

Temporal Order in Japanese *Toki-ni* Sentences: An Event-Structural Account

This is an exploratory study of a proper characterization of temporal inferences of *toki-ni* “when” (lit. “time-at”) in Japanese. To capture the distribution of temporal order relations in *toki-ni* sentences, I propose an analysis that relies on Moensian tripartite event structures.

We focus on *toki-ni* sentences in which the matrix clause bears *-ta*, assumed here to be a perfectivity marker. The embedded clause may bear either *-(r)u* or *-ta*; when it bears *-(r)u*, the event expressed by the clause is neutral as to perfectivity. ((1)-(4)) *Toki-ni* introduces temporal relations between two events that it connects. The embedded (e_E) and matrix (e_M) events are inter-related either sequentially or as overlapping, as (5)-(8) show. Researchers have argued that the embedded verb’s perfectivity and dynamicity (in the sense of Smith (1997)) determine the temporal location of e_E relative to e_M . (Inoue (1976), Tohsaku (1999) and Yoshimoto and Mori (2003))

- A. $[\text{matrix}[\text{embedded} \dots \text{V}_{[\text{stative}]}-(r)u \text{ toki-ni}] \dots -ta] : e_E \circ e_M$
(If the embedded verb bears *-(r)u* and is stative, then the embedded and matrix clause events overlap.)
- B. $[\text{matrix}[\text{embedded} \dots \text{V}_{[\text{dynamic}]}-(r)u \text{ toki-ni}] \dots -ta] : e_E > e_M$
(If the embedded verb bears *-(r)u* and is dynamic, then the embedded clause event temporally follows the matrix clause event.)
- C. $[\text{matrix}[\text{embedded} \dots \text{V}_{[\text{stative}|\text{dynamic}]}-ta \text{ toki-ni}] \dots -ta] : e_E < e_M$
(If the embedded verb bears *-ta*, then the embedded clause event temporally precedes the matrix clause event.)

Constructed examples (1)-(4) illustrate the points in A.-C..

These generalizations, however, both under- and over-generate. First, in (5)-(6), the theory undergenerates; the sentences can describe a situation in which e_E and e_M overlap, despite that the previous account predicts ordered events. (5), in particular, has the overlap reading as the only available interpretation. Secondly, A.-C. wrongly rule in sentences such as (7). The sentence is describing, at best, an awkward state of affairs in which I have to have built a house shortly after reaching the goal, while I am still at it. *Toki-ni* is not acceptable in such a context.

I propose that e_M in a *toki-ni* sentence must be interpreted within a possible part of the event nucleus of e_E , where a nucleus is defined as a sequence of a preparatory process, goal event and consequent state. (Moens (1987)) As (8) shows, different predicate types depict different parts of a nucleus. e_M must be temporally associated with one of them for semantic well-formedness. We assume, additionally, that *-ta* marking adds a goal point and consequent state. Crucial examples receive the following accounts. (9) evinces an overlap interpretation because the temporal trace of e_M in (9) is an interval corresponding to the process part. Within this interval is e_M to be interpreted, to obtain the intended reading. In (10), in virtue of *-ta* marking on e_E , e_M could be co-temporal with two parts, the process and consequent state. Finally, in (11) e_E has two possible parts, but neither of them has a long enough temporal trace within which e_M can be interpreted. (499)

- (1) Umi-ga mie-ru toki-ni na(k)-i-ta.
ocean-NOM can_see-(R)U time-atcry-TA
“I cried when I could see the ocean”
- (2) Gooru-ni tuk-u toki-ni na(k)-i-ta.
goal-DAT arrive-(R)U time-atcry-TA
“I cried when I was reaching the goal ”
- (3) Umi-ga mie-ta toki-ni na(k)-i-ta.
ocean-NOM can_see-TA time-atcry-TA
“I cried when I (finally) saw the ocean”
- (4) Gooru-ni tu(k)-i-ta toki-ni na(k)-i-ta
goal-DAT arrive-TA time-atcry-TA
“I cried when I reached the goal”
- (5) Hanputii danputii-wakono kudari-o **anshoo-su-ru** toki-ni, ...**kanakirigoe-ni nar-imasi-ta**
Humpty Dumpty-TOP this part-ACC **recite-do-(R)U** time-at...**scream_voice-DAT become-POL-TA**
“H.D. screamed when he recited this part (polite form)” ($e_E \circ e_M$)
- (6) Hana-wa jikan-o **tabisi-ta** toki-ni Wiina-ga **watasi_no_pocketto-ni ire-ta.**
Flower-TOP time-ACC **travel-TA** time-at Weena-NOM my_pocket-DAT **put_in-TA**
“The flowers, Weena put them in my pocket when I time-traveled” ($e_E \circ e_M, e_E < e_M$)
- (7) !Gooru-ni tui-ta toki-ni ie-o tukut-ta
goal-DAT arrive-TA time-at house-ACC build-TA
“!I built a house when I reached the goal”

(8) Predicate types and corresponding parts of nucleus

	(prep.) process	goal point	cons. state	common name
<i>mie-</i> “can see”		(lexical state)		State
<i>nak-</i> “cry” <i>anshoo-su-</i> “recite” <i>tabi-su-</i> “travel”	√			Activity
<i>tuk-</i> “arrive” <i>nar-</i> “become” <i>ire-</i> “put in”	optional	√	√	Achievement
<i>ie-o tukur-</i> “build a house”	√	√	√	Accomplishment

References

- Inoue, Kazuko. 1976. *Henkee Bunpoo to Nihongo-Ge-kan* (Transformational Grammar and Japanese Language, Volume II). Tokyo, Taishukan.
- Moens, Marc. 1987. Tense, Aspect and Temporal Reference. Ph.D. thesis, University of Edinburgh.
- Ogihara, Toshiyuki. 1989. *Temporal Reference in English and Japanese*. Ph.D Dissertation, The University of Texas at Austin, Austin, TX.
- Smith, Carlota S.. 1997. *The Parameter of Aspect* (Second Edition). Dordrecht, Kluwer.
- Tohsaku, Yasu-Hiko. 1999. *Yookoso! Continuing with Contemporary Japanese* (Second Edition). Boston, McGraw-Hill College.
- Yoshimoto, Kei and Mori, Yoshiki. 2003. “A Compositional Semantics for Complex Tenses in Japanese,” in *Proceedings of the 8th Int’l HPSG Conference*. Stanford, CSLI Publications.