

Temporal semantics in a superficially tenseless language

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September 2005

Abstract

This paper contributes to current debate about ‘tenseless languages’ by providing a comprehensive defense of a tensed analysis of a superficially tenseless language. The language investigated is St’át’incets (Lillooet Salish). I argue that although St’át’incets lacks overt tense morphology, every finite clause in the language possesses a phonologically covert tense morpheme; this tense morpheme restricts the reference time to being either in the past or the present. Future interpretations, as well as ‘past future’ *would*-readings, are obtained by the combination of covert tense with an operator analogous to Abusch’s (1985) WOLL. I offer St’át’incets-internal evidence (of a kind not previously adduced) that the WOLL-like predicate is modal in nature. I demonstrate that neither Lin’s (to appear) analysis of Chinese, nor Bittner’s (to appear) analysis of Kalaallisut is applicable to St’át’incets.

It follows from the analysis presented here that there are only two (probably related) differences between St’át’incets and English in the area of tense. The first is that St’át’incets lacks tense morphemes which are pronounced. The second is that the St’át’incets tense morpheme is semantically underspecified compared to English ones. I argue that neither of these is a conceptually problematic way for languages to differ, and that neither difference leads to a learnability problem.

Along the way, I point out several striking and subtle similarities in the interpretive possibilities of St'át'imcets and English. I suggest that these similarities reveal non-accidental properties of tense systems in natural language.

1. Introduction

Many languages of the world lack obligatory overt tense morphology. It is a matter of much debate how such languages should be analyzed – whether as possessing, or as lacking, the morphemes devoted to tense that are assumed for languages like English. See, for example, Baker and Travis (1997), Lee (1999), Lin (2002, to appear), Shaer (2003), Smith et al. (2003), Wiltschko (2003), Ritter and Wiltschko (2004), Matthewson (2005), Smith and Erbaugh (2005), Bittner (to appear) and Manfredi (to appear) for discussion. This paper contributes to the debate by presenting a detailed investigation of one superficially tenseless language: St'át'imcets (Lillooet Salish). I argue that although St'át'imcets lacks overt tense morphology, it possesses an obligatory tense morpheme, present in every finite clause. I propose that the difference between the St'át'imcets and English tense systems lies only in the number of distinctions made between tenses, and in phonological overttness. The paper thus constitutes the first fleshed-out defense of a tensed analysis for a superficially tenseless language.¹

I further argue that although St'át'imcets possesses only one tense morpheme, that single morpheme restricts the reference time to being in the past or present. I suggest that this may reveal a universal semantic fact: future is never itself a tense, but rather involves another element (a modal or a temporal ordering predicate; cf. Abusch's 1985 WOLL), which combines with tense. In

¹ Lee (1999) is another work I am aware of which argues for a tensed analysis of an apparently tenseless language (San Lucas Quiaviní Zapotec).

St'át'imcets, there is a morpheme (*kelh*) which I analyze as directly instantiating WOLL. This morpheme allows ordinary future readings, as well as 'past future' readings (cf. English *will* vs. *would*), depending on whether the tense it co-occurs with picks out a present or a past reference time. The analysis of 'past future' readings crucially relies on the presence of covert tense. I also present language-internal evidence (of a kind not previously adduced) that the WOLL predicate involves quantification over possible worlds rather than being purely temporal in nature. Finally, a morpheme (*tu7*) which forces past readings in almost all cases allows future readings just in case it combines with *kelh* (WOLL). This is explained if *tu7* is a temporal adverb similar to English *then*, which necessarily co-occurs with covert tense and thus is restricted to past interpretations in non-future cases.

The structure of the paper is as follows. Section 2 contains an introduction to St'át'imcets temporal data. In section 3 I present the analysis of superficially tenseless sentences in St'át'imcets, and show that St'át'imcets can be accounted for under neither the aspect-driven approach of Lin (to appear) nor the prospective stative approach of Bittner (to appear). Section 4 discusses the future. I first show that an apparent future morpheme *kelh* always involves a temporal component (and thus does not encode either irrealis mood or epistemic modality). I then argue that *kelh* is the overt counterpart of the WOLL relation (cf. Abusch 1985), and involves quantification over possible worlds. In section 5, I show that what appears to be an optional past tense marker is really a temporal adverbial similar to English *then*, whose behavior can be accounted for only under the assumption that it co-occurs with the null tense morpheme. Finally, section 6 addresses the consequences of the St'át'imcets tense system for the theory of cross-linguistic variation, semantic underspecification, and the nature of the future tense.

I conclude this introduction by outlining some very basic background assumptions and terminology. Following Reichenbach (1947) and many others, I assume a three-way distinction

between the utterance time (UT), the reference time (RT; a.k.a. topic time) and the event time (ET; a.k.a. situation time). These are defined in (1).

- (1) UT: The time the sentence is uttered.
 RT: The time about which a claim is made.
 ET: The time at which the relevant event takes place.

Following Klein (1994), *inter alia*, I assume that tense is a relation between the UT and the RT, while aspect is a relation between the RT and the ET. Some simple examples illustrating the difference between RT and ET are given in (2-3). In (2), the past tense places RT before UT, and the perfective aspect places the ET inside the RT.

- (2) I saw Mabel last week.
- RT: The week preceding the week of the utterance time
 ET: Some interval within last week (e.g., from 9 - 10pm last Monday)

In (3B), the past tense places RT before UT, and the progressive aspect places RT inside ET.²

- (3) A: What did you notice when you looked into the room?
 B: The light was flickering. (adapted from Klein 1994)

² The imperfective aspect places RT inside ET; the English progressive involves extra semantic complexity, as discussed by many authors (see for example Dowty 1977, 1979, Portner 1998, among many others). These issues are not relevant for the current discussion.

RT: the time at which B looked into the room (e.g., 9pm yesterday)

ET: the time at which the light was flickering (e.g., from 8 – 11pm yesterday)

2. St'át'imcets temporal data

St'át'imcets (a.k.a. Lillooet) is an endangered Northern Interior Salish language spoken in the southwest interior of British Columbia, Canada. Before presenting the temporal data, a note is in order regarding methodology. Unless stated otherwise, all claims about temporal interpretation presented here are based on primary fieldwork. Fieldwork involves direct elicitation of: (i) translations (in either direction), (ii) judgements about truth in particular contexts, (iii) judgements about felicity in particular contexts, and (iv) consultants' comments about interpretation. This full range of elicitation techniques is used to arrive at claims about temporal interpretation.³

Superficially tenseless sentences (henceforth STSs) in St'át'imcets can be interpreted as either present or past. Examples are given in (4).^{4,5}

³ These elicitation techniques obtain more information than would the examination only of textual materials, since texts provide only a translation without any supplementary information, and do not give negative evidence. See Matthewson (2004) for further discussion of, and justification for, the methodology used here.

⁴ St'át'imcets data are given in the official orthography of the language, created by Jan van Eijk. See the Appendix for a list of abbreviations used.

⁵ The sentences in (4) are all in the perfective aspect, indicated by the absence of the overt imperfective auxiliary *wa7*. The progressive form of the English present-tense translations is due to the absence in English of a non-progressive present tense for eventive predicates.

- (4) a. táyt-kan
 hungry-1SG.SUBJ
 ‘I was hungry / I am hungry.’
- b. k’ác-an’-lhkan
 dry-DIR-1SG.SUBJ
 ‘I dried it / I am drying it.’
- c. sáy’séz’-lhkan
 play-1SG.SUBJ
 ‘I played / I am playing.’

The aspectual class of the predicate influences default interpretations. Thus, stative predicates (as in (4a)) strongly prefer present tense interpretations in out of the blue contexts, while accomplishments (as in (4b)) are by default interpreted in the past. Activities (as in (4c)) show no strong preference either way.⁶ These defaults accord with general tendencies noted for many

⁶ Achievements strongly prefer past interpretations. However, they can be uttered at the moment of culmination, as in (i):

- (i) Context: you have been climbing a mountain, and just at the exact moment you step onto the summit, you say:
- qáyt-kan
 reach.top-1SG.SUBJ
 ‘I reach the top!’

languages, which have received analysis elsewhere in the literature (e.g., Lin 2002, to appear, Bohnemeyer and Swift 2003, Smith et al. 2003, Smith and Erbaugh 2005, Manfredi to appear, among many others), and I will therefore not address them here. It is important to emphasize, however, that when one investigates beyond the defaults, one find that either present or past interpretations are available for all superficially tenseless predicates, whether they are states, accomplishments or activities. That is the generalization which I aim to account for in this paper.⁷

Temporal adverbials narrow down temporal reference in a predictable way. (A formal analysis of temporal adverbials goes beyond the scope of the current paper.)

It is not clear that (i) represents a true present tense reading, however, and further research is required. For the remainder of this paper I will set achievements aside (although note that they behave normally in all other respects. For example, achievements allow future interpretations in exactly the same contexts as other Aktionsarten do).

⁷ A present-tense accomplishment is shown in (i), and a past-tense stative in (ii).

- (i) máys-en-as ta káoh-a kw-s Bill
 fix-TR-3ERG DET car-DET DET-NOM Bill
 ‘Bill is fixing the car.’ (volunteered gloss) (Bar-el et al. to appear)
- (ii) Talking about a specific time in the past:
 qwenúxw na kúkwpi7-s-a ta lil’wat7úl-a
 sick DET chief-3SG.POSS-DET DET Mt. Currie-DET
 ‘The chief of Mt. Currie was sick.’

- (5) a. táyt-kan *lhkúnsa*
 hungry-1SG.SUBJ *now*
 ‘I am hungry now.’
- b. k’ác-an’-lhkan *i-nátcw-as*
 dry-DIR-1SG.SUBJ *COMP.PAST-one.day.away-3CONJ*
 ‘I dried it yesterday.’
- c. sáy’séz’-lhkan *i-tsilkstásq’et-as*
 play-DIR-1SG.SUBJ *COMP.PAST-Friday-3CONJ*
 ‘I played on Friday.’

Importantly, STSs cannot be used to describe future eventualities. None of the sentences presented so far can be interpreted in the future. (6) shows that adding a future-time temporal adverbial to a STS does not license a future reading, but instead leads to ungrammaticality.

- (6) a. * táyt-kan *nátcw / zánucwem*
 hungry-1SG.SUBJ *one.day.away / next.year*
 ‘I will be hungry tomorrow / next year.’
- b. * k’ác-an’-lhkan *nátcw / zánucwem*
 dry-DIR-1SG.SUBJ *one.day.away / next.year*
 ‘I will dry it tomorrow / next year.’

- c. * sáy'sez'-lhkan *naticw* / *zánucwem*
 play-1SG.SUBJ *one.day.away* / *next.year*
 'I will play tomorrow / next year.'

For a future-time interpretation, the enclitic *kelh* is required.⁸ *kelh* may optionally co-occur with future-time adverbials.

- (7) a. táyt-kan *kelh*
 hungry-1SG.SUBJ *kelh*
 ‘* I was hungry / * I am hungry / I will be hungry.’
- b. k’ac-an’-lkhán *kelh*
 dry-DIR-1SG.SUBJ *kelh*
 ‘* I dried it / * I am drying it / I will dry it.’

⁸ The only exceptions to this involve the aspectual auxiliary *cuz* ‘be going to’, illustrated in (i), or a motion verb such as *nas* ‘go’, also used as an aspectual auxiliary, as in (ii).

- (i) *cuz'* qwatsáts ta naplít-a
going.to leave DET priest-DET
‘The priest is going to leave.’
- (i) *nás*-kalh ku New Zealand-a (lh-qápt,s-as)
go-1PL.SUBJ DET New Zealand-DET COMP-spring-3CONJ
‘We are going to New Zealand (in the spring).’

- c. sáy'sez'-lhkán *kelh*
 play-1SG.SUBJ *kelh*
 ‘* I played / * I am playing / I will play.’

The enclitic *tu7* forces a past-time interpretation, as illustrated in (8).

- (8) a. táyt-kan *tu7*
 hungry-1SG.SUBJ *tu7*
 ‘I was hungry / * I am hungry / * I will be hungry.’
- b. k'ac-an'-lhkán *tu7*
 dry-DIR-1SG.SUBJ *tu7*
 ‘I dried it / * I am drying it / * I will dry it.’
- c. say'sez'-lhkán *tu7*
 play-1SG.SUBJ *tu7*
 ‘I played / * I am playing / * I will play.’

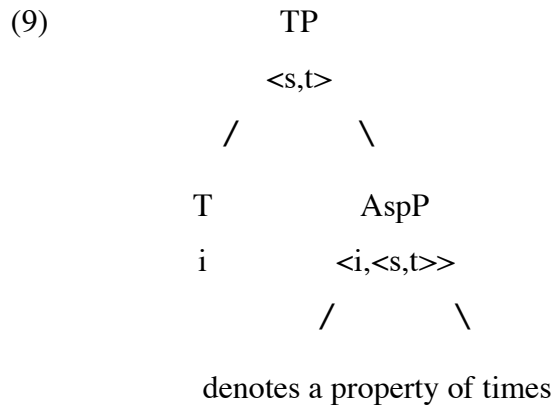
3. Analysis of St'át'imcets superficially tenseless sentences

3.1. The framework

Before introducing the analysis, I outline the framework adopted, namely that of Kratzer (1998).

This framework is adopted for concreteness, and the results and predictions to follow could be replicated within a number of different theories; I return to this issue immediately below.

According to Kratzer, the T head is sister to Aspect Phrase, which denotes a property of times. The tense morpheme introduces a variable over time intervals (i is the type of time intervals):⁹

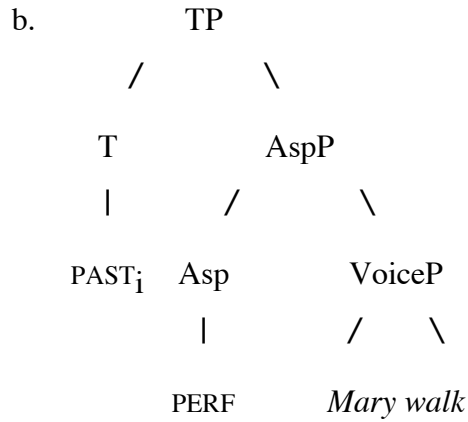


The variable in T corresponds to the reference time, and receives its value from the contextually determined assignment function. The lexical entries of the tense morphemes introduce presuppositions restricting the reference time (following Heim 1994). The lexical entry for the English past morpheme is given in (10), and the denotation of a simple sentence is given in (11).

(10) $[[\text{PAST}_i]]^{g,c}$ is only defined if $g(i) < t_c$ (the utterance time), in which case $[[\text{PAST}_i]]^{g,c} = g(i)$.

(11) a. Mary walked.

⁹ I use a simplified version of Kratzer's analysis, which treats tenses uniformly as variables rather than sometimes as indexicals. These details are not relevant for current purposes.



c. $[[TP]]^{g,c} = \lambda w \exists e [\text{walk}(e)(w) \ \& \ \text{agent}(\text{Mary})(e)(w) \ \& \ \tau(e) \subseteq g(i)]$ (where $g(i) < t_c$).

d. There is an event e of Mary walking, whose running time τ is included in the contextually salient past time $g(i)$.

As mentioned above, the choice of this framework is not critical for the main claims to follow. Although there are reasons for adopting a pronominal approach to tense (rather than one involving existential quantification over times; see Matthewson 2003 for argumentation), it is not for example crucial that the tense itself introduce the variable over time intervals. We could alternatively have the tense morphemes introduce ordering predicates and the times themselves appear in other positions (as in the approaches of Zagana 1990, Stowell 1996, among others). It is also not crucial that a T position (head of Tense Phrase) is projected; my focus here is the semantics, not the syntax. The important claim will be that all finite clauses in St'át'imcets introduce a variable over time intervals, and that values for that variable are restricted to times which precede or overlap with the utterance time. Since I will argue that in this respect St'át'imcets exactly parallels English, any approach to English that the reader prefers could be substituted – as long as St'át'imcets is analyzed in the same way.

3.2. The analysis

Recall that St'át'imcets superficially tenseless sentences (STSs) may be interpreted as either past or present. My proposal is that STSs contain a phonologically null tense morpheme, TENSE. TENSE introduces a variable over time intervals (the reference time) which receives its value from the contextually determined assignment function. The lexical entry of TENSE, given in (12), restricts possible values for the reference time to being non-future. The denotation of the sentence in (13) is calculated in (14).

(12) $[[\text{TENSE}_i]]^{\mathbf{g}, \mathbf{c}}$ is only defined if $\mathbf{g}(i) < t_{\mathbf{c}}$ or $\mathbf{g}(i) o t_{\mathbf{c}}$, in which case $[[\text{TENSE}_i]]^{\mathbf{g}, \mathbf{c}} = \mathbf{g}(i)$.

(13) *matq kw s-Mary*
walk [DET NOM-Mary]
 'Mary walked / Mary is walking.'

(14) a.

TP	
/	\
T	AspP
	/ \
TENSE _i	Asp VoiceP
	/ \
PERF	<i>matq kw sMary</i>

- b. $[[(14a)]]g^c = \lambda w \exists e [walk(e)(w) \ \& \ agent(Mary)(e)(w) \ \& \ \tau(e) \subseteq g(i)]$ (where $g(i) < t_c$ or $g(i) \circ t_c$).
- c. There is an event e of Mary walking, whose running time τ is included in the contextually salient past or present time $g(i)$.

The similarity between the St'át'imcets and the English systems is obvious: the same structures can be preserved, and the TENSE morpheme narrows down possible reference times, just like English PAST. The only difference – one which I argue is neither profound nor surprising – is that St'át'imcets TENSE is slightly less restrictive than English PAST. The St'át'imcets TENSE morpheme restricts possible reference times to past or present, ruling out future.

Before we proceed to the analysis of more complex sentence-types, I will argue against three conceivable alternative analyses of St'át'imcets STSs.

3.2.1. Tense is not taken care of by aspect

In a recent analysis of Chinese, Lin (2003, to appear) argues that temporal interpretation in that language does not rely on tense morphemes, but is rather determined by factors such as temporal adverbials, default viewpoint aspect, overt aspectual particles, and pragmatic reasoning. Similarly, Smith and Erbaugh (2005) offer an analysis of Mandarin Chinese which claims tenselessness and relies heavily on aspectual information. In this sub-section I illustrate why any analysis which relies on Aktionsart and default viewpoint aspect will not work for St'át'imcets. For concreteness, I respond to Lin's particular analysis of Chinese.

Lin adopts the event realization analysis of Bohnemeyer and Swift (2004), according to

which the (a)telicity of an eventuality determines a default viewpoint aspect. Telic descriptions are by default interpreted as perfective, while atelic descriptions are imperfective. Lin further argues that viewpoint aspect can correctly derive reference times for bare sentences in Chinese. First, we assume that the default reference time is the speech time. An atelic eventuality is imperfective, thus it requires that the event time includes the speech time. This correctly predicts a default present tense interpretation for sentences such as (15).

- (15) Zhangsan hen mang
Zhangsan very busy
'Zhangsan is very busy.'
(Lin to appear:3)

For telic (and therefore perfective) cases such as (16), the event time must be included within the reference time, and therefore the reference time cannot be the speech time. Nor can the reference time be in the future, because the future is obligatorily marked in Chinese. Consequently, the only option is a past interpretation.

- (16) Zhangsan dapuo yi-ge huaping
 Zhangsan break one-Cl vase
 ‘Zhangsan broke a vase.’ (Lin to appear:3)

Lin's approach, while it may be appropriate for Chinese, cannot work for St'át'imcets. There are at least four reasons why an aspect-driven approach to St'át'imcets STSs is not adequate. The first relates to the status of 'default' interpretations. As indicated above, St'át'imcets also has Aktionsart-induced tense defaults. However, the St'át'imcets default interpretations differ from

those of Chinese. In particular, activity predicates, which are atelic in both languages and which in Chinese have a present-tense default reading, in St’át’imcets are freely able to be interpreted in the past, even in out-of-the-blue contexts. Differences of this type would at the very least require an adjustment to the basic ‘event realization’ approach to default viewpoint aspect.¹⁰

Secondly, we cannot assume for St’át’imcets that atelic predicates without overt imperfective marking are interpreted imperfectively. Matthewson (2004) and Bar-el (in prep.) argue for St’át’imcets and Squamish respectively that the imperfective is overtly marked, and that all non-imperfective-marked predicates are perfective. This is shown, for example, in the difference between (17) and (18), sentences which contain past-time punctual clauses. (17a,b) contain no imperfective marking and are unambiguously interpreted as inceptives; (18a,b) contain imperfective marking and receive an ‘in-progress’ reading. (This test is due to Bar-el 2005; see that work for parallel Squamish data.)

- (17) a. ít’em-lhkan i t’íq-as ulhchw kw s-John
 sing-1SG.SUBJ COMP.PAST arrive-3CONJ enter DET NOM-John
 ‘I started singing when John came in.’
- b. qlíl-lhkan i t’íq-as ulhchw kw s-Lisa
 angry-1SG.SUBJ COMP.PAST arrive-3CONJ enter DET NOM-Lisa
 ‘I got angry when Lisa came in.’

¹⁰ See also Déchaine and Manfredi (2000) for discussion of variation within the Niger-Congo family with respect to the temporal interpretations induced by Aktionsart.

- (18) a. **wá7**-lhkan ít'em i t'íq-as ulhew kw s-John
 IMPF-1SG.SUBJ sing COMP.PAST arrive-3CONJ enter DET NOM-John
 'I was (already) singing when John came in.'
- b. **wá7**-lhkan qlil i t'íq-as ulhew kw s-Lisa
 IMPF-1SG.SUBJ angry COMP.PAST arrive-3CONJ enter DET NOM-Lisa
 'I was (already) angry when Lisa came in.'

Evidence such as this suggests that bare activity and state predicates are not imperfective in St'át'imcets. This runs counter to Lin's claims about the default viewpoint aspect of atelic predicates.¹¹

The third reason why I do not adopt a Lin-style analysis has to do with the absence of future readings for STSs. As noted above, the future must be overtly marked in Chinese, just as in St'át'imcets. It appears that this must be simply stipulated within Lin's theory. As we saw above, an analysis containing a tense morpheme is able to account for the absence of future readings in STSs by means of a presupposition restricting the reference time to non-future values. As we will discuss further below, this may not even need to be stipulated on language-specific basis.¹²

¹¹ See Bar-el (in prep.) for explanation of how the inceptive readings are induced in (17). See also Matthewson (2004), Bar-el (in prep.) for arguments that *wa7* (*wa* in Squamish) is an imperfective marker rather than a progressive.

¹² Smith and Erbaugh (2005) derive the absence of future readings in Chinese by means of a simplicity principle on information processing. (See also Smith et al. 2003 on Navajo.) Briefly put, the past is simpler than the future and thus is the default for bounded eventualities. Note that if such

The final reason why Lin’s analysis cannot be adopted here relates to further empirical differences between Chinese and St’át’imcets. Lin provides evidence that overt aspectual morphemes determine tense interpretation in Chinese. For example, both *guo* and *le* require that the reference time precede the evaluation time – essentially enforcing past tense.¹³ However, St’át’imcets aspectual morphemes are all provably independent of tense. This is illustrated for the imperfective morpheme *wa7* in (19).

- (19) a. wá7-lhkan tu7 sáy’séz’
 IMPF-1SG.SUBJ tu7 play
 ‘I played.’
- b. wá7-lhkan sáy’séz’
 IMPF-1SG.SUBJ play
 ‘I was playing / I am playing.’
- c. wá7-lhkan kelh sáy’séz’ ...
 IMPF-1SG.SUBJ WOLL play
 ‘I will be playing ...’ (when you arrive)

a principle only derives default interpretations, it cannot account for St’át’imcets, since STSs are not by default non-future, but strictly non-future.

¹³ Smith and Erbaugh (2005) also argue that *guo* and *le* give both temporal and aspectual information, although the details of their analysis differ from that of Lin.

3.3.2. St'át'imcets is not like Kalaallisut

Bittner (to appear) proposes that Kalaallisut is a tenseless language. She argues on the basis of an examination of five texts (translated from English) that the most likely candidates for tenses in Kalaallisut, namely the 'future' elements *-ssa*, *-niar*, and *-jumaar*, are not in fact tense morphemes. In the texts, nearly 30 different morphemes are used to render the English future auxiliaries *will/would/is going to/was going to*. At least 24 of them are what Bittner calls 'prospective statives'. These are stative predicates which 'evoke future-oriented mental states' such as expectation, desire, or hope (Bittner to appear:13). Bittner provides several arguments (besides the implausibility of a language possessing so many different future tense morphemes) that these elements do not instantiate tense. For example, she shows that two of the relevant items may co-occur, with their meaning compositionally derived (giving readings such as 'be likely to intend to'; Bittner to appear:15).

Bittner's proposal that Kalaallisut lacks future tense morphemes appears convincing. It is therefore important to point out that the situation in St'át'imcets is very different. As indicated above, future meanings are almost always rendered with *kelh*. The only other ways of rendering future involve the aspectual auxiliary *cuz* 'be going to', and a small number of future-oriented motion verbs, illustrated in (20a). I therefore conclude that Bittner's prospective state analysis is not applicable to St'át'imcets.¹⁴

¹⁴ Bittner observes (to appear:36) that fieldwork and written materials may give different results with respect to the expression of future meanings. Further research is required to confirm the claims made here using St'át'imcets texts. However, it is suggestive that St'át'imcets appears to exemplify the reverse situation from Kalaallisut; the St'át'imcets lexicon is impoverished with respect to

- (20) a. nás-kan áta7 pankúph-a
 go-1SG.SUBJ DEIC Vancouver-DET
 ‘I am going to Vancouver.’ (future-oriented *nas* ‘go’)
- b. tsicw-kan áta7 pankúph-a
 go-1SG.SUBJ DEIC Vancouver-DET
 ‘I went to Vancouver.’ (past-oriented *tsicw* ‘go’)

3.3.3. St’át’imcets does not have *two* null tenses

The third potential alternative analysis accepts that St’át’imcets possesses null tense, but claims that it possesses *two* null tense morphemes, a PRESENT and a PAST. Under this approach, STSs would be ambiguous rather than partially underspecified. Here is one argument against such an approach; see Matthewson (2003) for further arguments. In the relevant sentences in (21-23), there is only one predicate, and hence by assumption only one tense morpheme.¹⁵ However, this tense morpheme is compatible with both a past-time sub-event and a present-time sub-event, simultaneously. (21) illustrates this with an activity, (22) with an accomplishment, and (23) with a state.

prospective mental state predicates, and expectations or hopes are often rendered purely with *kelh*.

- (i) tecwp-kán kelh ku kaoh
 buy-1SG.SUBJ WOLL DET car
 ‘I expect to buy a car.’

¹⁵ This test was suggested to me by Toshi Ogihara.

- (21) Context: Your white friends Theresa, Charlie and Marie got drunk at the bar. You are looking after them because you don't drink. Theresa threw up at 10pm; Marie hasn't thrown up at all. Just as Charlie is in the process of throwing up, another friend calls and asks (a); you can answer with (b):

- a. wat'k' ha i snek'wnuk'wa7-lhkálh-a
 vomit YNQ DET.PL friend(PL)-1PL.POSS-DET
 Literally: 'Our friends throw up?'
- b. wat'k' kw s-Theresa múta7 s-Charlie
 vomit DET NOM-Theresa and NOM-Charlie
 'Theresa and Charlie threw up / are throwing up.'

- (22) Context: Your friends Theresa, Charlie and Marie are taking a building class and they each wanted to build a doghouse. Theresa has already finished hers and Charlie is in the middle of his. Marie hasn't started hers yet and she probably won't do it at all. Now another friend calls. She doesn't know what they were planning to build or whether they've done it yet. She asks (a), and you can reply with (b).

- a. stam' ku máys-en-as i snek'wnuk'wa7-lhkálh-a
 what DET build-TR-3ERG DET.PL friend(PL)-1PL.POSS-DET
 'What did our friends build / are our friends building?'

- b. mays-en-ítas kw s-Theresa múta7 s-Charlie i
 build-TR-3PL.ERG DET NOM-Theresa and NOM-Charlie DET.PL
 sqax7-álhew-a, t'u7 cw7aoy t'u7 kw s-máys-en-as
 dog-house-DET but NEG but DET NOM-build-TR-3ERG
 ku stam' kw s-Marie
 DET what DET NOM-Marie
- ‘Theresa and Charlie built / are building doghouses, but Marie hasn’t built anything.’

(23) Context:

I zánucwmas, cw7aoz kws ts'úqwaz'ams sJohn, nilh s7ícwa7 ests'wán i sútikas. Ts7as ta
 spipántseka, ts'úqwaz'am aylh sJohn. Cw7it i sts'wánsa . Cw7aoz t'u7 kws ts'úqwaz'ams
 sFred, nilh s7ícwa7 ests'wán lhkúnsa.

‘Last year, John didn’t go fishing, so he had no dried salmon last winter. Then summer
 came, and he went fishing. He got a lot of dried salmon. Fred didn’t go fishing then, so Fred
 has no dried salmon now.’

- a. (wa7) zúqw-cen s-John múta7 s-Fred
 (IMPF) die-foot NOM -John and NOM-Fred
 ‘John and Fred were/are starving.’ (not at the same time)

If the St’át’imcets tense system were a null version of an English-like one, with contrasting
 PRESENT and PAST, then the single tense morpheme in each of (21b), (22b), and (23a) would have
 to be either a PRESENT or a PAST. It would be impossible to have a single tense morpheme covering
 both past and present reference times. (Witness the impossibility of translating these sentences into

English using a single tensed verb.) On the other hand, the underspecified tense analysis proposed here easily accounts for (21-23). The reference time provided by the context can be large enough to cover both a stretch of time in the past as well as the time of utterance.

To summarize the analysis proposed in this section, I have claimed that all STSs in St'át'imcets contain a phonologically null tense morpheme, TENSE. TENSE picks out a reference time interval which precedes or includes the utterance time. I will now turn to what happens when future reference times are required.

4. The future

In this section I claim that future time reference in St'át'imcets is achieved by the co-occurrence of the obligatory null TENSE morpheme with an overt spell-out of the temporal precedence predicate WOLL (*kelh*). Before presenting the proposal, I will argue against some initially plausible analyses according to which *kelh* is not temporal at all, but is rather a marker of irrealis mood or epistemic modality. In section 4.4 I provide evidence that the WOLL operator in St'át'imcets involves quantification over possible worlds.

4.1. *kelh* is not an irrealis marker

The two-way distinction in St'át'imcets between present/past and future is replicated in many languages of the world. Many researchers have claimed that languages encoding only a two-way division do not distinguish tenses, but moods: more specifically, realis vs. irrealis. For example, Comrie (1985:49) writes:

Turning to the possibility of a future versus non-future binary split, it is important to be able to distinguish this as a tense split from a split which is occasioned primarily by mood, but gives the impression of a tense split ... in Dyirbal, for instance, although it would at first appear that there is a split between future and non-future, investigation suggests rather that there is a distinction between realis and irrealis.

The link between future and irrealis is also addressed by Chung and Timberlake (1985). Having noted (p. 241) that the realis/irrealis distinction is basically one of actual vs. non-actual events, they observe (p. 243) that ‘Any future event is potential rather than actual ... In practice many languages do not distinguish morphologically between future tense and potential (irrealis) mood.’¹⁶

Within the Salish language family, there are several mood-based analyses in the current literature. Bar-el et al. (2004) argue that certain apparent tense effects in Squamish Salish are really mood effects, and Ritter and Wiltschko (2004) propose that the Halkomelem Salish ‘future’ morpheme really marks irrealis. Most pertinently, Kinkade (2001) considers (but does not commit himself to) the possibility that St’át’imcets *kelh* is an irrealis marker.

It is in fact easy to show that *kelh* is not an irrealis marker, as soon as we consider what predictions such an analysis would make. According to Chung and Timberlake (1985:241), systems which distinguish irrealis do not always classify exactly the same types of context as irrealis. Cross-

¹⁶ Cowper (2005:18) claims that a proposition is irrealis if it either follows from, or is compatible with, the set of propositions believed by the speaker at the moment of speech. This definition excludes many clause-types which are traditionally viewed as irrealis, but includes English *will* and other modals. It would also include St’át’imcets *kelh*. The argument here is not that *kelh* does not fall into the category of irrealis, but rather than it does not encode irrealis.

linguistically, however, the contexts which sometimes or always count as irrealis include the ones in (24):¹⁷

- (24) conditionals, counterfactuals, imperatives, futures, questions, negatives, obligations, desideratives, potentials, warnings, ...

In order to show that an apparent future morpheme is really an irrealis marker, therefore, we need to show that the morpheme appears in at least some non-future irrealis contexts. Examples of languages with morphemes which appear to satisfy this criterion include Mohawk (Baker and Travis 1997), Lakhota (Chung and Timberlake 1985:206), and Chamorro (Chung and Timberlake 1985:207). Mithun (1999) gives examples of irrealis morphemes in Kiowa, Mojave, Alsea, Central Pomo and Caddo.¹⁸

A Salish-internal example of a morpheme which could plausibly be analysed as an irrealis marker is Bella Coola *ka*. The contexts in which *ka* is allowed are illustrated in (25).

¹⁷ Mithun (1999:179) writes that ‘conditionals and counterfactuals ... are classified as irrealis in all systems. Imperatives, futures, questions, and negatives, however, are classified as realis in some languages.’

¹⁸ See also Bendix (1998), Bybee (1998), Callaghan (1998), Hofling (1998), Kinkade (1998), Martin (1998), and Vidal and Klein (1998), among others, for discussion of how the category irrealis is (or isn’t) instantiated as a category in various languages.

- (25) a. ʔaχ^w ti ka suɬ-c
 NEG DET *any* house-1SG.POSS
 ‘I have no house.’ (Nater 1983, cited by Kinkade 2001:194)
- b. ci ka xnas-c
 DET *FUT* wife-1SG.POSS
 ‘my future wife’ (Nater 1983, cited by Kinkade 2001:194)
- c. ka ɬap-t-c
 would go-PERF-1SG.SUBJ
 ‘I would go.’ (Nater 1983, cited by Kinkade 2001:194)
- d. ʔak^wa-t-χ ka ya-s
 buy-TR-SG.IMPER *if* good-3POSS
 ‘buy it if it is good’
 (Nater 1983:124, cited by Kinkade 2001:194, Kroeber 1999)
- e. ʔanayk-aw s-ka-lip-ayx-s
 want-3P.SU NZ-IRR-turn-NC.RESUL-3S.SU
 ‘They wanted to get her back.’ (Nater 1983, cited by Kroeber 1999:101)
- f. ʔik-aχ^w ʔaɬnap-i-c ka-tix-s ta Art
 EMPH-NOT know-3S.OB-1S.SU IRR-be.that-3S.SU ART Art
 ‘I do not know whether he is Art.’
 (Nater 1983:124, cited by Kroeber 1999:130)

As predicted for an irrealis morpheme, *ka* does not add a future meaning to what is already an irrealis context. For example, (25f) is legitimately translated into English using the present tense.¹⁹

Unlike Bella Coola *ka*, however, St’át’imcets *kelh* is not possible in any irrealis contexts except future ones. Some attempts to use *kelh* in a range of irrealis contexts are shown in (26-29). In each case, *kelh* obligatorily adds a future meaning to what would otherwise be a non-future irrealis context. (26) illustrates negation, (27) a yes-no question, and (28) a conditional. Although (28) allows an English translation containing past tense, the consultant’s comment reveals that the sentence is only acceptable when talking about a potential future time event of having a daughter.

- (26) 7aoz *kelh* kw-s í’t-em kw s-Henry
 NEG *kelh* DET-NOM sing-MID DET NOM-Henry
 ‘Henry may not sing.’ / * ‘Henry isn’t singing.’ / * Henry didn’t sing.

- (27) í’t-em há *kelh* s-Tammy
 sing-MID YNQ *kelh* NOM-Tammy
 ‘Is Tammy going to sing / Will Tammy sing?’ (only readings)

- (28) lh-smem’lhats-ás ka *kelh* ku n-skwékwza7,
 COMP-woman(DIMIN)-3CONJ IRR *kelh* DET 1SG.POSS-offspring(DIMIN)

¹⁹ St’át’imcets also possesses a morpheme *ka* which appears in various irrealis contexts, without adding future meaning (see Davis in prep., Chapter 24; Matthewson et al. to appear).

nah-en-lhkán	ka	ku	Philomena
name-DIR-1SG.SUBJ	IRR	DET	Philomena

‘If I had a daughter, I would call her Philomena.’ (volunteered gloss)

Consultant’s comment: “If I have a daughter ... thinking about having a child.” Can a woman who is 60 say it? “Girl of 16: yes; woman of 60: no.”

Imperatives also involve unrealized events; here, too, we see evidence that *kelh* is not an irrealis marker. (29a) shows that adding *kelh* to an inherently imperative verb form (*sima7cíts* ‘hand me (it)’ is impossible. (29b-c) show that when *kelh* is added to a bare verbal root (which in isolation conveys imperative meaning), the meaning changes from an imperative to a future-time assertion about a third person.

(29) a. sima7-cí(t)-ts (**kelh*) ta lasál-a
 come.here-IND-1SG.OBJ *kelh* DET salt-DET
 ‘Hand me the salt.’

b. mítsa7q
 sit
 ‘Sit down.’

c. mítsa7q *kelh*
 sit *kelh*
 ‘S/he will sit down.’ / * ‘Sit down.’

The data in (26-29) show that *kelh* has obligatory future import, and therefore I conclude that *kelh* is not an irrealis marker.

4.2. *kelh* is not an epistemic modal

A second potential non-temporal analysis of *kelh* would be that it is an epistemic modal meaning ‘might’. This analysis has initial plausibility because *might* often appears in spontaneous English translations of sentences containing *kelh*. Examples are given in (30).

- (30) a. ka-kwís-a *kelh* ti k’ét’h-a
 OOC -fall-OOC *kelh* DET rock-DET
 ‘That stone might drop.’
- b. ts7as *kelh* ku zús-cal
 come *kelh* DET catch-ACT
 ‘A policeman might come.’

However, the following data show that *kelh* does not express epistemic possibility in the present or past tense. In (31a), the epistemic ‘might’ reading is rendered with *k’a sxe* ‘perhaps’; the use of *k’a kelh* in (31b) changes the meaning to a future-time possibility.

- (31) Situation: Your friend asks you how many fish were in the net this morning, and you aren’t quite sure of the number, but you know approximately. You say ‘It might have been five.’

- a. tsétsl'ekst k'a sxek
 five(animal) APPAR perhaps
 'It might have been five.' (volunteered form)

- b. tsétsl'ekst k'a kelh
 five(animal) APPAR kelh
 'It might be five.' (future reading only)

Consultant's comment: "You might get five ... because you've been getting five, you might get five again."

A similar example is given in (32); the epistemic reading is rendered with the evidential – *an'*, and the use of *kelh* converts the meaning to a future.

- (32) Situation: You are driving past your friend's house and you notice her son's car in the driveway and you say 'Jimmy might be back.'

- a. t'íq-as-*an'* p'an't kw s-Jimmy
 arrive-3CONJ-EVID return DET NOM-Jimmy
 'It looks like Jimmy is back.' (volunteered form)

- b. t'íq-as *kelh* p'an't kw s-Jimmy
 arrive-3CONJ *kelh* return DET NOM-Jimmy
 'Jimmy might come back.'

Consultant's comment: "You are hoping that he will come back."

Finally, in (33), only B1 containing *k'a sxek* 'perhaps' is an appropriate answer to the question; B2 gives an inappropriate future-tense response, as revealed again by the consultant's comment.

(33) A: atsx'-en-lhkácw ha kw-s Bill?
 see-DIR-2SG.SUBJ YNQ DET NOM-Bill
 'Did you see Bill?'

B1: áts'x-en-lhkan n-scwákwekw, t'u7 nilh *k'a sxek*
 see-DIR-1SG.SUBJ 1SG.POSS-heart just FOC *APPAR perhaps*
 na qéqtsek-a ni ats'x-en-án-a
 DET older.brother-DET DET see-DIR-1SG.ERG-DET
 'I think I saw him, but it might be his brother that I saw.' (volunteered form)

B2: # ats'x-en-lhkán *kelh* n-scwákwekw
 see-DIR-1SG.SUBJ *kelh* 1SG.POSS-heart
 'I might see him.'

Consultant's comment: "*Ats'xenlhkácw ha kws Bill?* is in the past. Your answer *Ats'xenlhkán kelh* is in the future. So it's two different things."

These data reveal once again that *kelh* necessarily carries future meaning; it does not, therefore, correspond to epistemic *might*. This raises the question of why sentences containing *kelh* are often translated using *might*. I will return to this issue in section 4.4, and argue that *kelh* is a future-oriented modal which parallels all other modals in St'át'imcets in allowing either universal or existential quantification over possible worlds.

Having ruled out these potential non-future analyses of *kelh*, I turn in the next section to a formal analysis of its meaning.

4.3. *kelh* = WOLL

In this section I will argue for an analysis of *kelh* as the overt spell-out of the morpheme WOLL, originally proposed by Abusch (1985) for English. Abusch proposes that the English surface forms *will* and *would* each contain WOLL plus tense (present and past respectively). I will begin in section 4.3.1 with some more complex data concerning *kelh* than we have seen so far, including data concerning *would*-readings, the interpretation of embedded clauses, and the absence of non-future necessity modal readings. In 4.3.2 I present the analysis.

4.3.1. Data

The first new set of data involving *kelh* involves the existence of *would*-readings. The difference between English (temporal) *will* and *would* is illustrated in (34-35). While *will* necessarily places the reference time after the utterance time of the sentence, *would* places the reference time after some earlier time, but not necessarily after the utterance time. Thus, the time at which Susan's claimed husband-leaving takes place is after the utterance time in (35a), but before it in (35b).

- (34) a. A child was born who will become ruler of the world.
 b. A child was born who would become ruler of the world. (Kamp 1971)

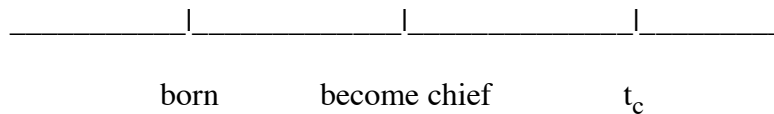
- (35) a. Susan said two weeks ago that she will leave her husband in one week.
 b. Susan said two weeks ago that she would leave her husband in one week.

St'át'imcets *kelh* allows *would*-readings, as illustrated in (36-37). Time-lines are provided below the examples. (t_c represents the utterance time of the sentence.)

- (36) Situation: Mike Leech is currently chief of T'ít'q'et. His (deceased) mother was called Julianne.²⁰

zwát-en-as	s-Julianne	[k-wa-s	kúkwpi7	<i>kelh</i>
know-DIR-3ERG	NOM-Julianne	[DET-IMPF-3SG.POSS	chief	<i>kelh</i>
ta	skúza7-s-a]	i	kwís-as	
DET	child-3SG.POSS-DET]	COMP.PAST	fall-3CONJ	

'Julianne knew when he was born that her child would become chief.'



²⁰ As predicted, this example also has a reading where Mike Leech has not yet become chief at the time of utterance.

- (37) tsut tu7 kw s-Susan i ánwas-as xetspásq'et lhel
 say tu7 DET NOM-Susan COMP.PAST two-3CONJ week from
 lhkúnsa [kw-s lhwál-en-as *kelh* ta
 now [DET-NOM leave-DIR-3ERG *kelh* DET
 kwtámsts-s-a l-ku pála7 xetspásq'et]
 husband-3SG.POSS-DET in-DET one week]

‘Susan said two weeks ago that she’ll leave her husband in one week from now / would leave him one week from then.’

OK: _____|_____|_____|_____
 say t_c leave

OK: _____|_____|_____|_____
 say leave t_c

We thus see that when *kelh* appears in a clause embedded under a past reference time, it allows readings either like English *will* or like English *would*.

Now let us see what happens when *kelh* appears in the matrix clause. Here again, we find remarkable similarity to the English system. It is well-known for English that when a past tense is embedded under another past tense, a simultaneous reading is possible with a stative embedded predicate. The same is true in St’át’imcets, as shown in (38).

- (38) *tsut tu7 s-Pauline [kw-s guy't-ál'men-s tu7]*
 say *tu7* NOM-Pauline [DET-NOM sleep-want-3SG.POSS *tu7*]
 'Pauline said that she was tired.'

OK: _____|_____|_____
 say t_c
 tired

It is also well-known that in English, a future embedded under another future does not allow a simultaneous reading, but rather allows only a forward-shifted reading (e.g., Enç 1996, Abusch 1998, among others). The same is true of St'át'imcets *kelh*, as shown in (39). Just as in English, the time of Pauline's predicted tiredness must be later than the time at which Pauline will speak.

- (39) *tsut kelh s-Pauline [kw-s guy't-ál'men-s kelh]*
 say *kelh* NOM-Pauline [DET-NOM sleep-want-3SG.POSS *kelh*]
 'Pauline will say that she will be tired.'

not OK: _____|_____|_____
 t_c say
 tired

OK: _____|_____|_____|_____
 t_c say tired

Further evidence that *kelh* obligatorily shifts forward the evaluation time of an embedded clause is given in (40). Here, the embedded clause has no marking for future. If this were a matrix clause, it could not be interpreted at a time later than the utterance time (since superficially tenseless sentences never get future interpretations, as shown above). Here, however, the reference time for the embedded clause is located after the utterance time of the sentence. This can only be because the matrix *kelh* has shifted the evaluation time for the embedded clause into the future.

- (40) tsut *kelh* s-Pauline [kw-s guy't-ál'men-s]
 say *kelh* NOM-Pauline [DET-NOM sleep-want-3SG.POSS]
 'Pauline will say that she is tired.'

only reading: _____|_____|_____

t_c say

 tired

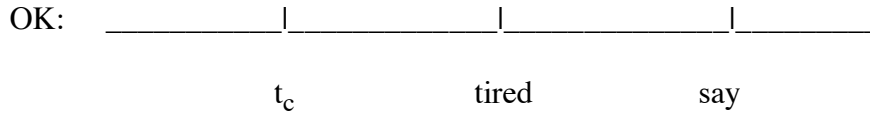
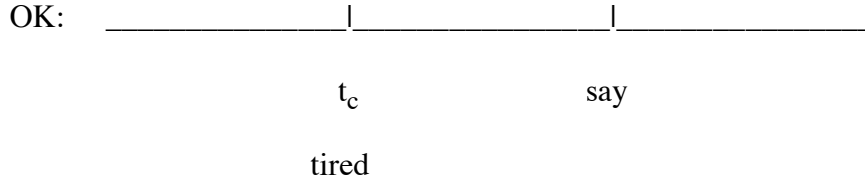
A final example of shifted readings is given in (41). Here, the subordinate clause contains a past time complementizer *i*. The reference time of such a clause would normally be obligatorily prior to the utterance time. Yet in (41), Pauline's claimed tiredness can be interpreted as holding at or after the speech time. This can only be because the matrix *kelh* has shifted the evaluation time of the embedded clause into the future.

- (41) tsut *kelh* lh-t'áq'em'kst-as [kw-s qá7ez' i kalhás-as]
 say *kelh* COMP-six-3CONJ [DET-NOM tired COMP.PAST three-3CONJ]

kw s-Pauline

DET NOM-Pauline

‘Pauline will say at six that she was tired at three.’ (okay if uttered at two or at three)



To summarize, *kelh* seems to act in all aspects of its interpretation like English (temporal) *will/would*. It gives future readings in simple sentences, yet allows *would* readings just as English does. It disallows simultaneous future readings, and shifts forward the evaluation time of a clause embedded under it.

4.3.2. Analysis of *kelh*

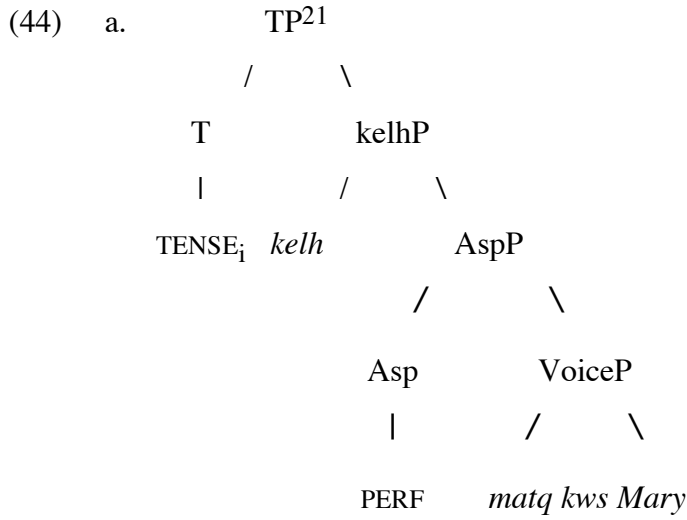
A common analysis of English *will/would* is that these surface forms consist of a root plus a tense morpheme, either PRESENT or PAST. (See Chomsky 1957, Ladusaw 1977, Abusch 1985, 1988, Ogihara 1996, among many others). One version of this root is given in (42).

$$(42) \quad [[\text{WOLL}]] = \lambda P \in D_{\langle i, st \rangle} . \lambda t . \lambda w . \exists t' [t < t' \ \& \ P(t')(w) = 1]$$

I analyze *kelh* as the overt spell-out of WOLL. For ease of presentation, I utilize the simple temporal ordering predicate in (42). (In section 4.4. below the analysis of *kelh* will be revised to involve modality, but that will not affect the main point here.) *kelh* combines with the tense

morpheme, which picks out a past or present reference time. This will enable sentences containing *kelh* to receive either will- or would- readings. The denotation of (43) is calculated in (44).

- (43) *matq kelh [kw s-Mary]*
 walk *kelh [det nom-Mary]*
 ‘Mary will walk.’



- b. $[[\text{AspP}]]^{\text{g},c} = \lambda t \lambda w \exists e [\text{walk}(e)(w) \ \& \ \text{agent}(\text{Mary})(e)(w) \ \& \ \tau(e) \subseteq t]$
- c. $[[\textit{kelhP}]]^{\text{g},c} = \lambda t \lambda w \exists t' [t < t' \ \& \ \exists e [\text{walk}(e)(w) \ \& \ \text{agent}(\text{Mary})(e)(w) \ \& \ \tau(e) \subseteq t']]]$
- d. $[[\text{TP}]]^{\text{g},c} = \lambda w \exists t' [g(i) < t' \ \& \ \exists e [\text{walk}(e)(w) \ \& \ \text{agent}(\text{Mary})(e)(w) \ \& \ \tau(e) \subseteq t']]]$
 (where $g(i) < t_c$ or $g(i) \circ t_c$)

²¹ I assume that the surface word order is obtained by encliticizing *kelh* to the first prosodic word at PF.

- e. There is an event *e* of Mary walking, whose running time τ is included in a time t' which follows the contextually salient past or present time $g(i)$.

One obvious question raised by this analysis is why (43) does not have a *would*-reading; such a reading (whereby Mary's walking can have taken place before the utterance time) is predicted, as long as the contextually salient reference time is prior to the utterance time. However, (43) and other similar sentences lack such a reading.

I do not at present have an answer to this problem. Note, however, that (temporal) *would*-readings are also very restricted in their distribution in English, as shown in (45). This distribution seems to parallel the distribution of *would*-readings in St'át'imcets. Therefore, whatever accounts for (45) will also account for the St'át'imcets facts.²²

- (45) a. Mary would leave. (no temporal *would*-reading, in isolation)
 b. Mary will say that she would leave. (no temporal *would*-reading)
 c. Mary thinks that she would leave. (no temporal *would*-reading)
 d. Mary said that she would leave. (temporal *would*-reading ok)

²² Past future readings for *kelh* are not easy to elicit in matrix clauses (cf. English examples like 'A child was born. He would become president.') However, the spontaneous textual example in (i) contains a clear past future reading for *kelh*, without a higher past-tense clause.

- (i) k'wazan-tsut-wít *kelh* kw-s pvmp-s kw-a-s q'ílhil-wit
 train-REFL-3PL *WOLL* DET-NOM fast-3POSS DET-IMPf-3POSS run-3PL
 'They would train hard so that they could run fast.'

(Wolf and Coyote; told by Charlie Mack, transcribed by Rose Whitley)

For the denotations of sentences containing *kelh* in embedded clauses, we can adopt Abusch’s (1997, 1998) analysis of English, since *kelh* corresponds to WOLL, and since the same obligatory shifting effects obtain in both languages. Abusch utilizes a ‘now parameter’ introduced by the present tense, which in the matrix clause is interpreted as the utterance time. Inside the complement of an attitude verb, a present-tense ‘now’ is bound by a lambda and interpreted as the internal ‘now’ of the attitude verb. This means that in (46), for example, the embedded present tense is bound by the time at which Pauline speaks – which is a point after the utterance time of (46). The embedded *kelh* then results in a doubly-forward-shifted reference time for Pauline’s tiredness. See Abusch (1997) for further details.

- (46) tsut *kelh* s-Pauline [kw-s guy’t-ál’men-s *kelh*]
 say WOLL NOM-Pauline [DET-NOM sleep-want-3SG.POSS WOLL]
 ‘Pauline will say that she will be tired.’

When *kelh* is embedded only under the underspecified TENSE morpheme, as in (37), repeated here, both *will*- and *would*-readings are available. This is because TENSE under TENSE allows freedom of reference time choice; the only obligatory shifting occurs with matrix *kelh*.

- (37) tsut tu7 kw s-Susan i ánwas-as xetspásq’et lhel
 say tu7 DET NOM-Susan COMP.PAST two-3CONJ week from
 lhkúnsa [kw-s lhwál-en-as *kelh* ta
 now [DET-NOM leave-DIR-3ERG *kelh* DET

kwtám̐ts-s-a	l-ku	pála ⁷	xetspásq'et]
husband-3SG.POSS-DET	in-DET	one	week]

‘Susan said two weeks ago that she’ll leave her husband in one week from now / would leave him one week from then.’

Summarizing so far, I have shown that *kelh* is not an irrealis mood marker or an epistemic modal, and have claimed that *kelh* corresponds directly to English WOLL. As such, *kelh* combines with the phonologically null TENSE morpheme. The analysis is therefore still that St’át’imcets possesses a single tense morpheme. In section 5 I will address an apparent overt past tense morpheme and show that it does not require us to revise our analysis of the St’át’imcets tense system. Before doing that, I will discuss the modality of *kelh*.

4.4. *kelh* is a (possibility and necessity) modal

In English, *will* has non-future modal readings. This is illustrated in (47).

- (47) a. Sarah will sometimes play loud music to annoy her mother. (Enç 1996:348)
- b. Oh, the light is on. That means Fred’ll be home.

Such data could lead either to an ambiguity analysis, whereby *will* has separate temporal and modal readings, or to a unified analysis whereby the potentially purely temporal uses of *will* also involve quantification over possible worlds. On this issue, see for example Jespersen (1924), Smith (1978), Ultan (1978), Yavas (1982), Comrie 1985, Davidsen-Nielsen (1987), Comrie (1989), Hornstein

1990, Vet (1993), Enç (1996), Stassen (1997), Sarkar (1998), Copley (2002), Condoravdi (2003), among many others.

Interestingly, St’át’imcets *kelh* never allows non-future modal readings. (48b) is the same as (48a), but with *kelh* added. The consultant rejects the non-future modal reading:

- (48) a. wa7 álk’wilh lh-núkw-as s-Sarah lh-as
 IMPF babysit COMP-other-3CONJ NOM-Sarah COMP-3CONJ
 tsicw ts’úqwaz’-am i núkw-a
 get.there fish-MID DET.PL other-DET

‘Sarah will sometimes babysit when everyone else goes fishing.’

(St’át’imcets volunteered as translation of English)

- b. # wa7 *kelh* álk’wilh lh-núkw-as s-Sarah lh-as
 IMPF *WOLL* babysit COMP-other-3CONJ NOM-Sarah COMP-3CONJ
 tsicw ts’úqwaz’-am i núkw-a
 get.there fish-MID DET.PL other-DET

Consultant’s comment: “That *kelh* is she WILL. But you said it was sometimes.”

Since we have seen that *kelh* always has temporal effects, and that it lacks non-future modal readings, one might think that we could utilize a non-modal temporal ordering relation in the analysis of *kelh*. However, on the contrary I propose that there is language-internal evidence that *kelh* is modal.

The argument runs as follows. Matthewson, Rullmann and Davis (to appear) argue that in St’át’imcets, modal elements differ from familiar English modals in two ways. English modals tend

to have a specified quantificational force (universal or existential), but leave the conversational background up to context (see Kratzer 1991). St'át'imcets modals have no inherently specified quantificational force, and thus allow both necessity and possibility interpretations, but conversely lexically specify the conversational background. Examples are given for the epistemic modal *k'a* in (49). While the conversational background of *k'a* is lexically specified – the sentences only have epistemic readings – the quantificational force is not. As suggested by the volunteered translations into English, and as confirmed by the elicitation and judging of sentences in a range of contexts, *k'a* allows both necessity and possibility interpretations:

- (49) a. t'ak **k'a** tu7 kents7á ku míxalh
 go.along **EPIS** tu7 DEICTIC DET bear
 'A bear must have gone by around here.'

(Matthewson et al. to appear:3; data from Davis in prep.)

- b. wa7 **k'a** séna7 qwenúxw
 IMPF **EPIS** COUNTER sick

'He may be sick.' (Context: Maybe that's why he's not here.)

(Matthewson et al. to appear:3)

This analysis of St'át'imcets modals, if applied to *kelh*, immediately answers two questions: why sentences containing *kelh* are sometimes translated with 'might' rather than 'will' (see e.g., (30)), and why *kelh*, unlike English *will*, lacks non-future modal readings (see (47-48)). Just like epistemic *k'a*, *kelh* allows both necessity and possibility readings (translated as 'will' and 'might' respectively); just like epistemic *k'a*, *kelh* precisely specifies the conversational background. This

provides a language-internal argument that the St'át'imcets future element is a modal (rather than a pure temporal ordering predicate).

As for the specifics of the modal analysis of *kelh*, further research is required here. For concreteness, Matthewson et al. propose the semantics in (50). The parameter *c* stands for the conversational backgrounds; the modal base (*B(c)*) is modeled as a presupposition. See Matthewson et al. (to appear) for further discussion.

(50) **Semantics of *kelh* (future)**

$[[kelh \phi]]^{w,t,c}$ is only defined if *B(c)* is circumstantial.

If defined, $[[kelh \phi]]^{w,t,c} = 1$ iff for all/some worlds $w' \in B(c)(w,t)$, there is a time $t' > t$ such that $[[\phi]]^{w',t',c} = 1$

To summarize, I have argued that St'át'imcets possesses only one tense morpheme, TENSE, which picks out a past or present reference time. This morpheme may co-occur with a morpheme instantiating the temporal ordering predicate WOLL. This gives rise to readings parallel to English *will* or *would*. In the next section, I will examine a potential challenge to the claim that St'át'imcets possesses only one tense morpheme.

5. An apparent, but not real, past tense morpheme

As shown in (4) above, partially repeated here, St'át'imcets possesses an enclitic *tu7*, which appears to obligatorily force a past-tense reading.

- (4) a. táyt-kan *tu7*
 hungry-1SG.SUBJ *tu7*
 ‘I was hungry / * I am hungry / * I will be hungry.’
- c. say’sez’-lhkán *tu7*
 play-1SG.SUBJ *tu7*
 ‘I played / * I am playing / * I will play.’

Matthewson (2003) analysed *tu7* as a past tense morpheme. However, Davis and Matthewson (2003) argue that *tu7* is not itself a tense morpheme. Instead, it is a distal demonstrative adverb, which co-occurs with the underspecified tense morpheme. Here, I will briefly outline the main empirical argument that *tu7* is not a tense morpheme, and then show how the analysis accounts for the data involving *tu7*.

The evidence that *tu7* cannot be a past tense morpheme involves the combination of *tu7* with *kelh*. If *tu7* were a past tense marker, we would expect the combination *kelh tu7* to unambiguously induce a past future *would*-reading. On the contrary, however, *kelh tu7* behaves very similarly to plain *kelh*, and crucially allows future time interpretations. Van Eijk (1997:210) observes that sentences containing *kelh tu7* ‘generally express a more remote possibility than *kelh* by itself.’ Examples are given in (55).²³

²³ *kelh tu7* cannot be analysed as a lexicalized unit, as other clitics can intervene; see Davis and Matthewson (2003) for discussion.

- (55) a. *mays-en-lhkán kelh tu7 ta q'láx-an-a*
 fix-DIR-1SG.SUBJ *WOLL tu7* DET fence-DET
 'I will fix the fence.'
- b. *aolsem-lhkálh kelh tu7*
 sick-1PL.SUBJ *WOLL tu7*
 'We might get sick.' (van Eijk 1997:210)
- c. *qwatsáts kelh tu7 ti sqáycw-a*
 leave *WOLL tu7* DET man-DET
 'The man might leave.' (Davis in prep.)
- d. *guy't-kan kélh tu7*
 sleep-1SG.SUBJ *WOLL tu7*
 'I might go to sleep.' (Davis in prep.)
- e. *wáz'-am kélh tu7 knáku7 ku sqáxa7*
 bark-MID *WOLL tu7* around.there DET dog
 'A dog might bark over there.' (Davis in prep.)

Just as with plain *kelh*, the interpretations of (55a-e) are unambiguously future. That is, this is not an epistemic modal (cf. section 4.2); translations or situations involving past possibility are never accepted for *kelh tu7*.

How can we account for the fact that *tu7* clearly cannot be a past tense marker, yet induces

past tense readings in all cases except when it is combined with *kelh*? In a nutshell, the claim is that *tu7* is a distal demonstrative adverb which forces the reference time to be remote from the evaluation time (in a matrix context, from the utterance time). As an adverbial, *tu7* does not replace TENSE but always co-occurs with it. When *tu7* co-occurs only with TENSE, its effect is to force the reference time to be in the past rather than to overlap with the utterance time. When *tu7* co-occurs with TENSE plus *kelh*, *tu7* ensures that the future reference time introduced by *kelh* is remote from the evaluation time. *tu7* is thus somewhat similar to English *then*, which can also pick out either past or future reference times²⁴

The presence of the null TENSE morpheme is crucial in predicting the correct results for *tu7*, under its analysis as a remote temporal adverbial. It is the independent fact that TENSE denotes only a past or present reference time that accounts for the inability of *tu7* to give a future reading unless *kelh* is present. Note, in particular, that an alternative analysis which said that temporal reference is simply vague or context-dependent in ‘tenseless’ sentences would incorrectly predict that *tu7* by itself could allow a future reading.

6. Conclusions and consequences

I have argued that St’át’imcets possesses only one tense morpheme: TENSE. TENSE is obligatorily present in every finite clause, but is phonologically null. It picks out a reference time interval which precedes or includes the utterance time. I have further argued that the ‘future’ morpheme *kelh*, while temporal in nature and not expressing irrealis mood or epistemic modality, is not itself a tense

²⁴ I do not spell out a formal analysis of *tu7* here, as temporal adverbials are a major analytic issue in their own right.

morpheme. Rather, *kelh* is the equivalent of WOLL. It co-occurs with TENSE to give rise to *would*- or *will*-readings. I provided language-internal evidence that *kelh* is modal in nature. Finally, I have argued that an apparent overt past tense marker is actually a temporal adverbial which co-occurs with null TENSE (and optionally also with WOLL).

In these concluding remarks I will discuss some consequences which arise. The first has to do with how tense systems may vary, and whether the variations proposed are conceptually satisfying and learnable.

6.1. Phonological covertness and semantic underspecification

I have claimed that the St'át'imcets tense system differs from that of English in only two respects: the St'át'imcets TENSE morpheme is semantically underspecified compared with English PAST and PRESENT, and the St'át'imcets TENSE morpheme is phonologically null. I argue that neither of these differences poses a conceptual or a learnability problem. On the contrary, the analysis proposed here fits in with a restrictive view of parameterization and cross-linguistic variation. We can maintain the claim that St'át'imcets parallels English in the basic structures involved in temporal interpretation. Differences between the two tense systems reduce to the lexical entries of specific tense morphemes. This is in line with Fukui's (1988) Functional Parameterization Hypothesis, according to which only functional elements in the lexicon can vary parametrically (cf. also Borer 1984, Fukui and Speas 1986).

The next thing to note is that both phonological covertness and underspecification are allowed by the theory and amply attested in other domains. In a linguistic theory which accepts the existence of phonologically null elements, there is in principle nothing which could prevent tense morphology from being covert. With respect to semantic underspecification, it is actually already

known that a tense system does not have to distinguish present from past. Chung and Timberlake (1985:204) write, for example, that ‘The direct encoding of three tenses is not particularly common. It is more usual to find only a two-way distinction in tense, either future vs. non-future or past vs. non-past.’ Parallel cases are found for example in the realm of number: many languages make a three-way distinction between singular, dual and plural. English makes only a two-way distinction, and is thus comparatively underspecified for number. Conversely, some languages have a ‘general’ number category that is less specified than English singular or plural; see e.g., Rullmann and You (to appear).

Of course, here I am claiming not that St’át’imcets makes a two-way distinction in tense, but that it makes no distinctions at all. Again, however, this has parallels in other parts of the grammar. For example, there are languages which have only one determiner and thus have completely neutralized any semantic distinctions made by determiners in other languages (e.g. Tohono O’odham; Zepeda 1983).

Turning to learnability considerations, let us think about what a child acquiring St’át’imcets has to learn. She has to learn that superficially tenseless sentences cannot be interpreted as future, that sentences containing *kelh* have both future ‘will’ and ‘might’ readings as well as past-future ‘would’ readings, and that the combination *kelh tu7* is unambiguously future. In all of these cases, the system proposed here can only help the acquisition process. That is, only if the child comes equipped to expect a null tense morpheme will she be prepared to expect a presupposition on that morpheme which restricts reference times to past and present. In the absence of the null morphology proposed here, a supplementary story would have to be invented to explain how St’át’imcets-learning children avoid a negative-evidence problem and fail to incorrectly allow STSs to be interpreted in the future.

We must also be sure that a child can learn the difference between Chinese, Kalaallisut, and

St'át'imcets. Much future research obviously needs to be done on the extent and nature of variation among superficially tenseless languages. However, there is intuitively no major learnability problem here, since Chinese, Kalaallisut, and St'át'imcets are not, in fact, very alike in the primary linguistic data. On the contrary, the differing analyses of these languages correspond to surface-detectable empirical differences. Chinese differs from St'át'imcets in having overt aspectual markers which restrict the reference time to past; Kalaallisut differs from St'át'imcets in having nearly 30 different ways of marking future time reference.

6.2. Tenseless languages?

An obvious question which arises here concerns the possible existence of truly tenseless languages. I have argued in this paper that at least one superficially tenseless language is fruitfully analyzable as a tensed language. The strongest hypothesis, given this, would be that all languages have obligatory tense. Cross-linguistic differences in tense systems would then consist only in the lexical entries of the particular tense morphemes themselves; these may be more or less underspecified, in that fewer or more distinctions among tenses may be made in the system.

As noted above, however, there is at least one plausible candidate for a truly tenseless language: Kalaallisut (Bittner to appear; cf. also Shaer 2003). It is therefore not clear that the strongest hypothesis can be upheld. However, it is interesting that convincing evidence for tenselessness, along with concrete analyses of tenseless systems, is so rare. For example, Lin's (to appear) analysis of Chinese, while billed as a 'tenseless' approach, does not count as tenseless in the semantic sense assumed here.²⁵ That is, while Lin proposes that Chinese lacks a T node, the tense

²⁵ Recall that I am setting aside the issue of where in the tree the tense morphemes are located.

relation (ordering between the reference time and the evaluation time) is merely located elsewhere, mainly on aspectual morphemes. Lin states, for example (to appear:18), that ‘if semantic tenses are simply understood as ordering relations between time spans, Chinese can be said to have them but they are sometimes fused with the aspect’, and that ‘*le* and *guo* contain both the inclusion and ordering relation ... they can be said to be lexical semantic tense and semantic aspect at the same time’. The existence of ordinary temporal semantics in Chinese is illustrated in (56). In this sentence, the default perfective, which contains both aspectual and tense information, has applied, along with existential closure over the reference (topic) time. The tense information has been highlighted.

- (56) Zhangsan dapuo yi-ge huaping
 Zhangsan break one-Cl vase
 ‘Zhangsan broke a vase.’

$$\lambda t_0 \exists t_{Top} \exists t \exists x [t \subseteq t_{Top} \ \& \ t_{Top} < t_0 \ \& \ \text{break}'(t,z,x) \ \& \ \text{vase}'(x)] \quad (\text{Lin to appear:5})$$

Another case of a supposedly ‘tenseless’ analysis which merely moves the tense information to a non-standard place is that of Shaer (2003). Shaer argues that West Greenlandic lacks any element in the syntactic representation corresponding to the reference time. He proposes a theory of tense as in Muskens (1995), according to which the reference time is already introduced and restricted within the lexical entry of the predicate. However, Shaer proposes that we adopt

When dealing with covert morphology, empirical evidence is very difficult to come by about positioning.

Muskens' analysis of tense for both English and West Greenlandic. The idea that we do not need nodes in the tree which introduce reference time variables is therefore a claim about tense in general. If West Greenlandic shares the same basic system as English, this would also mean that West Greenlandic is not 'tenseless'.

Of course, as mentioned above, Bittner (to appear) has recently provided support for Shaer's position that West Greenlandic / Kalaallisut is tenseless. I will therefore stop short of asserting that all languages have tense.²⁶ However, the defense presented here of a tensed analysis of St'át'imcets at least proves that tenselessness cannot and should not be assumed on the basis of superficial diagnostics, such as the absence of obligatory overt tense morphology.

6.3. Predictions about tense systems

Recall that although St'át'imcets possesses only one tense morpheme, that tense morpheme does not cover the entire possible interpretive domain. TENSE picks out past or present reference times, but never future ones.²⁷ I claim that this restriction is not accidental, but rather reveals something about what tense systems in general are like. In particular, perhaps the future is universally different

²⁶ Wiltschko (2003) proposes that Halkomelem Salish lacks a T node. I have replied to Wiltschko's paper in another venue (Matthewson 2005). I argue there that Halkomelem, just like St'át'imcets, has a temporal semantics essentially similar to that of English and should be analysed using the same functional structures as English.

²⁷ This means that TENSE is not semantically vacuous, but contains lexical content. It thus does not violate Wiltschko's (2004) proposal that elements which project as functional heads may not be both semantically vacuous and phonologically null.

from present or past: the former must always combine with tense, rather than actually being tense. In other words, perhaps there is universally no future tense (see Iatridou 2000, among others).²⁸ Furthermore, while in English the difference between future and past/present could conceivably be due to membership in a different syntactic class (e.g., ‘auxiliary’ vs. ‘tense’; see Abusch 1998, von Stechow 1995, among others), this is not the case in St’át’imcets. *kelh* is not an auxiliary and there is no evidence that it could not be analysable as a functional head. St’át’imcets therefore shows that the special status of the future might be a universal semantic fact, independent of syntax.

If it is correct that the future has a special status in the way outlined here, predictions arise about possible tense systems. In particular, recall that according to Chung and Timberlake (1985), there are systems which make only a two-way division between past and present/future. Such systems are not predicted to exist under the current proposal. I would have to reanalyse the relevant languages (which include Yidin; Chung and Timberlake 1985:205) as really involving a past/present split, with future readings obtained by means of some null morphology (perhaps a modal, similar to the English progressive). Note that a story along these lines has to be told anyway for languages such as German, which freely allow future time reference for formally present-tense clauses. Of course, detailed investigation is required of the putative ‘past vs. non-past’ systems, before we can determine whether the predictions made here are upheld.

²⁸ Many authors argue against the existence of a future tense for the reason that they regard all future morphemes as modal (involving quantification over possible worlds). That is not the sense in which I am now suggesting that the future tense does not exist. My claim is that future always co-occurs with a referential tense and involves a WOLL-like predicate (either a purely temporal one, or a modalized one).

Finally, recall that in the discussion above we saw several striking similarities in detail between the temporal systems of St'át'imcets and English. For example, past future *would*-readings are restricted to the same subset of contexts in the two languages, and St'át'imcets *kelh* shifts the evaluation time of a subordinate clause exactly as English *will* does. Future research may also reveal whether these common features of St'át'imcets and English constitute universal features of natural language tense systems.

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Appendix: Abbreviations used

ACT = active intransitivizer, ANTI = antithetical, CAU = causative, COMP = complementizer, CONJ = conjunctive subject, DEIC = deictic, DET = determiner, DIR = directive transitivizer, EPIS = epistemic, ERG = ergative, EVID = evidential, IMPF = imperfective, IND = indirective applicative, MID = middle, MOD = modal, NEG = negation, NOM = nominalizer, OBJ = object, OOC = out of control, PL = plural, POSS = possessive, REFL = reflexive, SG = singular, SUBJ = indicative subject, YNQ = yes-no question.