

Monotonicity enables degree modification in Ktunaxa

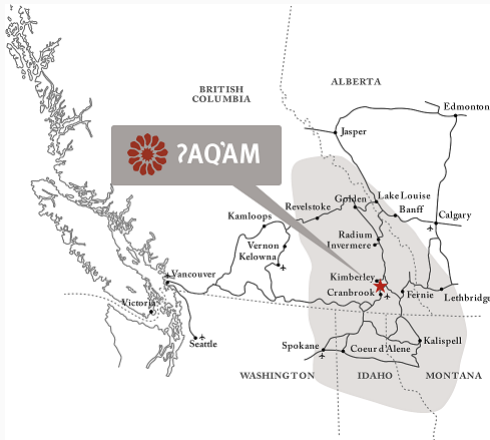
an investigation of the intensifier, *wił*

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The Ktunaxa language



- Traditionally spoken in the Columbia River Basin by the Ktunaxa people
- Language isolate
- 31 fluent speakers (FPCC, 2018) in Canada
- Revitalization efforts and many more learners

Introduction

wiɬ is a root in Ktunaxa that translates to ‘big’. It functions as an intensifier in **prefix** and **preverbal** contexts [Morgan, 1991, Dryer, 1997].

preverbal context

- (1) *wiɬ-iɬ ha-tu-ni*
big-PRVB VERB-snow-IND
‘It snowed a lot’
(intensity/duration)

prefix context

- (2) *wiɬ-tu-ni*
big-snow-IND
‘It snowed a lot.’
(intensity/*duration)

Main Claims

with can intensify...

States

predicates that denote stative properties

very tall, very hungry

Event Intensity

The physical intensity of an event and/or its result

laugh loudly, snow heavily

Event Duration

The length of time an event takes

*laugh for a long time,
snow for a long time*

Main Claims

All dimensions modified by w_i have a **monotonic** measure structure. Their part-to-whole relationship is maintained through their measures [Schwarzschild, 2002].

The volume of snow has a monotonic part-whole measure structure because if you take away portion of it, its volume decreases by the same amount.

The temperature of snow does not have a monotonic part-whole measure structure because if you remove a portion of it, its temperature will not decrease by that amount.

Main Claims

Preverbs, such as *witit* can attach below or above aspect, which creates an an ambiguity in their interpretation when they modify certain events.

- (3) *wit-it* *ha-tu-ni*
big-PRVB VERB-snow-IND

‘It snowed a lot’ (intensity/duration)

Intensity context: *It briefly snows really heavily. You look outside at the snow on the ground and wish to comment on how much there is.*

Duration context: *It has been snowing lightly all day. You wish to remark how long it has been snowing.*

Syntactic Categories in Ktunaxa

Ktunaxa does not morpho-syntactically distinguish adjectives and verbs. Both property-denoting predicates that would be translated into other languages as adjectives and eventive predicates receive indicative marking, and neither occur with a copula

While in English, some intensifiers are restricted to adjectives (4) or verbs (5), *wiɬ* can intensify a wider range of variables.

- (4) It is **very** long.
*It is long (**much/a lot**)

- (6) It snowed **a lot**
*It **very** snowed

- (5) *wiɬ-iɬ* *wuqaʔ-ni*
big-PRVB long-IND

‘It is very long’

- (7) *wiɬ-iɬ* *ha-tu-ni*
big-PRVB VERB-snow-IND

‘It snowed a lot.’

wiṭ-iṭ as a preverb

wiṭ-iṭ as a preverb can modify gradable properties, event intensity, and event duration.

(8) *wiṭ-iṭ* *wuqaʔ-ni*
big-PRVB long-IND

‘It is very long’

(9) *wiṭ-iṭ* *ha-ṭu-ni*
big-PRVB VERB-snow-IND

‘It snowed a lot.’

(intensity/duration)

Intensity context: *It briefly snows really heavily. You look outside at the snow on the ground and wish to comment on how much there is.*

Duration context: *It has been snowing lightly all day. You wish to remark how long it has been snowing.*

Table 1: Additional words that can be modified by *witit*

Gradable Predicates	Eventive Predicates
<i>huklukni</i> ‘to be tired’	<i>?ækikquni</i> ‘to laugh’
<i>huwasni</i> ‘to be hungry’	<i>wa?uqkukutni</i> ‘to rain’
<i>wuqani</i> ‘to be long’	<i>?iknuquku?ni</i> ‘to smoke’
<i>witqani</i> ‘to be big’	<i>?ituq?itqani</i> ‘to write’

wit-it limitations

wit-it cannot intensify predicates with exact amounts built into the predicate.

- | | | | |
|------|---|------|--|
| (10) | <i>ha-qatt-i</i>
VERB-child-IND

‘They have children/a child’ | (12) | <i>qatsa-qatt-i</i>
three-child-IND

‘They have three children’ |
| (11) | <i>wit-it</i> <i>ha-qatt-i</i>
big-PRVB VERB-child-IND

‘They have many children.’ | (13) | # <i>wit-it</i> <i>qatsa-qatt-i</i>
big-PRVB three-child-IND

N/A |

wit-it limitations

wit-it cannot modify verbs marked with aspectual prefix *huq*, which denotes the completion of an action [Morgan, 1991].

- (14) *ha-qa~~ta~~pa~~ni~~-ni*
VERB-say.story-IND
'They told a story'

- (16) *huq-a~~ta~~pa~~ni~~-ni*
ASP-say.story-IND
'They finished telling a story'

- (15) *wit-it*
big-PRVB
ha-qa~~ta~~pa~~ni~~-ni
VERB-say.story-IND
'They told a long story.'

- (17) #*wit-it* *huq-a~~ta~~pa~~ni~~-ni*
big-PRVB ASP-say.story-IND
N/A

wiṭ-iṭ cannot intensify the duration of a stative property.

(18) *wiṭ-iṭ huwas-ni*
big-PRVB hungry-IND

‘They are really hungry’
#‘They were hungry for a
long time.’

(19) *wiṭ-iṭ hukṭuk-ni*
big-PRVB tired-IND

‘They are really tired’
#‘They were tired for a
long time.’

Example Context Given

La:t felt very tired, while ?amlu was only a little sleepy. However, ?amlu felt tired throughout the day, while La:t eventually had some coffee to wake up. You wish to comment on how long ?amlu has been tired.

wit-it cannot intensify an intransitive stative property that isn't gradable.

- (20) #wit-it ?ip-ni
big-PRVB dead-IND

Attempted: 'They are very dead'

Example Context Given

You know that a famous author is dead, but your friend doesn't believe you. You are certain, so you insist it is true that they are dead.

The lack of a monotonic part-whole measure structure provides common link among restricted contexts, in line with [Wellwood, 2015].

If *wit-it* modifies a duration, it must be an event and it cannot have an endpoint.

If *wit-it* modifies a predicate's intensity, it must not denote its explicit measure.

If *wit-it* modifies a state, it must be gradable.

wiṭ- as a prefix

wiṭ- as a prefix can only intensify the intensity of an event—not its duration.

(21) *wiṭ-iṭ* *ha-tu-ni*
big-PRVB VERB-snow-IND

‘It snowed a lot’
(intensity/duration)

(22) *wiṭ-tu-ni*
big-snow-IND

‘It snows a lot.’
(intensity/*duration)

Intensity context: *It briefly snows really heavily really. You look outside at the snow on the ground and wish to comment on how much there is.*

Duration context: *It has been snowing lightly all day. You wish to remark how long it has been snowing.*

Table 2: Additional verbs allow prefix wiṭ-

original verb	verb with wiṭ- prefix
<i>ṭiṭnukanani</i> ‘to smile’	<i>wiṭnukanani</i> ‘to smile large’
<i>?ækikq̄u?ni</i> ‘to laugh’	<i>wiṭkikq̄u?ni</i> ‘to laugh loudly’
<i>waṭuq̄kukuti</i> ‘to rain’	<i>wiṭuq̄kukutni</i> ‘to rain hard’
<i>?iknuquku?ni</i> ‘to smoke’	<i>wiṭnuqkupxni</i> ‘to smoke a big puff’
<i>?ituq̄ṭiṭqani</i> ‘to write’	<i>wiṭq̄ṭiṭqa?ni</i> ‘to write large’

Building a denotation for *wit*

Adapted from [Kennedy and McNally, 2005]'s denotation for English intensifiers, such as *very*.

$$\llbracket \text{wit} \rrbracket^C = \lambda P_{\langle \alpha, t \rangle} \lambda \alpha . P(\alpha) \wedge \mu(\alpha) \gg \mathbf{std}_c(P)$$

α must have a monotonic measure.

[Wellwood, 2015]

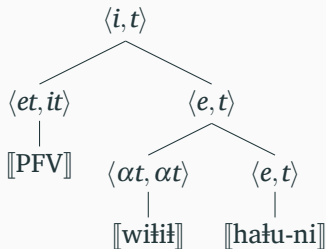
Example computations

$$\begin{aligned}(23) \quad & \llbracket \text{wuka?ni} \rrbracket = \lambda s . \mathbf{long}(s) \\ & \llbracket \text{wił-ił wuka?ni} \rrbracket^C \\ & = \lambda s . \mathbf{long}(s) \wedge \mu(s) \gg \mathbf{std}_c(\mathbf{long})\end{aligned}$$

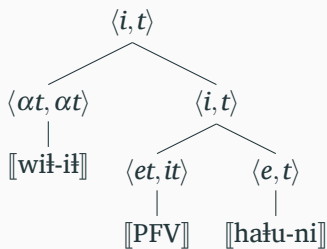
$$\begin{aligned}(24) \quad & \llbracket \text{hałuni} \rrbracket = \lambda e . \mathbf{snow}(e) \\ & \llbracket \text{wił-ił hałuni} \rrbracket^C \\ & = \lambda e . \mathbf{snow}(e) \wedge \mu(e) \gg \mathbf{std}_c(\mathbf{snow})\end{aligned}$$

The ambiguity of *wiɬiɬ* is structural. When *wiɬiɬ* attaches before aspect is introduced, it applies to the event variable and intensifies the event. When *wiɬiɬ* attaches after aspect is introduced, it applies to the time variable and intensifies the duration of the event.

(25) **event intensity**



(26) **event duration**



(27) $\llbracket \text{PFV} \rrbracket = \lambda P_{\langle e,t \rangle} \lambda t . \exists e [P(e) \wedge \tau(e) \subset t]$ [Kratzer, 98]

(28) **event intensity**

$\llbracket \text{wiŋiŋ haŋuni} \rrbracket^C$

$= \lambda e . \text{snow}(e) \wedge \mu(e) \gg \text{std}_c(\text{snow})$

$\llbracket \text{PFV wiŋ-iŋ haŋuni} \rrbracket^C$

$= \lambda t . \exists e [\text{snow}(e) \wedge \tau(e) \subset t \wedge \mu(e) \gg \text{std}_c(\text{snow})]$

(29) **event duration**

$\llbracket \text{PFV haŋuni} \rrbracket$

$= \lambda t . \exists e [\text{snow}(e) \wedge \tau(e) \subset t]$

$\llbracket \text{wiŋ-iŋ PFV haŋuni} \rrbracket^C$

$= \lambda t . \exists e [\text{snow}(e) \wedge \tau(e) \subset t \wedge \mu(t) \gg \text{std}_c(\llbracket \text{PFV haŋuni} \rrbracket)]$

Conclusion

Ktunaxa has at least one intensifier, *wit(-it)*, that is compatible with multiple variable types.

Cross-linguistic evidence that a monotonicity part-whole structure is a common theme among predicates that license degree modification.

Location relative to aspect determines interpretation of preverb *witit*, and potentially other preverbs.

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