

A cross-linguistic perspective on the expression of manner

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The goal of this paper is to investigate the expression of manner from a cross-linguistic perspective. Our main concern is to provide an analysis of constructions expressing manner in St'át'imcets (Lillooet Salish) and investigate the consequences of the St'át'imcets facts for the analysis of manner constructions in English.

1 Introduction

Davidson (1967) has proposed an analysis of locative and temporal modifiers as predicates over an implicit event argument. An example is given in (1):

- (1) a. Mary danced in the kitchen at midnight.
b. $\exists e$ [dancing(Mary, e) & in (the kitchen, e) & at (midnight, e)]

Subsequent researchers (a.o. Parsons 1990, Rothstein 1998) have argued that Davidson's proposal should be extended to manner adverbs such as *slowly*, *dangerously*, or *sadly*. An example of Parson's proposal is given in (2) (the manner adverb is treated as a one-place predicate over events, and the agent is introduced by means of a thematic-role predicate):

- (2) a. Mary danced slowly/ sadly in the kitchen at midnight.
b. $\exists e$ [dancing(e) & agent (Mary, e) & slow (e)/ sad (e) & in (the kitchen, e) & at (midnight, e)]

However, the claim that all manner adverbials are predicates over events is not uncontroversial. Geuder (2000), for example, has argued that psychological manner adverbials, such as *sadly*, have readings that involve predication over ordinary individuals instead of events. In this paper we will bring cross-linguistic evidence to bear on this issue.

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We will first propose an analysis of manner constructions in St'át'imcets. St'át'imcets is a language that allows locative and temporal modifiers to predicate over events but does not have manner adverbs similar to the English ones. The expression of manner in St'át'imcets is achieved using either subordinate temporal clauses or nominalized constructions. We will propose an analysis of these two strategies couched in the framework of situation semantics [Kratzer 1989]. We will also provide an explanation of why St'át'imcets lacks adverbs similar to the English manner adverbs. We will then investigate the generality of an event-based analysis of manner adverbs. In particular, we will be concerned with psychological manner adverbs. We will show that in St'át'imcets psychological predicates cannot be predicated over events, they can only be predicated over individuals. We will then explore the consequences of this view for the English case.

The paper is structured as follows. In Section 2 we present the relevant St'át'imcets data and empirical generalizations. In Section 3 we present an analysis of St'át'imcets manner constructions, showing the difference between the two St'át'imcets strategies available for expressing manner. In Section 4 we provide an account of why St'át'imcets lacks English-type adverbs. In Section 5 we discuss St'át'imcets data that suggests that psychological predicates are not able to predicate over events, and discuss possible consequences for the analysis of English psychological adverbials.

2 The expression of manner in St'át'imcets

St'át'imcets (Lillooet) is a Northern Interior Salish language spoken in the interior of British Columbia, Canada. It is endangered. All data presented here comes from primary field work.

2.1 The absence of manner adverbs

St'át'imcets lacks manner adverbs. By this we do not mean simply that St'át'imcets lacks a class of manner adverbs that are morphologically distinct from adjectives. Many languages may fail to overtly distinguish adverbs from adjectives but still use adjectives in what we would classify as an adverbial construction. A German example is given below:

- (3) a. Das Auto ist langsam
 the car is slow
 The car is slow
- b. Susi fährt langsam
 Susi drives slow
 Susi drives slowly

St'át'imcets differs from English in a more fundamental way: there are no constructions paralleling English manner adverb constructions. The examples in (4) show that it is not possible to use adjectives inside a VP to modify the description of an event:

- (4) a. * tqálk'-em k'ínk'ent kw-s Mary
drive-INTR dangerous DET-NOM Mary
Mary drove dangerously
- b. * úxwal'-lhkan skenkín
go.home-1SG.SUBJ slow
I went home slowly
- c. * we7áw qlil kw-s Mary
holler angry DET-NOM Mary
Mary shouted angrily
- d. * nák'-ts-an'-as qvl ta púkw-a s-Philomena
change-mouth-TR-3ERG bad DET book-DET NOM-Philomena
Philomena translated the book badly
- e. * matq qwenúxw-alhts'a7 s-Joe
walk sick-inside NOM-Joe
Joe walked sadly

The examples in (5) show that the determiner *ku*, which functions as a 'linker' inside various modification structures (see Matthewson 1998), is unable to license adjectives appearing inside VP:

- (5) a. * tqálk'-em ku k'ínk'ent kw-s Mary
drive-INTR DET dangerous DET-NOM Mary
Mary drove dangerously
- b. * úxwal'-lhkan ku skenkín
go.home-1SG.SUBJ DET slow
I went home slowly
- c. * we7áw ku qlil kw-s Mary
holler DET angry DET-NOM Mary
Mary shouted angrily
- d. * nák'-ts-an'-as ku qvl ta púkw-a s-Philomena
change-mouth-TR-3ERG DET bad DET book-DET NOM-Philomena
Philomena translated the book badly

Only interpretable as: 'Philomena changed bad things in the book.'

- e. * matq ku qwenúxw-alhts'a7 s-Joe
walk DET sick-inside NOM-Joe
Joe walked sadly

Consultant's comment: (laughs) "He was walking his sad. Like walking a dog or something."

In this section we have shown that St'át'imcets has no way of expressing manner by means of a single lexical item inside a VP. In the next section we will discuss the strategies that are available in St'át'imcets.

2.2 Two strategies for the expression of manner

St'át'imcets makes available two strategies for expressing manner. The first involves predication over individuals plus a subordinate temporal clause equivalent to an English *when*-clause. Examples of this construction are given below:

- (6) a. qlil kw-s Mary [i we7áw-as]
 angry DET-NOM Mary [when.PAST holler-3CONJ]
Mary shouted angrily (= Mary was angry when she shouted)
- b. ca7-s-tsút [i w-as íť-em] kw-s Mary
 high-CAUS-REFL [when.PAST PROG-3CONJ sing-INTR] DET-NOM Mary
Mary sang proudly (= Mary was proud when she was singing)
- c. ql-aoka7-mín-as [i cwík'-n-as ta sts'úqwaz'-a]
 bad-hand-APPL-3ERG [when.PAST cut.fish-TR-3ERG DET fish-DET]
She butchered the fish clumsily (= She handled it badly when she butchered the fish)
- d. pvmp-kán [i q'ílhil-an áti7]
 fast-1SG.SUBJ [when.PAST run-1SG.CONJ DEIC]
I ran quickly (= I was fast when I ran there)
- e. k'ínk'ent-wit [lh-wá7-witas tq-álk'-em]
 dangerous-3PL [HYP-PROG-3PL.CONJ touch-string-INTR]
They drive dangerously (= They are dangerous when they drive)
 Consultant's comment: "Some people's personalities change when they get behind the wheel."
- f. sqweg'w [lh-as áz'-en-as i stemtétem'-s-a s-Mary]
 cheap [HYP-3CONJ buy-TR-3ERG DET.PL thing-3SG.POSS-DET NOM-Mary]
Mary bought her things cheaply (= They_i were cheap when Mary bought her things_i)
- g. Context: Mary is a very good driver; she has never had an accident.
 However, she is dangerous when she drives, because she likes to shoot out the window and sometimes she hits animals or people.

k'ínk'ent s-Mary [lh-tq-álk'-em-as]
 dangerous NOM-Mary [HYP-touch-string-INTR-3CONJ]
 'Mary is dangerous when she drives.'

The main clause in (6g) asserts that Mary was dangerous at some past time, and the subordinate temporal clause restricts that time to a driving time. Similarly, the main clause in (6d) asserts that I was fast at some past time, and the subordinate clause restricts that time to a time at which I was running. The examples in (6) have temporal clauses headed by either the complementizer *i* or the complementizer *lh*. The presence of *i* restricts the temporal location of the events picked out by the subordinate clause to past times. *lh* is not restricted to past times. For reasons of space, we will limit our attention in this paper to examples with *i*.

The second strategy available for expressing manner in St'át'imcets involves the nominalization of a clause. A nominalized clause is headed by a determiner *tí-a*, and the clause sister to the determiner is headed by a nominalizer *s-*. The clause sister to *s-* is a fully inflected clause. Examples of this construction are given below:

- (7) a. skenkín [ti n-s-xát'-em-a ta sqwém-a]
 slow [DET 1SG.POSS-NOM-hard-INTR-DET DET mountain-DET]
 I walked up the hill slowly (=My walking up the hill was slow)
- b. áma [ti s-nik'-in-ás-a ti sts'úqwaz'-a s-Mary]
 good [DET NOM-cut-TR-3ERG-DET DET fish-DET NOM-Mary]
 Mary cut the fish nicely (=Mary's cutting of the fish was good)
- c. k'ínk'ent [ti s-tq-álk'-em-s-a s-Mary]
 dangerous [DET NOM-touch-string-INTR-3SG.POSS-DET NOM-Mary]
 Mary drove dangerously (=Mary's driving was dangerous)

(Bad in the context given above for (6g).)

In (7c), *k'ínk'ent* (dangerous) is predicated of a nominalized clause headed by a determiner *tí-a*. Similarly, in (7a) *skenkín* (slow) is predicated of a nominalized clause headed by *tí-a*. Two things are worth pointing out at this point, since we will return to them later. One is that the predicates that we find in (7) can also predicate over ordinary individuals:

- (8) k'ínk'ent s-Mary
 dangerous NOM-Mary
 Mary was dangerous

The other is that the determiners that head the nominalized clauses are not specific to this construction. They are ordinary determiners that can combine with noun predicates:

- (9) xwes-xwís-ana7 ti smúlhats-a
 smile(REDUP)-ear DET woman-DET
 The woman smiled

Ideally, an analysis of (7) should not require making special stipulations about either the predicates or determiners when they appear in this construction. This will be one of the goals of our analysis.

The examples in (10) are presented to show that predication over nominalized clauses does not involve predication over the ordinary individuals that participate in the events:

- (10) a. gélgel [t-s-tup-un'-ás-a s-Bill s-Philomena]
 strong [DET-NOM-punch-TR-3ERG-DET NOM-Bill NOM-Philomena]
Philomena hit Bill hard (= Philomena's hitting of Bill was strong)
- b. lil'q [ta s-xát'-em-s-a ta sqwém-a s-Philomena]
 easy [DET NOM-climb-INTR-3SG.POSS-DET DET mountain-DET NOM-Philomena]
Philomena climbed the mountain easily (= Phil.'s climbing of the mountain was easy)

The sentence in (10a) does not assert that Philomena was strong, only that her punching was strong. Similarly, (10b) does not claim that Philomena was easy, only that she climbed easily.

3 Analysis of the St'át'imcets manner construction

In this section we will present an analysis of the two constructions employed to express manner in St'át'imcets.

3.1 Preliminary assumptions

Our analysis of St'át'imcets manner constructions is formulated within the framework of Kratzer's situation semantics. That framework allows us to explain the relation between the interpretation of simple clauses and the interpretation of nominalized clauses in a simple and straightforward manner. Our analysis of nominalized clauses is partly inspired by Zucchi's (1993) proposal for the semantics of nominalized clauses in English, which is also stated within a situation semantics framework.

Kratzer 1989 proposes a semantic analysis of counterfactual conditionals based on situations. In this paper we will adopt her basic assumptions about that framework. Kratzer distinguishes between two kinds of possible individuals: ordinary individuals and situations. The members of both sets of individuals are partially ordered with respect to each other by means of a part-of relation. The intuition behind the part-of relation between situations is that a situation bears the relation to any other situation that, in an intuitive sense, contains it. Some situations are considered maximal: they are not proper parts of any other situation. Entities that are maximal with respect to the part-of relation correspond to what is traditionally thought of as possible worlds. The set of possible worlds therefore, is a subset of the set of possible situations.

In giving a semantic analysis in terms of situations, we will make use of the elements below:

- (11) a set of possible situations S (corresponding to the semantic type s)
 a set of possible individuals I (corresponding to the semantic type e)
 a partial ordering on the set of situations and individuals $<$
 the set of maximal elements with respect to the ordering relation, or the set of possible worlds

Sentences will be taken to denote propositions. In the framework developed by Kratzer, propositions are sets of possible situations. So in addition to the elements in (11), we will make use of the power set of S (the set of propositions).

The proposal presented here diverges both from Kratzer's analysis of counterfactuals and from Zucchi's analysis of nominalizations in that, in addition to situations, we will make use of events. We will take events to be a subset of the set of individuals (i.e. a subset of I). We will assume that an event takes place in a situation iff it is part of that situation. An example is given in (12):

- (12) $\text{drive}(e)(\text{Mary})(s) = 1$ iff e is an event of Mary driving and $e < s$

Our proposal differs from proposals in the literature that try to reconstruct the notion of event in terms of a primitive notion of situation (e.g. events as minimal situations with certain properties). We will not take a position in the debate as to how events should be defined in terms of situations. As has often been noted, it is notoriously difficult to spell out the individuation conditions on events, and we will set aside this problem here. We will simply treat events as a kind of individual. Further work could allow for a refinement of this proposal.

In dealing with the semantics of St'át'imcets nominalized clauses it will be necessary to spell out the semantics of aspect and tense. To do so we will appeal to a function τ mapping events to their running times. So, in addition to the set of situations and the set of individuals, we will include as an ingredient in our semantics the set of times T (corresponding to the semantic type i). Depending on the view adopted with respect to the nature of time, the members of T will or will not be definable in terms of situations or events. We will remain neutral on this point.

Following Partee 1973 and Kratzer 1998, we will adopt a referential analysis of tense. Tenses are taken to be referential expressions, similar to pronouns. They refer to individuals in the domain of times (T). Following Kratzer 1998, we will assume that VPs denote properties of events, and that aspectual heads map properties of events onto properties of times. Tenses c-command aspectual heads and saturate the time argument corresponding to properties of times, mapping properties of times onto propositions.

St'át'imcets has overt tense and aspectual morphology, but such morphology is optional. We will assume that phonologically null tense and aspectual heads are present in the sentence in cases in which tense and aspect are not overtly indicated. We will also assume that the default value for aspect is perfective. Evidence supporting such a claim comes from aspectual restrictions on present tense interpretations. In St'át'imcets, as in English, stative eventualities can receive an 'ongoing event' interpretation in the present tense, but other types of eventualities cannot.² Bennett and Partee 1978 have argued, with

² This is a rough generalization, since some activities can be interpreted as ongoing at the speech time.

respect to English, that such aspectual restrictions are due to the fact that only stative eventualities (i.e. homogeneous eventualities) can ‘fit’ within the instantaneous speech time. We will incorporate this insight into our analysis by proposing that the default aspectual operator is perfective: a perfective operator requires that the running time of the eventuality be included within the temporal interval denoted by tense.

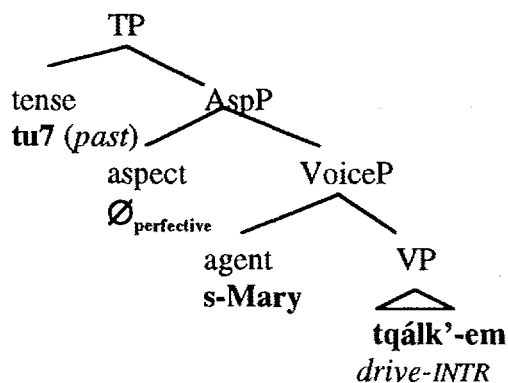
We will adopt the analysis of aspect and tense presented in Kratzer 1998. According to that proposal, aspectual heads map properties of events onto properties of times (the interpretation of perfective aspect is given in (13a)). Tenses come in two varieties: deictic and variable tenses (the interpretation of the deictic tenses in St’át’imcets is given in (13b-d), while the interpretation of a phonologically null variable tense is given in (13e)). Variable tenses differ crucially from deictic tenses in that variable tenses can be bound and deictic tenses cannot. The prediction is that only variable tenses can appear in clauses that denote properties of times. The reader is referred to Kratzer 1998 for discussion and motivation of this proposal.

- (13) a. $[[\emptyset_{\text{perfective}}]] = \lambda P_{\langle e, \langle s, t \rangle \rangle} \lambda t \lambda s \exists e [P(e) \ \& \ \tau(e) \subseteq t]$
 b. $[[tu7]]$ = a contextually salient past time (abbreviated with t_{past})
 c. $[[\emptyset_{\text{past}}]]$ = a contextually salient past time (abbreviated with t_{past})
 d. $[[\emptyset_{\text{present}}]]$ = a contextually salient present time (abbreviated with t_{pres})
 e. $[[\emptyset_i]]^g = g(i) = t_i$

Given the assumptions spelled out so far, the LF and interpretation of a simple tensed clause (14a) would be as in (14b) and (14c):

- (14) a. tqálk’-em tu7 s-mary
 drive-INTR PAST NOM-Mary
 ‘Mary drove’

- b. LF



- c. $[[TP]] = \lambda s \exists e [\text{drive}(e)(s) \ \& \ \text{agent}(\text{Mary})(e)(s) \ \& \ \tau(e) \subseteq t_{\text{past}}]$

3.2 Subordinate temporal clauses (*i*-clauses)

As we have seen in Section 2.2, subordinate temporal clauses are one of the strategies available for the expression of manner in St'át'imcets. An example is given below:

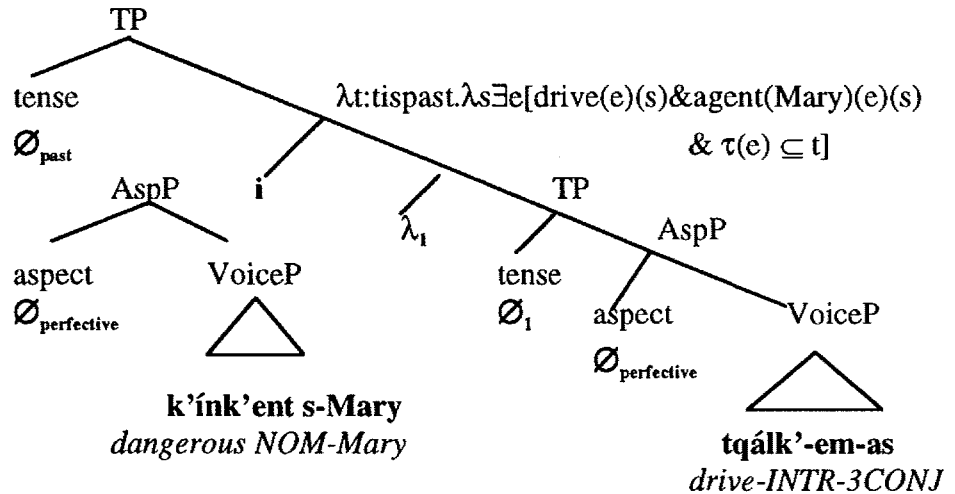
- (15) k'ínk'ent s-Mary [i tqálk'-em-as]
 dangerous NOM-Mary [when.PAST drive-INTR-3CONJ]
Mary drove dangerously (= Mary was dangerous when she drove)

We will propose an analysis according to which *i* binds a temporal variable introduced by tense in the subordinate clause (this analysis predicts that tenses in *i*-clauses are always variable tenses). As we have mentioned before, the complementizer *i* indicates that the subordinate clause denotes a property predicated of past times. This restriction to past times will be captured as a presupposition introduced by *i*. The interpretation of *i* is given below:

- (16) $[[i]] = \lambda P_{\langle i, \langle s, t \rangle \rangle} \lambda t: t \text{ is past } [P(t)]$

Given this proposal, the LF and interpretation of a sentence like (15) will be as in (17):

- (17) a.



- b. $\lambda s \exists e \exists e' [\text{dangerous}(e)(s) \ \& \ \text{agent}(\text{Mary})(e)(s) \ \& \ \tau(e) \subseteq t_{\text{past}} \ \& \ \text{drive}(e')(s) \ \& \ \text{agent}(\text{Mary})(e')(s) \ \& \ \tau(e') \subseteq t_{\text{past}}]$

The *i*-clause is interpreted by intersection with the main clause (see Heim and Kratzer's 1998 'Predicate Modification Rule'). The result is a property of times that contain both events of Mary driving and events of Mary being dangerous. The tense pronoun in TP saturates the temporal argument of this property, resulting in a proposition that corresponds to the set of situations that contain both past events of Mary driving and past events of Mary being dangerous. The temporal location of such events is restricted to some contextually salient past time.

According to the analysis proposed above, it is Mary who is asserted to be dangerous, not her driving. Driving in a dangerous manner is certainly one of the ways in which Mary could be dangerous while driving, but it is not the only one. It could be the case that Mary was driving quite cautiously, but was dangerous while driving due to some completely independent factor, e.g. Mary likes to shoot out of the window while she is driving, and sometimes she hits animals or people. The sentence in (15) could be truthfully uttered in such circumstances, as our analysis predicts.

3.3 Nominalized clauses

3.3.1 The internal structure of nominalized clauses

As we have seen in Section 2.2, the second strategy available in St'át'imcets to express manner is the use of nominalized clauses. Example (7c) is repeated below:

- (18) k'ínk'ent [ti s-tq-álk'-em-s-a s-Mary]
 dangerous [DET NOM-touch-string-INTR-3SG.POSS-DET NOM-Mary]
Mary drove dangerously (= Mary's driving was dangerous)

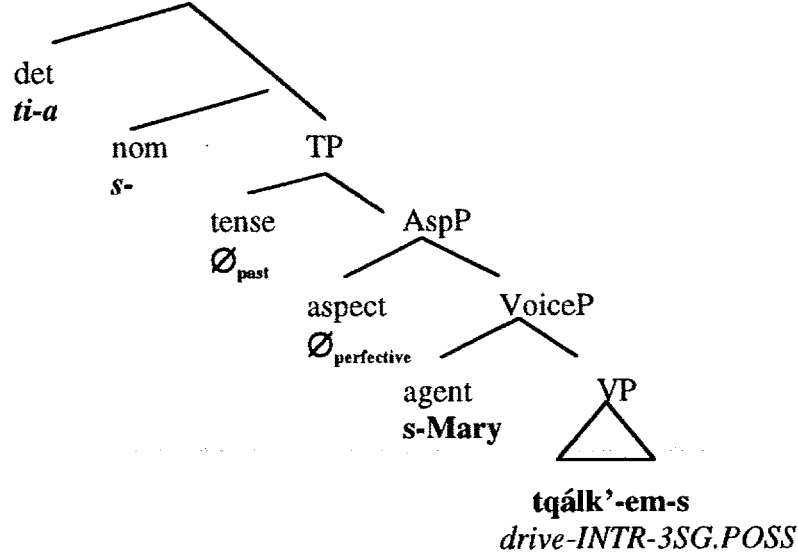
St'át'imcets nominalized constructions do not correspond directly to English gerund constructions (nominalized clauses in English). The St'át'imcets nominalized predicate does not behave like a noun with respect to any of the diagnostics for noun-hood in the language. Moreover, St'át'imcets nominalized clauses allow for the overt presence of both tense and aspect morphology. Examples are given below:

- (19) a. skenkín [ta s-xát'-em-s-a tu7 s-Mary]
 slow [DET NOM-climb-INTR-3SG.POSS-DET PAST NOM-Mary]
Mary climbed slowly
- b. áma [t-s-wa7 ník'-in-as s-Mary ta ts'úqwaz'-a]
 good [DET-NOM-PROG cut-TR-3ERG NOM-Mary DET fish-DET]
Mary was cutting the fish well

As in the case of simple clauses, we will assume that tense and aspect heads are present even in the absence of overt morphology.

The nominalized clause in examples like (18) will be assigned the internal structure in (20):

(20)



Nominalized clauses in St'át'imcets embed a full TP, and TPs denote propositions. The TP in (20), for example, denotes the proposition specified in (21):

$$(21) \quad [[\text{TP}]] = \lambda s \exists e [\text{drive}(e)(s) \ \& \ \text{agent}(\text{Mary})(e)(s) \ \& \ \tau(e) \subseteq t_{\text{past}}]$$

Part of the challenge of giving an analysis of St'át'imcets nominalized clauses consists in explaining how the meaning of the proposition denoted by the TP contributes to the overall interpretation. We will address this and related issues in the next section.

3.3.2 Minimal situations in nominalized clauses

An adequate analysis of St'át'imcets nominalized clauses should explain how the meaning of the entire construction is compositionally derived. This includes accounting both for the meaning contribution of the embedded TP, and for the meaning contribution of the *ti-a* determiner that heads the nominalized clause. As we have seen in (9) [repeated below], the determiners that head nominalized clause are ordinary determiners that appear in DPs in combination with noun predicates:

- (22) xwes-xwís-ana7 ti smúlhats-a
 smile(REDUP)-ear DET woman-DET
 The woman smiled

One goal of our analysis is to arrive at a uniform treatment of determiners that can account for their interpretation in both constructions.

Matthewson 1999 has investigated the semantics of determiners in combination with noun predicates. She has argued that *ti-a* determiners in St'át'imcets introduce a variable over choice functions, picking out an individual from the set corresponding to the predicate denoted by the noun [the reader is referred to Matthewson for details and discussion]. The determiner in (22), for example, denotes a contextually salient function

that picks out one woman from the set of women, and the sentence then asserts that that woman smiled. Ignoring tense and aspect, a simplified representation of the meaning of (22) is given below:

(23) smiled (f(woman))

We will adopt Matthewson's choice-function analysis of determiners and extend it to the cases in which determiners appear in nominalized clauses. To do that we need to explain what is the set that the choice function is operating on in nominalized constructions. Inspired by Zucchi 1993, we would like to propose that nominalized clauses denote minimal situations. We will argue that the choice function determiner *ti-a* picks out a minimal situation from a set of minimal situations that is the denotation of the clause sister to the determiner, the clause headed by the nominalizer *s-*.

We have proposed that the TP in (20) denotes a proposition: the set of situations that include an event of Mary driving with a running time included in some contextually salient past time (more specifically, the characteristic function of that set). The set corresponding to the proposition contains all situations that include such a driving event, both minimal and non-minimal (it will, for example, include the maximal situations that contain such an event, entire worlds). Clearly the choice function determiner does not operate on such a set (it cannot pick out an entire world). It operates on the subset of that set made up of minimal situations. We propose that the nominalizer *s-* is responsible for trimming away the non-minimal situations in the TP. *s-* combines with a proposition and the result is the subset of minimal situations within that proposition. The interpretation we propose for *s-* is given below:

(24) $[[s]] = \lambda P_{\langle s, t \rangle} \lambda s [P(s) \ \& \ \forall s' [[P(s')] \ \& \ s' \prec s] \rightarrow s' = s]$ ³
 (abbreviated as: $\lambda P \lambda s [P(s) \ \& \ \min(s)]$) [Heim 1990, von Stechow 1994]

Given this semantics for *s-*, the denotation of the clause sister to the determiner in (20) will be as in (25):

(25) $[[s \ \emptyset_{\text{past}} \ \emptyset_{\text{perfective}} \ [\text{VoiceP} \ \text{tqálk'-ems} \ s\text{Mary}]]] =$
 $\lambda s \exists e [\text{drive}(e)(s) \ \& \ \text{agent}(\text{Mary})(e)(s) \ \& \ \tau(e) \subseteq t_{\text{past}} \ \& \ \min(s)]$

According to (25) the clause headed by *s-* denotes the set of minimal situations that contain an event of Mary driving. What do such situations look like? How are they made up? According to the definition in (24), minimal situations that contain a driving event by Mary will have no proper subparts that also contain that event. They have no parts that are irrelevant to the event. In fact, the minimal situations that contain such events will turn out to be extensionally indistinguishable from the events themselves. When we talk about a minimal situation containing an event we are, in a sense, referring to one

³ This definition of 'minimal situation' gives incorrect results for cases in which the eventualities are states or activities [see von Stechow 1995]. We will adopt it here as a simplification. The reader is referred to Kratzer 1998 for a more accurate characterization in terms of 'exemplification'.

individual twice, once under the guise of an event, and once as a situation. Given this view of situations and events, a property of minimal situations turns out to be extensionally equivalent to a property of events.

Under the analysis proposed above, the clause headed by *s-* and the VP in (20) both pick out a set of events in a world. They do not, however, pick out the same set. The VP picks out all the driving events. The clause headed by *s-* picks out a subset of the driving events: it picks out those driving events that are events of driving by Mary that have a running time that is included in the contextually salient past time.

Since the choice function determiner combines with a clause that denotes a set of minimal situations that contain an event of the relevant kind, it will, in fact, pick out one of those events. The denotation of the nominalized clause will then be a contextually salient event (i.e. an event selected by a contextually salient choice function). In an example like (18) the nominalized clause picks out a contextually salient event/minimal situation of Mary driving, and the sentence then asserts that that event was dangerous.

Matthewson notes that the choice function determiner *ti-a* carries existence entailments: DPs headed by *ti-a* refer to individuals that actually exist [Matthewson 1998, 1999]. There is a parallel in the domain of nominalized clauses, as nominalized clauses are factive and are taken to refer to events that have actually taken place. This could be captured if it were the case that the choice-function determiner can only pick out an actual-world minimal situation. Working out such restrictions, however, remains a matter for future research. [cf. Zucchi, who also argues that nominalized clauses (in English) presuppose that an event of the relevant kind has occurred].

3.3.3 Predicating over events

According to the analysis spelled out above, clauses headed by the nominalizer *s-* denote (the characteristic function of) sets of situations that are also events. This means that such clauses are ambiguous as to their semantic type. Viewed as sets of situations, they would be classified as of type $\langle s, t \rangle$. Viewed as sets of events, they would be classified as of type $\langle e, t \rangle$ (recall that events are a subset of the set of individuals). That is, clauses headed by *s-* can be characterized as denoting properties of individuals. According to Matthewson, choice function determiners map such properties onto a contextually salient individual. The result is that a nominalized clause denotes an individual (type *e*).

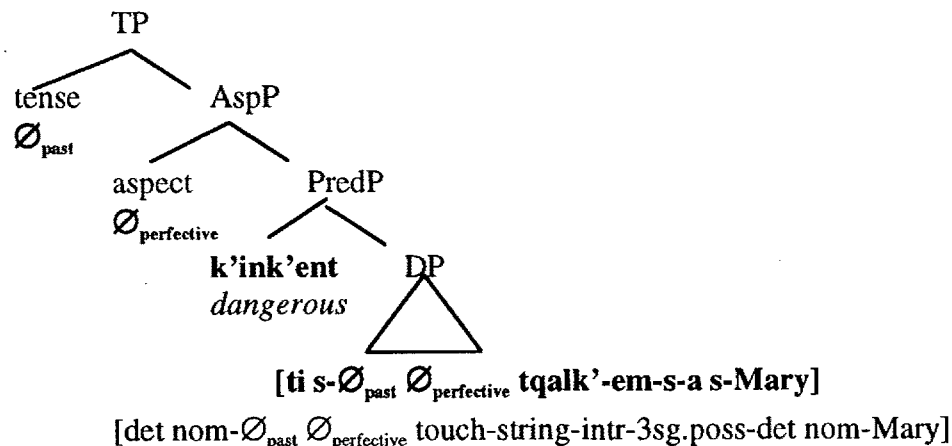
Given their semantic type, nominalized clauses can combine with predicates of individuals. We suggest that that is indeed what happens in examples like (18). The predicate *k'ink'ent* (dangerous) can be predicated of ordinary individuals (as in (8), repeated as (26) below), or of events (as in (18), repeated as (27)):

- (26) *k'ink'ent* *s-Mary*
 dangerous NOM-Mary
 Mary was dangerous

- (27) *k'ink'ent* [ti *s-tq-álk'-em-s-a* *s-Mary*]
 dangerous [DET NOM-touch-string-INTR-3SG.POSS-DET NOM-Mary]
 Mary drove dangerously (= Mary's driving was dangerous)

It is possible to capture the interpretation of *k'ink'ent* (dangerous) in both cases treating it as a predicate of individuals. In sentences like (27) it combines with a nominalized clause. The LF of (27) will be as in (28a), and its interpretation as in (28b):

(28) a.



b. $\lambda s \exists e$ [dangerous [f ($\lambda s' \exists e' (\text{drive } (e')(s')$
 $\& \text{agent } (\text{Mary})(e')(s') \& \tau(e') \subseteq t'_{\text{past}})$][e][s] & $\tau[e] \subseteq t_{\text{past}}$]

3.3.4 Summary

In this section we have given an analysis of the semantics of St'át'imcets nominalized constructions. We have argued that in this construction a choice function determiner picks out a minimal situation from a set. Since such a situation will be extensionally equivalent to an event, nominalized clauses can be taken to denote contextually salient events. In the framework we have adopted, events are a kind of individual. Predicates that can predicate over individuals will also (sometimes) be able to predicate over events, and in this way a manner interpretation will be achieved.

4 Why St'át'imcets lacks manner adverbs

Having provided an analysis of the St'át'imcets manner constructions, we now turn to the question of why St'át'imcets lacks constructions like the English manner adverb construction. As we discussed in Section 1, many researchers assume that the English construction involves predication over an event argument. An example is given below:

(29) a. Mary drove slowly/ dangerously/ sadly.
 b. $\exists e$ [driving (e) & agent (Mary, e) & slow (e)/ dangerous (e)/ sad (e)]

It could be thought that the reason that St'át'imcets lacks logical forms like (29b) is that it lacks an event argument altogether. We will show in the next section that such an

explanation would be wrong and that there is evidence that St'át'imcets does have an event argument.

4.1 Locative and temporal modifiers in St'át'imcets

St'át'imcets possesses locative and temporal modifiers parallel to those originally used by Davidson to motivate an event analysis. Examples are given below:

- (30) a. k'wezús-em s-Mary **l-ti lep'-cál-tn-a**
work- INTR NOM-Mary in-DET dig-INTR-INSTR-DET
Mary worked in the garden [locative modifier]
- b. t'ak t'u7 xelh **lhél-na lhwál'tsten-a t'ánam'ten**
go just cold from-DET October-DET month
It's got cold since October [temporal modifier]

Davidson used modifiers of this sort to motivate an event analysis. He argued that an event analysis is needed to capture the entailment relations holding between sentences with modifiers and sentences without. An example of the entailment relations is given below [(32) is entailed by (31)]:

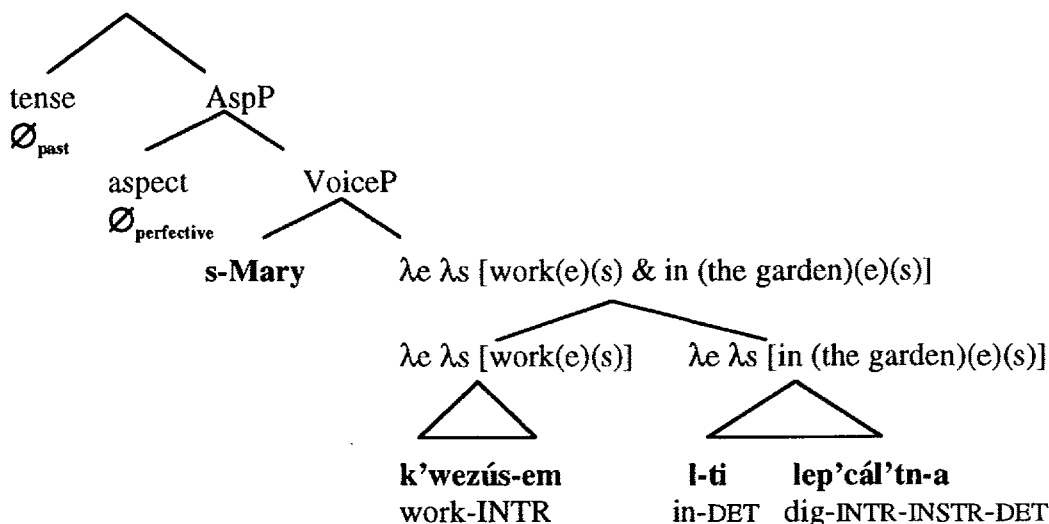
- (31) a. Mary danced in the bathroom.
b. $\exists e$ [dancing (e) & agent (Mary, e) & in (the bathroom, e)]
- (32) a. Mary danced.
b. $\exists e$ [dancing (e) & agent (Mary, e)]

The entailment facts motivating Davidson's proposal are found also in St'át'imcets. The sentence in (30a), for example, entails the sentence in (33):

- (33) k'wezús-em s-Mary
work-INTR NOM-Mary
Mary worked

Given that the entailment facts are the same in St'át'imcets as in English, equal support for an event-based analysis of locative and temporal modifiers is to be found in both languages. Such an analysis is illustrated below for St'át'imcets, where (34) is the LF of (30a):

(34) $\lambda s \exists e [\text{work}(e)(s) \ \& \ \text{agent}(\text{Mary})(e)(s) \ \& \ \text{in}(\text{the garden})(e)(s) \ \& \ \tau(e) \subseteq t_{\text{pres}}]$



The data presented in this section suggests that the evidence for an implicit event argument is as good in St'át'imcets as in English. In principle nothing rules out predication over an implicit event argument in St'át'imcets. The difference between St'át'imcets and English with respect to manner adverb constructions must come from another source.

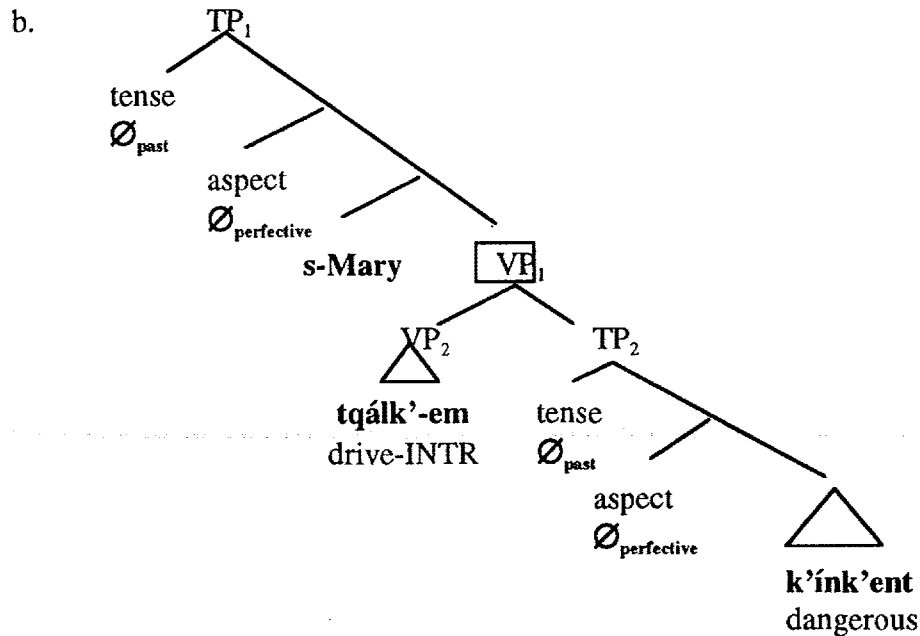
4.2 The solution

We propose that St'át'imcets lacks manner adverbs because it lacks lexical items with the right argument-structure properties. Following Matthewson and Davis (1995), Davis (2000) we claim that St'át'imcets possesses only a two-way distinction in lexical categories: nouns vs. everything else. The difference is that while nouns may appear in the syntax as bare predicates, without projecting to tense, non-nouns necessarily project clausal structure.⁴

Given the claim above, it follows that a predicate like *skenkín* (dangerous) will always appear with its own tense and external argument. It is impossible for a lexical item of this type to predicate directly over the event argument: a type mismatch would ensue. This is illustrated below:

- (35) a. * tqálk'-em k'ínk'ent kw-s Mary
 drive-INTR dangerous DET-NOM Mary
 Mary drove dangerously

⁴ For reasons of space, we will not discuss this issue here. The reader is referred to the cited work for arguments, as well as Jelinek 1995, Jelinek and Demers 1994, Demirdache and Matthewson 1995.



There is a type mismatch at the VP₁ node: VP₂ is a property of events and TP₂ is a proposition.

The explanation given here of the ungrammaticality of (35a) is similar to the explanation that would be given of the ungrammaticality of (36):

- (36) a. *Mary drove was dangerous.
 b. *Mary drove scared me.

In English, two verbs cannot predicate over the same event because each verb must have its own functional structure (i.e. they must project to Tense). The difference between St'át'imcets and English is that English has a separate category of Adjective which do not have to project to Tense.

The claim that the inability of verbs in English to function as adverbs is due to a tense requirement is found also in observations made by Rothstein [1983: 148]:

There are no verbal adjuncts... This systematic gap can be explained in the following way adjunct predicates are always uninflected. Prepositional adjectival and nominal heads are not morphologically inflected and therefore there is no problem with their being used as adjuncts. Verbs, unlike these other categories, have a morphological 'slot' for inflection, and require an inflectional affix of some kind in order to be morphologically well formed.

The proposal made here also bears some similarity to claims made by Baker (in prep.). In his discussion of the defining properties of adjectives and verbs, Baker argues that

only verbs have the power to take a specifier, which is normally theta-marked as a theme or agent... The distinctive property of a verb is that it has a theta role to discharge; if that theta role is not properly assigned, the structure will be ruled out by the (ordinary) theta criterion

While there are many differences in detail between Baker's analysis and ours, it seems that there is a common prediction to both: in a language which lacks a category of adjectives separate to verbs, adverbs will also be absent.

4.3 A consequence for locative and temporal modifiers

The analysis presented above makes a prediction about locative and temporal modifiers in St'át'imcets. In Section 4.1 we have analyzed such modifiers as event predicates inside the VP. Given our discussion in Section 4.2, the prediction is that such modifiers need not project Tense (otherwise they too would lead to a type mismatch). This prediction is upheld. The examples in (37) show that locative and temporal modifiers are unable to function as main predicates (in this they differ from all other XP categories such as AP, NP or VP):

- (37) a. * l-ta tsítcw-a kw-s Bucky
 in-DET house-DET DET-NOM Bucky
 Bucky is in the house
- b. * láku7 Mt. Currie-ha ti xzúm-a sqwem
 DEIC Mt. Currie-DET DET big-DET mountain
 The big mountain is near Mt Currie
- c. * pináni7 ku sútik ta t'ép-a máqa7
 then DET winter DET deep-DET snow
 The deep snow was that winter

The sentences in (37) become grammatical if a locative predicate *wa7* (to be in location) is added. In (38) *wa7* functions as the main predicate of the sentence, and it takes the locative PP as one of its arguments:

- (38) a. wa7 l-ta tsítcw-a kw-s Bucky
 LOC in-DET house-DET DET-NOM Bucky
 Bucky is in the house
- b. wa7 láku7 Mt. Currie-ha ti xzúm-a sqwem
 LOC DEIC Mt. Currie-DET DET big-DET mountain
 The big mountain is near Mt Currie

Summarizing the results of Section 4, we have argued that only lexical items that need not project their own clausal structure can be added as predicates of events within the VP. The absence of manner adverbs in St'át'imcets is due to the restricted categorial system of the language.

5 Psychological adverbs

As was mentioned in Section 1, objections have been raised to the claim that all manner adverbs are predicates over events. Geuder 2000, for example, has argued that psychological manner adverbs predicate over ordinary individuals in some interpretations. In this section we will discuss data from St'át'imcets that suggests that psychological manner adverbs actually never predicate over events and then discuss the consequences of adopting this view for English.

5.1 Psychological predicates in St'át'imcets

According to the analysis proposed in Section 3, nominalized clauses in St'át'imcets denote a single salient event. In examples like (18) [repeated below], a nominalized clause functions as the subject of a predicate: the sentence asserts that Mary's driving was dangerous (see (28) above).

- (39) k'ínk'ent [ti s-tq-álk'-em-s-a s-Mary]
 dangerous [DET NOM-touch-string-INTR-3SG.POSS-DET NOM-Mary]
Mary drove dangerously (= Mary's driving was dangerous)

Our conclusion was that with nominalized clause subjects, the predicate is predicated over the event denoted by the clause. In this way a 'manner' interpretation is obtained.

Interestingly, not all predicates can combine with a nominalized clause. Some examples of ungrammatical attempts are given below:

- (40) a. ?? ca7-s-tsút [ta s-7ít'-em-s-a s-Mary]
 high-CAUS-REFL [DET NOM-sing-INTR-3SG.POSS-DET NOM-Mary]
Mary sang proudly (= Mary's singing was proud)
- b. * qlil [ti s-t'íq-s-a s-Mary]
 angry [DET NOM-arrive-3SG.POSS-DET NOM-Mary]
Mary arrived angrily (= Mary's arrival was angry)

Consultant's comment: "Bad. You're not saying who got mad; you gotta be saying someone got mad."

- c. * qlil [ta s-we7áw-s-a s-Mary]
 angry [DET NOM-holler-3SG.POSS-DET NOM-Mary]
Mary shouted angrily (= Mary's shouting was angry)

Consultant's comment: "Bad. You're not saying who got mad because she hollered."

- d. * qwenúxw-alhts'a7 [ta s-mátq-s-a káti7 s-Mary]
 sick-inside [DET NOM-walk-3SG.POSS-DET DEIC NOM-Mary]
Mary walked around sadly (= Mary's walking around was sad)
- e. * kwezín'cwem [ta nk'talus-mín-ts-as-a s-Mary]
 jealous [DET (NOM)-stare-APPL-1SG.OBJ-3ERG-DET NOM-Mary]
Mary stared at me jealously (= Mary's staring at me was jealous)

The ungrammaticality of examples like (40) suggests that psychological manner adverbs do not predicate over events. We suggest that such predicates only predicate over ordinary individuals. This predicts that such predicates would be acceptable in subordinate *i*-clauses, and the prediction is borne out:

- (41) a. qlil kw-s Mary [i we7áw-as]
angry DET-NOM Mary [when.PAST holler-3CONJ]
 Mary shouted angrily (= *Mary was angry when she shouted*)
- b. ca7-s-tsút [i w-as ít'-em] kw-s Mary
high-CAUS-REFL [when.PAST PROG-3CONJ sing-INTR] DET-NOM Mary
 Mary sang proudly (= *Mary thought highly of herself when she was singing*)

When consultants are asked to translate English sentences containing depictives, the same subordinate clause construction is used, as illustrated in (42). This suggests that whatever the distinction is between English adverbial and depictive constructions, the distinction appears to be neutralized in St'át'imcets :

- (42) a. tsa7cw kw-s Philomena [i t'íq-as]
happy DET-NOM Philomena [when.PAST arrive-3CONJ]
 'Philomena arrived happy.'
 (= 'Philomena was happy when she arrived.')
- b. qlil kw-s Philomena [i t'íq-as]
angry DET-NOM Philomena [when.PAST arrive-3CONJ]
 'Philomena arrived angry.'
 (= 'Philomena was angry when she arrived.')
- c. wa7 qá7ez' [i tqálk'-en-as ta káoh-a]
 PROG tired [when.PAST drive-TR-3ERG DET car-DET]
 'He drove the car tired.'
 (= 'He was tired when he drove the car.')
- d. qwenúxw-alhts'a7 i úxwal'-as
sick-inside when.PAST go.home-3CONJ
 'She went home sad'.
 (= 'She was sad when she went home.')

Having argued that psychological predicates in St'át'imcets always predicate over ordinary individuals, the prediction now is that it will be contradictory to deny that the relevant emotional state holds of the individual. And this prediction is borne out:

- (43) a. * qlil kw-s Mary [i w-as we7áw], t'u7 ay t'u7
 angry DET-NOM Mary [when.PAST PROG-3CONJ holler] but NEG just
 kw-s qlil
 DET-NOM angry
 Mary shouted angrily, but she wasn't angry

- b. * *ca7-s-tsút* [i w-as ít'-em] kw-s Mary,
 high-CAUS-REFL when.PAST PROG-3CONJ sing-INTR DET-NOM Mary
t'u7 ay t'u7 kw-s ca7-s-tsút
 but NEG just DET-NOM high-CAUS-REFL
Mary sang proudly, but she wasn't proud

We claim that in St'át'imcets psychological state predicates are always predicated over ordinary individuals, and never over events. We will briefly investigate the consequences of a similar hypothesis for English in the next section.

5.2 Subject depictives and psychological adverbs in English

The contrast exemplified in (44) appears to be problematic for the claim that in English too psychological predicates only predicate over ordinary individuals, and never predicate over events:

- (44) a. John left the room sad.
 b. John left the room sadly.

A fully generalized event-predicate of adverbs can capture the difference between (44a) and (44b) by claiming that the adverb, and not the depictive, predicates over the event argument:

- (45) a. $\exists e$ [leave(e) & Theme(John, e) & sad(John)]
 b. $\exists e$ [leave(e) & Theme(John, e) & sad(e)]

The availability of logical forms like (45b) in English makes it totally mysterious why psychological predicates cannot predicate over events in St'át'imcets. We would like to suggest that (45) may not be the correct analysis of the contrast in (44). Instead, we would like to differentiate between *sad* and *sadly* in terms of evidentiality. We claim that both *sad* and *sadly* predicate over ordinary individuals. The difference is that *sad* asserts that an individual is actually sad, while *sadly* only asserts that an individual appears to be sad. A proposal along these lines would capture the contrast in (44), and would also be able to explain why examples like (46) are felicitous (and not contradictory):

- (46) a. John walked sadly off the stage, but he wasn't sad.
 b. Although Jan drove the car drunkenly, she wasn't drunk.
 c. Although Jan drove the car drunk, she didn't drive drunkenly.
 [(46b) and (46c) are from Dechaine 1993]

One obvious question raised by this proposal is how the evidential meaning we have assigned to *-ly* can be reconciled with the other non-evidential uses of this suffix. Some examples are given in (47):

- (47) a. Fortunately/ happily/ luckily, it didn't rain.
 b. Frankly/ honestly, I don't give a damn.

We are not able to provide a thorough analysis of the *-ly* suffix in this paper. It could be the case that there is more than one *-ly* suffix in English. Or that *-ly* itself is semantically vacuous, and that in English evidentiality is expressed by means of a phonologically null morpheme. The topic remains a matter for future research.

5.3 Back to St'át'imcets: the evidential reading

According to the proposal sketched in Section 5.2, adverbs like *sadly* are actually predicates over ordinary individuals. They differ from *sad* in terms of evidentiality, not in terms of argument structure. If the evidential *sadly*-reading is obtained by predicating over ordinary individuals, we expect to find an equivalent reading in St'át'imcets. In this section we will discuss how that reading arises.

St'át'imcets possesses a set of clitics which encode notions like 'evidential', 'quotative', 'surmise'. These clitics are obligatory. If they are absent, the speaker is assumed to have direct knowledge of what is being reported. This is illustrated in (48):

- (48) a. wa7 qwenúxw-alhts'a7 kw-s Harry
 PROG sick-inside DET-NOM Harry
 Harry is sad
- b. wa7-as-an' qwenúxw-alhts'a7 kw-s Harry
 be-3CONJ-EVID sick-inside DET-NOM Harry
 Harry seems sad

The sentence in (48a) is judged to be appropriate only if the speaker really *knows* that Harry is sad (i.e. Harry must have told the speaker that he is sad). If it just looks like Harry is sad (e.g. he has a sad expression on his face), then (48a) is inappropriate, and (48b) must be used.

Examples like the ones in (48) suggest that the *sadly* -reading should be expressed in St'át'imcets using the evidential markers that are independently utilized in the language. The examples in (49) show that this is indeed the case. When consultants are asked to express that an action was performed in a sad manner, without the individual necessarily being sad, they volunteer the following constructions:

- (49) a. qwenúxw-alhts'á7-as-a s-Mary [i wá7-as káti matq]
 sick-inside-3CONJ-DET NOM-Mary [when.p PROG-3CONJ DEIC walk]
 Mary seemed sad when she was walking around.
- b. qwenúxw-alhts'á7-as-a k'a [i w-as matq s-Jason]
 sick-inside-3CONJ-DET EVID [when.p PROG-3CONJ walk NOM-Jason]
 Jason seemed sad when he was walking around.

6 Conclusion

St'át'imcets is a language that lacks manner adverbs similar to the English ones. Two constructions are available to express manner: subordinate temporal clauses and nominalized clauses. In this paper we have proposed an analysis of these constructions, as well as an explanation of why St'át'imcets lacks English-type adverbs.

Many researchers working within neo-Davidsonian frameworks have proposed to analyze manner adverbs as predicates over events. However, the generality of this treatment has been questioned. It has been suggested (e.g. Geuder 2000) that psychological adverbs do not necessarily predicate over events. We have argued that in St'át'imcets psychological predicates never predicate over events. And we have suggested that this view could be adopted for English too.

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