

## Toward a New Compositional Tense Theory\*

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### 1. Introduction

In this paper, I will present a new compositional tense theory which provides a systematic explanation of the mechanism of interpreting English tenses based on the following basic assumptions and theories: the traditional distinction between finite and nonfinite predicates, the Aux-as-main-verb hypothesis, the two absolute-tense hypothesis, a temporal notation consisting of four temporal notions, and a theory of modality. The tense theory to be proposed distinguishes a level of tense structure from a level of tense interpretation. At the level of tense structure, the semantic (or tense) structure of a tense form represents its original temporal value. At the level of tense interpretation, the temporal value represented by a tense form is finally determined under the influence of such elements as time adverbials, syntactic environments, and contexts.

Drawing on the proposed tense theory, I will formulate the basic temporal schemata of sentences in the present and past tenses, sentences referring to the future, and sentences in the perfect and progressive forms. It will be shown that the proposed temporal schemata have a potential for explaining, from a unified point of view, why a given tense form has a variety of uses as well as connotations.

### 2. Basic Assumptions and Theories

In this section, I will examine and discuss some basic assumptions and theories which the tense theory to be proposed presupposes. They are shown as follows:

- (1) a. the traditional distinction between finite and nonfinite forms
- b. the Aux-as-main-verb hypothesis
- c. the two absolute-tense hypothesis
- d. a temporal notation consisting of four temporal notions
- e. a theory of modality

Each of these basic assumptions and theories will be considered in turn.

#### 2.1. *Finite and Nonfinite Forms*

Let us begin by considering (1a). In this paper, I follow the traditional definitions of finite and nonfinite forms (see Huddleston (1984:81-88), Palmer (1988:12-13), and Quirk et al. (1985:149-155)). A sentence always requires at least one finite predicate;<sup>1</sup> whenever a nonfinite predicate exists in a sentence, a finite predicate necessarily does. Finite predicates occupy the left-most position of finite verb phrases, whereas nonfinite predicates can not only occupy the positions other

than the left-most one in finite verb phrases, but also constitute nonfinite verb phrases. Consider the following:

- (2) a. Mana likes the Orion.  
 b. I tried to write to her.  
 c. Calling early, I found her at home.

In (2), *likes*, *tried*, and *found* are finite predicates while the infinitive *to write* and the present participle *calling* are nonfinite predicates.

## 2.2. Aux-as-Main-Verb Hypothesis

I now turn to (1b), i.e. the Aux-as-main-verb hypothesis. Following Ross (1969), Huddleston (1974), and Nakau (1994), among others, I assume that auxiliary verbs have the same status as main verbs, at least semantically.<sup>2</sup> This implies that just as a full or main verb expresses a situation, an auxiliary verb can express one if it conveys semantic content:<sup>3</sup> for example, the root modal *may* expresses permission and the epistemic modal *may* possibility. Consider (3):

- (3) a. Nancy can play tennis.  
 b. Rocky must be a real champion.

In (3a), the auxiliary verb *can* is considered to be a main verb, describing Nancy's ability to do something. In (3b), *must* is viewed as a main verb describing logical necessity in the speaker's mind.

The view that a modal *can* express its own situation is verified by the existence of sentences like the following:

- (4) a. Now you may go skiing tonight.  
 b. We can now leave tomorrow as planned. (Duffley (1992:5))

In (4a), for example, *now* specifies the situation denoted by the modal *may*, just as *tonight* specifies the situation denoted by the verb *go*. It is a general view that one time adverbial specifies one situation. Therefore we can say that a modal represents a situation. It is this conclusion that is important to the tense theory to be proposed.

## 2.3. Two Absolute Tenses

Let us now outline (1c), i.e. the hypothesis that English has only two absolute tenses: the past and the present tense (see Harder (1996), Huddleston (1995), Lyons (1977), Nakau (1994) and Quirk et al. (1985)). This hypothesis views *will* not as a future tense marker, but as a finite verb in the present tense.<sup>4</sup> Since there is no a priori reason to assume that English has only two absolute tenses, we have to give evidence to support our position.

First, English has only two tense morphemes, i.e. the present and the past tense morpheme. From the morphological point of view, it is possible to say that English has only two (absolute) tenses.

The second argument for our position is that not only *will* (and *shall*) but also other modals such as *can* and *may* can be used in sentences referring to future time.

- (5) a. You can come to my office this evening.  
b. Tom may leave tomorrow.

Thus, it is not a unified treatment to regard only *will* as a future tense marker.

The third piece of evidence is that *will* shares some syntactic properties with other modal auxiliaries (see Huddleston (1995:414-415)). First of all, modals have only tensed or finite forms, possessing no base forms and nonfinite forms. Secondly, they have no person/number contrast. Thirdly, they always require the bare infinitive as their complement. In syntactic terms, there is no reason to treat only *will* as a tense marker, but not as a modal auxiliary.

The fourth argument concerns the semantic relationship between the future use of *will* and the modal use of *will*. First, futurity is closely related to prediction, as (6a) shows. Secondly, we often cannot easily distinguish the future use of *will* from the volitional use of *will*, as (6b) illustrates.

- (6) a. It will rain tonight.  
b. I will go camping next Sunday if the weather is fine.

In (6a), *will* can be said to express the speaker's prediction about the future actualization of raining; the prediction itself holds true at the speech time (S). In (6b), we can regard *will* as representing either the subject's volition or pure futurity, or both. Since no one argues against the view that the modal *will* is viewed as expressing the present tense, it is safe to argue that the so-called future tense marker *will* should be considered to represent the present tense in that both types of *will* cannot easily be separated from each other.

The final and strongest argument is that just as other modals have their past tense counterparts (e.g. *could* and *might*), *will* has its morphological past tense counterpart *would*.<sup>5</sup> Observe the contrast in (7):

- (7) a. [Mark my words:] in a few months' time their love will change to hate.  
b. Only a few months later their love would change to hate.

(Huddleston (1995:411))

Notice that *would* in (7b), which requires a future-in-the-past situation, is the past tense counterpart of *will* in (7a). If we treat *will* as a future tense marker, we must tackle the problem of how to handle this parallel between *will* and *would*. If we treat *will* as a main verb in the present tense describing a present situation like prediction, we do not face such a problem. Even if we admit the presence of the future tense in English, it does not have the same status as the present and past tenses; i.e., the future tense system belongs to what we call the secondary tense system (cf. Harder (1996)).

#### 2.4. *Four Temporal Notions*

I now turn to the consideration of (1d). I will adopt a temporal notation consisting of the following four temporal notions: the speech time (S), the event time or the time of the situation (E), the time of orientation (O) and temporal focus (TF). Let us define the four temporal notions one by one.

First of all, the **speech time** is defined as the moment at which a given sentence is uttered. This is equivalent to Reichenbach's (1947) point of speech.

Let us turn to the definition of the event time or the time of the situation. The event time is defined not as the time of a whole event or situation itself, but as the time point or period of a relevant part of the event or situation which is talked of in a sentence.<sup>6</sup> This definition of the event time corresponds to Declerck's (1991a, 1991b) definition of the time of the situation.

To clarify this point, consider (8):

- (8) a. Mana is studying French now.
- b. Ryoko had a headache yesterday.

In (8a), the speaker may represent only a portion (or subinterval) of the situation of Mana's being in the state of studying French as relevant to the situation where the sentence under consideration is uttered, relating only that portion to the time line: the length of the event time may be a few minutes or three hours, while the full time length of that situation may be more than five hours. What is important here is that the event time in (8a) is not necessarily equal to the full length of the situation of Mana's being in the state of studying French; the length of the event time depends on the speaker's subjective judgment. The same applies to (8b). If (8b) is uttered to explain why Ryoko was absent from school yesterday, the event time may be the time length of the relevant part of the situation (e.g. the length of time which stretches from nine to five).

The third notion, the time of orientation, is defined as a *base time* from which the speaker (or hearer) evaluates or computes the event time(s). This notion is a functional (or discourse) time, usually working at the level of tense interpretation, as we will see later. The time of orientation is viewed as a kind of reference time. As is pointed out by many linguists (Bertinetto (1986), Declerck (1986; 1991b:250-253) and Harder (1996:398-404)), Reichenbach's point of reference is a complex notion and thus can be divided into more than one basic notion: one is the time of orientation,<sup>7</sup> and another is the time established by time adverbials or by the context,<sup>8</sup> which I will omit from the tense theory to be proposed because the time in question is always simultaneous with an event time in my sense.

Let us illustrate the point by considering (9):

- (9) a. Miyako moved to Canada.  
 b. Miyako has moved to Canada.  
 c. Miyako had moved to Canada when I wrote to her last year.

In both (9a) and (9b) the time of orientation is located in the present; more precisely, when we interpret the sentences at issue, the speech time (S) functions as the time of orientation in that S can be considered to be the starting point for any kind of temporal calculation (see Declerck (1991a, 1991b)). In these two sentences, the pastness associated with the event time is computed from S, so S, by definition, serves as the time of orientation. When we interpret sentence (9c), by contrast, the event time of the speaker's writing to Miyako functions as the time of orientation for the main sentence; i.e., the event time of Miyako's moving to Canada is evaluated from that time of orientation (see also section 4.2.2).

I now turn to the consideration of the fourth notion, i.e. temporal focus (TF). TF is defined as follows:<sup>9</sup>

- (10) Temporal focus is a speaker's focus, which is fixed on the time point (period) on the time line to which the speaker is paying attention.

This notion is basically equivalent to Declerck's (1991a, 1991b) temporal focus, except that the temporal focus in my sense can refer to a sub-part (or portion) of the relevant event time (see section 4.4). Note that TF is also a kind of functional time, working at the tense-interpretation level (see sections 3 and 4).<sup>10</sup>

Compare (9a) with (9b) again. In the past tense version (9a), the TF is directed at the event time in the past; in the present perfect version (9b), the TF is directed at a certain time simultaneous with S, i.e. the time of the resultative state following the preceding event of Miyako's moving to Canada.<sup>11</sup>

### 2.5. Modality

Let us finally consider (1e), i.e. a theory of modality. I define modality as follows:

- (11) Modality is a speaker's subjective mental state or attitude at the time of his or her utterance or thought.<sup>12</sup>

Let us clarify, step by step, what the statement in (11) conveys. First, consider (12), i.e. cases of modality in independent clauses:

- (12) a. They will marry soon.  
 b. Bruce loves Mary.

In (12a), *will* denotes the modality of prediction, while in (12b), *loves* represents the modality of assertion; in (12a), the speaker predicts that their marriage will happen soon and in (12b), the speaker makes an assertion about the state of Bruce's loving Mary.

Note that root modals which are subject-oriented do not belong to modality in our sense.<sup>13</sup> In this paper, such root modals are seen as objective elements, and thus, belong to the proposition domain (see Nakau (1994)). Observe (13):

- (13) a. Nao will go to the *koto* concert held at Tokyo National University of Fine Arts and Music.  
 b. Sachiko can sing like a professional.

In (13a), the modal *will* expresses one situation, i.e. the will of the subject, and the modality associated with it is the assertion; the speaker asserts that the subject, i.e. Nao, has the will to go to the concert. The same line of argument applies to (13b):<sup>14</sup> *can* expresses the ability of the subject, accompanied by the modality of assertion.

Let us now turn to cases of modality in dependent clauses. The statement in (11) implies that in indirect speech, a speaker can be viewed as the original speaker or the original subject of thought; and the time of a speaker's utterance or thought can be viewed as the time of the original utterance or thought. Thus, consider (14):

- (14) a. John said that Nancy would help him.  
 b. Mary thought that Nancy was pregnant.

In (14a), *would* represents the prediction of the original speaker John, and in (14b), *was* represents the assertion of the original subject of thought, i.e. Mary.

Before concluding this section, it should be noted here that in certain syntactic environments, verbs are not accompanied by any modality, though they have the same morphological form as verbs in the assertive form. Observe (15):

- (15) a. When I arrived there, she had already left the town.  
 b. If you take over the job, you will be rich.

Although they have the same forms as their assertive counterparts, both *arrived* in (15a) and *take* in (15b) are neutral with respect to modality. The reason why *arrived* and *take* are viewed as neutral forms, but not as assertive forms, is that they are objective elements and belong to the proposition domain. As Lyons (1977:170-171) states, propositions in temporal clauses and *if*-clauses combine with propositions in main clauses to form an *intensional domain*, i.e. a set of propositions. Since modality is by definition subjective, it usually cannot enter into such objective realms as temporal clauses and *if*-clauses. Therefore, *arrived* and *take* in (15) are seen as being in the neutral form which is not accompanied by any modality.

### 3. A Compositional Tense Theory

This section, based on the basic assumptions and theories shown in section 2, presents a compositional tense theory which consists of the level of tense structure and the level of tense interpretation, and examines each level in great detail. At the

level of tense structure, the semantic (or tense) structure of a tense form represents its original temporal value. A tense structure serves as the "template" for determining the temporal value at the tense-interpretation level. At the level of tense interpretation, elements such as characteristics of referents in object position, lexical properties of relevant predicates, time adverbials, contexts and syntactic environments can influence the determination of the temporal value of a tense form at the stage of practical use; that is, the original temporal value of a given tense form manifests itself as a default value, changes into another value or is further specified, under the influence of elements other than its tense structure.

### 3.1. *Tense Structure*

Let us begin by examining the tense-structure level in detail. The following is my hypothesis pertaining to the tense structure of English predicates:

- (16) In English, a finite predicate consists of both the absolute tense component (A-component) and the relative tense component (R-component), whereas a nonfinite predicate consists only of the R-component.

#### 3.1.1. *Finite Predicates*

I will start with the above statement with respect to the A-component. The A-component is represented by a tense morpheme establishing either the past or present (or non-past) time-sphere, and thus only a finite predicate contains the A-component. In semantic terms, we can divide time into three deictic temporal areas, i.e. the past, the present, and the future. In terms of English grammar, however, we can divide time into two deictic temporal areas, i.e. the past and the present time-sphere.<sup>15</sup> The past time-sphere covers only the past area while the present time-sphere covers both the present and the future areas. This component is absolute because at the tense-structure level, the establishment of a time-sphere is exclusively based on a direct relation to the speaker's point of view, which adheres to the speech time (S), i.e. the absolutely-fixed base time for the calculation of all the temporal relations.

Let us now move to the above statement as to the R-component. The R-component is represented by the event time in the sense shown in section 2.4. With finite predicates, the event time must be properly included (or always obtain somewhere) in a time-sphere associated with the A-component.<sup>16</sup> This component is relative because if we take a tense morpheme away from a finite predicate, we can get the base form associated with the event time whose position on the time line is not established in a direct relation to the speech time.

To illustrate the point, consider (17):

- (17) a. Mana played the *koto*.

b. Hitomi is happy.

In (17a), *played* contains a past tense morpheme, establishing the past time-sphere. Because of the presence of a past tense morpheme, the realization of the event time is confined to the past time-sphere. Note here that the semantic (or tense) structure of *played* per se represents its event time as obtaining anywhere in the past time-sphere. The same line of explanation applies to (17b). The present tense morpheme of *is* establishes the present time-sphere, to which the realization of its event time is restricted. The semantic structure of *is* itself represents its event time as being included in the present time-sphere. At the tense-structure level, all a finite predicate does is to represent its original temporal value. Which position on the time line each predicate in (17) is related to is finally determined at the tense-interpretation level. This will be discussed in great detail in section 3.2. (Notice that in (17b), the event time of *is* is construed as being located in the same time position as the speech time, but not as being located in the future; we will examine the reason in section 3.2.1.)

### 3.1.2. Nonfinite Predicates

I now turn to nonfinite predicates. Since the tense structure of nonfinite predicates does not contain any tense morpheme establishing a time-sphere, by definition, it consists only of the R-component. There are five nonfinite forms in English: the bare infinitive, the *to*-infinitive, the present participle, the past participle, and the gerund.

Let us consider, in turn, what kind of temporal value these five forms possess. I will first look at the bare infinitive. I assume that the semantic structure of the bare infinitive represents a temporal relationship of non-anteriority, i.e. the area consisting of both simultaneity and posteriority. This is ascribed to the nature of the bare infinitive. As Duffley (1992:141) notes, the bare infinitive "has been defined as a quasi-nominal form of the verb evoking its event as not yet realized." This means that given a base time, it is logically impossible for the event time of the bare infinitive to precede the base time.<sup>17</sup> What is not yet realized at a certain time cannot occur before that time.

Thus, observe (18):

- (18) a. The letter will arrive tomorrow.  
 b. Rieko must be at home now.

As the sentences in (18) show, the bare infinitive merely represents a relation of non-anteriority with respect to a certain base time. Only at the tense-interpretation level is the temporal value of the bare infinitive further specified under the influence of, say, time adverbials (see section 3.2.2).

I will next consider the *to*-infinitive. I assume that the tense structure of the *to*-

infinitive represents posteriority relative to a base time. This is due to the nature of the *to*-infinitive. As stated in Duffley (1992:Ch.5), the *to*-infinitive can be divided into two parts: the preposition-based particle *to* and the bare infinitive. This kind of *to* expresses the goal of an abstract movement on the time line; and the bare infinitive expresses a relationship of non-anteriority, as we have already seen. Thus, given a base time, the property of *to* requires that the bare infinitive time be restricted to the after-position of the abstract movement which starts from that base time.

Observe (19), for instance:

- (19) a. I asked Mana to play the *koto* for me.  
 b. I hope to see you this evening.

In (19a), for example, *to play* represents its event time as coming after a certain base time (which will be identified with the time of asking at the tense-interpretation level). Only at the tense-interpretation level can we finally determine the temporal relation of the nonfinite-predicate time to the base time, i.e. the finite predicate time (see section 3.2.2).

Let us now move to the gerund.<sup>18</sup> In this paper, the gerund is assumed to represent non-posteriority, i.e. the area consisting of both anteriority and simultaneity, because of its nature. As stated in Declerck (1991a:503), a gerund tends to be used "when the reference is to a (present, past or temporally unspecified) experience." Put another way, the gerund can not only refer to a situation in a general way, but also suggest fulfilment of an action. It is safe to ascribe this tendency to the nature of the gerund, namely the nature of representing an experience; in order for a situation to be experienced at a certain time, the situation must have occurred or obtain at that time.

Consider (20):

- (20) a. I like swimming.  
 b. I remember traveling to Italy with her.

At the tense-structure level, the semantic structure of the gerund itself represents a relationship of non-posteriority. The temporal value of the gerund is further specified at the tense-interpretation level (see section 3.2.2).

Finally, let us take a look at the present and past participles. Following Cowper (1995) and Nakau (1994), I assume that the present participle itself expresses simultaneity and the past participle itself expresses anteriority because of the lexical properties of the morphemes *-ing* and *-en* (cf. also Parsons (1990) and Kageyama (1996)).<sup>19</sup>

Observe (21):

- (21) a. Sitting here in the sun, I still feel cold.  
 b. The job finished, we went straight home. (Nakau (1994:222))

In (21a), the present participle *sitting* represents simultaneity, i.e. an ongoing situation at a base time, while in (21b), the past participle *finished* represents anteriority, i.e. a completed situation. Which times the temporal relationships of the nonfinite predicates are based on are determined at the level of tense interpretation (see section 3.2.2). In these cases, the base times are identified with the main-clause times which serve as the times of orientation for the calculation of the subordinate times at the tense-interpretation level.

### 3.2. Tense Interpretation

In this subsection, I will consider how we can fix the finally-determined temporal value of a given tense form (finite or nonfinite) at the level of tense interpretation. At this level, two kinds of interpretations are possible with respect to a relation to the speech time. Here is my hypothesis with respect to English tense interpretation:

- (22) In English, both finite and nonfinite predicates can be interpreted either deictically or non-deictically under the influence of elements such as time adverbials, syntactic environments and contexts.

In a deictic interpretation, the event time of a predicate is interpreted in a direct relation to the speech time, while in a non-deictic interpretation, it is interpreted in relation to another event time functioning as a time of orientation or an implicit time of orientation implied by the context.<sup>20</sup> (Whether or not the event time is finally related to the speech time does not matter.)

#### 3.2.1. Finite Predicates

First of all, let us examine how finite predicates are interpreted at this level of tense interpretation. Consider (17b) again:

- (17) b. Hitomi is happy.

In (17b), all the predicate *is* represents at the tense-structure level is that its event time obtains somewhere in the present time-sphere established by the present tense morpheme. It is at the tense-interpretation level that the event time is interpreted as simultaneous with the speech time. This interpretation is, by definition, deictic. Why, then, is the event time construed as coinciding with the speech time? Such a question arises because it might seem possible that the event time in question is related to an implicit time other than S, i.e. a future time, which is also in the present time-sphere. The answer lies in the fact that the predicate *is* is in the assertive form. Since the future is an unrealized temporal area, we usually cannot make an assertion about a future situation. What we can make an assertion about in the present time-sphere is a present situation because the present is a realized temporal area. Therefore, the predicate *is* is interpreted as referring to the present.

This line of argumentation is strengthened by the contrast in grammaticality between the following two sentences:

- (23) a. Everything will be all right tomorrow.  
 b. \*Everything is all right tomorrow. (Declerck (1991b:61))

Sentence (23b) is ungrammatical because we usually cannot make an assertion about a future state of a certain situation.

The following sentences might appear to undermine the above explanation; but in fact, they do not. Rather, they support the explanation.

- (24) a. The parcel arrives tomorrow. (Leech (1987:56))  
 b. The train leaves at 7:30 this evening. (Leech (1987:65))  
 c. I really need you tonight.

(cited from Bonnie Tyler's 'Total Eclipse of the Heart')

In (24b), for example, although the verb is in the assertive form, the actualization of the train's leaving comes in the future. This is possible because it can be said that if at the speech time we are certain of the future actualization of a given situation, we can use the assertive form. In this case, the situation is already predetermined by the timetable when the speaker utters this sentence. Therefore the speaker can make an assertion about the future situation in (24b). This line of explanation also accounts for why sentences (24a) and (24c) are also grammatical.

I will now consider somewhat more complicated examples for a better understanding of the level of tense interpretation.

- (25) a. If you come with me, you will enjoy the party.  
 b. One day, Naomi said to Oscar that she saw him the day before.

The finite predicate *come* in (25a) represents its event time as being located somewhere in the present time-sphere established by the A-component at the level of tense structure. It is at the tense-interpretation level that the event time of *come* is interpreted as almost simultaneous with (more precisely, coming just before) the event time of the addressee's enjoying the party, which is interpreted as posterior to the event time of *will* simultaneous with the speech time. This non-deictic interpretation of *come* can be ascribed to the property of *if*-clauses (see section 2.5). Since the situations of the *if*-clause and the main clause form an intensional domain, the position of the *if*-clause time is determined based on that of the main-clause time as the relevant time of orientation (in this case the time of enjoying). In this case, the time of the actualization of the main-clause situation in question is in the future, so the *if*-clause time is also located in the future. (I will examine the temporal mechanism of sentences with the future use of *will* in detail in section 4.2.1.)

With (25b), the explanation runs as follows. The matrix-clause verb *said*, whose

event time is included in the past time-sphere at the tense-structure level, is interpreted as referring to a specific time because of the presence of the time adverb *one day*. Like the matrix-clause verb, at the tense-structure level the complement-clause verb *saw* represents its event time as being located somewhere in the past time-sphere. At the tense-interpretation level, we can interpret the event time of the complement clause as being anterior to the matrix-clause time by virtue of the property of the relative time adverbial *the day before*. Here, the event time of the matrix clause functions as the time of orientation for the calculation of the event time of the complement clause.

### 3.2.2. *Nonfinite Predicates*

I now turn to the consideration of nonfinite predicates. First of all, observe (19) again:

- (19) a. I asked Mana to play the *koto* for me.  
 b. I hope to see you this evening.

As we have seen, the *to*-infinitive in (19a) only expresses posteriority at the tense-structure level. It is at the tense-interpretation level that the posteriority in question is interpreted relative to the event time of the finite verb *asked* functioning as the time of orientation.

Let us now consider (18) again:

- (18) a. The letter will arrive tomorrow.  
 b. Rieko must be at home now.

Recall that the present discussion is based on the assumption that a modal auxiliary can express one situation; moreover, the temporal value of the bare infinitive is finally fixed at a specific value at the tense-interpretation level. Thus in (18b), by virtue of the lexical property of *now*, the time associated with the bare infinitive *be* is interpreted as simultaneous with the time associated with *must*, i.e. the time of the speaker's mental attitude of certainty. As for (18a), see section 4.2.1.

Let us move to a reconsideration of (20).

- (20) a. I like swimming.  
 b. I remember traveling to Italy with her.

Only at the tense-interpretation level can we finally determine the temporal value of the gerund. In (20a), the gerund *swimming* can be construed as expressing a general experience holding at the speech time, so it is interpreted as representing simultaneity relative to the event time of the finite predicate *like* as the time of orientation. In (20b), on the other hand, the temporal value of *traveling* is finally fixed at anteriority relative to the finite-predicate time as the time of orientation because of the lexical property of *remember*.



can be true. As is clear from (27), the part of the situation associated with *seems* can be viewed as overlapping the part of the situation associated with the stative predicate *be sick*. (Nakau (1994:358) notes that the "NP seem to V" construction, used with the present tense, requires that its infinitive complement be a stative verb (cf. Ross (1969:80)).) It is this nature of stative predicates that motivates us to reinterpret sentences like (26). Therefore, we can explain the discrepancy at issue by arguing that  $E_2$ , which is construed as posterior to  $E_1$  at the first stage of the tense-interpretation level, is reinterpreted as simultaneous with  $E_1$  at the final stage. This is how, in a syntactic environment like (26), the *to*-infinitive, which represents posteriority at the tense-structure level, can finally receive a simultaneous reading at the tense-interpretation level.

Let us next consider a passive sentence like (28).

(28) The window was broken.

Sentence (28), a passive sentence, describes the past state of the window's being broken, while as we have seen, at the tense-structure level the past participle describes a situation prior to a certain base time (which will be identified with the time associated with *was*). How can we explain this discrepancy?

The explanation goes as follows. It is safe to say that like the copula *be*, the passive auxiliary *be*, in combination with elements that come after *be*, contributes to representing a state or characteristic of the subject at a certain time (cf. section 4.4). If so, the past participle cannot express the preceding event itself without contradicting the property of passive *be*; for the past participle has to refer to a state or characteristic holding true at the time associated with *be* in order for the property of passive *be* to be preserved. This might seem contradictory to the claim that the past participle represents anteriority. Note, however, that the state of the window's being broken presupposes that the event of the window's breaking occurred previously. This means that the resultant state in question comes next to its preceding event described by the past participle on the time line. Therefore, it is possible that a metonymy permits the situation described by the past participle to refer to its resultant state.<sup>21</sup> Given these observations, we can say that in a syntactic environment like a passive form, the resultant state of the event at issue, but not the preceding event itself, is profiled in order for the property of passive *be* to be preserved, and thus the past participle is interpreted as representing the resultant state at issue which holds true at the event time of *be*. This is how the past participle in the passive form is interpreted as expressing simultaneity at the tense-interpretation level.

Let us finally examine sentences expressing mental reactions. Observe (29):

(29) a. I am glad to know that he is safe.

b. I am happy to see you here. (Duffley (1992:123))

Take (29a) for example. In this sentence, the time of knowing is interpreted as anterior to the time of being glad. This might appear contradictory to our claim that the *to*-infinitive represents posteriority; but in fact, it does not. How, then, can we explain this fact?

The explanation is as follows. Note first Duffley's (1992:124) statement that sentence (29a) "presupposes that the person referred to by *I* has been waiting for news about someone whom he thought to be in danger." If this is correct, we can say that sentence (29a) contains one implicit time, i.e. the time of the speaker's waiting for the news, which is interpreted as coming before the time of the *to*-infinitive. This temporal relation is schematically represented in (30):

(30) the *to*-infinitive: O ————— E<sub>2</sub>

The nonfinite predicate *to know*, represented by E<sub>2</sub>, is interpreted as posterior to the time of the speaker's waiting for the news, which functions as the time of orientation (O) for the calculation of the nonfinite time. Thus, we can say that at the first stage of the tense-interpretation level, the original temporal value of the *to*-infinitive (i.e. posteriority) shows up by default.

Let us now move to the reason why in (29a), the nonfinite time is interpreted as anterior to the finite time at the final stage. To explain this fact, we have to remember that what motivates this interpretation is our knowledge about mental (or emotional) reactions. Since the time of being glad is directly relevant to the mental-reaction scene, the temporal focus is directed at that time, and, thus, the time at issue is profiled. In order to preserve our knowledge about mental reactions, the time of knowing must come before the time of being glad (i.e. E<sub>1</sub>). This is why in (29a), the *to*-infinitive is interpreted as expressing anteriority relative to the finite time.

Moreover, since the finite predicate *am glad* is in the assertive form and expresses the present tense, E<sub>1</sub> is construed as simultaneous with the speech time (S). Thus, the final version of the temporal schema for the sentence in (29a) is as follows:

(31)

Abs:	S	PRES
FIN		
Rel:	E <sub>1</sub>	
NON-F	↑	
Rel:	TF	
	/	
	(O)-----E <sub>2</sub>	

FIN and NON-F are short for finite and nonfinite predicates, respectively; Abs and Rel symbolize the A-component and the R-component, respectively. The tip of the arrow points to the target at which the speaker directs the temporal focus (TF). The vertical solid line represents the simultaneous relation of E<sub>1</sub> to the speech time. The

horizontal broken line represents the posterior relation of  $E_2$  to the implicit time of orientation at the first stage of the tense-interpretation level; the slanting solid line represents the anterior relation of  $E_2$  to  $E_1$  at the final stage of the tense-interpretation level. The parenthesized O means that this time is not explicitly relevant to the temporal interpretation of the sentence under consideration at the final stage;  $E_1$  functions as the relevant time of orientation for the calculation of the *to*-infinitive at this stage. This is how we can interpret the sentence (29a) appropriately .

### 3.3. Summary

In this section, we have examined the two levels which play an important role in a new compositional tense theory: the tense-structure level and the tense-interpretation level. By distinguishing the two levels, we can avoid ascribing too much to the semantic (or tense) structure of a given tense form. Specifically, we do not have to assume two different types of present tenses (e.g. present tenses in independent clauses and subordinate clauses like *if*-clauses and temporal clauses) nor three types of *to*-infinitives (e.g. *to*-infinitives expressing posteriority, simultaneity and anteriority); they are viewed as interpretive variants. Moreover, we can give a motivated answer to the question of why predicates in the same tense form can be interpreted ambiguously; at the tense-interpretation level, the information conveyed by a tense form per se interacts with the information conveyed by elements other than tense structure in order for the tense form to receive an appropriate interpretation.

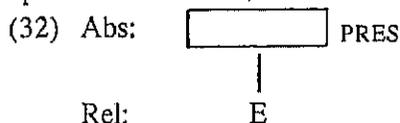
## 4. Temporal Schema

In this section, on the basis of the proposed compositional tense theory, I will formulate the basic temporal schemata of several typical sentences with finite predicates: sentences in the present and past tenses, sentences referring to future time, and sentences in the perfect and the progressive form. The temporal schema of the semantic structure of a given tense form (i.e. a temporal template) develops into an interpretive temporal schema with the help of the information conveyed by elements other than tense structure.

### 4.1. Simple Tenses

#### 4.1.1. Present Tense

I will begin with a description of the temporal schema of the semantic structure of the present tense form, as shown in (32):



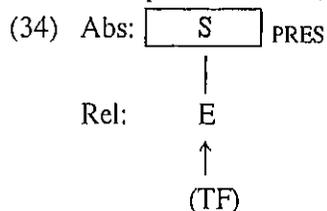
In the A-component, the rectangle with subscript PRES represents the present time-sphere. The R-component represents the event time (E) as being included in that time-sphere;<sup>22</sup> such a relationship is represented by the vertical line which expresses a relationship of simultaneity because a relation of inclusion is a kind of relation of simultaneity.

Let us now move to an examination of sentences in the present tense in (33):

- (33) a. Hitomi is happy. (=17b))  
 b. Mana plays the *koto*.

Sentence (33a) describes the present state of Hitomi. By using (33a), the speaker can refer to either the specific situation of Hitomi or the permanent situation of Hitomi, i.e. her characteristic, both of them holding true at the speech time. Sentence (33b), by contrast, is construed as describing Mana's habit of playing the *koto* on account of the property of a non-stative predicate in the simple present tense:<sup>23</sup> an English non-stative predicate in the simple present tense cannot express a single ongoing or unbounded event (or situation) because of its characteristic of perfectiveness (cf. also Cowper (1998)), so a habitual reading manifests itself in order for the situation at issue to receive an appropriate interpretation (thus it is possible that Mana is not playing the *koto* when the speaker utters sentence (33b)). Since a habit is a set of tokens of the same action or event implying an inherently unlimited time-span, it is construed as unbounded or homogeneous. In this sense, a habitual statement can be said to express a kind of stative situation.

We can now represent the basic temporal schema of the present tense available at the tense-interpretation level, as in (34):



Since *is* and *plays* in (33) are in the assertive form, their event time is construed as simultaneous with the speech time (S) (see section 3.2.1). Recall that as we have stated in section 2.4, the length of the event time (E) can vary according to the situation that the speaker has in mind. Thus, the event time can express both a specific single situation and a habitual situation.

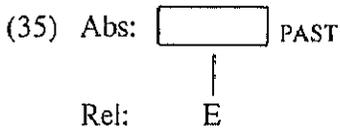
It should be noticed that the temporal focus (TF) is an optional notion in the temporal schema; if the event time does not refer to a specific situation on the time line, the temporal focus is not directed at any part of the event time at issue. Thus, in a habitual reading like the one in (33b), since the event time is associated not with a

specific single event, but with an unspecified series of subevents, the temporal focus is not operative. The temporal focus works when the situation denoted by a present-tense predicate receives a specific reading.

To summarize, the present tense per se establishes the present time-sphere, representing its event time as being true somewhere in that time-sphere, as shown in (32). This is all the tense structure of the present tense represents. At the tense-interpretation level, with the help of temporal focus we can clarify whether a given present tense expresses a specific or a non-specific situation, as shown in (34).

#### 4.1.2. Past Tense

Let us now turn to the past tense. The schema of the semantic structure of the past tense is shown in (35):



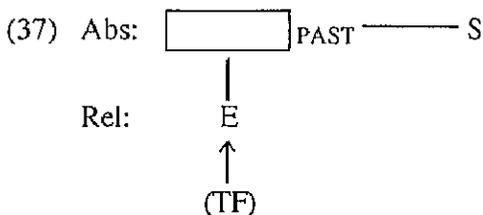
The A-component is occupied by the past time-sphere represented by the past tense morpheme and the R-component is occupied by the event time which is included in that past time-sphere.

I now turn to a consideration of some past tense sentences.

- (36) a. Rieko was kind.  
       b. Yoko played tennis.

A predicate in the past tense, stative or non-stative, can describe both a specific and a non-specific situation holding true in the past. Thus, sentence (36b) can be interpreted as describing, say, the semelfactive situation of Yoko's playing tennis yesterday or as describing the past habit of Yoko's playing tennis.

The basic temporal schema of the past tense at the tense-interpretation level is represented as follows:



As with the present tense version, when the event time denotes a specific single situation, the temporal focus is directed at it. The only difference between the past and present tense versions is that of the time-sphere.

It is worth noting that this schema can explain the following fact properly:

- (38) a. Mary was born in Mexico, but I don't know when.  
       b. He bought a red sports car, but I forgot when and where.

It is often said that the past tense expresses a definite past situation (see Comrie (1985), Leech (1987) and Quirk et al. (1985)). As (38) shows, however, the past tense does not always represent a definite situation: in (38), the situation expressed by the first conjunct holding true in the past is not recognizable (or identifiable) to the speaker, as the second conjunct definitely shows (see Declerck (1991b:304-305), Fenn (1987:162-166) and McCoard (1978)). We can explain this in the following way. In the first conjunct, the temporal focus is not operative because the situations themselves are not recognizable to the speaker. It is usually the case that what the speaker is not specific about is not recognizable to the addressee. Therefore, the past tenses of the first clauses in (38) can represent indefinite situations.

The past tense can of course represent a definite past situation, especially when it co-occurs with a definite time adverbial or when the position of the event time is clear from the context:

- (39) a. Koji went skiing last Sunday.  
 b. Ryoko was talking when I entered the room.

In both (39a) and (39b), the definite time adverbials *last Sunday* and *when I entered the room* make the past tenses definite.

To sum up, the past tense itself does not represent definiteness. All that the tense structure of the past tense expresses is that it establishes the past time-sphere in which its event time is properly included, as shown in (35). Only at the tense-interpretation level can we interpret a given past tense as representing either definiteness (e.g. the case of (39)) or indefiniteness (e.g. the case of (38)) on the basis of the temporal schema in (37).

## 4.2. Complex Tenses

### 4.2.1. Future

As seen in section 2, *will* is considered to be a finite verb in the present tense. How, then, can we interpret sentences with *will* referring to the future (henceforth future *will* sentences)? In our system, a future *will* sentence is composed of the finite verb *will* and at least one nonfinite verb, and the event time associated with the (first) nonfinite verb contributes to referring to future time (see also Nakau (1994:227-230)). For the sake of simplicity, we will here ignore the volitional use of future *will* sentences, confining ourselves to the pure future or non-volitional use.

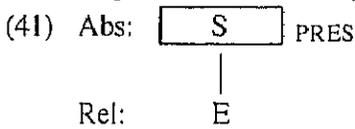
Before going into the analysis of future *will* sentences, we should recall that our theory is based on the assumption that a modal auxiliary, when expressing a semantically-filled situation, can describe one situation and thus one event time, just as a full or main verb can. Thus, a future *will* sentence contains (at least) two situations and, accordingly, two event times: one is associated with *will* and the

other(s) with the nonfinite verb(s).

We are now in a position to clarify the mechanism of future *will* sentences.<sup>24</sup> Consider (40):

- (40) a. They will go to Britain next spring.  
 b. Ken will be in New Zealand tonight.

Take (40a) as an example. Let us start with a consideration of *will*. At the tense-structure level, the event time associated with *will* is included in the present time-sphere represented by the A-component. At the tense-interpretation level, in independent and matrix clauses, *will* usually represents a speaker's mental state, i.e. prediction, which holds true at the speech time. Thus, the temporal schema of *will* at the tense-interpretation level is represented, as in (41):

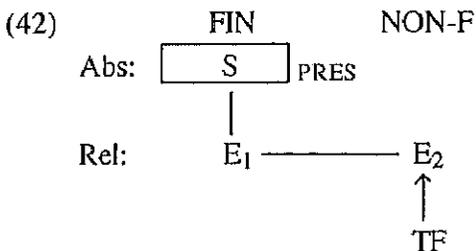


Here, the event time E denotes the speaker's prediction.

I now turn to the nonfinite verb *go*. Since *go* is in the bare infinitive form, it expresses a temporal relation of non-anteriority with respect to a certain base time at the tense-structure level. At the tense-interpretation level, the nature of future *will* sentences makes the nonfinite verb *go* restrict itself to representing a relation of posteriority with respect to the event time of *will* as the time of orientation. That is, the event time of *go* is interpreted as being located in the future.

It is a general view that future *will* sentences are future-oriented in comparison with sentences with *be going to* (see Leech (1987) and Palmer (1988)). In our theory, this statement is interpreted in the following manner: in the case of future *will* sentences, the temporal focus is directed at the event time of the nonfinite verb referring to future time, while in the case of sentences with *be going to*, the temporal focus is directed at the event time associated with *be going to* expressing an ongoing situation at the speech time.<sup>25</sup>

In view of these observations, we can now present the basic temporal schema of future *will* sentences as follows:



E<sub>1</sub> represents the event time of the finite predicate (e.g. *will* in (40a)) and E<sub>2</sub> the

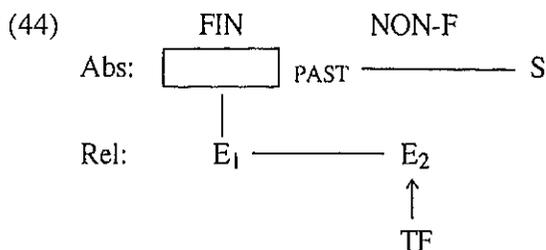
event time of the nonfinite predicate (e.g. *go* in (40a)). (If there are two nonfinite predicates,  $E_3$  is added to represent the second nonfinite predicate.) It must be kept in mind that future *will* sentences never establish the future time-sphere;  $E_2$  is posterior to  $E_1$ , which is properly included in the present time-sphere. The nonfinite predicate is not directly relevant to any time-sphere, so the event time of the nonfinite predicate is not necessarily included in the time-sphere established by a finite predicate.

The same line of argument is applied to a sentence referring to the future-in-the-past. Consider (43), for example:

- (43) a. I thought that she would love me.  
 b. He told me that he would be free in a few minutes.

Take (43a) as a sample case. The complement clause contains two verbs, i.e. the finite verb *would* and the nonfinite verb *love*. *Would* first establishes the past time-sphere and then represents the mental state of the original speaker, i.e. his or her prediction, holding true at the time of his or her utterance in that time-sphere (see section 2.5).<sup>26</sup> On the other hand, the nonfinite verb *love*, which has only the R-component, realizes its event time (i.e.  $E_2$ ) as following the event time of *would* (i.e.  $E_1$ ) as the time of orientation by virtue of the interaction between the property of *would* and the context, thus expressing posteriority relative to  $E_1$ .

The temporal schema of sentences with *would* is diagrammatically represented in (44):



The only difference between this schema and its present-tense counterpart (42) is that the time-sphere of the finite verb *would* is past. The schema in (44) implies that there is no direct relation between the speech time and  $E_2$ , so  $E_2$  can theoretically be anterior to, simultaneous with or posterior to  $S$ . This exemplifies the above statement that the event time of a nonfinite predicate (e.g. *love* in (43a)) is not always contained in the time-sphere established by a finite predicate (e.g. *would* in (43a)).

#### 4.2.2. Perfect Tense

This subsection deals with the perfect tense. As with future *will* sentences, I regard a sentence in the perfect tense (or a perfect tense sentence) as consisting of two situations: one is associated with perfect *have* and the other with the past

participle. In our system, perfect *have* is a finite verb and describes a resultative state which follows the event denoted by the past participle.

Although a perfect tense sentence and a future *will* sentence both consist of two situations, there is a difference in the way that the two situations of both sentences are combined to form a dual situation. With future *will* sentences, the situation associated with *will* and that associated with an infinitive are combined at the tense-interpretation level, as we have seen in the previous subsection. With perfect tense sentences, on the other hand, the process of combining the situation denoted by *have* with that denoted by the past participle is carried out at the tense-structure level. In other words, the form *have* + past participle as a whole is considered to be a meaningful grammatical unit, i.e. a template.

There are several pieces of supporting evidence for this claim. First, only the combination of *have* and the past participle expresses a dual situation denoted exclusively by the English perfect tense.<sup>27</sup> A future *will* sentence, by contrast, is not a unique form expressing a future situation. In addition to future *will* sentences, modals like *may*, *can*, and *must* with the bare infinitive, quasi-modals like *be going to* and *be about to* with the bare infinitive, and even the present progressive form can refer to future situations. Secondly, a perfect tense sentence exclusively requires that the past participle complement express anteriority relative to the base time represented by *have*; sentences with *will*, by contrast, can be interpreted as expressing present-time situations (e.g. *She will be in the office now.*) as well as future-time situations (e.g. *She will be 35 next year.*). These observations imply that the form *have* + past participle is a grammatical unit expressing the template of a particular tense, i.e. the perfect tense. Thus, the form under consideration has the composite tense structure, which is schematically shown in (45):<sup>28</sup>

(45) NON-F (pa.p.) FIN (have)  
 Rel: E<sub>2</sub> ——— E<sub>1</sub>

In (45), E<sub>1</sub> symbolizes the event time associated with *have* and E<sub>2</sub> the event time associated with the past participle (symbolized by pa.p.). The temporal relation of E<sub>2</sub> to E<sub>1</sub> is already fixed at the tense-structure level. The above conclusion is compatible with our general understanding that we cannot go to the interpretation stage without establishing the template for a given meaningful unit.

We are now in a position to consider some examples of perfect tense sentences in detail. Observe (46):

- (46) a. Mana has played the *koto*.  
 b. The train has arrived.

In (46a), the past participle *played* realizes its event time E<sub>2</sub> as anterior to the event

time  $E_1$  associated with *has* at the level of tense structure. Here,  $E_1$  denotes the resultative state following the event of Mana's playing the *koto*: in this case,  $E_1$  may be the state of Mana's being exhausted. Since *has* is a finite verb in the present tense,  $E_1$  is located in the present time-sphere established by the present tense morpheme.

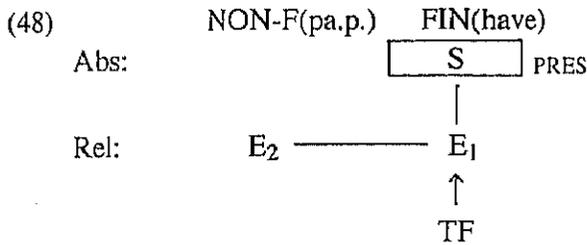
It is at the tense-interpretation level that a given perfect tense sentence is interpreted as expressing a finally-fixed temporal value. In (46a), the nature of the assertive form *has* allows the situation to be related to the present, but not to the future. At this level, a perfect tense sentence can also be interpreted as an instance of a certain use of the present perfect: under certain conditions, we may use the sentence in (46a) in the sense of 'Mana's having practiced the *koto* many times' in order to explain why Mana is good at the *koto* now. In this case, the resultative state may be that of Mana's being good at the *koto*, i.e. a result inferred from the preceding event, so the present perfect at issue is viewed as an experiential perfect.<sup>29</sup> (With respect to the mechanism of classifying English present perfects into certain types, see Wada (1994).)

Let us now move to an establishment of the temporal schemata of perfect sentences at the tense-interpretation level. I will start with the present perfect. In the present perfect, the temporal focus is assumed to be directed at  $E_1$ , i.e. the resultative state holding at the speech time, because it is generally said that in comparison with the simple past, the present perfect is present-oriented (see Leech (1987), Palmer (1988), and Quirk et al. (1985), among others). To clarify this notion, compare (47a) with (47b).

- (47) a. I've washed the car. (It looks lovely.)  
 b. I washed the car. (But it may be dirty again now.)

In (47a) the temporal focus is directed at  $E_1$ , i.e. the event time of the resultative state described by the sentence in the parentheses, which is simultaneous with the speech time.<sup>30</sup> This is because the present perfect entails the resultative state as a part of its semantics, and the speaker emphasizes that the resultative state stemming from the preceding event (symbolized by  $E_2$ ) is true at the speech time. This is why the present perfect is said to represent "current relevance." In (47b), by contrast, the temporal focus is automatically directed at the situation in the past itself because there is only one situation in the tense structure of the simple past tense (see (35)); thus, whether or not its corresponding resultative state holds true at the speech time is irrelevant to the truth-conditions of the simple past tense (see Wada (1994, 1995)).

We can now present the basic temporal schema of sentences in the present perfect which is available at the tense-interpretation level:



This schema shows that  $E_2$  and  $E_1$  are calculated from the speech time, i.e. the time of orientation in this case. In an independent clause,  $E_1$  is construed as simultaneous with the speech time (S) on account of the nature of assertion expressed by the finite verb *have*. As a result,  $E_2$  comes before S, being located in the past.

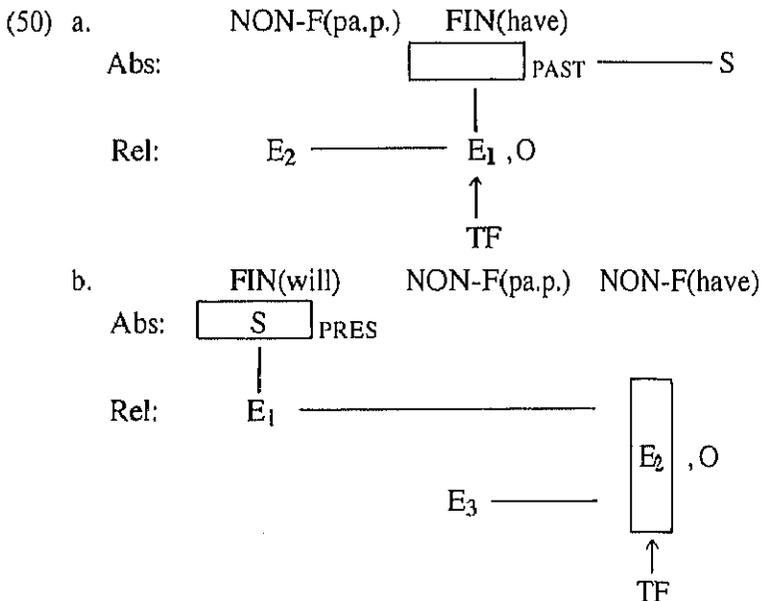
The same line of analysis applies to both the past and the future perfect. Consider, for instance, the following:

(49) a. Mana had left the hall when I arrived there.

b. Mana will have left the hall when I arrive there.

In (49a), the main clause consists of two situations and, thus, it contains two event times, i.e. the one associated with *had* ( $E_1$ ) and the one associated with *left* ( $E_2$ ). In (49b), on the other hand, the main clause is composed of three situations and it thus has three event times: the finite verb *will* represents  $E_1$ , the nonfinite verb *have* represents  $E_2$ , and the nonfinite verb *left* represents  $E_3$ .

The basic temporal schemata of the past and the future perfect, which are in operation at the tense-interpretation level, are represented schematically in (50):



The temporal schema of the past perfect in (50a) is parallel to that of the present

perfect in (48) on the time line, except that in (50a) the A-component is marked by past while in (48) the A-component is marked by present. In (49a),  $E_1$  denotes the time of the state of Mana's not being at the hall holding true at the subordinate time of the speaker's arrival, which functions as the time of orientation (O) for the calculation of the past perfect; both times are located in the past time-sphere. In the case of the future perfect in (49b), there is greater complexity.  $E_1$ , associated with *will*, denotes the time when the speaker's prediction holds true.  $E_2$ , associated with *have*, denotes the time of Mana's not being at the hall.  $E_2$  is posterior to  $E_1$  because of the nature of future *will* sentences: future *will* sentences require the posteriority of their complement (i.e. the bare-infinitive) situation.  $E_2$  holds true at the time of orientation in the future indicated by the temporal-clause verb *arrive*.  $E_3$ , associated with *left*, comes before  $E_2$ , but the relation between  $E_3$  and the speech time is vague. The big difference between the present and past perfect, on one hand, and the future perfect, on the other, is that in the latter case, perfect *have* occurs in nonfinite position because *will* occupies the finite position, while in the former, *have* occupies the finite position. But the three kinds of perfects are equivalent to one another in that in each perfect, the perfect tense itself contains two situations, i.e. the resultative state and its corresponding preceding situation, and expresses an anterior relationship of the latter situation to the former situation holding true at a time of orientation (the time corresponds to the speech time in the case of the present perfect).

#### 4.3. *Orientational Event Time*

Before going into the temporal schema of the progressive form, let us introduce a variant of an event time, which I call an *orientational event time*. This type of event time is associated with a semantically-unfilled situation and functions merely as a base time (which also functions as a time of orientation at the tense-interpretation level).<sup>31</sup>

To clarify what an orientational event time is, consider (51):

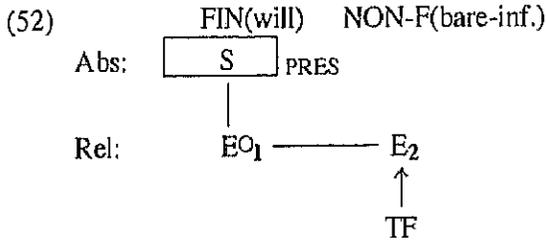
(51) a. Tomorrow will be Sunday. (Hornby (1975:95))

b. My babe-in-arms will be 59 on my 89th birthday.

(Palmer (1988:148))

In section 4.2.1, it has been argued that *will* describes a speaker's mental state, i.e. prediction, but it is hard to think of the *wills* in (51) as describing a speaker's prediction. Take (51a) as a sample case. If it is uttered on Saturday, it is normally nonsense for the speaker to make a prediction about the situation described in (51a) because it is calculated automatically and objectively that the next day is certainly Sunday. The same applies to (51b). In this sense, the *wills* in (51) do not describe any semantically-filled situation.

Note, however, that although this type of *will* in (51) does not represent any semantically-filled situation, the time associated with *will* still has a temporal function, i.e. serves as a base time for the calculation of the position of the event time of the nonfinite verb (e.g. *be* in (51a)). Hence we speak of this type of event time as an orientational event time. The temporal schema of sentences like those in (51) is thus represented as follows:



EO represents an orientational event time which is related to one (semantically-unfilled) situation.

#### 4.4. *Progressive Form*

Having introduced an orientational event time, we can now analyze the temporal schema of sentences in the progressive form (i.e. progressive *be* plus the present participle) in great detail. I argue that the temporal schema of the progressive form is composed of two event times. But unlike future *will* sentences and the perfect tense, the progressive form is not associated with two semantically-filled situations. That is, the finite predicate *be* denotes an orientational event time while the nonfinite predicate (i.e. the present participle) denotes a *pure* event time.

The reason why progressive *be* does not express a semantically-filled situation is that the lexical property of progressive *be* is similar to that of copula *be*. Observe:

- (53) a. Tom is big.  
 b. Sachiko and Ryoko are good friends.

In these sentences the copula *be* alone does not make sense at all; copula *be* is understandable only if it combines with the following elements (e.g. adjectives and nouns) to form a grammatically meaningful unit, i.e. a predicate or a verb phrase. Progressive *be* is also understandable only when it combines with the present participle to form a grammatically meaningful unit. In this sense, both types of *be* are similar to each other. Hence progressive *be* merely serves as an orientational event time (cf. also the statement with respect to the passive form in section 3.2.2).

It should be kept in mind here that as in the case of the perfect tense, the conflation of the two situations constituting the progressive form also occurs at the tense-structure level; the form *be* + present participle serves as the template to which we can add further information to lead to a certain interpretation. I argue that

the progressive form also constitutes a temporal template at the tense-structure level for the following reasons. For one thing, since progressive *be* as well as the copula does not express a semantically-filled situation, it is nonsense to construct the tense structure of such a predicate alone. For another, only the combination of *be* and the present participle can represent an ongoing action or event denoted by the progressive aspect. From the above observations, it can be said that the form *be* + present participle is a grammatical unit designed exclusively for the progressive aspect. The composite tense structure of the progressive form is schematically represented in (54):

- (54) FIN (be) NON-F (pr.p.)  
 Rel:  $EO_1$  ,  $E_2$

$EO_1$  represents the orientational event time associated with *be* and  $E_2$  the (pure) event time associated with the present participle (symbolized by pr.p.).

Let us now turn to a consideration of some examples of the progressive form. Observe (55):

- (55) a. Tom is cheating Huck.  
 b. They are playing tennis.

In (55a), for example, *is* represents an orientational event time, i.e.  $EO_1$ , which serves as a base time for evaluating the event time of *cheating*, i.e.  $E_2$ . At the tense-structure level,  $EO_1$ , associated with *is*, and  $E_2$ , associated with *cheating*, are combined to form a template, i.e. the progressive form; the temporal relation of  $E_2$  to  $EO_1$  is that of simultaneity. At the tense-interpretation level, the assertion accompanying the assertive form *is* requires that  $EO_1$  coincide with the speech time. As a result,  $E_2$ , i.e. the event time of Tom's cheating Huck, is construed as holding true at the speech time.

We can now provide the basic temporal schema of the present progressive at the tense-interpretation level, shown in (56):

- (56) FIN (be) NON-F (pr.p.)  
 Abs: S PRES  
       |  
 Rel:  $EO_1$  ,  $E_2$   
           ↑  
       TF

A comma expresses simultaneity. The temporal focus (TF) is assumed to be directed at  $E_2$  for the following reasons. For one thing, it is natural that the TF tends to be oriented to the event time of a semantically-filled situation. For another, in this case,



period on the time line, the present participle can also be seen as related to a given time point or period independently of progressive *be* because of its verb-like characteristic. In this view, the progressive can represent the situation where progressive *be* and the present participle are related to two different event times.

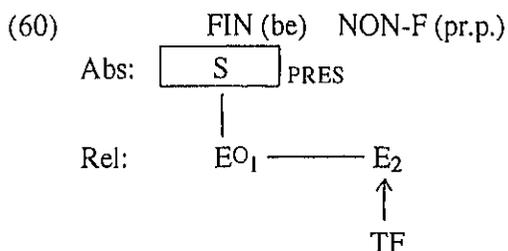
This is verified by the fact that the event time represented by the present participle and the event time represented by progressive *be* are specified by two different time adverbs.<sup>32</sup> Consider (59):

(59) a. Now I'm flying down there tomorrow night.

(C. Webb, *The Graduate*, p.155)

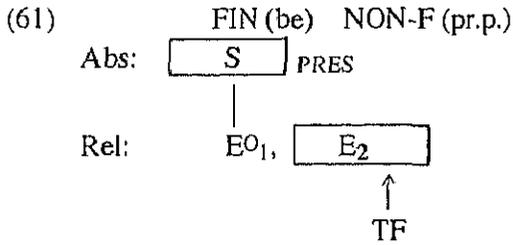
b. Yesterday you were coming tomorrow. (Huddleston (1969:782))

Take (59a) as a sample case. The adverbs *now* and *tomorrow night* specify the (orientational) event time of *be* and the event time of *flying*, respectively. Its temporal schema is like this:



There is one big difference between this schema and the schema in (56): in the latter schema, the present participle is interpreted as expressing simultaneity, while in the former, the present participle is reinterpreted as expressing posteriority. Since the present participle is assumed to represent simultaneity at the tense-structure level, it follows that at the tense-interpretation level, the present participle in (56) is construed as expressing its default value, whereas the present participle in (60) is construed as expressing a new temporal value derived from its original value.<sup>33</sup>

Why, then, is it possible that the use of the progressive expressing posteriority is derived from the original use of the progressive expressing simultaneity? We can explain this in terms of the temporal schema of the progressive in the following way. First, in the case of the progressive the temporal focus is directed at the event time of the present participle. Second, it is possible that the temporal focus is directed at a certain part of the event time, but not the whole event time, associated with the present participle. Given these, we can say that since the present participle expresses an ongoing situation which can potentially extend into the future, the temporal focus can be directed at a certain part of the event time of the psychologically extended situation which is located in the future. This process can be diagrammatically represented in (61):



E<sub>2</sub>, which is represented by a rectangle, indicates that the event time of the situation described by the present participle subjectively extends from now to the future in the speaker's mind. After the temporal focus is directed at the future part of E<sub>2</sub>, the part at issue is profiled, and thus the progressive is reinterpreted as expressing posteriority, as shown in (60).

This kind of explanation is indirectly supported by the fact that the present progressive expressing posteriority usually relates to a situation in the near future (see Leech (1987)). Sentence (59a) is a good example of this. Note, however, that this proximity is not necessarily a physical one. Observe (62):

(62) Next Saturday night, we're sending you back to the future.

(C.S. Gardner, *Back to the Future*, p.135)

Sentence (62) is uttered after Doc Brown has just found out how to send Marty back to the future; the day when sentence (62) is uttered comes a week before the Saturday in question. But in Doc's mind, the procedure of sending Marty back to the future is clear enough, and the procedure is being carried out psychologically; the plan will be actualized at the end of the psychologically ongoing process stretching into the future.

From the above observations, our explanation in terms of the temporal schema can account systematically for why the progressive can have both the use of simultaneity and that of posteriority. Since they are semantically related to each other, thus representing a polysemous relation, the same form (i.e. the progressive form) is used for both of the temporal relations, i.e. that of simultaneity represented in (56) and that of posteriority represented in (60).

## 5. Conclusion

In this paper, I have constructed a new compositional tense theory. In section 2, we have seen the following five basic assumptions and theories: the traditional distinction between finite and nonfinite forms, the Aux-as-main-verb hypothesis, the two absolute-tense hypothesis, a temporal notation consisting of four temporal notions, and a theory of modality. Based on these basic assumptions and theories, a new compositional tense theory has been proposed in section 3 which presupposes

the distinction between the level of tense structure and the level of tense interpretation; the theory also presupposes that English finite predicates consist of both the A- and the R-component whereas English nonfinite predicates consist only of the R-component. At the tense-structure level, the semantic (or tense) structure of a given tense form (i.e. a temporal template) represents its original temporal value. At the tense-interpretation level, on the other hand, the original temporal value of a tense form shows up by default, changes into a new value or is further specified, under the influence of elements other than tense structure such as time adverbials, syntactic environments and contexts. In section 4, we have formulated the basic temporal schemata of sentences in the present and the past tense, future *will* sentences, sentences in the perfect and the progressive form; the temporal schema provides a basis for explaining why a given tense form has a variety of connotations and uses.

The proposed tense theory differs from other previous theories in that it distinguishes the level of tense structure from the level of tense interpretation explicitly, and provides a systematic explanation of the mechanism of interpreting English tenses. Moreover, the tense theory can be extended not only to explain, from both a synchronic and a diachronic point of view, together with the concepts of grammaticalization and subjectification, why sentences with *will* and *be going to* have a variety of meanings or uses (see Wada (1996)), but also to account for how a variety of uses of the English present perfect emerge from its basic temporal schema (see Wada (1994)). Further, the tense theory can interact with other theories (such as Hirose's (1995, 1997a, 1997b) theory of reported speech) to provide a more comprehensive explanation of tense phenomena in English indirect speech complements (see Wada (1998)).

#### NOTES

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<sup>1</sup> In this paper, not only verbs, but also adjectives, nouns and the copula can serve as predicates.

<sup>2</sup> One might argue that modal auxiliaries like *can* and *may* are not main verbs because more restrictions are imposed on the use of modals; that is, modals neither inflect in the case of the present tense form nor take a noun complement. Adopting the prototype theory (Taylor (1989, 1995)), however, we can say that modals belong

to the category "main verb." In this theory, the central members of a certain category share a large number of attributes, while the peripheral members share less attributes. With this in mind, note that although modals cannot inflect nor take a noun complement, it is true that modals and full verbs have some similarities with respect to syntactic phenomena. Taking this fact into consideration, we can claim that modals are peripheral members of the main verb in syntactic terms.

<sup>3</sup> I use the term *situation* as a cover term for an action, event, state of affairs, process, whatever described by a predicate.

<sup>4</sup> Proponents of the assumption that English has three (absolute) tenses view *will* as a future tense marker (see Davidsen-Nielsen (1990) and Declerck (1991a, 1991b)).

<sup>5</sup> It is certain that the epistemic modal *would* expresses remoteness or politeness, not pastness, holding true at the time of utterance. Such a use of *would* is ignored here.

<sup>6</sup> I do not regard the event time as the full length of time of the situation described by a verb phrase partly because if it is so, we cannot deal with cases of stative predicates.

(i) Mary was kind.

Although it is possible that the situation of Mary's being kind continues up to the present, all that (i) intends to convey is that the situation under consideration holds true at a certain time in the past. Thus, in (i) the event time is not equal to the time of the whole situation. See Declerck (1991b:256-269) for further discussion.

<sup>7</sup> This notion corresponds to Prior's (1967) "reference time" and Smith's (1978, 1981) "orientation time."

<sup>8</sup> This notion corresponds to Bertinetto's (1986) "localization," Declerck's (1991a, 1991b) "time established," and Smith's (1978, 1981) "reference time."

<sup>9</sup> As far as I know, it is Fenn (1987) that first used the term *temporal focus*. But Fenn does not define it clearly. Declerck (personal communication) defines it as the time on which the speaker focuses his attention.

<sup>10</sup> Temporal focus can be seen as a third type of Reichenbachian reference time. This can be shown in the following manner. In the Reichenbachian system, since in the use of the past tense, both the reference time and the event time are located in the past, the reason why the past tense is said to express a definite past is that the position of the reference time is simultaneous with that of the event time; whereas since in the use of the present perfect, the reference time is located in the present, but the event time is in the past, the reason why the present perfect represents an indefinite past is that the position of the reference time is different from that of the

event time (cf. Dinsmore (1981, 1991) and McCoard (1978)). Recall that what is definite is what is identifiable to both the speaker and the addressee. This implies that when using the past tense, the speaker can pay his or her own attention to, and let the addressee pay his or her (i.e. the addressee's) attention to, the past event time simultaneous with the reference time. That is, the reference time can be viewed as representing the speaker's attention in the Reichenbachian system. Within our framework, the temporal focus, by definition, substitutes for the reference time in this sense. Thus, the temporal focus can be viewed as a kind of reference time.

<sup>11</sup> The notion *resultative state* represents a broader sense than the notion *resultant state* or *result state* in that the former contains not only the latter, i.e. the direct result stemming from the occurrence of the situation described by the past participle, but also the indirect result, i.e. a state of affairs not directly stemming from, but inferred indirectly from, the occurrence of a corresponding preceding situation. Both types of results are subsumed under the notion "current relevance." It is shown in Wada (1994) that the reason why an English present perfect is associated with either type of result can be explained in terms of the dual structure of the perfect tense (see also note 29).

<sup>12</sup> Modality is defined in various ways by many grammarians and linguists (see Bybee, Perkins and Pagliuca (1994), Lyons (1977), Nakano (1993), Nakau (1979, 1992, 1994), and Palmer (1979, 1986, 1988, 1990)).

<sup>13</sup> As Lyons (1977) states, root modals (e.g. deontic modals like *may* in *You may go*) can be regarded as expressing subjective modality in some cases. This type of root modals, by definition, belongs to modality in our sense.

<sup>14</sup> If a modal can be interpreted ambiguously, the hearer must decide, from the context, which use the speaker has in mind.

<sup>15</sup> Although Declerck (1991b:16-17) also states that the English tense system divides time into two time-spheres linguistically, he does not connect the notion of time-sphere with a tense morpheme, let alone a compositional tense theory. Thus, my tense theory bears some results different from Declerck's theory (see Wada (1998)).

<sup>16</sup> I use the term *obtain* in the sense of 'being in existence.'

<sup>17</sup> A base time covers whatever provides a basis for the calculation of temporal relation(s), irrespective of the tense level. Thus, this notion covers a pure event time (e.g.  $E_1$  in the case of the perfect tense) and an orientational event time (e.g.  $EO_1$  in the case of the progressive form), as we will see in section 4.

<sup>18</sup> There are two types of gerund in English: the nominal gerund and the verbal gerund (cf. Wasow and Roeper (1972) and Declerck (1991a)). Some criteria which distinguish them from each other are shown as follows:

- (i) A gerund is a nominal one,
- a. if it is preceded by a determiner (e.g. *the/their* constant changing).
  - b. if it is premodified by an adjective (e.g. *the piercing* screeching).
  - c. if it is postmodified by an *of*-PP (e.g. *his pacing of the pavement*).

These criteria and examples are cited from Declerck (1991a:496). In this paper, we take only the verbal gerund into account.

<sup>19</sup> Not all the past participles are accompanied by the morpheme *-en*; but for convenience' sake, I use the morpheme *-en* as the past participle morpheme in order to distinguish it from the past tense counterpart for which I use the morpheme *-ed*.

<sup>20</sup> Readers should not confuse the absolute and relative tense components with the absolute and relative tense interpretations. Finite predicates, which consist of both the A- and the R-component, can receive both the absolute and relative tense interpretations. Observe (i):

- (i) a. Ryoko was shy.  
 b. Sachiko will say that Ryoko went home.

In (ia), the past tense form *was* is viewed as receiving an absolute tense interpretation because its pastness is directly related to the speech time. In (ib), by contrast, *went* is seen as receiving a relative tense interpretation because it represents anteriority relative to a future time, i.e. the time of Sachiko's utterance. To avoid confusion, I will refer to absolute and relative tense interpretations as deictic and non-deictic interpretations, respectively.

<sup>21</sup> I consider this metonymy to be an instance of the cause-effect metonymy. See Seto (1997:148-160) for details.

<sup>22</sup> The relationship of simultaneity between two temporal entities is divided into two sub-relationships: "strict coincidence" and "inclusion." In the former case, the event time and the speech time share the same length of time, while in the latter case, the event time includes the speech time (cf. Declerck (1991b:313-319)). For example, (ia) expresses the relationship of strict coincidence and (ib) that of inclusion:

- (i) a. Nakayama shoots...Goal!  
 b. Today Ryoko is in her room from five to nine.

<sup>23</sup> In the case of sports commentaries and the patter or commentary of conjurors and demonstrators, we can use the simple present tense to refer to a specific single situation (see Leech (1987:6-7)).

<sup>24</sup> Readers should distinguish the future use of *will* from the epistemic use of *will* representing a present prediction, as shown in (i):

- (i) Rieko will be at home now.

This type of sentence is analyzed in the same way as sentence (18b).

<sup>25</sup> It is discussed in Wada (1996) why and how the temporal focus shifts from the event time of *will* to the event time of the nonfinite verb in the case of the future and predictive use. It is also demonstrated there that the difference of the position of temporal focus between sentences with *will* and sentences with *be going to* brings about some syntactic and semantic differences between them.

<sup>26</sup> As is shown in Hirose (1995, 1997a, 1997b) and Wada (1998), in indirect speech modal elements like modality and modal adverbials must be ascribed to the original speaker, not to the reporter.

<sup>27</sup> It is often said that in a sentence like *He is gone*, the form *be* + past participle represents a perfect tense (see Ota (1954:6-9)). It may be true from a diachronic perspective, but some linguists consider such a past participle to be an adjective. Michaelis (1998:132-135) discusses this matter in detail. In this paper, I do not enter into the matter, ignoring the form *be* + past participle as a perfect tense.

<sup>28</sup> One of the consequences stemming from this position is that we can explain, with a certain constraint, why the English present perfect cannot go with what I call adverbials of definite time-position such as *yesterday* and *at four*. See Wada (1995) for details.

<sup>29</sup> What kind of resultative state a given sentence in the perfect tense expresses depends on the lexical property of the past participle, the context or the type of uses of the perfect (the experiential perfect tends to contain an indirect resultative state, but not a direct one, because of its nature). Consider (i), for example:

- (i) a. Yoko has gone to Singapore.
- b. I have visited Italy once.

Thus in (ia), the resultative state might be, say, the state of Yoko's not being at the Narita airport and in (ib) the resultative state might be, say, the situation in which the speaker now knows much about Italy. See Wada (1995) for further discussion.

<sup>30</sup> As is stated in Schwenter (1994), it seems that in the "hot news" perfect, exemplified in (i), a speaker directs his or her focus at the event associated with the past participle.

- (i) The train station has burned to the ground! (Schwenter (1994:997))

In this paper, we regard it as a special case of the present perfect, leaving it as an exceptional case.

<sup>31</sup> It should be noted here that an orientational event time is distinguished from a pure event time functioning as a time of orientation. One of the reasons to distinguish between the two notions is that the former is necessarily an element of a target clause itself and is meaningless without a pure event time at the tense-interpretation level, while the latter can originally be an element of another clause and can

occur alone in that clause at the tense-interpretation level. Observe (i):

(i) a. Mana will say that she played the *koto* at the wedding.

b. Tomorrow will be Sunday. (=51a)

In (ia), the pastness represented by the complement verb is related to a future time denoted by the nonfinite verb *say* in the matrix clause at the tense-interpretation level. That is, the (pure) event time of *say*, which is originally an element of the matrix clause, functions as the time of orientation for the calculation of the event time of *played* in the complement clause. Moreover, the event time of *say* alone functions as an event time in the matrix clause. Therefore, the event time of *say*, by definition, is not regarded as an orientational event time. In (ib), by contrast, the orientational event time associated with *will* is an element of the target clause itself (i.e. a future *will* sentence), and must be accompanied by at least one pure event time (i.e. *be* in this case) at the tense-interpretation level.

<sup>32</sup> Pure adjectives, irrespective of the difference between stage-level and individual-level predicates, cannot be specified by two distinct time adverbs, as shown in (i):

(i) a. \*Now the floor is dirty tomorrow.

b. \*Now the door is wooden tomorrow.

The adjective *dirty* in (ia) is viewed as a stage-level predicate and the adjective *wooden* in (ib) is seen as an individual-level predicate.

<sup>33</sup> We can take the progressive expressing simultaneity as a basic type in comparison with the progressive expressing posteriority for the following reasons: first, only certain types of verbs are allowed to represent the progressive expressing posteriority; second, without a time adverbial specifying a different time from the time associated with *be*, the present participle tends to be interpreted as referring to the same time as the event time of *be*. See Declerck (1991a:92-93) for details.

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