Japanese Aspectual Conjunctions

Stephen Nightingale, University of Edinburgh,
Department of Linguistics.
June 2, 1998

1 Introduction

Among the mechanisms in Japanese which express the Aspect of a sentence, verbs can combine together using the conjunctive TE. A restricted range of verbals can occur as second conjunct, including verbs of being (iru, aru), of giving and receiving (ageru, morau), and of coming and going (kuru, iku). For example, the progressive form is expressed with the conjunction te iru:

(1) Sugiyama-san ga odotte imasu.
Mr Sugiyama-NOM dance-TE be-POLITE
"Mr Sugiyama is dancing".

In some cases the addition of the second conjunct results in a change to the way in which the argument structure of the first conjunct is projected, and in some cases it does not. Hasegawa (1992)[Has95] distinguishes these as Valence Changing (V-C) and Valence Maintaining (V-M) conjunctions. Te iru exemplified in (1) is a V-M form, though te aru is notable as a V-C form. In example (2), though nokosu on its own is an Accomplishment which projects a transitive frame, when it is expressed in conjunction with te aru it takes a single nominal argument.

(2) nimotsu ga nokoshite aru.
luggage-NOM leave-TE be
"The luggage has been left".

When these conjunctions are classified according to the aspectual class of the first conjunct, a set of regular patterns emerges. For instance, te iru can be preceded by an Activity, an Achievement or an Accomplishment, but te aru, according to some native speakers, can be preceded only by an Accomplishment verb. This paper analyses these conjunctive forms and proposes an explanation based on Pustejovsky's (1995)[Pus95] theory of event structure.

The Vendler-Dowty[Dow79] aspectual classification is introduced in Section 2 with example verbs in each aspectual class, and since language specific diagnostics are needed to classify verbs, the diagnostics developed by

Verb Form	**Stative I**	**Achievements**	**Activities**	**Stative IV**
te iru	not possible	perfective	progressive	mandatory
	iru (be)	sinu (die)	oyogu (swim)	sobieru (tower over)
Main Verb	aru (be)	iku (go)	hashiru (run)	niru (resemble)
	iru (need)	aku (open)	aruku (walk)	-

Table 1: Kindaichi's Aspect Table for *te iru*

Moriyama (1988)[Mor88] for Japanese aspect classes are used. Verbs appear in different argument structure frames (van Hout 1995)[vH96] and the applicable frames for each aspect class are also identified in this section.

In Section 3 I introduce the verbal conjunctions which are the subject of this paper. Although there are 12 verbs and 1 adjective which can appear as second conjunct, this paper focuses on just 2 of them: *iru* and *aru*, and their aspectual and valence combinations. This includes a discussion of the valence changing (V-C) and Valence-Maintaining (V-M) forms identified by Hasegawa (1992)[Has95], setting the scene for their explanation in Section 4. In that section, Pustejovsky's[Pus95] subeventual structure is briefly explained and compared with McClure's (1994)[McC94] aspectual semantics of *te iru* forms, and I advance a possible explanation for V-M and V-C alternants.

2 Aspectual Classification

In Japanese, as with all other languages, verbs can be classified by aspect, using the States, Activities, Achievements and Accomplishments due to Vendler (1957)[Ven57]. Prior to Vendler's analysis, Kindaichi (1950)[Kin76] classified Japanese verbs according to their use in conjunction with the *te iru* construction. He argued that there were four classes: Statives such as *iru* (be), *iru* (need), which do not take *te iru*; Activities such as *oyogu* (swim), *hashiru* (run) with which *te iru* is interpreted as progressive; Achievements such as *shinu* (die) and *iku* (go) in which *te iru* reads as the perfect; and Class IV Statives such as *sobieru* (tower over) and *niru* (resemble), which must take *te iru* and are interpreted as Statives in this form. This system is summarized in Table 1.

Jacobsen (1992)[Jac91] was the first to point out the commonality between these two classifications, though McClure (1994)[McC94] goes further and reclassifies Kindaichi using a set of diagnostics developed by Moriyama (1988)[Mor88]. The patterns for an Achievement and an Activity are given below and it is noted that while either one can compound with *hajimeru* (*shini-hajimeru* (begin to die); *oyogi-hajimeru* (begin to swim)), only Activities can compound with both *tuzukeru* and *owaru*: *oyogi-tuzukeru* (continue swimming), *oyogi-owaru* (finish swimming). These two types also pattern complementarily with *take 3 hours to X* and *X for 3 hours*.

Achievement	Activity
shinu **(die)**	*oyogu* **(swim)**
(a) *shini-hajimeru* (begin to die)	(a) *oyogi-hajimeru* (begin to swim)
(b) **shini-tuzukeru* (continue to die)	(b) *oyogi-tuzukeru* (continue to swim)
(c) **shini-owaru* (finish dying)	(c) *oyogi-owaru* (finish swimming)
(d) *sanjikan kakatte shinu*	(d) **sanjikan kakatte oyogu*
(take 3 hours to die)	(take 3 hours to swim)
(e) **sanjikan shinu* (die for 3 hours)	(e) *sanjikan oyogu* (swim for 3 hours)
(f) *te iru* is perfect.	(f) *te iru* is progressive.

Using these tests McClure reanalyses the Stative 4 class of verbs, *sobieru* (tower over), *niru* (resemble) as Achievements. Kindaichi, in his classification, does not make a distinction between Accomplishments and Achievements, and this is hardly surprising, since *te iru* as a diagnostic does not take account of the +/- agency which is the crucial distinguishing feature between these classes. McClure notes the similarity between Achievements and Accomplishments on the one hand[1], and between Activities and Accomplishments on the other[2], arguing that "accomplishments are really just telic achievement like predicates derived from activities", and one consequence of these relationships is that (some) Accomplishment verbs are ambiguous between progressive and perfect readings, as with example (3) which can be read as the Activity of "baking a cake", or the Accomplishment of "having baked a cake".

(3) Mai-san wa keeki o tukutte iru.
Mai-Topic a cake bake-TE PROG/PERF
"Mai is baking a cake" (progressive).
"Mai has baked a cake" (perfect).

This ambiguity between progressive and perfect readings of *tukutte iru* actually raises a further issue which is germane to the subsequent discussion of TE conjuncts, and this relates to the verb frames in which a verb may appear. As with other languages, Japanese verbs can be described as *intransitive*, *transitive* and *ditransitive*, but when we go behind these traditional labels we see that a verb may appear with one (Nominative) argument; two arguments (a Nominative and a Locative OR a Nominative and an Object); or three

[1]This commonality is in their *telicity*.
[2]This commonality is in their *agentivity*.

arguments (a Nominative, a Locative and an Object). There is a regular distribution of the verb frames over the aspect classes, and this is demonstrated in Table 2. For example an Achievement may take one Nominative argument, as with *kieru* (extinguish), or two arguments, a Nominative and a Locative, as with *kakureru* (hide, be concealed). An Accomplishment may appear with Nominative and Locative *noboru* (climb (to the top)), Nominative and Object *tukuru* (bake), or Nominative, Object and Locative arguments *oku* (put).

States			
iru(Nom)	need	*okane ga iru*	money is needed (by me).
aru(Nom,Loc)	be	*okane ga koko ni aru*	There is money here.
Achievements			
kieru(Nom)	extinguish	*hi ga kieta*	The fire is out.
kakureru(Nom,Loc)	hide	*tsuki ga kumo ni kakurete iru*	The moon is hidden by clouds.
Activities			
odoru(Nom)	dance	*Mai-san ga odotte iru*	Mai is dancing.
motsu(Nom,Obj)	hold	*hon o motte iru*	I am holding a book.
Accomplishments			
noboru(Nom,Loc)	climb	*Fujisan ni nobotta*	I climbed Mt Fuji.
tukuru(Nom,Obj)	make	*keeki o tukutta*	I baked a cake.
oku(Nom,Obj,Loc)	put	*teeburu no ue ni kabin o oku*	I'll put the vase on the table.

Table 2: Verb Frames

Aspectual composition of Japanese sentences is influenced by adverbials and postpositional phrases, but also by the verbal conjunctions which are linked with the connective TE, and which are the principal focus of this paper. These *V-te V* conjunctions are explored in the next section.

3 The Aspect of Verbal Conjunctions

One way that Japanese has of extending the aspectual system is by verbal conjunction using the *V-te V* construction. We have already seen an instance of this construction with *te iru*, used as an aspectual diagnostic, in the previous section. There are 12 verbs and 1 adjective which can serve as second conjunct, if honorific and humble forms can be counted together with the main form as one verb: in addition to the *te iru* and *te aru* forms which are the subject of this paper, these include benefactive *te morau* (receive) and donatory *te ageru/kureru* (give), physical and metaphorical extensions to coming and going *te iku* (go) and *te kuru* (come), indications of regret *te shimau* or preparation *te oku* (put), appearing, showing or trying to do something: *te mieru, te miseru, te miru*, and as a variation on the desiderative form, wanting somebody to do something *te hoshii.* The complete set of these *V-te V* forms is the subject of forthcoming work, but for now I shall examine *te iru* and *te aru* forms only.

In their main form use *iru* is usually used with animate subjects, and *aru* with inanimate subjects. In examples (4) and (5), *kuruma* (car) is an appropriate subject for *aru*, not *iru*, while *kodomo* is an appropriate subject for *iru* not *aru.*

(4) asoko ni kuruma ga aru/*iru.
over there-LOC car-NOM is (inanimate)
"There is a car over there".

(5) asoko ni kodomo ga *aru/iru.
over there-LOC child-NOM is (animate)
"There is a child over there". (Hasegawa)

The animacy restriction on the subject of main form *iru* does not apply to the *te iru* conjunction however, so example (6), with an inanimate subject is a normal, acceptable form.

(6) denwa ga natte imasu.
telephone-NOM ring-TE be-POL
"The telephone is ringing". (Hiroo)

Verbs combining with *te aru* show a different pattern of realised forms. Hasegawa (1992)[Has95] notes that *te aru* participates in both Valence maintaining and Valence Changing forms, though in the V-M uses there seems to be variation in natives acceptability judgements. Achievement with *te aru* is strongly rejected (example (7)); Activity with *te aru* is accepted with reservations (example (8)) as a sort of "past perfect" form; and the Valence-Maintaining Accomplishment with *te aru* form is hedged with reservations about the use of an animate subject (examples (9) and (10)).

(7) *koori ga tokete aru.
ice-NOM melt-TE be

(8) ?watashi wa takusan nete aru wa yo.
I-TOP a lot sleep-TE be TOP EMPH
"I've slept a lot". (Hasegawa)

(9) ??Hurukawa wa nimotsu o nokoshite aru.
Hurukawa-TOP luggage-OBJ leave-TE be
"Hurukawa has left his luggage". (Jacobsen)

(10) nimotsu o nokoshite aru.
luggage-OBJleave-TE be
"(someone) left the luggage".

The form of *te aru* which is unreservedly approved is the Valence-Changing form, which occurs exclusively with Accomplishments[3]. The pattern of use is shown in examples (11) and (12). Example (11) shows the main form use of the first conjunct *kiru* (cut, chop), which projects two arguments an "agent" *Mai-san* and a "theme" *yasai* (vegetables). The *te aru* form in example (12) projects a single, nominative argument, which is filled by the object (yasai) of the first conjunct *kiru*. This is the form which Matsumoto (1990)[Mat90] labels as the *Intransitivizing Resultative* form, and it shows no obvious combination or selection of the verb frames of first or second conjuncts, and so this is a particular puzzle to be explained.

(11) Mai-san wa yasai o kitta.
Mai-TOP vegetables-OBJ chop-PAST
"Mai chopped the vegetables".

(12) yasai ga kitte aru.
vegetables-NOM chop-TE be
"There are chopped vegetables". (Hasegawa)

A mechanism for explaining aspectual composition, which is increasingly influential, has been developed by Pustejovsky (1995)[Pus95], and this involves decomposing events into their subeventual structure. This method is introduced in the next section, and used to explain the argument structures projected by *V-te V* conjunctions.

4 Valence Relations and Event Structure

The idea that events can be classified into three sorts of *states, processes* and *transitions* has been used by various researchers, including Dahl (1973) and Comrie (1976)[Com76], but more recently developed by Pustejovsky to identify subeventual structures. Thus, a *state* comprises a single, stative subevent (e_1), whereas a *process* comprises an infinite sequence of subevents ($e_1 - e_n$), which in a sense represents the digitization of continuous activity. These basic types are depicted in Figure 1.

These states and processes are direct representations of the Vendler-Dowty States and Activities, respectively. A *transition* is an underspecified event which decomposes into two subevents, and which Pustejovsky represents as a State (e_1) and its negation ($\neg e_1$). An Achievement is a type of transition whose focus is on the resultant state, and Dowty's notation of

[3]V-C occurs only with Accomplishments which in their main form use have an *o* marked object.

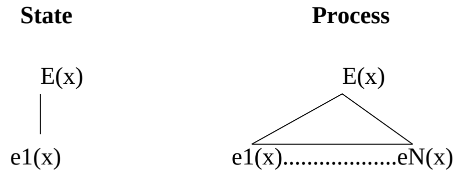

Figure 1: State and Process Subeventual Structures

BECOME State(X) is useful to represent this. Both the underspecified transition, and its Achievement realization, are shown in Figure 2.

Figure 2: Transition Subeventual Structures

Accomplishments also pattern as transitions, and Dowty represents their logical structure as:

[Do something CAUSE BECOME State]

This is rendered by the complex subeventual structure given in Figure 3.

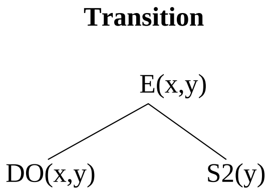

Figure 3: Accomplishment Subeventual Structure

McClure's characterization of Accomplishments as telic, activity like predicates is illustrated by *hon o kaku* (write a book/write books), in which the Activity of writing leads to the telic state of completing a book, where in Figure 3 the writing subevent is denoted by the DO component and the written book state is denoted by the resultant state component. This mechanism then provides an explanation of the structure of simplex predicates. When complex predicates such as *te iru* and *te aru* are formed, the event structures of the two conjuncts combine in some way to yield the outcomes listed in Table 3: the conjunction of each aspectual class with the second conjuncts *iru* and *aru* is summarized in the associated cell of the table. Thus for example, the conjunction of an Activity with *te iru* is a Valence-Maintaining

Aspect	*te iru*	*te aru*
State	NO	NO
Activity	V-M; Activity; Progressive	NO*
Achievement	V-M; State; Perfective	NO*
Accomplishment	V-M; State; Perfective	V-C; State; Resultative

Table 3: Conjunctions with *te iru* and *te aru*

form which reads as the progressive form of the Activity; the conjunction of an Accomplishment with *aru* yields a Valence-Changing form which reads as a resultant state.

If we look at the decomposition of subeventual structures for each conjunct of a *te iru* construction and for the combination, we find the following patterns, which are more clearly illustrated in Figure 4.

(a) State with *te iru*
*ite iru.
be-TE be

- No combination.

(b) Activity with *te iru*
kodomo ga asonde iru.
children-NOM play-TE be

- A process plus a stative yields a process.

(c) Achievement with *te iru*
Maru-san ga shiken ni ukatte iru.
Maru-san-NOM exam-LOC pass-TE be

- A transition and a state, plus a stative yields the resultant state.

(d) Accomplishment with *te iru*
Maru-san ga tegami o kaite iru.
Maru-san-NOM letter-OBJ write-TE be

- An activity and a state, plus a stative yields the resultant state.

With these *te iru* forms the subject of the sentence predicates both first and second conjuncts, so in the case of an Activity which takes a single Nominative argument, in combination with *iru*, example (13) shows the Activity predicate with its Agent argument and example (14) shows *iru* with its Nominative subject, and also its Locative argument. The two verbs combine together in example (15), the Agent of *asobu* is shared as Nominative subject, with *iru*, and the Locative argument of the second conjunct *iru* is not expressed.

(13) kodomo ga asobu.
children-NOM play
"Children play".

(14) kodomo ga (koko ni) iru.
children-NOM here be
"There are children here".

(15) kodomo ga asonde iru.
children-NOM play-TE be
"The children are playing".

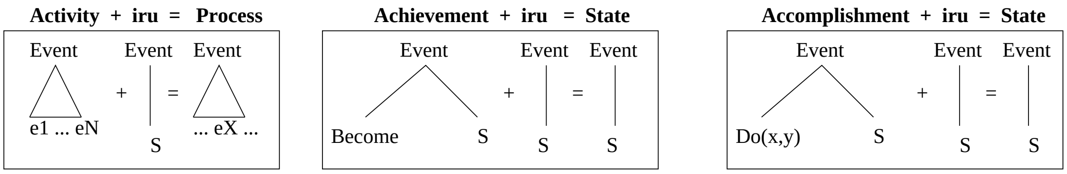

Figure 4: Subeventual Combinations

Figure 4 illustrates for Activities, Achievements and Accomplishments: that the continuation of an Agent's engaging in an Activity is the progressive form of the Activity; the continuation of an Agent's engaging in an Achievement is the resultant state specified in its subeventual structure, interpreted as the perfect state; and similarly for Accomplishments, the continuation of an Agent's engaging in an Accomplishment is also the resultant state specified in the subeventual structure.

The explanation for the combinations of *te aru* is along similar lines, and I believe it clears up the mystery of the Intransitivizing Resultative form:

The arguments of an Accomplishment are either (a) an Agent and a Locative, with no affected object and no intransitivizing form; or (b) an Agent and an affected object; or (c) an Agent, affected object and a Locative. The outcome of an Accomplishment has its effect on both the Agent and the direct object. The resultative state predicated of the Agent is the *te iru* form. There is also a resultative state predicated of the affected object, and since the object is necessarily inanimate, *aru* is selected as the second conjunct. Since the consequent *te aru* conjunct is a stative predicate having a single argument, that argument takes an obligatory Nominative (*ga*) case marker, yielding the form shown in example (16), repeated from example (12)[4].

[4]Compare this with other *be* languages which have strong case marking. This might be a cross-linguistic phenomenon.

(16) yasai ga kitte aru.
vegetables-NOM chop-TE be
"There are chopped vegetables". (Hasegawa)

The V-C form of *te aru* does not apply to Achievements or Activities since an affected object does not feature in their aspectual composition:

The arguments of an Achievement are a Nominative subject and perhaps a Locative; the Locative is unaffected by the outcome, so conjunction with *te iru* selects the perfect state as predicate of the Nominative subject.

The arguments of an Activity are an Agent, and perhaps an Accusative object; the object is "unaffected" by the Activity, and the subeventual structure is a continuous event which when combined with *te iru* yields the progressive form, and not a State.

5 Summary and Future Research

At the outset I proposed to explain the Valence Maintaining and Valence Changing forms of Japanese aspectual conjunctions, and an explanation has been given using Pustejovsky's subeventual structures. This mechanism, together with an aspectual analysis of the conjuncts, seems to provide a quite straightforward explanation for the Valence Maintaining *te iru* forms, and the explanation for the problematic Intransitivizing Resultative *te aru* form follows from principles of verb frame formation when constrained by the aspectual class of the predicate. It remains to extend the analysis to account for the other *V-te V* constructions, to determine how they are related to *te iru* and *te aru*, and to discover how many different mechanisms there are to explain these twelve verbal conjunctions.

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