Compositionally deriving the future in Gitksan

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Goals of the talk

- Empirical contribution: Interactions between future time reference and viewpoint aspect in Gitksan (Tsimshianic, British Columbia).

- Analysis of the Gitksan data.

- Exploration of consequences for the analysis of English and other languages.

Overview of the talk

1. English has two grammaticized forms of future time reference:
   - *will*
   - *be going to*

- Debate: Does *be going to* contain progressive aspect?

  Yes: Copley (2009) No: Klecha et al. (2008), Klecha (2011)

2. Gitksan also has two grammaticized forms of future time reference:
   - *dim*
   - *dim +* the progressive marker *yukw*

3. Gitksan plain vs. progressive futures show parallel semantics to *will* vs. *be going to*, respectively.

4. The Gitksan progressive future is compositionally transparent. It gives cross-linguistic support for the idea that *be going to* contains a plain future + a progressive aspect.

Two futures in English

Will vs. *be going to*

Copley (2009):

- *Will* is good in **offer contexts**, but *be going to* is not.

(1) [Advertising billboard on the highway]

a. We**'ll** change your oil in Madera.

b. # We'**re going to** change your oil in Madera. (Copley 2009:77)

Copley's analysis of the offer contrast

- Copley ascribes the distribution in (1) to:
  (i) the different semantics of *will* vs. *be going to*
  (ii) the meaning of an offer.

The semantics of *will* vs. *be going to*

- *Will* is a modal which universally quantifies over worlds maximally consistent with the speaker's (S's) abilities and commitments at a time *t* (by default the utterance time (UT)).

- *Be going to* contains the same modal, but **also contains progressive**; the progressive extends *t* to be a superinterval containing UT.

Copley's analysis of the offer contrast

The meaning of an offer

- An offer *q* at time *t'* asserts that if the hearer (H) wants *q* at *t',* then *q* will be true*,* and if H doesn't want *q* at *t',* then ¬*q*.

- Compatible with *will:* The modal quantifies over worlds compatible with the speaker's abilities and commitments at **UT**. This allows S to be sensitive to H's desires at UT, when the offer is made.

- Incompatible with *be going to*: The modal quantifies over worlds compatible with the speaker's abilities and commitments at **a super-interval of UT**. So, *q* 'has been settled for a while' (Klecha 2011) at UT, regardless of whether H wants *q* then.

  → If something will happen regardless of H's desires at UT, it's not an offer.

Extension to other contrasts between *will* and *be going to*

Warnings

(2) [There is a bomb which explodes when somebody opens the door.]

a. Don't touch the door! The bomb **will** explode!

b. **?** Don't touch the door! The bomb **is going to** explode!

(Binnick 1971, Klecha et al., 2008, Klecha 2011)

(3) [There is a time-bomb which is set to explode in two minutes from now.]

a. **?** Don't go near it! It **will** explode!

b. Don't go near it! It'**s going to** explode!

(Binnick 1971, Klecha et al., 2008, Klecha 2011)

- Pace Klecha et al. (2008), Klecha (2011), we believe an analysis incorporating Copley's idea that *be going to* contains a progressive can be extended to account for these data.

Accounting for warnings

- These types of conditional warnings are similar to offers:

  A warning *q* at time *t'* asserts that if H performs some action at or after *t',* then *q* will be true*,* and if H doesn't perform that action*,* then ¬*q*.

- The progressive future indicates that *q* (e.g., the bomb exploding) is already settled before UT. This explains why *be going to* is infelicitous in cases where the bomb explodes only if H touches the door.

Extension to other contrasts between *will* and *be going to*

Present temporal input

(4) [Clouds have gathered and rain is imminent]

a. Oh look, it'**s going to** rain.
b. # Oh look, it'**ll** rain. (Copley 2009:71-72)

(5) a. Oh, no! He'**s going to** jump!
b. # Oh no! He'**ll** jump! (Copley 2009:72)

- The contrast can be captured simply, in a parallel way to offers and warnings: In these contexts, the rain/jumping is already settled before UT, therefore *be going to* is the appropriate choice.

- (Copley's account of this relies on the idea that bare *will* lacks, and *be going to* has, the Subinterval Property; see Copley (2009:70ff)).

The same contrast cross-linguistically

- The contrast between plain and progressive futures recurs cross-linguistically:

  e.g., Indonesian, Turkish (Copley 2009), Blackfoot (Reis Silva 2009).

Question:

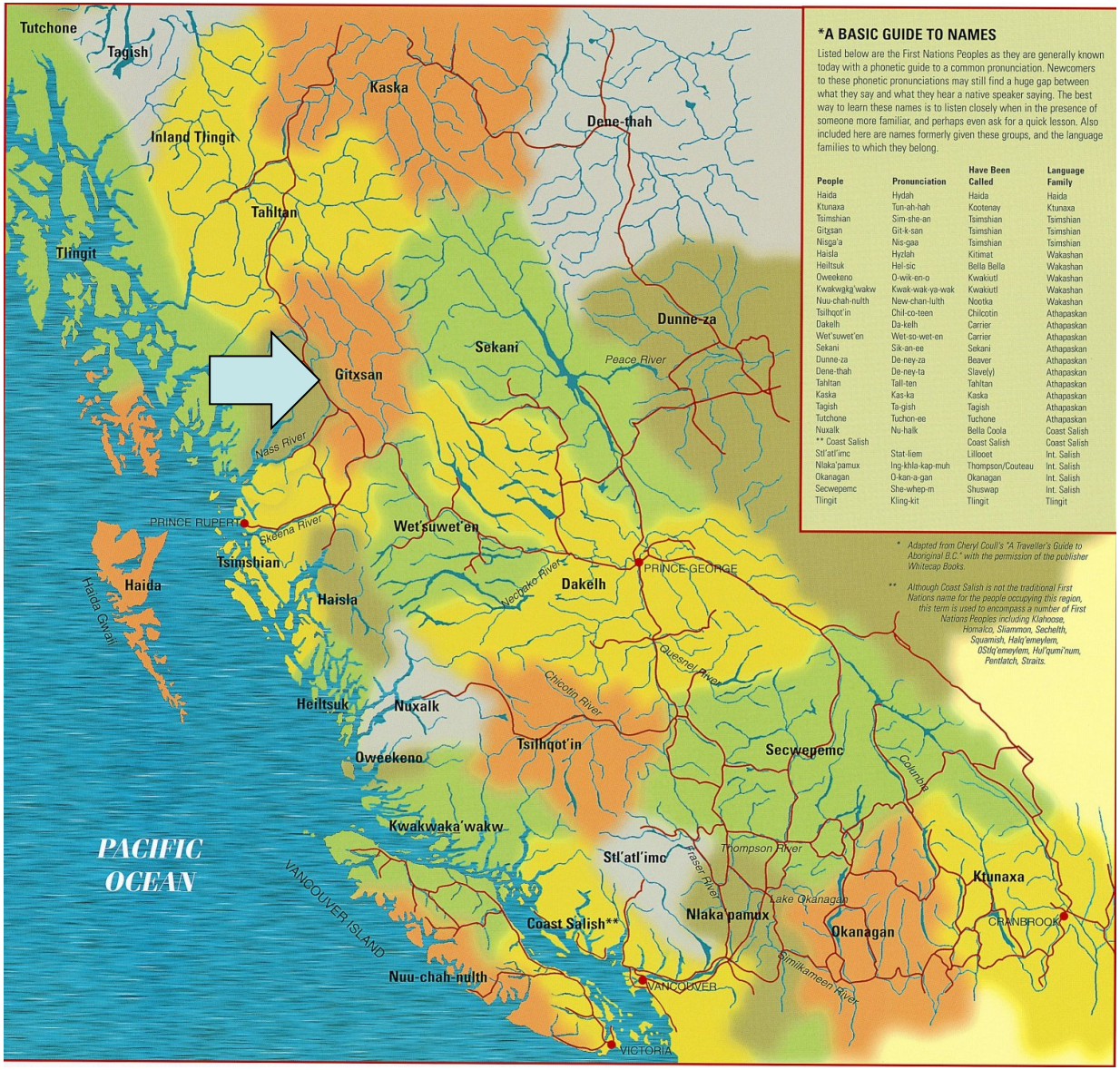
? What other languages show the contrast? Is there more cross-linguistic support for the proposal that some futures contain progressive aspect?

Two futures in Gitksan

Introduction to Gitksan

- Tsimshianic family, Interior branch; dialect continuum
- Spoken in the northwest Interior of British Columbia, Canada.
- Ethnologue classification 6b 'threatened' (https://www.ethnologue.com/language/git)
- Approximately 531 fluent speakers (Dunlop, Gessner, Herbert, & Parker 2018).

- Un-cited data come from our fieldwork.



http://www.bced.gov.bc.ca/abed/images/map2.jpg

Future and progressive in Gitksan

- Future: pre-predicate element *dim* (Rigsby 1986:279).

- *Dim* is **necessary** and **sufficient** for a future interpretation.

(6) * (**Dim**) limx=t / siipxw=t James t'aahlakw.
* (**FUT**) sing=DM / sick=DM James tomorrow
'James will sing / be sick tomorrow.' (Matthewson 2013:357)

- Progressive: pre-predicate element *yukw.*

(7) Bax̲=t Cheyenne.
run=DM Cheyenne
'Cheyenne ran/runs.' (Schwan 2019:1)

(8) **Yukw**=hl bax̲ =s Cheyenne.
PROG=CN run=PN Cheyenne
'Cheyenne is/was running.' (Schwan 2019:1)

- *Yukw* is a modal progressive aspect (see Schwan 2019 for arguments).

Plain vs. progressive futures in Gitksan

- Future *dim* and progressive *yukw* can combine:

(9) **Dim** wis.
FUT rain
'It will rain.'

(10) **Yukw dim** wis.
PROG FUT rain
'It is going to rain.'

- Unlike in English, the morphosyntactic relation between the two futures is fully transparent: (10) involves the addition of the progressive morpheme *yukw* to the future *dim*.

Dim vs. *yukw dim*

- Semantically, the Gitksan plain future *dim* behaves like *will* and the progressive future *yukw dim* behaves like *be going to.*

Dim vs. *yukw dim* in offer contexts

(11) [I am hosting a potluck dinner next week. You have no idea what you're going to bring because you haven't thought about it yet. I tell you 'Nobody has offered to bring fry bread to the meal, but I hope somebody does.' You decide to offer to bring it so you reply:]

a. **Dim** dibagw-i-'y=hl eeja-m t'ilix.
FUT bring-TR-1SG=CN fry-ATTR grease
'I'll bring fry bread.'

b. # **Yukw** **dim=**in dibakw=hl eeja-m t'ilix.
PROG **FUT**=1SG bring=CN fry-ATTR grease
'I'm going to bring fry bread.'

Consultant's comment: "No, it's not offering to be the one to bring the fried bread, it's just saying that you're going to bring the fried bread."

Dim vs. *yukw dim* in offer contexts

(12) [Sign in the window of a hairdresser:]

a. Xwsdins **dim** an k̲'ots-di-'y hli g̲es-in goo=sust.
five **FUT** AX cut-TR-1SG PART hair-2SG LOC=DEM.DIST
'For five dollars I'll cut your hair.'

b. # Xwsdins **yukw**=na **dim** an=t k̲'ots-di-'y hli g̲es-in goo=sust.
five **PROG=**1SG **FUT** AX=3 cut-TR-1SG PART hair-2SG LOC=DEM.DIST
'For five dollars I'm gonna cut your hair.'

→ The progressive future disprefers offer contexts.

Dim vs. *yukw dim* in warning contexts

(13) [There is a bomb which explodes when somebody opens the door. You warn me:]

a. Ham ji das=hl aats'ip, **dim** xhluxw=hl bomb!
don't.2SG IRR touch=CN door **FUT** explode=CN bomb
'Don't touch the door, the bomb will explode!'

b. # Ham ji das=hl aats'ip, **yukw dim** xhluxw=hl bomb!
don't.2SG IRR touch=CN door **PROG FUT** explode=CN bomb
'Don't touch the door, the bomb is gonna explode!'

Consultant's comment: "When you say ***Yukw dim*** *xhluxwhl bomb,* there is a certainty at some point the bomb will explode whether you touch the door or not."

Dim vs. *yukw dim* in non-warning contexts

(14) [There is a time-bomb on the door which is set to explode in two minutes from now. You warn me:]

a. Ham ji dulbin-t … **yukw** **dim** xhluxw=hl bomb!
don't.2SG IRR near-3SG **PROG** **FUT** explode=CN bomb
'Don't go near it, the bomb is going to explode!'

b. # Ham ji dulbin-t … **dim** xhluxw=hl bomb!
don't.2SG IRR near-3SG **FUT** explode=CN bomb
'Don't go near it, the bomb will explode!'

Consultant's comment: "When you say ***Dim*** *xhluxwhl bomb*, it's if you touch the door."

→ The plain future is for 'if you touch it, …'; the progressive is for 'whether you touch it or not, …'.

Present temporal input cases

(15) [We are enjoying the sunshine in the garden. Suddenly you notice some black clouds have formed and it looks like it is about to rain. You say:]

a. ‘Wihlii **yugw**=ii **dim** wis.
INDIRECT **PROG**=LIKE **FUT** rain
‘It’s going to rain!’

b. # ‘Wihlii **dim** wis.
INDIRECT **FUT** rain
‘It will rain!’

→ The progressive future is chosen in present temporal input contexts.

Interim summary

- There is some variability in which sentences are accepted in each context. e.g., *yukw dim* is not <u>always</u> rejected in offer contexts, and *dim* is not <u>always</u> rejected in present temporal input contexts.

- The data support a parallel between *dim* ('FUT') and *will,* and between *yukw dim* ('PROG FUT') and *be going to.*

- *Yukw dim*'s morphological transparency suggests that it is semantically composed of FUT plus PROG.

- The Gitksan data provide cross-linguistic support for an approach in which *be going to* contains a semantic progressive (à la Copley 2009).

Analysis

Tense in Gitksan

- No overt past or present tense marking. Sentences without any future marking are interpreted as past or present:

(17) Bax=t Yoko.
run=DM Yoko
'Yoko ran' / 'Yoko is running.' (Jóhannsdóttir & Matthewson 2007)

- We assume a covert non-future tense, that restricts the reference time to being at or before t_0 (Jóhannsdóttir &Matthewson 2007).

(18) $[\![\text{NON-FUT}_i]\!]^{g,t0,w0} = g(i)$, defined only if $g(i) \leq t_0$

- In matrix environments, t_0 is by default the UT.

Analysis of future *dim*

- *Dim* is a temporal ordering operator which places the prejacent event time after a reference time *t*.

(19) $[\![\textit{dim}]\!]^{g,t0,w0} = \lambda P_{<i,st>} \lambda t \lambda w. \exists t' [t < t' \& P(t')(w)]$

- *Dim* co-occurs with the non-future tense.

- cf. standard analysis of English *will/would* as combining an abstract futurity marker WOLL with present/past tense (Abusch 1985).

- The time *t* is provided by the non-future tense.

- Proposal: *Dim* combines with a modal, which provides modal flavour. This modal can be overt (Matthewson 2013), but if there is no overt modal in the sentence, *dim* combines with a phonologically null necessity modal.

Putting it all together

- The null necessity modal (*f* is the modal base and *h* is the ordering source):

(20) $[\![\text{MOD}]\!]^{g,t0,w0,f,h} = \lambda P_{<i,st>} \lambda t \lambda w . \forall w' [w' \in \text{BEST}_{h(w,t)}(\cap f(w,t)) \rightarrow P(t)(w')]$

- Putting it together (setting aside viewpoint aspect for simplicity):

(20) **Dim** wis.
FUT rain
'It will rain.'

(21) $[\![(20)]\!]^{g,t0,w0,f,h} = [\![\text{MOD} (\textit{dim} (\text{PFV} (\textit{wis})))]\!]^{g,t0,w0,f,h} (\text{NON-FUT}_i)$
$= \forall w' [w' \in \text{best}_{h(w0,g(i))}(\cap f(w_0,g(i))) \rightarrow [\exists t' [g(i) < t' \& \text{rain}(t',w')]]]$
"In all worlds w' accessible from w_0 at the contextually salient time g(i), there is a time t'' which follows g(i) and it rains in w' at t''."

- By default, g(i) is UT, so the raining happens after that. (In embedded contexts, 'past-future' readings are possible; J&M 2007.)

Analysis of future *dim*

- This non-modal analysis of *dim* accounts well for its co-occurrence with overt modals, providing their future temporal orientation. e.g.:

(22) **Sgi** **#(dim)** (ap) ha'w-s Lisa.
CIRC.NECESS **#(FUT)** (VERUM) go.home-PN Lisa
'Lisa should/must go home.' (adapted from Matthewson 2013)

Analysis of progressive *yukw*

- We adopt a modal analysis of the progressive (cf. Dowty 1979, Portner 1998, among others; see Schwan 2019 for Gitksan).

(23) $[\![\text{PROG}]\!]^{g,t0,w0,f,h} = \lambda P_{<i,st>} . \exists t' [t_0 \subseteq t' \& \forall w' [w' \in \text{BEST}_h(w_0,t')(\cap f(w_0, t')) \rightarrow P(t')(w')]]]$

- In *yukw dim* constructions, we assume there is no extra null modal in the structure.

- *Yukw dim* clauses simply contain a modal progressive *(yukw)* and a prospective aspect *(dim)*.

Putting it all together: Progressive futures

(24) **Yukw dim** wis.
PROG FUT rain
'It is going to rain.'

(25) $[\![(24)]\!]^{g,t0,w0,f,h} = [\![[\text{PROG } (\textit{dim } (\textit{wis}))](\text{NON-FUT}_i)]\!]^{g,t0,w0,f,h}$
$= \exists\, t' [t_0 \subseteq t' \,\&\, \forall\, w' [w' \in \text{BEST}_h(w_0,t')(\cap f(w_0, t')) \rightarrow [\exists\, t'' [t' < t'' \,\&\, [\exists\, e [\text{rain}(e)(t'')(w')]]]]]$

- Assuming that the salient non-future reference time is UT: "There is a time t′ surrounding UT, and in all best worlds w′ accessible from t′, there is a time t′′ following t′ and it rains at t′′ in w′.

- This captures Copley's intuition that the modal's conversational background is calculated at a super-interval of UT, explaining why offers, warnings and cases with present temporal input are dispreferred with the progressive future.

Further prediction: Double *yukw*

- Our analysis predicts that the progressive *yukw* in *yukw dim* could co-occur with a second, lower progressive, as in cases parallel to (26-27):

(26) It is go**ing** to be rain**ing** at 5pm.

(27) He is go**ing** to be sing**ing** when you arrive.

- Preliminary fieldwork suggests this is correct:

(28) [You are arriving late to a ceremony and you're being told to be discreet when you enter because there will be a man singing and you shouldn't interrupt.]

Yukw	**dim**	**yukw**	limx=hl	get	wil	ts'in-in.
PROG	**FUT**	**PROG**	sing=CN	man	COMP	enter-2SG.II

'The man is going to be singing when you go in.'

Consequences

Summary of findings

- Gitksan has non-progressive vs. progressive futures, which show the same meaning contrasts as English *will* vs. *be going to:*
  - offer contexts
  - warning contexts
  - present temporal input contexts

Consequences for the analysis of *will* vs. *be going to*

- There is controversy in the literature about whether *be going to* contains progressive semantics.

  Copley (2009): yes; Klecha et al. (2008), Klecha (2011): no.

- The Gitksan data provide support for this part of Copley's analysis, as we overtly see the progressive morpheme adding to the plain future morpheme.

Our account vs. Klecha's (2011) account

Modal subordination:

- Klecha: *will* has obligatory modal subordination (every accessible world where you go near the bomb is a world where it explodes) and *gonna* does not (not restricted to quantifying over worlds where you go near the bomb).

- In our account, the fact that *yukw dim* has a lack of sensitivity to the hearer's desires at UT is captured because the progressive introduces a superinterval of UT.

Lexicalization:

- Klecha: Three separate lexical items: *will, gonna,* and offering-*will.*

- This would not lead us to expect that an unrelated language like Gitksan would also:

  (a) use the same lexical item for ordinary futures as for offers'
  (b) transparently compose non-offering futures by using the progressive.

Copley, Klecha, us (simplified)

Copley:

bare *will* =	necessity modal
be going to =	*will* + PROG

Klecha:

will =	necessity modal with familiarity presupposition
gonna =	necessity modal without familiarity presupposition

Us on Gitksan:

dim =	temporal ordering operator; co-occurs with null MOD
yukw dim =	*dim* + PROG

Us extended to English:

will =	temporal ordering operator (WOLL); co-occurs with null MOD
be going to =	WOLL + PROG

A final comparison

- Offering futures: MOD + PROSP
  Non-offering futures: PROG + PROSP

- Further: Perhaps the verb *go* has a use as a prospective aspect. Then (thanks to Hotze Rullmann p.c. for leading us to this):

		MOD	PROSP	PROG	spell-out
English	offer	Ø	WOLL		*will*
	non-offer		*go*	*-ing*	*is going to*
Gitksan	offer	Ø	*dim*		*dim*
	non-offer		*dim*	*yukw*	*yukw dim*

Consequences

- The Gitksan data, and the Gitksan-English comparison, support a view whereby languages combine smaller semantic building blocks to create complex temporal/aspectual meanings (cf. von Fintel and Matthewson 2008).

- Gitksan also allows plain and progressive futures to receive proximal aspect inflection (Matthewson et al. 2019). Proximally-inflected futures place the event time close to the reference time.

- This research also highlights the importance of further cross-linguistic studies of aspect-future interactions.

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