

Representing Events in Japanese Complex Predicates¹

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Abstract. This paper presents an event semantics-based investigation of Japanese complex predicates of the form V1+V2, to clarify their syntactic and semantic constitution. The Japanese V1+V2 formation primarily exploits the aspectual modification of a core event; of particular interest here are complex predicates composed of intentional active verbs with *te*-form + the existential verb *a-ru*; this complex pattern is known to be ambiguous between what is usually termed a ‘resultative’ and a ‘preparative’ reading. One major problem of the “*V-te-a-ru*” construction is retrieving the semantic relation linking their components, which is (partially) implicit on the surface. To date, no uniform analysis has been developed to formally account for these facts. The main goal of this study was to develop a uniform analysis of their meaning representations, using Davidson’s (1967) event semantics as a reference model. Basic data revealed some interesting findings, indicating some asymmetry in event structure. This could help identify the semantic relations of components and clarify the semantic representation of a given syntactic paradigm.

Keywords: event structure, complex predicate, Japanese, experiencer-agent alternation.

1. Introduction

When children acquire the meaning of a verb, they understand the possible state or event it describes. However, many verbs also come with arguments. Do we know what arguments a verb accepts when we understand the verb’s meaning? It is still not clear how arguments are matched with the right kind of verbs; neither are the possible repercussions from theories about argument structured. Clarification of these issues will require thinking about the meanings of verbs in non-traditional ways. For example, verb denotations might not carry all the information about a verb’s argument structure.

This study investigated Japanese complex predicates of the kind “*V-te-a-ru*”, composed of an intentional active verb² in *te*-form³ and an existential verb *aru*, which is taken to be either a

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² The term “intentional active verbs” refers to verbs that have a control relation with their argument. These may primarily involve transitive verbs, but (unergative) intransitive verbs too. A sentence that includes the intentional verb *read* in (i) can be paraphrased by (ii).

(i) John read a book.

(ii) What John did is to read a book.

In contrast, “non-intentional active verbs” can not co-occur with “*V-te-a-ru*” as in (iii):

resultative or preparative predicate (this distinction has been discussed previously by Japanese linguists with regard to agentive argument realization: see, e.g., Masuoka, 1987 and Kinsui, 2009, among others, but these scholars have not provided an appropriate description of the event or argument structures of “*V-te-a-ru*” constructions). Intuitively, intentional verbs appear to specify as part of their meaning an action carried out by an implicit agent, while the existential verb *a-ru* specifies the ‘coming about’ of a result state. They instantiate well-formed complex patterns, which are not totally predictable with regard to regular syntactic constructions, or are ambiguous between what is usually termed a ‘resultative’ and a ‘preparative’ reading. One major difficulty in dealing with “*V-te-a-ru*” constructions is retrieving the semantic relation linking their components. For example, an agent is logically implicated but not explicitly realized in such instances. Further, an argument, which can be realized as an agent in causing a sub-event, can be construed as an experiencer of a “resultative” or a “preparative” state.

The claim is, thus, that some sort of semantic information about the relationship between the elements is required to provide an adequate characterization of the meaning production process. Here, Davidson (1967)’s event semantics was applied and extended event semantics (Parsons, 1990; Larson and Segal, 1995) as reference models, among others. The main objective was to develop a formal analysis to identify semantic relationships between the elements and to clarify the uniform representations of given syntactic paradigms. The following section provides a brief description of the data.

2. Ambiguity in “*V-te-a-ru*” Constructions

In general, complex predicates are expressions with strong lexical-like behavior, the interpretation of which can be (at least partially) compositional in the sense that it relies heavily on the particular semantic relation between the component elements. For instance, “*tabe-te-miru*” *eat and see* means “try to eat” in a compositional way as shown in (1).

- (1) *Kare-wa sono okasi-wo tabe-te-mi-ta.*
He-TOP that sweets-ACC eat and see-PAST
 (He tried to eat the sweets.)

However, complex predicates with “*V-te-a-ru*” constructions have covert semantic relationships between elements, making it difficult to retrieve the semantic relation linking their components. Among Japanese linguists, these constructions are well known to be ambiguous between a “resultative” reading, shown in (2), and a “preparative” reading, shown in (3) and (4).

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- (iii)**Kare-no-kotoba-wo sinzi-te-a-ru.*
His-GEN-words-ACC believe-and-exist
 ((I) have believed his words.)

³ The *-te* form of a Japanese verb that does not have a tense or mood combines with other verb forms. When the *-te* form is used to link two verbs where it may function as a gerund, the verb at the end of the complex predicate shows the overall tense of the complex predicate.

- (2) Mado-ga ake-te-a-ru.
Window-NOM open-and-exist-PRESENT
 a. The window is open.
 b. (Someone) opened the window (for some purpose).
- (3) Zyuken-benkyoo-wa zyuubun-ni si-te-a-ru.
Examination-study-TOP fully do-and-exist-PRESENT
 a. (I) prepared fully for an examination.
 b. (I) studied hard for an examination.
- (4) (Boku-wa) zyuubun-ni ne-te-a-ru.
(I-TOP) sufficiently sleep-and-exist-PRESENT
 a. (I) have slept sufficiently (for some purpose).
 b. (I) slept sufficiently (for some purpose).

Example (2) illustrates the existence of the actual state of the subject (window), even though it logically implies some agent, as shown in (2b). In example (3), the “si-te” *do* type intentional active verb applies both to “zyuken-benkyoo” *examination-study* qua direct object and “I” (=speaker) qua implicit subject-agent, although the “a-ru” type state verb is the head of “si-te-a-ru”. Thus, in these cases, no agent is explicit on the surface. However, in example (4), “ne-te,” *sleep*, applies to “boku,” *I* (= speaker), qua topic-agent and qua experiencer, and these are stipulated overtly.

Logically, at least two different kinds of diagnoses could be used to explain the ambiguity found in “*V-te-a-ru*” constructions. First, intentional active verbs could be the source of semantic complexity; in other words, it is the classes of verbs that ultimately yield the ambiguous result. In example (2), “ake-te,” *open*, is a change-of-state verb and denotes a causative event that brings about a change in the entity acted upon (i.e., window). In contrast, in examples (3) and (4), (*benkyoo*) “si-te,” *do study/study*, and “ne-te,” *sleep*, are non-causative verbs and denote an activity to be aspectually atelic. This difference is reflected in their readings (i.e., the existence of a resultative state or the duration of a preparative effect). This kind of analysis might rest on the assumption that these sentences contain some hidden agents that are revealed in combination with the intentional active verbs. This kind of analysis occurs throughout Japanese linguistic literature, and can be termed “argument-descriptive-analysis” (A-analysis). Alternatively, “*V-te-a-ru*” constructions could be considered descriptions of events, and the source of ambiguity could be ascribed to the event-structures that yield the different semantic relation linking their components; this can be termed “event-descriptive-analysis” (E-analysis).

3. Argument-Descriptive-Analysis (A-analysis) vs. Event-Descriptive-Analysis (E-Analysis)

3.1 Types of “*V-te-a-ru*” Constructions

Although the intentional active verbs in the first position differ in terms of being causative and non-causative, the complex predicate “*V-te-a-ru*” as a whole usually has a state-verb character. This is demonstrated by its weak possibility for passivization, which is observed by Kageyama

(1993), and for transformation into a pseudo-cleft sentence and imperative sentence, as shown below:

(5) Passivization

- a.* Mado-ga ake-te-ar-are-ru
Window-NOM open-and-exist-Passive-PRESENT
 (The window is opened.)
- b.* Zyuk-en-benkyoo-ga zyuubun-ni si-te-ar-are-ru.
Examination-study-NOM fully do-and-exist-Passive-PRESENT
 (An examination is fully prepared.)
- c.* Boku-ga zyuubun-ni ne-te-ar-are-ru.
I-NOM sufficiently sleep-and-exist-Passive-PRESENT
 (I have slept sufficiently.)

(6) Pseudo-cleft

- a.* Dareka-ga si-ta koto-wa mado-ga
Someone-NOM do-PAST event-TOP window-NOM
 ake-te-a-ru-koto-da.
open-and-exist-event-Copula-PRESENT
 (What someone did is to open the window).
- b.* Dareka-ga si-ta koto-wa zyuk-en-benkyoo-ga
Someone-NOM do-PAST event-TOP examination-study-NOM
 zyuubun-ni si-te-a-ru-koto-da.
sufficiently do-and-exist-event-Copula-PRESENT
 (What someone did is to study for an examination.)
- c.* Dareka-ga si-ta koto-wa
Someone-NOM do-PAST event-TOP
 zyuubun-ni ne-te-a-ru-koto-da.
sufficiently sleep-and-exist-event-Copula-PRESENT
 (What someone did is to have slept sufficiently.)

(7) Imperative

- a.* Mado-ga ake-te-are.
Window-NOM open-and-exist-Imperative-PRESENT
 (Open the window (for some purpose).)
- b.* Zyuk-en-benkyoo-ga zyuubun-ni si-te-are.
Examination-study-NOM fully do-and-exist-Imperative-PRESENT
 (Prepare an examination fully).
- c.* Zyuubun-ni ne-te-are.
Sufficiently sleep-and-exist-event-Imperative -PRESENT
 (Sleep sufficiently (for some purpose).)

Even if the “*V-te-a-ru*” construction indicates some implicit agents, the agent cannot be overtly expressed as a subject, which takes the nominative case-marker “*ga*”, i.e., the agent is excluded from subject positions as shown in examples (8a–c)^{4/5}.

- (8) a. *Taroo-*ga* mado-*ga* ake-*te-a-ru*
Taroo-NOM window-NOM open-and-exist- PRESENT
 (Taro opened the window).
 b. *Boku-*ga* zyuken-benkyoo-*ga* zyuubun-*ni* si-*te-a-ru*.
I-NOM examination-study-NOM fully do-and-exist-PRESENT
 (I prepared fully for an examination).
 c. *Boku-*ga* zyuubun-*ni* ne-*te-a-ru*.
I-NOM sufficiently sleep-and-exist-PRESENT
 (I slept sufficiently.)

However, the type of “*V-te-a-ru*” construction shown in examples (3) and (4) might overtly express the topic or dative adjunct qua experiencer, as shown in examples (9b,c), while the type of “*V-te-a-ru*” construction shown in example (2) cannot do the same, as shown in example (9a).

- (9) a. * {Taroo-*wa*/Taroo-*tati-de*} mado-*ga* ake-*te-a-ru*
Taroo-TOP/Taroo-PL-DAT window-NOM open-and-exist- PRESENT
 (As for Taro, the window is opened.)
 b. {Boku -*wa*/Boku-*tati-de*} zyuken-benkyoo-*ga* zyuubun-*ni* si-*te-a-ru*.
I-TOP/We-DAT examination-study-NOM fully do-and-exist-PRESENT
 (I/We prepared fully for an examination.)
 c. {Boku -*wa*/Boku-*tati-de*} zyuubun-*ni* ne-*te-a-ru*.
I-TOP/We-DAT sufficiently sleep-and-exist-PRESENT
 (I /We have slept sufficiently.)

Furthermore, it should be noted that examples of type (9b), “*zyukenbenkyoo*” *examination-study*, which are realized as theme, can take the accusative case marker *wo*, can serve as half of the nominative case marker *ga*, and can be realized as a direct object of “*si-te*” *do* or “*atume-te*” *collect* without changing the original meanings of the sentence, as shown in (10a,b).

- (10) a. Boku -*wa* zyuken-benkyoo-*ga/wo* zyuubun-*ni* si-*te-a-ru*.
I-TOP examination-study-NOM/ACC fully do-and-exist-PRESENT
 (I studied for an examination fully.)

⁴ On syntactic grounds, Japanese permits particles *ga* and *wa* to occur more than two times in the same sentence.

⁵ In Japanese, the subject of the state predicate cannot take the nominative case *ga* and must take the topic marker *wa*. This is the reason for the grammatical incorrectness of (8b,c). However, when *boku-ga* “I-NOM” of (8b,c) has the exhaustive-listing reading, the sentences become acceptable.

- b. Boku-wa zyoohoo-ga/wo takusan atume-te-a-ru.
I-TOP information-NOM/ACC many collect-and-exist-PRESENT
 (I collected a great deal of information for some purpose.)

One significant peculiarity of examples (9b,c) and (10a,b), which can take topic or dative adjunct qua experiencer in the experiential sub-event, is that the experiencer plays a role of agent in the causative sub-event, i.e., studying/sleeping. Examples (9b, c) do not overtly express the experiential verb, but it is possible to reconstruct the causing sub-event into an experiential sub-event.

Therefore, we will characterize two types of “*V-te-a-ru*” constructions in terms of the (non)existence of an agentive experiencer argument:

- (i) “*V-te-a-ru*” constructions, whose sole argument, which is realized as a subject on the surface, cannot play the role of agent, but can play the role of theme in the causing sub-event, and
- (ii) “*V-te-a-ru*” constructions, whose (external) argument, which is realized as a topic or a dative adjunct⁶ on the surface, plays the role of agent in the causing and experiential sub-events.

The former has a “resultative” reading, and the later has a “preparative” reading.

3.2 Agency of Experiencer

It should be noted that in example (9b, c), the experiencer, which is realized as a topic or dative adjunct, plays the role of agent in the causing sub-event. In other words, “*V-te-a-ru*” constructions with a ‘preparative’ reading allow EXP-agent alternation: At the semantic level, e.g., in example (9c), experiencer [x], which can be realized as the topic, is an agent [y] in the causing sub-event [e₁], and the agentive process of sleeping causes the experiencer to have a physical state [e₂]. Example (9c) has two sub-events of whole event [e₃], as shown below; note that variables *x* and *y* refer to the same individual.

- (9) c. Boku-wa zyuubun-ni ne-te-a-ru.
 (I have slept sufficiently.)
- $$\begin{array}{c}
 e_3 \\
 / \quad \backslash \\
 e_1 \quad e_2
 \end{array}$$
- [have a sleep (y)] [exist (sufficient sleeping, x)]: x=y

In contrast, constructions with a “resultative” reading cannot take either a topic or dative adjunct, as shown by comparing example (9a). If no topic or dative adjunct is present, then they cannot

⁶ We will illustrate the distributional pattern of the agent–experiencer argument in the following section.

realize EXP-agent alternation and denote the simple existence of subject, i.e., window. The following data support the claim.

The “resultative” reading sentence in (11a) does not co-occur with adverbial expressions that express an agent’s intention. In contrast, the “preparative” reading sentences in (11b, c) can do so by being connected to an event in which the experiencers, which are realized as a dative adjunct or a topic, are taken to be agents of the causing sub-event.

- (11) a. * Isshoo-kenmei, mado-ga gakusei-niyotte ake-te-a-ru.
Hard window-NOM student-by open-and-exist-PRESENT
 (The window is opened hard by students.)
- b. Isshoo-kenmei, gakusei-tati-de matsuri-no-zyunbi-ga/wo si-te-a-ru.
Hard student-PL-TOP/DAT festival-preparation-NOM/ACC do-and-exist-PRESENT
 (Students prepared hard for the festival.)
- c. Yoozin si-te, boku –wa zyuubun-ni ne-te-a-ru.
With caution, I-TOP sufficiently sleep-and-exist-PRESENT
 (Exercising caution, I slept sufficiently (for some purpose)).

Furthermore, (12a) cannot co-occur with an instrumental adjunct, whereas (12 b, c) can co-occur in this way.

- (12) a. * Mado-ga kagi-de ake-te-a-ru.
Window-NOM key-by open-and-exist-PRESENT
 (The window is open by key.)
- b. Zyukun-benkyoo-ga tuusin-kyooiku-de
Examination-study-NOM correspondence course-DAT
 zyuubun-ni si-te-a-ru.
sufficiently do-and-exist-PRESENT
 ((I) studied sufficiently for an examination in a correspondence course.)
- c. Boku –wa sono kusuri-de zyuubun-ni ne-te-a-ru.
I-TOP that medicine-DAT sufficiently sleep-and-exist-PRESENT
 (I slept sufficiently with that medicine (for some purpose).)

As shown in (13), the instrumental adjunct, which takes the dative case marker *de*, “with,” cannot co-occur with an unaccusative verb such as *taore-ta*, “fell down,” which does not imply an agent.

- (13) *Ki-ga nokogiri-de taore-ta.
Tree-NOM saw-DAT fall down-PAST
 (The tree fell down with a saw.)

At this point, we can see how “preparative” reading with the “V-te-a-ru” constructions in (12b, c) allows a similar pattern. Instrumental adjuncts reveal how an implicit/explicit experiencer can be reconstructed into the agent causing the sub-event in (12b, c.) However, unlike (12b, c), (12a)

does not contain an instrumental adjunct. This contrast reveals that only “preparative” “*V-te-a-ru*” constructions can take intentional agents that can be realized overtly (see Table 1).

Table 1. “Resultative” versus “preparative”

	“Resultative”	“Preparative”
Agent-subject	*	*
Experiencer-topic/adjunct	*	√
EXP-agent alternation	*	√

In other words, we can characterize two types of “*V-te-a-ru*” constructions in terms of (non)-EXP-agent alternation:

- (i) Non-agentive–theme predicate patterns, and
- (ii) Agentive–experiencer predicate patterns.

3.3 A-Analysis versus E-Analysis

Therefore, the A-analysis, which presupposes the (implicit) agent and ascribes to intentional active verbs the source of semantic complexity, cannot correctly track the dynamic semantic relation linking their components, which is partially implicit on the surface. This line of reasoning is based on the E-analysis, not the A-analysis. The next section explores how “*V-te-a-ru*” meanings can be represented.

4. Event Semantics

Davidson (1967) pointed out the theoretical importance of events and states to the semantics of verbs. Parsons (1990) later presented an event semantics in which English sentences were analyzed as containing existential quantification over eventualities; agent and theme arguments were also introduced by independent predicates. In this model, verbs describe events or states and arguments are associated with their verbs via secondary predicates that denote general thematic relationships, like “agent-of” “theme-of”, *etc.* Thus, action verbs, such as *sing* and *dance*, are relational, containing an extra argument place for an event *e*, as shown in examples (14a ,b) and example (15) can be rendered as shown in example (15’).

- (14) a. dancing (e, x)
 b. singing (e, x)

(15) Mary bought those books in Kyoto

(15’) $\exists e$ [buy (e) & agent (Mary, e) & theme (those books, e) & in Kyoto (e) & Past (e)]

(15’) makes a statement about the existence of a past event: a buy, whose agent is Mary, whose

theme are those books, which takes place in Kyoto. This is called the “neo-Davidsonian method.” Parsons (1990) also tried to capture the dichotomy between events and states using two predicates: “Cul” and “Hold.” With regard to $\exists e$, the standard view is that every sentence has an event quantifier, either overt or tacit.

5. Event Structures of “*V-te-a-ru*” Constructions

This section investigates how the two types of “*V-te-a-ru*” constructions, shown in examples (2) and (3)/(4), can be represented using a neo-Davidsonian framework.

5.1 “Resultative” Reading Types

Example (2) makes a statement about the existence of a subject: an open window; as a whole, the example denotes non-delimited eventuality. Remember that even if example (2) indicates some implicit agents, the agents cannot be overtly expressed: they are excluded from subject positions, as shown in (9a). For “ake-te-a-ru” *open and exist*, we can extend the logical representation of secondary predicate construction (Larson and Segal, 1995) to represent the semantic relation between “ake-te” *open* and “a-ru” *exist*: they are united by being co-predicated on a common entity “mado,” *window*. Here, we note that the causing sub-event temporally precedes the result sub-event. Therefore, it is natural that the event structure of “*V-te-a-ru*” constructions requires the temporal restriction between the two sub-events. Thus, example (2) can be expressed as example (16), where (“ $e < e'$ ” means that e precedes e'):

(2) Mado-ga ake-te-a-ru.

Window-NOM open-and-exist-PRESENT

(The window is open (for some purpose/))

(16) $\exists e, e'$ [[Open (e) & Theme (window, e) & Cul (e)] & [Exist (e') & Theme (window, e') & Hold (e')] & $e < e'$]

The truth conditions of example (2) require an event of opening, whose agent is not given, whose theme is a window, and an existence of an (open) window, but no further relationship between the event and the state is mandated. Thus, beyond sharing the common entity “mado,” *window*, the culmination of an event and the holding of an actual state need to be linked by relativizing them to time. (16) says that an actual state or existence of an (open) window must be obtained after an event of opening occurs.

5.2 “Preparative” Reading Types

Regarding examples (3) and (4), “*V-te-a-ru*” also expresses an eventuality to be aspectually atelic. However, they have one significant peculiarity: it can take the topic qua experiencer in the experiential sub-event. Thus, as shown in the above section, at the semantic level, the experiencer (which can be considered the topic) is also an agent causing the sub-event: the agentive process of sleeping causes the experiencer to enter an actual physical state. In other words, example (9c) has

two sub-events, which share the common individual “boku” *I*. Therefore, the truth conditions in example (9c) require an event of a sleep in which “boku” *I* is the agent and a state of holding an actual physical state in which “boku” *I* is the experiencer. Then, example (9c) can be expressed as in (17):

- (9) c. {Boku –wa/Boku-tati-de} zyuubun-ni ne-te-a-ru.
I-TOP/We-DAT sufficiently sleep-and-exist-PRESENT
 (I /We have slept sufficiently.)
- (17) $\exists e, e' [[\text{Sleep}(e) \ \& \ \text{Agent}(I, e) \ \& \ \text{Cul}(e)] \ \& \ [\text{Good condition}(e') \ \& \ \text{Experiencer}(I, e') \ \& \ \text{Hold}(e')]] \ \& \ e < e'$

Here too, we must note that the causing sub-event temporally precedes the resulting sub-event. Therefore, the temporal order of the two sub-events is restricted: the agentive process causes the experiencer to maintain an actual physical state.

Thus, (17) basically refers to an event template that is similar to (16) with the exception of the EXP-agent alternation, which is crucial to reconstruct the causing sub-event into an experiential sub-event.

6. Conclusions

In this paper, I have shown that the semantic structure of Japanese complex predicates of the form “*V-te-a-ru*” can be illuminated by importing the event analysis model from neo-Davidsonian event semantics. In this analysis, ambiguity arises from the semantic relation linking their components, which is (partially) implicit on the surface, and not from the verb. These results, though preliminary, appear to be sufficient to clarify the semantic representation of a given syntactic paradigm⁷.

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⁷ For a difference between “*V-te-a-ru*” and “*V-te-ok-u*” constructions, see Yamamori (2010).