohesive elements). Order and connections alone, however, do not lead to an understanding of the text. The comprehension of a text, rather, requires different means for the generation of coherence: referential, causal, temporal, local and structural coherence (Foschi Albert, 2012). The process of merging these elements into a mental construct has essentially been described as being equivalent to the process of alternating top-down / bottom-up reading with hypertexts. Accordingly, the principle of cognitive flexibility and the principle of cognitive plausibility stipulate that the emphasis on certain structural properties in the text may trigger or foster cognitive processes relevant for the structuring of the contents of, and for providing multi-perspective access to, the text (Issing et al., 2002; Spiro et al., 1991; Suñer Muñoz, 2011). It has been argued that the processes involved are especially suited to facilitate reading and writing in the instruction of foreign languages, but the empirical evidence for this claim is not yet conclusive and requires more consideration of the learner's skill levels (Roche, 2006).

## 6.4 Metaphorization

Lakoff and Johnson (1980), in their ground-breaking work on metaphorization, argued that most of our ordinary conceptual system is metaphorical in nature, that is, human thoughts are metaphorical per se, as human cognition is based on physical experience but cannot be directly commuted to mental processes without some measure of symbolic interpretation (Evans et al., 2006; Grady, 2005; Oakley, 2007). As a result, language too is thought to be governed by metaphorization processes as it is an expression of human experience. Vice versa, language is an important element in shaping humans' perception and

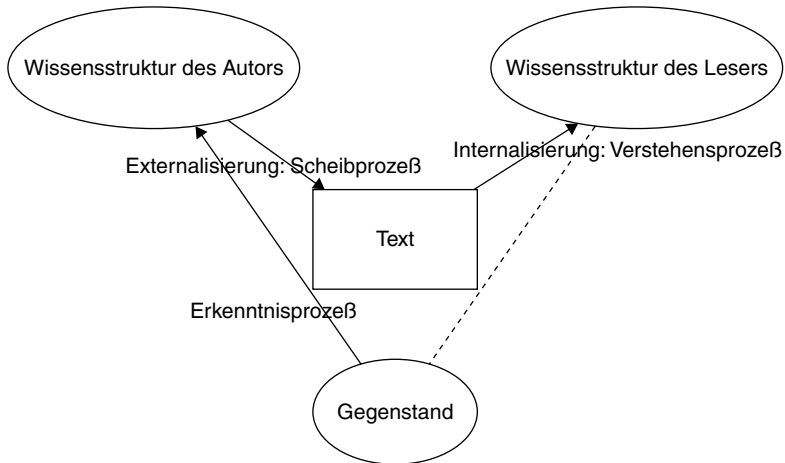


Figure 4.3.1 Text as a mental construct according to Schnotz (2006: 225)

mental modelling. Metaphorization processes are thus an important element in the brain's construction of the world rather than a representation of an objective reality (cf. Slobin's 1996 *Thinking for Speaking* hypothesis, and the works of language philosophers such as Condillac, 1746; Humboldt, 1801/2; Locke, 1690; Osgood et al., 1954; Vico, 1725; Vygotskij, 1962 and Weinreich, 1953 and remarks on language by physicists such as Heisenberg, 1959). Every aspect of human symbolic behaviour is grounded in this projection of reality and it is, naturally, influenced by idiosyncratic and culture-specific experiences, ways of thinking, norms and linguistic symbols.

In other words, the culture-specific and idiosyncratic perceptual environment has a large influence on the conceptualization of the world through the association with metaphors, and, hence, its mapping onto language. With reference to current teaching practices, Webber (2013) argues convincingly that neglecting the conceptual context in both the analysis of metaphor and the inclusion in curricula leads to an unjustified and unproductive reductionism which in the end inhibits our understanding of the systematics of metaphors and defeats the purpose of raising awareness of metaphor in and through language teaching.

Several studies on intercultural semantics and pragmatics provide evidence for the relativity, quality, and extent of the mutual influence of perception and language (Boroditsky, 2000; Gentner et al., 1983; Kühn, 2006; Matlock et al., 2001; Roche et al., 2006; Schaunig et al., 2004; van Lancker Sidtis, 2006). Several approaches have been proposed to apply the findings of research on various aspects of the broad field of intercultural linguistics (e.g. Földes, 2003) to language teaching, including culture-based language pedagogy (Byram,



1997; Kramsch, 1993), intercultural language pedagogy (Foschi Albert et al., 2010; Reeg, 2006; Roche, 2001), the sceptical hermeneutics approach based in intercultural hermeneutics (BMW AG, 1997; Hunfeld, 2004) and, more recently, Conceptual Metaphor Theory (Danesi, 2008). Conceptual Metaphor Theory is a particular attempt to systematize intercultural semantics in combination with metaphorization theory for the use in language pedagogy. As such, it constitutes another radical departure from the way metaphors are generally treated in language, literature or culture instruction. For the sake of brevity, in the following, some of the essential ramifications of metaphor-based theories for language teaching will be presented.

The basic motive for using metaphors in the teaching of languages draws on the fact that metaphors represent a conceptual and orientational systematic projection of the world which is easily accessible to learners because of its immediacy and transparency. The focus of the approach could be different. It could be based on structural metaphors, it could be guided by spatial, temporal, or other orientations, or it could be derived from ontological categories representing general human experiences with the world, such as heat, cold, darkness, light, life or death (for instance in French 'pris entre le marteau et l'enclume'/'caught between a rock and a hard place'; in German: 'zwischen Pest und Cholera'). As with other subject matter, for an efficient instruction metaphors in the foreign language need to be relevant for the learner. Rather than presenting a context-free list of semantic elements of metaphors it is more efficient to embark on a usage-based approach to the most evident concepts and structures. Metaphors ought to be salient to the extent necessary to capture and hold the interest of the learner. Where source or target domains of metaphors differ between the languages of the learner and the target language, the resulting transference discrepancy is less of a problem than often thought. In fact, it may prove to be of a particular benefit as the difference may provide the right means to trigger a particular curiosity in the learner. Unusual cultural equivalencies of, and discrepancies between, languages, such as 'green with envy'/'vert de jalousie' (French) and 'gelb vor Neid' ('yellow with envy') in German, have a tendency to generate a particularly high degree of salience for the learner. The increased level of interest subsequently can lead to an intensified processing of the metaphors involved and possibly a co-activation of related items. This increased cognitive effort produces a larger impact in the cognitive system and therefore strengthens the activation paths of the mental lexicon resulting in improved meaning and form retention. Under certain conditions, multimodal processing through different processing channels (modes) and different codings (formats) can help facilitate the processing task (cf. Scheller, 2008; Suñer Muñoz, 2011).

There is also a grammatical aspect to the processing of metaphors as their syntactic patterns often provide a chunk-like model for related constructions.

Because of their highly salient (sometimes archaic or odd appearing) structure those patterns carry a high potential for long-term retention (cf. List of Didactic Encouragements by Littlemore, 2009). This process is not a one-way street, since organizing and reorganizing processes in the mental lexicon affect all active languages acquired by a learner. Reorganizing effects on previously acquired language systems are likely to occur. However, these effects are not only to be expected as an incidental by-product of language contact. Rather, they can be optimized by adequate instructional measures by the teacher and the teaching materials.

## 6.5 Conceptual Metaphors in Grammar Instruction

Interestingly, metaphors do not only improve the knowledge of the lexical basis but may also serve as a means to teach grammatical rules. This is what the last section of this chapter attempts to illustrate. This seems to be quite an ambitious attempt as neither L2 teachers nor L1 speakers – who are supposed to know their own language – tend to have a metalinguistic access to the conceptual basis of the grammatical rules. In other words, few L1 speakers will in fact be able to explain to a foreigner the tense or case system of their own L1 (yet no one would dispute their language awareness). But how then are L2 learners supposed to develop a sense of the meaning and functions of an alien grammatical system? It has been suggested recently, that an innovative answer to this common problem in language pedagogy may be provided by metaphors applied to the teaching of grammar.

To illustrate the importance and scope of such metaphors in grammar learning and teaching it is instructive to turn to one of the most prominent fields of metaphor-prone grammar across languages: the field of motion. Of particular interest to Cognitive Linguistics in this field has been the relation of moving objects in space as they produce a perceived contrast between a background (landmark) and the moving object (trajector) (Langacker, 1999). A landmark in this framework represents the spatial area in which a moving object is situated. For example, in contrast to formal descriptions of grammar, cognitive approaches have stressed the significance of the crossing of an (imaginary) boundary as the determining feature for the choice of the accusative case in German with two-way prepositions (Freitag et al., 2005; Roche et al., 1995; Wilmots et al., 1997). Consequently, the differentiating criterion for two-way prepositions in German is not the semantic feature of motion inherent to the verb, as is widely claimed by almost all reference grammars, but the conceptual and functional feature of the marking of a boundary crossing. As a result, the location or movement within a given boundary or area is marked by the dative regardless of whether the verb expresses motion or not. In the words of

Langacker (1999) the criteria for choosing the appropriate case in German can thus be formulated as follows:

- dative: the subject (trajector) remains within the immediate search area of the prepositional object (landmark); the landmark area is not being crossed
- accusative: the subject (trajector) moves into the immediate area of the prepositional object (landmark) and crosses its boundaries.

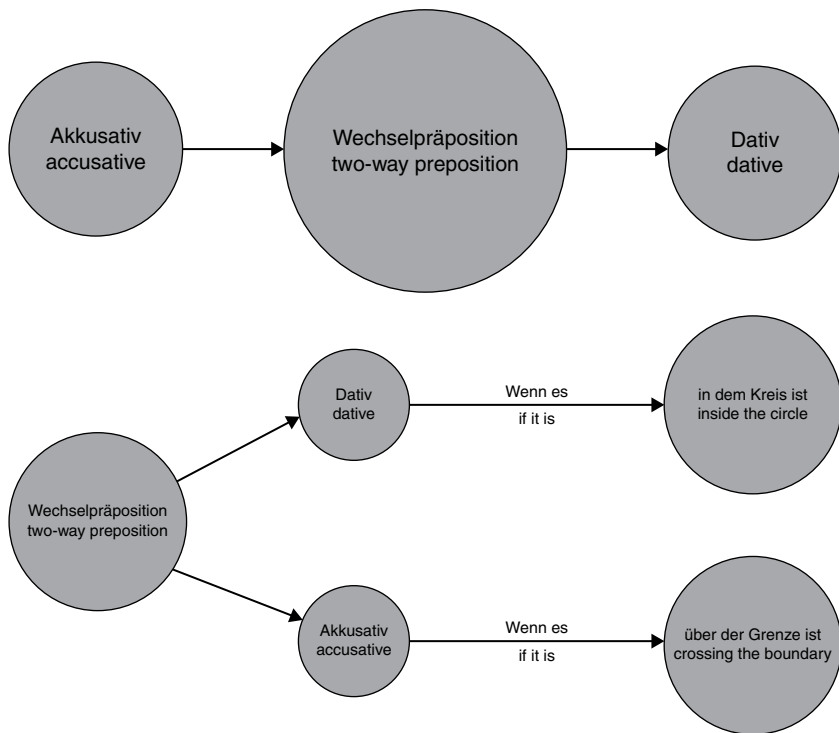
Recent studies indicate that such conceptual representations of grammatical constraints are productive across different languages (e.g. Özçalışkan, 2003, for Turkish) and work well in language learning and teaching (Grass, 2013; Roche et al., 2008; Scheller, 2008). The study by Scheller (2008) is unique in this respect as it combines the investigation of such a conceptual approach to grammar with various modes of input presentation. The success of the programmes



Figure 4.3.2 Screenshot of an animation taken from Scheller (2008: 132). Left the dative expression (trajector remains within the perimeter of the landmark), accusative on the right (trajector moves into the perimeter of the landmark)

developed for, and used in, the study is measured in terms of short- and long-term learner performances in the application of grammatical rules. Four groups of informants were formed to test four different combinations of the presented materials. The groups used either a conceptual/metaphor-based or traditional/rule-governed approach to grammar explanation and either an animation or static presentation mode.<sup>9</sup> The results document the overall superiority of the conceptual approach to grammar when presented in the animation mode. The study shows that metaphor-based animations produce significant and lasting improvements in the acquisition of grammar by students who have progressed little or not at all over a long period of time (see Figure 4.3.2).

More recently, a study by Grass (2013) which used similar animations and was based on an approach developed by cognitive psychologists (Ifenthaler et al., 2005) to measure modifications in mental models has traced the nature of the modifications and thus has added evidence to the claims made by Scheller's study. In support of the findings of the largely quantitative studies by Scheller,



Figures 4.3.3 and 4.3.4 Mental models of two-way prepositions in learners before and after using conceptual animations.  
Study by Scheller (2008) (Grass, 2013)

the study by Grass shows how diffuse and arbitrary mental representations of grammatical rules based on diffuse representations of traditional grammar approaches (Figure 4.3.3.) may be turned into plausible, structured and focused mental models by using conceptual animations (see Figure 4.3.4). Such models in turn are the precondition for the accurate and lasting application of the rules in authentic communication.

## **7 Conclusion**

In contrast to current wide-spread ‘superstitions’ regarding foreign language instruction, a conceptual approach to language learning allows for a more transparent and effective representation of grammatical rules and, consequently, for a more accurate prediction of, and tuning of instructional measures to, developmental processes. Initial empirical studies show that teaching methods derived from such principles have proven effective in teaching and learning practice and produce lasting learning improvements. As discussed in this chapter, many long-ignored tenets of what is now considered to be advantageous for successful language acquisition could all be used to greatly improve the process of teaching and learning languages. This includes an orientation towards authentic language, a pragmatic and usage-based approach to providing salient and relevant input, a basis in conceptual categories such as temporality, space, and motion, a use of conceptual metaphors, and a notion of text as a cognitive process of generating cohesion and coherence rather than a mere combination of arbitrary structural elements. The conceptual representation of grammatical metaphors through computer animations illustrated in this chapter is but an early example of the potential inherent in a cognition-based approach to language instruction. Further research in Cognitive Linguistics, language acquisition, language and image processing, and language education must therefore focus on integrating the results of cognitive aspects in a multilevel model to language pedagogy which is to serve as the basis for a major shift in language teaching practice. Analogous to the designation ‘Cognitive Linguistics’, this model would be called ‘cognitive language pedagogy’ and would be well-suited to finally resolving the unnecessary dissonance that has long plagued language acquisition research and language pedagogy.

## **Notes**

1. An example should suffice to illustrate the limitations of common structural perspectives on grammar in current language pedagogy: Cognition is often used in language pedagogy as a synonym for metalinguistic awareness as it forms the basis of many

traditional and neo-grammatical teaching approaches. In German, for instance, the term 'Kognitivierung' ('external cognitization') is commonly used to label such form-based teaching approaches in the sense of externally generated language awareness. The complex processes of language learning and information processing are not represented in this notion of cognition. Neither is the fact that language awareness expresses itself most adequately in the appropriate use of language in various contexts.

2. It is symptomatic that suggestions on the transferability of the findings to language pedagogy practically include no mentioning of task-based approaches to language instruction.
3. 'The pervasive importance of construal shows clearly that linguistic meaning does not reside in the objective nature of the situation described but is crucially dependent on how the situation is apprehended. Indeed, the situation in question is very often a mental construction which has no objective existence in the first place' (Langacker, 2008: 69) 'An important development within Cognitive Linguistics has been the status accorded to constructions. As is to be expected, we find disagreement on what, precisely, is to come under the purview of the concept (Taylor, 2004)' (Taylor, 2008: 55).
4. Both of these aspects are liable to give rise to prototype effects. Cf. Verhagen's (2007) cautioning comments on the assumption held by some linguists that a linguistic category is simply represented by its prototype.
5. Using the concept of chunks as viewed from a Construction Grammar standpoint, initially proposed by Wong-Fillmore (1979), Habertzettl (2007) suggests that chunks are processed holistically in the context of their meaning/function and their form. This could initially occur through their immediate meaning, as well as through partially analysed chunks. Accordingly, primary language acquisition can be characterized as a process of acquisition from concrete indicatives, such as 'birdie', to holophrases, such as 'lemme-see' ('let me see'), and schemata, such as 'where's the x?', and finally to the deduction of abstract constructions in the form of generalizations (Tomasello, 2006: 271; 2003: 38). In contrast to the process of chunking and de-chunking presented, Habertzettl thus interprets the output of the children examined in her study as an input-based creative routine or 'construction blend' (Habertzettl, 2007: 59–60), not as a rule-guided production. Semantic aspects appear to play a leading role in this process of de-chunking.
6. Odlin (2008) discusses various aspects of space, motion and time with respect to language-specific influences on mappings and potentials of transfer in L2 acquisition. Cadierno (2008: 249) summarizes research by Slobin, Bowerman and others on the different ways in which speakers encode motion events in their native languages (because of typological differences in the languages) and how this affects their organization of the conceptual space for purposes of thinking for speaking. See also Jarvis et al. (2007), Cadierno (2008).
7. Becker/Carroll (1997) and Hickmann (2007) show that adult L1 speakers of French actually tend towards verb-based forms even more strongly than children who prefer prepositional elements.
8. This early influence of ambient language on the development of concepts is reinforced by the fact that children at a young age do not differentiate between reality and reality portrayed by language (van Lancker Sidtis, 2006; Schaunig et al., 2004). Initially, children use only a few attributes as orientation for developing a concept in a new language. This restricted orientation naturally results in low variation or differentiation of linguistic expressions.
9. The rules have an iconic value and therefore call for visualization (cf. the notion of iconicity in Givón, 1991).

## References

- Achard, M. (2008). Teaching construal: Cognitive pedagogical grammar. In P. Robinson and N. C. Ellis (Eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*. Mahwah, NJ: L. Erlbaum Associates, pp. 432–55.
- Achard, M. and Niemeier, S. (2004). *Cognitive Linguistics, Second Language Acquisition, and Foreign Language Teaching*. Berlin: Mouton de Gruyter.
- American Council for the Teaching of Foreign Languages (Ed.) (1983). *ACTFL Proficiency Guidelines*. Hastings-on-Hudson, NY: ACTFL Materials Center.
- Becker, A. and Carroll, M. (1997). *The Acquisition of Spatial Relations in a Second Language*. Amsterdam: John Benjamins.
- Becker, A., Carroll, M. and Kelly, A. (Eds) (1988). *Reference to Space* (= Final Report to the European Science Foundation, IV). Strasbourg/Heidelberg: Max Planck Institut für Psycholinguistik/European Science Foundation.
- Beers, M. (2011). A media-based approach to developing ethnographic skills for second language teaching and learning. *Zeitschrift für Interkulturellen Fremdsprachenunterricht*, 6(2). Available at <http://zif.spz.tu-darmstadt.de/jg-06-2/beitrag/beers2.htm>
- BMW AG (Ed.) (1997). *LIFE (Grundwerk). Ideen und Materialien für interkulturelles Lernen*. München: BMW AG.
- Boroditsky, L. (2000). Metaphoric structuring: Understanding time through spatial metaphors. *Cognition*, 75(1), 1–28.
- Bot, K. de (2004). 'The multilingual lexicon: Modelling selection and control. *International Journal of Multilingualism*, 1(1), 17–32.
- Bühler, K. (1934). *Sprachtheorie. Die Darstellungsfunktion der Sprache*. Jena: G. Fischer.
- Bybee, J. (2008). Usage-based grammar and second language acquisition. In P. Robinson and N. C. Ellis (Eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*. Mahwah, NJ: L. Erlbaum Associates, pp. 216–36.
- Byram, M. (1997). *Teaching and Assessing Intercultural Communicative Competence*. Clevedon: Multilingual Matters.
- Cadierno, T. (2008). Learning to talk about motion in a foreign language. In P. Robinson and N. C. Ellis (Eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*. Mahwah, NJ: L. Erlbaum Associates, pp. 239–75.
- Comenius, J. A. (1981). *Orbis sensualium pictus* (1st ed. 1658). London: Bodley Head.
- Condillac, E. B. de (1746). *Essai sur l'origine des connaissances humaines. Ouvrage où on réduit à un seul principe tout ce qui concerne l'entendement humain*. Amsterdam: Pierre Mortier.
- Cook, G. (1998). *Language Play, Language Learning*. Oxford: Oxford University Press.
- Coventry, K. and Guijarro-Fuentes, P. (2008). What plus where in spatial language and spatial cognition. Implications for first and second language acquisition. In P. Robinson and N. C. Ellis (Eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*. Mahwah, NJ: L. Erlbaum Associates, pp. 114–38.
- Danesi, M. (2008). Conceptual errors in second-language learning. In S. de Knop and T. de Rycker (Eds), *Cognitive Approaches to Pedagogical Grammar*. Berlin and New York: Mouton de Gruyter, pp. 231–57.
- Ellis, N. C. (2006a). Selective attention and transfer phenomena in L2 acquisition. Contingency, cue competition, salience, interference, overshadowing, blocking, and perceptual learning. *Applied Linguistics*, 27(2), 164–94.
- (2006b). Language acquisition as rational contingency learning. *Applied Linguistics*, 27(1), 1–24.
- (2008). Usage-based and form-focused language acquisition. The associative learning of constructions, learned attention, and the limited L2 endstate. In P. Robinson

- and N. C. Ellis (Eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*. Mahwah, NJ: L. Erlbaum Associates, pp. 372–405.
- Evans, V. and Green, M. (2006). *Cognitive Linguistics: An Introduction*. Mahwah, NJ: L. Erlbaum.
- Fischhaber, K. (2002). Digitale Ethnographie: Eine Methode zum Erlernen interkultureller Kompetenz im Fremdsprachenunterricht. *Zeitschrift für Interkulturellen Fremdsprachenunterricht*, 7(1). Available at <http://zif.spz.tu-darmstadt.de/jg-07-1/beitrag/fischhaber1.htm>.
- Földes, C. (2003). *Interkulturelle Linguistik: Vorüberlegungen zu Konzepten, Problemen und Desiderata*. Veszprém: Univ.-Verl.
- Foschi Albert, M. (2012). Lesestrategien zur Ermittlung der Textkohärenz in fremdsprachigen Texten. *Zeitschrift für Interkulturellen Fremdsprachenunterricht*, 17(1), 25–39. Available at [http://zif.spz.tu-darmstadt.de/jg-17-1/beitrag/Foschi\\_Albert.pdf](http://zif.spz.tu-darmstadt.de/jg-17-1/beitrag/Foschi_Albert.pdf)
- Foschi Albert, M., Hepp, M., Neuland, E. and Dalmas, M. (Eds) (2010). *Text und Stil im Kulturvergleich. Pisaner Fachtagung 2009 zu interkulturellen Wegen germanistischer Kooperation*. München: Iudicium.
- Freitag, Y. and Vandermeeren, S. (2005). Deutsche Präpositionen. Eine fehleranalytische Untersuchung. in Russische Staatliche Universität für Geisteswissenschaften (Ed.), *Germanistisches Jahrbuch GUS. Das Wort*. Moskau, pp. 155–82.
- Gentner, D. and Gentner, D. (1983). Flowing waters or teaming crowds: Mental models of electricity. In D. Gentner and A. L. Stevens (Eds), *Mental Models*. Hillsdale, NJ: Erlbaum, pp. 99–129.
- Givón, T. (1979). From discourse to syntax. Grammar as a processing strategy. In J. P. Kimball and T. Givón (Eds), *Syntax and Semantics*. New York, San Francisco and London: Academic Press, Harcourt Brace Jovanovich, pp. 81–112.
- (1991). Isomorphism in the grammatical code: Cognitive and biological considerations. *Studies in Language*, 15(1), 85–114.
- Goldberg, A. E. and Casenhiser, D. (2008). Construction learning and second language acquisition. In P. Robinson and N. C. Ellis (Eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*. Mahwah, NJ: L. Erlbaum Associates, pp. 197–215.
- Goldman-Segall, R. (1998). *Points of Viewing Children's Thinking: A Digital Ethnographer's Journey*. Mahwah, NJ: L. Erlbaum Associates.
- Gouin, F. (1880). *L'art d'enseigner et d'étudier les langues*. Michigan: University of Michigan Press.
- Grady, J. E. (2005). Image schemas and perception. Refining a definition. In B. Hampe and J. E. Grady (Eds), *From Perception to Meaning*. Berlin and New York: Mouton de Gruyter, pp. 35–56.
- Grass, A. (2013). Zur Veränderung mentaler Modelle beim Fremdsprachenlernen. *Zeitschrift für interkulturellen Fremdsprachenunterricht*, 18(1).
- Grosjean, F. (1988). Exploring the recognition of guest words in bilingual speech. *Language and Cognitive Processes*, 3(3), 233–74.
- Haberzettl, St. (2007). Konstruktionen im Zweitspracherwerb. In K. Fischer and A. Stefanowitsch (Eds), *Konstruktionsgrammatik: Von der Anwendung zur Theorie*. Tübingen: Stauffenburg Verlag, pp. 55–77.
- Hama, M. (2005). *The Effects of the Minilesson on Advanced Learners' Acquisition: A Case Study*. Unpublished manuscript. Washington, DC.
- Handwerker, B. and Madlener, K. (2009). *Chunks für Deutsch als Fremdsprache: Theoretischer Hintergrund und Prototyp einer multimedialen Lernumgebung*. Hohengehren: Schneider Verlag.
- Heisenberg, W. (1959). *Physik und Philosophie*. Stuttgart: Hirzel.
- Hickmann, M. (2007). Static and dynamic location in French. Developmental and cross-linguistic perspectives. In M. Aurnague, M. Hickmann and L. Vieu (Eds), *The*



- Categorization of Spatial Entities in Language and Cognition*. Amsterdam and Philadelphia: John Benjamins, pp. 205–31.
- Holme, R. (2009). *Cognitive Linguistics and Language Teaching*. New York: Palgrave Macmillan.
- Humboldt, W. von (1801/2). *Fragmente der Monographie über die Basken*.
- Hunfeld, H. (2004). *Fremdheit als Lernimpuls: Skeptische Hermeneutik – Normalität des Fremden – Fremdsprache Literatur*. Meran/Klagenfurt: Drava/Alpha beta.
- Ifenthaler, D. and Seel, N. M. (2005). The measurement of change. Learning-dependent progression of mental models. *Technology, Instruction, Cognition, and Learning*, 2(4), 321–40.
- Issing, L. J. and Klimsa, P. (Eds) (2002). *Information und Lernen mit Multimedia und Internet: Lehrbuch für Studium und Praxis*. Weinheim: Beltz PVU.
- Jarvis, S. and Pavlenko, A. (2007). *Crosslinguistic Influence in Language and Cognition*. New York: Routledge.
- Jespersen, O. (1922). *Language, Its Nature, Development and Origin*. London: Allen/Unwin Holt.
- Klein, W. (1986). *Second Language Acquisition*. Cambridge: Cambridge University Press.
- Klein, W. and Perdue, C. (1992). *Utterance Structure: Developing Grammars Again*. Amsterdam and Philadelphia: John Benjamins.
- (1997). The basic variety (or: couldn't natural languages be much simpler?), *Second Language Research*, 13(4), 301–47.
- Kramsch, C. J. (1993). *Context and Culture in Language Teaching*. Oxford: Oxford University Press.
- Krashen, S. D. (1985). *The Input Hypothesis. Issues and Implications*. New York: Longman.
- Krueger, M. and Ryan F. (Eds) (1993). *Language and Content: Discipline- and Content-Based Approaches to Language Study*. Lexington and Toronto: Heath.
- Kühn, P. (2006). *Interkulturelle Semantik*. Nordhausen: Traugott Bautz.
- Lakoff, G. and Johnson, M. (1980). *Metaphors We Live By*. Chicago, IL: University of Chicago Press.
- Langacker, R. W. (1999). *Grammar and Conceptualization*. Berlin: Mouton de Gruyter.
- (2008). Cognitive grammar as a basis for language construction. In P. Robinson and N. C. Ellis (Eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*. Mahwah, NJ: L. Erlbaum Associates, pp. 66–88.
- Lieven, E. and Tomasello, M. (2008). Children's first language acquisition from a usage-based perspective. In P. Robinson and N. C. Ellis (Eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*. Mahwah, NJ: L. Erlbaum Associates, pp. 168–96.
- Littlemore, J. (2009). *Applying Cognitive Linguistics to Second Language Learning and Teaching*. Basingstoke: Palgrave Macmillan.
- Littlemore, J. and Juchem Grundmann, C. (Eds) (2010). Applied cognitive linguistics in second language learning and teaching. Special Edition of the *AILA Review*, vol. 23, Amsterdam: John Benjamins.
- Locke, J. (1690). *An Essay Concerning Humane Understanding*. London: George Bell.
- Matlock, T. and Gibbs, R. W. (2001). Conceptual knowledge and polysemy: Psycholinguistic studies on meanings of the 'make'. *Communication and Cognition*, 34, 234–56.
- Oakley, T. (2007). Image schemas. In D. Geeraerts and H. Cuyckens (Eds), *The Oxford Handbook of Cognitive Linguistics*. Oxford: Oxford University Press, pp. 214–35.
- Odlin, T. (2008). Conceptual transfer and meaning extensions. In P. Robinson and N. C. Ellis (Eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*. Mahwah, NJ: L. Erlbaum Associates, pp. 306–40.
- Osgood, Ch., Sebeok, Th. A., Gardner, J. W., Carroll, J. B., Newmark, L. D., Erwin, S. M., Saporta, S., Greenberg, J. H., Walker, D. E., Jenkins, J., Wilson, K. and Loundsbury,

- F. (1954). Psycholinguistics: A survey of theory and research problems. *The Journal of Abnormal and Social Psychology*, 49(4), 1–203.
- Özçalışkan, Ş. (2003). Metaphorical motion in crosslinguistic perspective: A comparison of English and Turkish. *Metaphor/Symbol*, 18(3), 189–228.
- Papert, S. (1980). *Mindstorms. Children, Computers, and Powerful Ideas*. New York: Basic Books.
- Pederson, E., Danziger, E., Wilkins, D., Levinson, S., Kita, S. and Senft, G. (1998). Semantic typology and spatial conceptualisation. *Language*, 74(3), 557–89.
- Perdue, C. (Ed.) (1982). *Second Language Acquisition by Adult Immigrants: A Field Manual*. Strasbourg: Max Planck Institut für Psycholinguistik/European Science Foundation.
- Ramat, A. G. and Galès, G. C. (Eds) (1995). *From Pragmatics to Syntax: Modality Second Language Acquisition*. Tübingen: Narr.
- Reeg, U. (2006). *Interkultureller Fremdsprachenunterricht: Grundlagen und Perspektiven: 5. Jahrestagung der DeutschlektorInnen an italienischen Universitäten, September 23th-27th, 2004, Monopoli (Bari)*. Bari: Edizioni di Pagina.
- Reinhart, T. (1984). Principles of gestalt perception in the temporal organisation of narrative texts. *Linguistics*, 22(6), 779–809.
- Robinson, P. and Ellis, N. C. (Eds) (2008). *Handbook of Cognitive Linguistics and Second Language Acquisition*. Mahwah, NJ: L. Erlbaum Associates.
- Roche, J. (2001). *Interkulturelle Sprachdidaktik: Eine Einführung*. Tübingen: Narr.
- (2006). Text und hypertext. In M. Foschi Albert, M. Hepp and E. Neuland (Eds), *Texte in Sprachforschung und Sprachunterricht: Pisaner Fachtagung 2004 zu neuen Wegen der italienisch-deutschen Kooperation*. München: Iudicium, pp. 183–96.
- (2013). *Mehrsprachigkeitstheorie: Erwerb – Kognition – Transkulturation – Ökologie*. Tübingen: Narr.
- Roche, J. and Roussy-Parent, M. (2006). Zur Rolle der kontrastiven Semantik in interkultureller Kommunikation. *Fremdsprachen Lehren und Lernen (FLuL)*, 36, 228–50.
- Roche, J. and Scheller, J. (2008). Grammar animations and cognitive theory of multimedia learning. In F. Zhang and B. Barber (Eds), *Handbook of Research on Computer-enhanced Language Acquisition and Learning*. Hershey, PA: Information Science Reference, pp. 205–19.
- Roche, J. and Webber, M. J. (1995). *Für- und Wider-Sprüche: Ein integriertes Text-Buch für Colleges und Universitäten*. New Haven: Yale University Press.
- Roche, J., Reher, J. and Simic, M. (2012). *Focus on Handlung – Zum Konzept des handlungsorientierten Erwerbs sprachlicher, sozialer und demokratischer Kompetenzen im Rahmen einer Kinder-Akademie*. Münster: Lit.
- Rosch, E. (Ed.) (1975). *Basic Objects in Natural Categories*. Berkeley: University of California Press.
- Schaunig, I., Willinger, U. and Formann, A. K. (2004). Das Verständnis metaphorischer Sprache bei Grundschulkindern. *Zeitschrift für Pädagogische Psychologie*, 18(1), 53–61.
- Scheller, J. (2008). *Animationen in der Grammatikvermittlung: Multimedialer Spracherwerb am Beispiel von Wechselpräpositionen*. Berlin and Münster: Lit.
- Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics*, 11, 129–58.
- Schnotz, W. (1994). *Aufbau von Wissensstrukturen: Untersuchungen zur Kohärenzbildung beim Wissenserwerb mit Texten*. Weinheim: Beltz.
- (2006). Was geschieht im Kopf des Lesers? Mentale Konstruktionsprozesse beim Textverstehen aus der Sicht der Psychologie und der kognitiven Linguistik. In H. Blühdorn, E. Breindl and U. H. Waßner (Eds), *Text – Verstehen. Grammatik und darüber hinaus*. Berlin and New York: Mouton de Gruyter, pp. 222–38.
- Sharwood Smith, M. (1993). Input enhancement in instructed SLA: Theoretical bases. *Studies in Second Language Acquisition*, 15(2), 165–79.

- Slobin, D. I. (1996). From 'thought and language' to 'thinking for speaking'. In J. J. Gumperz and St. C. Levinson (Eds), *Rethinking Linguistic Relativity*. Cambridge and New York: Cambridge University Press, pp. 70–96.
- Spiro, R. J., Feltovich, P. J., Jacobson, M. J. and Coulson, R. L. (1991). Cognitive flexibility, constructivism and hypertext: Random access instruction for advanced knowledge acquisition in ill-structured domains. *Educational Technology*, 31(9), 24–33.
- Stutterheim, Ch. von (1986). *Temporalität in der Zweitsprache: Eine Untersuchung zum Erwerb des Deutschen durch türkische Gastarbeiter*. Berlin and New York: Mouton de Gruyter.
- (1991). European research on second language acquisition. In B. F. Freed (Ed.), *Foreign Language Acquisition Research and the Classroom*. Lexington, MA: D.C. Heath, pp. 135–54.
- Suñer Muñoz, F. (2011). *Hypertexte im L2-Spracherwerb: Zur Relevanz des Multimedia- und Modalitätsprinzips im L2-Spracherwerb am Beispiel des Einsatzes graphischer Übersichten in Hypertexten*. Münster: Lit.
- Talmy, L. (2008). Aspects of attention in language. In P. Robinson and N. C. Ellis (Eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*. Mahwah, NJ: L. Erlbaum Associates, pp. 27–38.
- Taylor, J. R. (2004). Why construction grammar is radical. *Annual Review of Cognitive Linguistics*, 2, 321–48.
- (2008). Prototypes in cognitive linguistics. In P. Robinson and N. C. Ellis (Eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*. Mahwah, NJ: L. Erlbaum Associates, pp. 39–65.
- Tomasello, M. (2003). *Constructing a Language: A Usage-based Theory of Language Acquisition*. Cambridge, MA: Harvard University Press.
- (2006). Acquiring linguistic constructions. In D. Kuhn and R. Siegler (Eds), *Handbook of Child Psychology: Cognition, Perception, and Language*, vol. 2. New York: Wiley, pp. 256–98.
- (2008). *Origins of Human Communication*. Cambridge, MA: MIT Press.
- Tyler, A. (2008). Cognitive linguistics and second language instruction. In P. Robinson and N. C. Ellis (Eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*. Mahwah, NJ: L. Erlbaum Associates, pp. 456–88.
- Tyler, A. and Evans, V. (2003). *The Semantics of English Prepositions: Spatial Scenes, Embodied Meaning and Cognition*. Cambridge, New York and Melbourne: Cambridge University Press.
- Van Lancker Sidtis, D. (2006). Where in the Brain is nonliteral language? *Metaphor/Symbol*, 21(4), 213–44.
- VanPatten, Bill (Ed.) (2004). *Processing Instruction: Theory, Research, and Commentary*. Mahwah, NJ: Erlbaum.
- Verhagen, A. (2007). *Constructions of Intersubjectivity: Discourse, Syntax, and Cognition*. Oxford: Oxford University Press.
- Véronique, D. (1990). Reference and discourse structure in the learning of French by adult Moroccans. In H. W. Dechert (Ed.), *Current Trends in European Second Language Acquisition Research*. Clevedon and Philadelphia: Multilingual Matters, pp. 171–201.
- Vico, G. B. (1725). *Principj di una scienza nuova d'intorno alla commune natura delle nazioni. Scienzi nuova prima*. Neapel: n. r.
- Viëtor, W. (1882). *Der Sprachunterricht muß umkehren*. Heilbronn: Henninger.
- Vogel, K. and Börner, W. (1993). *Wortschatz und Fremdsprachenerwerb*. Bochum: AKS-Verlag.
- Vygotskij, L. S. (1962). *Thought and Language*. Cambridge, MA: MIT Press.
- Webber, M. (2013). Transporting metaphor. Productive border violations. In C. Juchem-Grundmann and S. Niemeier (Eds), *Knowing Is Seeing: Metaphor and Language Pedagogy*. Berlin: Mouton de Gruyter (in prep.).

- Weinreich, U. (1953). *Languages in Contact: Findings and Problems*. New York: Mouton des Gruyter.
- Wilmots, J. and Moonen, E. (1997). Der Gebrauch von Akkusativ und Dativ nach Wechselprepositionen. *Deutsch als Fremdsprache*, 34(3), 144–9.
- Wong, W. (2004). The nature of processing instruction. Theory, research, and commentary. In B. VanPatten (Ed.), *Processing Instruction. Theory, Research, and Commentary*. Mahwah, NJ: Erlbaum, pp. 33–63.
- Wong-Fillmore, L. (1979). Individual differences in second language acquisition. In C. J. Fillmore, D. Kempler and S.-Y. Wang (Eds), *Individual Differences in Language Ability and Language Behavior*. New York: Academic Press, pp. 203–28.

# 4.4 Metaphor Theory for Counselling Professionals

*Dennis Tay*

## Chapter Overview

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## 1 Introduction

One central claim of the cognitive linguistics paradigm is that language use is not governed by some autonomous language faculty, but in accord with more general principles of how we classify and conceptualize the physical and social worlds in which we reside (Taylor and MacLaury, 1995). Conceptual metaphor theory (CMT) (Lakoff, 1993), a major pillar of Cognitive Linguistics, has for instance claimed that the apparent frequency and systematicity with which we use metaphors in every day parlance reflects how we also think metaphorically. Semino (2008: 1) succinctly defines metaphor as ‘the phenomenon whereby we talk, and potentially, think about something in terms of something else’. The possibility that metaphors in text and talk reveal how important concepts in our personal and social worlds are established, communicated, and/or negotiated has motivated the application of CMT to the research of various fields of

social activity including pedagogy (Low, Littlemore and Koester, 2008), politics (Musolff, 2004), and economics (Herrera-Soler and White, 2012), just to name a handful.

In this chapter, I examine another and relatively unstudied field of application, namely, counselling and psychotherapy, and explore some possibilities of cooperation between cognitive linguists and counselling professionals. Acknowledging but augmenting previous important attempts (McMullen, 2008; Wickman, Daniels, White and Fesmire, 1999 etc.), I suggest how metaphor theory can inform the mental health activity of counselling and psychotherapy in meaningful practical and theoretical ways. I begin by outlining several key functions which counselling professionals believe metaphors perform in the counselling process. I then highlight the observation that metaphor-related research in counselling has not adequately conferred with cognitive linguistic and other advancements in metaphor theory, and illustrate how some of these advancements can help us appreciate and investigate in greater detail the purported key functions of metaphor in counselling. My concluding remarks include a summary of the discussion, some thoughts on how a truly collaborative relationship implies that metaphor theory can also benefit from analyses of counselling talk, and some cautionary points about potential barriers along this path of collaboration.

## **2 The Relevance and Functions of Metaphor in Counselling**

The British Association for Counselling and Psychotherapy (BACP)<sup>1</sup> defines counselling and psychotherapy interchangeably as

umbrella terms that cover a range of talking therapies . . . delivered by trained practitioners who work with people over a short or long term to help them bring about effective change or enhance their wellbeing.

As discernable from the definition, counselling as a verbally constituted mental health resource has undergone considerable theoretical proliferation (Prochaska and Norcross, 2009), with major schools of thought such as Cognitive-Behavioural Therapy (CBT) (Beck, 1995) gaining widespread acceptance as a tried and tested treatment for a range of psychological disorders (Butler, Chapman, Forman and Beck, 2006). The verbal nature of counselling leads naturally to questions about the potential relevance of metaphor – a phenomenon which, under various characterizations, has been keenly discussed since the founding days of psychoanalysis (Freud, 1915; Lankton, 1987 etc.). The more recent common philosophical grounding of CMT and counselling

theories in 'constructivism', which contends that language use involves the subjective construal of reality (Lakoff, 1987; Neimeyer and Mahoney, 1995), has further intensified counselling interest in the use and management of metaphors. Many studies have investigated how, when, why, and what types of metaphors are used by counsellors and their clients (Angus and Korman, 2002; Long and Lepper, 2008; McMullen and Conway, 1996; among others), with the eventual objective of not merely uncovering the therapeutic functions of metaphor, but the exact mechanisms associating metaphor use and enhancement of wellbeing. Lyddon, Clay and Sparks (2001) provide a list of the ways in which metaphors may facilitate therapeutic processes. These are i) relationship building (between counsellor and client); ii) accessing and symbolizing client emotions; iii) uncovering and challenging clients' tacit assumptions; iv) working with client resistance, and v) introducing new frames of reference. Stott et al. (2010); Blenkiron (2010) and Burns (2001) are among many others who actively 'prescribe' the use of certain specific metaphors on certain types of clients.

There is clearly a great deal of useful metaphor-related research in the counselling literature aimed at providing practical tips for counselling professionals. However, with the notable exception of Wickman et al.'s (1999) introduction to CMT as a guide for counselling research and practice, few studies have evidenced conformance with the ongoing developments and nuances of metaphor theory, CMT or otherwise. It seems to be the case that the central tenets of CMT (or some other theory) have been deemed by many counselling researchers to suffice as a general backdrop against which therapeutically oriented issues and objectives are discussed. Stott et al. (2010: 231) acknowledge this tendency in their excellent practical guide to using metaphors in CBT by remarking that there is yet a 'gulf between the conceptual frameworks employed . . . (in cognitive science and linguistics) . . . and the theoretical frameworks typically employed in CBT'. While there might be good practical and theoretical reasons why cross-disciplinary forays of this sort are typically somewhat restrained, Teasdale's (1993: 342) argument that progress in counselling ought to be mindful and keep abreast of progress in related disciplines (e.g. the cognitive, psychological, and linguistic sciences) merits serious consideration. In this chapter, I draw from the list provided by Lyddon, Clay and Sparks (2001) and focus on three major aspects of counselling theory and practice (i.e. accessing and symbolizing client emotions, providing new frames of reference, fostering empathy and therapeutic alliance), for which the relevance and use of metaphor are frequently discussed. I present a brief overview of how counselling researchers have deemed metaphors useful for each of these aspects, and suggest how a deeper exploration of metaphor theory would provide extra theoretical and practical mileage for further research and application.

### **3 Accessing and Symbolizing Client Emotions with Metaphors**

One of the most fundamental yet challenging processes in counselling is for counsellors to help their clients understand and explore their intangible thoughts and feelings, and express them with tangible words (Carlsen, 1996). This nicely resonates with the key characteristic of metaphor as helping to conceptualize the abstract in terms of the concrete (Lakoff and Johnson, 1980), and theorization of how metaphors can be applied to this aspect of counselling has seemed fairly straightforward. The basic theoretical premises are relatively uncontroversial – given a target domain in need of conceptualization and elaboration (in this case, clients' emotional states), the identification of an appropriate and inferentially rich source domain would allow counsellor and client to explore, discuss, and transfer entities, attributes, and/or logical relations which should lead to greater awareness of the target. It thus follows that researchers advocating the use of metaphors would focus on different types of source domains and demonstrate their productivity. For example, arguing within a Freudian framework, Rosenbaum and Garfield (2001) discuss the inferential logic and robustness of 'container' metaphors, which purportedly map our bodily experience with being inside and outside of physical containers onto therapeutically relevant topics such as experiencing or not experiencing certain emotional states (cf. Johnson, 1987). They suggest how the condition of borderline personality disorder can be conceptualized, and by implication, explained to clients with such an inferential logic. Researchers such as Dwairy (2009) and Ahammed (2010) take a different tack by emphasizing the cultural backdrop of metaphors, and suggesting how the Holy Qur'an provides a wealth of idioms, proverbs and fables from which therapeutically useful inferences particularly impactful to Muslim clients may be derived. Ahammed (2010) provides a personal anecdote of a pious Muslim client who had been sexually abused by a distant relative of her mother. Her emotional reliance on her mother prevented her from coming to terms with the psychological dysfunction of the latter, who had knowingly allowed the abuse to happen. Using a Qur'anic verse which compares individuals who do not rely on God to spiders who ignorantly weave a flimsy web for themselves, Ahammed eventually led her to infer in a metaphoric way that her mother's protection was faulty. On yet another different note, Kopp, Sims, and their associates (Kopp, 1995; Kopp and Craw, 1998; Sims, 2003; Sims and Whynot, 1997) encourage counsellors to develop clients' idiosyncratic experiences and imagination into productive source domains. Sims and Whynot (1997) relate an anecdote of a child who painted a picture of a dinosaur and a volcano as a depiction of his family, which led to productive metaphoric inferences such as what would happen when the volcano erupts. Kopp and Craw (1998) mention their work with a client who exercised considerable individual creativity



by describing his illness as a dark cloud hanging over him, which also led to therapeutically useful inferences.

An examination of each of these writers' independently made assumptions about what underlies the inferential productivity of metaphors brings to mind the important but increasingly reconciliatory debate between initially divergent factions within metaphor theory. Cognitive linguists such as Lakoff, Johnson (1999), and Grady (1997) would have agreed with Rosenbaum and Garfield on the view that the productivity of metaphors is, at bottom, driven by inferential structures acquired through embodied experience, with culture-specific knowledge playing a secondary role. On the other hand, cultural anthropologists (e.g. Howe, 2008; Quinn, 1991) would echo Dwairy, Ahammed, and other similar views which advocate the culture-specificity and primacy of metaphoric concepts, represented in 'cultural models' (Holland and Quinn, 1987) such as Qur'anic discourse. However, as an example of my previously mentioned 'advancement in metaphor theory', more recent frameworks in cognitive science and social psychology (e.g. Fauconnier and Turner, 2008; Landau, Meier and Keefer, 2010; Ritchie, 2009) have provided reconciliatory accounts of how embodied, cultural and individual knowledge can interact in various ways during different contexts of metaphor production and comprehension. Conceptual blending theory (Fauconnier and Turner, 2002) in particular has argued for the more dynamic notion of *ad hoc* 'mental spaces' over the notion of 'conceptual domain', and questioned the assumption that any inferential structure is necessarily more primary than others. Kopp's (1995) documentation of a client who metaphorically conceptualized his emotional isolation as being trapped in a castle is a case in point. While the counsellor in question focused on associating this metaphoric scenario with the client's childhood experiences, I have argued that underlying it lies an equally powerful inferential schema associated with the embodied experience of containment (Tay, 2011). It is likely that similar observations can be made of any extended discussion of a metaphoric extract from the Qur'an, or any other culturally significant source. The upshot for counsellors is that there is much practical and theoretical value in thinking about how their and their clients' metaphors can be analysed and explored not with exclusive emphasis on embodiment, culture or individual, but on the interplay between these levels.

#### **4 Providing New Frames of Reference with Metaphors**

One important caveat to 'accessing and symbolizing emotions' and other target concepts is that the counsellor should be prepared, if necessary, to direct clients towards new 'frames of reference', in the event that the prevailing metaphors are found wanting. Some reasons for unsuccessful metaphors, which certainly

deserve further research, include overly different interpretations on the part of counsellor and client, perceptions of cliché metaphors, and mismatches between source and target. Two approaches to provide new frames of reference often discussed in the counselling literature are i) introducing ready-made, or 'stock metaphors' for specific target concepts; and ii) procedurally developing metaphors introduced by clients themselves.

The practical idea behind stock metaphors is that many therapeutically relevant topics such as the nature of psychological disorders can be adequately and effectively explained with prepared metaphors and analogies. Stott et al. (2010) and Blenkiron (2010) provide a comprehensive inventory of metaphors for concepts such as depression, anxiety disorders, and the counselling process itself, which counsellors can communicate to their clients. For example, CBT can be likened to climbing a mountain, or untangling knots in a ball of string (Stott et al., 2010: 65–6). Besides having source domains with useful and transferable inferential patterns (cf. Aronov and Brodsky, 2009), ideal stock metaphors are often creative, memorable, and/or thought provoking, in order to create a lasting impression in clients. While stock metaphors are pedagogically useful for counsellors to impart new understandings and perhaps address misconceptions, clients themselves often utter metaphors, deliberately or otherwise, which can be procedurally developed to attain a similar effect. Researchers (Kopp, 1995; Kopp and Craw, 1998; Sims, 2003; Sims and Whynot, 1997) have recommended step-by-step procedures which begin with having the counsellor look out for metaphors uttered by clients, prompting them to elaborate the metaphors as mental images, eliciting their subjective responses and inviting them to change the images if necessary, and finally 'applying' the images to the target topic at hand.

The two approaches coincide in wanting to provide new metaphoric reference frames, but contrast maximally with regard to the crucial question of *how* the source-target relations of a metaphor, be it provided by counsellor or client, are constructed and elaborated. As such, both approaches are susceptible to a common type of criticism often raised in the counselling literature. Although stock metaphors are useful because source-target correspondences are mostly well-prepared and predesigned, they have been criticized as being too inflexible, restricting or complicated precisely for that reason (Blenkiron, 2010: 66–8). On the other hand, the latter approach allows maximum creativity but invites the question of how exactly an elaborated, outlandish and fanciful 'mental image' can be reconnected or 'applied' to the target topic at hand. A client might begin innocuously enough by labelling her marriage a train wreck, but if this initial metaphor is dramatized into a scenario involving derailed tracks and terrorist plots, it might be challenging for the counsellor to persuasively establish the relevance of these additions to the original target topic of marriage. It is here that the use of metaphor in counselling can

be inspired by relevant psycholinguistics and cognitive linguistics research which ask the question of how the mind draws associations between source and target domains. Some researchers believe that target domains inherit the structure of source domains via a mapping process (Gentner and Wolff, 1997; Lakoff, 1993), some argue that the conceptual system seeks overarching commonalities between source and target instead (Glucksberg, 2003), while some have proposed mechanisms combining features of both (Gentner and Bowdle, 2001). It seems clear that questions regarding the utility of metaphor-related interventions should not merely focus on surface or anecdotal impressions of their 'flexibility', but should seriously take into account how the mind might be predisposed towards certain ways of constructing source–target relations in the first place. Such considerations extend from metaphor understanding to metaphor production as well, as Wee (2005a) and Tay (2012) have shown how people may construct source–target relations in different ways to achieve particular discourse objectives. For example, a popular science writer who uses analogy to explain a complex scientific concept would tend to emphasize the correspondences which hold between source and target, sometimes even inventing a 'nonsensical' source concept just to create an adequate inferential structure for the target. John Searle's (1996) famous analogy of the 'room with Chinese symbols' to illustrate the concept of 'strong artificial intelligence' is a case in point (Wee, 2005b). On the other hand, correspondences may sometimes be irrelevant or less important than some overarching, common point which applies to both source and target – a common feature in self-help texts dispensing practical advice. One example cited in Wee (2005a) is a metaphor used in a management text which compares coaching a business team to coaching a football team. Instead of ruminating on the correspondences between business and football, the authors emphasize that both involve 'motivating people to prepare and work hard to play as a team' (Blanchard and Shula, 2001: 2). Counsellors at work might encounter both these types of discursive situations (i.e. explaining concepts and giving practical advice) (Tay, 2010), and should thus find the relevant literature helpful.

## **5 Fostering Empathy and Therapeutic Alliance with Metaphors**

Influential psychologist Carl Rogers, best known for advocating a humanistic approach to psychotherapy (Rogers, 1967), considered traits such as empathy and unconditional personal regard for clients as both necessary and sufficient conditions for success in counselling. These general factors which transcend theoretical distinctions between different schools of counselling help build a strong 'therapeutic alliance' (Frank, 1971; Horvath and Luborsky, 1993) between counsellor and client, and have been shown to correlate significantly

with treatment outcome (Martin, Garske and Katherine Davis, 2000). There have been many discussions on how the use of metaphor, likely also a tool independent of theoretical distinctions in counselling, could impact the therapeutic alliance. Angus and Rennie (1988) believe that counsellors and clients can foster a more collaborative relationship by working together to explore the various inferential possibilities afforded by metaphors, Goncalves and Craine (1990) argue that understanding client metaphors provides a key to validating and understanding their perception of reality, while Stine (2005) suggests that metaphors in counselling enrich communication just like metaphors in poetry.

One gets the impression from these discussions that the empathy or alliance generated by metaphors is somewhat subjective and impressionistic, and resides at the conceptual and rhetorical level (cf. Cameron and Seu, 2012). However, in contexts like physical and mental healthcare, a genuine and profound sense of empathy would seem to require not just conceptual, but some form of experiential consensus, or 'deeply understanding the patient' (Mommaerts, Goubert and Devroey, 2012). If we consider the idea that this deep understanding can be partly achieved by having counsellor and client go through some significant shared experiences, whether for real or realistically simulated, then emerging work on the relationship between language use, metaphor use, and 'embodied simulation' (Barsalou, 1999; Gibbs and Matlock, 2008; Semino, 2010) should promise to bear significant implications for counselling. It has been demonstrated that our conceptual representation of everyday concepts (e.g. a bowling ball) is closely bundled with representations of bodily states associated with relevant stimuli (e.g. tactile representations of the smooth surface of the ball, and proprioceptive representations of adjusting one's balance to pick up the ball [example from Landau et al., 2010]). Consequently, triggering these concepts with words or other symbols conventionally used to denote them also triggers a mental simulation of the relevant bodily states, even when the required stimuli are absent (cf. Evans, 2009: 69). It has further been shown that, in cases where metaphors are used to denote abstract concepts which are without associable bodily states (e.g. relationships), vivid simulations of bodily processes associated with the source domains of these metaphors (e.g. journeys) are created and experienced in real time<sup>2</sup> (Falck and Gibbs, 2012; Gibbs, 2006; Gibbs and Matlock, 2008).

These findings add a deeper dimension to the standard consensus that metaphors are used in counselling to (merely) conceptualize and communicate experiences such as emotional anguish, for which genuine inter-subjective understanding seems impossible. It is one thing if such empathy stems from a *conceptual* understanding of the client's (or counsellor's) situation, through a static conceptual understanding of the source domain. It is quite another thing if, however, people actually understand metaphors by creating vivid moment-by-moment simulations and imagining 'what must it be like' (Gibbs,

2006: 455) as the counselling talk unfolds.<sup>3</sup> Intriguing work has already been done on the figurative expression of what could well be the therapeutically salient notion of pain. Semino (2010) shows how conventional metaphors and metonymies to describe 'painful' experiences in English tend to draw from sources which refer to direct bodily damage (e.g. stabbing pain, burning pain), and speculate that these are motivated by the desire to stimulate some form of empathic response from listeners. This coheres with experimental findings (Osaka, Osaka, Morishita, Kondo and Fukuyama, 2004) from Japanese which show that words referring to pain can trigger simulations in our neural systems for pain. Although many of the mentioned authors have highlighted that their results and speculations still await further confirmation, the implications for counselling cannot be missed. These studies have strongly implied that verbal declarations of empathy and care frequently seen in counselling may have a deeper embodied basis (Gallese, 2009), that the use of metaphors in this regard may go well beyond the superficial rhetorical level, and that further research is needed to discover, for example, what types of factors determine the nature and intensity of empathy-building simulations. It is safe for now to conclude that, compared with the conceptually based empathy often discussed in the counselling literature, the sort of experientially based empathy grounded in simulations at the psychological and neural levels has the potential to build a much firmer bridge towards the eventual Rogerian objective of fostering genuine compassion and 'deep care' for clients.

## **6 Concluding Remarks**

This chapter has argued for how aspects of metaphor theory, advanced in Cognitive Linguistics and elsewhere, can contribute in theoretically and practically significant ways to corresponding aspects of counselling research and practice. Table 4.4.1 summarizes the discussion.

It is worth pointing out the interrelatedness of these aspects, within both the counselling context and metaphor theory. For example, the provision of new frames of reference is ostensibly motivated by previous less than ideal attempts to access and symbolize emotions. Likewise, the construction of source-target relations presupposes the selection of an ideal source domain by taking into account the different possible levels of its constitution. To some extent this reflects Teasdale's (1993) programmatic contention that fruitful 'parallels' exist between aspects of counselling theory and practice, and adjacent fields such as linguistics and cognitive science. This chapter has hopefully taken a small step in raising awareness and inspiring further interest in the exploration and development of these parallels. One particular area which is still very much underexplored is how research on the nature of metaphor can shed light on

**Table 4.4.1** Aspects of counselling, metaphor theory, and the implications thereof

<i>Counselling</i>	<i>Metaphor theory</i>	<i>Implications</i>
Accessing and symbolizing emotions (i.e. searching for a source domain)	The embodied, cultural and idiosyncratic constitution of metaphors	The <b>inferential utility</b> of a source domain should be explored at all three levels
Providing new frames of reference (i.e. ‘spoon feeding’ or developing a source domain)	How source–target relations of a metaphor are processed and produced	The <b>interpretative ‘flexibility’</b> of a metaphor should take into account how source–target relations are constructed
Fostering empathy and therapeutic alliance (i.e. ‘experiencing’ a source domain)	Metaphor and embodied simulation	The <b>empathetic quality</b> of metaphor should be explored beyond its conceptual import

potential situations under which metaphors should *not* be used in counselling (cf. Stott et al., 2010: 233–4).

While this chapter has focused on the contribution of metaphor theory to counselling research and practice, it is evident that analyses of how metaphors are used in counselling can feed back into aspects of metaphor theory as well (Tay, 2011a, 2011b, 2013). Metaphor scholars have insisted that cognitivist theorization of metaphor needs a more bottom-up, usage-based approach, and pay more attention to the situated characteristics of figurative expressions in specific contexts of use (Zanotto, Cameron and Cavalcanti, 2008). Counselling and psychotherapy, with its wealth of contextual dimensions such as the cultural, theoretical, and interpersonal settings of counsellor–client interaction, represents a clear example of this. It is noteworthy that the increasing focus on context and specific interactional situations also resonates elsewhere among cognitive linguists interested in other levels of language such as syntax and semantics (Evans, 2009; Taylor, 2012).

Nevertheless, some barriers in the way of deeper collaboration between metaphor scholars in the linguistic and cognitive sciences and counselling professionals should also be identified. Chief among these is the philosophy underpinning the respective disciplines. Linguists for example have traditionally been descriptively oriented, and avoid claims about how certain ways of using language, including metaphors, are ‘better’ than others. Counselling professionals, on the other hand, actively seek better ways to communicate with clients, and might thus adopt a more prescriptive stance. All factors considered, I believe there is cause to feel optimistic about the way ahead, given the clearly emergent emphasis on applying metaphor scholarship to the issues and needs of the ‘real’ world (Low, Todd, Deignan and Cameron, 2010).

## Notes

1. www.bacp.co.uk
2. The concomitant possibility that getting people to perform, or imagine performing bodily actions associated with source domains (e.g. walking along a path for journey metaphors) enhances the understanding of the metaphor in question has also been observed (Wilson and Gibbs, 2007).
3. As Gibbs disclaims, it must be clarified that not *all* metaphors are likely to be processed by embodied simulation, especially those which do not have source domains related to bodily action.

## References

- Ahmed, S. (2010). Applying Qur'anic metaphors in counseling. *International Journal for the Advancement of Counselling*, 32(4), 248–55.
- Angus, L. E. and Korman, Y. (2002). A metaphor theme analysis: Conflicts, coherence and change in brief psychotherapy. In S. R. Fussell (Ed.), *The Verbal Communication of Emotions: Interdisciplinary Perspectives*. Mahwah, NJ: Lawrence Erlbaum, pp. 151–65.
- Angus, L. E. and Rennie, D. L. (1988). Therapist participation in metaphor generation: Collaborative and non-collaborative styles. *Psychotherapy*, 25(4), 552–60.
- Aronov, N. E. and Brodsky, S. L. (2009). The river model: A metaphor and tool for training new psychotherapists. *Journal of Contemporary Psychotherapy*, 39, 187–95.
- Barsalou, L. W. (1999). Perceptual symbol systems. *Behavioral and Brain Sciences*, 22, 577–609.
- Beck, J. S. (1995). *Cognitive Therapy. Basics and Beyond*. New York: Guilford Press.
- Blanchard, K. and Shula, D. (2001). *The Little Book of Coaching: Motivating People to be Winners*. London: HarperCollins Business.
- Blenkiron, P. (2010). *Stories and Analogies in Cognitive Behaviour Therapy*. West Sussex: John Wiley & Sons.
- Burns, G. W. (2001). *101 Healing Stories: Using Metaphors in Therapy*. New Jersey and Canada: Wiley.
- Butler, A. C., Chapman, J. E., Forman, E. M. and Beck, A. T. (2006). The empirical status of cognitive-behavioral therapy: A review of meta-analyses. [doi: DOI: 10.1016/j.cpr.2005.07.003]. *Clinical Psychology Review*, 26(1), 17–31.
- Cameron, L. and Seu, I. B. (2012). Landscapes of empathy: Spatial scenarios, metaphors and metonymies in responses to distant suffering. *Text and Talk*, 32(3), 281–305.
- Carlsen, M. B. (1996). Metaphor, meaning-making, and metamorphosis. In H. Rosen and K. T. Kuehlwei (Eds), *Constructing Realities: Meaning-making Perspectives for Psychotherapists*. San Francisco: Jossey-Bass, pp. 337–67.
- Dwairy, M. (2009). Culture analysis and metaphor psychotherapy with Arab-Muslim clients. *Journal of Clinical Psychology*, 65(2), 199–209. doi: 10.1002/jclp.20568
- Evans, V. (2009). *How Words Mean: Lexical Concepts, Cognitive Models, and Meaning Construction*. New York: Oxford University Press.
- Falck, M. J. and Gibbs, R. W. (2012). Embodied motivations for metaphorical meanings. *Cognitive Linguistics*, 23(2), 251–72.
- Fauconnier, G. and Turner, M. (2002). *The Way We Think: Conceptual Blending and the Mind's Hidden Complexities*. New York: Basic Books.
- (2008). Rethinking metaphor. In R. W. Gibbs (Ed.), *Cambridge Handbook of Metaphor and Thought*. New York: Cambridge University Press, pp. 53–66.

- Frank, J. D. (1971). Therapeutic factors in psychotherapy. *American Journal of Psychotherapy*, 25, 350–61.
- Freud, S. (1915). *The Interpretation of Dreams*, trans. A. A. Brill. London: Allen & Unwin.
- Gallese, V. (2009). Mirror neurons, embodied simulation, and the neural basis of social identification. *Psychoanalytic Dialogues*, 19(5), 519–36.
- Gentner, D. and Bowdle, B. F. (2001). Convention, form, and figurative language processing. *Metaphor & Symbol*, 16, 223–47. doi: 10.1207/S15327868MS1603&4\_6
- Gentner, D. and Wolff, P. (1997). Alignment in the processing of metaphor. *Journal of Memory and Language*, 37, 331–55.
- Gibbs, R. W. (2006). Metaphor interpretation as embodied simulation. *Mind and Language*, 21, 434–58.
- Gibbs, R. W. and Matlock, T. (2008). Metaphor, imagination and simulation: Psycholinguistic evidence. In R. W. Gibbs (Ed.), *The Cambridge Handbook of Metaphor and Thought*. Cambridge: Cambridge University Press, pp. 247–61.
- Glucksberg, S. (2003). The psycholinguistics of metaphor. *Trends in Cognitive Sciences*, 7(2), 92–6. doi: 10.1016/S1364-6613(02)00040-2
- Goncalves, O. F. Craine, M. H. (1990). The use of metaphors in cognitive therapy. *Journal of Cognitive Psychotherapy: An International Quarterly*, 4(2), 135–49.
- Grady, J. (1997). *Foundations of Meaning: Primary Metaphors and Primary Scenes*. PhD dissertation, University of California, Berkeley.
- Herrera-Soler, H. and White, M. (Eds) (2012). *Metaphor and Mills, Figurative Language in Business and Economics*. Berlin and New York: Mouton de Gruyter.
- Holland, D. and Quinn, N. (Eds) (1987). *Cultural Models of Language and Thought*. Cambridge: Cambridge University Press.
- Horvath, A. O. Luborsky, L. (1993). The role of the therapeutic alliance in psychotherapy. *Journal of Consulting and Clinical Psychology*, 61(4), 561–73.
- Howe, J. (2008). Argument is argument: An essay on conceptual metaphor and verbal dispute. *Metaphor and Symbol*, 23(1), 1–23.
- Johnson, M. (1987). *The Body in the Mind: The Bodily Basis of Meaning, Imagination and Reason*. Chicago: University of Chicago Press.
- Kopp, R. R. (1995). *Metaphor Therapy: Using Client-Generated Metaphors in Psychotherapy*. New York: Brunnel/Mazel.
- Kopp, R. R. and Craw, M. J. (1998). Metaphoric language, metaphoric cognition, and cognitive therapy. *Psychotherapy*, 35(3), 306–11. doi: 10.1037/0033-3204.35.3.306
- Lakoff, G. (1987). *Women, Fire and Dangerous Things: What Categories Reveal About the Mind*. Chicago and London: University of Chicago Press.
- (1993). The contemporary theory of metaphor. In A. Ortony (Ed.), *Metaphor and Thought* (2nd ed.). Cambridge: Cambridge University Press, pp. 202–51.
- Lakoff, G. and Johnson, M. (1980). *Metaphors We Live By*. Chicago: University of Chicago Press.
- (1999). *Philosophy in the Flesh: The Embodied Mind and Its Challenges to Western Thought*. New York: Basic Books.
- Landau, M. J., Meier, B. P. and Keefer, L. A. (2010). A metaphor-enriched social cognition. *Psychological Bulletin*, 136(6), 1045–67.
- Lankton, S. (Ed.) (1987). *Central Themes and Principles of Ericksonian Therapy*. New York: Brunner/Mazel.
- Long, P. S. and Lepper, G. (2008). Metaphor in psychoanalytic psychotherapy: A comparative study of four cases by a practitioner-researcher. *British Journal of Psychotherapy*, 24(3), 343–64.
- Low, G., Littlemore, J. and Koester, A. (2008). Metaphor use in three UK university lectures. *Applied Linguistics*, 29(3), 428–55.



- Low, G., Todd, Z., Deignan, A. and Cameron, L. (Eds) (2010). *Researching and Applying Metaphor in the Real World*. Amsterdam and Philadelphia: John Benjamins.
- Lyddon, W. J., Clay, A. L. and Sparks, C. L. (2001). Metaphor and change in counselling. *Journal of Counseling & Development*, 79(3), 269–74.
- Martin, D. J., Garske, J. P. and Katherine Davis, M. (2000). Relation of the therapeutic alliance with outcome and other variables: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, 68(3), 438–50.
- McMullen, L. M. (2008). Putting it in context: Metaphor and psychotherapy. In R. W. Gibbs (Ed.), *The Cambridge Handbook of Metaphor and Thought*. Cambridge: Cambridge University Press, pp. 397–411.
- McMullen, L. M. and Conway, J. B. (1996). Conceptualizing the figurative expressions of psychotherapy clients. In J. S. Mio and A. N. Katz (Eds), *Metaphor: Implications and Applications*. Mahwah, NJ: Lawrence Erlbaum, pp. 59–72.
- Mommaerts, J.-L., Goubert, L. and Devroey, D. (2012). Empathy beyond the conceptual level: Core nonspecific factors of psychotherapy. *Perspectives in Biology and Medicine*, 55(2), 175–82.
- Musolff, A. (2004). *Metaphor and Political Discourse: Analogical Reasoning in Debates About Europe*. Basingstoke: Palgrave Macmillan.
- Neimeyer, R. A. and Mahoney, M. J. (Eds) (1995). *Constructivism in Psychotherapy*. Washington, DC: American Psychological Association.
- Osaka, N., Osaka, M., Morishita, M., Kondo, H. and Fukuyama, H. (2004). A word expressing affective pain activates the anterior cingulate cortex in the human brain: An fMRI study. *Behavioural Brain Research*, 153(1), 123–7.
- Prochaska, J. O. and Norcross, J. C. (2009). *Systems of Psychotherapy: A Transtheoretical Analysis* (7th ed.). Belmont, CA: Brooks/Cole.
- Quinn, N. (1991). The cultural basis of metaphor. In J. Fernandez (Ed.), *Beyond Metaphor: The Theory of Tropes in Anthropology*. Stanford: Stanford University Press, pp. 56–93.
- Ritchie, D. (2009). Relevance and simulation in metaphor. *Metaphor and Symbol*, 24(4), 249–62.
- Rogers, C. R. (1967). *On Becoming a Person: A Therapist's View of Psychotherapy*. London: Constable.
- Rosenbaum, B. and Garfield, D. (2001). Containers, mental space, and psychodynamics. *PSYART*, Dec 2001.
- Searle, J. (1996). Is the brain's mind a computer program? In H. Geirsson and M. Losonsky (Eds), *Readings in Language and Mind*. Oxford: Blackwell, pp. 264–73.
- Semino, E. (2008). *Metaphor in Discourse*. Cambridge and New York: Cambridge University Press.
- (2010). Descriptions of pain, metaphor, and embodied simulation. *Metaphor and Symbol*, 25(4), 205–26.
- Sims, P. A. (2003). Working with metaphor. *American Journal of Psychotherapy*, 57(4), 528–36.
- Sims, P.A. and Whynot, C.A. (1997). Hearing metaphor: An approach to working with family-generated metaphor. *Family Process*, 36, 341–55. doi: 10.1111/j.1545–5300.1997.00341.x
- Stine, J. J. (2005). The use of metaphors in the service of the therapeutic alliance and therapeutic communication. *Journal of the American Academy of Psychoanalysis and Dynamic Psychiatry*, 33(3), 531–45. doi: 10.1521/jaap.2005.33.3.531
- Stott, R., Mansell, W., Salkovskis, P., Lavender, A. and Cartwright-Hatton, S. (2010). *Oxford Guide to Metaphors in CBT: Building Cognitive Bridges*. Oxford and New York: Oxford University Press.
- Tay, D. (2010). Revisiting metaphor types as discourse strategies: The case of psychotherapeutic discourse. *Text & Talk*, 30(4), 445–63. doi: 10.1515/TEXT.2010.022
- (2011a). THERAPY IS A JOURNEY as a discourse metaphor. *Discourse Studies*, 13(1), 47–68.

- (2011b). Discourse markers as metaphor signalling devices in psychotherapeutic talk. *Language & Communication*, 31(4), 310–7.
  - (2012). Applying the notion of metaphor types to enhance counseling protocols. *Journal of Counseling & Development*, 90(2), 142–9.
  - (2013). *Metaphor in Psychotherapy: A Descriptive and Prescriptive Analysis*. Amsterdam and Philadelphia: John Benjamins.
- Taylor, J. R. (2012). *The Mental Corpus: How Language Is Represented in the Mind*. New York: Oxford University Press.
- Taylor, J. R. and MacLaury, R. E. (Eds) (1995). *Language and the Cognitive Construal of the World*. Berlin and New York: Mouton de Gruyter.
- Teasdale, J. D. (1993). Emotion and two kinds of meaning: Cognitive therapy and applied cognitive science. *Behaviour Research and Therapy*, 31(4), 339–54.
- Wee, L. (2005a). Class-inclusion and correspondence models as discourse types: A framework for approaching metaphorical discourse. *Language in Society*, 34(2), 219–38. doi: 10.1017/S0047404505050098
- (2005b). Constructing the source: Metaphor as a discourse strategy. *Discourse Studies*, 7(3), 363–84.
- Wickman, S. A., Daniels, M. H., White, L. J. and Fesmire, S. A. (1999). A ‘primer’ in conceptual metaphor for counselors. *Journal of Counseling & Development*, 77, 389–94.
- Wilson, N. L. and Gibbs, R. W. (2007). Real and imagined body movement primes metaphor comprehension. *Cognitive Science*, 31(4), 721–31.
- Zanotto, M. S., Cameron, L. and Cavalcanti, M. C. (Eds) (2008). *Confronting Metaphor in Use: An Applied Linguistic Approach*. Amsterdam and Philadelphia: John Benjamins.



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