

Tense in St'át'imcets and in Universal Grammar¹

Lisa Matthewson
University of British Columbia

This paper presents an analysis of part of the tense system of St'át'imcets (Lillooet Salish). I argue that in spite of the lack of obligatory tense morphology, St'át'imcets possesses a functional head T in all finite clauses. In finite clauses which contain no overt tense morphology, the T head is phonologically null and is underspecified with respect to whether the reference time precedes or overlaps with the utterance time. I show that this analysis has greater empirical success than either an approach which denies the existence of a T head, or one which postulates null 'past' and null 'present' morphemes under T. I outline the predictions for a language without a T head, and I suggest that such a language does not exist. I therefore propose that the existence of a syntactic Tense head is a language universal.

1 Introduction

Most current analyses of Tense assume an obligatory functional head T in the syntax (see e.g. Ogihara 1996, Kratzer 1998, Déchaine and Manfredi 2001, among others). However, many languages (including most or all Salish languages) lack obligatory tense morphology. There are even languages which lack any tense morphology at all (e.g. Burmese and Dyirbal, according to Comrie 1985:50-52). This raises the question of whether T is universally present in the syntax. Another way to phrase this question is: can languages differ in whether they possess a functional head whose purpose is to encode tense information?

The goal of this paper is to address the issue of the universality of T, by examining tense in St'át'imcets (Lillooet Salish). After presenting the St'át'imcets data, I will argue on conceptual and empirical grounds that a T node must be present in this language. I will describe what a language which lacked T altogether would have to look like, and suggest that this type of language does

¹ Many thanks to St'át'imcets consultants Beverley Frank, Gertrude Ned, Laura Thevarge and Rose Agnes Whitley, and to Henry Davis and Toshi Ogihara for much helpful feedback and discussion. Thanks also to Ana Arregui and Martina Wiltschko for discussion, and for inspiring me to work on this topic. Finally, thanks to an audience at the University of Washington, Seattle. Fieldwork is supported by SSHRC grants #410-98-1597 and #410-2002-1715. Errors are solely mine.

not exist. Thus, I propose that a functional head dealing with tense is universally present, even when it is only optionally, or even never, overt.

In the second half of the paper I provide a concrete analysis of the tense morphology of St'át'imcets. I argue that St'át'imcets possesses two tense morphemes (setting aside the future, which is a topic for further research and requires consideration of the realis / irrealis distinction). The first tense morpheme is the enclitic *tu7*, which encodes past tense. In addition, there is a phonologically null, lexically underspecified T morpheme. I show that this analysis correctly accounts for the interpretive possibilities of sentences in a range of discourse contexts, and is empirically preferable to a 'contrasting null tenses' analysis (such as that adopted by Arregui and Matthewson 2001). I conclude by sketching an analysis of the effects of Aktionsart on temporal interpretation in St'át'imcets.

2 St'át'imcets tense data

St'át'imcets differs strikingly from English in the expression of temporal relations. Morphological marking of tense is entirely optional, as illustrated in (1). There is no overt tense morphology in these sentences, and the interpretation may be either past or present.^{2,3}

- (1) a. táyt-wit
hungry-3PL
'They were / are hungry.'
- b. sáy'sez'-lhkan
play-1SG.SUBJ
'I played / am playing.'

Temporal relations are affected by several factors, including the aspectual class of the predicate, temporal enclitics, adverbials, determiners and demonstratives (see Burton 1997, Demirdache 1998, Wiltschko 2001, to appear, Davis in prep. for discussion of these in St'át'imcets and Halkomelem).

The effect of the aspectual class of the predicate (its Aktionsart) on temporal interpretation is illustrated in (2). In the absence of other temporal

² St'át'imcets data are presented in Jan van Eijk's practical orthography of the language. See the Appendix for a pronunciation guide, and for a list of abbreviations.

³ The sentences in (1a,b) may not receive future interpretations. Intuitively, this relates to the 'realis' status of these sentences. Davis and Saunders (1974, 1975) and Matthewson (1998) observe that in Bella Coola and St'át'imcets respectively, declarative sentences with no special marking (such as an irrealis complementizer, an evidential or quotative clitic, or a modal) can only be used if the speaker has personally witnessed the event. Since future events cannot have been witnessed, future interpretations are excluded unless overtly marked.

Interestingly, data from Wiltschko (2001, to appear) indicates that Halkomelem differs from St'át'imcets in this respect and that a parallel sentence to (1b) could be interpreted as future. Further cross-Salish research is clearly necessary.

marking, states and activities can be interpreted as either past or present (2a-b), but achievements and accomplishments are interpreted as past (2c-d):

- (2) a. táyt-wit
hungry-3PL
'They were / are hungry.'
- [STATE: PAST OR PRESENT TIME]
- b. sáy'sez'-lhkan
play-1SG.SUBJ
'I played / am playing.'
- [ACTIVITY: PAST OR PRESENT TIME]
- c. qáyt-kan
reach.top-1SG.SUBJ
'I reached the top.'
- (Davis in prep.)
- [ACHIEVEMENT: PAST TIME]
- d. máys-en-lhkan ta q'láxan-a
fix-TR-1SG.SUBJ DET fence-DET
'I fixed the fence.'
- [ACCOMPLISHMENT: PAST TIME]

The temporal enclitic *tu7* is illustrated in (3). The presence of *tu7* forces a past time interpretation:

- (3) a. táyt-wit *tu7*
hungry-3PL PAST
'They were / *are hungry.'
- [ENCLITIC *TU7*: PAST TIME]
- b. say'sez'-lhkán *tu7*
play-1SG.SUBJ PAST
'I played / *am playing.'
- [ENCLITIC *TU7*: PAST TIME]

Examples of temporal adverbials are provided in (4).

- (4) a. pún-lhacw ha *láni7* nelh neklí-sw-a
find(TR)-2SG.SUBJ YNQ then DET.PL key-2SG.POSS-DET
'Did you find your keys then?'
(Davis in prep.)

- b. xelh *lhkánsa*
 cold now
 'It is cold now.'

Finally, the effect of determiners and demonstratives on temporal interpretation is illustrated in (5). I will return to this issue below; see also Matthewson (in prep. a) for further discussion.

- (5) a. qelhmémen' ta stá7-s-a ta n-snúk'w7-a
 old.person DET aunt-3SG.POSS-DET DET 1SG.POS-friend-DET
 'My friend's aunt is an old lady.'

[DETERMINER TA...A: PRESENT TIME]

- b. qelhmémen' na stá7-s-a ta n-snúk'w7-a
 old.person DET aunt-3SG.POSS-DET DET 1SG.POS-friend-DET
 'My friend's aunt was an old lady.' (Davis in prep.)

[DETERMINER NA...A: PAST TIME]

- (6) a. stexw t'u7 áma ti7 ku smúlhats
 very just good DEMON DET woman
 'That woman is really good.'

[DEMONSTRATIVE TI7: PRESENT TIME]

- b. stexw t'u7 áma ni7 ku smúlhats
 very just good DEMON DET woman
 'That woman was really good.'

[DEMONSTRATIVE NI7: PAST TIME]

In summary, we have seen that the temporal system of St'át'imcets differs, at least on the surface, quite markedly from that of English. The most striking difference is that tense morphology in the verbal domain is completely optional in St'át'imcets. This raises the question of whether St'át'imcets differs at a deep level from English in the mechanisms used for determining temporal relations.⁴

The rest of this paper is devoted to analyzing the St'át'imcets data presented here, and to discovering what St'át'imcets can teach us about tense in language more generally. In the next section I briefly introduce the theoretical framework I will be assuming.

⁴ (Wiltschko (2001, to appear) proposes that another Salish language, Halkomelem, lacks a T node altogether.

3 Framework

Following Reichenbach (1947) and much subsequent work (see Klein 1994), I assume that we need to distinguish the following three time intervals:

- (7) i. Utterance time - the time the sentence is uttered.
- ii. Reference time (a.k.a. topic time) - the time about which a claim is made.
- iii. Situation time (a.k.a. event time) - the time at which the relevant situation holds.

Tense encodes a relation between the utterance time and the reference time. For example, 'past' ensures that the reference time precedes the utterance time. The sentences in (8a,b) exemplify the difference between the reference time and the situation time.

- (8) a. I spoke to Richard last week. (Terry 2000)

reference time: the week preceding the week of the utterance time

situation time: some interval within last week (e.g., from 9.05pm - 9.10pm last Tuesday)

- b. A: What did you notice when you looked into the room?
B: The light was on. (Klein 1994)

reference time: the time at which B looked into the room (e.g., 9.05pm yesterday)

situation time: the time at which the light is on (e.g., from 8pm - 11pm yesterday)

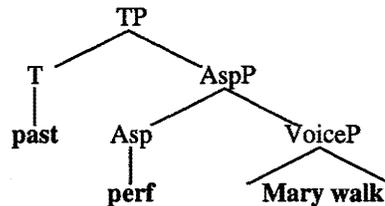
For concreteness, I adopt Kratzer's (1998) referential analysis of tense. (The structure of the argument to be made will hold no matter which formal framework is adopted; I return briefly to this issue in section 4.2 below.) According to Kratzer, the tense morpheme (in T) introduces a variable over time intervals corresponding to the reference time. The variable receives a value from the context.

The lexical entries of the tense morphemes place restrictions on the reference times. For example, the **past** morpheme must pick out a reference time preceding the utterance time. The lexical entry in (9) is adapted from that of Kratzer (1998).

- (9) [[**past**]] is only defined if the context provides an interval t that precedes t_0 (the utterance time). If defined, then [[**past**]] = t .

The analysis of the sentence *Mary walked* is given in (10) and (11a), with a paraphrase in (11b).

(10)



- (11) a. $[[\text{TP}]] = \lambda w \exists e [\text{walk}(e)(w) \ \& \ \text{agent}(\text{Mary})(e)(w) \ \& \ \tau(e) \subseteq t]$
(t a past time provided by the context).
- b. There is an event e of Mary walking, whose running time τ is included in the contextually salient past time t.⁵

4 Could St'át'imcets lack a T node?

We saw in section 2 that St'át'imcets lacks obligatory tense morphology. Three options for analysis spring to mind; these are listed in (12).

- (12) i. *The "no Tense" theory:*
St'át'imcets lacks a T head entirely (cf. Wiltschko 2001 for Halkomelem).
- ii. *The "null – null" theory:*
St'át'imcets is like English, except that it has null **present** and null **past** (Arregui and Matthewson 2001).
- iii. *The "underspecified Tense" theory:*
There is a phonologically null, lexically underspecified T head in cases where there are no overt tense morphemes.

I will argue in section 5 that the "underspecified Tense" analysis is correct. My purpose in this section is to show that St'át'imcets must possess some functional head encoding tense information in every finite clause. I will conclude the section by suggesting that the presence of a functional head encoding temporal information (T) is a language universal.

4.1 Predictions of a "no Tense" theory

The "no Tense" approach radically differentiates languages like St'át'imcets from languages like English. It says that St'át'imcets lacks any functional head which could contribute a reference time.

Now, it is obviously not the case that St'át'imcets lacks any elements at all which contribute temporal information to the clause. We saw in section 2

⁵ The sentence is in the perfective aspect, which is why the running time of the event must be included within the reference time. The details of the aspectual system are not relevant to our current purposes; see below for some discussion.

above that enclitics, adverbials, determiners and demonstratives all serve to restrict the evaluation time of an utterance.⁶ This means that we can immediately abandon an extreme version of the “no Tense” theory, according to which St’át’imcets differs so vastly from English that it pays absolutely no attention to evaluation times.⁷

Let us assume, then, that the evaluation of St’át’imcets utterances must take time into account. Under the “no T” approach, we would need to explain exactly how enclitics, adverbials, etc. contribute temporal information. But even assuming that this can be accomplished successfully, there is a bigger problem. Some sentences lack any such elements at all - and by hypothesis, there is also no null T head to contribute covert tense information. Some examples are given in (13).

- (13) a. xelh-wíl’c
cold-become
‘It got cold.’
- b. qus-en-ítas
shoot-TR-3PL.ERG
‘They shot it.’
- c. wa7 ít’-em
PROG sing-INTR
‘S/he sings / is singing / was singing.’

For (13a-c) and other similar sentences, a “no T” theory seems to entail that there is no element in the tree which could introduce a reference time or situation time. We cannot obtain these times from a source outside the syntactic tree, since that would result in a radically non-compositional semantics. As far as I can see, the only option available within a “no T” approach is to adopt a purely existential view of tense (with existential closure over time intervals).⁸

The purely existential analysis which we would require is illustrated in (14) and (15).

- (14) matq kw-s Mary
walk DET-NOM Mary
‘Mary walks / walked.’

⁶ I argue in Matthewson (in prep.) that determiners and demonstratives do not, contrary to appearances, directly contribute any temporal information. The point made in the text holds straightforwardly for adverbials and for temporal enclitics.

⁷ This is a logically possible human language: one in which time plays no role at all in evaluating the truth of utterances. Such a language would presumably have no overt elements dealing with time whatsoever, and is intuitively rather implausible. Thanks to Toshi Ogihara and Fritz Newmeyer for drawing my attention to this possibility.

⁸ Even invoking existential closure leads to a weakly non-compositional theory, since there is no syntactic element corresponding to the existential quantifier. If this is not allowed, then the “no T” theory is in even bigger trouble, since there would be no way to get temporal information into the interpretation at all in sentences like (13a-c).

- (15) a. $[[TP]] = \lambda w \exists t \exists e [\text{walk}(e)(w) \ \& \ \text{agent}(\text{Mary})(e)(w) \ \& \ \tau(e) \subseteq t]$
 b. There is an event *e* of Mary walking, and there is a time *t*, and the running time of *e* is included in *t*.

This analysis correctly predicts that (14) is true as long as at some time, Mary walks; it is not relevant whether she did this in the past, or is doing it now.

It is important to clarify what I mean by a 'purely existential' theory of tense. According to the "no Tense" theory, there are no tense morphemes, and no T node. This means that in sentences which contain no adverbials, enclitics, etc., existential closure over time intervals is our only option. Hence, we will predict that in 'bare' sentences such as (14), the event may take place in the past or in the present. However, sentences which contain overt temporal elements such as adverbials will not be purely existential. Thus, in sentences containing some overt temporal marking, the interpretation will be further restricted (e.g., to having to be in the past).

In any case, adopting an existential analysis of tense leads us into a serious problem, illustrated by Partee's (1973) example in (16).

- (16) I didn't turn off the stove.

Partee's point about (16) is as follows. Under an existential theory of tense, there are only two readings the sentence in (16) could have. It could either mean that there exists some time at which I did not turn off the stove, or that there does not exist a time at which I turned off the stove. These readings are represented in (17a) and (17b) respectively.

- (17) a. $\lambda w \exists t \neg \exists e [\text{turn.off.stove}(e)(w) \ \& \ \text{agent}(\text{I})(e)(w) \ \& \ \tau(e) \subseteq t]$
 b. $\lambda w \neg \exists t \exists e [\text{turn.off.stove}(e)(w) \ \& \ \text{agent}(\text{I})(e)(w) \ \& \ \tau(e) \subseteq t]$

The reading in (17a) is a trivially weak assertion, which is true as long as I have spent any amount of time in my life doing anything which was not turning off the stove. The reading in (17b) means 'I have never turned off the stove'.

Neither of these two formulas can capture a reading that the sentence in (16) clearly has, namely that during some particular time interval (e.g., just before we left the house), I failed to turn off the stove. Thus, a purely existential account is inadequate to explain the interpretation of (16).

The St'át'imcets version of this sentence is given in (18).

- (18) ay t'u7 kw-s lháp-an'-an ta np'ámsten-a
 NEG just DET-NOM put.out-TR-1SG.ERG DET stove-DET
 'I didn't turn off the stove.'

This sentence poses the same problem for an existential analysis as does its English counterpart. (18) asserts that at some particular time, I did not turn off the stove. It cannot mean that there exists a time at which I did not turn off the stove (the trivially weak reading). It also cannot have the 'never' reading in

(17b).⁹ This clearly shows that a purely existential analysis is incorrect for St'át'imcets.

The reader may object that (18) contains a determiner, and therefore perhaps an analysis could be worked out according to which it is the determiner which gives the 'particular time' reading of (18). However, the same facts hold when there are no overt DPs, as shown in (19). The second sentence in (19) means that at some particular time (e.g., after I was cooking the dinner we just ate), I did not turn off the stove. It does not mean that there is some time in my life when I was not engaged in turning the stove off; nor does it mean that I have never turned the stove off.

(19) kánem s-e-s es-gwél ta np'ámtsen-a?
 why NOM-PROG-3SG.POSS STA-burn DET stove-DET
 'Why is this stove on?'

o, cw7aoz kw-s lháp-an'-an
 oh NEG DET-NOM put.out-TR-1SG.ERG
 'Oh! I didn't turn it off.'

The discussion in this subsection leads to two results. First, there is strong evidence that a purely existential view of tense, and therefore a "no T" analysis, is inappropriate for St'át'imcets. Second, we can make a prediction for any language which is analyzed as lacking a T node altogether. A "T-less language" would need to have a purely existential temporal system. In such a language, therefore, the equivalent of (16) and (18) could not mean that at some particular time, I did not turn off the stove. It would have to mean that there exists some time at which I did not turn off the stove, or that it is not the case that there is a time at which I turned off the stove.

4.2 Other frameworks

Although the argumentation here is couched within Kratzer's (1998) framework, any formal analysis of tense (see e.g. Ogihara 1996, 1999, Stowell 1993, Zagona 1990, Demirdache and Uribe-Etxebarria 2000, among many others) will share the relevant property that there is at least one position in the tree (a functional head) which introduces temporal information. We have seen that in Kratzer's framework, the tense morpheme introduces the reference time. In other analyses, the T head might have a lexical entry which introduces the reference time as well as performing some other operations (see e.g. Ogihara 1996:60). In Stowell's approach (see also Zagona 1990), tenses are predicates which do not themselves refer, but which take time-denoting phrases as their arguments. The point is that the presence of a Tense head enables information

⁹ On one occasion, a consultant accepted the 'never' reading (note that there is no separate word for 'never' in St'át'imcets). If the 'never' reading should turn out to exist for (18), this would be irrelevant to the main point, which is that we need something more than a pure existential account, in order to capture the 'particular time' reading.

about tense to be compositionally integrated, without forcing us to adopt a purely existential theory.¹⁰

4.3 A possible comeback

The case against the “no T” analysis is not yet complete. A proponent of a “no T” analysis could assert that although there is no Tense head in sentences which lack any overt specification of time, there is some other null element which is doing the job. (In the framework I have adopted, this null element would be providing the reference time.)

What could this null element be? It would have to be something which is present in all finite sentences. I can see three possibilities.

The first is that this phonologically null element is a functional head. If it is located in the verbal domain, as seems most likely, why not call such a head T? This seems to reduce to the analysis I am proposing here.

The second possibility is that the subject DP (which may of course be null) can do the required job. In Matthewson (in prep. a), I argue that DPs cannot provide tense information for the verbal predicate in St’át’incets, and probably not in the rest of the Salish family, either. By extension, we can assume that a null pronominal cannot be the locus of tense information. I will briefly present some of the argumentation here for the irrelevance of D to the temporal specification of the predicate.

The most striking piece of evidence that determiners do not provide tense information is that the temporal effects of determiners are always cancelable. Recall that there is a preference for *ta...a* to be used in present time contexts, and *na...a* to be used in past time contexts. This is illustrated in (20) (see also (5) above).

- (20) a. *zácal’qwem’ ta kukwpi7-lhkálh-a*
 tall *DET* chief-1PL.POSS-*DET*
 ‘Our chief is tall.’

[DETERMINER *TA...A*: PRESENT TIME PREFERRED]

- b. *zácal’qwem’ na kukwpi7-lhkálh-a*
 tall *DET* chief-1PL.POSS-*DET*
 ‘Our chief was tall.’

[DETERMINER *NA...A*: PAST TIME PREFERRED]

However, this is only a preference. Present time interpretations are fine with *na...a*, as shown in (21), and past time interpretations are fine with *ta...a*, as shown in (22):

¹⁰ In some approaches, there may be functional head(s) which are not called T (see e.g. Stowell’s 1993 ZP). This, as should be obvious, is not at all important to the argument.

- (21) a. wa7 láku7 ottawáh-a na kukwpi7-lhkálh-a
 PROG DEIC Ottawa-DET DET chief-1PL.POSS-DET
 ‘Our chief is in Ottawa.’

[DETERMINER NA...A: PRESENT TIME POSSIBLE]

- b. wa7 s-7áw't-s-a ta sqwém-a
 PROG NOM-behind-3SG.POS-DET DET mountain-DET
 na wa7 pfx-em'
 DET PROG hunt-INTR
 ‘The one that’s hunting is behind the mountain.’

[DETERMINER NA...A: PRESENT TIME POSSIBLE]

- (22) tsew'-n-ás ta máw-a ta smúlhats-a
 kick-TR-3ERG DET cat-DET DET woman-DET
 ‘The woman kicked the cat.’

[DETERMINER TA...A: PAST TIME POSSIBLE]

In Matthewson (in prep. a), I argue that the ‘tense’ effects of determiners in St’át’imcets are implicatures arising out of information about spatial proximity (see also Davis and Saunders 1974, 1975 for a similar proposal about Bella Coola). For current purposes, the conclusion to be drawn from (21) and (22) is that the determiners cannot be providing tense information in the semantics. This will still need to be done by a null element in clauses which do not contain any overt temporal enclitics or adverbials.¹¹

So far we have considered two possible options for a “no T” comeback to the ‘stove’ problem. The third option says that in the absence of any overt marking, finite sentences contain a null temporal adverbial. This is an analysis which is suggested (but rejected) by Dowty (1979) for English. Under Dowty’s approach, sentences containing overt temporal adverbials have their tense

¹¹ Interestingly, even when real temporal morphemes (temporal clitics) appear inside DPs in Salish, these do not appear to be able to influence the tense of the main predicate (pace what is suggested by e.g., Wiltschko 2001). (i) and (ii) show, for St’át’imcets and Halkomelem respectively, that the tense of the main predicate is independent of any tense information inside the subject DP.

- (i) q'u.q'wts ti wá7-a ní7-a hippy
 fat DET PROG-DET PAST-DET hippy
 ‘The ex-hippy is fat.’
 [PAST TENSE IN SUBJECT; CLAUSAL PRESENT TENSE]

- (ii) slelíkw ta' xeltel-elh
 broken your pencil-PAST
 ‘Your (destroyed) pencil is broken.’ (Burton 1997)
 [PAST TENSE IN SUBJECT; CLAUSAL PRESENT TENSE]

information supplied by those adverbials. (The adverbial also triggers a syntactic rule which produces tense morphology on the verb.) In sentences containing no overt adverbials, Dowty considers the possibility that there is a null adverbial meaning 'at some time' (p. 330). To avoid the existential problem discussed above, we could instead postulate a phonologically null adverbial meaning 'at that time' (with a time provided by the discourse context).

This theory, then, is a version of the "no T" proposal according to which tense information is provided by adverbs rather than by a functional head. This would mean reanalyzing the past tense enclitic *tu7* as an adverb. Such a proposal would be syntactically suspicious, since all other temporal adverbs in St'át'imcets are either full subordinate clauses (illustrated in (23)), or free-standing lexical items which have their own primary stress (as in (24)). These two kinds of temporal adverb have a number of different placement possibilities within the sentence, as shown in (24-25).

- (23) a. ts'áqw-an'-as i sq'wél-a ta sk'úk'wm'it-a
eat-TR-3ERG DET.PL berry-DET DET child-DET
i-nátcw-as
when-day-3CONJ
'The child ate the berries yesterday.'
(literally: 'The child ate the berries when it was day.')
- b. nás-kan áts'x-en n-skúz7-a lh-nátcw-as
go-1SG.SUBJ see-TR 1SG.POSS-child-DET *lh-nátcw-as*
HYP-day-3CONJ
'I'm going to see my child tomorrow.'
(literally: 'I'm going to see my child when it will be day.')
- (24) a. wa7 tu7 úcwalmicw i sq'áwam-a pináni7
PROG PAST person DET.PL wolf-DET *those.days*
'Wolves were human in those days.' (Davis in prep.)
- b. pún-lhkacw ha láni7 nelh neklí-sw-a?
find(TR)-2SG.SUBJ YNQ *then* DET.PL key-2SG.POSS-DET
'Did you find your keys then?' (Davis in prep.)
- c. Láni7 lh-7um'n-áy'lh-as ta kúkwpi7-a
then HYP-give-human-3CONJ DET chief-DET
'It was then that the chief gave away the gifts.'
(Davis in prep.)
- (25) a. ts'áqw-an'-as i sq'wél-a *i-nátcw-as* ta
eat-TR-3ERG DET.PL berry-DET *when-day-3CONJ* DET
sk'úk'wm'it-a
child-DET
'The child ate the berries yesterday.'

- b. ts'áqw-an'-as i-nátcw-as i sq'wél-a ta
eat-TR-3ERG when-day-3CONJ DET.PL berry-DET DET
 sk'úk'wm'it-a
 child-DET
 'The child ate the berries yesterday.'

The temporal adverbs in (23-25) contrast in form and syntactic behaviour with *tu7*, which is always a prosodically weak second-position clitic:

- (26) a. t'íq *tu7* ti sqáycw-a
arrive PAST DET man-DET
 'The man arrived.'
- b. * t''q ti sqáycw-a *tu7*
arrive DET man-DET PAST
 'The man arrived.'

The fact that *tu7* provides tense information but is not an adverbial casts doubt on any attempt to claim that temporal information in St'át'imcets is introduced by adverbials (overt or null).

The 'null adverbial' analysis would be more plausible for a language which was like St'át'imcets, except that it lacked a morpheme like *tu7*. The only thing I have to say about such an analysis is that it appears to be semantically indistinguishable from a null T analysis. In that case, the "no T" theory reduces to a purely syntactic hypothesis: some languages have obligatory T heads in all finite clauses, while others have obligatory temporal adverbials in all finite clauses. Questions which would arise would include how the 'null adverbial' analysis is empirically distinguishable from the 'null Tense' analysis I have proposed, and how the syntactic difference between the two language types is learnable.¹²

4.4 Summary and implications

The preceding discussion has shown that St'át'imcets must have some position in the tree in every finite sentence which introduces temporal information. I have claimed that that position is T. In this subsection I will briefly address the implications of this claim.

I argued above that if any language lacked an obligatory position devoted to tense, it would have to behave unlike English and St'át'imcets with respect to the 'stove' example. That is, it would have to have a purely existential temporal system. I would like to propose that such a language does not exist. In other words, I predict that every language has a way to express the idea that an event did not take place during a particular time interval. This means that even languages which apparently have no tense morphology whatsoever (such as

¹² Henry Davis notes (p.c.) that under Cinque's (1999) approach to functional heads, the two positions (tense as a head and tense as an adverb) may be even less distinguishable, since adverbs are simply specifiers of functional heads, and temporal adverbials would in that case be specifiers of T.

Burmese and Dyirbal, if Comrie 1985 is right) must possess a phonologically null T head which is semantically underspecified.

There is actually another possibility to consider for the 'stove' example: there could be a language where in the plain 'stove' sentence, an existential reading is the only possible interpretation, and to get the 'particular time' reading, an overt adverb is required. In such a language, the equivalent of 'I didn't turn off the stove' would mean 'I never turned off the stove', but there would also exist sentences which are the equivalent of 'I didn't turn off the stove yesterday'. This would mean that simple negation in a finite sentence always had the meaning 'never', except if there was a temporal adverbial in the sentence. It is an empirical question whether such a language exists. Again, I will predict on plausibility grounds that it does not, and leave confirmation or correction for future research.

My claim that the presence of T is a language universal is supported by Lee's (1999) analysis of San Lucas Quiaviní Zapotec. The Zapotec languages have traditionally been analyzed as lacking tense, possessing only an aspect system. However, Lee convincingly argues that SLQZ possesses functional structure in the syntax which contributes tense information. Another set of apparently "tenseless" languages is the Kwa family. In spite of the absence of overt tense morphology in these languages, Déchaine and Manfredi (2001) argue for an obligatory T head here. Déchaine and Manfredi's (2001) analysis, according to which the aspectual class of the predicate strictly determines temporal interpretation, is not applicable to St'át'imcets, since as shown in (45-46) below, some of the aspectual class effects in St'át'imcets are merely implicatures rather than entailments. However, there does seem to be a growing body of work on languages which do not overtly mark tense, arguing that these languages are structurally very similar to English in the temporal domain.¹³

5 The analysis

So far I have argued that there must be a functional head introducing tense information in every finite clause in St'át'imcets. In this section I provide a concrete analysis of St'át'imcets tense morphology. My proposal is that there are two tense morphemes, one overt, one null. The overt one is the enclitic *tu7*, which is a past tense morpheme paralleling English *-ed*. The null one is a lexically underspecified tense morpheme which introduces a variable over time intervals (the reference time), but does not restrict the reference time with respect to whether it precedes or overlaps with / contains the utterance time. I will argue that this analysis is empirically superior to an alternative analysis proposed by Arregui and Matthewson (2001), according to which there are contrasting null past and present morphemes in St'át'imcets.¹⁴

¹³ An exception to this is Wiltschko (2001, to appear).

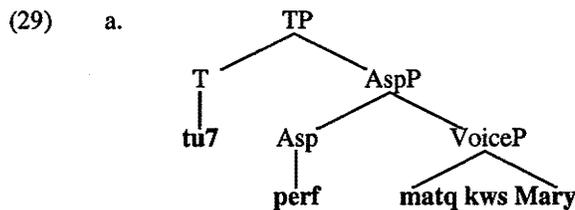
¹⁴ Arregui and Matthewson's proposal about Tense was made for concreteness and was not the main focus of their paper.

5.1 *Tu7*

Let us begin with the overt past tense enclitic *tu7*. I claim that *tu7* introduces a reference time which necessarily precedes the utterance time (paralleling English *-ed*). The lexical entry for *tu7* is given in (27), and the analysis is applied to an example in (28) and (29).

(27) $[[\text{tu7}]]$ is only defined if the context provides an interval t that precedes t_0 (the utterance time). If defined, then $[[\text{tu7}]]$ = t .

(28) *matq tu7 kw-s Mary*
 walk PAST DET-NOM Mary
 'Mary walked / *is walking.'



b. $[[\text{TP}]]$ = $\lambda w \exists e [\text{walk}(e)(w) \ \& \ \text{agent}(\text{Mary})(e)(w) \ \& \ \tau(e) \subseteq t]$
 (t a past time provided by the context).

c. There is an event e of Mary walking, whose running time τ is included in the contextually salient past time t .

This analysis correctly predicts that when *tu7* is present in a clause, the reference time obligatorily precedes the utterance time.

A further prediction of the analysis of *tu7* as a tense morpheme is that it will be ungrammatical to use *tu7* in infinitives. This is correct, as shown in (30).

- (30) a. *núk'w7-an-ts-as ku mets-cál*
 help-TR-1SG.OBJ-3ERG DET write-INTR
 'S/he helped me to write.'
- b. * *núk'w7-an-ts-as ku mets-cál tu7*
 help-TR-1SG.OBJ-3ERG DET write-INTR PAST
 * 'S/he helped me to wrote.'

The reader will recall from section 2 that *tu7* is optional when a past time interpretation is intended. Indeed, in the legends and true stories in van Eijk and Williams (1981), which deal entirely with past time events, the clitic *tu7* is very rare; there are many entire stories which lack *tu7* altogether. In one speaker's oral history (Matthewson in prep. b), which deals entirely with past time events, *tu7* appears a mere 22 times in 544 sentences. I turn in the following subsection to the analysis of sentences which do not contain any overt temporal marking.

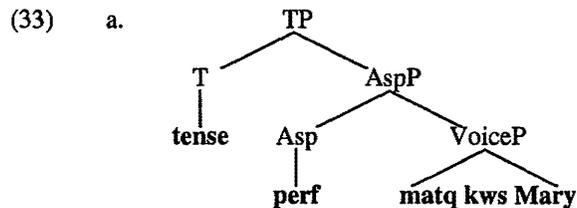
5.2 An underspecified Tense

My proposal for sentences which do not contain an enclitic *tu7* is that they contain a phonologically null tense morpheme. This tense morpheme introduces a variable over time intervals which receives its value from the context. Unlike English tense morphemes, this element does not lexically restrict the possible values for the reference time. Thus, we expect that a clause containing this morpheme will enable the reference time to be either in the past or the present.

The lexical entry for the underspecified tense is given in (31), and the analysis is applied to an example in (32) and (33).

(31) **[[tense]]** is only defined if the context provides an interval *t*. If defined, then **[[tense]]** = *t*.

(32) matq kw-s Mary
walk DET-NOM Mary
'Mary walked / walks / is walking.'



b. $[[\text{TP}]] = \lambda w \exists e [\text{walk}(e)(w) \ \& \ \text{agent}(\text{Mary})(e)(w) \ \& \ \tau(e) \subseteq t]$
(*t* a time provided by *c*).

c. There is an event *e* of Mary walking, whose running time τ is included in the contextually salient time *t*.¹⁵

This analysis means that there are two ways to express a reference time which precedes the utterance time: one can either use the past tense enclitic *tu7*, or, if the context provides a salient past time, one can use the phonologically null, underspecified tense. This correctly accounts for the optionality of *tu7* in past time contexts.

According to the analysis I have presented here, the temporal system of St'át'imcets is exactly like that of English, except for the two features listed in (34).

(34) i. One of the tense morphemes is phonologically null.

¹⁵ The reader may be wondering why, if the sentence in (32) is in the perfective aspect (as I claim in the tree in (33)), it can be translated into English in the progressive (as in 'Mary is walking'). I will explain this in section 6 below; see also Bar-el (1998).

- ii. St'át'imcets possesses a tense morpheme which does not restrict the reference time with respect to whether it precedes or overlaps with / contains the utterance time.

I believe it is an advantage of the current analysis that it minimizes cross-linguistic differences. There is no difference in structure, or in the basic semantics of the T node; the languages simply differ in the inventory of tense morphemes. This is a way in which we already know that languages may differ; see e.g. Ogihara's (1996) work on the difference between the Japanese and English tense systems.

Henry Davis (p.c.) has raised the issue of whether the two features in (34) are independent of each other. In other words, is it an accident that the underspecified tense morpheme is phonologically non-overt, or could there be an overt version? I have nothing insightful to say about this issue at this time; nothing in my analysis predicts that an underspecified tense morpheme should need to be null.

6 Arguments against a "null – null" analysis

There is a plausible alternative analysis of the St'át'imcets system. This alternative was introduced in (12ii) above, and is repeated here.

- (12) ii. *The "null – null" theory:*
St'át'imcets is like English, except that it has null **present** and null **past** (Arregui and Matthewson 2001).

In this section I will compare the "underspecified T" analysis to the "null – null" analysis, and show that there are both conceptual and empirical reasons to prefer the former.

The first reason to be suspicious of the "null – null" analysis is that it is conceptually undesirable. If we assume that empty morphemes are subject to the same restrictions as overt morphemes, including morphological iconicity, then it is difficult to explain why the same meaning (past) is expressed by two different morphemes (\emptyset and *tu7*), while null past contrasts semantically with the morphologically identical null present.

We can also tease the analyses apart empirically, by asking whether in clauses with no overt tense morphology, we can find evidence that there is a single morpheme which picks out any contextually provided reference time, or alternatively that there is a phonologically neutralized but semantically contentful ambiguity between past and present.

The evidence for the former analysis is as follows; thanks to Toshi Ogihara (p.c.) for helping me with this issue. In sentences with plural subjects but a single main predicate, the situation times can be different for each individual in the denotation of the subject. This is illustrated in (35) and (36):

- (35) Context:
*I zánucwmas, cw7aoz kws ts'úqwaz'ams sJohn, nilh s7icwa7 ests'wan
 i sútikas. Ts7as ta spipántseka. Ts'úqwaz'am aylh sJohn. Cw7it i
 sts'wansa. Cw7aoz t'u7 kws ts'úqwaz'ams sFred, nilh s7icwa7
 ests'wan lhkunsa.*

Last year, John didn't go fishing, so he didn't have any dried fish last winter. Then the summer came. John went fishing, so he has a lot of dried fish. But Fred didn't go fishing, so he doesn't have any dried fish right now.

Sentence:

(wa7) nzúqwcen s-John múta7 sFred
 (PROG) starving NOM-John and NOM-Fred
 'John and Fred were / are starving (John was, Fred is).'

- (36) Context: We are at a two-day pow-wow, and it's the second day. What happened was that out of our friends, Mary didn't sing at all, Bill sang on the first day and then got a sore throat so he's not singing today, and Freda didn't sing yesterday but she is singing now. I have just arrived at the pow-wow and don't know what's been going on, but I know all our friends had wanted to sing. I ask:

ít'-em ha i snekw'nuk'wa7lhcálh-a?
 sing-INTR YNQ DET.PL friend(REL)-1PL.POSS-DET
 'Did our friends sing / Are our friends singing?'

You reply:

ít'-em s-Bill múta7 s-Freda
 sing-INTR NOM-Bill and NOM-Freda
 'Bill and Freda sang / are singing (Bill did, Freda is now).'

There is only one predicate in the sentences in (35) and (36), and therefore only one T node. The fact that the sentences are acceptable in the contexts provided, which make it clear that John was starving in the past, but is not any more, while Fred is starving now (and similarly for (36)), shows that we cannot be dealing with a null tense morpheme which forces either a past or a present interpretation.

How does the "underspecified T" analysis account for the data in (35-36)? Simply by saying that the reference time introduced by the underspecified T morpheme can be an interval which includes some time before the utterance time (during which John was starving), as well as the utterance time itself (during which Fred is starving). This straightforwardly predicts the acceptability of (35) and (36).

It is important to realize that the current analysis does not predict complete freedom of temporal interpretation for any sentence which uses the underspecified tense morpheme. On the contrary, the requirement that the reference time be contextually specified does restrict the possible interpretations of sentences in context. Some examples of this are given in (37). The second sentence in each case is capable (in the right context) of being interpreted either

as describing a past or a present state. However, in the contexts given, one interpretation is disallowed. Notice that the corresponding English translations, with overt contrasting tenses, are acceptable (if a bit unusual).

(37) a. áts'x-en-lhkan inátcwas s-John múta7 s-Mary.
see-TR-1SG.SUBJ yesterday NOM-John and NOM-Mary
'I saw John and Mary yesterday.'

?? guy't-ál'men s-John, t'u7 cw7ay t'u7 kw-s
sleep-want NOM-John but NEG but DET-NOM
guy't-ál'men inátcwas
sleep-want yesterday
'John is sleepy, but he wasn't sleepy yesterday.'

b. wa7 láti7 s-John múta7 s-Mary
PROG DEIC NOM-John and NOM-Mary
'There are John and Mary.'

* guy't-ál'men s-John, t'u7 cw7ay t'u7 kw-s
sleep-want NOM-John but NEG but DET-NOM
guy't-ál'men lhkúnsa
sleep-want now

Attempted meaning:

'John was sleepy, but he's not sleepy now.'

Consultant's gloss:

'John is sleepy, but he's not sleepy now.' (laughs)

'He's either sleepy or not sleepy, he can't be part of each.'

Interestingly, the type of evidence in (37a,b) was used by Ogihara (1996:3-4) to argue that the so-called present tense morpheme in Japanese is not vague between present and past interpretations, but really ambiguous between the two. Just as in St'át'imcets, Ogihara found that in a particular context, a sentence containing the 'present' morpheme is not free to be interpreted either as present or as future, but is restricted to one or the other. How, then, can Ogihara's claim that this situation reflects ambiguity be reconciled with my claim that it does not?

The answer is simple: either an ambiguity theory or an underspecified theory which includes contextually salient reference times can predict the facts in (37). However, the data above in (35-36) show that an ambiguity theory is impossible for St'át'imcets. Taken all together, the St'át'imcets facts support my analysis of this language as possessing a single, underspecified Tense morpheme, which introduces the reference time. This time must be given by the context; this accounts for the non-freedom of interpretation in (37a,b). However, the reference time is not restricted to either entirely preceding the utterance time, or including only the utterance time. This accounts for the data in (35-36).

There is one final piece of evidence which supports the "underspecified T" analysis over the "null – null" analysis. This has to do with the interaction between Aktionsart (the aspectual class of the predicate) and tense. I will go

through this in the next section, which sketches an analysis of the Aktionsart effects which were first introduced in (2) above.

7 Aspectual class and temporal interpretation¹⁶

Recall that the aspectual class (Aktionsart) of the predicate has an effect on temporal interpretation. In the absence of overt temporal marking, states and activities can have a present tense interpretation, but accomplishments carry a strong preference for past time. This is illustrated in (38), repeated from (2) above:

- (38) a. táyt-wit
hungry-3PL
'They were / are hungry.'
- [STATE: PAST OR PRESENT TIME]
- b. sáy'sez'-lhkan
play-1SG.SUBJ
'I played / am playing.'
- [ACTIVITY: PAST OR PRESENT TIME]
- c. qáyt-kan
reach.top-1SG.SUBJ
'I reached the top.'
- (Davis in prep.)
- [ACHIEVEMENT: PAST TIME]
- d. máys-en-lhkan ta q'láxan-a
fix-TR-1SG.SUBJ DET fence-DET
'I fixed the fence.'
- [ACCOMPLISHMENT: PAST TIME]

A full account of the Aktionsart effects goes beyond the bounds of this paper, but I will sketch an analysis. The first thing to note is that the tense effects illustrated in (38) are valid only for clauses in the perfective aspect. In the imperfective, accomplishments can easily be in the present tense:

- (39) a. wá7-lhkan máys-en ti q'láxan-a
PROG-1SG.SUBJ fix-TR DET fence-DET
'I am fixing a fence.'
- [ACCOMPLISHMENT, IMPERFECTIVE: PRESENT TIME]

¹⁶ The discussion in this section draws on ideas from Arregui (2000) (on St'át'imcets) and Bar-el (1998) (on Squamish). Mistakes in the current version are mine.

- b. wá7-lhkan q'wel-en ta ts'í7-a
 PROG-1SG.SUBJ cook-TR-1SG.SUBJ DET deer-DET
 'I am cooking the meat.'

[ACCOMPLISHMENT, IMPERFECTIVE: PRESENT TIME]

We therefore need to consider 'outer aspect' (perfective vs. imperfective, located in the Aspect head) and its interaction with the aspectual class of the predicate.

Following Arregui (2000), I assume that predicates in St'át'imcets which are unmarked for aspect are in the perfective.¹⁷ This correlates with the fact that there is an overt marker of imperfective (the progressive auxiliary *wa7*), but no overt marking for perfective. Perfective aspect requires that the situation time be included within the reference time (see Klein 1994, Kratzer 1998, etc.). An example is given in (40).

- (40) I spoke to Richard last week. (Terry 2000)
 [PAST, PERFECTIVE]

reference time: the week preceding the week of the utterance time

situation time: some point within last week (e.g., from 9.05pm - 9.10pm last Tuesday)

Now, the question to be answered is why, in the absence of overt temporal marking and in the perfective aspect, states and activities can receive a present tense interpretation, while achievements and accomplishments cannot. Let us look first at states.

States possess the subinterval property. If a sentence whose main verb possesses the subinterval property is true at some interval of time I, 'then the sentence is true at every subinterval of I including every moment of time in I' (Bennett and Partee 1978:14). So no matter how short the reference time is, a state can always hold at that time. This combines with Bennett and Partee's claim that the utterance time is a moment (instantaneous), to account for the fact that states, unlike other aspectual classes, can be in the simple present in English (do not have to be in the progressive):

- (41) a. I know Mercedes / I hate Gordon.
 [STATE: SIMPLE PRESENT]
- b. I walk / I play.
 [ACTIVITY: HABITUAL ONLY]
- c. I build a house / I fix the fence.
 [ACCOMPLISHMENT: HABITUAL ONLY]

¹⁷ This is implemented by a phonologically null perfective morpheme; this is not crucial to the analysis.

- d. I win / I reach the top.
[ACHIEVEMENT: HABITUAL ONLY]

Since the present tense in English necessarily involves the instantaneous utterance time, only predicates with the subinterval property are able to 'fit inside' the utterance time (hold at that time). Hence, states can be in the simple present in English.

Returning to St'át'imcets, we will also predict here that states can be interpreted either in the past or in the present, without needing to be in the progressive. We saw above that this is correct. There are no surprises so far.

Now let's consider activities. Here, we get a striking result. Notice that in English, activities must be in the progressive in the present tense (41b), in spite of the fact that they might be thought to possess the subinterval property (indeed, Bennett and Partee say that they do). Yet in St'át'imcets, activity predicates are perfectly acceptable with present tense interpretations, without needing to be in the progressive ((38b) above). What could be going on?

The solution relies on one plausible assumption, combined with the analysis of the St'át'imcets tense system presented above. The assumption is that activities do not actually possess the subinterval property. Activities, unlike states, are not entirely homogeneous. For example, if I am hungry (a state) from 9-10am, then I am hungry at every subinterval (no matter how tiny) of 9-10am. But if I am walking (an activity) from 9-10am, then there are time intervals within 9-10am which are so short that I cannot be said to be walking at those time intervals (I may be just lifting my right leg a fraction of an inch, which does not count as walking). This, then, would account for why activities in English need to be in the progressive in the present tense.

As for St'át'imcets, the crucial difference between this language and English is that according to my analysis, St'át'imcets does not possess a present tense morpheme. It only possesses a past tense morpheme (*tu7*), and an underspecified tense morpheme. Therefore, the instantaneous utterance time is never required to be the reference time in St'át'imcets. This could only be forced by a present tense morpheme, which the language does not possess. Therefore, even predicates such as 'walk', which do not possess the subinterval property, can always 'fit into' a larger present-time interval.

We see, then, that the analysis presented above, combined with plausible assumptions about the properties of the different aspectual classes, correctly predicts that either past or present-time interpretations are possible for states and activities, in the perfective aspect, in St'át'imcets. We also have a way of understanding why English and St'át'imcets differ with respect to activities: English, but not St'át'imcets, has a present tense morpheme which forces the reference time to be the instantaneous utterance time.¹⁸

As mentioned in the preceding section, this situation also provides another argument against the "null – null" analysis of St'át'imcets. If

¹⁸ This also accounts for why sentences containing activities in the perfective aspect, present tense are translated into English in the progressive (see footnote 15 above). This exactly accords with claims made by Bar-el (1998) about Skwxwú7mesh; Bar-el claims that activities in that language may be perfective when in the present tense, in spite of the necessarily progressive English translations.

St'át'imcets possessed a null past tense and a null present tense, we might expect its activity predicates to behave more like those of English, needing to be interpreted in the past if they are perfective. Of course, this is not a very strong argument against the "null – null" analysis, because it could be the case that St'át'imcets possesses a real present tense morpheme, which nevertheless differs from the English one in not picking out the instantaneous utterance time. Nevertheless, the "underspecified T" analysis fares better, because it does not require any additional assumptions, or the postulation of any additional cross-linguistic differences.

We have not yet dealt with accomplishments and achievements. Bennett and Partee claim that there is no simple present form of accomplishments in English (as shown in (42)) because accomplishments take more than a moment, and do not possess the subinterval property.

(42) ??Mary builds a house.

Since St'át'imcets does not possess a present tense morpheme which forces the reference time to be the instantaneous present, we predict (just as with activities) that sentences containing accomplishments will be felicitous when the context provides a large reference time, which may include the utterance time, during which the accomplishment takes place. This prediction is upheld, as shown in (43):

(43) Context: You have been fixing the car for a while, and just exactly when you turn the final screw, you say:

máys-en-lhkan ta káoh-a
fix-tr-1sg.subj DET car-DET
'I fixed the car.'

As with activities, the fact that the sentence in (43) must be translated into English in the past tense is a result of the requirements of the English tense and aspect system. The St'át'imcets sentence (43) is not in the past tense. We could say that it was in the 'large present', but no such term is really needed; what has happened is simply that the underspecified Tense morpheme has been used.

There is an interesting wrinkle with accomplishments, which does not invalidate the analysis presented here, but which points to a potential cross-linguistic difference in the lexical semantics of accomplishment verbs. Davis and Matthewson (2001, to appear) show that accomplishments in St'át'imcets merely have an implicature of culmination, not an entailment. The sentences in (44-45) show the explicit canceling of the culmination implicature. Notice that the past tense effect also disappears here; consultants often translate these sentences into English in the present tense. (The English present tense translation is forced to be in the progressive, unlike the St'át'imcets sentence, which is in the perfective.)

- (44) máys-en-lhkan ti q'láxan-a, t'u7 cw7ay t'u7 kw-s
 fix-TR-1SG.SUBJ DET fence-DET but NEG just DET-NOM
 tsúkw-s-an
 finish-CAUS-1S.ERG
 'I am fixing a fence, but I'm not finished with it.' (volunteered gloss)

[CULMINATION IMPLICATURE CANCELED, PRESENT TENSE OK]

- (45) q'wel-en-lhkán ta ts'í7-a, t'u7 cw7ay t'u7 kw-s
 cook-TR-1SG.SUBJ DET deer-DET but NEG just DET-NOM
 q'wel-s
 cook-3SG.POSS
 'I was cooking the meat, but it didn't get cooked.' (volunteered gloss)
 'I am cooking deer meat, but it isn't done yet.' (volunteered gloss)

[CULMINATION IMPLICATURE CANCELED, PRESENT TENSE OK]

What is happening in (44) and (45) is that there is no culmination to the accomplishment, which reduces it to an activity predicate (i.e., a predicate which involves a fixing or cooking activity, but does not require that anything got fixed or cooked). This may point to a difference in the lexical semantics of accomplishment predicates between the two languages.¹⁹ An explanation for this must await future research.

The final aspectual class to be considered is achievements. These are always translated into English in the past tense. Unlike accomplishments, the culmination cannot be removed from achievements, as illustrated in (46). This accords with Kratzer's (2001), analysis, according to which achievements, unlike accomplishments, have a lexical requirement of culmination.

- (46) a. * t'cum kw-s Billie, t'u7 ay t'u7 kw-s t'cum-s
 win DET-NOM Billie but NEG but DET-NOM win-3SG.POSS
 'Billie won, but he didn't win.'
- b. * qáyt-kan, t'u7 cw7ay t'u7 kw-en-s
 reach.top-1SG.SUBJ but NEG but DET-1SG.POSS-NOM
 qayt
 reach.top
 'I reached the top, but I didn't reach the top.'

My analysis predicts that achievement predicates will be acceptable in St'át'imcets if uttered at the exact moment of culmination, and will not need to

¹⁹ It does not necessarily follow that the lexical semantics of the bare predicates differs between the two languages. There could be a syntactic difference which underlies the results noted in the text. For example, Kratzer (2001) proposes that the culmination belonging to accomplishment verbs is introduced by a functional head relating to Accusative Case. Kratzer's analysis does not straightforwardly apply to St'át'imcets for various reasons (see Davis and Matthewson 2001 for discussion). However, future research may reveal that an adaptation of Kratzer's approach is applicable.

be in the progressive. That is, I predict that the sentences in (47) will be acceptable, unlike their English translations:

- (47) a. Context: you have been climbing a mountain, and just at the exact moment when you reach the top, you say:

qáyt-kan
reach.top-1SG.SUBJ
'I reach the top.'

- b. Context: just as you cross the threshold, you say:

t'íq-kan
arrive-1sg.subj
'I arrive.'

The relevant fieldwork has not yet been done to determine whether (47a,b) are acceptable in the contexts provided.

To summarize the results of this section, we have seen that the analysis of the St'át'imcets Tense system presented above, combined with one additional, plausible assumption (that activities do not possess the sub-interval property) correctly predicts the range of readings found for each Aktionsart class. This provides strong support for the analysis proposed.

8 Conclusions and implications

In this paper I have presented an analysis of the St'át'imcets tense system (excluding the future). I have argued that in spite of the fact that overt tense morphology is optional in St'át'imcets, there must be a functional head introducing tense information in every finite clause. If this were not the case, we would be unable to account for the 'particular time' reading of the 'stove' sentences.

The analysis I have argued for says that St'át'imcets possesses two tense morphemes. The first is the second position clitic *tu7*, which encodes past tense. The second is a phonologically null T morpheme, which does not lexically restrict the reference time. When the null morpheme is used, the reference time must be provided by the utterance context. I have shown that this analysis correctly predicts a range of subtle facts about the interpretive possibilities of sentences in a range of discourse contexts. I have argued against an alternative analysis according to which St'át'imcets possesses a null past tense morpheme and a null present tense morpheme. I have shown that a "null – null" theory is unable to account for the range of interpretations possible with plural DP subjects.

With respect to the cross-linguistic issues, we have seen that any language which lacked an obligatory T head would be predicted to have only existential readings for the 'stove' sentence. I have suggested that this is implausible; future research will determine whether such a language does exist. Assuming that it does not, we can conclude that the presence of a position in the

tree which introduces tense information is a language universal. The null hypothesis is that this position is T, just as in English.

The cross-linguistic difference between St'át'imcets and English within my analysis is relatively minor, and is merely a matter of the lexical inventory of tense morphemes. I believe that this is a desirable result, since it reduces learnability problems and simplifies the theory of Universal Grammar.

Appendix

Abbreviations

caus = causative, c(o)nj = conjunctive, deic = deictic, det = determiner, erg = ergative, intr = intransitive, neg = negation, nom = nominalizer, obj = object, pl = plural, pos(s) = possessive, prog = progressive, redup = reduplication, sg = singular, sta = stative, sub(j) = subject, tr = transitive, ynq = yes-no question.

Key to St'át'imcets orthography

orthography	phonemic script	orthography	phonemic script	orthography	phonemic script
p	p	k'	k	gw	ʔw
p'	p̣	kw	kʷ	g'w	ʔẉ
m	m	k'w	kʷ	h	h
m'	ṃ	c	x	w	w
t	t	cw	xʷ	w'	ẉ
ts	ts	q	q	y	y
ts'	tṣ	q'	q̣	y'	ỵ
s	s	qw	qʷ	z	z
n	n	q'w	q̣ʷ	z'	ẓ
n'	ṇ	x	x	ʔ	ʔ
t'	ṭ	xw	xʷ	a	a
lh	lh	r	r	e	e
l	l	r'	ṛ	i	i
l'	ḷ	g	g	u	u
k	k	g'	g̣	v	v

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lisamatt@interchange.ubc.ca