Nsyilxcn Continuous Aspect: Bridging the Progressive and Perfect[*]

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Abstract: This paper provides a description and analysis of Nsyilxcn continuous aspect, building on work by A. Mattina (1993) and N. Mattina (1996). I show that a circumfixal continuative marker *s----(mi)x* (or *s----(a)m* with transitives) attaches to a perfective, imperfective, or derived stative stem, functioning as an additional layer of viewpoint aspect. With imperfectives it yields a progressive interpretation, while with perfectives, a perfect-like interpretation results. Expressed within an mereological, event-structural framework, I analyze the continuative as introducing a sum operation (Krifka 1989) over singular event stages. This paper represents one of several first steps towards a more nuanced understanding of Nsyilxcn sentential aspect and event structure.

1 Introduction

Nsyilxcn (a.k.a. Okanagan Salish) is a Southern Interior Salish language spoken fluently by perhaps as few as 30 elders in south central British Columbia and north central Washington. The examples in this paper come primarily from elicitation and storyboard sessions involving two elder L1 speakers, Delphine Derickson-Armstrong and Dave Michele, both of whom reside in Westbank, BC. Additional examples come from my prior work with elder speakers in the Upper Nicola, as well as other published materials.

This paper examines the structure and meaning of 'continuous' aspect in Nsyilxcn (A. Mattina 1993; N. Mattina 1996). There have been two continuous aspects described in previous studies. These have been termed *perfect* (A. Mattina 1993) or *perfect continuous* (N. Mattina 1996), and *imperfective* (A. Mattina 1993) or *continuous* (N. Mattina 1996).[1] These are illustrated in (1) and (2).[2]

[*] *talíʔ kʷu kʷukstp, Delphine Derickson-Armstrong naʔɬ c̓əsqc̓áknaʔ Dave Michel, uɬ isxʷsxʷknxtiɬn sc̓aʔqʷalqs naʔɬ sxʷəxʷəlíkʷm.* Many thanks to fluent elders Delphine Derickson-Armstrong and Dave Michele, without whom this work would not have been possible. Thanks also to my research assistants Hailey Causton and Ashley Gregoire.

[1] I use the terms 'continuous' and 'continuative' interchangeably.

[2] Glossing and other abbreviations used are as follows: ADJT adjunct; C complementizer; C2 final reduplication; CAUS causative; CISL cislocative; CONT continuous; CRED consonant reduplication; DEM demonstrative; DET determiner; DIR directive transitivizer; DUB dubitative; EXCL exclusive; ERG ergative; FUT future; IND indirective (i.e., benefactive); INCH inchoative; INTR intransitive; IPFV imperfective; LOC locative; MID middle; OBJ object; OBL oblique; NEG negative; NEG.FAC negative factual particle; NMLZ nominalizer; P.CONT perfect continuous; PASS passive; PFV perfective; PL plural; POSS possessive; PROS prospective; Q yes-no question; REDR redirective (di)transitivizer; REFL reflexive; RES resultative; TRED total reduplication; SG singular; STAT stative; SUBJ subject; VF volunteered form; VG volunteered gloss. I use N. Mattina's (1996) glossing convention for the continuative for (1) and (2), but revise these immediately below. For interlinear parsings, '-' indicates a prefix or suffix (excluding reduplication), '< >' indicates an infix, and '•' indicates reduplication.

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(1) *perfect / perfect continuous*

a. **s-k̓ʷul̓-x** k̓l sámaʔ.
P.CONT-work-P.CONT to white.person
'He has gone working at the white man's.' (A. Mattina 1993:12)

b. **s-tər̓q-míx**.
P.CONT-dance-P.CONT
'He has been dancing.' (N. Mattina 1996:61)

(2) *imperfective / continuous*

a. lut t̓ álaʔ, **sc-k̓ʷul̓-x**.
NEG NEG.FAC here CONT-work-CONT
'She's not here, she's working.' (A. Mattina 1993:13)

b. kn **sc-tər̓q-míx**.
1SG.SUBJ CONT-dance-CONT
'I'm dancing now.' (Dave Michele | VG)

The examples in (1) are described by A. Mattina (1993:12) as working "something like the English perfect, with present relevance", or as "a situation in progress with present relevance" (N. Mattina 1996:61). These descriptions resemble Comrie's (1976) definition of perfect aspect as a "past event of current relevance". The examples in (2) are described as indicating "a situation in progress" (N. Mattina 1996:61).

The morphological similarities between (1) and (2) are apparent. Both contain an *s-* segment as part of a continuous prefix (historically a nominalizer), and both contain *-(mi)x* in their suffixal portions. The allomorph *-x* surfaces with inherently stressed ('strong') roots, while *-mix* surfaces with unstressed ('weak') roots. Despite the resemblances, A. Mattina (1993) and N. Mattina (1996) do not discuss the possibility of a compositional relation between the *s-* and *sc-* prefixed forms. This paper proceeds as follows:

I first show that continuous aspect in Nsyilxcn is circumfixal and compositional (Section 2). Continuativity is always realized by a circumfix *s-…-(mi)x* (for intransitives (see (1) and (2)) or *s-…(a)m* (for transitives, see Section 2). These attach to formally perfective (∅-), imperfective (*c-*), or stative (*c-*) predicates. Thus, the examples in (1) contain a null perfective prefix, while those in (2) contain the imperfective *c-* prefix. Example (3) below shows my parsings of what I shall refer to as *perfective continuatives*, *imperfective continuatives*, and *stative continuatives*.[3]

(3) a. **s-∅-tər̓q-míx**. ***perfective continuative***
CONT-PFV-dance-CONT
'He has been dancing.' (N. Mattina 1996:61)

[3] I do not discuss *c-* stative continuatives in detail in this paper, except insofar as they support arguments for a compositional approach. In a nutshell, they are interpretatively very similar to *c-* statives and have resultative meanings (see Section 3.3). There are questions relating to whether stative continuatives pattern with perfective continuatives built on dynamic predicates in showing resultative perfect-like interpretations, or whether these may pattern with perfective continuatives built on adjectival states, and show universal readings (see sections 3 to 5). Examining stative continuatives in the context of *since* clauses may help shed some light, but I leave this for future work.

b. kn **s-c-tə̓r̓q-míx**. ***imperfective continuative***
1SG.SUBJ CONT-IPFV-dance-CONT
'I'm dancing now.' (Dave Michele, VG)

c. **s-c-q̓ə̓y̓-míx** i-s-c-k̓ʷú l̓. ***stative continuative***
CONT-STAT-get.written-CONT 1SG.POSS-NMLZ-STAT-get.made
'My work is written.' (Delphine Derickson Armstrong)

In Section 3, I examine the possibility that perfective continuatives are actually a 'perfect' aspect, as implied by A. and N. Mattina's descriptions. This is a reasonable hypothesis, especially given that the compositional approach outlined in Section 2 directly enables an analysis of the continuative as an additional outer layer of viewpoint aspect, similarly to how perfects have been analyzed in other languages (Pancheva 2003). Empirically, I show that Nsyilxcn perfective continuatives share many cross-linguistic similarities with perfects in languages across the world (Bertrand et al. 2022). In particular, perfective continuatives built on stative predicates such as 'being on a horse' allow for both *existential* (4a) and *universal* perfect readings (4b), whereas those built on dynamic predicates (Olsen 1997) allow *only* existential readings (5) (Dowty 1979; Iatridou et al. 2001; Portner 2003). Existential readings require that an eventuality has completed *at least once prior* to the reference time, while universal readings require that the eventuality hold *at* the reference time.

(4) a. *Answer to "Who has ever ridden in the Omak Stampede?"* ***existential***
waə̓ kn **s-Ø-k-ʔəm•ʔəmt-íw̓s-x** iʔ k̓l Omak
already 1SG.SUBJ CONT-PFV-RES-TRED•sit-middle-CONT DET to Omak
iʔ snpaʜuscút-s.
DET rodeo-3POSS
'I've ridden in the Omak Stampede.' (Dave Michele)

b. ha kʷ **s-Ø-k-ʔəmt-íw̓s-x** iʔ l snkłc̓aʔsqáx̌aʔ? ***universal***
Q 2SG.SUBJ CONT-PFV-RES-sit-middle-CONT DET to horse
'Are you on a horse (like right now)?' (Delphine Derickson Armstrong | VG)

(5) waə̓ kn **s-Ø-k̓ʷúl̓•əl̓-x** kiʔ sic ***existential***
already 1SG.SUBJ CONT-PFV-get.made•C2.INCH-CONT ADJT.C new
iʔ kíc-nt-əm iʔ s-n-q̓lt-iłxʷ-tn.
DET arrive-DIR-1PL.ERG DET NMLZ-LOC-sick-place-INTR
'I had already been born by the time we reached the hospital.'
(Delphine Derickson Armstrong | VF)

In Section 4, I weigh the Nsyilxcn pattern against an 'extended-now' perfect approach (Dowty 1979; Iatridou et al. 2001; Pancheva 2003), whereby the perfect introduces a time span which is a temporal function from reference times to reference times, e.g., *an interval (i',i) where i is a final sub-interval of t'.* I then raise four issues which question its applicability in Nsyilxcn. First, I show that the continuative forces a singular event in-progress interpretation of an imperfective, to the exclusion of habitual readings (6). The continuative derives a progressive (6c) from a general imperfective (6b), in other words. This does not follow from a standard extended-now approach.

(6) a. Q: ha kʷ **c-k̓ʕa-m**?
Q 2SG.SUBJ IPFV-pray-MID
'Do you pray?' (Dave Michele | VF)

b. A: lut, náx̌əmɬ kn **c-k̓ʕa-m** púti? kn ɬa? q̓ʷʕaylqs.
NEG but 1SG.SUBJ IPFV-pray-MID still 1SG.SUBJ when priest
'No, but I used to pray when I was still a priest.'
(Delphine Derickson Armstrong | VF)

c. A':#lut, náx̌əmɬ kn **s-c-k̓ʕa-míx** púti? kn ɬa? q̓ʷʕaylqs.
NEG but 1SG.SUBJ CONT-IPFV-pray-MID+CONT still 1SG.SUBJ when priest
'No, but I was praying when I was still a priest.'
(Delphine Derickson Armstrong, Dave Michele)

Second, imperfective continuous forms do not clearly behave as perfects. In the absence of any adverbial, there are no unambiguous cases which indicate that a retrospective perfect time span is being introduced. These cannot be used as existential perfects, in other words, in contrast to perfect progressives in English (Iatridou et al. 2001). Instead, they require that the event includes the reference time (7). As such I argue that they are better analyzed as progressives.

(7) *Context: Mary is out of breath from running and has been sitting on a bench for 5 minutes.*

marí way̓ **s-c-ntr̓qpncút-x** ʕapnáʔ sx̌əlx̌ʕált uɬ lut
Mary already CONT-IPFV-run-CONT now day and NEG
ṭ ks-qícəlx-aʔx ʕapnáʔ.
NEG.FAC PROS-run-PROS now
Target: 'Mary has already been running today, but she isn't going to now.'
Actual: #'Mary is already running today, but she isn't going to now.'
(Delphine Derickson Armstrong)

Nevertheless, imperfective continuatives do show perfect-like behavior in the context of a *since* adverbial. The time span whose left boundary is set by the *since* adverbial is filled by a single, durative event under a universal interpretation in transitive continuative (8a), and by potentially multiple events under an inclusive interpretation (8b). While (8) challenges the idea that imperfective continuatives are simply progressives, it also indicates that perfect-like interpretations of imperfective continuatives are dependent on adverbials (see Section 6).

(8) a. t siwɬkʷkʷkʕást ki? **i-s-c-knxít-əm** i-sẇaʔẇásaʔ.
OBL early.morning ADJT.C 1SG.POSS-CONT-IPFV-help(-DIR)-CONT 1SG.POSS-aunt
'I've been helping my aunt since early this morning.'
(Delphine Derickson Armstrong)

b. kn łə sḵʷəḵʷíymalt kiʔ **i-s-c-knxít-əm**
1SG.SUBJ when young ADJT.C 1SG.POSS-CONT-IPFV-help(-DIR)-CONT
i-sẇaʔẇásaʔ.
1SG.POSS-aunt
'I've been helping my aunt ever since I was young.' (Delphine Derickson Armstrong)

Third, there are volunteered cases of perfective continuous forms with *prospective* readings (9), which indicates that any time span introduced by the continuative *need not* be retrospective. This is consistent with progressive cases such as (7) above, which are also not retrospective.

(9) x̌lap mi kn c-ṗlaḵ məł
tomorrow FUT.C 1SG.SUBJ CISL-return and.then
kn **s-Ø-xʷuy-x** ḵl ẇí<•ẇ>ast.
1SG.SUBJ CONT-PFV-go-CONT to high<•CRED>
'Tomorrow I'll get back and then I'm going up the little hill.'
(Delphine Derickson Armstrong)

Fourth, continuatives strengthen the culmination/termination implicatures seen in basic dynamic perfective predicates into entailments. For example, whereas a basic perfective accomplishment can be interpreted either as culminating or non-culminating (10a), a continuative perfective accomplishment must culminate (10b). In my analysis, I treat this as a semantic effect of the continuative.

(10) *Context: You see John looking around for his key, and tell your friend:*

a. John **Ø-ƛ̓aʔƛ̓aʔ-nt-ís** iʔ laklí.
John PFV-look.for-DIR-3ERG DET key
'John looked for the key / John is looking for the key.' (Lottie Lindley, Dunham 2011)

b. # John **s-Ø-ƛ̓aʔƛ̓aʔ-ám-s** iʔ lakli-s.
John CONT-PFV-look.for(-DIR)-CONT-3POSS DET key-3POSS
'John looked for his key.'
Comment: "You have to have the *c-* if he's looking for it."
(Delphine Derickson Armstrong, Dave Michele)

In Section 5, I present a partitive analysis of the continuative, which introduces a sum over singular, overlapping event stages across worlds, relative to the reference time. This returns a culminating event in the case of a dynamic perfective continuative, which derives the absence of universal readings in these cases, while the singular nature of the sum event is responsible for the progressive interpretation of an imperfective continuative. Overall, the progressive versus perfect-like interpretations seen with continuatives reduce, I argue, to the presence versus absence of a non-maximality specification at the lexical (with states) or aspectual (imperfective) level.

Section 6 discusses several types of continuative examples which require modifications to the basic analysis proposed in Section 5: these include *since* and *always* sentences.

Section 7 provides a summary and conclusion.

2 A compositional approach to the continuative

This section presents arguments that the two continuous aspects described by A. and N. Mattina (1–2) are compositional, and that in fact there is only one continuous aspect that attaches to perfective, imperfective, and stative predicates. In Section 2.1, I give a summary discussion of the imperfective/perfective distinction in the language. In Section 2.2, I distinguish *c-* prefixed stative forms from *c-* prefixed imperfective forms (Lyon 2023). In Section 2.3, I introduce continuous aspect and show that core underlying aspectual distinctions remain by-and-large preserved with continuative forms.

2.1 Imperfective vs. perfective

Lyon (2023) argues that most types of eventuality-denoting predicates in Nsyilxcn may occur as Ø- perfectives or *c-* imperfectives. Perfective predicates typically yield completive readings, though activities and accomplishments only *imply* termination/cancellation while states imply neither. This means that ongoing readings of perfectives are possible (see Bar-el 2005 for Skwxwú7mesh; sections 5 and 6 below). With imperfective *c-*, predicates yield either habitual interpretations or single event in-progress interpretations. The perfective/imperfective distinction is illustrated for middle intransitive *níkəm* 'to cut something' in (11), and stage-level adjective *ɬʕat̓* 'wet' in (12).[4] Basic adjectives are unbounded states, and so the only apparent interpretive difference between perfective and imperfective adjectives is that the latter have habitual readings, while the former do not.

(11) a. kn **Ø-níḵ̓-əm**.
1SG.SUBJ PFV-get.cut-MID
'I'm cutting.' / 'I cut something.' (Delphine Derickson Armstrong)

b. (nyʕip) kn **c-níḵ̓-əm** t layán.
always 1SG.SUBJ IPFV-get.cut-MID OBL cloth
'I (always) cut cloth.' (Delphine Derickson Armstrong)

c. i-sqʷsíʔ **c-níḵ̓-əm** t q̓əy̓mín.
1SG.POSS-son IPFV-get.cut-MID OBL paper
'My son is cutting paper.' (Delphine Derickson Armstrong)

(12) a. t̓i **Ø-ɬʕat̓**.
EXCL PFV-wet
'It's wet.' (A. Mattina, n.d.)

b. nyʕip kʷu **c-ɬʕat̓** kʷu ɬ sḵ̓ʷəḵ̓ʷíyməlt.
always 1PL.SUBJ IPFV-wet 1PL.SUBJ when child
'We were always wet when we were kids.' (Delphine Derickson Armstrong | VF)

c. kʷu **c-ɬʕat̓** ʕapnáʔ.
1PL.SUBJ IPFV-wet now
'We're wet now.' (Delphine Derickson Armstrong)

[4] Individual-level adjectives do not take the imperfective marker (Lyon 2023).

The same contrast is shown below for an inchoativized adjective. Inchoativized predicates in Nsyilxcn entail a change-of-state (Lyon 2023). A temporal adverb encompasses the entire event runtime with a perfective (13a), while it anchors internally to the event transition as an in-progress, imperfective (13b), and internally to a larger, habitual event as a habitual imperfective (13c).

(13) a. sməsásq̓ət kiʔ **Ø-t̓<ʔ>ʕas** iʔ kt̓ił̓mən.
Thursday ADJT.C PFV-hard<INCH> DET glue
'The glue got hard on Thursday.' (Delphine Derickson Armstrong)

b. iʔ sqʔim c̓<ʔ>aq, uł **c-t̓<ʔ>ʕas**.
DET cream sour<INCH> and IPFV-hard<INCH>
'The cream got sour, and it's slowly getting hard.' (Delphine Derickson Armstrong)

c. nyʕip **c-t̓<ʔ>ʕas** iʔ sqʔim.
always IPFV-hard<INCH> DET cream
'The cream always gets hard (after you churn it).' (Delphine Derickson Armstrong)

Predicates transitivized by the causative marker *-st-* show a similar distinction.[5]

(14) a. **Ø-qʷəl•qʷíl-st-əm** iʔ t sumíx-s.
PFV-TRED•speak-CAUS-PASS DET OBL spirit.power-3POSS
'His spirit power talked to him.' (A. Mattina 1993:24)

b. kʷu **c-qʷəl•qʷíl-st-s**.
1SG.OBJ IPFV-TRED•speak-CAUS-3ERG
'He (always) talks to me.' (A. Mattina 1993:24)

With the arguable exception of basic adjectival states, the interpretations of the non-imperfective predicates above are consistent with there being a null perfective prefix which alternates with the *c-* imperfective across all lexical-aspectual categories (see Bar-el 2005 for Sḵwx̱wu7mesh, Rullmann & Matthewson 2018, and others).[6]

2.2 Imperfective vs. stative

There is a homophonous stative marker *c-*, distinct from imperfective *c-* described above, which attaches to bare change-of-state roots, yielding a resulting, target state (Lyon 2023).

[5] Basic directive (*-nt-*) transitives do not take imperfective marking in Nsyilxcn, though directive transitive continuatives do, by hypothesis. The *-nt-* never surfaces in transitive continuatives, but other transitivizers do, so I assume *-nt-* reduces in this environment, similarly to how it reduces with strong roots in the 1st and 3rd person.

[6] An imperfective/perfective distinction is further supported by punctual adverbs tests, which show that perfectives give sequential readings (excepting states), while imperfective readings show temporal overlap. Relevant examples are not shown here for reasons of space, but see Lyon (2023).

(15) a. iʔ snkɬc̓aʔsqáx̌aʔ **c-naq̓ʷ** l sntəx̌ʷəx̌ʷqín.
DET horse STAT-get.stolen at noon
'The horse was *already* stolen by noon.' (Delphine Derickson Armstrong)

b. ła? kɬnk̓ahk̓ʷíp-s iʔ kɬnk̓mip John, uɬ **c-c̓ax̌ʷ**
when open.door(-DIR)-3ERG DET door John and STAT-get.spilled
iʔ siwɬkʷ aʔ c-kɬcaq iʔ l sx̌lilp.
DET water DET IPFV-container.facing.up DET on floor
'The water sitting on the floor was *already* spilled when John opened the door.'
(Delphine Derickson Armstrong)

This is not the imperfective *c*-: There are no habitual readings, as shown in (16).[7]

(16) a. *Context: Showing someone new around in a kitchen.*
#**c-p̓y̓q** iʔ słiqʷ alá? iʔ l nk̓ʷl̓cncútən.
STAT-get.cooked DET meat here DET in cooking.container
Target: 'Meat is cooked in this pot.'
Actual: 'The meat was cooked in this pot.' (Delphine Derickson Armstrong)

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

c. ʕac̓-nt, **c-q̓ay̓** ʕapná? iʔ q̓əy̓mín.
look-DIR STAT-get.written now DET paper
Target: 'Look, the paper is being written right now.'
Comment: "Okay, but it's already written." (Delphine Derickson Armstrong)

Stative *c*- does not attach to predicates which do not involve a change-of-state (i.e., basic adjectives and nouns), or to derived, verbal predicates (e.g., inchoatives, middle intransitives, transitives). *c*-affixed forms in these cases always have habitual or ongoing event readings, never resulting state readings.[8]

[7] It may be possible to provide a relatively abstract, unified analysis of both *c*- markers by arguing that in all cases, some entity *x* is the holder of some state *s*, where *s* is a non-maximal sub-eventuality of a larger event(uality) *e* (Masliukov & Kulikova 2024). Such an approach does not however appear to explain the resultative vs. imperfective interpretations without appealing to two distinct syntactic positions (which is necessary in any case), along with additional pragmatic restrictions. For now, I assume these are two homophonous, but historically related, prefixes.

[8] Lyon (2023) claims that the stativizer creates a predicate of caused states by saturating an underlying event variable in a change-of-state root, and foregrounding an underlying target state. Crucially both variables must be an underlying part of the root, and open to modification or saturation. This approach offers a semantic explanation for why *c*- stative does not attach to adjectives or derived verbs: the latter are predicates of event(ualitie)s, as opposed to predicates of event(ualitie)s and states.

2.3 Perfective, imperfective, and stative continuatives

This section shows how continuatives beginning with *sc-* have in-progress interpretations similar to either imperfectives or statives (see Section 2.2 above), while continuatives with *s-* typically do not. This pattern follows, I argue, if *sc-* continuatives contain a *c-* IPFV or *c-* STAT prefix, and if *s-* continuatives contain a Ø- PFV prefix. I also demonstrate how continuous aspect does not affect argument structure: i.e., patient-oriented adjectives, statives, and inchoatives remain patient-oriented, and agent-oriented middles remain agent-oriented. This is of course consistent with an analysis of continuous aspect as a second layer of viewpoint aspect, meaning it should be structurally too high to affect argument structure. In addition, through the course of this subsection, I show that some continuatives are transitive, a fact not previously noted in the Nsyilxcn literature.

First, consider that a range of predicate aktionsarten show an imperfective/perfective-like distinction with respect to punctual adverbs in the continuous aspect.[9] Imperfective continuous forms are interpreted as ongoing relative to the punctual adverb, whereas the perfective continuous forms are by default interpreted as complete, with the possibility of ongoing readings in some cases as indicated by speaker comments. This is shown for activities in (17) to (19).[10]

(17) a. łaʔ c-nʔułxʷ Hailey, way̓ kn **s-c-tə̓rq-míx**.
when CISL-enter Hailey already 1SG.SUBJ CONT-IPFV-dance-MID+CONT
'When Hailey came in, I was dancing.'
Comment: "You were dancing when she walked in." (Delphine Derickson Armstrong)

b. łaʔ c-nʔułxʷ Hailey, way̓ kn **s-Ø-tə̓rq-míx**.
when CISL-enter Hailey already 1SG.SUBJ CONT-PFV-dance-MID+CONT
'When Hailey came in, I was done dancing.'
Comment: "You were already done dancing by the time she went in." (Dave Michele)

(18) a. kn **s-c-piǩ-x** uł in-tkłmílxʷ kʷu
1SG.SUBJ NMLZ-IPFV-hunt-MID+CONT CONJ 1SG.POSS-woman 1SG.OBJ
tɬ̓ʷəlqʷəltíẇ-łt-s.
call-REDR-3ERG
'I was hunting (deer) when my wife called me on the phone.' (Dave Michele | VF)

b. kn **s-Ø-piǩ-x** uł in-tkłmílxʷ kʷu
1SG.SUBJ NMLZ-PFV-hunt-MID+CONT CONJ 1SG.POSS-woman 1SG.OBJ
tɬ̓ʷəlqʷəltíẇ-łt-s.
call-REDR-3ERG
'I was hunting and then my wife called me.'
Comment: "You were hunting, *and then* she called." (Dave Michele)

[9] I analyze the agentive, intransitive continuatives in this section as containing a middle *-m* which coalesces with continuative *-(mi)x,* and then the *(-mi)* part drops out with strong roots, leaving *-x.* I do not analyze the *-m* in *-(mi)x* as *itself* being the middle, since *-mix* occurs on patient-oriented, stative, and inchoative continuatives which *do not* take the middle (Lyon 2023).

[10] Example (19) could be argued to be an accomplishment, however given that intransitive *t* objects must be non-specific, I suggest that this example is more analogous to *cutting rope;* an activity in other words. This is non-crucial for the present paper and analysis.

(19) a. łaʔ c-nʔułxʷ Hailey, kn **s-c-nik̓-x** t sp̓íc̓ən.
when CISL-enter Hailey 1SG.SUBJ CONT-IPFV-dance-MID+CONT OBL rope
'When Hailey came in, I was (still) cutting a rope.'
Comment: "You were cutting the rope when Hailey walked in."
(Delphine Derickson Armstrong | VF)

a. łaʔ c-nʔułxʷ Hailey, kn **s-Ø-nik̓-x** t sp̓íc̓ən.
when CISL-enter Hailey 1SG.SUBJ CONT-PFV-dance-MID+CONT OBL rope
'When Hailey came in, I *had already* cut the rope.'
DD Comment: "For me there would be a question, *kʷ scxkənkínaʔx?* 'What are you doing?' And you answer, it's already cut, sitting there."
DM Comment: "Or it could mean you were cutting the rope when she walked in."
(Delphine Derickson Armstrong, Dave Michele)

This is likewise shown for transitive accomplishments in (20) and (21). These were classified by A. Mattina (1993) as *transitive completives/perfectives*, though I suggest these be reclassified as *transitive continuatives*, since they are interpretively parallel to intransitive continuatives in terms of their ongoing vs. completive interpretations, and in terms of pronominal agreement, these are parallel to transitive/intransitive alternations for other Nsyilxcn aspects.[11]

(20) a. łaʔ c-nʔułxʷ Hailey, **kʷ** **i-s-c-knxít-əm**.
when CISL-enter Hailey 2SG.OBJ 1SG.POSS-CONT-IPFV-help(-DIR)-CONT
'When Hailey walked into the room, I was helping you.' (Derickson Armstrong | VF)

b. ? łaʔ c-nʔułxʷ Hailey, **kʷ** **i-s-Ø-knxít-əm**.
when CISL-enter Hailey 2SG.OBJ 1SG.POSS-CONT-PFV-help(-DIR)-CONT
'When Hailey walked into the room, I had been helping you.'
Comment: "Kind of past tense, but not really clear enough, could be present or past."
(Delphine Derickson Armstrong)

(21) a. iʔ sqəltmíxʷ **s-c-píx̌-əm-s** iʔ sx̣̂aʔcínəm.
DET man CONT-IPFV-hunt(-DIR)-CONT-3POSS DET deer
'The man is hunting a deer right now.'
(Delphine Derickson Armstrong, Dave Michele)

[11] While the directive *-nt-* transitivizer never surfaces for transitive continuatives, other transitivizers do. Agreement with transitive continuatives is possessor/absolutive, just as it is for transitive prospectives, not discussed here. Transitive continuatives, like other transitives, select for an internal DP argument headed by *iʔ*, rather than an oblique-marked *quasi*-object (Lyon 2013). As A. Mattina (1993) discusses, transitive continuative *-m* 'signals an object'. Although this *-m* is homophonous with middle intransitivizing *-m*, it is distinct: First, continuous *-m* occurs after a transitivizer, rather than before. Second, continuous *-m* does not affect argument structure, whereas middle *-m* introduces an agent to an unaccusative predicate. The same object-signaling *-m* surfaces in transitive prospectives (26b, 27c).

b. iʔ sqəltmíxʷ **s-Ø-piǩ-əm-s** iʔ sƛ̓aʔcínəm,
DET man CONT-PFV-hunt(-DIR)-CONT-3POSS DET deer
uɬ kaʔɬís iʔ ləɣ-p-nú-s.
and three DET sting-INCH-manage.to(-DIR)-3ERG
'The man was hunting deer, and he hit three.'
(Delphine Derickson Armstrong | VF conjunct)

The inchoative achievement in (22) below patterns similarly.

(22) a. way̓ kn **s-c-k̓ʷúl̓•əl̓-x** kiʔ sic
already 1SG.SUBJ CONT-IPFV-get.made•C2.INCH-CONT ADJT.C new
iʔ kíc-nt-əm iʔ s-n-q̓lt-iɬxʷ-tn.
DET arrive-DIR-1PL.ERG DET NMLZ-LOC-sick-place-INTR
'I was in the middle of being born when we reached the hospital.'
DM Comment: "You're starting to be born. Got to have the *c-* in there."
(Delphine Derickson Armstrong)

b. way̓ kn **s-Ø-k̓ʷúl̓•əl̓-x** kiʔ sic
already 1SG.SUBJ CONT-PFV-get.made•C2.INCH-CONT ADJT.C new
'I had already been born by the time we reached the hospital.'
(Delphine Derickson Armstrong | VF)

Finally, adjectival states also show an imperfective/perfective contrast as continuatives in certain cases (23) (though the contrast for states is less clear, as will be discussed).

(23) a. talíʔ kn **s-c-x̌əst-míx** ʕapnáʔ t sx̌əlx̌ʕált.
really 1SG.SUBJ CONT-IPFV-good-CONT now OBL day
'I'm doing really good today.' (Delphine Derickson Armstrong)

b. talíʔ kn **s-Ø-x̌əst-míx** ʕapnáʔ t sx̌əlx̌ʕált
really 1SG.SUBJ CONT-PFV-good-CONT now OBL day
ałíʔ ʕapnáʔ talíʔ kn x̌ʷupt.
but now really 1SG.SUBJ weak
'I was good today, but now I am tired.' (Delphine Derickson Armstrong)

It is important to note that the continuative does not affect argument structure. As the examples above show, intransitive agentive continuatives select for oblique *t* objects just as basic middle intransitives do, transitive continuatives select for core *iʔ* DP objects just as regular transitives do, and patient-oriented continuatives retain the patient-oriented property of their underlying predicate.

At first glance, some intransitive continuatives appear ambiguous between agentive and patient-oriented readings (24–26). This is however explained if the agentive forms (a cases) contain the *c-* imperfective marker and a coalesced agent-introducing middle *-m*,[12] whereas the patient-

[12] Regarding the underlying agentive *-m*, it is important to note that middle *-m* (or other (in)transitivizer) is generally required to derive an agentive interpretation of a change-of-state root like *q̓ay̓* 'get written' or *q̓əc̓* 'get braided', and this *-m* surfaces in non-continuative forms. Conversely, middle *-m* is incompatible with *c-* statives, which must remain patient-oriented (Lyon 2023).

oriented forms (b cases) are bare change-of-state roots prefixed by the stative marker *c-*, without any *-m* suffix.

(24) a. kn **s-c-q̓əy̓-míx**.
1SG.SUBJ CONT-IPFV-get.written(-MID)+CONT
'I'm writing.' (Delphine Derickson Armstrong)

b. **s-c-q̓əy̓-míx** i-s-c-k̓ʷúl̓.
CONT-STAT-get.written-CONT 1SG.POSS-NMLZ-STAT-get.made
'My work is written.' (Delphine Derickson Armstrong)

(25) a. kn **s-c-q̓əc̓-míx** t sq̓əq̓átəlqs.
1SG.SUBJ CONT-IPFV-get.braided(-MID)+CONT OBL sweater
'I'm braiding/knitting a sweater.' (Delphine Derickson Armstrong)

b. **s-c-q̓əc̓-míx** i-sq̓əq̓átəlqs.
CONT-STAT-get.braided-CONT 1SG.POSS-sweater
'My sweater is (already) knitted (lit. 'braided')' (Delphine Derickson Armstrong)

(26) a. kn **s-c-nik̓-x** t sp̓íc̓ən.
1SG.SUBJ CONT-IPFV-get.cut(-MID)+CONT OBL rope
'I'm cutting a rope.' (Dave Michele | VF)

b. lut t̓ a-k-s-k̓ʷúl̓-əm ixíʔ iʔ sp̓íc̓ən,
NEG NEG.FAC 2SG.POSS-PROS-CONT-get.made(-DIR)-CONT that DET rope
s-c-nik̓-x iʔ sp̓íc̓ən.
CONT-STAT-get.cut-CONT DET rope
'You can't use that rope, it's (already) cut.' (Delphine Derickson Armstrong | VF)

This analysis is motivated in part by their clearly imperfective vs. stative interpretations, but additional evidence that *c-* is the stative marker in the (b) cases above, rather than the imperfective, comes from the fact that while a *c-* prefix is optional in agentive continuatives such as the (a) cases above (in which case they will be interpreted as *Ø-* perfectives), a *c-* prefix is required for the patient-oriented (b) cases, as shown by (27, cf. 24–26 b cases).

(27) a. * **s-q̓əy̓-míx** i-s-c-k̓ʷúl̓.
CONT-get.written-CONT 1SG.POSS-NMLZ-STAT-get.made
'My work is written.' (Delphine Derickson Armstrong)

b. * **s-q̓əc̓-míx** i-sq̓əq̓átəlqs.
CONT-get.braided-CONT 1SG.POSS-sweater
'My sweater is knitted (lit. 'braided').' (Delphine Derickson Armstrong)

c. * lut t̓ a-k-s-k̓ʷúl̓-əm ixíʔ iʔ sp̓íc̓ən,
NEG NEG.FAC 2SG.POSS-PROS-CONT-get.made(-DIR)-CONT that DET rope
s-nik̓-x iʔ sp̓íc̓ən.
CONT-get.cut-CONT DET rope
'You can't use that rope, it's (already) cut.' (Delphine Derickson Armstrong)

The bolded continuous predicates in (27) are ungrammatical as patient-oriented, ∅- perfective predicates because imperfective and perfective viewpoint aspect cannot combine directly with a bare unaccusative, change-of-state root (Lyon 2023). Stative *c*- can, however. Thus, although stative *c*- is in complementary distribution with imperfective *c*- and perfective ∅-, these examples support an argument whereby stative *c*- is not, semantically or syntactically, a viewpoint aspect.[13] Stative *c*- nevertheless derives the type of predicate which the continuative can combine with. Overall, the pattern in (24) to (27) provides additional evidence for a compositional approach to continuous aspect, since continuative predicates show the same derivational and inflectional contrasts as the imperfective, perfective, and stative predicates they combine with. This is clearly consistent with an analysis of the continuative as an outer layer of viewpoint aspect, applying on top of the (im)perfective layer.

I conclude that continuous aspect in Nsyilxcn is compositional and consists of a circumfix *s*-…- *(mi)x* for intransitive predicates, and *s*-…-*(a)m* for transitive predicates. These circumfixes apply to formally perfective, imperfective, and stative predicates, and preserve both the argument structure of the underlying predicate as well as core features of the viewpoint aspect of the underlying predicate.

3 Is continuous aspect a perfect?

This section examines Nsyilxcn continuous forms, particularly perfectives, with respect to a range of tests presented and discussed in Bertrand et al. (2022), a cross-linguistic study of perfect constructions aimed at determining whether 'perfect' is a grammatically valid category, and what empirical properties perfects share cross-linguistically.

Nsyilxcn perfective continuatives show all the cross-linguistic properties of perfects (See Table 1). In contrast, in the absence of specific adverbials, imperfective continuatives seem very un-perfect-like, though given that they require an eventuality to be in-progress at a reference time, they do occur in contexts which favour universal-perfect interpretations.

Table 1: Nsyilxcn continuative results for Bertrand et al. (2022) perfect tests

	Perfective continuous	*Imperfective continuous*
Experiential reading	√	#
Dead subjects possible	√	?
Result state reading	√	#
Cancellation of result state	√	#
Recent past	√	#
Narrative progression	√	?
Definite time adverbials	√	#
Continuous reading	√	(√)

[13] Lyon (2023) argues that change-of-state roots minimally require derivation into stative or inchoative forms, to yield a patient-oriented interpretation, or middle *-m* (or a transitivizer) for an agentive interpretation. Given that the stativizer, inchoativizer, and middle marker are in complementary distribution, stative *c*- is likely lower in the clause.

I present examples and argumentation below showing how Nsyilxcn continuatives satisfy or fail to satisfy each of the tests in Table 1 above.

3.1 Experientials

Perfect interpretations are commonly grouped into two kinds: *existentials*, whereby an event must have been true at least once at some time in the past, and *universal* or 'continuous' readings, whereby an event or eventuality can hold at the evaluation time. Experiential readings are one subcase of an existential perfect. For experiential perfect readings, the event must occur (at least once) sometime prior to the reference time (Figure 1).

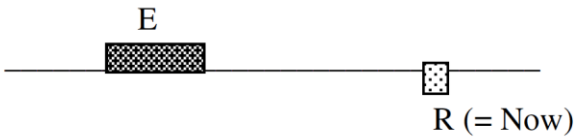

Figure 1: Experiential perfect

In Nsyilxcn, basic imperfectives (28a) and perfectives (28b, 29) (as well as statives, not shown here) are volunteered in experiential contexts. This makes sense given that both habituals and perfectives are interpreted as involving at least one completed event.

(28) a. ha kʷ **c-k-ʔəmt-íẃs** iʔ l snkɬc̓aʔsqáx̌aʔ.
Q 2SG.SUBJ IPFV-RES-ride.on-middle DET on horse
Target: 'Have you ever ridden horses before?'
Literally: 'Do you ride on horses?' (Dave Michele | VF)

b. *Answer to: "Who has ever ridden in the Omak Stampede?"*

way̓ kn **Ø-k-ʔəmt-íẃs** iʔ k̓l Omak iʔ snpan̓uscút-s.
yes 1SG.SUBJ PFV-RES-ride.on-middle DET to Omak DET rodeo-3POSS
Target: 'I've ridden in the Omak Stampede.'
Literally: 'I rode in the Omak stampede.' (Dave Michele | VF)

(29) uc pənʔkín kiʔ **Ø-ʔaq̓ʷ-nt-xʷ** an-c̓ásy̓qən?
DUB when ADJT.C PFV-shave-DIR-2SG.ERG 2SG.POSS-head
Target: 'Have you ever shaved your head before?'
Literally: 'Did you ever shave your head?' (Dave Michele | VF)

Perfective continuatives are also judged good, however, and are sometimes volunteered in experiential contexts. The perfective continuatives in (30a,b) form near-minimal pairs with basic perfectives (28b, 29).

(30) a. *Answer to: "Who has ever ridden in the Omak Stampede?"*

way̓ kn **s-Ø-k-ʔəm•ʔəmt-íẃs-x** iʔ k̓l Omak
yes 1SG.SUBJ CONT-PFV-RES-TRED•ride.on-middle-CONT DET to Omak
iʔ snpan̓uscút-s.
DET rodeo-3POSS
'I've ridden in the Omak Stampede.' (Dave Michele)

b. uc pənʔkín kiʔ **a-s-Ø-ʔáq̓ʷ-əm** an-c̓ásy̓qən?
DUB when ADJT.C 2SG.POSS-CONT-PFV-shave(-DIR)-CONT 2SG.POSS-head
'Have you ever shaved your head before?' (Dave Michele)

c. swit ha **s-Ø-wík-əm-s** iʔ yəx̌ʷyx̌ʷútqn?
who Q CONT-PFV-see(-DIR)-CONT-3POSS DET badger
'Who has ever seen a badger before?' (Delphine Derickson Armstrong | VF)

In the absence of any adverbial, imperfective continuatives require that the event be in-progress, and so these are not acceptable in experiential contexts.

(31) *Context: Answer to question "Has Mary ever cooked before?"*

a. Marí way̓ **s-Ø-k̓ʷə̓l̓-c-ncút-x**.
Mary already CONT-PFV-make-food-REFL-CONT
'Mary has cooked before.' (Delphine Derickson Armstrong, Dave Michele)

b. #Marí way̓ **s-c-k̓ʷə̓l̓-c-ncút-x**.
Mary already CONT-IPFV-make-food-REFL-CONT
#'Mary's cooking now.' (Delphine Derickson Armstrong, Dave Michele)

(32) a. #səxm̓aʔm̓ayaʔm Smith siw-s iʔ scəcm̓alaʔ, "swit iʔ
teacher Smith ask(-DIR)-3ERG DET children who DET
s-c-qilt-x iʔ k̓l wist?"
CONT-IPFV-summit-CONT DET to high
'Miss Smith asks the kids, "Who has ever climbed a mountain?"'
Comment: "They're already on their way (even though they are sitting in the classroom)." (Delphine Derickson Armstrong, cf. Matthewson 2014)

b. #ha kʷ **s-c-k-ʔəmt-íẃs-x** iʔ l snkłc̓aʔsqáx̌aʔ?
Q 2SG.SUBJ CONT-IPFV-RES-ride.on-middle-CONT DET on horse
Target: 'Have you ever been riding on a horse?'
Actual: 'Are you riding on a horse?' (Dave Michele)

Notice the contrast between imperfective continuative (32b) and basic imperfective in (33, cf. 28a). This illustrates an important semantic effect of the continuative: to remove the possibility of a habitual reading.

(33) ha kʷ **c-k̓əmt-íẃs** iʔ l snkłc̓aʔsqáx̌aʔ?
Q 2SG.SUBJ IPFV-ride-middle DET on horse
Target: 'Have you ever ridden horses before?'
Literally: 'Do you ride on horses?' (Dave Michele | VF)

It is important to note that although imperfective continuatives are often translated as "happening right now", they may easily be interpreted in the present *or* past tense (34), since Tense in Nsyilxcn is null for past, present, and future (Dunham 2011; see Matthewson 2006 for St'át'imcets).[14]

(34) a. kʷ **s-c-ʔkin-x** t spiʔsc̓íɬt?
2SG.SUBJ CONT-IPFV-do.what-CONT OBL yesterday
'What were you doing yesterday?'

b. kn **s-c-k̓ʷul̓-x** t spiʔscíɬt.
1SG.SUBJ CONT-IPFV-work(-MID)-CONT OBL yesterday
'I was working yesterday.' (Delphine Derickson Armstrong)

Given imperfective continuatives are not possible as experiential perfects in the *present tense*, I take this as evidence that *past tense* imperfective continuatives are also not experiential perfects. To clarify, just as present tense (32b) is better translated as *Are you riding on a horse?* as opposed to *Have you been riding on a horse?* (which has an experiential reading on one interpretation in English, Iatridou et al. 2001), past tense (34b) corresponds more closely to English past progressive *I was working yesterday*, as opposed to past perfect progressive *I had been working yesterday*. This represents one major difference between English and Nsyilxcn. In English, experiential readings of progressives are common, consider for example *Have you ever been climbing before?* (Iatridou et al. 2001; Pancheva 2003). I take this as evidence that the continuative itself is not contributing a perfect semantics.

Note that habitual-like readings of imperfective continuatives *are* possible in the context of an adverbial clause under a *since* interpretation, as discussed in detail below in sections 4 and 6. The events of 'praying' or 'helping my aunt' in (35a,b) are most naturally interpreted as not in progress at utterance time, but rather as part of some larger interval which does include the utterance time.

(35) a. kn łə sk̓ʷək̓ʷíyməlt kiʔ kn **s-c-k̓ʕa-x**.
1SG.SUBJ when young ADJT.C 1SG.SUBJ CONT-IPFV-pray-CONT
'I've been praying ever since I was a young.' (Dave Michele | VF)

b. kn łə sk̓ʷək̓ʷíyməlt kiʔ **i-s-c-knxít-əm**
1SG.SUBJ when young ADJT.C 1SG.POSS-CONT-IPFV-help(-DIR)-CONT
i-sẇaʔẇásaʔ.
1SG.POSS-aunt
'I've been helping my aunt ever since I was young.' (Dave Michele)

Overall, the Nsyilxcn examples in this section show that perfective continuatives are good in contexts which favour an experiential perfect in English, but that imperfective continuatives are not, except possibly in the presence of certain adverbial clauses. This raises questions around whether imperfective continuatives must contain a perfect-like semantics as part of their core meaning, or whether they are simple progressives. I return to these questions below.

[14] Imperfective continuatives are typically not accepted in the future without prospective *k(s)-*. This is interesting, since *perfective* continuatives do allow future readings in some cases without a prospective marker (Section 4.3). More work is needed here.

3.2 No lifetime effect

Lifetime effects have been reported for perfect constructions in other languages, including the English present perfect. For example, *#Abraham Lincoln has signed the Emancipation Proclamation* sounds odd, given that Lincoln is no longer alive. In Nsyilxcn, statives and basic perfectives are often volunteered in contexts involving deceased subjects, but perfective continuatives are also volunteered, showing the probable absence of any lifetime effect for the continuative.

(36) a. (*twi*-)Pit Simu **s-Ø-k-laʕ-míx** t xʷʔit t smaʔmáẏ.
(*twi*-)Pete Seymour CONT-PFV-RES-put.on(-MID)-CONT OBL many OBL story
'Pete Seymour has recorded many stories.'
(Delphine Derickson Armstrong, Dave Michele | VF)

b. sílxʷaʔ iʔ ylmíxʷəm p̓lk̓múlaʔxʷ **s-Ø-x̌əlwís-m-s**
big DET chief p̓lk̓múlaʔxʷ CONT-PFV-go.around(-DIR)-CONT-3POSS
yaʕyáʕt iʔ tmxʷúlaʔxʷ.
all DET land
'Chief p̓lk̓múlaʔxʷ has travelled all over the land.' (Dave Michele)
DD Comment: "Either way, with or without the *s*-."
(i.e., plain perfective transitive *x̌əlwísəm(nt)s* is good in this context)

Note that because Tense is null in Nsyilxcn, the examples in (36) might equally well be translated as past tense *Pete Seymour had recorded many stories*, and *Chief p̓lk̓múlaʔxʷ had travelled all over the land*, which sound much better in English. Indeed, Nsyilxcn perfective continuatives must be interpreted in the past tense in some instances (37).

(37) way̓ kn **s-Ø-k̓ʷúl̓•əl̓-x** kiʔ sic
already 1SG.SUBJ CONT-PFV-get.made•C2.INCH-CONT ADJT.C new
iʔ kíc-nt-əm iʔ s-n-q̓lt-iɬxʷ-tn.
DET arrive-DIR-1PL.ERG DET NMLZ-LOC-sick-place-INTR
'I had already been born by the time we reached the hospital.'
(Delphine Derickson Armstrong | VF)

Because (i) Nsyilxcn Tense is null, and (ii) a person who may be described as deceased has *necessarily* passed away at some prior time, it is difficult to definitively rule out the possibility that Nsyilxcn continuatives *do* have a lifetime effect and that the examples in (36) are acceptable only because they have a null past tense marker. In Section 3.8, I show that perfective continuative states show present tense, universal readings. I therefore assume that a present tense interpretation of the sentences in (36) remains a possibility.

3.3 Resultatives

For resultative perfects, the result state (E_2 in Figure 2) of an event (E_1) must hold at the reference time. This distinguishes resultatives from experiential perfects, where a result state need not hold at the reference time.

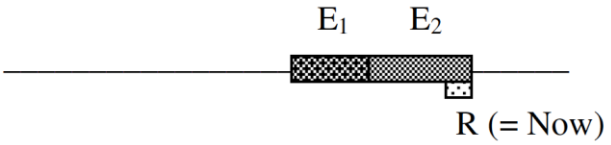

Figure 2: Resultative perfect

In Nsyilxcn, perfective continuatives are volunteered in resultative contexts, as are basic perfectives and statives. In (38) below, the E_1 event of falling asleep (a),[15] being birthed (b), or arriving (c) must have occurred prior to the reference time, and the resulting state of being asleep or having been born (E_2) continues at the reference time.

(38) a. Marí ṫi uł cut, "sxʷṁaʔṁáyaʔm Smith, Bob way̓ **s-Ø-ʔítx-əx**."
Mary EXCL and say teacher Smith Bob already CONT-PFV-sleep-CONT
'Mary interrupts to say, "Miss Smith, Bob has fallen asleep!"'
Comment: "Or you could say *Bob way̓ ʔitx*."
(Delphine Derickson Armstrong, cf. Matthewson 2014)

b. way̓ kn **s-Ø-k̓ʷúl̓•əl̓-x** kiʔ sic
already 1SG.SUBJ CONT-PFV-get.made•C2.INCH-CONT ADJT.C new
iʔ kíc-nt-əm iʔ s-n-q̓lt-iłxʷ-tn.
DET arrive-DIR-1PL.ERG DET NMLZ-LOC-sick-place-INTR
'I had already been born by the time we reached the hospital.'
(Delphine Derickson Armstrong | VF)

c. *Context: My friend Kathy is flying to Vancouver, but her flight keeps getting delayed. Eventually, she gets here after all, and she sends me a message*. (context from Reisinger & Huijsmans 2023)

way̓ uł sic kn **s-Ø-kícx-əx**.
already and new 1SG.SUBJ CONT-PFV-arrive-CONT
'I've finally arrived.'
Comment: "Or you could say *way̓ uł sic kn kicx*." (Delphine Derickson Armstrong)

In contrast, imperfective continuatives do not have resultative meanings. In (39a,b) below, nothing is being asserted about some resulting state (E_2) as separate from the event (E_1), only that the reference time is included within some in-progress event.

(39) a. # Marí ṫi uł cut, "sxʷṁaʔṁáyaʔm Smith, Bob way̓ **s-c-ʔítx-əx**."
Mary EXCL and say teacher Smith Bob already CONT-IPFV-sleep-CONT
Target: 'Mary interrupts to say, "Miss Smith, Bob has fallen asleep."'
Comment: "One without *c-* is better because he had fallen asleep. This one means he *is* sleeping. You could also say *way̓ ʔitx*." (Delphine Derickson Armstrong | VF)

[15] Both continuous perfective inchoative *sʔitxəx* and basic perfective inchoative *ʔitx* mean roughly 'has fallen asleep' in this context. *ʔitx* itself is ambiguous between a zero-derived inchoative 'fall asleep' and an activity of 'sleeping'.

b. waẏ̓ kn **s-c-k̓ʷúl̓•əl̓-x** kiʔ sic
already 1SG.SUBJ CONT-IPFV-get.made•C2.INCH-CONT ADJT.C new
iʔ kíc-nt-əm iʔ s-n-q̓lt-iɬxʷ-tn.
DET arrive-DIR-1PL.ERG DET NMLZ-LOC-sick-place-INTR
'I was in the middle of being born when we reached the hospital.'
(Delphine Derickson Armstrong | VG)

In sum, perfective continuatives can be used in both experiential (see Section 3.1) and resultative contexts, which are sometimes grouped together as 'existential' perfects (McCawley 1981; Mittwoch 1988): In both cases, the transitory event itself occurs prior to the reference time, but a result state may (resultative) or may not (experiential) continue to hold at the reference time. This predicts that result states can be cancelled for perfective continuatives, as discussed in the next section.

3.4 Cancellation of result state

Result states, and states in general, are cancellable as perfective continuatives, just as they are as basic perfectives. This is shown for a perfective continuative built on an adjectival state predicate in (40a,b) and a result state predicate in (40c).

(40) a. iʔ siwɬkʷ **[s]-Ø-səl•sult-x** t sk̓aʔɬásq̓ət uɬ ʕapnáʔ
DET water CONT-PFV-TRED•frozen-CONT OBL last.week and now
waẏ̓ s-c-ʕaṁ•ṁ-míx.
already CONT-IPFV-melt•C2.INCH-CONT
Target: 'The water has been frozen since last week but now it is melting.'
(Delphine Derickson Armstrong | VF)

b. in-púsˑ t sk̓aʔɬásq̓ət **s-Ø-q̓ilt-x** uɬ waẏ̓
1SG.POSS-cat OBL last.week CONT-PFV-sick-CONT and already
ʕapnáʔ **s-Ø-x̌əst-wílx-əx**.
now CONT-PFV-good-become-CONT
Target: 'My cat has been sick since last week, but now she is better.'
(Delphine Derickson Armstrong)

c. iʔ citxʷ **s-Ø-n-qʷəlx-úlaʔxʷ-əx** ɬ-k̓ʷul̓-səlx.
DET house CONT-PFV-LOC-get.burned-land-CONT again-get.made(-DIR)-3PL.ERG
Target: 'The house has been burned, but now it is rebuilt.'
(Delphine Derickson Armstrong | VF: *nqʷəlxúlaʔxʷ*)

As discussed in Section 3.2, it is possible that the (initial) bolded predicates in (40) are being interpreted relative to a null past tense, rather than the present tense indicated in the target sentence. Regardless, the eventuality denoted by the (initial) bolded predicates no longer holds at the final reference time.

Imperfective continuatives also seem to allow cancellation, but because Tense is null, and given the examples in sections 3.1 to 3.3 showing that these do not have existential perfect interpretations, I suggest that these are better analyzed as past tense progressives whose eventualities have ceased. In other words, the initial conjuncts below are evaluated relative to a past reference time, while the second conjuncts are evaluated relative to the present.

(41) a. iʔ siwɬkʷ **s-c-sult-míx** t sḵaʔɬásq̓ət uɬ ʕapnáʔ
DET water CONT-IPFV-frozen-CONT OBL last.week and now
way̓ **s-c-ʕam̓•m̓-míx**.
already CONT-IPFV-melt•C2.INCH-CONT
'The water has been frozen since last week, but now it is melting.'
-or- 'The water was frozen last week but now it is melting.'
(Delphine Derickson Armstrong)

b. in-pús t sḵaʔɬásq̓ət **s-c-q̓ilt-x** uɬ way̓
1SG.POSS-cat OBL last.week CONT-IPFV-sick-CONT and already
ʕapnáʔ **s-Ø-x̌əst-wílx-əx**.
now CONT-PFV-good-become-CONT
'My cat has been sick since last week, but now she is better.'
-or- 'My cat was sick last week, but now she is better.'
(Delphine Derickson Armstrong | VF)

3.5 Recent past

For recent past readings, no result state is necessary, but the event must be complete by reference time. These are essentially experientials, but ones whose events have only recently ended.

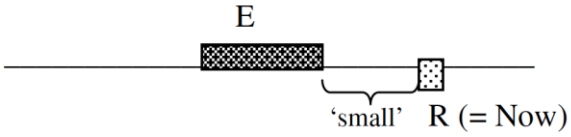

Figure 3: 'Recent past' perfect

Identically to the experientials discussed in Section 3.1, perfective continuatives are volunteered in these contexts (42a, 43a), as well as basic perfectives and *c-* statives (not shown here). Example (42b) shows, again, that an imperfective continuative event must be interpreted as in-progress.

(42) *Context: The teacher is trying to teach, but a child interrupts to say:*

a. "sxʷm̓aʔm̓ayaʔm Smith, **way̓** **iʔ** **hiw̓t** **s-Ø-ƛ̓əl•l-míx**."
teacher Smith already DET rat CONT-PFV-stop•C2.INCH-CONT
'"Miss Smith, the class pet rat has just died!"'
(Delphine Derickson Armstrong | VF, Matthewson 2014)

b. #"sxʷm̓aʔm̓ayaʔm Smith, **way̓** **iʔ** **hiw̓t** **s-c-ƛ̓əl•l-míx**."
teacher Smith already DET rat CONT-IPFV-stop•C2.INCH-CONT
#'"Miss Smith, the class pet rat is/was dying."'
Comment: "It's not dying now, it's dead already, *way̓ ƛ̓lal*." (Dave Michele)

(43) *Context: The teacher is trying to teach, but a child interrupts to say:*

a. **s-Ø-nɬəm̓t-míx** iʔ híẇt-(t)ət ʕapnáʔ.
CONT-PFV-cough-CONT DET rat-1PL.POSS now
'Our pet rat just coughed.'
Comment: "Or you could say *əcnɬam̓t iʔ hiẇt.*"
(Delphine Derickson Armstrong | VF, Matthewson 2014)

b. **s-c-nɬəm̓t-míx** iʔ híẇt-(t)ət ʕapnáʔ.
CONT-IPFV-cough-CONT DET rat-1PL.POSS now
'Our pet rat is coughing.' (Delphine Derickson Armstrong)

3.6 Narrative progression

Perfective continuatives allow narrative progression (44a), similar to basic perfectives (44b).[16]

(44) a. kn **s-Ø-xʷt̓-ílx-əx**, uɬ kn **s-Ø-cáʕ-lx-əx**,
1SG.SUBJ CONT-PFV-jump.up-AUT-CONT and 1SG.SUBJ CONT-PFV-bathe-AUT-CONT
kn **s-Ø-k̓ʷəl̓-c-ncút-x** uɬ kn ks-ʔíɬn-aʔx,
1SG.SUBJ CONT-PFV-make-food-REFL-CONT and 1SG.SUBJ PROS-eat-PROS
uɬ kn ks-xʷaʔxʷíst-aʔx.
and 1SG.SUBJ PROS-walk-PROS
'I got up, I took a shower, I made myself breakfast, and now I'm going to eat and go for a walk.' (Delphine Derickson Armstrong | VF)

b. kn **Ø-xʷt̓-ilx**, uɬ kn **Ø-caʕ-lx**, kn
1SG.SUBJ PFV-jump.up-AUT and 1SG.SUBJ PFV-bathe-AUT 1SG.SUBJ
Ø-k̓ʷəl̓-c-ncút uɬ kn **Ø-ʔiɬn**, uɬ ixíʔ i-s-xʷaʔxʷist.
PFV-make-food-REFL and 1SG.SUBJ PFV-eat and then 1SG.POSS-NMLZ-walk
'I got up, then I took a shower, then I made myself breakfast and I ate, then I went on a walk.' (Delphine Derickson Armstrong | VF)

The below example shows how narrative progression is compatible with result state cancellation.

(45) in-pús t sḵaʔłásq̓ət **s-Ø-q̓ilt-x** uɬ way̓ ʕapnáʔ
1SG.POSS-cat OBL last.week CONT-PFV-sick-CONT and already now
s-Ø-x̌əst-wílx-əx.
CONT-PFV-good-become-CONT
'My cat has been sick since last week, but now she is better.'
(Delphine Derickson Armstrong | VF)

Actions do not necessarily progress with conjoined perfectives. This is shown below for both basic (46a) and continuous perfectives (46b), where the two verbs describe simultaneous actions. I assume that this is because the conjunction *uɬ* does not require temporal ordering.

[16] This is somewhat surprising, given that St'át'imcets *plan* 'already' does not (Bertrand et al. 2022).

(46) a. **Ø-manxʷ-əm** uɬ **Ø-q̓ʷy-ilx** i-slaxt̓.
PFV-smoke-MID and PFV-dance-AUT 1SG.POSS-friend
'My friend smoked and danced (at the same time).'
(Delphine Derickson Armstrong, Dave Michele)

b. **s-Ø-manxʷ-míx** uɬ **s-Ø-q̓ʷy-ílx-əx** i-slaxt̓.
CONT-PFV-smoke(-MID)-CONT and CONT-PFV-dance-AUT-CONT 1SG.POSS-friend
'My friend smoked and danced (at the same time).'
(Delphine Derickson Armstrong, Dave Michele)

The difference in meaning between basic and continuative perfectives is subtle and not apparent from an investigation of narrative progression specifically, but two clear differences emerge later in this paper. First, the continuative is required for a universal ('continuous') reading of a perfective state in the context of a *still* adverbial (sections 3.8, 4.1), and second, the continuative strengthens a culmination/termination implicature of a perfective into an entailment (Section 4.4).

3.7 Definite time adverbials

Definite time adverbials are grammatical with perfective continuatives (47a), just as with other perfectives (47b).

(47) a. kn **s-Ø-k̓ʷul̓-x** t spiʔsc̓íɬt.
1SG.SUBJ CONT-PFV-get.made(-MID)-CONT OBL yesterday
'I worked yesterday.' (Delphine Derickson Armstrong | VF)

b. kn **Ø-k̓ʷúl̓-əm** t spiʔsc̓íɬt.
1SG.SUBJ PFV-get.made-MID OBL yesterday
'I worked yesterday.' (Dave Michele | VF)

Imperfective continuatives also take definite past adverbials, given an appropriate context (48).

(48) kn **s-c-k̓ʷul̓-x** t spiʔsc̓íɬt.
1SG.SUBJ NMLZ-IPFV-work(-MID)-CONT OBL yesterday
'I was working yesterday.' (Delphine Derickson Armstrong | VF)

The compatibility of perfective continuatives with narrative progression, and their co-occurrence with time adverbials, shows that they are similar in some ways to Bertrand et al.'s (2022) *past perfective* category, as discussed in more detail in the summary (Section 3.9).

3.8 Continuous reading

For continuous, or 'universal' readings, an event holds throughout an interval whose left boundary is fixed by the context or by an adverbial clause (e.g., *since…*) and whose right boundary is fixed by the reference time. The event *includes* the reference time in this case (Figure 4). This matches A. and N. Mattina's descriptive characterization of Nsyilxcn 'perfect continuous' aspect as conveying "continuing relevance".

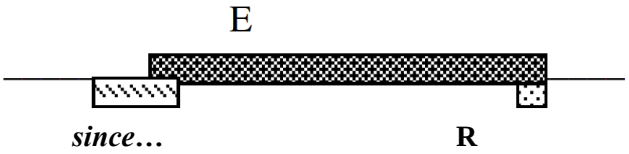

Figure 4: Universal perfect

In Nsyilxcn, continuatives built from state-denoting predicates are volunteered with continuous readings (McCawley 1981). In (49a), the eventuality of *mut* 'living somewhere' (lit. 'sitting') holds at the reference time. Imperfective continuatives are also possible (49b).

(49) a. l nk̓maplqs kn **s-Ø-mut-x** uł way̓ ʔasəl-sxʷípəpkst
at head.of.the.lake 1SG.SUBJ CONT-PFV-sit-CONT and already two-thousand
uł ʔupənkst-əł-cílkst spintk.
and ten-and-five year
'I have lived in Vernon since 2015.'
Comment: "You're talking about how you've been staying there since 2015."
(Delphine Derickson Armstrong | VF)

b. l nk̓maplqs kn **s-c-mut-x** uł way̓ 2015.
at head.of.the.lake 1SG.SUBJ CONT-IPFV-sit-CONT and already 2015
'I have been living in Vernon since 2015.'
(Delphine Derickson Armstrong, Dave Michele)

Perfective continuative states can have either universal (50a) or existential readings, as with experiential (50b).

(50) a. ha kʷ **s-Ø-k-ʔəmt-íẃs-x** iʔ l ***universal***
Q 2SG.SUBJ CONT-PFV-RES-sit.on-middle-CONT DET on
snkɬc̓aʔsqáx̌aʔ?
horse
'Are you on a horse (right now)?' (Delphine Derickson Armstrong | VG)

b. *Answer to: "Who has ever ridden in the Omak Stampede?"* ***experiential***
way̓ kn **s-Ø-k-ʔəm•ʔəmt-íẃs-x** iʔ k̓l Omak
already 1SG.SUBJ CONT-PFV-RES-TRED•sit.on-middle-CONT DET to Omak
iʔ snpan̓uscút-s.
DET rodeo-3POSS
'I've ridden in the Omak Stampede.' (Dave Michele)

In (51), the demonstrative predicate *alá?* '(to be) here' can occur as a continuative with a universal reading (51a,b) and as a basic perfective (51c).

(51) a. nyʕip kʷu **s-Ø-ʔaláʔ-x**.
always 1PL.SUBJ CONT-PFV-here-CONT
'We have always been here.' (language/translation from ONA website)

b. púti? kʷu **s-Ø-ʔaláʔ-x**.
still 1PL.SUBJ CONT-PFV-here-CONT
'We are still here.'
DD Translation: "We've been here for a while."
(Delphine Derickson Armstrong, Dave Michele)

c. púti? kʷu **Ø-aláʔ**.
still 1PL.SUBJ PFV-here
'We are still here.' (Dave Michele, VF)

In (52), the bolded perfective continuative adjectival states have universal readings.

(52) a. *Context: Delphine telling a story about how when she was small trees used to explode when it got extremely cold. In the story she hears a loud sound, and asks her father what it was.*

kʷu cu-s, "ixí? a? c-c̓i̓•c̓ai̓ aɬí? talí?
1SG.OBJ say-3ERG that DET IPFV-TRED•stand because very
s-Ø-c̓alt-x"…
CONT-PFV-cold-CONT
'He told me, "It's the trees, because it has been very cold."'
(Delphine Derickson Armstrong, VF)

b. *Context: Dave addressing a student who is eating something in class.*

nikxná?, ha kʷ **s-Ø-ʔilxʷt-x**?
gee Q 2SG.SUBJ CONT-PFV-hungry-CONT
'Goodness, are you still hungry?' (Dave Michele, VF)

c. talt **s-Ø-nʕast-x** i? knəxnáx ki? maʕt a?
straight CONT-PFV-heavy-CONT DET box ADJT.C get.broken DET
nk̓mip-s.
bottom-3POSS
'The box was already heavy by the time the bottom fell out.'
(Delphine Derickson Armstrong, VF)

Temporary ('S-level') states such as those above can occur with or without imperfective *c-*, while permanent ('I-level') states cannot occur with an imperfective (Lyon 2023), similarly to other Salish languages. This also holds for the continuatives built on these predicates (53).

(53) a. tl pnicí? ła? k̓ʷúi̓•əi̓ ki?
from at.that.time when get.made•C2.INCH ADJT.C
s-Ø-n-qʷəy•qʷʕáy-s-x.
CONT-PFV-LOC-TRED•blue-eye-CONT
'He has had blue eyes ever since he was born.' (Delphine Derickson Armstrong, VF)

b. isqʷsíʔ púti ʔ **s-Ø-n-qʷəy•qʷʕáy-s-x**.
1SG.POSS-son still CONT-PFV-LOC-TRED•blue-eye-CONT
'My son still has blue eyes.' (Dave Michele, VF)

c. *tl pnicíʔ łaʔ kʷúl̓•əl̓ kiʔ
from at.that.time when get.made•C2.INCH ADJT.C
s-c-n-qʷəy•qʷʕáy-s-x.
CONT-IPFV-LOC-TRED•blue-eye-CONT
* 'My son has been having blue eyes ever since he was born.'
(Delphine Derickson Armstrong, Dave Michele)

This provides additional evidence for a compositional approach to continuativity, since if *sc-* were non-compositional, and simply indicated an eventuality in progress, there is no reason to expect that it should be ungrammatical with an I-level state. Continuatives instead follow the same S-/I-level imperfective pattern seen with non-continuative adjectives.[17]

Adverbial clauses which are contextually equivalent to English *since* clauses typically give rise to universal perfect-like interpretations. In Nsyilxcn, though there is no dedicated word for *since*, a target sentence given in English which includes *since* will nearly always be translated into Nsyilxcn using a continuative with an associated temporal clause which is interpreted as specifying the left boundary of the eventuality.[18] In these contexts, dynamic predicates must occur as imperfective continuatives (54a), while for stative predicates, there is a strong tendency for these to be perfective continuatives (54b).

(54) a. way̓ ntəx̌ʷx̌ʷqín Bob kiʔ **s-c-ʔítx-əx**.
already noon Bob ADJT.C CONT-IPFV-sleep-CONT
'Bob has been sleeping since noon.' (Dave Michele, VF)

b. łaʔ c-xʔíti ʔ łə kʷúl̓•əl̓ uł
when STAT-at.first when get.made•C2.INCH and
s-Ø-n-qʷəy•qʷʕáy-s-x.
CONT-PFV-LOC-TRED•blue-eye-CONT
'My son has had blue eyes since he was born.' (Delphine Derickson Armstrong, VF)

Basic perfectives, in contrast, are sometimes judged infelicitous in *since*-type sentences with continuous readings. The speaker's comments in (55, cf. 54b) indicate that the state of being *blue eyed* is interpreted relative to the event of being born, and not relative to the present reference time, resulting in infelicity. In (54b), the property applies to every point in time between the event of being born, and up to and including the present reference time. I take this to be evidence that either

[17] Consider as well that continuative I-level adjectives must have continuous readings, otherwise they would not be I-level.

[18] There are occasionally examples of non-continuative, state predicates which may be compatible with a *since* interpretation, for example (i):

(i) kl̓ nkmapəlqs kiʔ kn **Ø-mut** ʔasil ʔupənkst iʔ sxʷipəpkst-[s].
to head.of.the.lake ADJT.C 1SG.SUBJ PFV-sit two ten DET thousand-3POSS
'I've lived in Vernon since 2000.' (Delphine Derickson Armstrong | VF)

the continuative, or the *since* clause, involves or introduces a temporal span within which the eventuality holds (see Section 6).[19]

(55) #łaʔ c-xʔítiʔ łə kʷúl̓•əl̓ uł **Ø-n-qʷəy•qʷʕáy-s**.
when STAT-at.first when get.made•C2.INCH and PFV-LOC-TRED•blue-eye
Target: 'My son has had blue eyes since he was born.'
Comment: "He's still blue eyed, isn't he?" (Delphine Derickson Armstrong)

As a rule, perfective continuatives built from dynamic aktionsarts do not have continuous readings. This is most obviously shown for dynamic predicates in the context of punctual adverbs, as discussed at length above in Section 2.3. By way of further examples, if imperfective *c-* is absent in the continuative forms in (56) and (57) below, the event cannot hold at the reference time, and the sentences are instead interpreted as experientials (Section 3.1).

(56) *Context: I was in the middle of planting my garden when a late frost took care of the seedlings I had already planted.*

a. way̓ kn **s-c-k̓ʷanłq-x́** kiʔ kʷu kíc-nt-əm
already 1SG.SUBJ CONT-IPFV-plant-CONT ADJT.C 1PL.OBJ arrive-DIR-3ERG
iʔ súl-laʔxʷ.
DET frozen-ground
'I was planting (didn't finish) when the frost came.' (Dave Michele)

b. #way̓ kn **s-Ø-k̓ʷanłq-x** kiʔ kʷu kíc-nt-əm
already 1SG.SUBJ CONT-PFV-plant-CONT ADJT.C 1PL.OBJ arrive-DIR-3ERG
iʔ súl-laʔxʷ.
DET frozen-ground.
'I had already planted when the frost came.'
Comment: "You need the *c-*." (Dave Michele)

(57) *Context: I was in the middle of cooking when my wife called me with the good news that her sister's baby was born.*

a. way̓ kn **s-c-k̓ʷəl̓-c-ncút-x** kiʔ i(n)-náx̌ʷnəx̌ʷ
already 1SG.SUBJ CONT-IPFV-make-food-REFL-CONT ADJT.C 1SG.POSS-wife
kʷu cu-s iʔ x̌ast iʔ sc̓iy̓máy̓.
1SG.OBJ say(-DIR)-3ERG DET good DET news
'I had already started cooking dinner when my wife called with the good news.'
Comment: "You're already cooking." (Dave Michele)

[19] More specifically, the continuative seems to be a semantic 'conduit' through which the underlying predicate's non-maximality can interact with an adverbial's time span. Section 6.1 provides a preliminary analysis.

b. #way̓ kn **s-Ø-k̓ʷə̓l-c-ncút-x** kiʔ i(n)-náx̌ʷnəx̌ʷ.
already 1SG.SUBJ CONT-PFV-make-food-REFL-CONT ADJT.C 1SG.POSS-wife
kʷu cu-s iʔ x̌ast iʔ sc̓iy̓máy̓.
1SG.OBJ say(-DIR)-3ERG DET good DET news
'I had already finished cooking dinner when my wife called with the good news.'
Comment: "Without the *c-*, you were finished cooking." (Dave Michele)

Transitive accomplishments (58) and intransitive, inchoative achievements (59) likewise disallow universal interpretations as perfective continuatives. Imperfective *c-* is required.

(58) *Context: I'm telling you about this house I've been working on.*

ʔasəl-spíntk kiʔ **i-s-c-/ʔ/#Ø-k̓ʷúl̓-łxʷ-əm**
two-year ADJT.C 1SG.POSS-CONT-IPFV-/PFV-get.made-house(-DIR)-CONT
uł way̓ ʕapnáʔ lut t̓ wiʔ-st-ín.
and already now NEG NEG.FAC finished-CAUS-1SG.ERG
'I've been building this house for 2 years already, and it still isn't finished.'
Comment: "I like the other one (with *c-*) better." (Dave Michele, VF)

(59) *Context: A broken watermain has been spilling water since last night at midnight.*

s-c-/#Ø-c̓xʷ•əxʷ-míx iʔ tl s-n-c̓xʷ-min-s
CONT-IPFV-/PFV-get.spilled•C2.INCH-CONT DET from NMLZ-LOC-get.spilled-INST-3POSS
iʔ siwłkʷ uł way̓ ʕapnáʔ s-n-tx̌ʷ-iẇs iʔ snkʷkʷʔac.
DET water and already now NMLZ-LOC-half-middle DET night
'The water has been spilling from the pipe since midnight.'
Comment: "No, you need *c-*, it's *spilling* from the pipe." (Dave Michele, VF)

There are nevertheless a few cases of perfective continuatives built on non-stative predicates that could, arguably, allow universal readings.[20] The speakers' comments in (60) and (61) indicate that a completive interpretation is preferred, but that there may be some interpretive room.

(60) Marí c̓q̓-c-iʔ-s uł cu-s, "sxʷm̓aʔm̓ayaʔm Smith,
Mary get.hit-mouth-DIR-3ERG and say(-DIR)-3ERG teacher Smith
Tom **kʷu** **s-Ø-klk̓-áyaʔ-qn-m-s** uł way̓ aláʔ
Tom 1SG.OBJ CONT-PFV-pull-top-head(-DIR)-CONT-3POSS and already here
kʷu łaʔ ʔúl̓lus łaʔ c-xʔítiʔ."
1PL.SUBJ when gather when IPFV-begin
'Mary interrupts to complain, "Miss Smith, Tom has been pulling my hair since the class began!"'
Comment: "Doesn't mean right now, could be now or the past."
(Delphine Derickson Armstrong | VF, Matthewson 2014)

[20] This perhaps explains A. Mattina's (2015) decision to label both continuative aspects as 'imperfective', and to disuade N. Mattina from pursuing a compositional analysis.

(61) łaʔ c-nʔułxʷ Hailey, kn **s-Ø-nik̓-x** t sp̓íc̓ən.
when CISL-enter Hailey 1SG.SUBJ CONT-PFV-dance-MID+CONT OBL rope
'When Hailey came in, I *had already* cut the rope.' (Dave Michele | VF)
DD Comment: "For me there would be a question, *kʷ scxkənkínaʔx?* 'What are you doing?' And you answer, it's already cut, sitting there."
DM Comment: "Or it could mean you were cutting the rope when she walked in."

My sense is that the outliers in (60) and (61) may actually be classified as 'recent past' existentials, but that what counts as a complete event in these cases is an event which has paused as the result of an interruption. For example, Tom has pulled Mary's hair (possibly multiple times) since class began, but he stops at the point where Mary interrupts in (60), and the rope had already been (partially) cut at the moment Hailey interrupts in (61). These are complete (i.e., maximal) events in and of themselves, but because there is an expectation that these interrupted events will continue, a quasi-continuous reading surfaces. In support of this hypothesis, note that the clear-cut cases in (56) to (59) either do not involve interruptions (58–59) or else involve an adverb *way̓* 'already' (56–57) which help clarify that either the initial (with imperfectives) or final (with perfectives) event transitions have been completed. There are several alternative possibilities which are important to consider for (60) and (61): (i) cancellation of the termination/culmination implicatures associated with dynamic predicates (Bar-el 2005), (ii) a resultative analysis (Bertrand et al. 2022, Pancheva 2003), and (iii) a neutral analysis (Pancheva 2003). I briefly discuss these as possibilities in Section 6.3.

The overwhelming pattern is that continuative states allow continuous ('universal') readings, whereas continuatives built on dynamic predicates require an imperfective for a universal reading. This pattern is very perfect-like. I argue that this follows from a semantic distinction between perfective and imperfective continuatives, which is itself sensitive to predicate dynamicity.

3.9 Section summary

Bertrand et al. (2022) define four cross-linguistic categories of 'perfect' constructions, based on clusterings of the properties discussed above and summarized in Table 1. These four categories are (i) *resultatives,* (ii) *experientials,* (iii) *hybrid* perfects, and (iv) *past perfectives.* For each category, they sketch what a semantic analysis might look like.

The first three categories above (i–iii) seem like non-starters for Nsyilxcn continuous aspect. *Experientials* (i) are analyzed as involving existential quantification over (past) times ("$\exists t$ […t…] where t is included in an interval right-bounded by t_0"), which has the effect of blocking continuous readings as well as narrative progression. Nsyilxcn perfective continuatives allow both of these, however. *Resultatives* (ii) involve existential quantification of an event or state ("$\exists e$ […e…] where the result-state of e holds at t_0, or e is included in a short interval right-bounded by t_0"). Because Nsyilxcn perfective continuatives do not require a result state to hold, this classification also does not seem correct.[21] *Hybrid* perfects (iii) have both experiential and resultative readings, similar to Nsyilxcn, however, they disallow cancellation of the result state, unlike Nsyilxcn.

Regarding (iv), Bertrand et al. (2022) define *past perfectives* as perfects which allow dead subjects and the cancellation of a result state, are compatible with narrative progression, and allow definite time adverbials. Nsyilxcn perfective continuatives have all these properties. Bertrand et al. state:

[21] To be clear, my analysis of the continuative in Section 5 involves existential quantification over events, but the interpretations are not limited to those described in Bertrand et al. (2022) for their resultative class.

> […] we hypothesize that the forms in this category contain pronominal tenses in the sense of Partee (1973): they are free variables that pick out a time that is salient in the discourse context (the reference time, in Reichenbachian terms), as illustrated in (62) *t* is a free temporal variable referring to a contextually salient interval preceding the utterance time (t_0), which contains the event time.

(62) [… *t* …] (where $t < t_0$) (Bertrand et al. 2020)

This represents one plausible analysis of the Nsyilxcn *perfective* continuative, with the caveat that with continuous readings, the contextually salient interval can overlap with the utterance time.

There are however several major issues with an analysis of Nsyilxcn continuatives as *past perfectives*, or as an extended-now perfect. These issues are discussed in the next section.

4 Against a perfect analysis

As shown in Section 3, Nsyilxcn perfective continuatives clearly share properties with perfects cross-linguistically: In particular, states allow continuous readings in the absence of any imperfective marker, while dynamic predicates require the imperfective for a continuous reading (Dowty 1979; Mittwoch 1988; Vlach 1993; Iatridou et al. 2001; Portner 2003). Further, in the context of an adverbial clause, continuatives could be argued to contribute a perfect-like time span which is not present in an underlying perfective or imperfective. The availability of both existential and universal interpretations support the possibility that perfective continuatives might be analyzed as an 'extended-now' perfect (Dowty 1979; Pancheva 2003).

Under an extended-now approach (e.g., 63 below from Pancheva 2003), the continuative would introduce a Perfect Time Span (PTS) whose left boundary is some prior time *i'*, and the right boundary of the time span is the reference time *i*, which is set by tense. A predicate *P*, which is inflected for viewpoint aspect, is then asserted to be true at *i'* and some portion of the time span *(i',i)* up to and possibly including the reference time. The perfect in (63a) combines with an imperfective or perfective predicate to yield (63b) and (63c), respectively.[22]

(63) a. $[\![\text{PERFECT}]\!] = \lambda P \lambda i \exists i'.[\text{PTS}(i',i) \wedge P(i')]$ *extended-now perfect*
PTS(i',i) iff i is a final subinterval of i'

b. $\lambda i \exists i'.[\text{PTS}(i',i) \wedge \exists e.[P(e) \wedge i' \subseteq \tau(e)]]$ *perfect imperfective*

c. $\lambda i \exists i'.[\text{PTS}(i',i) \wedge \exists e.[P(e) \wedge \tau(e) \subseteq i']]$ *perfect perfective*

Assuming the compositional approach motivated in Section 2 is correct, there are at least four problems with such an approach for Nsyilxcn, which I discuss in this section. First, imperfective continuatives generally lack habitual readings, which does not follow from (63b) (Section 4.1). Second, imperfectives seem to behave as progressives, suggesting that any introduced time span is not necessarily retrospective (Section 4.2). Third, any time span associated with a perfective continuative is not necessarily retrospective either, as shown by examples with prospective readings (Section 4.3). Fourth, the continuative has the effect of strengthening a perfective predicate's culmination/termination implicature into an entailment (Section 4.4).

[22] Pancheva (2003) also proposes two other viewpoint aspect categories, *resultative* and *neutral*, which I briefly discuss in Section 6.3.

4.1 Limitations on habitual readings in imperfective continuatives

Imperfectives (by definition) have both event in-progress and habitual interpretations, and basic imperfectives in Nsyilxcn are no exception. In this section, I show that in most sentential contexts, imperfective continuatives have only event in-progress readings, rendering them infelicitous in contexts which require a habitual reading. This is as expected if the continuative derives a progressive from a general imperfective, and is unexpected if the continuative is deriving an extended-now perfect. As briefly mentioned in Section 3.8, a notable exception to this pattern includes sentences which utilize the equivalent of durative or inclusive *since* (Iatridou et al. 2001): under an inclusive reading, habitual-like readings are possible. In this section, I first demonstrate the general limitation on habitual readings before presenting examples involving *since* adverbials.

The (a) examples below question a habitual activity using a basic imperfective, and the (b) examples provide a habitual answer which also utilize a basic imperfective. Imperfective (c cases) and perfective (d cases) continuous forms are not acceptable here.

(64) a. Q: ha kʷ **c-tər̓q-ám**?
Q 2SG.SUBJ IPFV-get.kicked-MID
'Do you dance?' (Delphine Derickson Armstrong | VF)

b. A: ki, kn **c-tər̓q-ám** kn ła? sḵʷək̓ʷíyməlt.
yes 1SG.SUBJ IPFV-get.kicked-MID 1SG.SUBJ when child
'Yes, I danced when I was younger.'
(Delphine Derickson Armstrong, Dave Michele)

c. A':#ki, kn **s-c-tər̓q-míx** kn ła?
yes 1SG.SUBJ CONT-IPFV-get.kicked-MID+CONT 1SG.SUBJ when
sḵʷək̓ʷíyməlt.
child
'Yes, I was dancing when I was younger.'
DD Comment: "That's present tense."
(Delphine Derickson Armstrong, Dave Michele)

d. A":#ki, kn **s-Ø-tər̓q-míx** kn ła?
yes 1SG.SUBJ CONT-PFV-get.kicked-MID+CONT 1SG.SUBJ when
sḵʷək̓ʷíyməlt.
child
'Yes, I danced when I was younger.'
DM Comment: "That doesn't sound right. *way̓ kn ctr̓qám kn ła? sḵʷək̓ʷiyməlt.*"
(Delphine Derickson Armstrong, Dave Michele)

(65) a. Q: ha kʷ **c-k̓ʕa-m**?
Q 2SG.SUBJ IPFV-pray-MID
'Do you pray?' (Dave Michele | VF)

b. A: lut, náx̌əmł kn **c-k̓ʕa-m** púti? kn ła? q̓ʷʕaylqs.
NEG but 1SG.SUBJ IPFV-pray-MID still 1SG.SUBJ when priest
'No, but I used to pray when I was still a priest.'
(Delphine Derickson Armstrong | VF)

c. A’:#lut, náx̌əmɬ kn **s-c-k̓ʕa-míx** púti? kn ɬa?
NEG but 1SG.SUBJ CONT-IPFV-pray-MID+CONT still 1SG.SUBJ when
q̓ʷʕaylqs.
priest
‘No, but I was praying when I was still a priest.’
(Delphine Derickson Armstrong, Dave Michele)

d. A”:#lut, náx̌əmɬ kn **s-Ø-k̓ʕa-míx** púti? kn ɬa?
NEG but 1SG.SUBJ CONT-PFV-pray-MID+CONT still 1SG.SUBJ when
q̓ʷʕaylqs.
priest
‘No, but I prayed back when I was still a priest.’
(Delphine Derickson Armstrong, Dave Michele)

Questioning a habitual state using a continuative is also unacceptable. The judgement of example (66b) is consistent with imperfective continuatives not being allowed in experiential perfect contexts (Section 3.1). (66c *is* good in an experiential context, but not one that is habitual.)

(66) a. ha kʷ **c-k-ʔəmt-íw̓s** iʔ l snkɬc̓aʔsqáx̌aʔ?
Q 2SG.SUBJ IPFV-RES-ride.on-middle DET on horse
‘Do you ride on horses?’ (Dave Michele | VF)

b. #ha kʷ **s-c-k-ʔəmt-íw̓s-x** iʔ l snkɬc̓aʔsqáx̌aʔ?
Q 2SG.SUBJ CONT-IPFV-RES-ride.on-middle-CONT DET on horse
Target: ‘Do you ride horses?’
Actual: ‘Are you already on a horse?’ (Dave Michele | VG)

c. #ha kʷ **s-Ø-k-ʔəmt-íw̓s-x** iʔ l snkɬc̓aʔsqáx̌aʔ?
Q 2SG.SUBJ CONT-PFV-RES-ride.on-middle-CONT DET on horse
Target: ‘Do you ride horses?’
Actual: ‘Are you on a horse (like right now)?’ (Delphine Derickson Armstrong | VG)

In (67) and (68), the imperfectives are part of a temporal adverbial *ɬaʔ* clause. For basic imperfectives (a cases), the main clauses are interpreted relative to multiple ice-melting (67) or climbing events (68). For imperfective continuatives (b cases), the main clauses are interpreted relative to a single, in-progress event, which sounds odd to speakers if the intended reading is habitual.

(67) a. ɬaʔ **c-ʕam-áp** iʔ sxʷuynt, məɬ ixíʔ s-c<ʔ>ix-s
when IPFV-melt-INCH DET ice and.then DEM NMLZ-hot<INCH>-3POSS
iʔ st̓ikl.
DET meal
‘When the ice melts, the food gets warm.’ (Delphine Derickson Armstrong | VF)

b. ?/# łaʔ **s-c-ʕam-áp-x** iʔ sxʷuynt,
when CONT-IPFV-melt-INCH-CONT DET ice
məł ixíʔ s-c<ʔ>ix-s iʔ sṫiḳl.
and.then DEM NMLZ-hot<INCH>-3POSS DET meal
'When the ice is melting, the food gets warm.' (Delphine Derickson Armstrong)

(68) a. tałt ṫyṫym kn łaʔ **c-x̌íɬ̓-əm** ḳl wist kn łə
straight easy 1SG.SUBJ when IPFV-climb-MID to high 1SG.SUBJ when
sḳʷəḳʷíyməlt.
young
'It was easy for me to climb the hill when I was young.'
(Delphine Derickson Armstrong | VF)

b. ?/# tałt ṫyṫym kn łaʔ **s-c-x̌əɬ̓-míx** ḳl wist
straight easy 1SG.SUBJ when CONT-IPFV-climb-MID+CONT to high
kn łə sḳʷəḳʷíyməlt.
1SG.SUBJ when young
'It was easy for me as I climbed the hill when I was young.'
(Delphine Derickson Armstrong | VG)

Under the universal adverb *nyʕip* 'always', imperfective continuatives may marginally have habitual readings for Delphine Derickson (69–70), though she never volunteers a continuative in a habitual context, and her comments indicate that these are preferentially interpreted as single events in progress. For Dave Michele (71–72), there is no marginal habitual interpretation, only a single-event interpretation. If an Nsyilxcn progressive event must be interpreted as true of the *entire* time span included by *always*, infelicity follows. For Dave Michele, the event seems to 'scope' over *always*, but it cannot literally be true that, for example, *I am always losing my sunglasses* (71b).[23]

(69) a. Q: kʷ c-ʔkín-əm kiʔ kʷ c-xʷuy ḳl town?
2SG.SUBJ IPFV-do.what-MID ADJ.C 2SG.SUBJ IPFV-go to town
ha kʷ **c-n-kx-ám**?
Q 2SG.SUBJ IPFV-LOC-walk-MID
'How do you usually get to town? Do you walk?'
(Delphine Derickson Armstrong | VF)

[23] Notice that in (70) to (72) below, the bare imperfectives have a causative transitivizer, whereas the imperfective continuatives are glossed as having a null directive. This is because while the causative *does* surface in transitive continuatives, the directive never does, and so plausibly reduces to zero similarly to its behaviour in other morpho-phonological environments. Positing a null directive for imperfective continuatives, however, raises important questions as to why the directive is incompatible with a basic imperfective, but compatible with an imperfective continuative. Given that the directive *-nt-* transitivizer never surfaces in continuatives, it may in fact be preferable to analyze the null transitivizer in this case as a non-directive, null allomorph of the causative, whose distribution remains unclear. Regardless, the absence of causative *-st-* in the (b) cases in no way explains their ungrammaticality, since they are perfectly acceptable in other contexts, e.g., (73a).

b. A: (nyʕip) kn **c-n-kx-ám** k̓l town.
always 1SG.SUBJ IPFV-LOC-walk-MID to town
'I (usually/always) walk to town.' (Delphine Derickson Armstrong | VF)

c. A': ?nyʕip kn **s-c-n-kx-míx** k̓l town.
always 1SG.SUBJ CONT-IPFV-LOC-walk-MID+ CONT to town
Target: 'I usually walk to town.'
Comment: "Almost right now, it means you're walking right now. It's kind of like a metaphor, I can see you walking to town."
(Delphine Derickson Armstrong)

(70) a. nyʕip **c-k̓ʷəƛ̓-st-ín** iʔ nʕast iʔ sq̓əq̓átəlqs.
always IPFV-get.taken.out-CAUS-1SG.ERG DET heavy DET sweater
'I usually take off my sweater.' (Delphine Derickson Armstrong | VF)

b. ? nyʕip **i-s-c-k̓ʷəƛ̓-ám** iʔ nʕast iʔ sq̓əq̓átəlqs.
always 1SG.POSS-CONT-IPFV-get.taken.out(-DIR)-CONT DET heavy DET sweater
'I am always taking off my sweater.'
Comment: "You're taking it off right now." (Delphine Derickson Armstrong)

(71) a. kn łə tətwít nyʕip **c-sl-mi-st-n**
1SG.SUBJ when boy always IPFV-lose-APPL-CAUS-1SG.ERG
in-k̓ɬ-c̓əl•c̓íl-s-tn.
1SG.POSS-under-TRED•shade-eye-INST
'I always used to lose my sunglasses when I was young.' (Dave Michele | VF)

b. *kn łə tətwít nyʕip **i-s-c-sl-mín-m**
1SG.SUBJ when boy always 1SG.POSS-CONT-IPFV-lose-APPL(-DIR)-CONT
in-k̓ɬ-c̓əl•c̓íl-s-tn.
1SG.POSS-under-TRED•shade-eye-INST
'I always used to lose my sunglasses when I was young.' (Dave Michele)

(72) a. nyʕip **c-knxít-st-n** i-swaʔwásaʔ kn łə tətwít.
always IPFV-help-CAUS-1SG.ERG 1SG.POSS-aunt 1SG.SUBJ when boy
'I used to help my aunt when I was young.' (Dave Michele | VF)

a. *nyʕip **i-s-c-knxít-əm** i-swaʔwásaʔ kn łə
always 1SG.POSS-CONT-IPFV-help(-DIR)-1SG.ERG 1SG.POSS-aunt 1SG.SUBJ when
tətwít.
boy
'I used to help my aunt when I was young.' (Dave Michele)

However, when the English target is a perfect sentence whose context requires a *since* interpretation of an Nsyilxcn adverbial clause, imperfective continuatives are freely volunteered, both in contexts which favour an in-progress reading (a cases), and contexts which strongly favour a habitual, or repetitive reading (b cases).

(73) a. t siwłkʷkʷkʕást kiʔ **i-s-c-knxít-əm** i-sẇaʔẇásaʔ.
OBL early.morning ADJT.C 1SG.POSS-CONT-IPFV-help(-DIR)-CONT 1SG.POSS-aunt
'I've been helping my aunt since early this morning.'
Comment: "You're doing it now." (Dave Michele | VF)

b. kn łə sḵʷəḵʷíymelt kiʔ **i-s-c-knxít-əm**
1SG.SUBJ when child ADJT.C 1SG.POSS-CONT-IPFV-help(-DIR)-CONT
i-sẇaʔẇásaʔ.
1SG.POSS-aunt
'I've been helping my aunt ever since I was young.' (Dave Michele | VF)

(74) a. *Context: It's 2pm right now.*

wayẇ ʔasil sxlákəks iʔ x̌əx̌yáłnəx̌ʷ, John **s-c-ntr̓̓qpncut-x** t
already two o'clock DET sun John CONT-IPFV-run-CONT OBL
sntəx̌ʷx̌ʷqín.
noon
'It's 2pm and John has been running since noon.'
(Delphine Derickson Armstrong | VF)

b. John ʔupənkst uł ʔasil spintk iʔ s-x̌̓x̌ap-s kiʔ
John ten and two year DET NMLZ-age-3POSS ADJT.C
s-c-ntr̓̓qpncut-x.
CONT-IPFV-run-CONT
'John has been running since he was 12 years old.' (Delphine Derickson Armstrong)

It is important to reiterate that there is no single lexical equivalent of *since* in Nsyilxcn. Instead, either oblique temporal phrases, or clauses introduced by the complementizer *ła?*, function to set a past reference time, and the continuative event either spans the entire time between the past reference time and the speech time (a cases above), or else occurs within that time span (b cases).[24] I suggest that these two distinct interpretations correspond to Iatridou et al.'s (2001) *durative* ('universal') and *inclusive* ('existential') uses of *since* adverbials in English perfect contexts, and present an analysis of these cases in Section 6.1.

Basic imperfectives are judged as having a different meaning in these contexts, and the same adverbial clauses are not translated as meaning *since* (75, cf. 73–74). This shows that the continuative is integral to an imperfective sentence being interpretable as containing a *since* adverbial clause.

(75) a. kn łə sḵʷəḵʷíyməlt kaʔ **c-knxít-st-n** i-sẇaʔẇásaʔ.
1SG.SUBJ when child ADJT.C IPFV-help-CAUS-1SG.ERG 1SG.POSS-aunt
Target: 'I've been helping my aunt ever since I was young.'
Actual: 'I helped my aunt when I was young.' (Delphine Derickson Armstrong)

[24] Adjunct complementizer *kiʔ* (sometimes *kaʔ*) is commonly volunteered, but not required in these sentences. This occurs when the adverbial 'since' clause has been moved to the front of the sentence. There appears to be no relevant interpretive difference associated with this fronting. A systematic review of the different ways *since* is expressed in Nsyilxcn has yet to be done.

b. John ʔúpənkst uł ʔasil spintk iʔ s-ʎ̓ăxap-s kaʔ **c-ntr̓qpncút**.
John ten and two year DET NMLZ-age-3POSS ADJT.C IPFV-run
Target: 'John has been running since he was 12 years old.'
Actual: 'John ran / was running when he was 12 years old.'
(Delphine Derickson Armstrong)

Perfective continuatives built on states also allow both durative (76a) and inclusive (76b) *since* interpretations. This is important in that it shows that imperfective *c-* is not itself a prerequisite for a *since* interpretation.

(76) a. l nk̓maplqs kn **s-Ø-mut-x** uł way̓ ʔasəl-sxʷípəpkst
at head.of.the.lake 1SG.SUBJ CONT-PFV-sit-CONT and already two-thousand
uł ʔupənkst-əł-cílkst spintk.
and ten-and-five year
'I have lived in Vernon since 2015.'
Comment: "You're talking about how you've been staying there since 2015."
(Delphine Derickson Armstrong | VF)

b. t st̓əx̌íyut t̓i cəlkst-ásq̓ət kiʔ kn **s-Ø-q̓ilt-x**.
OBL last.year EXCL five-day ADJT.C 1SG.SUBJ CONT-PFV-sick-CONT
'I have only been sick for 5 days since last year.'
DM Comment: "You were sick five days out of last year."
(Delphine Derickson Armstrong | VF)

In contrast to English (Iatridou et al. 2001), only continuatives which independently allow a *universal* interpretation are compatible with a *since* interpretation of the adverbial. Perfective continuatives built from dynamic predicates allow neither durative nor inclusive interpretations (77).

(77) a. #t sʔaslásq̓ət, Marí kiʔ **s-Ø-k̓ʷəl̓-c-ncut-x**.
OBL Tuesday Mary ADJT.C CONT-PFV-get.made-food-REFL-CONT
Target: 'Mary has been cooking since Tuesday.'
DM Comment: "You have to have the *c-* in there." (Dave Michele)

b. #kn ʔupənkst-əł-ʔasil-spintk kiʔ
1SG.SUBJ ten-and-two-year ADJT.C
i-s-Ø-səl-mín-əm
1SG.POSS-CONT-PFV-lose-APPL(-DIR)-CONT
i-s-k̓ł-c̓əl•c̓il-s-tn.
1SG.POSS-NMLZ-under-TRED•shade-eye-INST
'Since I was twelve years old I lost my glasses.' (Dave Michele)

Because perfective continuatives built on states allow both durative and inclusive *since* readings (76), similarly to imperfective continuatives (73–74), the inclusive 'habitual' reading cannot be due to the imperfective marker *c-*. Furthermore, the continuative itself cannot be solely responsible for a *since* interpretation, since inclusive readings of perfective continuatives built on dynamic predicates are not possible (77). In Section 6, I present a preliminary analysis which builds on the intuition that *since* interpretations are dependent on the underlying predicate being unbounded, either lexically unbounded as a state, or aspectually unbounded as an imperfective.

4.2 Imperfective continuatives: progressives or perfect progressives?

The morphosyntactic difference between progressives and perfect progressives in English is clear. Tense is carried by *be* in the former (78a,b), and by *have* (78c) in the latter.

(78) a. I am writing.
b. I was writing.
c. I have been writing.

In Nsyilxcn, there is no tense morphology or auxiliaries to distinguish (78a,b,c).[25] Hence, (79) could in principle have any of the three interpretations.

(79) kn **s-c-q̓əy̓-míx**.
1SG.SUBJ CONT-IPFV-get.written(-MID)+CONT
'I am writing.' / 'I was writing.' / 'I have been writing.' (Rita Stewart, VF)

The question arises: Is it the case that (79) (i) necessarily involves a retrospective perfect-like time span? Or (ii), are these always simple progressives? Or (iii), might these be simple progressives, with some other element introducing a perfect-like time span in certain cases?

Against (i), sections 3.1 to 3.3 showed that imperfective continuatives lack existential perfect readings (except with inclusive *since* adverbials, Section 4.1): Because the reference time must be included within the event time, these only have continuous readings. The entailment that the reference time includes the event time cannot be cancelled in an imperfective (80b).[26]

(80) *Context: Mary is out of breath from running and has been sitting on a bench for 5 minutes.*

a. marí way̓ **s-Ø-ntr̓qpncút-x** ʕapnáʔ sx̌əlx̌ʕalt uł lut
Mary already CONT-PFV-run-CONT now day and NEG
ṫ ks-qicəlx-aʔx ʕapnáʔ.
NEG.FAC PROS-run-PROS now
'Mary has already been running today, but she isn't going to now.'
(Delphine Derickson Armstrong | VF)

b. # marí way̓ **s-c-ntr̓qpncút-x** ʕapnáʔ sx̌əlx̌ʕalt uł lut
Mary already CONT-IPFV-run-CONT now day and NEG
ṫ ks-qicəlx-aʔx ʕapnáʔ.
NEG.FAC PROS-run-PROS now
Target: 'Mary has already been running today, but she isn't going to now.'
Actual: # 'Mary is already running today, but she isn't going to now.'
(Delphine Derickson Armstrong)

[25] Adverbs such as *way̓* 'already' or *ʕápnaʔ* 'now' are commonly used to disambiguate tense, but these are by no means required, and cannot be tense markers for this reason.
[26] Because tense is null, (80b) should be salvageable under the interpretation *Mary <u>was</u> already running today, but she isn't going to now*, but in this case the first clause is interpreted as a past progressive, and the second as a present prospective. The context here is intended to favour a present tense reading, but a present perfect interpretation is unavailable.

Again, this represents one major difference with English, where existential readings of progressives are common, e.g., *Have you ever been climbing before?* or *I have been working very hard lately* (Pancheva 2003).[27] I argue that this is because the continuative does not introduce a retrospective time span. This leaves possibilities (ii) and (iii).

Against (ii), reconsider examples discussed in the Section 4.1 showing that the continuative is necessary for a *since* reading with imperfectives (81a,b). If imperfective continuatives were always simply progressives, the expectation is that basic imperfectives (81b) might also be compatible with a *since* interpretation under an in-progress reading, but this is not the case.

(81) a. John ʔúpənkst uɬ ʔasíl spintk iʔ s-ƛ̓ǎp-s kiʔ
John ten and two year DET NMLZ-age-3POSS ADJT.C
s-c-ntr̓qpncút-x.
CONT-IPFV-run-CONT
'John has been running since he was 12 years old.'
(Delphine Derickson Armstrong | VF)

b. John ʔúpənkst uɬ ʔasíl spintk iʔ s-ƛ̓ǎp-s kiʔ
John ten and two year DET NMLZ-age-3POSS ADJT.C
c-ntr̓qpncút.
IPFV-run
Target: 'John has been running since he was 12 years old.'
Actual: 'John ran / was running when he was 12 years old.'
(Delphine Derickson Armstrong)

I argue for (iii): continuative imperfectives go over and beyond a simple progressive. In Section 6.1, I show how the continuative might be analyzed as projecting an extended temporal span that is underlying in a non-maximal eventuality, i.e., an imperfective or a state. The temporal span is not itself retrospective but interacts semantically with retrospective adverbs like *since*. Thus, a continuative predicate can have either a *perfect progressive* or *progressive* interpretation, depending on the context. In support of this general approach, consider examples (82) and (83) below, which were volunteered as translations of English perfect progressive *since* sentences, yet they were translated back as regular progressives with punctual adverbials. This is due to the fact that the equivalent of *since* adverbials in Nsyilxcn are ambiguously interpretable as punctual adverbs.

(82) *Context: Your friend Mary has been working non-stop in the kitchen for three days, since Tuesday.*
t sʔaslásq̓ət, Marí kiʔ **s-c-k̓ʷə̓l̓-c-ncut-x**.
OBL Tuesday Mary ADJT.C CONT-IPFV-cook-food-REFL-CONT
Target: 'Mary has been cooking since Tuesday.'
Back Translation: 'Mary was cooking on Tuesday.' (Dave Michele | VF)

[27] Note that Pancheva (2003:286) argues these English examples involve a null *neutral* aspect, where the eventuality may or may not hold at utterance time, but that these are nevertheless experiential, and therefore existential, perfects.

(83) a. iʔ siwɬkʷ **s-c-sult-míx** t sḵaʔɬásq̓ət uɬ ʕapnáʔ
DET water CONT-IPFV-frozen-CONT OBL last.Wednesday and now
way̓ **s-c-ʕaḿ•ḿ-míx**.
already CONT-IPFV-melt•C2.INCH-CONT
Target: 'The water has been frozen since last week, but now it is melting.'
Back Translation:'The water was frozen last week but now it is melting.'
(Delphine Derickson Armstrong)

b. in-púsˑ t sḵaʔɬásq̓ət **s-c-q̓ílt-x** uɬ way̓
1SG.POSS-cat OBL last.Wednesday CONT-IPFV-sick-CONT and already
ʕapnáʔ **s-x̌əst-wilx-əx**.
now CONT-good-become-CONT
Target: 'My cat has been sick since last week, but now she is better.'
Back Translation: 'My cat was sick last week, but now she is better.'
(Delphine Derickson Armstrong | VF)

It is worth considering that on its universal 'durative' reading, a present perfect progressive like *Mary has been cooking since Tuesday* entails the past progressive *Mary was cooking on Tuesday*, but not vice versa. Hence it is not entirely unexpected that sentences volunteered in response to a perfect target sentence might be translated back as simple progressives, in the absence of any tense-bearing auxiliary or a dedicated lexical item for *since*.

4.3 Prospective readings of perfective continuatives

As discussed in Section 3 above, perfective continuatives resemble a *past perfective* class of perfect (Bertrand et al. 2022) in that they have experiential and resultative ('existential') readings in the absence of an imperfective (see Table 1), and continuous ('universal') readings are only available for continuative states (Dowty 1979; Mittwoch 1988; Vlach 1993; Iatridou et al. 2001). However, *prospective* readings may also be possible in some cases, as indicated by the speaker's comments in (84b).[28]

(84) *Context: My mother is in the kitchen fixing dinner, I am hungry, so I ask her when we are going to eat, then she replies.*

a. way̓ sic kn **s-c-k̓ʷəl̓-c-ncút-x**.
already new 1SG.SUBJ CONT-IPFV-get.made-food-REFL-CONT
'I am just starting to cook.' (Delphine Derickson Armstrong, Dave Michele | VF)

b. way̓ sic kn **s-Ø-k̓ʷəl̓-c-ncút-x.**
already new 1SG.SUBJ CONT-PFV-get.made-food-REFL-CONT
'I'm just about to start cooking.'
DM Comment: "It means you didn't start yet!"
(Delphine Derickson Armstrong, Dave Michel)

[28] Example (84b) was judged good separately in a context where the speaker is gathering pots and pans and cutting equipment together to start cooking.

Note that for the context given in (84) a present perfect sentence *I have just about started cooking* could be used in English to indicate that all necessary preparations needed for cooking have been completed. This remains a possibility for Nsyilxcn (84b), however other cases are more difficult to assign a perfect interpretation to. For example, (85a) does not mean *Tomorrow I'll get back and then I will have gone up the little hill.* To be clear, such prospective uses always alternate with formally prospective predicates, such as (85b).

(85) a. ǩlap mi kn c-ṗlaḵ məł kn **s-Ø-xʷuy-x**
tomorrow FUT 1SG.SUBJ CISL-return and.then 1SG.SUBJ CONT-PFV-go-CONT
ḵl ẇí<•ẇ>ast.
to high<•CRED>
'Tomorrow I'll get back and then I'm going up the little hill.'
(Delphine Derickson Armstrong | from VFd example)

b. ǩlap mi kn c-ṗlaḵ məł kn **ks-Ø-xʷúy-aʔx**
tomorrow FUT 1SG.SUBJ CISL-return and.then 1SG.SUBJ PROS-PFV-go-PROS
ḵl ẇí<•ẇ>ast.
to high<•CRED>
'Tomorrow I'll get back and then I'm going up the little hill.'
(Delphine Derickson Armstrong)

Importantly, formally prospective predicates are the *only* option in some cases, for reasons that are currently unclear (86).

(86) a. *waẏ sic kn **s-Ø-ḵʷəl̓-c-ncút-x**. kiʔ
already new 1SG.SUBJ CONT-PFV-get.made-food-REFL-CONT ADJT.C
i(n)-náǩʷnəǩʷ kʷu ṁaẏ-xít-s t ǩast t scṁaʔmáẏ.
1SG.POSS-wife 1SG.OBJ tell-IND-3ERG OBL good OBL story
'I was about to start cooking when my wife called me with the good news.'
(Delphine Derickson Armstrong)

b. waẏ sic kn **ks-Ø-ḵʷəl̓-c-ncút-aʔx** kiʔ
already new 1SG.SUBJ PROS-PFV-get.made-food-REFL-PROS ADJT.C
i(n)-náǩʷnəǩʷ kʷu ṁaẏ-xít-s t ǩast t scṁaʔmáẏ.
1SG.POSS-wife 1SG.OBJ tell-IND-3ERG OBL good OBL story
'I was about to start cooking when my wife called me with the good news.'
(Delphine Derickson Armstrong | VF)

While further work is needed on possible prospective uses of continuatives, the fact that these are sometimes volunteered strengthens the idea that any time span associated with perfective continuative need not *necessarily* be oriented retrospectively. Though typically retrospective, this could be due to a scalar implicature between formally non-prospective and prospective forms, such that perfective continuatives imply retrospection without entailing it. Such a view, whereby the temporal ordering of a continuative event is underspecified, is consistent with the progressive uses of *im*perfective continuatives discussed in sections 4.1 and 4.2, which only seem to involve a retrospective time span in the context of a *since* adverbial.

4.4 Perfective continuatives and implicature strengthening

Iatridou et al. (2001) claim that for perfects, a *subinterval property* (87) must hold within the perfect time span to enable a universal reading (Dowty 1979; Mittwoch 1988).[29]

(87) *Subinterval Property* (Iatridou et al. 2001): "The continuous reading requires events to be homogeneous throughout the Perfect Time Span (events must hold at each subinterval of a time t)."

This is intended to capture the fact that only states have continuous readings in the absence of an imperfective. Iatridou et al. also argue that the continuative incorporates the 'boundedness' of the underlying predicate. They state (2001:171):

(88) "Perfective morphology on the predicate describing the eventuality blocks the subinterval property. It presents the eventuality as bounded, and bounded eventualities are not homogeneous since any interval including the completion/termination differs in nature from the preceding intervals."

In Nsyilxcn, non-imperfective *dynamic* predicates are bounded, and therefore non-homogenous. However, while *states* in Salish have been analyzed as formally perfective in the absence of an imperfective (Bar-el 2005), these *are* homogenous, *un*bounded in other words. Bar-el (2005) shows that for Sḵwx̱wu7mesh perfectives, activities imply termination, accomplishments imply culmination, achievements entail culmination, while states have no final termination or culmination, and by default hold at a reference time, perfectivity notwithstanding. In this section, I demonstrate that Nsyilxcn follows the same pattern. The immediate implication is that the continuative incorporates the boundedness of an underlying predicate, and that this potentially accounts for the distinction between non-imperfective state and dynamic continuative predicates, but that if bare adjectival states are to be considered perfective in a sentential context, (88) needs to be limited to *dynamic* predicates only in Salish languages.[30]

For Nsyilxcn, the absence of any termination implicature in a perfective state has the effect that these are interpretively equivalent to imperfective states under a non-habitual reading (89).

(89) iʔ knəxnáx **c-/Ø-nʕast** t spiʔsc̓íɬt, uɬ púti ʔ **c-/Ø-nʕast** ʕapnáʔ.
DET box IPFV-/ PFV-heavy OBL yesterday and still IPFV-/PFV-heavy now
'The box was heavy yesterday, and it is still heavy today.'
(Delphine Derickson Armstrong)

[29] Dowty's (1979) original version states, "The subinterval property holds of an interval iff the eventuality that holds at that interval holds of every subinterval of that interval."

[30] Rullmann & Matthewson (2018:14) propose a null non-prospective aspect which may or may not include the utterance time and which enables "both eventive and stative perfective predicates [to] pick out eventualities which are ongoing at the utterance time, without the need for imperfective marking." A similar non-prospective aspect in Nsyilxcn could explain ongoing readings of perfective states, both bare and continuative, but it may incorrectly level the distinction between bare and continuous dynamic predicates with respect to event culmination/termination.

Likewise, although continuative states are typically volunteered as Ø- perfectives with universal readings (Section 3.8), they can also easily occur as imperfective continuatives (90), with no apparent change in interpretation.

(90) in-púsˑ t sḵaʔɬásq̓ət **s-c-/Ø-q̓ilt-x**
1SG.POSS-cat OBL Wednesday CONT-IPFV-/PFV-sick-CONT
uɬ wayˑ ʕapnáʔ s-Ø-x̌əst-wílx-əx.
and already now CONT-PFV-good-become-CONT
'My cat has been sick since last Wednesday, but now she is better.'
(Dave Michele | VF with PFV- Ø-)

If perfective continuative adjectival states like (90) are unbounded because the underlying states themselves (89) are unbounded, the prediction is that these should behave similarly to *imperfective* states under an ongoing reading, and this seems to be the case. Continuative states thus 'inherit' the unboundedness of their underlying states.

In contrast, perfectives built on dynamic predicates are *not* interpretively equivalent to imperfectives, as shown above in sections 2 to 4. Dynamic predicates in Nsyilxcn imply termination or culmination, and hence are bounded under Iatridou et al.'s definition. That these are implicatures in Nsyilxcn as opposed to entailments is shown by the fact that basic perfective activities (91–92) and (transitive) accomplishments (93–94) can have both completive and ongoing readings. For Dave Michel, an in-progress reading is *not* available for a perfective activity, which demonstrates that for at least some speakers, termination is an entailment.

(91) *Context: Your friend calls to you from across the room while they are dancing and says:*

a. kn **Ø-q̓ʷəyílx**.
1SG.SUBJ PFV-dance
'I'm dancing.' / 'I danced.' (Lottie Lindley, Dunham 2011)

b. húmaʔ kʷu Ø-ʕaċ-nt, kn **Ø-q̓ʷəyílx**.
excuse.me 1SG.OBJ PFV-look-DIR 1SG.SUBJ PFV-dance
'Look at me, I'm dancing.' (Delphine Derickson Armstrong | VF)
DM Comment: "Means 'Look at me, I already danced. You need to say *scq̓ʷəyílxəx.*'"

(92) *Context: You see John having a smoke through the window outside, and say to your friend:*

a. John **Ø-mán̓xʷ-əm**.
John PFV-smoke-MID
'John is smoking.' (Lottie Lindley, Dunham 2011)

b. Ø-ʕaċ-nt, John **Ø-mán̓xʷ-əm**.
PFV-look-DIR John PFV-smoke-MID
'Look at him, John is smoking.' (Delphine Derickson Armstrong)
'Look at him, John had a smoke.' (Dave Michele)
DM Comment: "He had a smoke, he's not there now."

(93) a. John **Ø-ʔiɬ-s** iʔ ápəl uɬ lút t̓ Ø-k̓aw-st-s.
John PFV-eat(-DIR)-3ERG DET apple and NEG NEG.FAC PFV-all.gone-CAUS-3ERG
'John ate the apple but he didn't finish it.' (Lottie Lindley, Dunham 2011)

b. Ø-ʕac̓-nt, John **Ø-ʔiɬ-s** iʔ ápəl.
PFV-look-DIR John PFV-eat(-DIR)-3ERG DET apple
'Look at him, John is eating an apple.' (Delphine Derickson Armstrong)
DM Comment: "It's okay, but usually it means he finished it."

(94) a. John **Ø-ƛ̓aʔƛ̓aʔ-nt-ís** iʔ laklí.
John PFV-look.for-DIR-3ERG DET key
'John looked for the key.' / 'John is looking for the key.'
(Lottie Lindley, Dunham 2011)

b. k̓liʔ kiʔ **Ø-ƛ̓aʔƛ̓aʔ-nt-ís** iʔ lakli-s.
to.there ADJT.C PFV-look.for-DIR-3ERG DET key-3POSS
'John is looking for his key over there.' (Delphine Derickson Armstrong)

Ongoing readings are not possible for perfective continuatives built on dynamic predicates; these must be realized as imperfectives instead (95–98). This shows how the continuative strengthens the implicature of termination/culmination inherent in dynamic predicates into an entailment. This is one of the core differences between bare and continuative perfectives. In my analysis, I treat this as a semantic effect of the continuative, though pragmatic strengthening remains a possibility.

(95) *Context: Your friend calls to you from across the room while they are dancing and says:*

a. húmaʔ kʷu Ø-ʕac̓-nt, kn **s-c-q̓ʷəyílx-əx**.
excuse.me 1SG.OBJ PFV-look-DIR 1SG.SUBJ CONT-IPFV-dance-CONT
'Look at me, I'm dancing.' (Dave Michele | VF)

b. # húmaʔ kʷu Ø-ʕac̓-nt, kn **s-Ø-q̓ʷəyílx-əx**.
excuse.me 1SG.OBJ PFV-look-DIR 1SG.SUBJ CONT-PFV-dance-CONT
'Look at me, I danced.' (Delphine Derickson Armstrong, Dave Michel)

(96) *Context: You see John having a smoke through the window outside, and say to your friend:*

a. Ø-ʕac̓-nt John ilíʔ kiʔ **s-c-mánxʷ-əx**.
PFV-look-DIR John there ADJT.C CONT-IPFV-smoke-MID+CONT
'Look at John, he's smoking over there.' (Dave Michele | VF)

b. # Ø-ʕac̓-nt John ilíʔ kiʔ **s-Ø-mánxʷ-əx**.
PFV-look-DIR John there ADJT.C CONT-PFV-smoke-(MID)+CONT
'Look at John, he smoked.' (Delphine Derickson Armstrong, Dave Michele)

(97) *Context: You're looking at your friend John who is currently eating an apple.*

a. Ø-ʕac̓-nt, John **s-c-ʔiɬn-m-s** iʔ ápəl.
PFV-look-DIR John CONT-IPFV-eat(-DIR)-CONT-3POSS DET apple
'Look at him, John is eating an apple.' (Delphine Derickson Armstrong | VF)
DM Comment: "Good, or you could say John *cʔiɬsts iʔ ápəl*."

b. # Ø-ʕaċ-nt, John **s-Ø-ʔiɬn-m-s** iʔ ápəl.
PFV-look-DIR John CONT-PFV-eat(-DIR)-CONT-3POSS DET apple
'Look at him, John has eaten the apple.'
(Delphine Derickson Armstrong, Dave Michele)

(98) *Context: You see John looking around for his key, and tell your friend:*

a. John **s-c-ƛ̓aʔƛ̓aʔ-ám-s** iʔ lakli-s.
John CONT-IPFV-look.for(-DIR)-CONT-3POSS DET key-3POSS
'John is looking for his key.' (Delphine Derickson Armstrong, Dave Michele)

b. # John **s-Ø-ƛ̓aʔƛ̓aʔ-ám-s** iʔ lakli-s.
John CONT-PFV-look.for(-DIR)-CONT-3POSS DET key-3POSS
'John looked for his key.' (Delphine Derickson Armstrong, Dave Michele)
DD/DM Comment: "You have to have the *c*- if he's looking for it."

Overall, Nsyilxcn continuatives seem to follow Iatridou et al.'s (2001) observation about the perfect insofar as it incorporates the boundedness of the underlying predicate, and that this boundedness is what blocks the subinterval property in dynamic continuatives, and with it, the possibility of a universal reading. Overall, this explains why continuative states allow universal readings (99a), but not perfective continuatives built on dynamic predicates (99b,c).

(99) a. i-sqʷsíʔ púti ʔ **s-Ø-n-qʷəyqʷʕáy-s-x**. ***state***
1SG.POSS-son still CONT-PFV-LOC-blue-eye-CONT
'My son still has blue eyes.' (Dave Michele | VF)

b. # t sʔaslásq̓ət, Marí ki ʔ **s-Ø-k̓ʷəl̓-c-ncút-x**. ***activity***
OBL Tuesday Mary ADJT.C CONT-PFV-make-food-REFL-CONT
Target: 'Mary has been cooking since Tuesday.'
DM Comment: "Got to have the *c*- in there." (Dave Michele)

c. #ʔasəl-spintk ki ʔ **i-s-Ø-k̓ʷúl̓-łxʷ-m** ***accomplishment***
two-year ADJT.C 1SG.POSS-CONT-PFV-make-house(-DIR)-CONT
uɬ way̓ ʕapnáʔ lut t̓ wiʔ-st-ín.
and already now NEG NEG.FAC finish-CAUS-1SG.ERG
'I've been building this house for 2 years already, and it still isn't finished.'
DM Comment: "Better with the *c*-." (Dave Michel)

I suggest that *boundedness* in the Salish context may be understood, roughly speaking, as the *existence* of an implicature of termination or culmination. In my analysis (Section 5), I formalize this in negative terms by building unboundedness (i.e., non-maximality) into the meaning of states and imperfectives. Boundedness is the elsewhere condition, under my analysis.

To summarize and conclude this section, Nsyilxcn presents several challenges to a standard extended-now perfect analysis. These include the absence of habitual readings with imperfective continuatives in most contexts (Section 4.1), the interpretations of imperfective continuatives as progressives as opposed to perfect progressives in most contexts (Section 4.2), apparent prospective uses of perfective continuatives (Section 4.3), and the strengthening of culmination/termination

implicatures into entailments for dynamic predicates (Section 4.4). The analysis presented in the next section attempts to address these challenges.

5 Towards a partitive analysis

A summary of the patterns to account for are as follows:

Perfective continuatives do not require an eventuality or resulting state to hold at the reference time. With states, the eventuality easily holds, yielding a 'continuous' or 'universal' reading. With activities, accomplishments, and achievements ('dynamic predicates'), the eventuality does not hold at utterance time, yielding an 'existential' reading. With few exceptions, dynamic predicates must occur in the imperfective in order to have a universal reading. Overall, perfective continuatives closely resemble the English perfect.

Imperfective continuatives *do* require an eventuality to hold relative to a reference time, meaning they do not by themselves allow existential readings. The continuative has the effect of blocking habitual readings characteristic of the base imperfective. An exception to the rule is in *since*-type sentences, where existential, habitual-like readings of imperfective continuatives are possible. These facts have led me to the hypothesis that imperfective continuatives are basically derived progressives, rather than perfect progressives, but that perfect-like interpretations occur in combination with certain adverbs (namely the functional equivalents of *since*).

There were four issues identified with adopting a standard extended-now approach (100), discussed in detail in Section 4, and briefly reiterated below.

(100) a. $[\![\text{PERFECT}]\!] = \lambda P \lambda i \exists i'.[\text{PTS}(i',i) \wedge p(i')]$
PTS(i',i) iff i is a final subinterval of i'

b. $\lambda i \exists i'.[\text{PTS}(i',i) \wedge \exists e.[P(e) \wedge i' \subseteq \tau(e)]]$ *perfect imperfective*

c. $\lambda i \exists i'.[\text{PTS}(i',i) \wedge \exists e.[P(e) \wedge \tau(e) \subseteq i']]$ *perfect perfective*

First, the perfect imperfective in (100b) does not itself derive the general absence of habitual readings in Nsyilcxn imperfective continuatives (Section 4.1). Second, tense does not seem to be the final sub-interval in imperfective continuatives in Nsyilxcn: these are rather more akin to progressives (Section 4.2). Third, tense is not necessarily ordered after the introduced time span with perfective continuatives (Section 4.3). Fourth, the continuative has the effect of strengthening termination and culmination implicatures into entailments for dynamic predicates (Section 4.4).[31]

Alexyenko's (2018) treatment of imperfectivity combines an event-plurality approach to habituality (see Ferreira 2005 and many others), with an inertia world semantics developed for the progressive (Dowty 1979; Landman 1992; Portner 1998). By approaching the difference between habituals and progressives as essentially a difference between plural and singular events, they recognize that as variants of a general imperfective, both share a common semantic core (Comrie

[31] The third point above could be addressed by replacing the requirement that *i* be a final subinterval of *i',* with a requirement that *i* be a 'boundary' subinterval, i.e., either the initial *or* final subinterval of *(i',i)*. A (possibly null) prospective ordering aspect will then yield a mirror-image, 'not yet started' reading for perfective continuatives. The first two points more seriously challenge the applicability of (100) to Nsyilxcn, since there should be nothing to prevent existential perfect or habitual readings of an imperfective continuative if the meaning is as shown in (100b).

1976). For Alexyenko, languages with a dedicated progressive marker include a predicate ATOM (101a) in addition to the common imperfective core, which enforces a singular event reading, whereas dedicated habitual markers include a predicate ¬ATOM (101b) which enforces a plural event reading. Essentially, an event is atomic iff there are no sub-events which are non-identical with the event itself. Conversely, an event is non-atomic if there is some sub-event which is non-identical with the event itself.

(101) a. $\text{ATOM}(e) = \forall e'[e' \sqsubseteq e \rightarrow e' = e]$

b. $\neg\text{ATOM}(e) = \exists e'[e' \sqsubseteq e \wedge \neg e' = e]$

Building on Dowty (1979), Landman (1992), and Portner (1998), and Ferreira (2016), Alexyenko's proposed semantics for a general imperfective and a progressive are given in (102a,b). Taking (102b) as an example, "a progressive is true iff there is a 'stage' event ['e'] in the actual world that develops into a complete VP-event ['**ε**'] in all the worlds in the circumstantial modal base that rank best with respect to the non-interruption ordering source" (2018:780). In other words, a progressive is true "iff there is a singular or plural P-event ['e'] in the actual world such that it is a non-final part of a singular P-event ['**ε**'] in all the worlds in which nothing irrelevant accidentally interrupts it and prevents it from continuing" (2018:780).

(102) a. General Imperfective

$\lambda P_{\langle e,\langle s,t\rangle\rangle}\lambda t\lambda w\exists e.[t \subseteq \tau(e) \wedge P(e)(w) \wedge \forall w'[w' \in \text{BEST}(\text{CIRC}(e)(w))\text{NINT}(e)(w)] \rightarrow \exists \boldsymbol{\varepsilon}[\tau(e) \subset_{nf} \tau(\boldsymbol{\varepsilon}) \wedge P(\boldsymbol{\varepsilon})(w')]]$

b. Progressive

$\lambda P_{\langle e,\langle s,t\rangle\rangle}\lambda t\lambda w\exists e.[t \subseteq \tau(e) \wedge P(e)(w) \wedge \forall w'[w' \in \text{BEST}(\text{CIRC}(e)(w))\text{NINT}(e)(w)] \rightarrow \exists \boldsymbol{\varepsilon}[\tau(e) \subset_{nf} \tau(\boldsymbol{\varepsilon}) \wedge P(\boldsymbol{\varepsilon})(w') \wedge \text{ATOM}(\boldsymbol{\varepsilon})(w')]]$

The key concepts which I borrow from this approach are (i) that event singularity can be enforced through an atomizing predicate, and (ii) that the main event can be associated with a containing, continuing event in some possible world.

Next, rather than assuming Iatridou et al.'s view of boundedness as non-homogeneity *within* an event (88), I explore a different definition, and suggest that boundedness in Nsyilxcn may be expressed as a lexico-aspectual distinction between states and dynamic predicates such that stative eventualities are by default interpreted as part of a larger continuing event in an accessible possible world, whereas dynamic events have no such default interpretation in the absence of an imperfective marker. More technically, states by default denote a *non-maximal* eventuality stage, whereas dynamic predicates can denote either a non-maximal or maximal event stage. Maximal event stages are defined as those which either culminate or cease to develop further relative to a possible world, while non-maximal event stages are those which may develop further relative to a possible world (Altshuler 2014).

I define unboundedness as non-maximality for a predicate P with respect to a set of worlds S (103a), and boundedness as maximality (103b) (Ferreira 2016).

(103) a. $\forall w \in S, \exists e[P(e,w) \wedge \exists e'[e < e' \wedge P(e',w)]]$ *unbounded/non-maximal*

b. $\forall w \in S, \exists e[P(e,w) \wedge \neg\exists e'[e < e' \wedge P(e',w)]]$ *bounded/maximal*

A non-maximal event stage will be an event which satisfies (103a), whereas a maximal event stage will be one which satisfies (103b). In plain terms, an event stage *e* is non-maximal if there is some larger event *e'* with which it forms a part, at least in some possible world. In order for an event stage *e* to be maximal, there must be no larger event *e'* with which it forms a part.

For Nsyilxcn, I suggest that imperfective predicates and basic states encode non-maximality as an intensional relation between an event in some close possible world, and an event in the actual world which is included as a proper part. This is similar to Alexyenko's treatment of the imperfective and progressive in (102), where the runtime of some event ε in *w'* contains an event *e* in the evaluation world *w*. I assume for now that the modal relation between the two worlds may be expressed similarly to (102), where the evaluation world *w* is part of the modal set unless something accidentally interrupts the event(uality) and prevents it from continuing. I also assume that the part of relation $e < e'$ in (103) maps onto a temporal inclusion relation $\tau(e) \subset_{nf} \tau(e')$ through a temporal trace function (Krifka 1989).

Nsyilxcn adjectival states are defined as in (104), where an eventuality satisfying some state *P* with a patient *x* is presupposed to be non-maximal in all worlds in which nothing irrelevant prevents the eventuality from continuing. Imperfective aspect (105) encodes event non-maximality directly, as well as introducing a reference time variable which is included within the runtime of the event. A progressive interpretation arises in case *e* denotes a singular event, whereas a habitual interpretation surfaces if *e* denotes a plural event.[32]

(104) $[\![\text{STATE}]\!] = \lambda w \lambda e[P(x,e,w)]$
is defined for e in w iff $\forall w'[w' \in \text{BEST}(\text{CIRC}(e,w))\text{NINT}(e,w) \rightarrow \exists e'[e < e' \wedge P(e',w')]]$

(105) $[\![\text{IPFV}]\!] = \lambda P \lambda t \lambda w \lambda e[P(e,w,t) \wedge t \subseteq \tau(e) \wedge \forall w'[w' \in \text{BEST}(\text{CIRC}(e,w))\text{NINT}(e,w) \rightarrow \exists e'[e < e' \wedge P(e',w')]]]$

With states and imperfectives, *e* may be either maximal or non-maximal (Altshuler 2014).[33] It is either maximal or non-maximal in those worlds in which *e* is not interrupted (i.e., worlds in the modal base), and maximal in those worlds where it ceases to develop further or is interrupted (i.e., those worlds not in the modal base). In other words, even if *e* is maximal in the evaluation world, there may still be closely accessible worlds in which *e* is non-maximal and continues as *e'*.

I assume the following, standard semantics for the perfective (106). Unlike the imperfective, there is no modal restriction on the perfective. I assume that the perfective ranges over both non-maximal event stages, as well as maximal event stages, where a maximal event stage may either be an event stage that ceases to develop further, or an event stage which culminates, depending on the world (Altshuler 2014).

(106) $[\![\text{PFV}]\!] = \lambda P \lambda t \lambda w \lambda e[P(e,w,t) \wedge \tau(e) \subseteq t]$

[32] The Nsyilxcn imperfective patterns similarly to the Russian imperfective as described in Altshuler (2014:757), in either referring to a single event "that holds in the world of evaluation and which is a stage of an event that culminates in a 'near enough' world" or else "a series of events that hold in the world of evaluation and which are stages of events that culminate in a 'near enough' world."

[33] Altshuler's (2014:763) alternative definition of the imperfective is as follows: "An operator is imperfective if it requires a part of an event in the extension of the VP that it combines with, but this part need not be maximal."

Unlike Altshuler (2014; see also Filip 2000, 2008), I do not assume a maximal stage *requirement* for the perfective (i.e., the perfective does not encode 103b). This is for two reasons: First, this effectively renders the perfective incompatible with 'bare' adjectival states, which are unbounded, yet are arguably still perfective (Bar-el 2005). More importantly, as (91) to (94) above show, non-continuative dynamic perfectives allow not only maximal event readings whereby the event culminates or ceases to develop further, but *also* non-maximal continuing event readings, particularly in the case of activities. (Note that I leave the *e* variable unbound for imperfective (105) and perfective (106), since the continuative will need to access the variable.)

The continuative itself, I suggest, takes some predicate *P* inflected for viewpoint aspect and introduces a sum over overlapping singular *P* event stages across worlds, relative to some reference time *t* (see Krifka 1998; Ferreira 2005 for relevant work), and asserts that this sum event holds of *P* in the actual world (107a). The singular *sg* operator (Ferreira 2005) limits the application of the sum operation to just the set of minimal, singular ('atomic') events (107b). The sum event is the 'most complete' version of some singular *P* event across worlds, relative to some reference time.

(107) a. $[\![\text{CONT}]\!] = \lambda P \lambda t \lambda w \exists e[P(e,w,t) \wedge (e,w,t) = \bigoplus sg[\lambda e' \lambda w'.P(e',w')(t)]]$

b. $sg = \lambda e \lambda w.\text{ATOM}(e,w)$
$\text{ATOM}(e,w) \Leftrightarrow \neg \exists e' < e : e'$ holds in w

The utility of the sum operation is to bring overlapping world/event pairs into consideration in determining which atomic *P* event holds in the actual world. This is conceptually similar to how Alexyenko's (2018) modal semantics for the progressive (102b) determine which worlds the atomic, containing event hold. The difference for continuatives is that because perfectives presumably do not include a modal restriction, a separate mechanism is needed.

Combining the semantics of the continuative (107a) with the perfective (106) as applied to some predicate *P* with an unsaturated external argument yields a perfective continuative (108).

(108) $[\![\text{PFV.CONT}]\!] = \lambda x \lambda t \lambda w \exists e[P(e,w,t,x) \wedge \tau(e) \subseteq t \wedge (e,w,t) = \bigoplus sg[\lambda e' \lambda w'.P(e',w',x) \wedge \tau(e') \subseteq t]]$

This asserts that there is some *P* event with some agent *x* in the actual world whose event runtime is included within the reference time, and that this *P* event is the sum of all overlapping singular *P* events across worlds with agent *x* whose runtimes are included within the reference time. The sum operation ensures that Nsyilxcn perfective continuatives always denote a culminating or terminating maximal, singular event. To illustrate, if e_1 is a non-maximal stage of some event in w_1, and e_2 is an overlapping, non-culminating/terminating maximal stage of the same event in a different w_2, and e_3 is an overlapping, culminating/terminating maximal stage of the same event in w_3, then $e_1(w_1) \oplus e_2(w_2) \oplus e_3(w_3) = e_3(w)$, given that $\tau(e_1(w_1) \oplus e_2(w_2) \oplus e_3(w_3)) \subseteq t$ and that e_1 , $e_2 < e_3$ in the evaluation world *w*. This is a semantic explanation for the difference between bare perfectives built on dynamic predicates, which need not culminate or terminate just in case *e* is either a non-maximal or a maximal non-culminating event stage, and perfective continuatives, which must culminate or terminate (barring states, to be discussed).[34]

[34] As atomic events in their respective worlds, maximal atomic events within the sum may be considered 'quantized' and non-maximal atomic events may be considered 'cumulative' in the sense of Krifka (1989). The sum operation does not distinguish between these but takes any event stage satisfying *P* in that world,

Combining the continuative (107a) with the *im*perfective (105) as applied to some predicate *P* with an unsaturated external argument, yields an *im*perfective continuative (109). As a singular sum event whose runtime encompasses the reference time, a progressive interpretation results.

(109) $[\![\text{IPFV.CONT}]\!] = \lambda x \lambda t \lambda w \exists e[P(e,w,t,x) \wedge t \subseteq \tau(e) \wedge \forall w'[w' \in \text{BEST}(\text{CIRC}(e,w))\text{NINT}(e,w) \rightarrow \exists e'[e < e' \wedge P(e',w')]] \wedge (e,w,t) = \bigoplus sg[\lambda e' \lambda w'.P(e',w',x) \wedge t \subseteq \tau(e')] \wedge \forall w''[w'' \in \text{BEST}(\text{CIRC}(e',w'))\text{NINT}(e',w') \rightarrow \exists e''[e' < e'' \wedge P(e'',w'')]]]$

This asserts that there is some *P* event *e* with some agent *x* in the actual world whose event runtime includes the reference time, and which is non-maximal in all worlds in which the event is uninterrupted, and that this *P* event *e* is the sum of all overlapping singular *P* events *e'* across all worlds *w'* with agent *x* where the event runtime includes the reference time, and that for each of the worlds *w'* within the sum, there may be accessible worlds *w''* where the singular event *e'* continues as *e''*.

For imperfective continuatives, the sum operation ranges over both worlds where the singular event *e* continues and completes as *e'* (i.e., the modal set, where *e* is non-maximal and *e'* is maximal), and worlds where the *e* does not continue (where *e* is maximal: it is interrupted and ceases to develop further). The sum of a non-maximal event *e* in w_1 and an overlapping, maximal version of the same event *e* in w_2 is a maximal version of *e* in the evaluation world *w*, as illustrated above for perfectives. Similarly to a state (104) or base imperfective (105), however, the sum event *e* of a continuative being maximal in *w* (109) does not preclude *e* from developing further in some other possible world *w'*. Thus, the only tangible effect of the sum operation on imperfectives is to limit the events under consideration to *singular* events, and (109) is equivalent to a simplified (110).

(110) $[\![\text{IPFV.CONT}]\!] = \lambda x \lambda t \lambda w \exists e[P(e,w,t,x) \wedge t \subseteq \tau(e) \wedge (e,w,t) = \bigoplus sg[\lambda e' \lambda w'.P(e',w',x) \wedge t \subseteq \tau(e')] \wedge \forall w''[w'' \in \text{BEST}(\text{CIRC}(e',w'))\text{NINT}(e',w') \rightarrow \exists e''[e' < e'' \wedge P(e'',w'')]]]$

Perfective states inherit the non-maximality of the states themselves (111), which typically has the effect of 'by-passing' the inclusion relation. In other words, even if the runtime of an eventuality is properly included within the reference time, it may continue past the reference time as *e'* in some possible world. This derives their unboundedness in most contexts. Like other perfectives, however, a state need not hold at the reference time, just in case *e* is maximal and/or properly contained within the reference time. Like imperfectives, a perfective state may cease to hold if it is interrupted or does not develop further in the actual world.

(111) $[\![\text{PFV.STATE}]\!] = \lambda t \lambda w \lambda e[P(x,e,w,t) \wedge \tau(e) \subseteq t]$
is defined for e in w iff $\forall w'[w' \in \text{BEST}(\text{CIRC}(e,w))\text{NINT}(e,w) \rightarrow \exists e'[e < e' \wedge P(e',w')]]$

The majority of perfective states are interpreted as unbounded/non-maximal. Their non-maximality is what drives their universal interpretations as continuatives and explains why they are

relative to a specified reference time. For perfective and imperfective continuatives, the 'most complete' event will be a maximal singular event whose runtime fills the reference time and culminates/terminates at *t*.

interpretively equivalent to imperfective states (112) under their single event readings (see Section 4.4, 89–90), just in case $\tau(e) = t$, and/or the event continues as *e'* in a close possible world.

(112) $[\![\text{IPFV.STATE}]\!] = \lambda t \lambda w \lambda e[P(x,e,w,t) \wedge t \subseteq \tau(e) \wedge$
$\forall w'[w' \in \text{BEST}(\text{CIRC}(e,w))\text{NINT}(e,w) \rightarrow \exists e'[e < e' \wedge P(e',w')]]]$

Because states strongly imply non-maximality as both perfectives and imperfectives, and a continuative sum event is still subject to cross-world non-maximality, a perfective continuative state will be semantically very similar to an imperfective continuative state.

In summary, by enriching the ontology of event stages and how these map onto lexical and aspectual classes, this approach provides a unified semantics for the continuative which derives the progressive interpretations of imperfective continuatives and the existential perfect-like pattern seen with perfective continuatives built on dynamic predicates. States show universal readings even as perfectives because they are inherently non-maximal. While dynamic perfectives themselves can denote either a non-maximal, or a culminating or non-culminating maximal event in Nsyilxcn, continuative perfectives built on dynamic predicates entail culmination or termination because these denote the 'most-developed' maximal event-stage across worlds, which with accomplishments and achievements will be one which culminates, and with activities will be one which ceases to develop further. Crucially, the semantics for the continuative make no reference to a retrospective temporal interval. As such, there is no reason why a continuative might not give rise to a prospective reading.

The above accounts for the progressive interpretations of imperfective continuatives, the existential perfect-like interpretations of imperfective continuatives, and the continuous interpretations of both perfective and imperfective continuative states. What remains unaccounted for are the 'time span' effects seen with imperfective continuatives and continuative states, especially in the context of *still* adverbials. These are revisited below.

6 Modifications to the analysis

This section discusses how the analysis relates to some of the more difficult examples discussed above in Section 4. In particular, I present one account of why habitual-like readings seem to re-emerge for imperfective continuatives in *since* contexts (Section 6.1), I discuss the infelicity of imperfective continuatives in *nyʕip* 'always' sentences (Section 6.2), and revisit outlier cases of dynamic perfective continuatives with universal-like interpretations (Section 6.3). As a disclaimer, sections 6.1 and 6.2 especially are exploratory in nature, and require further modifications to the analysis presented in Section 5. While these modifications make some correct predications, they are also theoretically problematic, and so require further work.

6.1 *Since* sentences

In Section 4.1, I showed how the continuative has the effect of enforcing a progressive interpretation on an imperfective predicate, removing the possibility of a habitual reading. It was also shown that the equivalent of *since* sentences in Nsyilxcn seem to be exceptions, with both ongoing (113a) and habitual-like interpretations possible (113b).

(113) a. t siwłkʷkʷkʕást kiʔ **i-s-c-knxít-əm**
OBL early.morning ADJT.C 1SG.POSS-CONT-IPFV-help(-DIR)-CONT
i-sẇaʔẇásaʔ.
1SG.POSS-aunt
'I've been helping my aunt since early this morning.'
DM Comment: "You're doing it now." (Dave Michele | VF)

b. kn łə sḵʷəḵʷíymalt kiʔ **i-s-c-knxít-əm**
1SG.SUBJ when child ADJT.C 1SG.POSS-CONT-IPFV-help(-DIR)-CONT
i-sẇaʔẇásaʔ.
1SG.POSS-aunt
'I've been helping my aunt ever since I was young.' (Dave Michele | VF)

These two distinct interpretations are not limited to imperfective continuatives: perfective continuative states also follow this pattern (114), though dynamic perfective continuatives do not (Section 4.1). This pattern strongly suggests that the source of this ambiguity is to be found in the *since* clause, as opposed to either the imperfective specifically or the continuative, and also suggests that Nsyilxcn *since* interpretations may be dependent on lexical or aspectual non-maximality.

(114) a. l nḵmaplqs kn **s-Ø-mut-x** uł waẏ̓
at head.of.the.lake 1SG.SUBJ CONT-PFV-sit-CONT and already
ʔasəl-sxʷípəpkst uł ʔupənkst-əł-cílkst spintk.
two-thousand and ten-and-five year
'I have lived in Vernon since 2015.' (Delphine Derickson Armstrong | VF)

b. t stə̓x̌íyut t̓i cəlkst-ásq̓ət kiʔ kn **s-Ø-q̓ilt-x**.
OBL last.year EXCL five-day ADJT.C 1SG.SUBJ CONT-PFV-sick-CONT
'I have only been sick for 5 days since last year.'
(Delphine Derickson Armstrong | VF)

Iatridou et al. (2001:165; see also Vlach 1993; Dowty 1979; Mittwoch 1988) discuss perfect examples involving *since* in English (115), which are similar to (113) and (114) in having two distinct interpretations. Under the universal reading of (115), for example, the speaker has been sick continuously from 1990 up to and including the speech time. *Since* is 'durative' in this case. For the existential reading, there must be at least one period of time since 1990 during which the speaker has been sick. *Since* is 'inclusive' in this case.

(115) Since 1990, I have been sick.
∃i (LB = 1990 ∧ RB = now ∧ ∀t ∈ i (sick(t))) *'durative' since: universal reading*
∃i (LB = 1990 ∧ RB = now ∧ ∃t ∈ i (sick(t))) *'inclusive' since: existential reading*

For Iatridou et al., *since* is lexically ambiguous, and a *since* clause applies to a perfect time span: in its durative guise, it contributes universal quantification over times, while in its inclusive guise, it contributes existential quantification. Durative *since* requires a predicate that satisfies the subinterval property, or under the current analysis, one that is non-maximal. Inclusive *since* does not, as shown by (116). *Reading 'The Book of Sand'* is a culminating accomplishment, which is a maximal event, and does not satisfy the subinterval property.

(116) Since 1990, I have read 'The Book of Sand' five times. (Iatridou et al. 2001:165)

I suggest that the equivalent of *since* adverbials in Nsyilxcn have a similar effect on continuatives as that argued for by Iatridou et al. (2001) above: Namely, a *since* adverbial in Nsyilxcn can introduce either existential or universal quantification over times within an interval. Under the durative, universal reading of (117a) for example, a continuative event must hold for every time within the *since* time span. Under the inclusive, existential reading (117b), there is *at least one* time within the *since* time span for which the continuative event holds. It is the inclusive reading, I suggest, that makes possible a quasi-habitual interpretation.[35]

(117) a. t siwłkʷkʷkʕást kiʔ **iscknxítəm** isẇaʔẇásaʔ. *'durative' since: universal reading*
'I've been helping my aunt since early this morning.'
∃i (LB = *this morning* ∧ RB = now ∧ ∀t ∈ i (CONT(*helping my aunt*)(t)))

b. kn łə sḵʷəḵʷíyməlt kiʔ **iscknxítəm** isẇaʔẇásaʔ. *'inclusive' since: existential reading*
'I've been helping my aunt ever since I was young.'
∃i (LB = *I am young* ∧ RB = now ∧ ∃t ∈ i (CONT(*helping my aunt*)(t)))

This approach to *since* clauses preserves the progressive-only interpretations of imperfective continuatives in other contexts, and correctly predicts that *since* clauses should not be tied only to imperfectives but should occur with continuatives built on statives as well, as described above.

In Nsyilxcn, a continuative can only occur with a *since* clause if it is built on a non-maximal predicate.[36] We might expect dynamic perfective continuatives to allow inclusive readings in *since* sentences, similar to English (116) above, however, these allow neither durative nor inclusive interpretations (118).[37] This is a noteworthy difference between Nsyilxcn continuatives and English perfects.

(118) a. #t sʔaslásq̓ət, Marí kiʔ **s-Ø-k̓ʷə̓l-c-ncut-x**.
OBL Tuesday Mary ADJT.C CONT-PFV-get.made-food-REFL-CONT
Target: 'Mary has cooked since Tuesday.'
Actual: 'Mary cooked on Tuesday.' (Dave Michele)

[35] Existential temporal quantifiers like *łaʔ claʔkín* 'sometimes' also permit habitual-like interpretations of imperfective continuatives. I assume that cases such as these are semantically similar to the inclusive *since* sentences discussed above and introduce existential quantification over times within an interval.

[36] In fact, as (118a) suggests, the very interpretation of an oblique adverbial as a *since* adverbial rather than as a punctual adverbial is dependent on the predicate being non-maximal.

[37] Dynamic predicates utilize a different construct for inclusive readings in *since* contexts, where the predicate is converted into a nominalized argument (iii). These are not continuatives:

(iii) iʔ k̓ast iʔ sq̓ilt kʷu łaʔ kicntəm, t̓i **naqs isxʷuy** k̓l Omak, uł ixíʔ iʔ l spiʔsxʷəyxʷəytán.
Target: 'Since COVID I've only been to Omak once, and that was last August.'
Literally: 'When the bad sickness came to us, **my going** to Omak is just **once**, and that was last August.'

b. # kn ʔupənkst-əɬ-ʔasil-spíntk kiʔ
1SG.SUBJ ten-and-two-year ADJT.C
i-s-Ø-səl-mín-əm
1SG.POSS-CONT-PFV-lose-APPL(-DIR)-CONT
i-s-k̓ɬ-c̓əl•c̓íl-s-tn.
1SG.POSS-NMLZ-under-TRED•shade-eye-INST
'Since I was twelve years old, I lost my glasses.' (Dave Michele)

Assuming that *since* clauses in Nsyilxcn introduce or operate on an interval of times similarly to English, and given that Nsyilxcn *since* clauses require that the continuative be built on a non-maximal predicate, this presents a challenge for the analysis given in Section 5. This is because there is nothing in the analysis so far that should prevent a *since* clause from modifying a dynamic perfective, or a continuative built on a dynamic perfective.

One potential, but theoretically problematic, workaround is to modify the semantics of the imperfective marker to include not just a variable over times, but a variable over intervals of times *i*, which includes the runtime of the event (bolded in 119). This will then also be included in the semantics of a continuative imperfective predicate (119b), through compositionality.

(119) a. $[\![\text{IPFV}]\!] = \lambda P \lambda t \mathbf{\lambda i} \lambda w \lambda e[P(e,t,w) \wedge \mathbf{t \subseteq \tau(e) \subseteq i} \wedge$
$\forall w'[w' \in \text{BEST}(\text{CIRC}(e,w))\text{NINT}(e,w) \rightarrow \exists e'[e < e' \wedge (e',w')]]]$

b. $[\![\text{IPFV.CONT}]\!] = \lambda x \lambda t \mathbf{\lambda i} \lambda w \exists e[P(e,w,t,x) \wedge \mathbf{t \subseteq \tau(e) \subseteq i} \wedge (e,w,t) =$
$\bigoplus sg[\lambda e' \lambda w'.P(e',w',x) \wedge \mathbf{t \subseteq \tau(e') \subseteq i}] \wedge$
$\forall w''[w'' \in \text{BEST}(\text{CIRC}(e',w'))\text{NINT}(e',w') \rightarrow$
$\exists e''[e' < e'' \wedge P(e'',w'')]]]$

A *since* adverbial can then be defined as requiring a predicate type that includes an open *i* variable (interval of times), but an existentially closed *e* variable. (Recall from Section 4.1 that *since* clauses are not possible with basic imperfectives (119a) but are possible with continuative imperfectives (119b).) Durative and inclusive *since* then existentially close the *i* variable in a continuative.

(120) a. $[\![since_{\text{DUR}}]\!] = \lambda P \exists i\ (\text{LB} = X \wedge \text{RB} = Y \wedge \forall t \in i\ (P(t)))$
b. $[\![since_{\text{INCL}}]\!] = \lambda P \exists i\ (\text{LB} = X \wedge \text{RB} = Y \wedge \exists t \in i\ (P(t)))$

Finally, whereas an imperfective predicate will include an open *i* variable as a property of non-maximal predicates, a perfective predicate will not. This move will effectively limit *since* adverbials to just those continuative predicates which are non-maximal.

But states are also non-maximal and allow *since* modification as continuatives, even when they are perfective. This means that the semantics for states also needs to be modified, perhaps as follows.

(121) $[\![\text{STATE}]\!] = \lambda x \mathbf{\lambda i} \lambda w \lambda e\ [P(e,w,x) \wedge \mathbf{\tau(e) \subseteq i}]$
is defined for e in w iff $\forall w'[w' \in \text{BEST}(\text{CIRC}(e,w))\text{NINT}(e,w) \rightarrow$
$\exists e'[e < e' \wedge P(e',w')]]$

Given that the runtime of any event by definition is only interpretable relative to an interval over times, this move is not logically unreasonable. It is also worth considering that under the durative/universal reading of Nsyilxcn *since* sentences like (117a), the reference time *t*, the runtime

of the event $\tau(e)$, and the containing interval *i* of an imperfective continuative will all be temporally equivalent, which correctly predicts that a singular event will fill up the entire time span *i*. Unfortunately, it is unlikely from a theoretical standpoint that states, especially, include a temporal interval argument as part of their lexical semantics.

Nevertheless, the important point to be made here is that by associating an interval over times with the property of non-maximality, either at the lexical or aspectual level, a semantic conduit is created through which the unboundedness of an underlying predicate is 'inherited' by the continuative, which goes a long way towards explaining the co-dependency of continuatives with the interpretation of modifying *since* adverbials. *Since* clauses seem to be sensitive to the same mechanism which links progressive interpretations of continuatives to non-maximality, and perfect interpretations to maximality, though the correct formulation of this intuition awaits further work.

6.2 'Always' and other adverbials

It is worth revisiting the contrast in acceptability of habitual (i.e., existential/inclusive) readings in sentences with *since* adverbials (Section 6.1) with those that include *always*, where habitual readings are much less acceptable. Reconsider (122a) which includes *nyʕip* 'always' with (122b) which involves an adverbial with a *since* interpretation.

(122) a. #kn łə tətwít nyʕip **i-s-c-səl-mín-əm**
1SG.SUBJ when boy always 1SG.POSS-CONT-IPFV-lose-APPL(-DIR)-CONT
in-ḳ̇ł-c̓̇əl•c̓̇íl-s-tn.
1SG.POSS-under-TRED•shade-eye-INST
Target: 'I always used to lose my sunglasses when I was young.'
Actual: # 'I have always been losing my sunglasses when I was young.'

b. kn ʔupənkst-əł-ʔasil-spíntk kiʔ
1SG.SUBJ ten-CONJ-two-year ADJT.C
i-s-c-səl-mín-əm
1SG.POSS-CONT-IPFV-lose-APPL(-DIR)-CONT
i-s-kł-c̓̇əl•c̓̇íl-s-tn, ʕapnáʔ lut ṭ̇a
1SG.POSS-NMLZ-on-TRED•shade-eye-INST now NEG NEG.FAC
c-səl-mí-st-n.
IPFV-lose-APPL-CAUS-1SG.ERG
'I've been losing my sunglasses since I was 12 years old, but now I don't lose them anymore.' (Delphine Derickson Armstrong | VF)

The intuition is that (122a) is not acceptable because a singular sunglass-losing event fills the entire reference time of being young, which is pragmatically untenable. Note that basic imperfectives *are* felicitous with *nyʕip* 'always' (123), because they allow plural-event readings.

(123) kn łə tətwit nyʕip **c-səl-mí-st-n**
1SG.SUBJ when boy always IPFV-lose-APPL-CAUS-1SG.ERG
in-ḳ̇ł-c̓̇əl•c̓̇il-s-tn.
1SG.POSS-under-TRED•shade-eye-INST
'I always lost my sunglasses when I was young.' (Dave Michele | VF)

Cases involving *nyʕip* ‘always’ are similar to the *since* clauses discussed in the previous section in that they are sensitive to the possibility of a non-maximal interpretation (i.e., they do not occur with perfectives), but differs in that *always* can apply to either a basic or continuative imperfective (with the caveat that *always* with a continuative imperfective may be deemed odd because of the singular event requirement).

I assume that *nyʕip* ‘always’ is a modifier of a temporal interval *i* and introduces universal quantification over times within the interval.

(124) $[\![always]\!] = \lambda P \lambda i(\forall t \in i\ (P(t)))$

When applied to the (modified) basic imperfective in (119a), a singular or plural event must hold for all times within the time span. Similarly to durative/universal *since*, this means that the reference time *t*, the runtime of the singular or plural event $\tau(e)$, and a containing interval *i* must all be temporally equivalent, otherwise, there would be some *t* within *i* where *P*(*e*) is not true. Applied to a (modified) imperfective continuative (119b) however, a singular sum event must hold for all times within the time span. Because (i) the event must be singular, (ii) it must be case that $t \subseteq \tau(e) \subseteq i$, and (iii) the predicate must hold at all times *t* within *i*, a continuative imperfective predicate must hold as a singular event throughout the *entire* time interval modified by *always.* This correctly accounts for the infelicity of examples like (122a), and the infelicity, in general, of imperfective continuatives with *nyʕip* ‘always’.

In sum, modifications were made to the semantics of non-maximal predicates in Section 6.1 in order to account for the interactions between continuatives and *since* adverbials. Despite being theoretically problematic, these modifications make correct predictions regarding the interaction between continuatives and other temporal adverbials such as *nyʕip* ‘always’.

6.3 Universal readings of dynamic perfective continuatives

Before closing, recall from Section 3.8 that there are occasionally cases of perfective continuatives which ambiguously show continuous, universal-like readings (125).

(125) Marí c̓q̓-c-iʔ-s uł cu-s, “sxʷm̓aʔm̓ayaʔm Smith,
Mary get.hit-mouth-DIR-3ERG and say(-DIR)-3ERG teacher Smith
Tom **kʷu** **s-Ø-klk-áyaʔ-qn-m-s** uł way̓ alá ʔ
Tom 1SG.OBJ CONT-PFV-pull-top-head(-DIR)-CONT-3POSS and already here
kʷu ła ʔ ʔúl̓lus ła ʔ c-xʔíti ʔ.”
1PL.SUBJ when gather when IPFV-begin
‘Mary interrupts to complain, “Miss Smith, Tom has been pulling my hair since the class began!”’
DD Comment: “Doesn’t mean right now, could be now or the past.”
(Delphine Derickson Armstrong, VF)

Cases like (125) potentially pose problems for the analyses proposed above. Given that *pulling hair* is a dynamic predicate rather than a state (although see Vlach 1981), *pulling hair* above must be analyzed as a perfective which denotes a sum over maximal event stages. As such it should only show completive readings. The vast majority of similar cases do in fact, as discussed above.

In Section 3.8, I suggested that in cases like (125), there is an expectation on the part of the speakers that the interrupted event will continue, and that this gives rise to a quasi-continuous

reading. This was supported by perfective continuative examples which do not involve event interruption, where quasi-continuous readings do not surface. However, there are other potential explanations which I will briefly discuss. These are (i) cancellation of the termination/culmination implicatures associated with dynamic predicates in Salish (Bar-el 2005), (ii) a resultative analysis (Bertrand et al. 2022; Pancheva 2003), and (iii) a neutral analysis (Pancheva 2003).

First (i), under the analysis proposed in Section 5, whether a termination or culmination implicature goes through for a perfective predicate is dependent on the world of evaluation, and on whether a maximal event in that world is culminating/terminating, or one that ceases to develop further. The challenge posed by (125) is that under a *sum* operation, only a culminating/terminating interpretation should be possible. I am then forced to say that in this case, the set of worlds included in the sum operation only include *P* events which cease to develop further. The problem here is that it is unclear under what pragmatic conditions the set of worlds under consideration will exclude culminating events, and also unclear why in the vast majority of cases, the set of worlds under evaluation includes worlds with a culminating event.

Second (ii), Pancheva (2003) discusses a resultative viewpoint aspect, that combines with telic predicates, introducing a resulting state which overlaps with the reference time. Given that *pulling my hair* is a telic accomplishment in (125), there could be a null resultative aspect in complementary distribution with the perfective. This resultative aspect would also presumably apply to the examples discussed in Section 3.3 on 'resultative' existential readings of continuatives. Example (125) could then be understood as the ongoing result of a hair-pulling event, a result state in other words. There is, however, no strong evidence for a separate resultative viewpoint aspect. Result states are easily cancellable with perfective continuatives (Section 3), which suggests that experientials and resultatives are two sub-types of a more general existential interpretation. In other words, whether or not a result state happens to hold at the utterance time is not part of the assertion, as under Pancheva's resultative aspect. Furthermore, telicity per se does not appear directly relevant to interpretation at the continuative level, rather the important factor is event dynamicity or lack thereof. The utility of a morphologically null resultative viewpoint aspect whose distribution is determined by telicity is therefore suspect.

Lastly (iii), we could posit a neutral aspect for cases like (125) which is morphologically ∅-, identical to the perfective, just as in Pancheva's (2003) account of English. The neutral asserts that the beginning of the event is included in the perfect time span but leaves open the question of whether the end of the event is included (which means that termination/culmination is indeterminate). Pancheva argues that for perfect atelic predicates (i.e., states and activities), a continuous reading is indicative of the neutral as opposed to the perfective. Under this approach, (125) could have a continuous reading because, as a neutral, culmination is not been asserted. Again, similarly to (i), it is unclear how to restrict the distribution of the neutral marker, or why the majority of cases parallel to (125) entail culmination/termination.

Examples like (125) clearly require further work. The most plausible explanation, in my view, is the 'interrupted-event' hypothesis, as discussed in detail in Section 3.8. Pancheva's neutral and resultative aspects seem less motivated for reasons discussed above.

7 Discussion and conclusion

This paper has described previously undocumented properties of continuous aspect in Nsyilxcn and has presented one possible analysis.

I have provided arguments that there is one circumfixal continuous aspect which applies to perfective, imperfective, or stative predicates. The semantic effect of the continuative depends both

on the viewpoint aspect of the predicate to which it attaches, and the predicate's underlying dynamicity/aktionsart. For imperfective predicates of all types, the continuative removes the possibility of a habitual interpretation, in effect deriving a progressive. For perfective predicates, the question of dynamicity enters: A dynamic perfective continuative is felicitous in existential perfect contexts only, while a perfective continuative built on a basic state is felicitous in both existential and universal perfect contexts.

I have argued that an extended-now approach (Dowty 1979; Pancheva 2003) does not apply to the Nsyilxcn continuative, since it cannot derive the absence of habitual readings or existential-perfect-like readings in imperfective continuatives, nor prospective uses, nor explain why termination and culmination implicatures of perfective dynamic predicates are strengthened into entailments (Section 4). Given the correctness of a compositional approach (Section 2), and that a unified semantics for the continuative is warranted, the question I have attempted to address in this paper is how to 'bridge' these progressive and perfect uses.

My analysis (Section 5) relies on an ontological distinction between maximal and non-maximal event stages (Altshuler 2014) and proposes that a sensitivity to this distinction can be encoded at the lexical or viewpoint aspectual level. For Salish languages, which allow non-culminating accomplishments, maximal event stages may either be culminating stages or stages which cease to develop further (Altshuler 2014). Non-maximal stages are those which may develop further. The continuative introduces a sum over singular overlapping *P* events across worlds, relative to a reference time. A continuative built on a dynamic perfective will show a culminative, perfect-like existential reading, because the sum event must be a culminating or terminating maximal event. A continuative built on an imperfective will show a progressive reading: because non-maximality in imperfectives is encoded as an intensional relation between an event and its continuation in some inertia world, a singular sum event, however maximal, will typically have accessible inertia worlds. With some modifications (Section 6), this analysis makes interesting predictions regarding the range of readings seen with the functional equivalent of *since* adverbials in Nsyilxcn and its interaction with continuative predicates, and of the general incompatibility of continuatives with *always.*

Overall, this analysis follows the intuition that a unified semantics for the continuative is warranted, and that the progressive and perfect-like interpretations in fact rely on properties that are independent of the continuative itself, namely event non-maximality as specified at the lexical or aspectual level. The analysis is still in need of further refinement, however.

First, more understanding is needed around the relation between event boundedness, (non)-maximality, and culmination and termination implicatures in Nsyilxcn, and in Salish generally. This will allow a better evaluation of the merits of the analysis, and whether the more nuanced ontology of event stages I have assumed in this paper is in fact motivated. While it seems empirically correct to say that continuative predicates inherit the boundedness of the underlying predicate (cf. Iatridou et al. 2001), whether the implicature 'strengthening' effects of the continuative are semantic, as I have argued, or pragmatic in nature requires further work.

Second, the interaction between continuative predicates and *since* adverbials remains unclear. There is some evidence that the equivalent of *since* adverbials in Nsyilxcn are introducing a perfect-like time span, but a *since* interpretation of these adverbials is also generally dependent on a predicate being continuative, and more specifically, a continuative formed from a non-maximal predicate. Clarifying these relationships may shed light on what exactly "present relevance" in continuatives is, as described by A. Mattina (1993) and N. Mattina (1996).

In closing, Nsyilxcn provides additional support for Bertrand et al.'s (2022) conclusion that 'perfect' may not be a universally valid grammatical category: perfect-like constructions exist

around the world, but they differ widely with respect to the tests described in Section 3. The continuative is the closest analogue to a 'perfect' in Nsyilxcn, a fact made most evident by the limitation of universal readings to stative predicates in non-imperfective contexts, and the 'time span' effects seen with *since* adverbials. Nevertheless, the continuative is not a perfect.

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