

In Support of Relative Tense: The Existential Past in Atayal and Javanese

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Relative tense

- Comrie (1985) defines relative tense as a special tense category, which need not locate a situation relative to the utterance time.
- It has been used to refer to non-finite *have* and the ‘past-in-the-past’ reading of *have* in English.
 - (1) Having left earlier, John took the bus.
 - (2) John had already left at 10 pm.

Relative tense separate from perfect aspect?

- **No** for Klein (1994)

The two readings of past *have* are assigned the same semantics ($ET < RT$), and the different temporal configurations are derived based on the interaction with adverbials.

(3) John had already left at 10 pm.

(past-in-the-past)



(4) John had already left by 10 pm.

(perfect-in-the-past)



Relative tense separate from perfect aspect?

- **No/yes** for Arregi and Klecha (2015) and Klecha (2016)
- The authors argue that the English simple past and perfect aspect are morpho-syntactic variants of the same past shifting operator.
- Whether a temporal operator ends up ranging over RT or ET is just a question of where in the tree it is.

Relative tense separate from perfect aspect?

- **Yes** for Bohnemeyer (2014)
- He shows that languages (Japanese, Kituba and Korean) can have a marking that is used solely for the ‘past-in-the-past’ reading and exclude an aspectual reading.
- (5) Taroo-wa kinoo hon-o yon-**da**.
Taro-TOP yesterday book-ACC read-ANT
= ‘Taro (had) read the book yesterday.’
≠ ‘As of yesterday, Taro had read the book.’ (Japanese; Ogihara 1999: 330)
- He proposes instead that the relevant marker in those languages is a true relative tense, which relates reference time to an evaluation time.

Our proposal

- The predominant focus of previous literature has been on English *have*, with the exception of Bohnemeyer (2014).
- We draw on evidence from two Austronesian languages in support of the existence of relative tense independent of perfect aspect:
 - Javanese (West Malayo-Polynesian) *tau*
 - Atayal (Formosan) *-in-*
- We argue that relative tense can be decomposed into two semantic features: (a) being quantificational, and (b) restricting RT instead of ET (i.e., not an aspect).

Outline

- Background on *tau* and *-in-*
- *tau* and *-in-* are not a perfect aspect
- *tau* and *-in-* obligatorily shift RT in matrix and complement clauses
- *tau* and *-in-* are a purely existential past tense
- Analysis
- Conclusion and implications

Background on *tau* and *-in-*

- Properties shared by *tau* and *-in-*:
 - dominant experiential perfect readings
 - optional for the past
 - cessation of (result) state
- Both have been characterized in various ways:
 - a perfect, perfective aspect or past tense

***tau* and *-in-* are not a perfect aspect**

No past-perfect reading

- The use of *tau/-in-* is infelicitous in the context of ET < RT < UT, unlike the perfect:

(6) # Pas adik-ku muleh wingi, aku tau metu. (Jav)
when yg.sibling-my return yesterday 1SG TAU go.out
Intended for 'When my younger sibling got home yesterday, I had already left.'



(7) # mwah=saku' shira' lga, m-<in>busuk kwara'=naha' la. (Atl)
AV-come=1S.ABS yesterday PRT.TOP AV-<IN>drunk all=3P.GEN PRT
Intended for 'When I came yesterday, they had already got drunk.'

Restricted to the past

- If *tau* and *-in-* were a perfect, which denotes a relation between ET and RT, these markers would be possible with any reference time.
- They are not compatible with present/future time adverbs:

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

(9) m-<**in**>qwalax ssawni' / # **misuw** / # **kira**'. (Atl)
AV-<IN>rain early.today / # now / # later.today
'It rained earlier.' / ≠ 'It has rained now.' / ≠ 'It will have rained later.'

Restricted to the past

- In combination with future marking, *tau* and *-in-* do not behave like a perfect.
- Javanese *tau* scoping over future marking yields a counterfactual reading as is found with past tense plus future in many languages.

(10) Putri **tau** **ape** ketemu Justin Bieber. (Javanese)

Putri TAU PROSP meet Justin Bieber

‘Putri would have met Justin Bieber.’

Comment: ‘*It didn’t happen – the tickets were sold out.*’

- Atayal *-in-* cannot co-occur with future marking.

(11) * { **p-<in>qwalax** / **musa’** m-<**in**>qwalax } kayal=nya’. (Atayal)

FUT.AV-<IN>rain / FUT AV-<IN>rain sky=3S.GEN

Intended for ‘It will have rained (by then).’ or ‘It was going to rain.’

No result state holds

- Perfect aspect entails a result state holding at RT for change-of-state verbs (cf. Katz 2003, Iatridou et al. 2001).
- *Tau* and *-in-*, however, entail (or at least strongly imply) that the result state *ceases* to hold:

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

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

(13) Context: *Describe to your friend how you lost your watch and found it.*

m-<**in**>gzyuwaw tuki=maku'. (Atayal)

AV-<IN>lost watch=1S.GEN

'My watch got lost.'

Cessation effect

- The same fact that the state ceases to hold is observed for stative verbs:

(14) Context: *Mrs. Siti is now slim.*

Bu Siti **tau** lemu. (Jav)

Mrs. Siti TAU fat

'Mrs. Siti was fat.'

(15) Context: *Tali' is now fat.*

m-<in>qilang qu Tali'. (Atl)

AV-<IN>slim ABS Tali'

'Tali' was slim.'

- This property is instead similar to the so-called cessation effect of past tense (Musan 1997, Altshuler and Schwarzschild 2013, Cable 2016):

(16) A: How is Scotty doing?

B: He *was* anxious. (implies Scotty is no longer anxious)

(A.& S. 2013)

Not like the present perfect

In what follows, we show that...

- Javanese *tau* and Atayal *-in-* are not comparable to the English present perfect.
- They allow only experiential perfect readings and lack universal perfect readings.
- They lack associated pragmatic effects such as adverbial restrictions, current relevance, and lifetime effects.

Experiential reading

(17) A: Sampean **tau** menek gunung Merapi toh? (Javanese)

2SG TAU climb mountain Merapi FOC

‘Have you ever climbed Mount Merapi?’

B: Iyo, aku **tau** gelek menek gunung iki.

yes 1SG TAU often climb mountain DEM

‘Yes, I often climbed that mountain.’

(18) Context: ‘*Has he ever hunted?*’ ‘*Yes, ...*’ (Atayal)

q<m><n>alup mit sraral hiya’.

hunt<AV><IN> goat before 3S.N

‘He has hunted goats before.’

No universal perfect reading

- *tau* and *-in-* cannot convey that the meaning of the predicate holds from some point in the past up to the present.

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

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

Aku **tau** manggon nek Jember sampai 2014. (Javanese)

1SG TAU live in Jember since 2014

Intended for ‘I have lived in Jember since 2014.’

(20) Context: *My nephew is a big boy! Ever since his birth, his size has been bigger than the average kid’s.*

m-<**in**>krahu’ hi’=nya’ aring squ m-htuw. (Atayal)

AV-<IN>big body=3S.GEN start.AV LOC AV-come.out

Intended for ‘His body has been big since he was born.’

No current relevance

(21) 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. (Javanese)
sorry-DEF 1SG TAU already AV.eat
'Sorry, I've eaten.'

(22) Context: *You hear that Tali' is asking people for some bamboo, and you intend to offer him some.*

{# t<**n**>utu'=maku' / ✓ wal=maku' tt-un} shera' (Atayal)
chop<IN.PV>=1S.ERG / PRF=1S.ERG chop-PV yesterday
qu mpuw msyaw ruma' qasa.
ABS ten rest bamboo that
'I chopped more than ten pieces of bamboo yesterday.'

No ‘lifetime’ effect

- The use of *tau/-in-* is felicitous when the subject is no longer alive.

(23) Columbus **tau** nemok-no Amerika. (Javanese)

Columbus TAU AV.find-APPL Amerika

‘Columbus found America.’ (cf. # Columbus has found America.)

(24) **in**-lawn ni krunpu’ qu giqas na rhzyal krahu’. (Atayal)

IN-find.PV ERG Columbus ABS new GEN land big

‘Columbus found America (lit. the new big land).’

No definite past-time adverbial restriction

- (25) Aku **tau** mangan rajungan **wingi** **wingi-nan-e.** (Javanese)
1SG TAU AV.eat crab yesterday yesterday-NMLZ-DEF
'I ate crab 2 days ago.' (cf. #I have eaten crab 2 days ago.)
- (26) t<m><n>ubun sa **qutux** **spung** qu Tali'. (Atayal)
doze<AV><IN> LOC one o'clock ABS Tali'
'Tali' dozed off at one o'clock.' (cf. #Tali' has dozed off at one o'clock.)

Interim summary I

- Do *tau* and *-in-* behave like a perfect? Nothing resembles a perfect except the experiential reading (see also Chen et al. 2017; cf. Bertrand et al. 2017 for perfects across languages).

	<i>have</i>	<i>tau / -in-</i>
Anteriority (ET < RT)	✓	✗
Free RT	✓	✗
Result state holds	✓	✗
Experiential reading	✓	✓
Universal perfect reading	✓	✗
Current relevance	✓	✗
Past-time adverbial restriction	✓	✗
Lifetime effect	✓	✗

Obligatory backward shifting

No Sequence-of-Tense effect

- English past tense embedded under a past tense attitude verb can receive either a simultaneous reading or a back-shifted reading:

(27) John **heard** that Mary **was** pregnant.

 - a. John heard: “Mary is pregnant.” (simultaneous reading; SOT)
 - b. John heard: “Mary was pregnant.” (back-shifted reading)
- Languages vary in whether they allow the simultaneous interpretation or not.
- Japanese (Ogihara 1996), Russian (Grønn and von Stechow 2010), and Hebrew (Sharvit 2003) are claimed as non-SOT languages.

No Sequence-of-Tense effect

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

(28) Pak Agus ngomong deke **tau** nesu. (Javanese)
Mr. Agus AV.say 3SG TAU angry
'Mr. Agus said that he was angry.'

SOT 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:*

✓ B.S. Context: *Agus was angry last week but now he is not anymore. Agus called me yesterday afternoon to tell me that he had been angry.*

No Sequence-of-Tense effect

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

(29) q<m><n>uzit qnawal shira' yaba' maha (Atayal)
spin<AV><IN> iron.wire yesterday father CMP

m-<in>yaqih iyal inlungan=nya'.
AV-<IN>bad very heart=3S.GEN

'Dad called me yesterday saying that his mood was very bad.'

SOT Context: *Yesterday, my dad was in a bad mood and he called me to chat.*

✓ B.S. Context: *My dad was in a bad mood (before yesterday) and he called me to chat yesterday (when he felt better).*

Relative to matrix evaluation time

- *Tau/-in-* mark past relative to some evaluation time, rather than to UT.
- This proposal is supported also by what happens when these markers are embedded under a matrix future.

(30) 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. (Javanese)
mother-your FUT know 2SG TAU AV.make thesis-your
'Your mother will know you worked on your thesis.'

Relative to matrix evaluation time

- *Tau/-in-* mark past relative to some evaluation time, rather than to UT.
- This proposal is supported also by what happens when these markers are embedded under a matrix future.

(31) Context: *You encourage Tali' to take this afternoon to weed the farm, even though it is implausible that he can weed the entire farm. "After all, Grandpa will know you have worked", you say.*

-----UT-----**weed**-----**know**-----


musa'=nya' baq-un maha 1<m><n>ahing=su. (Ataya1)

FUT=3S.ERG know-PV CMP weed<AV><IN>=2S.ABS

'He will know that you weeded (some).'

Interim summary II

- The markers *tau* and *-in-* in the complement of attitudes/reports receive only a back-shifted interpretation.
- The shifted interpretation is relative to the matrix evaluation time, rather than to the utterance time.

***tau* and *-in-* are a purely existential past**

‘Experiential’ reading as existential

- We have shown that *tau* and *-in-* have salient experiential readings.
- These are however not true experiential readings, as they can be modified by past time adverbs. Instead we propose that the apparent experiential reading is simply an existential one.

(32) Adik-ku **tau** lungo neng Indonesia september 2015. (Javanese)
sibling-my TAU go to Indonesia September 2015
‘My younger sibling went to Indonesia in September 2015.’

(33) Context: *You are surprised that your new friend cannot recognize you after you saw each other yesterday:*

aw’=saku’ k<in>t-an shira’ rwa? (Atayal)
aw’=1S.ABS see<IN>-LV yesterday PRT
‘Didn’t you see me yesterday?’

Scope interactions with negation

- *Tau* and *-in-* exhibit scopal interactions with negation, unlike the English past tense (cf. Partee 1973).

➤ NEG > *tau/-in-*

(34) wong londo **gak** **tau** mangan sego. (Javanese)

person foreigner NEG TAU AV.eat rice

‘Foreigners have never eaten rice.’

¬ ∃ t [t < UT & [foreigners eat rice at t]]

(35) **iyat**=saku’ m-<**in**>hikang. (Atayal)

NEG=1S.ABS AV-<IN>slim

‘I have never been slim.’

¬ ∃ t [t < UT & [I be slim at t]]

Scope interactions with negation

➤ *tau* > NEG

(33) Context: *Wanan eats rice every day. But maybe he hasn't eaten rice once or twice.*

Pak Wanan **tau** **gak** mangan sego. (Javanese)

Mr. Wanan TAU NEG AV.eat rice

'Pak Wanan has not eaten rice before.'

$\exists t [t < UT \ \& \ \neg [Wanan \text{ eat rice at } t]]$

NB: Atayal *-in-* is always in the scope of the negation *iyat*.

No referential use

- *Tau* and *-in-* cannot refer to an already established RT in the context.

Context: *Driving on the highway after leaving the house, you realize that you didn't turn off the stove* (from Partee 1973):

(34) aku kok rung (# tau) mate-ni kompor yo! (Javanese)
1SG PRT not.yet TAU AV.die-APPL stove yes
'I didn't turn off the stove!'

(35) # iyat=maku' n-uyut gasu'. ✓ ini'=maku' yut-i gasu'.
NEG=1S.ERG IN.PV-put.off gas NEG=1S.ERG put.off-PV gas
Intended: 'I didn't turn off the gas.' 'I didn't turn off the gas.'
(Atayal)

No narrative progression

- *Tau* and *-in-* do not advance narratives as the English simple past does.

(36) Context: *You are describing what happened yesterday.*

Siti melbu kantor. Deke (# tau) ngopi.
Siti AV.enter office 3SG TAU AV.coffee
'Siti came to the office. She drank coffee.'

(37) Context: *You are describing how Tali' acted when he came home.*

m-zyup blihun qu Tali' ru m-(#< in>)tama'.
AV-enter door ABS Tali' CONJ AV-<IN>sit
'Tali' came in, and he sat down.'

Interim summary III

- In contrast to English past tense, which has been argued to be a pronoun that carries presuppositional features (Heim 1994, Kratzer 1998), *tau* and *-in-* are always interpreted existentially.

	English <i>past</i>	<i>tau</i> / <i>-in-</i>
Anteriority (RT < UT)	✓	✓
Cessation effect for statives	✓	✓
Experiential reading	✓	✓
Absence of scope interaction with NEG	✓	✗
Reference to contextual RT	✓	✗
Narrative progression	✓	✗

Analysis

Generalizations

We've shown that...

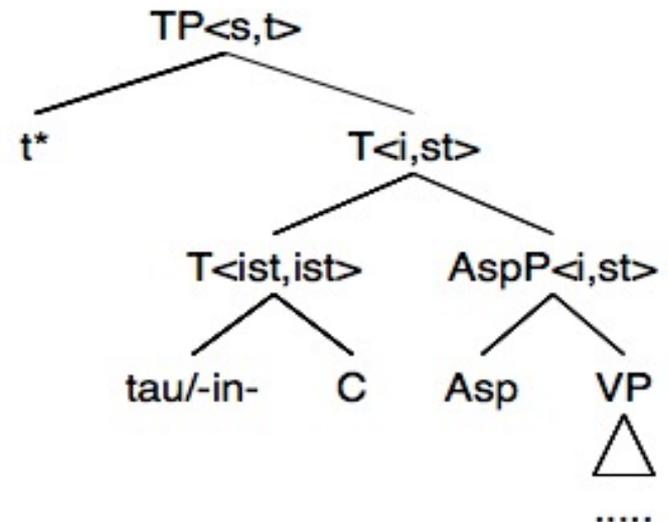
- *Tau/-in-* do not behave like an aspect, and they only overlap in their use with the English perfect in experiential readings.
- *Tau/-in-* only receive readings where they are back-shifted with respect to some evaluation time.
- The past tense reading of *tau/-in-* is existential rather than referential.

Proposal

- We argue that *tau/-in-* is a past tense.
- The semantics of *tau/-in-* involves an existential quantifier over past times, following Ogihara (1996), von Stechow (2009), Mucha (2017), a.o.

$$\llbracket \textit{tau/in} \rrbracket^{g,c} = \lambda C_{\langle i, st \rangle} \lambda P_{\langle i, st \rangle} \lambda t \lambda w \exists t' [t' < t \ \& \ C(t') \ \& \ P(t')(w)]$$

- C is a contextually determined property of times (cf. von Stechow 2009).
- In matrix clauses, the time t is filled by the utterance time t^* .
- In embedded clauses, t is filled by the event time of matrix clauses.



Explanations

$$\llbracket \textit{tau/in} \rrbracket^{g,c} = \lambda C_{\langle i, st \rangle} \lambda P_{\langle i, st \rangle} \lambda t \lambda w \exists t' [t' < t \ \& \ C(t') \ \& \ P(t')(w)]$$

- **Past RT restriction, compatibility with past-time adverbials, no associated pragmatic effects of the present perfect**

These are expected given that *tau/-in-* is a past tense rather than a perfect.

- **Experiential reading**

The default quantifying domain of *tau/-in-* is an interval without any restriction, hence giving rise to an experiential reading.

- **Existential reading with adverbial modification**

With a salient RT (given by time adverb or context), the quantifying domain is restricted to that RT interval, and thus *tau/-in-* only yield an existential reading.

Explanations

$$\llbracket \textit{tau/in} \rrbracket^{g,c} = \lambda C_{\langle i, st \rangle} \lambda P_{\langle i, st \rangle} \lambda t \lambda w \exists t' [t' < t \ \& \ C(t') \ \& \ P(t')(w)]$$

- **No referential/anaphoric uses**

With a very short RT interval, the reading of *tau/-in-* is closer to, but still not equivalent to, a referential one. They merely assert a time t at which P holds.

- **Scope interactions with negation, no universal perfect reading**

Both are expected given that *tau/-in-* denote an existential quantifier.

- **No result state reading, cessation effects**

Our analysis makes no reference to the result state of the relevant event. Cessation effect arises due to the open interval property of statives with an existential past, following Altshuler and Schwarzschild (2013).

Conclusions

- We showed that Javanese and Atayal possess a marker that instantiates a purely existential past tense.
- The past tense markers are relative in the sense that the evaluation time can be the utterance time or a matrix event time.
- Relative tense can be properly referred to as a tense category separate from perfect aspect.
- Our finding also suggests that the semantics of tense varies across languages, and the referential and quantificational approaches to past tense do not necessarily compete.

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