Multilingual Matters

MULTILINGUAL MATTERS 30
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Introspection in Second Language Research

Edited by

Claus Færch and Gabriele Kasper

Claus
my permanent co-author

I: Now what are you doing?

A: Tryin' to figure out what...inhabituel means...uhm...tryin' to use context clues...........

I: Like what?

A: Marchand is a ...merchant...is...is disagreeable with his clients...uhm...

I: What are you thinking about...while you're doing this?

A: Uhm...I'm thinking...maybe it has to do with habit but.........

I: Now what? ... Just keep saying out loud what you're doing...as if you were thinking it to yourself and I weren't even here. I only have to be here so I can keep prompting you. (both laugh)

A: O.K....uhm...hab...habit...inhabit...tryin' to ...maybe...the habit but this doesn't really make sense...... uhm...guess it's not............a merchant doesn't usually, isn't usually...... disagreeable with his clients.........

I: So what did you put for that one?

A: A merchant isn't usually disagreeable with his clients.

Fran

(first time through text)
F: O.K.! Le Comportement des Américains. Comportement is a word I always have trouble with. Comportement seems to be more ??? It's also...uhm...it's a technical word, translated as uh...behavior...Americans. The way Americans behave, le comportement des Américains...The way Americans conduct themselves. For now. Until I see what I say. Les Américains vivent mieux en société que les Français I'm supposed to write that down now, right? or...shall I write now? or write whenever I want to?

I: Whatever you want to do.

F: O.K. Les Américains vivent mieux en société que les Français..Americans live better...en société...... socially...sociably...than the French. They have..more...formulas...of courtesy...... In France, it is not unaccustomed... for a merchant to disagree with his clients....

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8   The Use of Introspective Data in Translation

HANS P. KRINGS

Rationale

The object of my investigation was an inquiry into the structure of the translation process in advanced German learners of French as a foreign language. Although a vast bulk of literature exists on the problems of translating in general (sometimes referred to as the "science of translation" or "translatology") and on problems pertaining to the role of translation in foreign language teaching in particular, scarcely a mention has been made of the actual process whereby the final translation is obtained. It was not until very recently that several investigators independent of one another developed the idea of analysing the translation process by means of thinking-aloud data (see Gerloff, this volume, Chapter 7; Hölscher & Möhle, this volume, Chapter 6; Dechert & Sandrock, in press; Lörscher, 1986). The starting points for these investigations were similar. There seemed to be a shared belief among the investigators that nothing much can be said about the relationship between foreign language learning and translation until there is at least some knowledge of the cognitive processes taking place in the heads of learners while translating.

There are several good reasons why such knowledge is assumed to be of importance for a theory of foreign language learning and teaching and for a theory of translation:

1.   The role of translation in foreign language teaching has always been a matter of controversy. It seems that the value attached to translation as a teaching device has so far been determined largely by "ideological" preconceptions (based on simplistic theories of the role of the mother tongue in foreign language learning) rather than by empirically substantiated knowledge about the effect that

translation exercises may have upon the learning of a foreign language.

2. In recent times, ever more frequent demands have been made for the introduction of translation skills ("translational competence") as a separate goal into the foreign language curriculum. These demands are substantiated by reference to the multiplicity of applications of such skills in professional and private contexts: "Translation, itself, is a valuable skill, and an important means of refining one's knowledge of a foreign language at an advanced stage of learning" (Catford, 1981: 17; compare the similar statements by Tinsley, 1974: 12; Wilkins, 1974: 82). Note the number of language learners who seek a job in commerce and industry, where translation skills are required (e.g. as a bilingual secretary) or even become technical, scientific or literary translators. Even private life situations in which one has to translate or interpret are not uncommon. When translation skills become an object of foreign language teaching, the need for a theory of the best way of teaching such skills arises. Despite the confusion caused by the theories of Brian Harris (1977; 1978; Harris & Sherwood, 1978), who assumes that translational competence is automatically attained by all bilinguals (for a criticism of Harris' theory see Newmark, 1981: 97; Toury, 1984a; Krings, 1985), most researchers seem to agree that translational competence is more than bilingual competence (especially when considered as a *text*-bound skill). For it includes the ability to create equivalent texts or, to put it in Nida & Taber's words, to find the "closest natural equivalent of the source-language message, first in terms of meaning and secondly in terms of style" (Nida & Taber, 1969: 12). In addition, translational competence also implies the ability to make use of compensatory strategies in all those cases where no proper equivalent is extant. On the other hand, it is evident that bilingual competence and translational competence overlap at least to some degree or, to put it another way, that translational competence is at least partially enhanced by second language acquisition and (probably even more) by foreign language learning in formal classroom settings, right from the beginning of the learning/acquisition process even, as Toury (1984b) has pointed out. The particular aspects, however, in which bilingual competence and translational competence coincide, have still not been precisely determined. I assumed that introspective data on the translation process of advanced learners could contribute significantly to the answering of these questions.

3. Whereas the two goals mentioned above refer to foreign language learning and teaching, a third goal is directly related to translation

studies proper (that is to say, to the "science of translation" or "translatology"). Although this field of research has so far produced a vast bulk of literature (see, for example, the bibliographies by Bausch, Klegraf & Wilss, 1971; Lehmann, 1982; van Hoof, 1973), it has been almost exclusively concerned with the *linguistic* features of the finished *product* and not with the *psycholinguistic* features of the translation *process*, features that have hitherto been completely neglected. Although a psycholinguistic account of the translation process should be undertaken predominantly on the basis of data taken from professional translators, corresponding data from second language learners might be equally significant because in learners, translation skills can still be studied in *statu nascendi*, i.e. many processes automated in highly proficient professional translators still take place on a conscious level in learners, and are therefore more accessible for verbalization (see, also, pp. 163–67 of the chapter). I, therefore, consider my investigation a groundwork for a psycholinguistic theory of translation; a theory that will be necessary to overcome that notorious deficiency of traditional translatology mentioned above.

Design

The subjects of my study were eight native speakers of German, all studying to become secondary school teachers of French. All of them were approaching their exams in their last year at Bochum University. All had some experience of translating because translation exercises as a teaching and test device are compulsory for language students at German universities. None of the subjects, however, had experience as a professional translator. Four of them, randomly picked, translated a German text into French (i.e. from L1 into L2), the remainder translated a French text into German (i.e. from L2 into L1). Both types of translation (from and into the mother tongue) were deliberately included because the processes were assumed to differ, at least partially. The two texts chosen for the experiment were both fairly difficult. The French text selected was an article from the satirical journal "Le Canard Enchaîné". The text is concerned with the reshuffling of the French cabinet. It ridicules the idiosyncrasies of certain French ministers. The German text to be translated into French was an article from Düsseldorf's main newspaper "Rheinische Post" and describes in a humorous fashion the odyssey of a fieldmouse which happened to bring the restaurant service in a German Intercity train to a complete standstill. My reason for choosing these two

articles was the great variety of translation problems the texts posed: In addition to "ordinary" grammatical, semantic and stylistic translation problems found in almost every type of text, these texts included puns, metaphorical expressions and other instances of literary finesse. I wanted these to be included because I assumed that the structure of the translation process would depend on the type of translation problem. Due to the pilot nature of the study I preferred to include a wide range of translational phenomena rather than a large number of subjects.

For the elicitation of the process data a thinking-aloud technique was used, i.e. the subjects were asked to verbalize whatever came to their minds while translating. The choice of the thinking-aloud technique was determined by theoretical considerations (see pp. 163–67 of the chapter). Before the collection of data began, I subjected myself to the experiment to acquaint myself with the task the subjects would have to face (on the idea of self-observation see, also, Cavalcanti, 1982). One result of this self-experiment was the observation that during those phases when thinking was most intensive (e.g. strenuous retrieval phases), my verbalization was automatically for a few seconds and did not continue until the problem had been solved (e.g. after the item in question had been retrieved). This observation coincides with the predictions made by Ericsson & Simon (1980; 1984) in terms of their model (see pp. 163–67 of this chapter). From this observation I concluded that it was advisable to allow the subjects to pause at their own discretion so as not to press them into verbalizing, because frequent intervention on the part of the experimenter might distort the cognitive processes of the subjects.

After the texts and the subjects had been chosen, a trial run with an additional subject was undertaken (these data were discarded later on). The trial run showed that the chosen texts were as difficult as they were supposed to be and that the translations into the foreign language (as opposed to the translation into the mother tongue) required *two* experimental sessions of two to three hours each.

The last step consisted in preparing an informal questionnaire to obtain information about subjects' personal history of language learning (how many years of French had been taught at school; at what kinds of school; what teaching materials were used; were the teachers native speakers or non-native speakers of French; what was the role of translation exercises during lessons, etc?).

During the experiment, great care was taken to create a relaxed atmosphere. After the task had been explained the subjects were given the opportunity to practise the thinking-aloud technique on a single sen-

tence (not taken from the texts to be translated). The subjects were permitted to use all the reference books they were accustomed to use at home, such as monolingual and bilingual dictionaries, grammars, etc. My role during the translation experiments was basically that of an active listener. I frequently uttered gambits like "ja" and "hm" to encourage the subjects to go on with thinking aloud. All sessions were recorded and transcriptions made (thinking-aloud protocols: TAPs). The transcriptional system could afford to be very simple (i.e. without phonetic transcription and without indication of intonation patterns) because it was not the features of speech production that were the subject of the study. The length of unfilled pauses, repetitions and false starts were, however, systematically indicated in the thinking-aloud protocols because it soon became apparent that the concept of "temporal variables" as indicators of mental processes, hitherto applied successfully to the analysis of speech production (see, for example, the Kassel project: Dechert & Raupach, 1980; Dechert, Raupach & Möhle, 1984), was equally applicable to the investigation of the translation process (see, also, the contributions by Dechert and by Hölscher & Möhle to this volume). When the subjects made use of dictionaries or other types of reference books, this was noted in the transcriptions because strategies also became apparent in the way dictionaries and reference books were applied. Figure 1 gives a synoptical view of the design of the study.

Some Theoretical Problems Involved in the Use of the Thinking-Aloud Technique in Translation

The use of so-called "introspective data" in psychology, which I would prefer to call "verbal report data" because the term "introspection" is tainted by its variable and contradictory applications throughout its history, is as old as it is controversial. The main objections to this type of data (see, for example, Nisbett & Wilson, 1977) are:

- that the subjects have little or no access to their cognitive processes because most of these are unconscious and, therefore, not accessible to verbalization;
- that the subjects produce verbalizations that are inconsistent with their actual behaviour;
- that the verbalization task alters the normal course of the task performance;
- that the verbalizations are necessarily incomplete even for the conscious part of the processes.

Such objections have recently been extended to the domain of second language acquisition by Herbert Seliger, who has referred to every type of research based on verbal report data as the "psychoanalytic school" of second language acquisition research (1983: 185). I would like to argue that most of the above-mentioned objections are not applicable to the study of the translation process by means of thinking-aloud data and that, therefore, I see no need to consider myself a "psychoanalyst" and the subjects my "patients". The reasons can be summarized as follows:

1. The thinking-aloud technique is a type of *concurrent* probing as opposed to different types of *retrospective* probing. Even if one accepts the assumption that processes and verbalizations cannot be perfectly simultaneous, there remains one basic difference between these two types of probing which can be explained in terms of Ericsson & Simon's information processing model: concurrent verbalizations are made while the relevant information is still available

I. Preparations for the data collection:

thinking-aloud as method for data collection chosen
↓
self-experiment
↓
choice of subjects
↓
choice of texts
↓
trial run with additional subject
↓
improvement of the design
↓
drafting of the informal questionnaire

II. Collection of data:

creation of a relaxed atmosphere
↓
explanation of task
↓
opportunity to practise the thinking-aloud technique
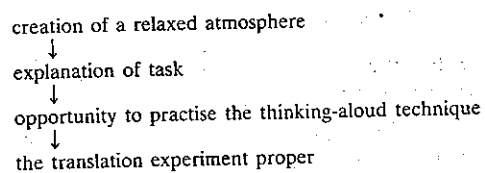↓
the translation experiment proper
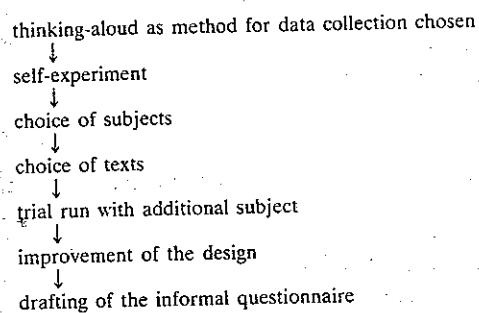
III. Preparations for data analysis:

establishment of the transcriptional rules
↓
transcriptions of the tape-recordings (production of the TAPs)
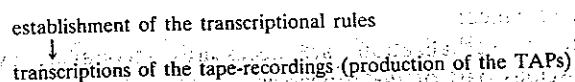
FIGURE 1 *Synopsis of the design of the study*

from short-term memory. Retrospective verbalizations, by contrast, refer to information processed at an earlier point in time; information that must be retrieved from long-term memory before being verbalized. Since the two memory types have different modes of access, one would expect the information retrieved from long-term memory not to be recalled in its original form but in a form altered by elaboration, abstraction, reduction or evaluation (cf. Norman & Rumelhart, 1975). Sometimes the information retrieved from long-term memory may not even be the original information at all but similar to it, processed at a different point in time. It is, therefore, not surprising that most previous criticism of verbal report data was made with the retrospective type of probing in mind, i.e. where the subjects had to verbalize their mental processes after completing the task. Taking these differences into account one would expect few, and quite unreliable, verbalizations from a retrospective type of probing (in the study of the translation process) where questions like "What did you think when you translated the word ×?" might be asked half-an-hour after the event. Whereas one might expect much more, and more reliable, information from verbalizations immediately preceding or following the translation or made while searching for a possible equivalent.

2. A second characteristic of the thinking-aloud technique is that it does not demand abstraction, selection or inference processes on the part of the subjects. As opposed to types of verbal data collected by "requests for general reports", "probing general states", or even "probing hypothetical states" (cf. Ericsson & Simon, 1980: 224), the subjects were not asked how they *usually* tackle a translation task or how they *would* try to solve a specific kind of translation problem, but were simply encouraged to verbalize whatever came to their minds while translating. Here, again, one must be aware of the fact that most criticism levelled at verbal report data does not relate to thinking-aloud but to other types of probing. Ericsson & Simon have convincingly shown that the validity of verbal report data decreases with the degree of selectivity and abstractness of the verbalization task. It appears particularly important to avoid a type of probing that *forces* the subjects to verbalize. For, in this case, we would blur the clear-cut distinction between automated and non-automated parts of the translation process, which became apparent in the thinking-aloud protocols, in a very natural way: verbalizations spontaneously uttered by the subjects referred almost exclusively to non-automated processes, because automated processes take place on an unconscious level and are not accessible to verbalizations. This is perfectly in line with what Seliger maintains.

But what, to Seliger, looks like a serious drawback is in reality an essential advantage of the thinking-aloud technique, when applied to the study of the translation process. The identification of automated and non-automated parts of the translation process is an important step towards a psycholinguistic model of translation. It also makes an essential contribution to the explanation of differences in the translation performance of trained and non-trained translators.

3. The third and perhaps most important argument justifying the use of the thinking-aloud technique for the investigation of the translation process is the nature of the information to be verbalized. Since translating is, by its very nature, a linguistic process, the verbalizations externalize linguistically-structured information and can normally do without an *additional* process of verbal encoding. Ericsson & Simon refer to this type of verbalization, involving the articulation of information stored in a verbal code, as "Level 1 verbalization" as opposed to "Level 2 verbalization" where the task is predominantly a non-verbal one, e.g. in a problem-solving task with geometrical figures or in putting together a puzzle, and to "Level 3 verbalizations" where additional scanning, filtering, inference or generative processes are involved (Ericsson & Simon, 1984: 16). On the basis of these differentiations Ericsson & Simon come to the conclusion that thinking aloud as a type of Level 1 verbalization "will not change the structure and course of the task processes, although it may slightly decrease the speed of task performance" (Ericsson & Simon, 1980: 226). Even if one does not fully agree with the assumption that the processes remain completely unchanged in the case of concurrent verbalizations of the Level 1 type, one can, nevertheless, say that the thinking-aloud technique produces the verbal data with the least degree of distortion compared with all other types of probing.

Summing up these three main arguments, one might say that thinking aloud while translating is an almost natural type of activity to which most of the criticism levelled at verbal report data does not apply. This conclusion is strengthened by the observation that translating is often accompanied by "inner speech" as one can easily verify by self-observation or by observing the lips of a translating person when he or she is not "speaking". One should, therefore, expect a high degree of validity for such data.

At this point, I would like to remark briefly on another problem that is frequently debated in connection with the validity of thinking-aloud

data, namely the problem of the "completeness" of the verbalizations. When the argument is put forward that thinking-aloud data are incomplete, the question arises: incomplete in relation to what? If it is argued that concurrent verbalizations are incomplete in the sense that unconscious processes are not verbalized, then this is no drawback where verbal report data are concerned; it is even a desirable effect. For Ericsson & Simon have shown that the validity of the thinking-aloud data would decrease significantly if the subjects were compelled to verbalize automated processes (see above). The question of completeness should rather be put in the following way: are the verbalizations complete in relation to the information processed in short-term memory in the normal course of the task? This is a fundamental question which could not be treated within the framework of my study. I would, however, like to report an observation based on my data that shows that individual differences between subjects with regard to their willingness to verbalize might be greater than Ericsson & Simon seem to assume. It was one and the same subject who:

- made the greatest number of uncommented alterations to the first draft of her translation;
- made the greatest number of uncommented choices between competing potential equivalents;
- verbalized the least number of translation problems explicitly;
- verbalized the least number of interlingual word-associations.

Since this subject was also the subject with the greatest number of unfilled pauses, calculated relative to the complete length of the experiment, it is doubtful that the degree of automatization in the subject would have been high and therefore responsible for the above-mentioned phenomena. Further studies especially designed to investigate such individual differences are called for to shed more light on these problems.

Analysis of the Data

Since thinking-aloud data have a low degree of structuring, it is necessary to develop analytical categories step by step and to refine them gradually. In accordance with the criterion of openness as a typical feature of qualitative methods (see Grotjahn, this volume, Chapter 3), one has to begin the analysis by searching for such structures as are inherent in the data. One such structure that became immediately apparent was the presence of translation problems and of systematic strategies to solve these. For various reasons (explained in more detail in Krings, 1985), the concepts of translation problem and translation strategy were chosen as

fundamental categories for the description of the translation process data, and all further categories were based on these. The data were analysed with respect to a total of 117 features. 19 of these refer to the identification, classification and distribution among the subjects, of different problem types, e.g. comprehension problems v. production problems. 20 features refer to what I have named "macro-strategies", i.e. to the organization of the single steps in which the translation task as a whole is carried out. (e.g. are unknown vocabulary items looked up in the dictionary before, or during, translating?). 25 features refer to comprehension strategies, e.g. the use of reference books. Comprehension problems and comprehension strategies were not restricted to the translation from L2 into L1 but were also found when the source-language text was in the mother tongue, e.g. "Miese machen" (a popular term for "to incur debts") or "Oberzugleitung" (name of the section of the German railway company responsible for the co-ordination of the time schedules of the trains). 38 features refer to equivalent retrieval strategies, e.g. the number of competing potential equivalents that are compared for the rendering of a given source-language text item; the order in which they were found; the role of the mother tongue in finding equivalents, etc. 15 features refer to evaluation and decision-making strategies, e.g. monitoring L2-segments by means of "implicit" or "explicit" linguistic knowledge, use of morphosyntactic, lex-icosemantic, pragmatic knowledge, the role of native language intuitions, etc. All features can be sorted into four types according to the amount of information provided by the thinking-aloud protocols. Since it is imposs-ible to comment on all the features analysed, I shall restrict myself to a few of these and only mention some of the others in passing.

The first type comprises all those features of the translation process which can be counted, for example, the number of translation problems encountered by each subject in a given text. The first step in analysing the thinking-aloud protocols consisted in identifying the problems one by one for each subject and relating them to those source-language text items that were initially responsible for the problem in question. Then the problems were listed and counted. All together 454 single translation problems could be identified in the thinking-aloud protocols. The identifi-cation of the translation problems was an essential step towards a further analysis of the data because this allowed the activities of the subjects to be interpreted as a set of systematic moves directed towards the solving of these problems. In addition the counting of translation problems permitted quantitative comparisons to be made. Among other things the number of problems for each individual could be compared and an average number could be calculated. I could determine the extent to which the type of text influences the number of problems created, and comparisons could

be made between translations from, and into, the foreign language. I also determined the degree to which the subjects had problems in common when translating the same text. By doing this I was able to build a hierarchy of problems, beginning with problems common to all the sub-jects and ending with those which were unique to a single individual.

Table 1 shows that only a fifth of the translation problems (19.0% in translations into L1, 20.9% in translations into L2) were common to *all* four subjects. These problems can be considered typical for the given text and the given group of subjects. The table also shows that half the problems (50.0% in translations into L1, 48.5% in translations into L2) were restricted to one subject only. These problems can be considered idiosyncratic. It is apparent that the distinction between typical and idio-syncratic translation problems is a valuable aid for designing translation exercises and for choosing texts with an adequate degree of difficulty for a given group of learners. It is interesting to note that there was almost no difference between translations from, and into, the foreign language. The problems were further categorized linguistically, e.g. according to the rank of the source-language text item that created the problems in ques-tion. About 90% of the problems were on the word-rank. Finally, prob-lems the subjects deal with successfully were compared with problems that could not be solved, and both types were related to the strategies used. All-in-all one may say. that the translation problems proved to be the most important single feature of the translation process.

The second category comprises those features of the translation process for which the information contained in the thinking-aloud proto-cols is abundant but not quantifiable. As an example I will treat a complex of features that I have named "potential equivalent retrieval strategies". Normally, the subjects search for several potential equivalents when they are faced with a translation problem, compare these and choose the one they deem most suitable for the target language text. To make transparent

TABLE 1   *Distribution of problems according to the number of subjects that had them in common*

	L2→L1		L1→L2	
4 subjects	16	19.0%	28	20.9%
3 subjects	14	16.7%	19	14.2%
2 subjects	12	14.3%	22	16.4%
1 subject	42	50.0%	65	48.5%

the network structure of this search for equivalents, I have developed a special instrument I will refer to as "the equivalent retrieval diagram". Figure 2 shows the structure of the search for equivalents undertaken by the subject Manfred in the case of the source-language text item "Miese machen". The horizontal axis represents the interlingual and the vertical axis the intralingual dimension of the equivalent retrieval network. The diagram shows 12 steps in all, taken by the subject to find an adequate equivalent for the text item in question. The most important equivalent retrieval strategy is the one called "rephrasing", i.e. the exchange of a source-language text item for a synonym, near-synonym or an expression at least semantically similar. Thus the subject in this case tries to find a suitable translation by replacing the item "Miese machen" in turn by "ein Defizit machen" ("to make a deficit") (step 2), "Schulden machen" ("to incur debts") (step 5), "kein Geld haben" ("to be without money") (step 6) and "rote Zahlen" ("to be in the red") (step 9). In addition the subject makes use of dictionaries: three times he uses a bilingual and once a monolingual dictionary (see the encircled Ds in the diagram). All together four different potential equivalents were found in this case (see the squares marked PE for "potential equivalent" in the diagram). After a detailed analysis of these four potential equivalents, involving yet another set of strategies, the subject finally decides upon the third equivalent as the best suited and chooses this one as the translation of the text item.

An equivalent retrieval diagram of this kind was produced for each of the 454 translation problems, which allowed systematic comparisons to be made of the ways in which the subjects tried to find equivalents, as can be seen from the equivalent retrieval diagrams of the three other subjects for the same problem (Figures 3 to 5). This undertaking was made possible by the abundance of information contained in the thinking-aloud protocols. An investigation entirely based on the product of the translation process, i.e. the final translation, would be singularly ill-equipped to describe what happened between the first and the last step in the diagram.

The third and fourth categories comprise those features of the translation process for which the information in the thinking-aloud protocols is incomplete or scarce. One example of a feature for which the information is incomplete is the choice between different translation equivalents suggested by a bilingual dictionary for the translation of German source-language text items into the foreign language. To check which of the equivalents is the most suitable translation, the subjects use a strategy that can be referred to as "back-translation". That is to say, they translate the L2-item in the bilingual dictionary "back" into German and check if
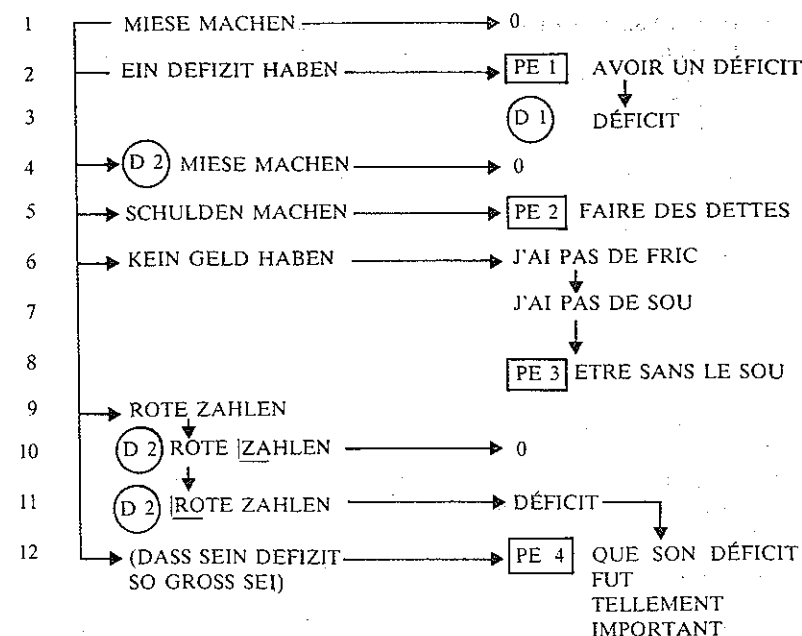
FIGURE 2   *Equivalent retrieval diagram for "Miese machen" (subject: Manfred)*

the German equivalent fits into the context of the German source-language text. They then choose the foreign language equivalent according to their German native speaker's competence because their lexicosemantic knowledge of the second language is insufficient. Two other strategies consist in avoiding items suggested by the bilingual dictionary with which they are unfamiliar or choosing the item with the greatest range of application. Both strategies might be referred to as playing-it-safe strategies. In about 50% of the cases it could be established that the choice of the equivalents from the bilingual dictionary was managed by one of these strategies. In the other cases the verbalizations in the thinking-aloud protocols were insufficient to establish what strategies the subjects made use of. There is even less information to be obtained from the thinking-aloud protocols for some of the other features of the translation process. For instance, there is a lack of indication regarding the subjects' belief in the likelihood of the correctness of their final choices. In less than 5% of the cases the subjects expressed approval or disapproval of their choices.
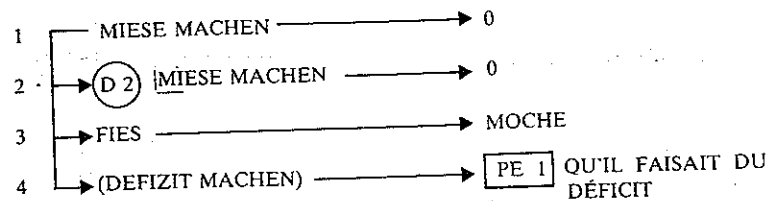
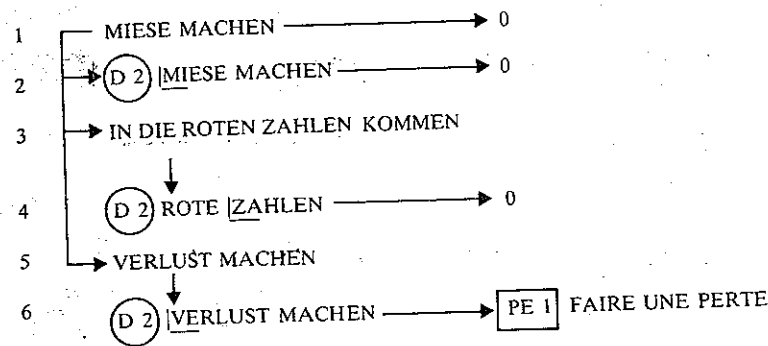FIGURE 3 *Equivalent retrieval diagram for "Miese machen" (subject: Anne)*

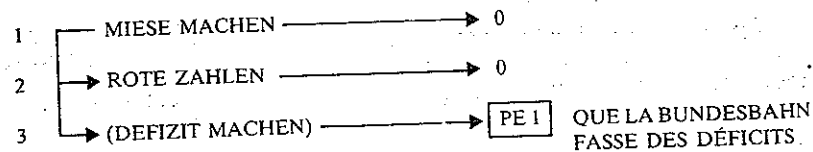FIGURE 4 *Equivalent retrieval diagram for "Miese machen" (subject: Heidi)*

FIGURE 5 *Equivalent retrieval diagram for "Miese machen" (subject: Stefanie)*

Adding all features together, it was possible to develop a tentative psycholinguistic process model of translation in advanced learners (see Krings, 1986a: 263 and 1986b: 479–82). This model has several consequences for second-language learning and teaching which, unfortunately, I cannot discuss here.

Summary

I would like to conclude with a summary of my experiences with the thinking-aloud technique in the framework of my study:

1. The thinking-aloud technique seems especially suited for the investigation of the cognitive processes involved in translating because it constitutes the most direct means of getting access to these processes and it provides more process information than any other procedure (especially when compared to retrospective types of probing).
2. The validity of the thinking-aloud data must be considered high when minimal intervention on the part of the experimenter takes place and no pressure to verbalize is exerted in any way.
3. Thinking-aloud data cannot be analysed adequately on the basis of pre-established categories. Instead, the analytical categories need to be developed and refined gradually, taking into account the internal structure of the data.
4. Thinking-aloud data are especially suited to uncover individual differences in the translation procedure of the subjects, thereby avoiding the wash-out effect of large samples.
5. Thinking-aloud data of translations reveal processes of language comprehension as well as processes of language production (either in the mother tongue or in the foreign language, depending on the direction of the translation). They therefore permit valuable insights into:
   (a) the cognitive organization of the learner's linguistic knowledge of the mother tongue;
   (b) the cognitive organization of the learner's linguistic knowledge of the foreign language;
   (c) differences between (a) and (b);
   (d) differences in the cognitive organization of the linguistic knowledge of different foreign languages (see Færch & Kasper, 1986).

6. The information provided by the thinking-aloud data is not equally abundant for all features of the translation process. Wherever the information is scarce (e.g. because the subjects do not focus on these aspects in their verbalizations) the thinking-aloud data can be complemented by other kinds of data that provide the missing information (e.g. data from word-association tests or "judgemental tasks", see, for example, Arthur, 1980; Bialystok, 1979; Kellerman, 1978; Kohn, 1982).

The investigation of the translation process by means of introspective data has only just begun. What has to be done next is to extend the investigation to make it cover other subjects, other types of texts and other pairs of languages. Especially interesting insights might be expected once data from second language learners and bilingual professional translators are compared. I believe that if this research programme is put into practice successfully, it will give a substantial boost to both translatology and to second language acquisition research.

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9   The Collective Learner Tested: Retrospective Evidence for a Model of Lexical Search

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"Introspection is a fickle mistress"

(Miller, Galanter & Pribram)

1.   Background

This is a report on our first attempt to make use of introspective methods for the analysis of advanced learners' approximations[1] in the framework of our ALE project.[2] It bears witness to our initial methodological innocence as beginners in this field. We started out with a traditional error analysis of L1 to L2 translations, then took into consideration unedited slips showing planning traces (blends, double forms), supplemented this by looking at drafts and deleted forms, and ended up with what might be called a "delayed retrospective" analysis (cf. Færch & Kasper, 1987).

2.   Methodological Considerations

2.1.   Translations as data

Despite the well-known fact that translating is in many ways an artificial form of L2 communication, at least as compared to everyday

conversation, it seems to be the safest source of information about processes of lexical search, more so than reproductive exercises: the original intended meaning is mostly given for the analyst (except for misinterpretations of the source text); therefore (some aspects of) learners' strategies can be pinned down with higher certainty.

We hypothesize that lexical search in oral communication shares major aspects of the better-monitored search in translation, particularly so where the subject-matter of L2 conversation is non-trivial and lexical deficits become more or less conscious.

2.2.   Introspection and retrospection

We share the view on the advantage of immediately consecutive retrospection as outlined in Færch & Kasper (1987), particularly so with respect to the accessibility of short-term memory: whereas, in introspective and immediate retrospective tests we can expect to learn (part of) what L2 users really did while planning their utterances, delayed tests will give information about what learners think they did, the more so the more delayed they are (cf. Figure 1).[3] Immediate retrospection results in an interruption and fragmentation of the process of translating connected texts: the wider context is lost for processes of lexical search and appropriateness checks. Therefore, if we want to observe the process of translating longer texts as more natural units, delayed retrospective interviews following the translation of a complete text (passage) seem justifiable if they are not over-interpreted:

- they can be a basis of hypothesis formation for in-depth introspection and interviews;
- if they are not reliable in telling us what learners actually did in trying to solve particular lexical problems, they will, at least, give
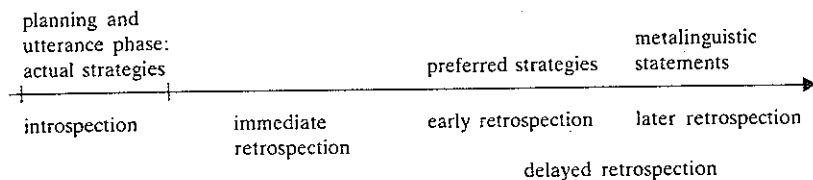

| planning and utterance phase: actual strategies | | preferred strategies | metalinguistic statements |

introspection   immediate   early retrospection   later retrospection
                   retrospection
                                      delayed retrospection

FIGURE 1   *Types of information obtained through the use of different introspective and retrospective techniques*

us indications on the learners' preferred strategies, i.e. strategies which learners think they used or might have used.

From a technical point of view, it is not a minor point that delayed retrospective commenting is easiest to administer.

2.3.   Combined analysis

Our current approach is a combined one, in unison with some of the related present research (cf. for example, Poulisse, Bongaerts & Kellerman, this volume, Chapter 11; Haastrup, this volume, Chapter 10). We are considering four variants:

a.   thinking-aloud protocol of individual translation of connected texts, audio-taped, followed by retrospective comments on problems of lexical choice; no interview;
b.   dialogical translation of connected texts, audio-taped, subsequent (delayed) interview;
c.   thinking-aloud protocol of individual translation of (lexical problems in) short passages, audio-taped; immediate interview;
d.   dialogical translation of (lexical problems in) short passages; immediate interview.

In agreement with Juliane House (personal communication) we think that lexical search in dialogical translation is a more natural situation than thinking aloud during individual translation (cf. also, Haastrup, 1985, and in this volume, Chapter 10, for the "dialogical method". This raises the question of how much of their inner planning dialogical translators will communicate to each other (and the tape).

We expect the following kinds of evidence to be derivable from the different tasks:

- actually employed strategies: thinking aloud (individual) and dialogical phases (less individual), immediate interviews;
- preferred strategies: delayed comments and delayed interviews;
- declarative knowledge: as above.[4]

2.4.   Training of subjects

We are insecure as to how training is possible without influencing subjects by researchers' hypotheses: even the choice of thinking-aloud models and examples seems to be problematic from this point of view.