

Culmination implicatures are not implicatures: a Salish perspective

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The Problem

This project addresses two issues in the extant literature on defeasible culmination inferences in Salish:

- Defeasible culmination \neq culmination *implicature* (cf. Bar el et al. 2005; Martin 2019, a.o.);
- Modal analyses of defeasible culmination (e.g., Bar el et al. 2005; Altshuler 2014) make wrong predictions regarding determiner licensing.

The Solution

A **scalar analysis** with a measure-of-change function (m_{Δ}) for verbal predicates (Kennedy and Levin 2008), which measures the change undergone by the object that participated in the event.

Language Background

Secwepemctsin (Shuswap, ISO: shs);

- Interior Salish language;
- Spoken in British Columbia, Canada
- At most 166 fluent L1 speakers remaining (Ignace and Ignace 2017; Gessner et al. 2022).

Nte?kepmxcin (Thompson River Salish, ISO: thp);

- Interior Salish language;
- Spoken in British Columbia, Canada;
- Approximately 100 fully fluent speakers, and 300 semi-fluent speakers (Gessner et al. 2022).

Control Transitive & (non) Culmination

Across Salish, cancellable culmination is associated with **control transitive** morphology.

Secwepemctsin and Nteʔkepmxcin have a four-way morphological control/transitivity paradigm:

	Secwepemctsin		Nteʔkepmxcin	
	Pre-TR	TR	Pre-TR	TR
Control	-n-		-n-	
Limited Control	-nwén'-	-t-	-nwén'-	-t-
	INTR		INTR	
Control middle	-(e)m-		-(ə)m-	
Limited Control middle	-nwélln'-		-nwéln'-	

Control Transitive and (non) Culmination

Predicates with **control transitive** morphology default to culmination

- (1) Context: Travis worked on a new basket but is out of material. So the basket isn't done yet.

a. #Travis k'úlens re mim'c.
 Travis k'úl-**en-[t]**-s re=mim'c.
 Travis make-CTR-TR-3ERG DET=basket
 Intended: 'Travis made a basket.' (Secwepemctsin | sf)

b. Travis k'úlens re mim'c, k'é mell ta7 k
 Travis k'úl-**en-[t]**-s re mim'c, k'é mell ta7 k
 Travis make-CTR-TR-3ERG DET basket however NEG D/C
 swi7s.
 s-wi7-s
 NMLZ-finish-3POSS
 'Travis made a basket but he hasn't finished.' (Secwepemctsin | vf)

Problem 1: culmination as an implicature

Bar el et al. (2005), Altshuler (2014), Martin (2019), among others:

Culmination is an **implicature**

Problem 1: culmination as an implicature

If culmination is **implicated**, we expect it to be **not at-issue**

→ truth-conditional operators should not be able to target culmination

Problem 1: culmination as an implicature

BUT: this prediction isn't borne out.

- (3) a. I see my dog ate some of the bread that he took from the counter. I took it from him before he could finish it:

re sqéxe	ta7	k s7íllens		re lekelét
re=sqéxe	ta7	k=s=7íll- en -[t]-s		re=lekelét
DET=dog	NEG	D/C=NMLZ=eat-CTR-TR-3ERG	DET=bread	
'The dog didn't eat the bread.'				(Secwepemctsin sf)

- b. There was a hole in the fence. I began fixing it by putting a wooden plank over it, but it only covers part of the hole. So the fence is still broken.

təteʔe	k	scuténe		ʔe sk'ix
təteʔe	k=s=	cu- [n] -t-éne		ʔe=sk'ix
NEG		D/C=NMLZ=fix-CTR-TR-1SG.ERG	DET=fence	
'I did not fix the fence.'				(Nteʔkepmxcín sf)

Any analysis would need to encode culmination and its cancellability in the **semantic content of the predicate**.

Problem 2: deriving cancellability modally

Bar el et al. (2005) and Altshuler (2014), among others:

Culmination takes place in **inertia worlds** (Bar el et al. 2005) or in a **near enough world w** (Altshuler 2014)

Problem 2: a modal analysis

Example: Bar et al. (2005):

- (4) $\llbracket \text{CTR.TR} \rrbracket = \lambda f_{\langle v, st \rangle} . \lambda e . \lambda w [e \text{ is controlled by its agent in } w \wedge \forall w' [w' \text{ is an inertia world w.r.t. } w \text{ at the beginning of } e \rightarrow [\exists e' [f(e')(w') \wedge e \text{ causes } e' \text{ in } w']]]]$ (Bar et al. 2005: 95)

In all inertia worlds w' , which share the same history as the utterance world but may branch off into different outcomes after the beginning of e , the event e causes e' , which is the event expressed by the root.

Problem 2: a modal analysis

If the control transitive is inherently modal, it should license material that is normally only licensed by other modal operators.

In Salish, the *non-assertion of existence determiner* (Matthewson 1998).

Non-assertion of existence determiner

- Nłeʔkepmxcín: *k* and *tək*
- Secwepemctsín: *k* and *tek*

Non-assertion of existence determiners in Salish are licensed by intensional operators and do not assert that its complement NP exists (Matthewson 1998)

Problem 2: a modal analysis

- (5) *Context: The speaker sees a bear in the woods.*

wɪex *(nke) ʔeɬʰuʔ neʔ k speʔec

wɪex*(=nke) ʔeɬʰuʔ neʔ k=speʔec

be=INF also PROX k=bear

'Bears are here too.'

(Nɬeʔkepmxcin | Inferential modal licensing *k* | Littell and Mackie 2011: 9)

- (6) xexé7 yí7 re John te scwisélc. xwent yí7
 xexé7 yí7 re=John te=s-cwisélc-s. xwent yi7
 strong EMPH DET=John DET.OBL=NMLZ-run-3POSS CIRC EMPH

k sq'uwúms re stogwéy'es

k=s-q'uw-úm-s re=stogwéy'e-s

DET.IRR=NMLZ-win-CTR.MID-3POSS DET=foot.race-3POSS

'John is a strong runner. He could definitely win the foot-race.'

(Secwepemctsin | Ability modal licensing *k* | Oliver 2021: 301)

Problem 2: a modal analysis

Prediction of a modal analysis: As long as the object DP has not come to existence in the utterance world, *non-assertion of existence determiners* should be licensed under the control transitive.

- They should be licensed under creation verbs that fail to culminate

Problem 2: a modal analysis

This prediction is **not borne out**:

- (7) a. * $\lambda'uq^w u?t\acute{e}ne$ **k swete** ($\lambda'u? t\acute{a}t\acute{e}?\acute{e} k scuk^w sne$)
 * $\lambda'qu^w u?t\acute{e}ne$ **k=swete** ($\lambda'u? t\acute{a}t\acute{e}?\acute{e} k=scuk^w sne$)
 sew-CTR-TR-1SG.ERG DET=sweater but NEG D/C=NMLZ-finish-CAUS-TR-1ERG
 Intended: 'I knit a sweater (but I didn't finish it).' (N $\acute{t}e?k\acute{e}p mxcin$ | sf)
- b. * $k'úlens$ re Travis **k mim'c** ($k'émell ta7$)
 * $k'úl-en-[t]s$ re=Travis **k=mim'c** ($k'émell ta7$)
 make-CTR-TR-3ERG DET=Travis DET.IRR=basket but NEG
 k swi7s)
 k=s-wi7-s)
 DET.IRR=NMLZ-finish-3POSS
 Intended: 'Travis made a basket (but didn't finish).'
- (Secwepemctsin | sf)

Taking stock

We need an analysis that...

- Predicts default culmination inferences;
- Allows culmination to be defeasible;
- Predicts that culmination is *at-issue*;
- Disallows *non-assertion of existence determiners* under control transitive predicates.

Measuring Change

Upshot: a gradable analysis, in which control transitive morphology introduces degree semantics and introduces a measure of change that derives default yet defeasible and at-issue culmination.

Measuring Change

Why a degree-based analysis?

- Degree achievements are aspectually identical to regular predicates when marked with control transitive morphology

- (8) a. múyens re sxetséy re Travis k'é mell texwtúxwt ey
 múy-**en-[t]**-s re=sxetséy k'é mell texwtúxw-t k=s-wi7-s
 bend-CTR-TR-3ERG DET=stick but straight-CHAR still
 'Travis bent the stick but it's still straight.' (Secwepemctsin | sf)
- b. nmúycne ʔə keyxmekeʔ, nem tex^wtúx^wt yiʔ^{TR-TR}
 n-múyc-**[n-t]**-ne ʔə=keyx-mekeʔ, nem tex^wtúx^w-t yiʔ
 LOC-bend-CTR-TR-1.SGERG DET=hand-branch EMPH straight-CHAR still
 'I bent the branch but it's still really straight.' (Nl̓eʔkepmxcin | sf)

Measuring Change

Four core ingredients:

- Measure of change function m_{Δ}
- Verbal positive form pos_v
- Interpretive Economy (Kennedy 2007)

Measuring Change

Measure of change function \mathbf{m}_Δ

- A special kind of *difference function*

(9) For any measure function \mathbf{m} , $\mathbf{m}_\Delta = \lambda x. \lambda e. \mathbf{m}_{\mathbf{m}(x)(init(e))}^\uparrow(x)(fin(e))$

\mathbf{m}_Δ is the degree of difference between the degree of x at the beginning and the degree measured by \mathbf{m} at the end of e .

(Kennedy and Levin 2008: 18)

Measuring Change

$$(10) \quad \mathbf{pos}_v = \lambda g \in D_{m\Delta} \lambda x \lambda e. g(x)(e) \succeq \mathbf{stnd}(g)$$

(Kennedy and Levin 2008: 19)

The positive form of a gradable predicate g in the domain of \mathbf{m}_Δ is true of x at t if its gradable property is equal to or exceeds the standard **stnd**.

stnd is a function that takes a gradable predicate meaning as input and returns a standard of comparison appropriate as output

Measuring Change

Proposal:

- (a) Control marking provides the positive form **pos_v**
- (b) Transitive marking provides the function that introduce degrees into the semantics of the verb phrase, i.e., **m_Δ**, and maps it onto a closed scale

- (11) a. $\llbracket \text{CTR} \rrbracket = \lambda g \in D_{m\Delta} \lambda x \lambda e. g(x)(e) \succeq \mathbf{stnd}(g)$
 A control predicate is true of an individual x at a time t just in case its gradable property is equal to or exceeds the standard **stnd**, where **stnd** is a function that takes a gradable predicate meaning as input and returns a standard of comparison appropriate as output.
- b. $\llbracket \text{TR} \rrbracket = \mathbf{m}_{\Delta} = \lambda x. \lambda e. \mathbf{m}_{\mathbf{m}(x)(\text{init}(e))}^{\uparrow}(x)(\text{fin}(e)) \in S_{[0,1]}$
 The degree to which x changes as a result of participating in e maps onto a closed scale and is therefore bounded.

Measuring Change

(12) Truth conditions of the control transitive

$$\begin{array}{c}
 \text{CTR-TR} \\
 \lambda x \lambda e. \mathbf{m}_\Delta(x)(e) \succeq \mathbf{stnd}(\mathbf{m}_\Delta) \\
 \swarrow \quad \searrow \\
 \begin{array}{cc}
 \text{CTR} & \text{TR} \\
 \lambda g \in D_{\mathbf{m}_\Delta} \lambda x \lambda e. g(x)(e) \succeq \mathbf{stnd}(g) & \lambda x. \lambda e. \mathbf{m}_{\mathbf{m}(x)(\text{init}(e))}^\uparrow(x)(\text{fin}(e)) \in S_{[0,1]}
 \end{array}
 \end{array}$$

Measuring Change

(13) Truth conditions of the control transitive

$$\begin{array}{c}
 \text{CTR-TR} \\
 \lambda x \lambda e. \mathbf{m}_\Delta(x)(e) \succeq \mathbf{stnd}(\mathbf{m}_\Delta) \\
 \swarrow \quad \searrow \\
 \begin{array}{cc}
 \text{CTR} & \text{TR} \\
 \lambda g \in D_{\mathbf{m}_\Delta} \lambda x \lambda e. g(x)(e) \succeq \mathbf{stnd}(g) & \lambda x. \lambda e. \mathbf{m}_{\mathbf{m}(x)(\mathit{init}(e))}^\uparrow(x)(\mathit{fin}(e)) \in S_{[0,1]}
 \end{array}
 \end{array}$$

At this point, the control transitive is true as long as the change to the object is equal or exceeds the standard.

→ At this point, a degree of change of 0 would be unmarked.

Measuring Change

(14) *Interpretive Economy*

Maximize the contribution of the conventional meanings of the elements of a sentence to the computation of its truth conditions.

(Kennedy 2008: 36)

- Interpretive Economy ensures that \mathbf{m}_{Δ} defaults to the top end of the scale: **culmination**.
- Cancelling culmination is allowed by the semantic composition of the control transitive, and only amounts to violating Interpretive Economy.

Outlook

This gradable analysis captures default culmination while allowing culmination to be cancelled.

How does it solve the other problems?

- **At-issueness**

The closed scale is part of the semantics of the control transitive, as m_{Δ} maps onto a closed scale. This makes it accessible to truth-conditional operators

- **Determiner licensing**

No modal operator to be found, and the *non-assertion of existence* determiners are predicted to be illicit under control transitives.

Outlook

This analysis accounts for the patterning of the control transitive, as well as for the remainder of the paradigm (See Appendix).

Essentially...

- ...control marking and its counterpart limited control, provide the information that goes into \mathbf{pos}_v
- ...(in)transitive marking provides the measure of change function \mathbf{m}_Δ and map it onto a scale.

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Selected References

- Altshuler, D. 2014. A typology of partitive aspectual operators. *NLLT* 32.
- Bar-el, L., H. Davis & L. Matthewson. 2005. On non-culminating accomplishments. *Proceedings of NELS* 35.
- Kennedy, C. 2007. Vagueness and grammar: the semantics of relative and absolute gradable adjectives. *L&P* 30.
- Kennedy, C. & B. Levin. 2008. Measure of change: the adjectival core of degree achievements. *Adjectives and Adverbs: Syntax, semantics and discourse*. OUP.
- Littell, P. & S. Mackie. 2011. Reconsidering sensory evidence in Nt̓eʔkepmxcín. *Papers for ICSNL* 46.
- Martin, F. 2019. Non-culminating accomplishments. *Language and Linguistics Compass* 13.
- Matthewson, L. 1998. Determiner systems and quantificational strategies: Evidence from Salish.
- Oliver, B. 2021. A preliminary account of circumstantial xwent in Secwepemctsin. *Papers for ICSNL* 56.

Appendix A

The complete morphological and semantic control/limited control transitive/intransitive paradigm in Secwepemctsin and Nt̓eʔkepmxcín:

	Secwepemctsin		Nt̓eʔkepmxcín	
	Pre-TR	TR	Pre-TR	TR
Control	-n-	-t-	-n-	-t-
Limited Control	-nwén'-		-nwén'-	-t-
	INTR		INTR	
Control middle	-(e)m-		-(ə)m-	
Limited Control middle	-nwélln'-		-nwéłn'-	

	Transitive	Middle
Control	<i>Defeasible culmination</i>	<i>Defeasible Change of State</i>
Limited Control	<i>Non-defeasible Culmination</i>	<i>Non-defeasible Change of State</i>

Appendix A

Limited Control Transitive entails culmination

- (15) a. #Travis sulenwén's re ts'i7, k'é mell ta7 k stsuls
 Travis sul-**enwén'**-[t]-s re=ts'i7, k'é mell ta7 k=s-t-sul-s
 Travis freeze-LC-TR-3ERG DET=deer however NEG DET=NMLZ-STAT-freeze-3POSS
 Intended: 'Travis froze the meat but it wasn't frozen.'
 (Secwepemctsin | sf)
- b. #cunwén'e ʔə sk'ix k'meʔ ʔex ʔín maʔ't ʔ'uʔ
 cu-**nwén'**-[t]-e ʔə=sk'ix k'meʔ ʔex ʔín maʔ't ʔ'uʔ
 fix-LC-TR-1SG.ERG DET=fence but IMPF still broken only
 Intended: 'I managed to fix the fence but it's still broken.'
 (Nl̓eʔkepmxcín | sf)

Appendix A

Control (intransitive) Middle defaults to a **partial change of state**, which is cancellable:

- (16) *Context:* Travis put potatoes in the oven and turned it on. The oven did not do its work and when he opened the oven, the potatoes were still entirely raw.

Travis	q'wlem	te	peták,	k'é mell	re	ck'weltsenél tens
Travis	q'wl- em	te=	peták,	k'é mell	re=	c-k'weltsenél ten-s
Travis	roast-CTR.MID	DET.OBL=	potato	however	DET=	LOC-stove-3POSS
	q'u wupúke7.	Yerí7	ul	peták	stxíw	ey
	q'u wup-úke7.	Ye-rí7	ul	peták	s[t]-tsxíw	ey
	broken-EVID	DEM-DIST	so	potato	STAT-raw	still

'Travis roasted some potatoes, but his stove was broken. That's why the potatoes are still raw.'

Consultant's comment: 'This makes sense, but not when you say it in English' (Secwepemctsin | sf)

Appendix A

Control (intransitive) Middle defaults to a **partial change of state**, which is cancellable:

- (17) *Context*: The saw is very blunt, and so my efforts bring about absolutely no effect.

ník'əm kn	tə kəyxmékeʔ	k'meʔ	təteʔe	k sʔəx
ník'-əm=kn	tə=kəyx-mékeʔ	k'meʔ	təteʔe	k=s-ʔəx
cut-CTR.MID-1SG.SBJ	DET=hand-tree	but	NEG	D/C=NMLZ-IMPF

ʔesník's

ʔes-ník'-s

STAT-cut-3POSS

'I cut the tree branch but it did not get cut.'

(Nʔeʔkepmxcín | sf)

Appendix A

Limited Control (intransitive) Middle entails to a **partial change of state**

- (18) # Travis q'wlenwélln' te peták, k'é mell re ck'weltsenéltens
 # Travis q'wl-**enwélln'** te=peták, k'é mell re=c-k'weltsenéltens-s
 Travis roast-LC.MID DET.OBL=potato however DET=LOC-stove-3POSS
 q'u wupúke7. Yerí7 wel peták tsxiw ey
 q'u wup-úke7. Yerí7 wel peták ts-xiw ey
 broken-EVID DEM so potato STAT-raw still

Intended: 'Travis roasted some potatoes, but his stove was broken. That's why the potatoes are still raw.'

Consultant's comment: 'No, they cannot all be raw still, because you say he was able to.' (Secwepemctsin | sf)

Appendix A

Limited Control (intransitive) Middle entails to a **partial change of state**

- (19) *Context:* The saw is very blunt, and so my efforts bring about absolutely no effect.

#nik'ənwéln' kn	tə kəyxmékeʔ	k'meɬ	təteʔe	k sʔəx
#ník'-ənwéln'=kn	tə=kəyχ-mékeʔ	k'meɬ	təteʔe	k=s-ʔəx
cut-CTR.MID-1SG.SBJ	DET=hand-tree	but	NEG	D/C=NMLZ-IMPF

ʔesník's

ʔes-ník'-s

STAT-cut-3POSS

Intended: 'I cut the tree branch but it had not been cut at all.'

Consultant's comment: 'It sounds like a contradiction.'

Appendix A

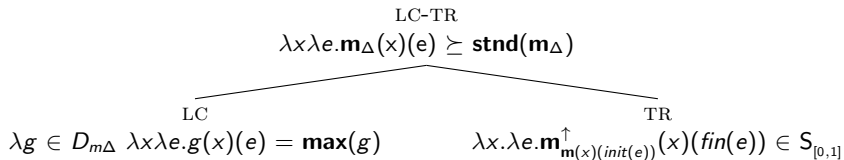
Full analysis of te paradigm:

- (20) Restrictions on \mathbf{m}_Δ and \mathbf{pos}_v imposed by (limited) control (in)transitivizing morphology:

<i>Transitive:</i>	\mathbf{m}_Δ	maps onto a closed scale
<i>Middle:</i>	\mathbf{m}_Δ	maps onto a bottom-closed, top-open scale
<i>Control:</i>	\mathbf{pos}_v	picks out a point on the scale, strengthened by Interpretive Economy
<i>Limited control:</i>	\mathbf{pos}_v	picks out the maximal point scale structure allows

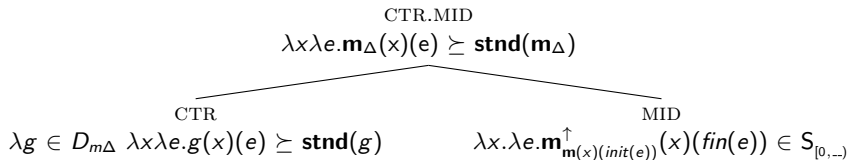
Appendix A

(21) Limited control transitive



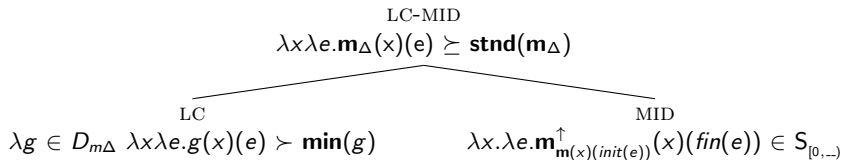
Appendix A

(22) Control middle



Appendix A

(23) Limited control middle



Culmination implicatures are not implicatures: a Salish perspective

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