Finding tenses where we don't expect them

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The question

? How should we analyze superficially tenseless languages?

- As tenseless?
  (Bohnemeyer 2002, 2009, Shaer 2003, Wiltschko 2003, Bittner 2005, 2008, 2014, Lin 2006, 2010, 2012, Tonhauser 2011, Mucha 2013, Ritter & Wiltschko 2014,…)

- Or as tensed?
  (Matthewson 2005, 2006, Jóhannsdóttir & Matthewson 2007, Reis Silva & Matthewson 2007, Sybesma 2007, Hayashi 2011, Thomas 2012, Sun 2014,…)

- We *can* always postulate null tenses – even completely null tense paradigms. But *should* we?

The challenge when deciding

- Every analysis has a way of dealing with the fact that temporal reference is not random or radically ambiguous in superficially tenseless languages.

Bohnemeyer (2009):

- 'Topic times play a role in the interpretation of utterances whether or not these are tensed, and the principles involved in their contextual resolution are the same in tensed and tenseless languages.'

Tonhauser (2015):

- 'temporal reference in tenseless languages under tenseless analyses is just as specific as in tensed analyses of tensed (and tenseless) languages …because such analyses allow for a variety of factors (context, adverbials, grammatical aspect, etc.) contributing to temporal reference.'

Conceptual vs. empirical arguments

- Different authors have different conceptual preferences.

- e.g., Tonhauser (2015) invokes Occam's Razor to argue against null tenses, while others may disfavour cross-linguistic variation in pragmatic principles.

- Empirical arguments are the holy grail, but finding knock-down arguments for covert elements is challenging.

Drawing evidence from a range of languages

- One avenue is to examine cross-linguistic variation among superficially tenseless languages.

- Today I'll present four case studies of languages which differ in the interpretive possibilities they allow for superficially tenseless clauses.

St'át'imcets (Salish) and Gitksan (Tsimshianic)

Blackfoot (Algonquian)

Javanese (Austronesian)

Atayal (Austronesian)

Four types of superficially tenseless language

St'át'imcets and Gitksan:
   Superficially tenseless sentences (STSs) are strictly non-future for all predicate types and viewpoint aspects.

Blackfoot:
   STSs are strictly non-future for all predicate types, and in addition perfective eventives are only interpreted as past.

Javanese:
   STSs can be past, present or future, but there is optional overt past tense.

Atayal:
   STSs in the actor voice are strictly non-future, but STSs in non-actor voices can be past, present or future. (And, there's optional overt past tense.)

The overall proposal

- The cross-linguistic variation we see is better captured by assuming that all these four types of language are tensed.

The warm-up: Sťáťimcets and Gitksan

Matthewson 2006.
Jóhannsdóttir & Matthewson 2007.
Matthewson 2013.
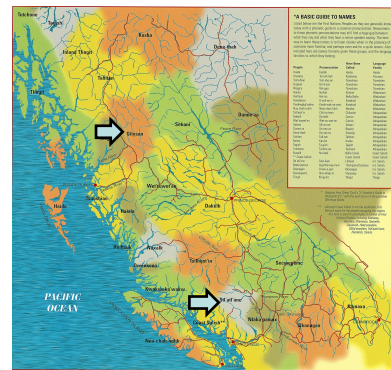Rullmann & Matthewson to appear.

Sťáťimcets and Gitksan

Sťáťimcets

- /ʃ̓ʎʼæʎʼyǝmxǝč/
- Also known as Lillooet
- Salish family, Northern Interior branch
- British Columbia, Canada
- Endangered

Gitksan

- Tsimshianic family
- Dialect continuum
- British Columbia, Canada
- Endangered

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

Sťáťimcets and Gitksan: STSs are non-future

- Neither past nor present tense is overtly marked. STSs can be interpreted as past or present, with all predicate types and viewpoint aspects.

Perfective eventive:

(1) Bax=t   Yoko.
     run=DM   Yoko
     'Yoko ran' / 'Yoko is running.'   (Gitksan)

Stative:

(2) Siipxw=t   James   (k'yoots).
     sick=DM   James   (yesterday)
     'James was sick (yesterday)' / 'James is sick.'   (Gitksan)

Progressive:

(3) Yukw=hl   ga-gol-diit.
     PROG=CN   DUR-run-3.II
     'They were/are running.'   (Gitksan)

Sťáťimcets and Gitksan: Future time reference

- Future time reference is obligatorily marked, in Gitksan by *dim*.

(4) *(**Dim**)   limx=t   James   t'aahlakw.
     *(**PROSP**)   sing=DM   James   tomorrow
     'James will sing tomorrow.'   (Gitksan)

(5) *(**Dim**)   siipxw=t James   t'aahlakw.
     *(**PROSP**)   sick=DM   James   tomorrow
     'James will be sick tomorrow.'   (Gitksan)

(6) Yukw=hl   *(**dim**)   ga-gol-diit   t'aahlakw.
     PROG=CN   *(**PROSP**)   DUR-run-3.II   tomorrow
     'They will be running tomorrow.'   (Gitksan)

St'át'imcets and Gitksan: Future time reference

- 'Past future' readings exist.

(7) Gilbil=hl ganuutxw=hl hli=daa=t mahl-i=s Diana **dim** wil yee=t
two=CN week=CN PRT=SPT=3.I tell-TR=PN Diana **PROSP** COMP go=3.I
goo=hl Winnipeg ji hlaa (am) k'i'y=hl ganuutxw.
LOC=CN Winnipeg IRR INCEP (only) one-CN week
'Diana said two weeks ago that she would go to Winnipeg after one week.'

St'át'imcets and Gitksan: Tensed analysis

- All finite clauses contain a phonologically null, non-future tense.

- Pronominal analysis for concreteness. Tense is decomposed into an indexed temporal variable and a presuppositional feature (Cable 2013, Mucha 2015, Bochnak 2016).

(8)

$$T'$$
$$T_i \quad \text{NON-FUTURE}$$

- T_i denotes the contextually provided RT. NON-FUTURE presupposes that RT does not follow UT, and otherwise denotes the identity function.

(9) $[\![\text{NON-FUTURE}]\!]^{g,t0,w0} = \lambda t : t \le t_0 . t$

- *Dim* is a prospective aspect. It co-occurs with tense, just like WOLL in English.

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

Potential tenseless analysis 1: Bohnemeyer (2009)

(11) Modal Commitment Constraint: The realization of events in the (relative or absolute) future cannot be asserted, denied, questioned, or presupposed as fact. Assertions, questions, and presuppositions regarding the future realization of events … require specification of a modal attitude … .

- In Yucatec, the perfective conveys event realization and is not compatible with future interpretation in clauses which assert/question/presuppose. Progressives and statives allow future RTs:

(12) Táan in=mèet-ik le=nah=o'.
PROG A1SG=do:APP-INC(B3SG) DET=house=D2
'I am/was/will be building the house.' (Bohnemeyer 2009)

(13) Túumben le=nah=o'.
new(B3SG) DET1=house=D2
'The house is/was/will be new.' (Bohnemeyer 2009)

Differences between St'át'imcets/Gitksan and Yucatec

- In St'át'imcets and Gitksan, even stative and imperfective STSs are strictly non-future in the absence of overt prospective.

- In St'át'imcets and Gitksan, even in the perfective, events can be in the present without having to be 'blow by blow reports', unlike in Yucatec (Bohnemeyer 2009:25).

Potential tenseless analysis 2: Smith et al. (2005)

Pragmatic default principles:

i. Deictic Principle: Situations are located with respect to Speech Time.
ii. Bounded Event Constraint: Bounded events are not located in the Present.
iii. Simplicity Principle of Interpretation: Choose the interpretation that requires the least information added or inferred. (Smith et al. 2005, Smith 2007)

- Together, these predict:
  - Unbounded eventualities are interpreted as present.
  - Bounded events (telic and/or perfective ones) are interpreted as past.

A difference between St'át'imcets/Gitksan and Navajo:

- In St'át'imcets and Gitksan, perfective events are not restricted to past tense, so the Bounded Event Constraint must be removed.

Summary: Tenseless language type 1

- STSs are strictly non-future for all predicate types and viewpoint aspects; overt marking for futurity.

- Tensed analysis involves covert non-future tense.

- Available tenseless analyses need to be at least tweaked if they are to capture the facts.

Controversy begins to loom: Blackfoot

Reis Silva & Matthewson 2007.
Ritter & Wiltschko 2014.

Blackfoot

- Algonquian family
- Alberta, Canada and Montana, USA
- Endangered

Blackfoot temporal basics

- No overt present or past tense morphology.

- Obligatory overt marking for future time reference (*áak-* or *áyaak-;* Reis Silva 2009).

(14) Anna   Maí'stoo   isttso'kini
      ann-wa Maí'stoo-wa isttso'kini-wa
      DEM-3   Raven-3   hungry.VAI-3
      'Maí'stoo is/was hungry.' □ ≠ 'Maí'stoo will be hungry.' (Louie 2014:7)

(15) Anna   Maí'stoo   áihpiyi
      ann-wa Maí'stoo-wa á-ihpiyi-wa
      DEM-3   Raven-3   IPFV-dance.VAI-3
      'Maí'stoo is/was dancing.' ≠□ 'Maí'stoo will dance.' (Louie 2014:8)

Grammatical aspect

- Imperfective is overtly marked on all predicate types (Dunham 2007).

- Predicates unmarked for imperfective are perfective.

Eventives:

(16) nítsspiyi
     nit-ihpiyi
     1SG-dance
     'I danced.'

(17) nitáihpiyi
     nit-a-ihpiyi
     1SG-IPFV-dance
     'I am dancing.'/ 'I dance.' (habitual)

Statives:

(18) nitsikooksina
     nit-ik-oksina
     1SG-INT-mean
     'I am mean.'

(19) nitsikaoksin   kam'so'ohkooyiinik i
     nit-ik-a-oksin   kamm-sa-ohk-ooy-yiniki
     1SG-INT-IPFV-mean if-NEG-all-eat-1SG.SBJ
     'I am mean if I don't get anything to eat.'

A restriction on present tense interpretations

- STSs allow either past or present interpretations only for statives and imperfectives.

- Perfective eventive STSs are obligatorily interpreted with past RTs.

A context which forces a present-tense interpretation

Your friend calls you on the phone and asks you to meet with her right now. You respond by saying 'I can't meet with you right now because …'

(20) nitsíksttsokini
     nit-ik-sttsokini
     1SG-INT-hungry
     'I am really hungry.'

(21) nitáihkiita
     nit-a-ihkiita
     1SG-IPFV-cook
     'I am cooking.'

(22) nitaokssstoopa   omi   sinakiatsis
     nit-a-oksstoo-'p-wa   om-yi sinaaki-a'tsis
     1SG-IPFV-read-LOC>0-3 that-0 write-tool
     'I am reading that book.'

(23) # nitsikksstoopa   omi   sinakiatsis
     nit-ii-oksstoo-'p-wa   om-yi sinaaki-a'tsis
     1SG-IC-read-LOC>0-3 that-0 write-tool
     'I read that book.'

- Same result with *ihkiita* 'cook', *ihpiyi* 'dance', *iikooisska* 'build a house', *aasáini* 'cry', *iiyokaa* 'sleep', … .

Incompatibility of perfectives with present temporal adverbials

(24) nitao'taksinaaki   annohk
nit-a-o'tak-sinaaki   annohk
1-IPFV-round-draw   now
'I'm drawing a circle right now.'   (Dunham 2007)

(25)* nitsi'taksinaaki   annohk
nit-i-o'tak-sinaaki   annohk
1--round-draw   now   (Dunham 2007)

(26)* annohk   kitána   aasáí'ni
annohk   k-itána   aasáí'ni
now   2POSS-daughter   cry
'Right now your daughter cried.'

Consultant's comment: "It is too past to use *annohk.*"

Blackfoot: The argument for tense

- The temporal restriction is parallel to a restriction in English: eventive predicates must be in the imperfective if the reference time coincides with the utterance time:

(27) *I can't meet with you right now because* …
a. I'm hungry.
b. I'm cooking / building a house.
c. #I cook/build a house.

Tonhauser (2015):

'A tensed analysis of a tenseless language is empirically motivated if the language exhibits temporal reference restrictions comparable to those exhibited by some tensed language.'

Blackfoot: Tensed analysis

- Null past and null present.

(28) $[\![\text{PAST}]\!]^{g,t0,w0} = \lambda t : t < t_0 . t$
$[\![\text{PRESENT}]\!]^{g,t0,w0} = \lambda t : t = t_0 . t$

- Eventive predicates require the imperfective in the present tense in Blackfoot for the same reason they do in English (Bennett & Partee 1978):

- A present perfective would require the event to fit inside the moment of utterance (Klein 1994), but events cannot fit inside moments.

- States possess the sub-interval property. They can hold at moments, therefore can be in the present perfective.

(29) $[\![\text{PRES PFV I read that book}]\!]^{g,t0,w0} = [\![\text{PRES PFV nitsikksstoopa omi sinakiatsis}]\!]^{g,t0,w0}$
$= \exists e \text{ [read.that.book}(e,w_0) \text{ \& Agent}(I,e,w_0) \text{ \& } \tau(e) \subseteq t_0]$
\# 'There is an event of my reading that book whose run-time is included within the moment of utterance.'

Potential tenseless analysis 1: Bohnemeyer (2009)

- <u>Modal Commitment Constraint</u> plus the claim that the perfective conveys event realization.

→ Correctly derives the restriction of perfective eventives to past.

Difference between Blackfoot and Yucatec:

- In Blackfoot, even stative and imperfective STSs are strictly non-future in the absence of *áak* or *áyaak.*

Potential tenseless analysis 2: Smith et al. (2005)

i. <u>Deictic Principle</u>: Situations are located with respect to Speech Time.
ii. <u>Bounded Event Constraint</u>: Bounded events are not located in the Present.
iii. <u>Simplicity Principle of Interpretation</u>: Choose the interpretation that requires the least information added or inferred. (Smith et al. 2005, Smith 2007)

→ Correctly derives the restriction of perfective eventives to past.

Issues:

- We would need to assume that stative predicates without imperfective marking are not in the perfective. What is their viewpoint aspect, then?

- The principles are supposed to be pragmatic defaults, but the Bounded Event Constraint is non-cancellable. This seems to be captured better semantically (e.g., by a present tense morpheme) than by a pragmatic default principle.

Potential 'tenseless' analysis 3: Lin (2006)

- Lin (2006) for Chinese:

(30) $[\![\text{Perfective aspect}]\!] = \lambda P_{<i,t>} \lambda t_{Top} \lambda t_0 \exists t \text{ [t} \subseteq t_{Top} \wedge P(t) \wedge t_{Top} < t_0 \square$

'This relation actually incorporates the notion of semantic tense into the semantics of aspect' (Lin 2006).

Issues:

- Instead of having null present and null past, would:
i. have null perfective which incorporates past semantics
ii. require us to assume that statives without imperfective aren't perfective
iii. require a supplementary pragmatic principle to rule out future interpretations for statives and imperfectives.

Potential tenseless analysis 4: Ritter & Wiltschko (2014)

- The head of Infl in Blackfoot marks not *temporal* (non-)coincidence (= tense), but *participant* (non-)coincidence.

- Participant (non-)coincidence is marked by 'order' affixes: *-hp* for 1st/2nd person, Ø for 3rd.

Problem:

- Fails to capture the fact that perfective eventive sentences only have past tense interpretations.

Potential tenseless analysis 4: Ritter & Wiltschko (2014)

- Ritter & Wiltschko's analysis is designed to capture the generalization that 'a clause that lacks overt m[orphological]-marking for tense is compatible with either a present or a past time interpretation' (2014:1332).

- Their evidence for this generalization is as follows:

(31) Oma   píítaawa   áípaawaniwa.
     om-wa   píítaa-wa   a-ipaawanl-wa
     DEM-PROX   eagle-PROX   IPFV-fly.AI-PROX
     'That eagle is/was flying up.'   (Ritter & Wiltschko 2014)

- (31) is half of a minimal pair given by Reis Silva & Matthewson (2007); the other half shows that a perfective version of (31) *cannot* have a present-tense interpretation.

- Since Ritter & Wiltschko do not address the temporal restriction on perfective eventives, their analysis does not capture the facts about temporal interpretation in Blackfoot.

Summary: Tenseless language type 2

- STSs are strictly non-future for all predicate types; overt marking for futurity.

- In addition, perfective eventives are only interpreted as past.

- Tensed analysis involves covert past vs. present tense.

- Available tenseless analyses need to be at least tweaked if they are to capture the facts.

Radical tenselessness that isn't: Javanese

Chen, Matthewson, Rullmann & Vander Klok 2017.

Javanese

- Austronesian (Malayo-Polynesian).
- Central and Eastern Java.
- > 90 million speakers, most bilingual with Indonesian.
- Speech levels: *ngoko* 'Low', *madya* 'Mid', *krama* 'High'.
- Dialect groups: West, Central, East (Hatley 1984).

NB: Everything in this section applies to Atayal too, but I'm saving Atayal to make a different point in the next section. See Chen et al. (2017).

Javanese: temporal basics

- Appears to be radically tenseless: STSs can be interpreted as past, present or future.

(32) A: Wingi   / saiki / sesok   ewoh   opo?
         yesterday / now   / tomorrow   busy   what
         'Yesterday what [were you] doing?'
         'Now what [are you] doing?'
         'Tomorrow what [will you be] doing?'

     B: aku   marut   kelopo
         1SG   AV.grate   coconut
         'I shaved coconut' / 'I was shaving coconut.'
         'I am shaving coconut.'
         'I will be shaving coconut.'   (Vander Klok & Matthewson 2015)

- 'I suggest that Javanese is a tenseless language' (Vander Klok 2012).

- But, we argue that Javanese possesses an optional past tense marker.

Javanese *tau*

- *Tau* is an auxiliary which has a dominant experiential reading. Dahl (1985) classifies *tau* as an 'experiential' aspect.

- Experiential aspects are 'closely related to' perfects, according to Dahl.

(33) A: Sampean **tau** m-(p)enek gunung Merapi toh?
2SG TAU AV-climb mountain Merapi FOC
'Have you ever climbed Mount Merapi?'

B: Iyo, aku **tau** gelek m-(p)enek gunung iki.
yes 1SG TAU often AV-climb mountain DEM
'Yes, I have often climbed that mountain.'

Dominant experiential readings of *tau*

(34) Q: Opo awakmu weroh dulur-ku?
Q 2SG know sibling-my
'Do you know my brother?'

A: Yo, aku **tau** ketemu dulur-mu, dadi aku weroh dulur-mu.
yes, 1SG E.PAST meet sibling-your become 1SG know sibling-your
'Yes, I've met him so I know him.' (context from Dahl 1985:#37)

- In spite of *tau*'s dominant experiential reading, we argue that it is not an aspect, but is an existential past tense.

- *Tau* is a relative tense, and this is distinguishable from a perfect aspect (supporting Bohnemeyer 2014).

Tau is not an aspect

Preview of findings

		Javanese *tau*
(English) present perfect	Experiential reading	✓
	Resultative reading	✗
	Universal reading	✗
	Current relevance	✗
	Lifetime effects	✗
	Adverbial restrictions	✗
Perfective	Narrative progression	✗
Aspect in general	Unrestricted RT	✗

No resultative reading

- Result state reading of English perfect (Mittwoch 2008, among others):

(35) I have lost my watch (#but I found it again).

- *Tau* can be used with change-of-state verbs without any implication that the result state still holds. *Tau* actually implies that the result state no longer holds.

(36) Context: *Now he is not at Wisata Bahari Lamongan (WBL)*.

Bapak-mu (wes) **tau** melbu nok WBL mbiyen.
father-your already E.PAST enter at WBL before
'Your father entered into WBL in the past.'

No universal perfect

- A reading of the English present perfect where the eventuality holds throughout an interval starting at some point in the past up to the present (e.g., McCawley 1971, Comrie 1976, Iatridou et al. 2001, Portner 2003).

(37) I have been sick since 1990. (Iatridou et al. 2001:155)

- *Tau* does not allow this interpretation:

(38) Context: *You moved to Jember from Paciran in 2014 & you still live there now.*

Aku **tau** manggon nek Jember sampai 2014.
1SG E.PAST live in Jember since 2014
Intended for 'I have lived in Jember since 2014.'

No current relevance requirement

- The English present perfect indicates current relevance (e.g., Portner 2003, a.o.), but *tau* is infelicitous in contexts highlighting the current relevance of the predicate.

(39) Context: *Your friend asks if you want to eat at Bu Maula's. You finished eating 10 minutes ago. You say:*

Sepura-ne, aku { # **tau** / ✓ wes } mangan.
sorry-DEF 1SG E. PAST already AV.eat
'Sorry, I've eaten.'

No lifetime effects

- With the English present perfect, predicates with subjects that are no longer alive are generally unacceptable, but *tau* is felicitous.

(40) ??Gutenburg has discovered the art of printing.
(McCoard 1978, citing Dietrich 1955)

(41) Columbus **tau** nemok-no Amerika.
Columbus E. PAST AV.find-APPL America
'Columbus found America.'

No definite adverbial effects

- *Tau* is compatible with definite past-time adverbials, in contrast to the English present perfect (Klein 1992).

(42)* Chris has left New York yesterday. (Klein 1992)

(43) Aku **tau** mangan rajungan wingi wingi-nan-e.
1SG E. PAST AV.eat crab yesterday yesterday-NMLZ-DEF
'I ate crab 2 days ago.'

(44) Adik-ku **tau** lungo neng Indonesia september 2015.
sibling-my E. PAST go to Indonesia September 2015
'My younger sibling went to Indonesia in September 2015.'

Tau is also not a perfective aspect

- Perfective aspect is typically used for narrative progression:

(45) Mary woke up. She ate breakfast and went to the beach.

- *Tau* does not allow narrative progression:

(46) Context: *You are describing what happened yesterday.*
Siti melbu kantor. De'e (# **tau**) ngopi.
Siti AV.enter office 3SG E. PAST AV.coffee
'Siti came to the office. She drank coffee.'

Tau doesn't allow free Reference Times, like aspects should

- In a (neo-)Reichenbachian/Kleinian(Paulian!) system, aspects do not directly locate RTs on the timeline; that is done by tense.

- Aspects should be able to co-occur with different tenses, allowing different RTs.

(47) a. I had eaten crab. Past perfect
b. I have eaten crab. Present perfect
c. I will have eaten crab. Future Perfect

- *Tau* is not compatible with present or future reference times, as demonstrated by restrictions on adverbs:

(48) Aku **tau** mangan rajungan wingi / # saiki / # sesok.
1SG E. PAST AV.eat crab yesterday / now / tomorrow
'I ate crab yesterday.' / ≠ 'I have eaten crab now.'/ ≠ 'I will have eaten crab tomorrow.'

Summary of findings

		Javanese *tau*
(English) present perfect	Experiential reading	✓
	Resultative reading	✗
	Universal reading	✗
	Current relevance	✗
	Lifetime effects	✗
	Adverbial restrictions	✗
Perfective	Narrative progression	✗
Aspect in general	Unrestricted RT	✗

Tau is an existential past tense

Pronominal vs. existential past tenses

- The pronominal analysis I've assumed so far (Partee 1973, Heim 1994, Kratzer 1998 a.o.) contrasts with an existential quantifier analysis (Ogihara 1996, von Stechow 2009, a.o.).*

Existential past tense:

(49) $[\![\text{PAST}]\!]^{g, t0} = \lambda P . \exists t' [t' < t_0 \& P(t')]$

- Empirical evidence to distinguish these two types of past tense is subtle.

- The English past has been analyzed both ways, and also as being ambiguous between the two (von Stechow & Grønn 2013a,b, Grønn & Stechow 2016, a.o.).

* The view that tenses are operators which relate two time intervals given in the syntax (Zagona 1990, Stowell 1993, 2005, Demirdache & Uribe-Etxeberria 1997, 2007, 2014, …) is in relevant respects a variant of the pronominal approach.

Distinguishing the two types of tense

The pronominal analysis predicts that past tenses:

- Don't allow scopal interactions with negation
- Allow anaphoric and deictic uses
- Are infelicitous without a contextual reference time (setting aside bound uses).

The existential analysis predicts that past tenses:

- Allow scopal interactions with negation
- Lack anaphoric or deictic uses
- Are felicitous discourse-initially

Testing the predictions 1: Scope interactions

(50) Context: *Driving on the highway after leaving the house.*

I didn't turn off the stove.   (Partee 1973:602)

i. $\exists t$ [t < now & ¬ [I turn off the stove at t]]   existential
ii.   ¬$\exists t$ [t < now & I turn off the stove at t]
iii. ¬ [I turn off the stove at t], where t < now   pronominal

Partee's argument:

- (50i) would mean: There is some time in the past at which I didn't turn off the stove (too weak).
- (50ii) would mean: There is no time in the past at which I turned off the stove (too strong).
- (50iii) means: at some contextually salient past interval, I didn't turn off the stove (just right).

Testing the predictions 1: Scope interactions

- *Tau* has the scopal readings that English lacks!

- When negation scopes over *tau*, we get the ¬ > $\exists$ ('never') reading:

(51) Wong   londo   gak   **tau**   mangan   sego.
person   foreigner   NEG   E.PAST   AV.eat   rice
'Foreigners have never eaten rice.'
¬$\exists t$ [t < UT & [foreigners eat rice at t]]

- When *tau* scopes over negation, we get the expected $\exists$ > ¬ reading:

(52) Context: *Wanan eats rice every day. But maybe he hasn't eaten rice once or twice.*
Pak Wanan   **tau**   gak   mangan   sego.
Mr. Wanan   E.PAST   NEG   AV.eat   rice
'Pak Wanan has not eaten rice before.'
$\exists t$ [t < UT & ¬ [Wanan eat rice at t]]

Testing the predictions 2: No anaphoric uses

- The narrative progression data provide evidence against anaphoric interpretations of *tau*.

- In simple linear narratives, a past eventive sentence typically "updates" the RT to a time just after the RT which is provided by preceding discourse (Partee 1984, Hinrichs 1986, Kamp & Reyle 1993, a.o.).

- *Tau* is rejected in narrative progression contexts:

(53) Context: *You are describing what happened yesterday.*
Siti melbu   kantor. De'e (# **tau**)   ngopi.
Siti AV.enter office   3SG   E.PAST   AV.coffee
'Siti came to the office. She drank coffee.'

Testing the predictions 3: No deictic uses

Context: *Driving on the highway after leaving the house, you realize that you didn't turn off the stove.*

(54) Aku kok rung (# tau) mate-ni kompor yo!
1SG PRT not.yet E.PAST AV.die-APPL stove yes
'I didn't turn off the stove!'

➔ On all diagnostics, *tau* behaves like an existential rather than a pronominal tense.

'Experiential' readings as existential

- We saw at the beginning that *tau* has a salient experiential reading.

- Experiential readings are existential readings.

- Tau isn't restricted to pure experiential readings; the times over which it quantifies can be narrowed down by past time adverbs.

(55) Adik-ku tau lungo neng Indonesia september 2015.
sibling-my E.PAST go to Indonesia September 2015
'My younger sibling went to Indonesia in September 2015.'

- The domain of the existential quantification can be restricted.

Our analysis

(56) $[\![tau]\!] = \lambda C_{<i,s,t>}. \lambda P_{<i,s,t>}. \lambda t \lambda w . \exists t' [t' < t \& C(t')(w) \& P(t')(w)]$

- The time intervals over which *tau* quantifies are domain-restricted (via the C variable) (as in von Stechow 2009).

- Its *t* argument is saturated by the most contextually salient time, which in matrix clauses is the utterance time.

This analysis captures all these facts:

		Javanese *tau*
English present perfect	Experiential reading	✓
	Resultative reading	✗
	Universal reading	✗
	Current relevance	✗
	Lifetime effects	✗
	Adverbial restrictions	✗
Perfective	Narrative progression	✗
Aspect in general	Unrestricted RT	✗
Existential vs. pronominal past	Scope interactions	∃
	Anaphoric uses	∃
	Deictic uses	∃
	Optional	✓

A further prediction: Cessation inferences

- Past tenses are well-known to give rise to cessation inferences with statives (Musan 1997, Magri 2009, Thomas 2012, Altshuler & Schwarzschild 2013, Cable 2016, a.o.).

(57) A: How is Scotty doing?
B: He was anxious. (*Implies Scotty is no longer anxious*)
(Altshuler & Schwarzschild 2013)

- Tau gives rise to cessation inferences:

(58) Context: *Mrs. Siti is now slim.*
Bu Siti tau lemu.
Mrs. Siti E.PAST fat
'Mrs. Siti was fat.'
(Speakers all comment that Mrs. Siti is no longer fat at the utterance time.)

Cessation inferences

- Roughly following Altshuler & Schwarzschild, Cable: with states, present entails past, so past implicates not-present.

- Even though Javanese doesn't have a present tense, we can get the cessation inference to run off implicature if we analyze the language as having a pronominal covert tense which by default is interpreted as referring to UT.

- *Tau* competes with this pronominal tense, giving rise to cessation implicatures.

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Tau is a relative past tense

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Relative tense vs. perfect aspect

- Comrie (1985): Relative tense need not locate a situation relative to UT. It has been used to refer to non-finite *have* and 'past-in-the-past' *have* (see also Stowell, this workshop!).

(59) Having left earlier, John took the bus.
(60) John had already left at 10 pm.

Relative tense separate from perfect aspect?

- No for Klein (1994)
- No/yes for Arregi & Klecha (2015), Klecha (2016)
- Yes for Bohnemeyer (2014)

- Bohnemeyer: True relative tense relates RT to an evaluation time. (i.e., there are *four* relevant time intervals in a neo-Reichenbachian system).

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Evidence that *tau* is a relative tense

- When embedded under attitudes/reports, *tau* cannot receive simultaneous but only back-shifted interpretations:

(61) Pak   Agus   ngomong   deke   **tau**   nesu.
     Mr.   Agus   AV.say   3SG   E.PAST   angry
     'Mr. Agus said that he was angry.'

  # Simultaneous context: *Agus was scheduled to meet with Eko at 10 am yesterday. But at 1pm, Eko was still not there. Agus called me because he was angry. Then, I told my neighbour (61).*

  ✓ Backshifted context: *Agus was angry last week. He called me yesterday afternoon to tell me that he had been angry.*

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Past relative to matrix future

(62) Context: *You encourage Siti to work on her thesis this afternoon, even though it is implausible that she can write the whole thesis. "After all, Mother will know you have worked", you say.*

  --------UT--------work--------know-------

Ibuk-mu   **ape**   ngerti   awakmu   **tau**   nggarap   skripsi-mu.
mother-your   FUT   know   2SG   E.PAST   AV.make   thesis-your
'Your mother will know you worked on your thesis.'

➔ *Tau* marks past relative to some evaluation time, rather than to UT. Relative past *is* distinct from perfect aspect.

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Summary: Tenseless language type 3

- STSs can be past, present or future and the language seems at first glance to be radically tenseless.

- Closer examination reveals that there is optional overt past tense.

- Tensed analysis has optional existential relative tense, plus covert pronominal tense which by default picks out UT.

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Potential tenseless analysis?

- Tenseless analysis seems impossible, because *tau* is a tense.

- The only option would be to stipulate that tenses can't be optional, and therefore that *tau*, although it possesses exactly the semantics of a past tense, must be called something different.

- Lin (2012): 'A useful criterion ... is that tense morphemes are integrated into the grammar of the language, typically morphologically bound, and are obligatory, even though they are not necessary for interpretation.'

? Why?

The clincher: Atayal

Chen in prep.

Atayal

- Austronesian.
- Northern and northeast Taiwan.
- Endangered.

Atayal: temporal basics

- Austronesian voice system; relevant here is actor voice vs. non-actor voices.

Actor voice:

- All actor voice STSs are strictly non-future. Future interpretations require overt marking (by prefixing *p-*, or with the auxiliary *musa'*).

(63) m-'uy=saku'   la.
     AV-tired=1SG.ABS   PRT
     'I was tired.' / 'I am tired.' / ≠'I will be tired.'

(64)* m-t-zyuwaw=saku'   kira'
      AV-ATR-work=1S.ABS   today.later
      Intended for 'I will work later.'

- Eventives don't allow present episodic interpretations (like Blackfoot).

(65) m-nbuw hiya'.
      av-drink 3s.n
      'He used to drink.' / 'He drinks.' [habitual] / ≠'He will drink.'

Atayal temporal basics

Non-actor voice:

- Radical tenselessness. Aspectually unmarked non-actor voice predicates can be interpreted as (past, present or) future without overt temporal marking.

(66) Context: *Children are playing balls near the windows. You ask them to leave.*
     bkawn=mamu'   tubung   lki!
     break.PAT.V=1P.ERG window   PRT
     'You will break the windows!'

- The future interpretation is not restricted to planning contexts or a particular modality.

Atayal: Tensed analysis (Chen in prep.)

- Covert non-future tense.
- Prospective aspect, spelled out either as *p-/musa'* (actor voice) or Ø (non-actor voice).
- (See also Bochnak 2016 for a partially similar approach to partially similar facts in Washo.)

Potential tenseless analysis?

? Can't think of one.

Conclusions

Four types of superficially tenseless language

St'át'imcets and Gitksan:
Superficially tenseless sentences (STSs) are strictly non-future for all predicate types.

Blackfoot:
STSs are strictly non-future for all predicate types, and in addition perfective eventives are only interpreted as past.

Javanese:
STSs can be past, present or future, but there is optional overt past tense.

Atayal:
STSs in the actor voice are strictly non-future, but STSs in non-actor voices can be past, present or future. (Plus there's an optional overt past tense.)

- I have argued for a tensed analysis of each, based on different language-internal evidence in each.

Four types of superficially tenseless language (simplified)

	STSs non-future	STSs free
PFV eventives past	Blackfoot Atayal actor	Yucatec
PFV eventives free	St'át'imcets Gitksan	Javanese Atayal non-actor

---

Cross-linguistic variation speaks against pragmatic principles

- Example: The restriction against present-tense perfective eventives in Blackfoot and other languages.

- St'át'imcets lacks this restriction:

(67) *Context: Your friend calls you up and wants you to meet her right now.*

Ao kw=en ka-nás-a áku7 snúwa …
NEG DET=1SG.POSS CIRC-go-CIRC DEIC you …
'I can't come to your place …'

a. máys-en=lhkan ti=n-q'íl'q=a.
fix-DIR=1SG.SBJ DET=1SG.POSS=chair=EXIS
'I'm fixing my chair.' PERFECTIVE

b. k'wezús-em=lhkan.
work-MID=1SG.SBJ
'I'm working.' PERFECTIVE

Cross-linguistic variation speaks against pragmatic principles

- The St'át'imcets facts are predicted by the non-future tense analysis: since there is no instantaneous present tense in the language, eventives can fit inside a time interval which includes UT.

- It's not impossible that languages vary in the general pragmatic principles they adopt, but this cross-linguistic variation at least suggests that we can't assume restrictions of the Blackfoot type follow for free.

- And remember Atayal, where the interpretation of STSs varies within one language, according to the voice paradigm.

How tenses can vary

- Overtness
- Pronominal vs. existential semantics
- Optionality
- The precise presuppositions they place on the RT (past, non-future, etc.)

Do we need to worry about any of this?

- Covert morphology is prevalent in analyses of the world's languages.
- Functional elements can be optional (e.g., determiners).
- Different levels of precision/underspecification for presuppositional features also exist, e.g. with pronouns.
- Ritter & Wiltschko's Participant-based analysis of Blackfoot involves covert morphology (3rd) and semantic underspecification (1st/2nd neutralized).
- Is there a problem with morphology that is both covert *and* underspecified? Why? What counts as too underspecified, or specified enough?

Bohnemeyer's challenge

- Bohnemeyer argues that some languages mark tense and others don't, and draws a parallel with the fact that some languages mark definiteness and others don't, or noun classes, or evidentiality.

  'The reason for this kind of crosslinguistic variation in the functional category system seems to be that the expression of functional categories such as tense, viewpoint aspect, definiteness, gender, noun class, and evidentiality is not necessary for conveying the intended communicative content of linguistic utterances. The relevant conceptual distinctions are made whether or not they are expressed linguistically and speakers can rely on pragmatic means to communicate them where needed.'

- I wouldn't want to say that all languages have determiner, noun class or evidential systems even if we don't see overt evidence for it. Some languages do lack determiners, noun classes or evidentials.

- The question then is: Is tense different?

Is tense different?

- I think it is.

- We can get away with not specifying evidential values, but we can't get away without having RTs.

- The literature on superficially tenseless systems spends a lot of time deriving temporal effects through other means. This is something that we just don't have to do for definiteness or evidentiality.

- Assertions can be neutral with respect to definiteness or evidentiality in a way that they can't be for RTs.

Recent tensed analyses of radically tenseless languages

Mucha (2015:70):

- 'Formally, this is to say that Hausa patterns with truly tensed languages in that its structure contains an open RT variable whose interpretation depends on a contextually defined assignment function. The crucial difference, however, is that the assignment of a value to this variable is not restricted by the semantics of tense morphemes, as it is in English or St'át'imcets.'

- 'Why would I assume a syntactic RT variable and thus abstain from making the stronger claim that tense is not present in the structure of Hausa at all? On the one hand, conceptual considerations motivate the decision to assume a time variable in the syntax. ... Moreover, there are empirical observations that are more easily accounted for on the assumption of a reference time variable in the structure of Hausa ...' (Sequence of Tense facts).

- See also Bochnak (2016) on Washo.

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