The Typology of Tense and Japanese — Relative Tense, Quantificational Tense

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Preview

Data: Japanese — relative tense everywhere
English — absolute tense; deleted when absolute tense is not possible
Polish — relative tense in complements; absolute tense everywhere

Sharvit's (2013) proposal
Basic assumption: Japanese (past) tense is quantificational and must QR; (Polish tenses are relative tenses)
Complement clauses: English — SOT; Japanese and Polish — no-SOT
Relative clauses: Japanese tenses get bound because past tense is quantificational; English and Polish tenses in RC cannot get bound because matrix past is a pronominal.
Before **clauses**: Japanese past is quantificational and the meaning of *before* is incompatible; English/Polish past is pronominal and can occur with before.

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My counter proposal

Basic point: Polish tense morphemes are absolute tense (in principle).
Complement clauses: English — SOT; Japanese — relative; **Polish — adjusted to attitude verb's time (though basically absolute)**
Relative clauses: the matrix has scope over the entire sentence in any language.
English — absolute tense (matrix tense has no effect); Japanese — relative tense; Polish — absolute tense (matrix tense has no effect)
Before **clauses**:
Japanese tense — relative tense
English and Polish — absolute tense

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Cross-linguistic data involving embedded tense morphemes

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Verb complements (attitude verbs)

English: tense morphemes behave as if they are NOT embedded.

Japanese, Russian, Hebrew: tense morphemes behave like they are embedded; tense morphemes in verb complements (say, think, hear).

The pattern for a "simultaneous reading"

English: [Subject say-past [… past tense ...]] sequence of tenses

Japanese/Polish:

> [Subject say-past [... present tense ...]]
>
> no sequence of tenses

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Relative clauses (1)

Japanese present tense relative clauses can be interpreted as under the matrix tense. Hebrew, Polish and Russian do not behave the same here.

First, present tense under past.

(1) Hanako-wa [nai-te iru kodomo]-o   mi-ta.

> Hanako-top cry-prog   child   -acc see-past
>
> 'Hanako saw a child crying/a crying child.'

The relative clause is in the present tense (or is in the non-past tense) and is interpreted in relation to the matrix verb time, which is a past time. Consequently, (1) receives a simultaneous reading: Hanako saw a child, and at that time, the child was crying. In a comparable relative clause in English/Polish/Russian/Hebrew, past tense is required.

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Relative clauses (2)

Past tense can also be used as a relative tense in relative clauses (under future).

(2) Hanako-wa [kin medaru-o   tot-ta hito]-ni

> Hanako-top gold medal-acc get-past person-dat
>
> raisyuu   intabyuusuru.
>
> next week interview.pres
>
> [Lit.] 'Hanako will interview the person who got the gold medal.'

The key point of this example is that the sentence is true even if the person who gets the gold medal in the future of now.

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'before' and 'after' clauses

Japanese tense morphemes are "relative tense" in -*mae* 'before' and -*ato* 'after' clauses as well: **present + -*mae* and past + -*ato***

(3) Hanako-wa [Jiroo-ga kuru]   -mae ni kaet-ta.

> Hanako-top Jiro-nom come.pres -before at return-past
>
> 'Hanako left (for home) before Jiro arrived.'

(4) Hanako-wa [Jiroo-ga ki-ta]   -ato ni kaeru.

> Hanako-top Jiro-nom come-past after at return.pres
>
> 'Hanako will leave after Jiro arrives (or after Jiro has arrived).'

English and Polish tense morphemes behave like absolute tense.

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Toward a theory of tense: some issues and possible solutions

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Partee (1973)

(5) I didn't turn off the stove.

This does not mean that I never turned off the stove in my life, nor does it mean that there is a past time at which I did not turn off the stove. So we clearly need contextual restriction.

We also need existential quantification, however.

(6) The sentence has a true value if the context assigns a reference

time t_R, which is a past interval. If so, the sentence is true

iff $\neg\exists t\ [t \subseteq t_R \wedge$ I turn off the stove at t]

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Quantificational vs. Pronominal debate

Affirmative (non-negated) sentences that show that existential quantification over times is also needed:

A's mother visits A at the dorm. B (A's roommate) was there. A's mother says that she needs to give him a jacket he needs for an afternoon event. In the evening, B sees that A has the jacket.

(7) B: Good. You saw your mom.

This is about a specific past time (like the "past part" of today), but B is not making an assertion about a specific time of the event.

(8) $\exists t\ [t \subseteq$ (past part of)this.afternoon $\wedge$ A sees A's mom at t]

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Quantificational vs. Pronominal debate (2)

The same is true of the future. Suppose that A was wondering whether to go see his mother, who lives in a distant city. B knows that. One day, B sees A preparing for a trip.

(9) B: Oh, you are going to see your mom.

This means (13).

(10) $\exists t\ [t \subseteq$ a.specific.future.interval $\wedge$ A sees A's mom at t]

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Tense morphemes themselves do not carry existential quantifier force.

Tense morphemes themselves DO NOT carry existential quantificational force. There are many reasons to assume this. This, I believe, is universal.

(i) Temporal adverbials interact with tense morphemes in such a way that tense should not carry existential quantifier force. Dowty (1979), Stump (1985), Bäuerle (1979), von Stechow (1995)

(11) Mary sneezed exactly twice yesterday.

(ii) Universal quantifiers can quantify over events described by a tensed clause.

(12) When Mary visited Bill in 1990, he always welcomed her.

In Ogihara (1996), a tensed clause denotes a relation between times (technically, $\langle i, \langle i, t \rangle \rangle$ type). This is necessary to accommodate temporal adverbials (Dowty 1979, et al).

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Ingredients we need for any tense in any language

1. Contextually provided interval with a specified presupposition (past, present, or future) "reference time" or "topic time" (Kratzer 1978, von Stechow 1995)

2. A time variable that indicates the time of the event or state that occupies a part of the "reference time".

3. The "evaluation time" for that event/state time and the relation between them (precede/follow/overlap) (unless the tense is deleted or is relative present)

4. In most cases, the time variable associated with the event/state is bound by a quantifier (by default existential or an adverb of quantification, if any, e.g. *always*). But this is not part of the lexical meaning of the tense.

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Sharvit's (2013) account of the typological differences

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Cross-linguistic differences about tense

(13) Sharvit's proposal:

A. Sequence-of-tense languages vs. non-sequence-of-tense languages

SOT — English

non-SOT — Japanese, Polish

B. Pronominal tense languages — English, Polish

Quantificational tense languages — Japanese

This is claimed to account for their behavior in verb complements, relative clauses, and 'before'-clauses.

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Crucial data explained

Verb complements: SOT languages need past tense for a "simultaneous" reding; non-SOT languages need a present tense

Relative clauses: Quantificational past tense (Japanese) moves out to bind the present tense in the relative clause — simultaneous reading. Hebrew and Polish past tense cannot do that because they are pronominals.

'before' clauses: Japanese past is existentially quantifying (Arregui and Kusumoto 1998) and cannot occur in 'before' clauses because this would produce a presuppositional failure (assuming Beaver and Condoravdi's (2003) semantics for before). That is, for *before p* the earliest time t such that there is time t' < t and p at t' is undefined. So Japanese uses present (non-Q). Polish has a pronominal past and is compatible with *before*.

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Problems with this analysis

A. Sharvit (2013) relies on Beaver and Condoravdi's analysis of *before*, but this analysis has problems (to be explained below).

B. Even if Beaver and Condoravdi's analysis is correct, Sharvit's account of *after* should adopt the same analysis for the adverbial clause (using the earliest time at which …) and this is B and C's point. So the Japanese 'after' clauses with a past tense sentence should also be a presupposition failure.

C. As mentioned above, Japanese past is not particularly "quantificational", and Japanese present is not necessarily "variable-like" contra Arregui and Kusumoto (1998).

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The semantics of *before/after* in detail

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before and *after* clauses (Anscombe 1964)

Anscombe (1964) proposes an analysis of *before* that posits an intrinsic semantic difference with *after*.

(14) p before q = there is a p time before every q time.

(15) p after q = there is a p time after some q time.

This proposal is adopted by Heinämäki (1974), Landman (1991), and Ogihara (1995).

This accounts for the availability of NPIs in *before* clauses because it make it downward-entailing as well as non-veridical *before* clauses. (See Ladusaw (1979), Condoravdi (2010), Krifka (2010) among others.)

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Beaver and Condoravdi (2003)

B and C's claim: *after* and *before* are **converses**.

(16) **A before B** means 'A < the earliest time t at which B is true' (within a set of "reasonable alternative worlds")

(17) **A after B** means 'A > the earliest time t at which B is true' (within a set of "reasonable alternative worlds")

the earliest possible time at B is true:= the earliest t such that [∃w . w is identical to the actual world up to the A-time and develops in a reasonable manner & B at <w,t>]

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Non-veridical *before* and B and C's analysis

(18) Bill-wa   mago-no   kao-o   miru-mae-ni   sinda.
      Bill-top grand.child-gen face-acc see.pres-before-at die-past
      'Bill died before he saw his grandchildren.'

The earliest time of Bill's seeing his grandkids can be found even if there is no such event in the actual world because we are thinking of worlds that are the same up to the matrix time but develop in different (but reasonable) ways.

(19) Bill-wa   sin-da   ato   mago-no   kao-o   mi-ta.
      Bill-top die-past after grand.child-gen face-acc see-past
      'Bill saw his grandchildren after he died.'

Since all relevant worlds are identical to the real one up to the matrix time, Bill's death must be real and precede his seeing his grandchildren. Thus, the sentence is anomalous. (It only has a pragmatically odd reading.)

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Problems with B & C's account (part 1)

• Conceptual issue: the point is NOT that the earliest *before*-clause time (real or imagined) is after the matrix clause time.

• Technical issue: If we consider only those worlds that are exactly the same INCLUDING the main clause event, then we would need to accept worlds in which Bill dies at the time he actually does but is resurrected as "reasonable alternatives." So the interpretation of up to the time of the matrix event is crucial. Given how after-clauses behave, an after-clause event must be included in all alternative worlds.

• If backtracking is needed (to change Bill's health conditions so that he might live longer), the subordinate clause event could also change its course (to be fair). E.g. Bill could see his grandchildren if his daughter had children sooner (than the time of Bill's actual death). If so, B and C could make the wrong prediction.

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Problems with B & C's account (part 2)

Sometimes, the speaker indicates a reasonable alternative course of action which suggests a possible earlier time for the *before*-clause event.

(20) Because Mary got involved in a traffic accident and could not come
      sooner, Bill died before he saw her.

A relevant counterfactual: If Mary had not been involved in a traffic accident (and had come sooner), Bill would have (or might have) been able to see her (before he died).

This counterfactual seems reasonable. If so, the posited (unreal) event of Bill's seeing Mary would have been before the time of Bill's actual death. This is a problem for B & C's analysis.

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Problems with B & C's account (part 3)

In (21), it is odd to think of alternative (and unreal) sunset times.

(21) The sun set before Bill found a safe place for the night.

Suppose that Bill is now in Siberia and will die unless he finds a warm enough place to survive the cold night temperature. When the sun sets, it is pitch dark and Bill cannot see anything around him. Counterfactual: "Had Bill started to look for a place for the night, he might have found a safe place before the sunset." The earliest time of his finding a safe place may be (or must be) earlier than the actual sunset time (in some relevant possible worlds). "Had the sun set later, then he would/may have found a safe place" may be a possible counterfactual but is close to an impossible wish since the sunset time is predetermined.

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The moral of the above discussion

Beaver and Condoravdi's analysis of *before/after* clauses is problematic.

Thus, any analysis of Japanese *before/after* clauses based on this semantics proposal is unfounded.

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My proposal about the semantics of *before* (Ogihara 2016)

- *P before Q* simply means that there is no Q time before the P time. This is almost the negation of what after Q means (Ogihara 2016). (Krifka 2010 proposes something virtually identical.)
- If times are all instants, then this is equivalent to Anscombe's analysis. However, in the standard interval-based system, negated existential provides a better empirical result.
- This proposal allows *P before Q* to be true when Q is simultaneous with P. However, I argue that that is pragmatically implausible when P are Q are events. So all practical purposes we can say that *before* and *after* are negation of each other.

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Scalar implicature

Suppose that before means not after. Then we can say:

(22) $⟦$A before B$⟧^{t0}$ = 1 iff A is true at t_0 and there is no time t before t_0 such that B is true at t.

This predicts that *A before B* is true at t_0 if A and B are both true at t_0. However, if the simultaneity of A and B is what the speaker wishes to convey, there are more specific ways of doing so:

(23) A exactly when B

Therefore, avoidance of (23) and using *before* (= not after) shows that simultaneity can be safely removed from the possible interpretation.

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More details of *before* and *after*

In the case of two accomplishments, culmination points are often relevant (Heinämäki 1974, Condoravdi 2010):

(24) Miki-wa Ziroo-ga ie-o tateru mae ni biru-o tate-ta.

Miki-top Jiro-nom house-acc build.pres before at building-acc build-past

'Miki built a (high-rise) building before Jiro built a house.'

(24) is arguably true when the completion of Miki's project happened before the completion of Jiro's project. This is predicted with no stipulation by using my proposal: there is a past (complete) event of Miki's building and at that time, there was no complete event of Jiro's building. This is a good result.

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Some suggestive examples

(25) Bill died without seeing his grandchildren.

(26) Bill had not had a chance to see his grandchildren when he died.

(27) Saburo-wa [haru-ga ko-nai] uti-ni sinde-simat-ta.

Saburo-top spring-nom come-neg within-at die-finish-past

[Lit.] 'Saburo died while it was still not Spring.'

≈ 'Saburo died before Spring came.'

Such paraphrases also require that the type of event described by the adverbial phrase/clause was under discussion/expected. It is better to think of this as a pragmatic constraint.

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A New Proposal for Japanese

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General remark about Japanese tense

There is nothing new here:

(28) p-*ta* 'past': $\lambda t_1 . \lambda t_2 . \lambda w. t_1 < t_2$ & p holds at t_1 in w (relative past)

(29) p-*ru* 'present': $\lambda t . \lambda w.$ p holds at t in w (relative present)

(This could be turned into a relation between two times involving overlap, but to simplify our account, I do not pursue the line.)

(30) p-*ru* 'future': $\lambda t_1 . \lambda t_2 . \lambda w. t_2 < t_1 \wedge$ p holds at t_1 in w (relative future)

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Verb complement clause cases

A verb complement clause denotes a property of times such as the following:

(31) p-*ru* 'present': $\lambda t . \lambda w.$ p holds at t in w

(32) p-*ta* 'past': $\lambda t . \lambda w. \exists t' . t' < t$ & p holds at t' in w

For relative clauses, it is necessary to let the variable t in the above denote the matrix verb time (at least as an option). This means that the matrix tense must provide a wide scope operator (such as an existential quantifier) that provides the "evaluation time" for the relative clause tense.

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Relative clause cases

The matrix tense must have scope over the entire sentence. I claim that this is the default option for the matrix tense in any language (contra Sharvit 2013).

Regarding tense in relative clauses, we must allow for two options: (i) interpreted in relation to the matrix tense; (ii) interpreted in relation to the utterance time.

This is accomplished by letting the matrix tense bind the relative clause tense **optionally**. We should keep in mind that this is independent of how the nominal in the relative clause is interpreted (Kusumoto 1999).

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Temporal adverbial cases ('before' and 'after')

Re temporal adverbial clauses, my claim remains the same (Ogihara 1995): tense morphemes receive relative interpretation in relation to the matrix. Note, however, that it is better to characterize this in terms of "semantic harmony", i.e. tense has the same temporal orientation as the "connective". For example, looking at an old photograph, A and her husband B have the following conversation:

(33) A: Kore-wa kekkonsuru-mae da-ne. ***suru* and *mae* are both past oriented**

      this-top get.married-before be-ending.particle

      'We were not married yet (at the time of this photo), right?'

(34) B: Iya, kekkonsi-ta-ato da-yo. ***sita* and *ato* are both future oriented**

      no. get-married-past-after be-ending.particle

      'No, we were already married then.'

Here, *p mae* is a nominal and means 'the time that follows p'

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What then can we say about Polish (and English)?

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The case of Polish

Polish tense morphemes are (basically) absolute/indexical tenses. This accounts for their non-shifting behavior in relative clauses and 'before'/'after' clauses. However, they are somewhat flexible (compared to English tenses) in that under an attitude verb/predicate, their "evaluation indices" could be rewritten as the designated variable 0, which is then bound by an abstractor.

Sharvit (2013) assumes that Polish tenses are relative tenses. This accounts for their "relative tense" behavior in verb complements. In relative clauses, the Polish past cannot have wide scope because it is a pronominal.

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What do we need for Polish (summary)

Polish present tense is inherently absolute (indexical). But they could be "deleted" (or neutralized) under two conditions: (i) in presence of an attitude verb, or (ii) under the scope of a future time shifter (like a future auxiliary).

This proposal allows Polish and Hebrew tense morphemes to behave like absolute tense in relative clauses and before/after clauses but not in verb complements.

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English (*ought to*)

Abusch's (1997) claim that relative clause tenses are not in the scope of the matrix is based on the behavior of semi-auxiliaries like *ought (to).*

(35) Mary had a student who ought to study harder.

   (no simultaneous reading)

(36) Mary had a student who ought to have studied harder.

   (simultaneous reading is possible)

(37) Mary thought that the student ought to study harder.

   (simultaneous reading is possible)

I think this contrast can be explained like the case of Polish tenses: *ought to* has an indexical present tense, but this can be "adjusted" under an attitude predicate (like *think*).

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English (participial modifiers)

Bound variable readings are often possible, and that suggests that the matrix tense has scope over relative clauses (or any participial modifiers)

(38) Whenever Mary found a child singing a song, she smiled.

The time of finding and the time of singing are simultaneous for each relevant situation, and this receives a simple account if the nominal in the object DP is in the scope of the matrix past tense.

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Summary assuming that tenses are complex pronominals (with multiple indices)

$Past^<_{UT, RT, 2}$ means g(2) < UT (utterance time) and g(2) ⊆ RT (reference time) (g is an assignment function); $Pres^o_{UT, RT, 3}$ means g(3) overlaps UT and g(3) ⊆ RT

RT (reference time = a temporal frame) has been added for accuracy.

Verb complements:

English: … $Past^<_{UT, RT, 2}$ AV λ0∃2[… ~~$Past^<_{UT, RT, 2}$~~ → $Past^o_{0, RT, 2}$ …]

(deleted past; Sequence-of-Tense)

Japanese: … $Past^<_{0, RT, 2 …}$ AV λ0∃2[… $Pres^o_{0, RT, 2}$ …] (relative present — no operation needed)

Polish: … $Past^<_{0, RT, 2 …}$ AV λ0∃2[… ~~$Pres^o_{UT, RT, 3}$~~ → $Pres_{0, RT, 2}$ …]

(indexical present is now sensitive to the new attitude context; UT has been rewritten as 0)

Relative clauses (adverbial clauses will be similar):

English: … $Past^<_{UT, RT, 2}$ λ0[… e_0 … ∃3[… $Pres^o_{UT, RT, 3}$ …]] (3 is not bound by λ0)

Japanese: … $Past^<_{0, RT, 2}$ λ0[… e_0 … ∃3[… $Pres^o_{0, RT, 3}$ …]] (relative present is bound) or

… $Past^<_{0, RT, 2}$ λ0[… e_0 … ∃0[0=UT & ∃3[… $Pres^o_{0, RT, 3}$ …]] (independent)

Polish: … $Past^<_{0, RT, 2 …}$ λ0[… e_0 … ∃3[… $Pres^o_{UT, RT, 3}$ …]] (indexical present —cannot be shifted here)

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