

The adjectival interpretation of the past tense morphemes in adnominal clauses

The behavior of tense in subordinate clauses is not uniform across languages and theories that deal with the interpretation of tense. In this paper we will be concerned with the adjectival interpretation of inflected tense morphemes *-ta* in Japanese predicates like (1) and we will investigate following questions: (I) What makes it possible for inflected tense morphemes to have the same interpretation as adjective in adnominal clauses? (II) What does it mean for a relationship between verb meaning and sequence of tense effect?

(1)a. *yude-ta tamago*

boil-PAST egg

‘a boiled egg’

b. *boosi-wo kabut-ta sinsi*

hat-ACC wear-PAST gentleman

‘a gentleman who wears a hat’

c. *nikibi-no deki-ta kao*

pimple-NOM come-PAST face

‘a face on which pimples came out’ (‘a face covered with pimples’ (lit.))

1. Tense in Adnominal Clauses and the Relative Tense Hypothesis

Japanese verbs have two types of tense morphemes: the *-ru* form (known as present form) and the *-ta* form (the inflected form). Generally, the *-ru* ending active verbs indicate a future tense, but when they illustrate a stative meaning that occurs with it, like a property or habit of NPs, they are considered to have an atemporal/generic tense. In contrast, the *-ta* is unambiguous and is only seen in past tense/episodic text. Descriptions of *-ta* and *-ru* do not explicitly address the question that *-ta* and *-ru* also indicate perfective and imperfective aspect. An embedded tense is deleted under identity with a c-commanding matrix tense under Sequence of Tense (SOT) effect (Ogihara, 1989). In Japanese relative clauses, generally *-ta* ending predicates express a back-shifted/perfective aspect reading and *-ru* ending predicates express a forward-shifted or simultaneous¹/imperfective aspect reading. According to Ogihara’s (1996) relative tense

¹ - *France-ni i-ru toki, Hanako-wa kaban-wo kat-ta.*

France-DAT exist-PRESENT when Hanako-TOP bag-ACC buy-PAST

‘Hanako bought a bag, when she was in France.’

analysis, the matrix clause event time functions as the reference time of the embedded tense, that is tenses in relative clauses are semantically in the scope of the matrix tense. Consider the following sentences.

- (2)a. Furansu-ni i-ku mae-ni, Hanako-wa kaban-wo kat-ta.
 France-DAT go-PRESENT before Hanako-TOP bag-ACC buy-PAST
 b.* Furansu-ni i-t-ta mae-ni, Hanako-wa kaban-wo kat-ta.
 France-to go-PAST before Hanako-TOP bag-ACC buy-PAST
 ‘Hanako bought a bag, before she went to France.’
- (3)a. * Furansu-ni i-ku ato-ni, Hanako-wa kaban-wo kat-ta.
 France-DAT go-PRESENT after Hanako-TOP bag-ACC buy-PAST
 b. Furansu-ni i-t-ta ato-ni, Hanako-wa kaban-wo kat-ta.
 France-to go-PAST after Hanako-TOP bag-ACC buy-PAST
 ‘Hanako bought a bag, after she went to France.’

In Japanese, tense in before clauses is obligatorily a present tense and tense in after clauses is obligatorily a past tense. The contrast in (2) and (3) can be explained by relative tense analysis. A present tense in Japanese can have future interpretation. In (2a), the embedded tense is present, and can be interpreted as indication that the embedded clause event is future with respect to the matrix clause event. Therefore, in (2a), it establishes a posteriority relation between the embedded clause event and the matrix clause event, which is suitable with the meaning of *mae-ni* ‘before.’ However, in (2b), the embedded tense is past, and defined with respect to the matrix clause event time, it establishes a relation of anteriority between the embedded clause event and the matrix clause event. This contradicts the meaning of the connective *mae-ni* ‘before.’ The unacceptability of (2b) is due to this incoherence. In (3b), the past tense indicates that the embedded clause event is past with respect to the matrix clause event, and this is compatible with the meaning of *ato-de* ‘after.’ However, the present tense in (3a) indicates that the embedded clause event is future with respect to the matrix clause event, and this contradicts the meaning of *ato-de* ‘after.’ The unacceptability of (3a) is due to this incoherence. Ogihara’s hypothesis explains the tense distribution in Japanese before/after clauses.

2. The *-ta* Ending Predicate in Adnominal Clauses and Verb Meaning

One major problem that arises in the interpretation of the *-ta* ending predicate in adnominal clauses is that it is temporally ambiguous between atemporal and tensed text: that is, *-ta* ending verb, which occurs in adnominal complement clauses, can express adjectival meaning as shown in (1a-c).

But not every *-ta* ending verb in adnominal clauses can express the adjectival meaning. Kageyama (1996) and Kinsui (1994), among others, point out that the adjectival ‘*-ta*’ in a complement clause of argument NPs²/adnominal clause highlights a result state, which is caused by a changing state action denoted by a *-ta* ending verb. Therefore, they posit a requirement that only verbs of causative change-of-state can be realized as an adjectival ‘*-ta*’ in adnominal clauses. For example, the verbs that denote an intentional action like *hasi-ru* ‘run’ and *kiramek-u* ‘twinkle’ cannot be realized as adjectival ‘*-ta*’, contrary to the transitive verbs like *yude-ru* ‘boil’ (cf. (1a)) and *magar-u* ‘bend’ and the unaccusative verbs, which denote a result state, like *deki-ru* ‘come’ (cf. (1c)) and *siore-ru* ‘wilt’ and *koor-u* ‘freeze’ as shown below.

- (4)a. Kodomo-ga hasi-t-ta → *hasi-t-ta kodomo
 Child-NOM ran-PAST ran-PAST child
 ‘The child run.’ ‘the run child’
- b. Hosi-ga kirame-i-ta → *kirame-i-ta hosi
 Star-NOM twinkle-PAST twinkle-PAST star
 ‘A star twinkled’ ‘a twinkled star’
- (5) Kugi-ga maga-t-ta → maga-t-ta kugi
 Nail-NOM bend-PAST bend-PAST nail
 ‘A nail bent’ ‘a bent nail’
- (6)a. Retasu-ga siore-ta → siore-ta retasu
 Lettuce-NOM wilt-PAST wilt-PAST lettuce
 ‘A lettuce wilted’ ‘a wilted lettuce’
- b. Zerii-ga koo-t-ta → koo-t-ta zerii
 Jelly-NOM freeze-PAST freeze-PAST jelly
 ‘The jelly froze’ ‘the frozen jelly’

So even though it is an unaccusative verb, if it denotes a simple state such as *atais-u-ru* ‘be worthy’ or *yoos-u-ru* ‘need’, it does not entail any result state and cannot be realized

² In (i), the word *reizooko* ‘refrigerator’ is adjunct. Note that in contrast to (6b), in this case, the adjectival ‘*-ta*’ cannot appear in the adnominal clause as shown below.

- (i) Reizooko-no-naka-de zerii-ga koo-t-ta
 Refrigerator-of-in-DAT jelly-NOM freeze-PAST
 ‘The jelly froze in the refrigerator’
 → *zerii-ga koo-t-ta reizooko
 jelly-NOM freeze-PAST refrigerator
 ‘The refrigerator in which the jelly froze’

as an adjectival *-ta* in adnominal clauses as shown below.

(7) Kono sakuhin-wa shoosan-ni atai-s-u-ru → *shoosan-ni atais-i-ta sakuhin

This work-TOP be worthy of praise-PRESENT be worthy of praisePAST work

‘This work is worthy of praise’ ‘The work that was worthy of praise’

(8) Kono kadai-wa tyoozikan-wo yoos-u-ru → *tyoozikan-wo yoos-i-ta kadai

This issue-TOP long time-ACC need-PRESENT long time-ACC need-PAST issue

‘This issue needs to take long time’ ‘the issue that needed to take long time’.

These verbs obligatorily take the *-ru* ending such as *shoosan-ni atais-u-ru sakuhin* ‘an issue that needs to take long time’ and **tyoozikan-wo yoos-u-ru kadai* ‘an issue that needs to take long time’ (Kageyama, 1996).

Following Rappaport Hovav and B. Levin (1998), we can illustrate the effect of the above requirement by contrasting the verbs, which are basically unaccusative and have a simple event structure as shown in (9a), with that of verbs which are causative and have a complex event structure as shown in (9b) (x: an external argument/actor, y: an internal argument/theme).

(9)a. [x ACT <MANNER>]

b. [[x ACT] CAUSE [BECOME [y<STATE>]]]

A verb that is available to be realized as adjectival *-ta* has a complex event structure as in (9b). Consequently, it is understandable that one might think that the distributional pattern of *-ru* and *-ta* in adnominal clauses closely related to the event structure. That is, the event structure of *boosi-wo kabut-ta (sinsi)* ‘(a gentleman who) wears a hat’ (a complex event structure, which denotes a property of a gentleman, changes into ‘(a gentleman who) wore a hat’ when we start using it as a stage-level predicate (a single event structure, which denotes a past tense).

The idea that this difference of meaning is a consequence of a difference in event structure appears to figure in the explanation of the fact that *-ta* ending stage-level and unaccusative individual-level predicates such as *boosi-wo kabut-ta sinsi*, *yude-ta tamago* and *sio-re-ta retasu* are ambiguous between past tense and adjectival meanings and it also provides an opportunity to recognize that morphologically tensed adnominal clauses above do not lack a tense feature that semantically restricts the location of the reference time, contrary to the Relative Tense Hypothesis: the *-ta* indicates some reference time before the speaking time, but not before the matrix event time.

I will propose that the *-ta* in adnominal clauses indicates a relation of anteriority between the embedded clause event and the matrix clause event. It is predicted under Relative Tense Hypothesis. Furthermore, I will suggest a pragmatic account: the restrictions on distribution of *-ru* and *-ta* in adnominal clauses is due to a difference in

the potential for making inferences from event structure of *-ru* and *-ta* ending predicates (cf. (9a,b)). That is, '*-ta*' is an upward entailing (in the sense of Ladusaw (1980, 1983)) morpheme, while '*-ru*' cannot make the same type inference.

3. Monotonicity and *-ta*

Ladusaw (1980, 1983) proposes a distinction between 'upward' and 'downward' entailing operators. Informally, an upward entailing expression allows superset for subset substitutions within its scope. And a downward entailing expression allows subset for superset substitutions. Some expressions are neither upward nor downward entailing; they are called to be 'non-monotonic.' Consider the following sentences.

(10) Everybody ate a carrot \rightarrow Everybody ate a vegetable

(11) \neg (Everybody ate a vegetable \rightarrow Everybody ate a vegetable)

'Every' is an upward entailing expression. The NP 'a carrot' denotes a subset of the set denoted by the NP 'a vegetable', the superset. In (10) 'a vegetable' is substituted for 'a carrot' without changing the truth value of the sentence. But the inference in (11) is not valid, since it may be the case that everybody ate a vegetable but only a few ate a carrot.

Returning to the distribution of *-ru* and *-ta* in adnominal clauses, note that the *-ta* ending stage-level and unaccusative individual-level predicates such as *yude-ta tamago* and *siore-ta retasu* allow for inferences that have the effect to bring irreversible change (at least for some relevant interval of time) to head nouns. If we assume that there are three times such as t_1 , t_2 and t_3 , the completion of boiling egg at t_0 , subset, has effect to eliminate from the time set, superset, all possibility that the egg is not boiled. In this way, the *-ta* ending stage-level and unaccusative individual-level predicates allow for inferences that have the effect of the superset for subset substitution, which triggers adjectival readings. On the other hand, the verbs which denote a simple state such as *atais-u-ru* 'be worthy' or *yoos-u-ru* 'need' are non-monotonic and do not infer any superset-subset relation. Therefore, they can be realized in *-ru*.

4 Conclusions

This paper studies a class of predicates that license the use of adjectival *-ta* form in an adnominal clause in Japanese. I proposed that the *-ta* in adnominal clauses indicates a relation of anteriority between the embedded clause event and the matrix clause event as predicted by Relative Tense Hypothesis. I suggested also the restrictions on distribution of *-ru* and *-ta* in adnominal clauses is due to a difference in the potential for making upward entailing effect. After all, the phenomena discussed here is production from the interaction of syntactic, semantic and pragmatic factors.

References

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