

Contributions

① This cessation interpretation has raised a typological question on the status of so-called DISCONTINUOUS PAST as a category of tense that is *semantically distinct from plain past tense*. Two proposals have been forwarded:

1. **Discontinuous pasts exist (Plungian and van der Auwera 2006):**
“...roughly characterizable as “past and not present” or “past with no present relevance”” (p. 317)
2. **No discontinuous past (Cable 2017):**
Discontinuity/cessation interpretations associated with such past tenses are IMPLICATURES

Contribution to question of discontinuous past:

I show that “discontinuous past” finds **no independent, unambiguous support** in Kanien’kéha.

② In prior descriptions and analyses of Kanien’kéha (and other Northern Iroquoian languages), the two suffixes are treated together as instances of “past marking”.² **I will argue today that:**

1. The Former Past *-(h)kwe’* is a **past tense** with a cessation implicature (as in English, Tlingit, Wá·šiw)
2. The Remote Past *-hne’* is **not a past tense**, but rather a “cessative” (to defined below, §4)

Contribution to description of Kanien’kéha:

- I note a **previously undescribed semantic difference** between the use of the two past suffixes.
 - Forward a novel hypothesis about the **distribution** of the Remote Past *-hne’*, which is **more restricted than previously described**.
- ⇒ Together, these may help us make **better predictions about where speakers** use the Remote Past *-hne’*.

I proceed as follows:

- §1: **Establish** that the two Past morphemes can be understood (provisionally) as **Tense**
- §2: **Describe** an difference in the strength of the cessation inference between the two Past suffixes, suggesting a “discontinuous past” analysis
- §3: **Establish** further the **distribution** of the two Past suffixes, and **conclude** that there is in fact **no support for “discontinuous past”** in Kanien’kéha
- §4: **Propose** that difference in inference strength **arises from the temporal properties of the verb**
- §5: Summarize and raise further questions.

²For Kanien’kéha, see Michelson (1973: 17), Bonvillain (1973: 213–4); explicit claims of their syntactic/semantic identity are forwarded in Ormston (1993); Baker and Travis (1997, 1998); for implicit claims elsewhere, see e.g. Lounsbury (1953: 87–8) on Oneida, Lukaniec (2018: 322) on Wendat, Woodbury (2018: 165ff) on Onondaga.

1 Kanien'kéha has two optional pasts

1.1 Interpretation of morphologically tenseless clauses and past marked clauses

- Verbs inflect for one of three aspects. The Habitual and Stative aspects have **on-going episodic interpretations**, depending on the aspectual properties of verb (Cross et al. 2023)
- Kanien'kéha past suffixes are **not required for past reference**, illustrated in (2) for the Habitual aspect and (3) for the Stative.

(2) Morphologically Tenseless Clause with Habitual Aspect

- a. **Wató:rats.**
w-atorat-s
FZ.A-hunt-HAB
'She is hunting.' (Present on-going)
- b. Oh na'kénhaton shà:kken' **wató:rats.**
Oh na'kénhaton sha'-k-ken-' w-atorat-s
last.time COIN-1SG>FZSG-see-PUNC FZ.A-hunt-HAB
'When I saw her last, she was hunting.' (Past on-going)

(3) Morphologically Tenseless Clause with Stative Aspect³

- a. Shawátis **rotshókwen.**
Shawatis ro-atshokw-en
John MSGP-smoke-STAT
'John is smoking.' (Present on-going)
- b. Shawátis shahí:ken' **rotshókwen.**
Shawatis sh-a'-hi-ken-' ro-atshokw-en
John COIN-FACT-1SG>MSG-see-PUNC MSGP-smoke-STAT
'John was smoking when I saw him.' (Past on-going)

When marked with one of two Past suffixes, they are **obligatorily past referring**.

(4) Past suffixes

- a. **wató:ratskwe'**
w-atorat-s-kwe'
FZ.A-hunt-HAB-FOR.PST
'She *is/was hunting.' (Former Past *-(h)kwe'*)
- b. Shawátis rotshokwèn:**ne'**
Shawatis ro-atshokw-en-hne'
John MSGP-smoke-STAT-REM.PST
'John *is/was smoking.' (Remote Past *-hne'*)

³The example in (3b) requires further consideration in light of the account developed below, which predicts this sentence to be infelicitous. Anticipating the discussion below: while in matrix contexts, tenseless stative forms of unbounded verbs like (3b) are able to express past on-going events; in embedded contexts, they cannot.

1.2 Optional pasts are absolute past referring

No past-in-the-future use, i.e., suffixes restricted to absolute past (*omitted for time*)

(See appendix A for further details.)

Summary

- Morphologically tenseless clauses may have present or past reference
- Both Former and Remote Pasts are **restricted to (absolute) past reference**

2 Semantic differences: defeasibility of the cessation inference

This section illustrates a semantic difference between the two past suffix, which have previously been described as semantically identical. Specifically,

- FORMER PAST *-(h)kwe'* has a cessation **implicature** (5–6)
- REMOTE PAST *-hne'* has a cessation **entailment** (7–8)

(5) Former past on Stative gives rise to cessation inference

Kahiatónhsera rowennahnó:tahkwe'
kahiatonhsera ro-wennahnot-a-hkwe'
book MSGP-read-STAT-FOR.PST
'He was reading the book.'
⇒ He is not currently reading

(6) Cancellation of inference via explicit denial and ignorance statement

- a. Shontakatáweia'te rowennahnó:tahkwe'
Shon-ta-k-ataweia't-e ro-wennahnot-a-hkwe'
COIN-CIS.FACT-1SGA-enter-PUNC MSGP-read-STAT-FOR.PST
tánon shé:kon rowennà:note' ó:nen'k
tanon' shekon ro-wennahnot-e' onen'k
and still MSGP-read-STAT right.now
'He was reading when I entered, and he is still reading right now.'
- b. ... nek tsi iah tewakateriéntare' tóka shé:kon rowennà:note'
... nek tsi iah te-wak-aterientar-e' toka shekon ro-wennahnot-e'
... but NEG NEG-1SGP-know-STAT if still MSGP-read-STAT
'He was reading when I entered, but I don't know if he's still reading.'

(7) Remote Past cessation inference cannot be cancelled via explicit denial of cessation

- a. Shawátis rotshokwèn:ne.
Shawatis ro-atshokw-en-hne
John MSGP-smoke-STAT-REM.PAST
'John was smoking.'
⇒ John is not currently smoking

- b. #Shawátis rotshokwèn:ne {tánon'/nek tsi} shé:kon rotshókwen.
 Shawatis ro-atshokw-en-hne tanon'/nek tsi shekon ro-atshokw-en
 John MSGP-smoke-STAT-REM.PAST and/but still MSGP-smoke-STAT
 Intended: 'John was smoking and/but he is still smoking.'

(8) **No cancellation with explicit statement of ignorance**

- a. **Context:** *Paul and Sue got married in the 80s. Someone asks me whether I know Paul*

Hen riienté:ri'. Sue rotiniakòn:ne'.
 Hen ri-ienteri-'. Sue roti-niak-on-hne
 Yes 1SG>M.SG-know-PUNC. Sue M.DU.P-marry-STAT-REM.PST
 'Yes, I know him. He was married to Sue.'
 ⇒ they are not married anymore

- b. #Sue rotiniakòn:ne'

Sue roti-niak-on-hne
 Sue M.DU.P-marry-STAT-REM.PAST
 nek tsi iah tesewakaterièn:tare' tóka' shé:kon rotiniá:ken
 nek tsi iah te-se-wak-aterien:tar-e' toka' shekon roti-niak-en
 but NEG NEG-REP-1SG.P-know-PUNC if still M.DU.P-marry-STAT
 Intended: 'He was married to Sue, but I don't know if they're still married.'

Interim summary

- Former and Remote Pasts are differentiated by the defeasibility of their cessation inference.
- A straightforward account encodes this difference in the semantics of the suffixes: i.e., the Remote Past *-hne'* is a “discontinuous past” ([Plungian and van der Auwera 2006](#)).

⇒ In the following section, I show that this is too hasty a conclusion.

3 Distributional differences of the Past suffixes

3.1 Former Past *-(h)kwe'* can occur on Habitual *and* Stative aspect verbs

The Former Past occurs productively on Habitual aspect forms (9), and on a subset of Stative aspect forms (10–11).

- (9) a. ierákwas
 ie-rakwa-s
 FLA-choose-HAB
 'she/they/s.o. is choosing'
- b. ierákwas'kwe'
 ie-rakwa-s-kwe'
 FLA-choose-HAB-FOR.PST
 'she/they/s.o. were choosing'
 ([Martin 2023](#): 138)

Some verbs have on-going episodic readings of that stative, but do not permit the Remote Past.⁴ In such cases, the Former Past takes the Stative form as its complement.

- | | |
|--|--|
| <p>(10) a. Ieksà:'a teiakonniáhkwen.
 ieksa'a te-iako-nnoniahkw-en
 child DUPL-FL.P-dance-STAT
 'The child is/was dancing'</p> <p>b. *Ieksà:'a teiakonnoniahkwèn:ne'
 ieksa'a te-iako-nnoniahkw-en-hne
 child DUPL-FL.P-dance-STAT-REM.PST
 Intended: 'The child was dancing.'</p> <p>c. Ieksà:'a teiakonnoniahkwenhkwe'
 ieksa'a te-iako-nnoniahkw-en-hkwe'
 child DUPL-FL.P-dance-STAT-FOR.PST
 'The child was dancing.'</p> | <p>(11) a. rowennà:note'
 ro-wennahnot-e'
 MSGP-read-STAT
 'He is/was reading.'</p> <p>b. *rowennà:notehne'
 ro-wennahnot-e-hne'
 MSGP-read-STAT-REM.PST
 Intended: 'He was reading.'</p> <p>c. rowannahnótahkwe'
 ro-wennahnot-a-hkwe'
 MSGP-read-STAT-FOR.PST
 'He was reading.'</p> |
|--|--|

3.2 Remote Past *-hne'* is restricted to a subset of verbs, not to the Stative aspect

Descriptions of the Remote Past *-hne'* typically state that its distribution is limited to the Stative aspect. As we have seen above in (10–11), the distribution is in fact rather restricted.⁵

Proposal

Remote Past forms are restricted to verbs whose event descriptions do not encode an endpoint.

Examples of such predicates include:

- number predicates (12)
- temperature predicates (13)
- evaluative predicates (14)
- notionally permanent or difficult-to-change properties, like being lost (15a) or being married (15b)

(12) **Number predicates**

áhsen nikonihne'	akohsá:tens	ronáhskwaientakwe'
ahsen ni-konti-hne	akohsatens	ro-nahskwaien-t-a-hkwe'
three PRT-be.number-REM.PST	horse	MSGP-have.horse-T-STAT-FOR.PST

'He had three horses.

(13) **Temperature predicates**

Iowistóhne	ken	shiohrhón'ke
io-wisto-hne	ken	shi-io-hrhon'ke
N.P-be.cold.STAT-REM.PST	Q	COIN-N.P-be.morning

'Was it cold (weather) this morning?'

⁴See Cross et al. (2023) for a suggestion that a telicity contrast underlies which aspect has the on-going reading. Interestingly, *not all* stative present verbs can use the Remote Past – i.e., this property seems to cross-cut telicity.

⁵Some predicates appear to take both, with corresponding differences in interpretation; see Appendix B.

- (14) **Evaluative predicates**
 É:so tsi iaontonna'tòn:ne'
 eso tsi ia-ontonna't-on-hne
 this that N.P-be.boring-STAT-REM.PST
 'It was boring.'

(15) **Notionally difficult-to-change properties**

- a. wakatiòn:ne ne akehnhotónkwa.
 wak-ati-on-hne ne ake-hnhotonkwa
 ISGP-lose-STAT-REM.PST NE ISGP-keys
 'I lost my keys.'
- b. Sue rotiniakòn:ne'.
 Sue roti-niak-on-hne
 Sue M.DU.P-marry-STAT-REM.PAST
 'He was married to Sue.'

Right-Unboundedness

The property assumed to underlie the distribution of the Remote Past *-hne*' is **right unboundedness** defined in (16), following the temporal profile of statives proposed in [Altshuler and Schwarzchild \(2013\)](#) (see also [Cable 2017](#), Appendix C).

(16) **An (untensed stative) verb describes a right-unbounded eventuality φ iff:**

- a. φ is true at a moment m ,
- b. for any moment m'' such that $m < m''$, φ is true (right-unboundedness)

4 Account: Status of the discontinuous past

This section illustrates the two derivation paths to cessation inferences.

- The Former Past cessation implicature is a Gricean inference (§4.1)
- The Remote Past cessation entailment arises from the Remote Past's contribution: it derives a *right-bounded* eventuality (§4.2)

4.1 Former Past cessation is a Gricean inference

I follow much work in deriving cessation implicatures via Gricean reasoning: **use of a past tense implicates the falseness of the present tense alternative** (e.g. [Altshuler and Schwarzchild 2013](#); [Cable 2017](#)). However, more work must be done to spell out the assumptions regarding morphologically tenseless clauses in general (see e.g., [Matthewson 2006](#); [Pancheva and Zubizarreta 2023](#)).

For now, I assume the contributions of Tense and Aspect in Table 1, in particular with respect to the relation between UT t^* and ET $\tau(e)$

Table 1: Kanien'kéha Temporal interpretations

	Tense	HAB/STAT aspect	on-going at t*?
PRES \emptyset	RT = UT	RT \subseteq $\tau(e)$	t* \subseteq $\tau(e)$ entailed
PST \emptyset	RT < UT	RT \subseteq $\tau(e)$	no claim
PST $-(h)kwe'$	RT < UT	RT \subseteq $\tau(e)$	cessation implicated

The inference from Past to *Past and ceased-by-UT* proceeds as such:

- Competition is between (null or marked) Past, with no assertion of on-goingness, and Present, which entails on-goingness.
- Use of marked Past leads specifically to the inference that $\neg (t^* \subset \tau(e))$, which is defeasible as seen above.

⇒ Raises the question of choice between null and marked Past tense (to be worked out)

4.2 Remote Past cessation is an endpoint assertion: the intuition

The analysis proposed here is that the Remote Past *-hne'* is not marking past tense but is a **derivational suffix**: it is an event-structural operator that **adds an actualized right-bound**.

Two desired components for the truth-conditions of *-hne'* marked verbs:

- **ENDPOINT INTRODUCTION**:
the endpoint exists (a cessation inference arises)
- **ENDPOINT ACTUALITY**:
the endpoint has happened in the past in the evaluation world (cessation is entailed)

Consequences of **RIGHT-UNBOUNDEDNESS** of the eventuality:

- ① for unmarked verbs, the temporal contrast between Past (Ceased at UT) and Present (On-going at UT) is neutralized: they are *necessarily on-going at UT* (see Appendix C)
- ② for *-hne'* marked verbs, the contrast is neutralized in the other direction: they are *necessarily ceased by UT*:
 - The endpoint actuality condition requires that the endpoint takes place in the history of the evaluation world
 - A present tense (RT = UT) contributes a restriction **conflicting with the endpoint actuality and is ruled out**
 - A past ceased-event interpretation is the only remaining interpretation available

We can see further the necessity of the endpoint actuality condition in the following contrast – *-hne'* is **not 'finish'**: the predicate *-hs* 'finish' is possible in contexts of future actualization of the right-bound, *-hne'* marked verbs are not

- (17) a. Wísk mínit enhahsa' tsi rotshókwen
 wisk minit en-ra-hs-a' tsi ro-atshokw-en
 five minute FUT-MSG A-five finish-PUNC that MSGP-smoke-STAT
 'In five minutes, he will finish smoking.'
- b. *wísk mínit enhotsokwèn:ne'
 wisk minit en-ro-atsokwen-hne'
 five minute FUT-MSGP-smoke-STAT-REM.PST
 Intended: 'In five minutes, he will finish smoking/have smoked.'

Summary

Under the analysis sketched here, neither suffix encodes *both* cessation and a Tense restriction along the lines needed for a DISCONTINUOUS PAST (Plungian and van der Auwera 2006).

5 Conclusions and future research

Overall upshot:

- Kanien'kéha Former Past *-(h)kwe'* is a Tense suffix;
 - the Remote Past *-hne'* is instead an event-structural operator: it derives a right-bounded eventuality from a lexically right-unbounded eventuality, by introducing an actualized right-bound.
- ⇒ The status of discontinuous past as an available tense does not find independent, unambiguous motivation in Kanien'kéha (as in Cable 2017)

References

- Altshuler, Daniel, and Roger Schwarzschild. 2013. Moment of change, cessation implicatures and simultaneous readings. In *Proceedings of Sinn und Bedeutung 17*, ed. Emmanuel Chemla, Vincent Homer, and Grégoire Winterstein, 45–62. Paris: ENS.
- Baker, Mark, and Lisa Travis. 1997. Mood as verbal definiteness in a “tenseless” language. *Natural Language Semantics* 5:213–269.
- Baker, Mark, and Lisa Travis. 1998. Events, times, and Mohawk verbal inflection. *Canadian Journal of Linguistics/Revue canadienne de linguistique* 43:149–203.
- Bochnak, M. Ryan. 2016. Past time reference in a language with optional tense. *Linguistics and Philosophy* 39:247–294.
- Bonvillain, Nancy. 1973. *A grammar of akwesasne mohawk*. Ottawa: National Museum of Man, National Museums of Canada.
- Cable, Seth. 2017. The implicatures of optional past tense in Tlingit and the implications for ‘discontinuous past’. *Natural Language and Linguistic Theory* 35:635–681.
- Chen, Sihwei, Jozina Vander Klok, Lisa Matthewson, and Hotze Rullmann. 2021. The ‘experiential’ as an existential past: Evidence from javanese and atayal. *Natural Language and Linguistic Theory* 39:709–758.
- Cross, Tehokwiráthe, Terrance Gatchalian, Katya Morgunova, Willie Myers, and Ro'nikonhkátste Norton. 2023. Lexical aspect and the stative present in Kanien'kéha. In *Paper presented at the Workshop on Structure and Constituency in Languages of the Americas (WSCLA) 2023*. Montréal, QC: McGill University.
- Klein, Wolfgang. 1994. *Time in language*. London: Routledge.
- Lounsbury, Floyd. 1953. *Oneida verb morphology*. New Haven, CT: Yale University Publications in anthropology.
- Lukaniec, Megan. 2018. The elaboration of verbal structure: Wendat (Huron) verb morphology. Doctoral Dissertation, University of California Santa Barbara, Santa Barbara.
- Martin, Akwiratékha'. 2023. *Tekawennahsonterónnion: Kanien'kéha morphology*. Kahnawake, QC: Kanien'kehá:ka Onkwawén:na Raotitióhkwa, 2nd ed. edition.

- Matthewson, Lisa. 2006. Temporal semantics in a superficially tenseless language. *Linguistics and Philosophy* 29:673–713.
- Michelson, Gunther. 1973. *Thousand words of mohawk*. Mercury Series/LaCollection Mercure. University of Ottawa Press.
- Ormston, Jennifer. 1993. Some aspects of Mohawk: The system of verbal inflectional categories. Master's thesis, McGill University, Montréal, QC.
- Pancheva, Roumyana, and Maria Luisa Zubizarreta. 2023. No tense: temporality in the grammar of Paraguayan Guarani. *Linguistics and Philosophy* 46:1329–1391.
- Plungian, Vladimir A., and Johan van der Auwera. 2006. Towards a typology of discontinuous past marking. *Sprachtypologie und Universalienforschung (STUF)* 59:317–349.
- Reichenbach, Hans. 1947. *Elements of symbolic logic*. New York: Macmilan & Co.
- Woodbury, Hanni. 2018. *A reference grammar of the Onondaga language*. Toronto: University of Toronto Press.

A Past tense diagnostics

Temporal anteriority may be expressed by a number of grammatical strategies, of which TENSE and ASPECT are relevant here. I assume a three-times model of Tense/Aspect (Reichenbach 1947; Klein 1994). Expressing *temporal anteriority* is not sufficient to determine which relation a form instantiates. I take the following diagnostics to establish their status as Tense morphemes (though see §3):

(18) Diagnostics for tense vs. aspect

- | | | |
|----|--|---|
| a. | obligatory backshift in embedded context | (past tense OR anterior/perfect aspect) |
| b. | restriction to past reference | (past tense OR anterior/perfect aspect) |
| c. | restriction to <i>absolute</i> past; no past-in-the-future | (Chen et al. 2021: 742ff) |

A.1 Embedding under non-attitude predicates

Diagnostic (18a): Obligatory backshift in embedded contexts:

- Past forms embedded under (past-interpreted) perfective verbs are obligatorily back-shifted

(19) Context for simultaneous interpretation: *I went out with Willie, and Katya couldn't make it. Katya said she had other plans at the time. Willie told me what Katya was doing.*

Willie	wahèn:ron'	Katya	Aquatic Centre	kiontá:wens#(kwe')
Willie	wa-ha-ihron-'	Katya	Aquatic Centre	k-ie-atawen-s-kwe'
Willie	FACT-MSGA-say-PUNC	Katya		CIS-FI.A-swim-HAB-PAST

'Willie said Katya was swimming at the Aquatic Centre.'

(20) Context for backshifted interpretation: *Katya didn't show up for a get-together last week. Willie told me yesterday why.*

Willie	wahèn:ron'	tiahia'khera tsi náhe	Katya	Aquatic Centre	kiontá:wens(kwe')
Willie	wa-ha-ihron-'	tiahia'khera tsi náhe	Katya	Aquatic Centre	t-ie-atawen-s-kwe'
Willie	FACT-MSGA-say-PUNC	last.week	Katya		CIS-FI.A-swim-HAB-PAST

'Willie said that Katya was swimming at the Aquatic Centre last week.'

(21) Context for simultaneous interpretation: *Paul went out for a smoke break and is still out there. John tells me where Paul is and I report back.*

Shawátis	wahèn:ron'	Kó:r	thotshokwèn#(:ne).
Shawatis	wa-ha-ihron-'	Kor	t-ho-atshokw-en-hne
John	FACT-MSGA-say-PUNC	Paul	CIS-MSGP-smoke-STAT-PAST

Intended: 'John said that Paul was smoking there.'

SPEAKER COMMENT: *No, he's done smoking.*

- (22) **Context for backshifted reading:** *I come into the room and it's very smoky. No one is currently smoking, but John tells me why there's so much smoke in the air.*
 Shawátis wahèn:ron' Kó:r rotshokwèn(#:ne).
 Shawatis wa-ha-ihron-' Kor ro-atshokw-en-hne
 John FACT-MSGGA-say-PUNC Paul MSGP-smoke-STAT-PAST
 'John said that Paul was smoking.'

No past-in-the-future use, i.e., suffixes restricted to absolute past

- Alternative **anterior/perfect aspect analyses** of the past markers predict the possibility of *past-in-the-future* readings. This is not borne out.

(23) **No future perfects (*past-in-the-future*) with Former Past *-(h)kwe'***

- a. * Nó:nen ó:ia' ientsóserate' tewáhsen nikahiatonhserá:ke (en)wakewennahnó:tahkwe'.
 nonen oia ientsoserate' te-wahsen nikahiatonhsera-ke en-wake-wennahnot-a-hkwe'
 now next it.will.be.new.year DUPL-ten PRT-book-COUNT FUT-ISGP-read-STAT-FOR.PST
 Intended: 'By this time next year, I will have read 20 books.'
- b. Nó:nen ó:ia' ientsóserate' tewáhsen nikahiatonhserá:ke enwakewennahnó:take'.
 nonen oia ientsoserate' te-wahsen nikahiatonhsera-ke en-wake-wennahnot-a-k-e'
 now next it.will.be.new.year DUPL-ten PRT-book-COUNT FUT-ISGP-read-STAT-CONT-PUNC
 'By this time next year, I will have read 20 books.'

(24) **No future perfects (*past-in-the-future*) with Remote Past *-hne'***

- a. * wísk mínit enhotsokwèn:ne'
 wísk mínit en-ro-atsokwen-hne'
 five minute FUT-MSGP-smoke-STAT-REM.PST
 Intended: 'In five minutes, he will finish smoking/have smoked.'
- b. Wísk mínit enhahsa' tsi rotshókwen
 wísk mínit en-ra-hs-a' tsi ro-atshokw-en
 five minute FUT-MSGGA-finish-PUNC that MSGP-smoke-STAT
 'In five minutes, he will finish smoking.'

B Verbs taking both Former and Remote Pasts

Further indication that the (right-)unboundedness of the event description is the key determinant is that some predicates are possible with *either* the Former or Remote past, sometimes with a corresponding difference in interpretation.

- (25) a. Iowistóhne
 io-wisto-hne
 N.P-be.cold.STAT-REM.PST
 'It was cold (weather).'
 ⇒ It is no longer cold.
- b. Kewistóskwe'
 ke-wisto-s-kwe'
 1SGA-be.cold-HAB-FOR,PST
 'I was cold.'
 ⇒ I am no longer cold.

- (26) a. tkaierihne'
t-ka-ieri-hne'
CIS-N.A-be.correct.STAT-REM.PST
'It was correct.'
⇒ It is no longer correct.
- b. tkaiéihkwe'
t-ka-ieri-hkwe'
CIS-N.A-be.correct.STAT-FOR.PST
'It was correct.'
⇒ It is no longer correct.

C Present and past tense neutralization with unboundedness

Unboundedness

- (27) An (untensed stative) verb describes an unbounded eventuality φ iff (following [Altshuler and Schwarzschild 2013](#)):
- φ is true at a moment m ,
 - for any moment m' such that $m' < m$, φ is true (left-unboundedness)
 - for any moment m'' such that $m < m''$, φ is true (right-unboundedness)

Present/Past tense contrasts are neutralized with unbounded predicates, shown by contradiction in (28).

Derivation of *necessary present reference*

- (28) Morphologically tenseless unbounded events are necessarily on-going at UT
- assume φ holds at all $m \in \text{ET}$
 - assume $\text{ET} < \text{UT}$ (assume event time strictly precedes utterance time)
 - from (28b)⁶, $\exists m^0$ s.t. $\text{ET} < m^0 < \text{UT}$ and $\varphi = 0$ at m^0
 - $\forall m''$ s.t. $m < m''$, $\varphi = 1$ at m'' (by definition, φ is true at all m)
 - from (28d), $\neg \exists m''$ s.t. $m < m''$, $\varphi = 0$ at m''
 - (28c) and (28e) are contradictions.
 - $\neg (\text{ET} < \text{UT})$; therefore $\text{ET} = \text{UT}$; by (28a), φ holds at UT □

Right-boundedness with *-hne'*

- (29) An (untensed stative) eventuality φ is right-bounded iff:
- φ is true at a moment m ,
 - (for any moment m' such that $m' < m$, φ is true) (left-unboundedness)
 - there exists a moment m'' such that $m < m''$ in the evaluation world w^* where φ is false (actualized right-bound)

⁶The validity of this inference depends on assumptions about whether and how eventualities abut each other