Building statives in Nsyilxcn*

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1 Introduction

Nsyilxcn (a.k.a. Colville-Okanagan, ISO 639-3: oka) is a Southern Interior Salish language spoken in south-central British Columbia, and the northern interior of Washington State. There now remain approximately 81 fluent first-language speakers in Canada (FPCC 2022), though there are intensive revitalization efforts underway on both sides of the border.

This paper develops a semantics for derived, stative predicates in Nsyilxcn. These predicates are formed by attaching a stativizer *(ə)c-* to a change-of-state (CoS) root, as in (1).[1]

(1) a. **c-q̓ay̓** mnímłtət iʔ stəłtáłt-(t)ət iʔ k̓l
STAT-get.written 1PL.INDP DET truth-1PL.POSS DET to
scəcm̓álaʔ-təṯ.
children-1PL.POSS
'Our family declaration is written.'
(Delphine Derickson Armstrong, VF)

b. lut kn t̓a kł-kəwáp ałíʔ
NEG 1SG.SUBJ NEG.FAC have-horse because
c-naq̓^{w} in-kəwáp.
STAT-get.stolen 1SG.POSS-horse
'I don't have a horse because my horse is stolen.'
(Delphine Derickson Armstrong, VF)

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[1] Abbreviations used in this paper are as follows: C2 – final (inchoative) reduplication; DET – determiner; DUB – dubitative; FAC – factual; INCH – inchoative; INDP – independent; IPFV – imperfective; NEG – negative; OBL – oblique; PL – plural; POSS – possessive; SG – singular; STAT – stative; SUBJ – intransitive subject; VF – volunteered form.

I analyze the stativizer as deriving a target state from a CoS root by existentially closing an event variable in the root, and foregrounding an underlying stative variable, essentially following Kratzer's (2000) analysis of derived statives in German. I discuss several properties of CoS roots and statives in Nsyilxcn which together support the idea that CoS root templates contain both event and state arguments. This analysis of Nsyilxcn CoS roots is more in line with Kratzer's (2000) analysis of underived German participle stems, and contrasts with recent analyses of English CoS roots where root templates come prespecified with either an existentially closed event (Beavers & Koontz-Garboden 2020) or state argument (Yu et al. 2023), as well as Davis' (2021) analysis of CoS roots in the neighbouring Salish language St'át'imcets, which lack state arguments altogether.

2 Target states and resultant states

As originally described in Parsons (1990), and formalized in Kratzer (2000), *target states* are in principle reversible, and the state must continue to affect an argument relative to a reference time in order to be felicitously used. *Resultant states*, in contrast, simply entail that an event has culminated at some point prior to the reference time (like the English perfect), and as such are not reversible, and do not require the state to continue affecting an argument at a reference time. One empirical test distinguishing the two types of states involves the adverb *still*, which occurs with target states like *pumped up* (2a), but is redundant with resultant states like *proven* (2b).[2]

(2) a. The tires are *still* pumped up. [TARGET STATE]
b. The theorem is (**still*) proven. [RESULTANT STATE]
(Kratzer 2000:385-386)

Davis et al. (2020) developed a series of storyboards (Burton & Matthewson 2015) designed to test whether derived statives in two Salish languages, St'át'imcets and ʔayʔaǰuθəm, denote *target* states or *resultant* states. Their test results indicate that while the St'át'imcets stativizer *es-* derives a resultant state, ʔayʔaǰuθəm stative reduplication derives a target state. Given that variation within the Salish family exists, it is important to determine how Nsyilxcn *(ə)c-* statives pattern.

[2] The results of the *still* test are clearer in German than they are in English, as noted by Embick (2009).

Figure 1: The Broken Cup

Figure 2: The Breakdown

Figure 3: The Trodden Worm

Figure 1 represents the final pane of a storyboard about a woman who drops a cup, whose broken pieces are scattered, after which she uses glue to piece the cup back together. The stative *cpakʷ* 'to be scattered' is volunteered earlier in the storyboard to describe a pane in which the shattered pieces lay strewn about the floor. If *cpakʷ* denotes a resultant state, it should be felicitous to use even after the cup has been glued back together (Figure 1), similarly to the English present perfect *It has been scattered (but is now put back together)*. If *cpakʷ* denotes a target state, it should not be felicitous in Figure 1, since the state no longer actively affects the cup. Results indicate a target state (3).[3]

(3) #ʕapnáʔ **c-pakʷ** iʔ lpot.
now STAT-scattered DET cup
'The cup has now been scattered.'
(Delphine Derickson Armstrong)

The final scene in the second storyboard is illustrated by Figure 2. This tells the story of a couple whose car breaks down, after which they try to push the car to a service station. For one version, they successfully push the car, and the stative *cyrmín* 'to be pushed' is volunteered.[4] In an alternate version (Figure 2), the couple tries to push the car, but to no avail. Under this scenario, a pushing event has occurred, but there is no discernable target state affecting the car. Hence, the prediction is that

[3] Note that the adverb *ʕapnáʔ* 'now' is necessary to enforce a present tense reading of the stative. Without *ʕapnáʔ,* the sentence *cpakʷ iʔ lpot* is preferably interpreted relative to a past time, before the cup is glued together again, i.e. *The cup was scattered*, but because in this case, the stative is interpretable either as a resultant or as a target state, the test is invalidated. Similar facts hold for (4) below, but in (5b) Delphine's comments indicate that she is assigning a present tense interpretation even in the absence of *ʕapnáʔ.*

[4] *yrmin* 'to get pushed' has the morphological appearance of an applicative, rather than a typical CVC root. The applicative *-min* seems to be historically fused, however. The etymological root, *y(i)r*, refers to 'circling'.

cyrmin can only be used in this context if it denotes a resultant, rather than a target state. Again, Nsyilxcn *cyrmin* patterns as a target state (4).

(4) #ʕapnáʔ **c-yrmín** iʔ ṗuyxn.
now STAT-get.pushed DET car
'The car has now been pushed.'
Comment: "No, *ʕapnáʔ lut ṫ ksyrmíntəm, myałnʕást.* 'We're not going to push it now, it's too heavy.'"
(Delphine Derickson Armstrong)

The last storyboard I discuss involves a worm which is stepped on: Under the first version, it is squashed and killed, for which the stative *cṗaċ* 'to be squashed' was volunteered. Under the second version, he is stepped on and presumably killed, however when the foot lifts, the worm has miraculously survived (Figure 3). The volunteered form for Figure 3 includes the inchoative *ṗáċəċ* 'get squashed' (5a). Inchoatives entail a result state (Lyon 2023), hence *ṗáċəċ* entails stative *cṗaċ* 'to be squashed' relative to a past or present time. When I attempted to substitute stative *cṗaċ* for the inchoative, as in (5b), Delphine indicated that you could not say it that way, since "it would already be squashed". This indicates that while *ṗáċəċ* does entail *cṗaċ* at some past time, one cannot for Figure 3 state the equivalent of *The worm has been squashed*, since the state no longer affects the worm at the present time. Again, this suggests that Nsyilxcn *(ə)c-* derives a target state.

(5) a. **ṗáċ•əċ** iʔ mámlaʔ náx̌əmɬ púitiʔ
get.squashed•C2.INCH DET worm but still
c-xʷəlxʷált.
IPFV-alive
'The worm got squashed but it is still alive.'
(Delphine Derickson Armstrong, VF)

b. **#c-ṗáċ** iʔ mámlaʔ náx̌əmɬ púitiʔ
STAT-get.squashed DET worm but still
c-xʷəlxʷált.
IPFV-alive
'The worm has been squashed but it is still alive.'
Delphine: "No, because it would already be squashed."
(Delphine Derickson Armstrong)

Last, consider that Nsyilxcn statives are compatible with *púti?* 'still' (6, cf. 2), similarly to target states in German and English.

(6) in-kəwáp **c-naq̓ʷ** t spiʔsc̓íɬt, uɬ putíʔ
1SG.POSS-horse STAT-get.stolen OBL yesterday and still
ʕapnaʔ **c-naq̓ʷ**.
now STAT-get.stolen
'My horse was stolen yesterday, and it's still stolen now.'
(Delphine Derickson Armstrong)

Target states, unlike resultant states, must have a stative component to their meaning which serves as an anchor for a reference time. Kratzer (2000) posits that some roots in German come pre-equipped with both stative and eventive arguments (type ⟨s,⟨s,t⟩⟩[5]), and that a target stativizer (7a) existentially closes the event variable, foregrounding the state.[6] Other eventive roots lack a stative argument (type ⟨s,t⟩), and these derive into resultant states via a resultant stativizer (7b).

(7) a. $\lambda R_{\langle s\langle s,t\rangle\rangle}\,\lambda s \exists e.R(s)(e)$ [TARGET STATIVIZER]
b. $\lambda P_{\langle s,t\rangle}\,\lambda t \exists e.[P(e)\ \&\ \tau(e) < t]$ [RESULTANT STATIVIZER]
(Kratzer 2000:392;397)

Given the evidence above that Nsyilxcn statives are target states, (7a) might be taken as a plausible representation for the semantics of the *(ə)c-* stativizer. But what independent evidence is there that Nsyilxcn roots encode both event and state arguments?

In the next section I discuss several pieces of evidence for assuming (7) as a definition for the Nsyilxcn stativizer *(ə)c-*, and for a lexical decompositional analysis of CoS roots as encoding both event and state arguments, as rendered in (8):

(8) $\lambda x \lambda s \lambda e.[\text{BECOME}(P(x)(e)) \wedge \text{CAUSE}(e,s)]$
[CHANGE-OF-STATE ROOT]

[5] This paper utilizes the same ontological distinctions and formal types as found in Kratzer (2000): Basic types are *t* (propositions), *e* (entities), *s* (states, events), and *i* (intervals of times). Variables *x* ranges over entities, *e* over eventualities (including events proper and states), *s* ranges over states, *t* over intervals of time, *P* over functions of type ⟨s,t⟩, *R* over functions of type ⟨s⟨s,t⟩⟩.

[6] Burton and Davis (1996) develop a similar theory for St'át'imcets statives.

The representation in (8) states that relative to a world *w,* an individual *x* undergoes a transitional *P* event *e* (via BECOME, Dowty 1979), and this event causes a state *s* (via CAUSE, Embick 2009).[7]

3 State variables and causative structure in change-of-state roots

In this section I provide evidence that a semantically causative predicate (CAUSE in 8) linking a transitional event with a state is an important component of meaning in Nsyilxcn CoS roots.

First, consider that there is a homophonous, yet semantically distinct imperfective prefix *(ə)c-*. Stage-level adjectives but not individual-level adjectives (Carlson 1977; Kratzer 1989) can occur with imperfective *(ə)c-* (Lyon 2010). The contrast between I-level (9a) and S-level (9b) follows if the imperfective requires a predicate with an open event variable, and if S-level but not I-level adjectives have such a variable.

(9) a. **(*c)-t̓íkʷəlqʷ** iʔ sqəltmíxʷ.
IPFV-tall DET man
'The man is tall.' (Delphine Derickson Armstrong)

b. axáʔ **(c)-nʕast** t knəxnáx.
this IPFV-heavy OBL box
'This is a heavy box.' (Delphine Derickson Armstrong)

Although historically related to stative *(ə)c-,* the imperfective is distinct: This is shown by the presence of habitual readings with imperfective adjectives (10), and their conspicuous absence on derived statives (11,12).[8] In other words, imperfective *(ə)c-* does not occur with bare CoS roots.

[7] Evidence from manner adverbs and instruments of causation discussed below suggests that in at least some cases CoS roots combine with their internal arguments prior to stativization, yielding a *phrasal* stativization (cf. Kratzer 2000:7).

[8] There is nothing inherent about the determiner *iʔ* that should force reference to a single entity in (11) and (12): *iʔ* allows generic readings (Lyon 2015), but stative *c-* seems to prevent a generic interpretation. The habitual readings targeted in (11) and (12) are felicitously expressed using a transitive, causative imperfective, e.g., *cp̓ə̓qstixʷ iʔ słiqʷ* 'You (typically) cook meat' and *cpul̓stsəlx iʔ sip̓ə̓* 'They (typically) tanned hides'. This shows that CoS roots can be derived into forms which are compatible with the imperfective, and suggests that the causativizer *-st-* may be interacting semantically with the state variable in a CoS root.

(10) uc kʷ **c-ʔilxʷt**?
DUB 2SG.SUBJ IPFV-hungry
'Don't you get hungry (typically)?' (*twi*-Lottie Lindley)

(11) *Context: Showing someone new around a kitchen.*
c-p̓y̓q iʔ sɬiqʷ alá ʔ iʔ l nk̓ʷl̓cncútən.
STAT-get.cooked DET meat here DET in cooking.container
Target: 'Meat is cooked in this pot.'
Actual: 'The meat has been cooked in this pot.'
(Delphine Derickson Armstrong)

(12) # q̓sápi **c-pul̓** iʔ sip̓y̓.
long.ago STAT-get.tanned DET hide
Target: 'Long ago, hides were tanned.'
Actual: 'Long ago, the hide was tanned.'
Comment: "You're just talking about one hide."
(Delphine Derickson Armstrong)

If S-level adjectives and CoS roots were both simply predicates over eventualities, the expectation is that habitual, imperfective interpretations of CoS roots should be possible in (11) and (12), as they are with a wide range of derived verbal predicates. Instead, only a stative reading obtains. Assuming (i) an analysis of imperfective *(ə)c-* similar to that in (13) (see Rullmann & Matthewson 2018), and (ii) that CoS roots contain an additional, open state argument necessary for deriving target statives, the prediction is that imperfective *c-* may not occur with CoS roots for compositional reasons: after saturation of the internal argument they are of type ⟨s,⟨s,t⟩⟩ (8) rather than ⟨s,t⟩, as required by (13).[9]

(13) $[\![c\text{-}_{IPFV}]\!] = \lambda P_{\langle s,t\rangle}\, \lambda t \exists e.[P(e) \wedge t \subseteq \tau(e)]$ [IMPERFECTIVE]

This general approach is supported by an additional fact: while adjectives commonly occur as bare unaccusatives in Nsyilxcn (9), CoS roots never occur as bare unaccusatives (14).[10] The reason for this, I suggest, is that having both stative and eventive arguments open, CoS

[9] This approach also presumably rules out (null) perfective, or neutral (Smith 1991), interpretations of bare CoS roots.
[10] This is in stark contrast to CoS roots in St'át'imcets (Lyon & Davis 2022). Lyon (2023) shows how agentive uses of bare CoS roots in Nsyilxcn are analyzable as zero-derived middles.

roots are semantically underspecified, similar to underived participial stems in German. In other words, while it is clear that a change-of-state is involved as part of the lexical meaning of a CoS root (8), there is no way to use a bare CoS root in a temporally anchored proposition since it is unclear whether a reference time should apply to the eventive portion, or to the target state. This underspecification is resolved through derivation into a stative (14a) or an inchoative (14b).

(14) a. kn ***(c)-nik̓**.
1SG.SUBJ STAT-get.cut
'I got cut.' (Delphine Derickson Armstrong)

b. kn **nik̓•*(ək̓)**.
1SG.SUBJ get.cut•C2.INCH
'I got cut.' (Delphine Derickson Armstrong)

Next, consider that while homogenous adjectival predicates cannot host a manner adverbial (15a),[11] derived statives can (15b). This shows that although homogenous S-levels are properties of eventualities (as evidenced by their ability to take imperfective *c-*), they may not be modified by adverbs which require an event change-of-state. This also suggests that derived statives are semantically more complex than simple adjectives.

(15) a. * **nʕas** iʔ knəxnáx t k̓ək̓alíʔ.
heavy DET box OBL slow
Target: 'The box got heavy slowly.'
Actual: *'The box is heavy slowly.'
Comment: "An object doesn't get heavy unless you're putting something in." (Delphine Derickson Armstrong)

b. **c-naq̓ʷ** iʔ kəwáp t xʷúsxʷəst.
STAT-get.stolen DET horse OBL quick
'The horse was quickly stolen.'
(Delphine Derickson Armstrong)

[11] Inchoative adjectives can host manner adverbs, as well as instruments of causation. Lyon (2023) suggests that the inchoative adds the templatic structure of (8) to homogenous adjectival predicates, which do not themselves encode an event transition or a resulting state.

Note that the adverbial phrase *t xʷúsxʷəst* 'quickly' in (15b) must be interpreted as modifying the event of being stolen. In some cases, however, a manner adverbial seems forced into infelicitously modifying a state argument (16).

(16) * **c-c̓ax**ʷ iʔ siwłkʷ t k̓ək̓alíʔ.
STAT-get.spilled DET water OBL slow
'The water is spilled slowly.'
Comment: "How can it be *k̓ək̓alíʔ* when it is already spilled?!"
(Delphine Derickson Armstrong)

The contrast between (15b) and (16) hints that manner adverbs can attach in different locations syntactically, and that this has interpretive implications: The event-modifying adverb in (15b) attaches before the event variable is existentially closed by the stativizer (cf. 7a), while the adverb in (16) is interpreted as attaching afterwards.[12]

Lastly, homogenous S-level adjectives cannot host an oblique instrument of causation (17a), while derived stativs can (17b).

(17) a. * **łaʕt̓** iʔ lasmíst iʔ t sq̓it.
wet DET shirt DET OBL rain
'The shirt was made wet by the rain.'
(Delphine Derickson Armstrong)

b. way̓ **c-nik̓** iʔ sp̓íc̓ən iʔ t k̓rk̓riw̓stn.
already STAT-get.cut DET rope DET OBL scissor
'The rope was cut by the scissors.'
(Delphine Derickson Armstrong)

Oblique instruments require reference to a causing event (Davis & Demirdache 2000), i.e. *CAUSE(e,s)* in (8) (Embick 2009), and by extension a change-of-state.[13] The grammatical patterns in (15) to (17) follow if adjectives do not encode any change-of-state or causing event,

[12] It is currently unclear what contextual factor(s) determine whether a speaker interprets a manner adverb as modifying an event (15b) or a state (16): the important point for now is that either interpretation is, in principle, possible.

[13] This argument receives empirical support from examples involving inchoativized predicates, which I analyze as predicates over events. While inchoatives formed from CoS roots allow modification of an underlying state, inchoatives formed from adjectival roots do not (Lyon, 2024).

while derived statives contain both eventive and stative arguments, linked together by a *CAUSE* predicate.

If a saturated event argument, closed by the stativizer in (7), is what forces an illicit manner adverbial modification of a result state in cases like (16), this implies that the manner adverb in (15b) and the oblique instrument in (17b) must be referencing the event *prior* to that event argument being saturated, i.e. *prior* to stativization. From this, it follows that the change-of-state and causing event must be present in the CoS root itself, rather than being introduced by the stativizer to a simplex predicate over events (Embick 2009).

4 Discussion

Nsyilxcn provides support for Kratzer's (2000) definition of the target stativizer in German, and the distribution of stativizer *(ə)c-* helps provide evidence for a semantic distinction between lexical classes in Nsyilxcn: verbal CoS roots are semantically causative (Davis & Demirdache 2000), while adjectives are not. Nsyilxcn additionally shows that it is possible that English CoS roots might be amenable to a more abstract analysis than that recently proffered by Yu et al. (2023) or Beavers and Koontz-Garboden (2020): If English CoS roots can be analyzed similarly to underspecified Nsyilxcn CoS roots or underived German target state participle stems (Kratzer 2000), then they may have zero derivations into stative and eventive forms, supporting an analysis similar to Lieber (1980) who proposes that English and German adjectival participles contain a zero-stativizer.

This paper also shows that Nsyilxcn is different from other Salish languages such as St'át'imcets (Davis 2021; Lyon & Davis 2022) in that unaccusative CoS roots may not be used in bare form. The reason for this, I have suggested above, is that CoS roots are pre-equipped with open event *and* state variables, and for this reason are underspecified without further derivation. Stativizer *c-* backgrounds the event argument (by existential closure of the *e* variable), and foregrounds the resulting state (Kratzer 2000; Burton & Davis 1996 for St'át'imcets) which resolves the underspecification issue, leaving only the stative portion open for temporal modification. This means that a simplex eventive analysis of CoS roots, similar to that advanced in Davis (2021) for St'át'imcets CoS roots, will not suffice for Nsyilxcn. Davis (2021) may nevertheless be correct about St'át'imcets CoS roots, considering that these derive into resultant states. Assuming that Nsyilxcn and St'át'imcets CoS roots, though both unaccusative, differ semantically in whether they contain an

underlying state variable and causative semantics, the conclusion is that the Unaccusativity Hypothesis for Salish (Davis 1997) must accommodate some degree of variation.

Finally, there are two historical points worth making. First, if the Nsyilxcn imperfective *(ə)c-* has its origins as a stativizer, we might expect some semantic similarity between the two markers, especially if the divergence is somewhat recent. Target states and imperfectives both share a requirement that an eventuality be in the process of affecting an argument relative to a reference time, and both of these contrast with resultant states in this respect. As such, this analysis accords with a common historical root for the two *c-* prefixes. Second, given the cognacy between resultant state-deriving St'át'imcets *es-,* Secwepemctsín *s-/c-* (Kuipers 1974), and target state-deriving Nsyilxcn *(ə)c-*, it is possible that Proto-Nsyilxcn **(ə)c-* shifted from deriving a resultant state to deriving a target state, and that this conditioned the use of *(ə)c-* as an imperfective marker. At the same time, it is possible that causative event structure and a state variable originally contributed by Proto-Nsyilxcn **(ə)c-* to simplex eventive CoS roots may over time have become reanalyzed as part of the lexical meaning of CoS roots in Nsyilxcn, accounting for the difference between CoS roots in St'át'imcets and Nsyilxcn: Since target states have both an event and a state variable, a shift in the semantics of the stativizer from resultant state-denoting to target state-denoting would require a concomitant shift in the semantics of CoS roots. Alternatively (and equivalently in terms of its semantic effect) a reanalysis of CoS roots as containing a stative argument may have forced a shift in the semantics of the stativizer. Further work on statives across Salish may help to illuminate historical connections between resultant and target states.

5 Conclusion

This paper helps address some of the gaps in language documentation relating to lexical aspect (A. Mattina 1993; N. Mattina 1996), with the aim of establishing a root-level semantics to provide a firm basis for further work. I show how the Nsyilxcn stativizer *(ə)c-* derives an unaccusative target state (Kratzer 2000; Davis et al. 2020), and provide evidence that change-of-state roots contain both stative and event arguments. This research complements previous aspectual studies for Salish languages (Bar-el 2005; Kiyota 2008; Davis et al. 2020), provides insight into the event structure of verbal roots, raises interesting questions regarding possible semantic variation across Salish at the root

level, and has implications for semantic theories of lexical roots and how they relate to event structure (Kratzer 2000; Embick 2009; Beavers & Koontz-Garboden 2020; Yu et al. 2023).

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