

# A Japanese Compound Verb *V-te-iku* and Event Composition

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## 1. Introduction

It is widely recognized that Japanese manner of motion verbs do not tolerate a so-called GOAL expression *-ni*, as observed in (1) (see e.g. Yoneyama (1986), Kageyama and Yumoto (1997), Ueno and Kageyama (2000)).<sup>1, 2</sup> The same is true of Korean (cf. Lee (1999)).

(1) Japanese:

- a. \*?Taro wa gakkō-ni arui-ta  
Taro TOP school-GOAL walk-PAST '(Lit.)Taro walked to school'
- b. \*?Taro wa gakkō-ni hasi-tta  
Taro TOP school-GOAL run-PAST '(Lit.)Taro ran to school'

Korean:

- c. \*?Taro-nun yek-e keless-ta  
Taro-TOP station-GOAL walk-PAST '(Lit.)Taro walked to the station'
- d. \*?Taro yek-e tallyess-ta  
Taro-TOP station-GOAL run-PAST '(Lit.)Taro ran to the station'

On the other hand, in English, the expressions corresponding to (1) are natural.

- (2) a. John walked to school.  
b. John ran to school.

The intended situations in (2) should be realized in Japanese with a V-V compound or a V-*te*-V compound, such as *arui-te-iku* 'go by walking' and *hasi-tte-iku* 'go by running'. In Korean, as in Japanese, we should use compound verbs. We will call V-*te*-V compounds in Japanese TE-compounds, to distinguish them from V-V compounds.<sup>3, 4</sup>

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<sup>1</sup> Abbreviations: TOP topic, NOM nominative, ACC accusative, GOAL goal, LOC location, PAST past tense form, PRES present tense form

<sup>2</sup> Some Japanese native speakers might judge (1a,b) as acceptable, especially when the action is done with a purpose. Consider (i).

(i) Taro wa shujii -o yobu-tameni byoin-ni hasi-tta  
Taro TOP main doctor-ACC call -for hospital-GOAL run-PAST  
'Taro ran to the hospital, in order to call his doctor (to his home)'

Note that even in such a case, *-ni* does not specify the terminal point of the action, but a direction. Thus, (i) has no implication that Taro reached the hospital. For the judgment similar to (i), see Kuno (1973).

<sup>3</sup> *Te* in *arui-te-iku* or *hasi-tte-iku* functions as a linkage between the two verbs. The two types of compounds are morphologically different. V-V compounds such as *tobi-noru* 'jump onto' or *kake-komu* 'rush into' does not need the linkage *-te*, and the former verb is in Renyo-form. It is not clear at this point whether the difference in forms affect the semantics of these complex verbs or not.

<sup>4</sup> It should be noted here that V-*teiku* also has an aspectual use, which describes a gradual change. As an example, consider (ii). *-Deiku* is an allophonic variant of *-teiku*.

(3) Japanese:

a. Taro wa gakkō-ni arui-te -i-tta  
Taro TOP school-GOAL walk-TE-go-PAST 'Taro walked to school'

b. Taro wa gakkō-ni hasi-tte-i-tta  
Taro TOP school-GOAL run-TE-go-PAST 'Taro ran to school'

Korean:

c. Taro-nun yek-e kele-kass-ta  
Taro-TOP station-GOAL walk-go-PAST 'Taro walked to the station'

d. Taro-nun yek-e tallye-kass-ta  
Taro-TOP station-GOAL run-go-PAST 'Taro ran to the station'

Thus, one of the goals of this paper is to answer the question why *-ni* in (1) is not allowed in Japanese and Korean, while its counterpart construction in English is allowed, and why in (3), the *-ni* phrase and *-e* phrase are grammatical. In the present paper, our focus will be mainly placed on Japanese data, but we would like to mention Korean data, when our theory is considered to be extended to them.

Another question posed in this present paper is how TE compounds are represented in the lexicon. *V-te-iku* cannot be simply analyzed into [V + *iku*], for the compound verb is not fully compositional in meaning. We will, thus, investigate what kind of relation holds between V and *V-teiku/iku*. Special emphasis is placed on the event structures of these verbs, based on the observations of the aspectual properties of these verbs.

The organization of this paper is as follows: In the next section, we will observe the aspectual difference between (1) and (3), and show that this difference yields the grammatical contrast between them. In section 3, we turn our attention to the compositional mechanism of *V-te-iku*, and show that also in Japanese, a generative lexical operation co-composition (Pustejovsky 1995a, 1995b) is available at morphological level. In the latter half of this section, we will argue the syntactic realizations of the arguments. Section 4 will be the conclusion.

## 2. The Event Structures of *Aruku* vs. *Arui-te-iku*

### 2.1 The Licensor of *-ni*

Recall first the contrast between Japanese and English which was noted in section 1. As is often noted, in English, the attachment of the GOAL expression changes the aspectual value of the event (cf. Tenny 1994). Consider the following.

(4) a. John walked {for 30 minutes/\*in 30 minutes}.

b. John walked to school {\*for 30 minutes/in 30 minutes}.

In (4a), the event described by the verb *walk* co-occurs with a durative adverb but not with a time-bounded adverb, which implies that the event (or verb) is atelic. On the other hand, in (4b), only the time-bounded adverb can modify the event, suggesting that it is telic. Pustejovsky (1995a) regards this aspectual alternation as a functional mapping of *to* phrase (i.e. co-composition, in his terminology). As we have already

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(ii) Hito -ga tsugitsugini sin-deiku  
people-NOM successively die-TEIKU-PRES  
'People are successively dying.'

The present article will not discuss this aspectual use of *V-teiku*.

observed in section 1, the Japanese *-ni* phrase clearly does not have this function, given the semantics of *walk* and *aruku* are the same. Rather, as we discuss in this paper, *-ni* phrase must be licensed by some semantic component in the sentence.

The idea that *-ni* is licensed by some element could be spelled out as the statement that it is an argument of a predicate. Nakau (1999) actually stands in this position.<sup>5</sup> His argument goes on by comparing *-ni* with *-de* 'at/in', clarifying the difference between them.<sup>6</sup> The first difference between *-ni* and *-de* is that *-ni* does not go with action verbs when they do not take it as an argument, while *-de* co-occurs with action verbs.

- (5) a. Taro-wa tukue- $\{ni / *de\}$  hon-o oi-ta  
 Taro-TOP desk- {GOAL/LOC} book-ACC put-PAST  
 'Taro put the book on the desk'  
 b. Taro-wa kooen- $\{*ni / de\}$  hon-o yon-da  
 Taro-TOP park- {GOAL/LOC} book-ACC read-PAST  
 'Taro read a book at the park'

In (5a), the verb *oku* 'put' requires a GOAL expression, which is realized as *-ni* phrase. *-De* phrase cannot occur in the place of *-ni*, for it does not mark an argument. On the other hand, in (5b), the verb *yomu* 'read' does not take as its argument a GOAL expression, therefore *-ni* phrase is not allowed, while *-de* phrase, being a non-argument, felicitously marks the location.

However, when it comes to an intransitive verbs, the argumenthood of *-ni* phrase is not easily maintained, for intransitive verbs usually take only one argument, which is realized as a subject. *Ni* phrase can co-occur with intransitive verbs, as shown in the next examples.

- (6) a. Ha-ga zimen-ni oti-ta  
 leaf-NOM ground-GOAL fall-PAST 'A leaf (leaves) fell on the ground'  
 b. Taro-wa isu-ni suwa-tta  
 Taro-TOP chair-GOAL sit down-PAST 'Taro sat down on the chair'

Here, we argue that the licenser of *-ni* is determined by its aspectual feature, not by its argument structure.

From the aspectual point of view, the verbs in (5a) and (6) are all telic (i.e. they have a terminal point). The telicity of these events is verified by the uncancellability of the terminal point.

- (7) a. #Taro-wa tukue-ni hon-o oi-ta ga, hon-wa tukue-ni nora-naka-tta  
 Taro-TOP desk-GOAL book-ACC put-PAST but book-TOP desk-GOAL onto-not-PAST

<sup>5</sup> Takezawa(2001) also argues the difference between *-ni* and *-de*; from a different point of view. The crucial point of his argument lies in that *-ni* needs to construct some predication relationship within VP, while *-de* is a real adjunct.

<sup>6</sup> In Korean, they have counterparts for *-ni* and *-de*, which show the similar contrast (Lee 1999). Consider the examples in (iii) and (iv). The corresponding Korean postpositions are *-ey* for *-ni*, and *-esse* for *-de*.

- (iii) a. Taro-nun tayhak-ey issta  
 Taro-TOP university-GOAL be-PRES 'Taro is at the university'  
 b. \*Taro-nun tayhak-eyse issta  
 Taro-TOP university-LOC be-PRES  
 (iv) Yumi-ka ttul $\{-ese / *-e\}$  nol-ko iss-ta  
 Yumi-NOM garden $\{-LOC/-GOAL\}$  play-PROG-PRES 'Yumi is playing in the garden'

- ‘Taro put a book on the desk, but the book was not on the desk’
- b. #Ha-ga zimen-ni oti-ta ga, ha-wa zimen-ni tuka-naka-tta  
 leaf-NOM ground-GOAL fall-PAST but leaf-TOP ground-GOAL arrive-not-PAST  
 ‘A leaf fell on the ground, but the leaf was not on the ground’
- c. #Taro-wa isu-ni suwa-tta ga, Taro-wa isu-ni tootatu-si-naka-tta  
 Taro-TOP chair-GOAL sit down-PAST but Taro-TOP chair-GOAL reach-not-PAST  
 ‘Taro sat down on the chair, but he wasn’t on it’

On the other hand, the verb in (5b) does not have a terminal point of the action.

- (8) Taro-wa hon-o yon-da ga, yomi-kira-naka-tta  
 Taro-TOP book-ACC read-PAST but read-off-not-PAST  
 ‘Taro read a book but he could not read it off’

The relevant feature above is considered to be telicity. However, the locative *-ni* is allowed not only with telic verbs, but also with stative verbs (e.g. existential *iru* (with animate subject) / *aru* (with inanimate subject) ‘be’).<sup>7</sup>

- (9) a. Kodomo-ga kooen{-ni/\*de} iru  
 children-NOM park-{GOAL/LOC} be ‘There are children in the park’  
 b. Kabin-ga genkan{-ni/\*de} aru  
 vase-NOM entrance-{GOAL/LOC} be ‘There is a vase at the entrance’

Then, what is the relevant property in the licensing of *-ni* phrase? To answer this question, let us consider the event structure of the verbs observed above.

Pustejovsky (1995a, 1995b) proposes that at the level of event structure, there are at least three types of events; transition, process, and state. Transition is composed of the other two types of events; process and state. Furthermore, the event structure has specifications of the order of sub-events and headedness, which provides a way of indicating a type of foregrounding and backgrounding of event arguments. Headedness is annotated by \* in the event structure.

Following the sub-eventual analysis presented by Pustejovsky (1995a, 1995b), the verbs in (5)-(9) are roughly represented as follows:

- (10) a. *oku*:                      b. *suwaru*:                      c. *yomu*:                      d. *iru, aru*:
- |        |        |   |   |
|--------|--------|---|---|
| T(e)   | T(e)   | P | S |
| / \    | / \    |   |   |
| P(e1*) | P(e1)  | e | e |
| S(e2)  | S(e2*) |   |   |

T is an abbreviation for transition, P for process, and S for state. In the traditional terminology (Vendler 1957), transition corresponds to Achievement or Accomplishment and process corresponds to Activity. The difference between Achievement and Accomplishment is represented by the headedness.

Based on the above typology of events, the contexts where *-ni* phrase is licensed are (10a,b,d). The common feature of these event types is that they have a state component in their event structures. Thus, we conclude from this that *-ni* is licensed by a state component. To summarize this section, the licensing condition of a *-ni*

<sup>7</sup> The reversed situation come to be true when the subject is an event nominal (Nakau 1999). Consider the following.

- (v) Sotugyoosiki-ga koodoo{-de/\*ni} aru  
 graduation ceremony-NOM hall-{LOC/GOAL} be  
 ‘The graduate ceremony will be held in the hall’

Following Nakau (1999), we consider *aru* in this case as an ‘active’ *be*, not an existential *be*.

phrase is stated below.

- (11) If a Japanese GOAL expression *-ni* is allowed in an expression describing an event, the event contains a state component in its event structure.

## 2.2 *Aruku* 'walk' vs. *Arui-te-iku* 'go by walking'

Based on the discussion above, we will observe the difference between *aruku* 'walk' and *arui-te-iku* 'go by walking' in this section.

Before going into the discussion of *aruku* and *arui-te-iku*, we would like to spare some space for the description of *iku* 'go'.

First observe that *iku* 'go' licenses a *-ni* phrase.

- (12) Taro-wa gakkō-ni i-tta  
Taro-TOP school-GOAL go-PAST 'Taro went to school'

In (12), we cannot cancel the terminal point.

- (13) #Taro-wa gakkō-ni i-tta ga, gakkō-ni tuka-naka-tta  
Taro-TOP school-GOAL go-PAST but school-GOAL arrive-not-PAST  
'Taro went to school, but he didn't reach there'

Furthermore, a durational adverb *30-punkan* 'for 30 minutes' does not go along with this construction, while a time-bounded adverb *30 pun-de* 'in 30 minutes' does.

- (14) Taro-wa {??30 punkan/30 pun-de} gakkō-ni i-tta  
Taro-TOP {30 minutes-for/30 minutes-in} school-GOAL go-PAST  
'Taro went to school {for 30 minutes/in 30 minutes}'

Notice that the time-bounded adverb *30 pun-de* 'in 30 minutes' does not modify events that do not have a terminal point.

- (15) ??Taro-wa 30 pun-de koon-de ason-da  
Taro-TOP 30 minutes-in park-LOC play-PAST  
'Taro played in 30 minutes at the park'

We conclude from the above observations that *iku* 'go' in Japanese describes a telic event, suggesting that it has a similar construction as (10a, b).

Now, let us turn to *aruku* 'walk'. Observe the following:

- (16) a. Taro-wa eki-e arui-ta ga, eki -ni tuka-naka-tta  
Taro-TOP station-toward walk-PAST but station-GOAL arrive-not-PAST  
'Taro walked toward the station, but he didn't reach there'  
b. Taro-wa {30 punkan/??30 pun-de} arui-ta  
Taro-TOP {30 minutes-for/30 minutes-in} walk-PAST  
'Taro walked for {30 minutes/in 30 minutes}'

The examples in (16) show that *aruku* 'walk' does not have a terminal point (i.e. atelic). In (16b), if we use with a phrase which delimits the activity, such as *50 meeteru o* '50 meters', the *-de* phrase would be acceptable, but without such a phrase, the lack of a terminal point prevents the *-de* phrase from being used in this sentence. Our conclusion is that *aruku* 'walk' has the same event structure as (10c).

Now, we would like to show that the event structure of a compound verb *arui-te-iku* is the same as *iku* in that it does have a terminal point. Thus, its terminal point cannot be cancelled, nor it is modified by durational adverbs.

- (17) a. #Taro-wa gakkō-ni arui-te-i-tta ga, gakkō-ni tuka-naka-tta  
Taro-TOP school-GOAL walk-TE-go-PAST but school-GOAL arrive-not-PAST  
'Taro walked to school, but he didn't reach there'

- b. Taro-wa gakkō-ni {??30 punkan/30 pun-de} arui-te-i-tta  
 Taro-TOP school-GOAL {30 minutes-for/30 minutes-in} walk-TE-go-PAST  
 'Taro walked to school for {30 minutes/in 30 minutes}'

The compositional verb *arui-te-iku* inherits this property from *iku*, obeying Righthand Head Rule (Williams 1981), in that the compositional verb gains a terminal point, which is inherited from *iku*.

At this point, it is clear why *-ni* is licensed in (3) but not in (1). Since *-ni* is licensed by a state component as stated in (11), only *arui-te-iku*, containing a state component, licenses its occurrence.

In this section, we have claimed that a Japanese GOAL expression *-ni* is licensed by a state component, and that only *arui-te-iku* 'go by walking', contrasted with *aruku* 'walk', has a state component, which allows *-ni* to occur in the construction.

### 3. Event Composition of Compound/Compositional Verbs

In this section, we would like to turn our eyes to theoretical issues that TE compounds in Japanese raise. First, we will discuss the way and the level of the composition of *V-te-iku*, which is a morphological combination of *V* and *iku*. We investigate further in the next subsection the aspectual property of *V*, *iku*, and *V-te-iku*, and propose the mechanism of the composition. Specifically, our theoretical question is whether the generative mechanism co-composition (Pustejovsky 1995a,b) is also available in Japanese or not. In section 3.2, we discuss the issue on the relation between argument realization at the surface level and event structure (i.e. aspectual nature of predicates).

#### 3.1 Event Composition – Co-composition in Japanese

Pustejovsky(1995a, b) proposes a generative mechanism 'co-composition', which is described as follows:

- (18) Co-composition: where multiple elements within a phrase behave as functors, generating new non-lexicalized senses for the words in composition.

(Pustejovsky 1995b: 61)

This generative operation on lexicon explains the well-known aspectual contrast in (4a,b), repeated as (19) here, without enumerating further a lexical meaning of *walk*.<sup>8</sup>

- (19) a. John walked {for 30 minutes/\*in 30 minutes}

- b. John walked to school {\*for 30 minutes/in 30 minutes}

The shift in aspect in (19b) is brought about by the prepositional phrase, *to school*, which serves as a function that takes as its input the walking event and returning as its output a telic event. Note that the meaning of *walk* itself remains the same in either cases.

We have already noted that in Japanese, the postpositional phrase *-ni* does not have this functional property. However, we have a morphological mechanism to achieve the similar effect. We will discuss how this morphological compounding of verbs affects the event composition, and whether we can analyze Japanese TE compounds as an instance of co-composition.

First, we would like to observe the aspectual nature of *iku*, and *arui-te-iku* a little further. In the preceding sections, we have observed that the difference between

<sup>8</sup> For other approaches to this topic, see Talmy (1985) and Levin and Rapoport (1988).

*aruku* and *iku* / *arui-te-iku* lies in the fact that *aruku* is atelic, while *iku* and *arui-te-iku* are both telic. It is clear that *aruku* is an Activity verb, which has only a process component in event structure. However, *iku* and *arui-te-iku* need some clarification.

In Japanese, we have an aspectual form *V-teiru*, which is ambiguous in at least two ways: a progressive process and a resultant state.<sup>9</sup> *-Teiru* is attached to action verbs, forming *V-teiru* (present tense form) or *V-teita* (past tense form). Whether a *V-teiru* form means a progressive or a resultant state depends on whether the verb's meaning includes a subject's activity/motion or change. If a verb contains a subject's activity in its meaning, *V-teiru* specifies that the activity is in progress. On the other hand, when a verb describes a subject's change of state/location, it designates a resultant state of the change. Below are some examples.<sup>10</sup> The examples in (20) are of a progressive processes, and those in (21) show the states which result from the preceding changes.

- (20) a. Taro-wa kooen-de ason-deiru  
 Taro-TOP park-LOC play-TEIRU-PRES 'Taro is playing in the park'  
 b. Taro-wa kabin-o kowasi-teita  
 Taro-TOP vase-ACC break-TEIRU-PAST 'Taro was breaking a vase'  
 c. Taro-wa hon-o yon-deita  
 Taro-TOP book-ACC read-TEIRU-PAST 'Taro was reading a book'
- (21) a. Taro-wa isu-ni suwa-tteiru  
 Taro-TOP chair-GOAL sit-down-TEIRU-PRES  
 '(Lit.) Taro is sitting down on the chair. [Taro is on the chair]'  
 b. Kabin-ga ware-teiru  
 vase-NOM break-TEIRU-PRES 'The vase is broken.'

The verbs that reveal a progressive meaning when combined with *-teiru*, correspond to either Accomplishment or Activity. The others correspond to Achievement. For ease of reference, we have summarized these observations in Table 1.

Table 1 <Types of Verbs and the Meaning of *-teiru* in Japanese>

Types of verbs \ aspectual property	aspectual property	the meaning of <i>-teiru</i>
Act (s) & Change (o)	Accomplishment	progressive
Change (s)	Achievement	resultant state
Act (s)	Activity	progressive

\*Act: activity, Change: change, s: subject, o: object

The difference between Accomplishment and Achievement is seen by the fact that only the former has an activity in its meaning. Since Accomplishment verbs describe activities that have a culmination point, we can pick up the middle point of the activity. On the other hand, since Achievements describe changes, not activities, *V-teiru* does not pick up the durational activity.

<sup>9</sup> You can find in Shirai (2000) a brief summary of main ideas and observations with regard to the Japanese verbal classification and its relevance to the meanings of *-teiru*. Although Shirai(2000) uses the term 'imperfective' for *-teiru*, we avoid this term here, because in Japanese *-teiru* describes not only a progressive, but also a perfect (I owe this point to S. Takata (p.c.)).

<sup>10</sup> *-deiru* (*-deita*) in (20a,c) is an allomorphic variant of *-teiru*.

- Bearing this contrast in mind, observe that *iku* shows both meanings of V-*teiru*.<sup>11, 12</sup>
- (22) a. Taro-wa gakkō-ni i-tteiru  
 Taro-TOP school-GOAL go-TEIRU-PRES [resultant state]  
 'Taro is at school, as a result of going to school.'
- b. A, Taro-ga gakkō-ni i-tteiru yo [progressive]  
 Look, Taro-NOM school-GOAL go-TEIRU-PRES SENT-FIN-PART<sup>13</sup>  
 'Look, Taro is in the progress of going to school.'

In spite of the above general rule, *i-tteiru* 'going' seems to have two aspectual values, since either a progressive activity or a resultant state reveals. Considering the meaning of *iku*, it seems to be a change of location verb, in the sense that when the subject leaves for a place, and reaches that place, the subject changes its location from one location to another location. Kindaichi (1950) notes that change of location verbs such as *kuru* 'come', *hairu* 'come/go into', and *deru* 'come/go out', also show the same ambiguity.<sup>14</sup> Given that one predicate has only one aspectual value, this phenomenon seems mysterious.

That *iku* has an active process is also verified by the meaning it shows with *-kakeru*, which is another verbal suffixal aspectual form that refers to the inchoative point of activity or change.

- (23) a. Taro-wa aruki-kake-ta [Activity]  
 Taro-TOP walk-KAKE-PAST  
 'Taro was about to walk, but he didn't'
- b. Taro-wa kabin-o wari-kake-ta [Accomplishment]  
 Taro-TOP vase-ACC break-KAKE-PAST  
 'Taro was about to break the vase, he didn't'
- c. Taro-wa sini-kake-ta [Achievement]  
 Taro-TOP die-KAKE-PAST  
 'Taro was nearly dying'

<sup>11</sup> We should acknowledge that there are speakers who do not accept the progressive meaning. For them, as noted below, *iku* seems to be purely an Achievement.

<sup>12</sup> It seems that *-teiru* can pick up a process of change in some cases. Consider (vi). Thus, one might claim that the reading in (22a) is a process of change of location.

(vi) A, ha ga oti-teiru 'Look, a leaf is falling'  
 However, a difference arise when we embed these sentences into an 'I see X doing' construction.

(vii) a. Watasi-wa kinoo Taro-ga gakkō-ni i-tteiru no o mi-ta  
 I-TOP yesterday Taro-NOM school-GOAL go-TEIRU NOMINL ACC see-PAST  
 'Yesterday, I saw Taro going to school'

b. Watasi-wa kinoo ha-ga oti-teiru no o mi-ta  
 I-TOP yesterday leaf-NOM fall-TEIRU NOMINL ACC see-PAST  
 'Yesterday, I saw a fallen leaf.'

(22a) has a progressive meaning even after the embedding (= (vii)), but (vi) has only a resultant state meaning (= (vii)). Thus, we could say that *iku* has a progressive meaning.

<sup>13</sup> An abbreviation for 'sentence final particle'.

<sup>14</sup> Kindaichi (1950)'s classification is different from the one we assume here. His classification is mainly based on 'length', but our classification is based on motion or change. It is often pointed out that Vendler also utilizes the 'length' of activity to distinguish Accomplishment and Achievement (cf. Bach(1981), Tenny(1994)). In the current theories of aspect, it is widely acknowledged that 'telicity' is the common feature of these event types, and the very property is relevant to linguistic facts.



d. Taro-wa gakko-ni iki-kake-ta

Taro-TOP school-GOAL go-KAKE-PAST

'Taro was about to leave for school, but he didn't'

(23d), as in (23a,b), is interpreted as describing the inchoative point of an activity, not a change. *Iku* is grouped into Accomplishment also in here.

Our resolution of the discrepancy observed above is that *iku* (and other change of location verbs that include motion) does not specify its headedness in event structure (i.e. headless). Thus, it can be either Accomplishment or Achievement, depending on the context.

(24) *iku* : [EVENTSTR = [E1 = e1: process, E2 = e2: state]]

Now, let us turn to *V-te-iku*. Contrary to *iku*, *V-te-iku* has only a progressive meaning when used with *-teiru*. This intuition can be supported by the data from a Western Japanese dialect, where they have distinct forms for a progressive (*-yuru*) and a resultant state (*-toru*).<sup>15</sup>

(25) a. Taro-ga gakko-ni arui-te-i-tteiru

Taro-NOM school-GOAL walk-TE-go-TEIRU-PRES [progressive only]

'Taro is walking to school'

b. Taro-ga gakko-ni hasi-tte-i-tteiru

Taro-NOM school-GOAL run-TE-go-TEIRU-PRES [progressive only]

'Taro is running to school'

(26) a. Taro-ga gakko-ni arui-te-iki-yoru

Taro-NOM school-GOAL walk-TE-go-YORU-PRES

'Taro is walking to school'

b. ??Taro-ga gakko-ni arui-te -i-ttoru

Taro-NOM school-GOAL walk-TE-go-TORU-PRES

'Taro is at school, as a result of walking there'

The fact that *V-te-itteiru* reveals only a progressive meaning suggests that *V-te-iku* is truly an Accomplishment. This is captured in the event structure of the verb by putting the head on the left hand event. In this composite structure, we can intuitively state that *aruku* specifies the action of *x*, which makes *x* go to some location. In other words, *aruku* specifies the activity part of *iku*. Since the walking event (e1) should temporally overlap the going event (e2), the left hand event is actually a composition of the two events. Their relation is represented as  $\circ(e1, e2)$ . The formal representation of *V-te-iku* is presented below.

(27) *V-te-iku*

$$\left[ \begin{array}{l} \text{EVENTSTR} = \left[ \begin{array}{l} E1 = e1: \text{process} \\ E2 = e2: \text{process} \\ E3 = e3: \text{state} \\ \text{RESTR} = \langle_{\alpha} (e2, e3), \circ_{\alpha} (e1, e2) \rangle \\ \text{HEAD} = e2 \end{array} \right] \end{array} \right]$$

The compositional mechanism we discussed above is similar to co-composition, in that the righthand verb *iku* serves as a function, which takes as its input an Activity verb, and return as its output an Accomplishment verb. This is not a simple

<sup>15</sup> I owe this data to Fumihiro Morikawa (p.c.), who is a native speaker of the Shikoku dialect (a dialect spoken on an island in Western Japan).

conjunction of two events, but a composition, since, as we have observed above, the entire compound is an Accomplishment in its aspectual nature. Note also that the compound verb loses an Achievement use which *iku* owns. This shows that the newly created verb has its own property, inheriting some of the features from its origins. Thus, our conclusion to the question whether Japanese has a mechanism co-composition or not is positive.

### 3.2 Argument Structure

In Japanese, not only the aspectual class of predicates but also the realization of their arguments at argument structural level is closely related to the meaning of *-teiru*. Typically, Accomplishments are realized as transitive verbs, Achievements as unaccusative verbs, and Activities as either transitive or unergative verbs.<sup>16, 17</sup> Given this generalization, we find that for *iku* and *arui-te-iku*, this is not true. We have observed that *iku* and *arui-te-iku* are, at least in one sense, Accomplishment. However, they are both realized as intransitive verbs. How should we reconcile this discrepancy?

Kageyama (1993) argues that verbs like *iku* 'go', *kuru* 'come', *deru* 'come/go out', or *agaru* 'climb up', contain a subject's intentional act to the subject itself, and that this action makes the subject move and takes him to another location. In his analysis, these verbs have a representation like 'x DO [x GO]' at the Lexical Conceptual Structure. Since the two xs are the same, they are realized as one argument in argument structure (and syntax). In light of his insight, we can formalize the lexical structure of *iku* as follows (cf. Pustejovsky 1995b):

(28) *iku*:

$$\left[ \begin{array}{l} \text{ARGSTR} = \left[ \begin{array}{l} \text{ARG1} = \boxed{1} : \text{ind} \\ \text{ARG2} = \boxed{2} : \text{ind} \\ \text{D-ARG1} = \boxed{3} : \text{location} \end{array} \right] \\ \text{QUALIA} = \left[ \begin{array}{l} \text{Formal} = \text{at} (e2, \boxed{2}, \boxed{3}) \\ \text{AGENTIVE} = \text{go\_act} (e1, \boxed{1}, \boxed{2}) \end{array} \right] \end{array} \right]$$

Following Pustejovsky (1995b) on the mapping principle between event structure and syntactic realization, we assume that the arguments in the headed event must be realized. As shown in 3.1, since in *iku*, the headedness is not specified, we have two options to disambiguate this: If the event is right-headed, the arguments in e2 (i.e.  $\boxed{1}$  and  $\boxed{3}$ ) are realized. If the event is left-headed, the arguments in e1 (i.e. two  $\boxed{1}$ s) should be realized. Note that at the level of argument structure and qualia structure, the e1 is represented as a transitive event where an individual let himself go by acting on himself. This is determined by the verb's lexical meaning, that is, the fact that the actor and the acted individual are the same is not accidental. Thus, we assume that a lexical realization rule operates on this structure, which says that the two individuals

<sup>16</sup> In Japanese, as in English, unaccusativity holds at 'deep' level, not at 'surface' level (cf. Kageyama (1993)).

<sup>17</sup> For the issues in linking relation between aspectual structure and argument structure/syntax, see also Grimshaw (1990). For Korean, Lee et al. (1999) argues that the case alternation of Korean transitive motion verbs is determined by headedness in event structure.

are realized as one argument in syntax. As a result, *iku* always surfaces as an intransitive verb.

The analysis presented here is consistent with Kageyama(1993)'s observation on unaccusative verbs. Kageyama (1993) notes that a numeral quantificational adverb *takusan* 'many/much' modifies only elements under V' (i.e. a verb itself or its sister). Given this generalization, together with the assumption that an unaccusative subject is generated as an internal argument of a predicate, the subject of an unaccusative verb can be modified by *takusan*.

- (29) a. Takusan ason-da [unergative]  
 many/much play-PAST 'Someone played a lot of hours'  
 b. Takusan kowasi-ta [transitive]  
 many/much break-PAST 'Someone broke many things'  
 c. Takusan sin-da [unaccusative]  
 many/much die-PAST 'Many people died'  
 d. Takusan i-tta  
 many/much go-PAST 'Many people went (to somewhere)'

In (29d), *takusan* modifies the quantity of people who went somewhere, which suggests that *iku* is an unaccusative verb. Recall that in Japanese, unaccusative verbs are usually Achievement in their aspectual property. This is consonant with the right-headed structure, but shows apparent discrepancy when it is left-headed. However, if we assume that *iku* in Accomplishment use is in fact a transitive verb, we can explain, with Kageyama(1993), that the internal argument, which is the same individual as the external one, is responsible for the modification of *takusan*.

The same reasoning can be applied to *arui-te-iku*. It has the following lexical specification:

- (30) 
$$\left[ \begin{array}{l} \text{ARGSTR} = \left[ \begin{array}{l} \text{ARG1} = \boxed{1} : \text{ind} \\ \text{ARG2} = \boxed{2} : \text{ind} \\ \text{D-ARG1} = \boxed{3} : \text{location} \end{array} \right] \\ \text{QUALIA} = \left[ \begin{array}{l} \text{FORMAL} = \text{at} (\text{e3}, \boxed{2}, \boxed{3}) \\ \text{AGENTIVE} = \text{go\_act} (\text{e2}, \boxed{1}, \boxed{2}), \text{walk} (\text{e1}, \boxed{1}) \end{array} \right] \end{array} \right]$$

As in the case of *iku*, it also shows unaccusative-like behavior. Consider the following:

- (31) a. Takusan arui-te- i-tta  
 many/much walk-TE-go-PAST  
 'Many people walked to somewhere'  
 b. Takusan hasi-tte-i-tta  
 many/much run-TE-go-PAST  
 'Many people ran to somewhere'

Here, *takusan* modifies the quantity of the subjects, in this case, the number of people walking or running is the matter. In the composite structure in (30), the head is on the process part, which implies that the TE compound verb should be realized as a transitive verb. However, the two arguments are the same, as we have argued above, the two arguments are surfaced as one syntactic element.

#### 4. Conclusion

In this paper, we have shown the following:

- (a) A Japanese GOAL expression *-ni* does not function in the same way as English *to/into*. It should be licensed by a state component.
- (b) The contrast between *aruku* and *arui-te-iku* with regard to the acceptability of *-ni* phrase lies in the fact that only the latter has a state component in its meaning.
- (c) *Arui-te-iku* is considered an instance of co-composition. However, the operation is not a phrasal, but a morphological in Japanese.
- (d) The discrepancy between argument structure and aspectual nature of *arui-te-iku* and *iku* is resolved by the assumption that they are transitive at a lexical level, but realized as an intransitive at surface level, because their external and internal arguments are identical.

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