

# UNIFICATION OF THE SEMANTICS OF THE INFINITIVE IN ENGLISH<sup>1</sup>

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## 1. Introduction

More than twenty years ago, Wierzbicka (1988, 23) wrote, “clearly, the syntax of English complementation cannot be satisfactorily accounted for without semantics; unfortunately, with semantics, it cannot be satisfactorily accounted for either”. It seems that the present situation has not changed much since with regard to the semantics of the infinitive in English as will be shown immediately.<sup>2</sup> It is generally agreed that the infinitive denotes some kind of future. This is illustrated in the following examples:

- (1) Mary wants to be an actress (in future).
- (2) I told Mary to be an actress.

When one says ‘future’, it means that the time of the event represented by the infinitive (henceforth, the time of the infinitive) is temporally located after the time of the event represented by the matrix predicate (henceforth, the time of the matrix predicate or verb). Therefore, in (1) the time of Mary’s becoming an actress (if it really happens) is placed after now because the time of the matrix verb lies in the present. Similarly, in (2), the time of Mary’s becoming an actress should follow that of the matrix verb, which is sometime in the past. Therefore, Mary may already be an actress now or this may have not happened yet. It is true that in most cases it is sufficient to interpret the infinitive as some kind of (relative) future.

However, it is easy to find examples which do not conform to this tendency. Examine the following sentences:

- (3) Mary seems to be honest.
- (4) George pretends to be honest.
- (5) I consider Mary to be honest.

The examples above seem to show that the time of the infinitive overlaps with that of the matrix predicate. For example, (3) does not mean that Mary's being honest happens sometime in future. In fact, it expresses the present situation. What is worse, the infinitive seems to represent even past with regard to the matrix predicate as follows:

- (6) It is nice to meet you.
- (7) I am glad to meet you.
- (8) I am surprised to see you.

The infinitive in (6), (7), and (8) seems to function as a reason for the state represented by the matrix predicates. Therefore, the content of the infinitive, chronologically speaking, should occur prior to the state denoted by the matrix predicates.

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As is clear from the data above, the semantics of the infinitive in English seems to resist a single interpretation. As will be shown later, there is no proposal to explain all the diverse phenomena under a single interpretation. Therefore, Wierzbicka's words of more than twenty years ago still hold now. However, this paper aims to unify the semantics of the infinitive in English. This paper is organized as follows. First I will critically review Wierzbicka (1988), Duffley (2000, 2006) and Duffley (1992) to show that each account has a few problems. Then I will argue that the infinitive represents incorporation of a possible world by the 'real' world.

## **2. Three proposals: Wierzbicka (1988), Duffley (2000, 2006) and Duffley (1992)**

Due to limited space, it is impossible to review all the papers on the infinitive in English. However, it is possible to divide most of them roughly into two categories. The proposals in the first category, where most classic ones belong, present a concrete definition of the infinitive with exceptions or a few variable definitions to cover all data. I believe that Jespersen (1940), Close (1962), Bolinger (1968), Kiparsky and Kiparsky (1970), Stowell (1982), Dixon (1984), Quirk et al (1985), Wierzbicka (1988) and Duffley (1992) belong to this category.

The other category includes relatively recent proposals such as Dirven (1989), Verspoor (1999), Smith and Escobedo (2001), and Duffley (2000, 2006).

These proposals have been developed along with the advancement of cognitive linguistics. The proposals in this category assume that there is a single underlying representation for the same form, which is called a schema, and different interpretations may be added as the schema is applied to individual cases. In this way, it is possible to cover all seemingly conflicting data, though the schema tends to be too vague to be explanatory. In this section, I will review Wierzbicka (1988), Duffley (2000, 2006) and Duffley (1992).<sup>3</sup>

### 2.1. Wierzbicka (1988)

This is one of the most comprehensive works on English complementation. As far as the infinitive is concerned, Wierzbicka initially claims that its semantics includes the elements of ‘I want’ and some kind of futurity. This definition works well when one needs to explain the difference between the following:

- (9) She was afraid to wake her mistress up. Wierzbicka (1988, 33)  
(10) She was afraid of waking her mistress up. Wierzbicka (1988, 33)

(9) has an infinitive, so it implies that she wanted to wake her mistress up, but she was afraid to do so. On the other hand, in (10), there is no intention of her waking her mistress up: what she was doing might wake her mistress up, and this is what she was afraid of. In this way, the difference between the infinitive and the gerund is accounted for very nicely.

Nevertheless, as the data coverage expands, there are uses which seem to resist the interpretation of ‘I want’ and futurity. One such example is found when the matrix predicate denotes some kind of opinion. Examine the following sentence:

- (11) I believe Mary to be dishonest. Wierzbicka (1988, 49)

As noted in the introduction, chronologically Mary’s being dishonest, if any, does not follow the speaker’s state of believing. Thus, strictly speaking, futurity does not hold here. Nonetheless, in this case, by employing Dixon’s (1984) “yet unrealized activity”, Wierzbicka continues to claim that the infinitive represents some kind of futurity. However, what is more problematic is that she continues to argue that the element of ‘I want’ is included in the example. According to the proposal, (11), for instance, implies that the speaker does not ‘want’ to say that people claim that Mary is dishonest, where ‘I want’ appears in negation. It may be presupposed that people, with the exception of the speaker, do not say that Mary is dishonest, but this presupposition need not be present. Moreover, if one applies ‘I want’ to (11) mechanically following the instance of (9) (where ‘want’ is applied directly to the infinitive), then he or she expects to learn that Mary ‘wants’ to be dishonest. Nevertheless, this interpretation is never found in (11).

More serious problems arise when one turns to the cases in which the matrix predicate denotes certain emotions. Consider the following example:

(12) I was surprised to hear that. Wierzbicka (1988, 105)

As noted above, the infinitive seems to function as a cause of the speaker's state of being surprised. In this case, Wierzbicka changes the definition of the infinitive and 'I want' is replaced with 'I think'. Thus, in the end she says, "It would appear that TO complements are generally characterized not only by a personal, first-person mode ('I want', 'I know', 'I think'), but also by a future component of some sort" (Wierzbicka 1988, 166). Therefore, no unified definition of the infinitive is available there.

The problem is not limited to the variability of the definition, however. To retain futurity, she claims that (12) implies that before the sentence was uttered, the speaker imagined the consequence of his or her hearing that, and thought that if this happened, he or she 'would' be surprised. However, it is hard to detect such a presupposition in the example. In fact, one may well be surprised if unexpected things happen.

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To sum up, there are a few problems with Wierzbicka's (1988) proposal because it has failed to supply a unified interpretation of the infinitive and some hypothetical presuppositions have been posited.

## 2.2. Duffley (2000, 2006)

Duffley (2000, 2006), in contrast to Duffley (1992), which I will discuss in the next subsection, adopts the framework of cognitive linguistics. He claims that there is no single referential category to unify the semantics of the infinitive, as the following quotation makes clear:

The fact that *to*'s meaning is so general that it can be applied to a variety of domains belies any attempt to reduce its meanings to a single referential category such as "future" (Duffley 2006, 27-28).

His main claim is that *to* in the infinitive is a preposition and, like other prepositions, it is polysemous. At the schematic level, the infinitive indicates "the very general notion of movement leading to a point" (2006, 26). Then this general notion is applied to various domains and specific meanings are attached to individual cases.

The starting point is the spatial interpretation of the preposition *to*. As in the example, *John went to the pool* (Duffley 2006, 25), *to* represents some spatial endpoint as a kind of Goal. If this general notion is metaphorically extended to a temporal domain, the infinitive is subsequent to the matrix predicate. Thus, the notion of futurity flows easily from such sequences as *Mary plans to visit her friend*.<sup>4</sup>

When the schematic notion is applied to other domains, the notion of sequence in time disappears. Consider the following example:

(13) The wall seems to be crooked. Duffley (2006, 27)

In this case, the domain is “logical rather than chronological”. As a result, “appearances are represented as pointing/leading to the attribution of crookedness to the wall”. Similarly, following Verspoor (1999), if the main predicate denotes some kind of opinion as in (14), the domain is “mental rather than temporal”.

(14) I knew/believed him to be a liar. Duffley (2006, 27)

In this case, in the speaker’s mind, ‘him’ is moving toward ‘to be a liar’. More specifically, “knowledge and belief are represented as causing a mental connection of ‘him’ to ‘be a liar’ ” (Duffley 2006, 27).

As discussed above, Duffley’s (2000, 2006) analysis of the infinitive is that its general notion is movement leading to a point, but it is polysemous depending on the application domains. However, there are two potential problems. The first one is that the fact that the infinitive in English is actually polysemous may pose a problem for the language acquisition perspective. Thus, if there is a more concrete and unified interpretation of the infinitive, it is easier for children to acquire it. The other problem is that Duffley (2000, 2006) does not discuss the cases in which the matrix predicate represents certain emotions such as (12), (repeated below):

(12) I was surprised to hear that.

This kind of example is problematic for most accounts which assume futurity because the event of the infinitive seems to happen before the situation of the matrix predicate begins. This sentence seems to be problematic for Duffley (2000, 2006) as well, but this type of example is not discussed there.<sup>5</sup>

### 2.3. Duffley (1992)

This is another comprehensive work by the same author on the infinitive in English, particularly on the difference between the infinitive with *to* and the one without *to*. In contrast to Duffley (2000, 2006), the definition of the infinitive in Duffley (1992) is more concrete, as follows:

(15) the infinitive evokes an event, and *to*, the movement from an instant situated before this event up to the instant at which the event begins.  
(Duffley 1992, 17)<sup>6</sup>

In other words, the infinitive describes the temporal transition from the state before the realization of the event of the infinitive (called ‘before-position’) to the moment when the realization of the event begins (called ‘after-position’); this idea is similar to Hirtle (1975) in that the infinitive describes a situation before the

event of the infinitive is realized. This definition seems to work well not only for the examples such as (1) and (2) but also for examples such as (12). (1) and (2) are repeated below:

- (1) Mary wants to be an actress (in future).
- (2) I told Mary to be an actress.

In (1), there is a state of Mary's not being an actress and another state of Mary's being an actress, and the sentence means that Mary wants transition from the former state to the latter one. (2) is explained similarly. Duffley (1992) further argues that *to* requires the bare infinitive to be placed after something. Thus, in the case of examples such as (1) and (2), the infinitive content is placed after the matrix verbs, and hence, the notion of 'futuraity' is derived in many cases.

Furthermore, the infinitive selected by emotion predicates such as (12) can be easily explained under Duffley (1992), which seems to be a problem for Duffley (2000, 2006) and others. Since *to* in the infinitive denotes a movement from the state when the infinitive is unrealized to the state when it begins to be realized, this movement may well be regarded as the cause of the emotion expressed by the main clause.

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There is one problem with this proposal, however. As implied in Duffley (2000, 2006), if the movement represented by *to* in the infinitive is limited to a temporal transition, the infinitive must always be subsequent to 'something else'. Although this manner of positioning of the infinitive works well for examples such as (1) and (2), examples such as (13) and (14), which are repeated below, seem to be problematic:

- (13) The wall seems to be crooked. Duffley (2006, 27)
- (14) I knew/believed him to be a liar. Duffley (2006, 27)

Both in (13) and in (14), the time of the event denoted by the matrix predicate does not seem to be prior to the one of the situation represented by the infinitive.<sup>7</sup>

A more problematic example is the following:

- (16) The village ceased to exist.

According to (15), *to* denotes the movement from the state before the event of the infinitive is realized to the moment when the same event begins to be realized. In other words, the infinitive itself means that the village, which did not exist before, appeared and existed somewhere. However, (16), on the whole, means such change of the state ceased. That is to say, the process of forming the village stopped in the middle, which implies that the village was never completed. Nevertheless, (16) does not have such a meaning. If the movement denoted by *to* is limited to temporal transition as in Duffley (1992), examples such as (16) cannot be easily resolved.

Despite this problem, Duffley's (1992) claim seems to be a better analysis than Duffley (2000, 2006) and other cognitive linguists' accounts in that it provides a more concrete definition of the infinitive. Below I will present a proposal which avoids the problems mentioned above.

### 3. The infinitive as incorporation of a possible world by the 'real' world

In this section I will claim that the infinitive in English builds possible worlds (cf. Lewis (1986) for possible worlds), in one of which the predicate of the infinitive holds, and *to* in the infinitive describes how the 'real' world in the mind of an individual moves towards, and hence assimilates the possible world among the many possible worlds. This section is organized as follows. First, I will present a brief notion of possible worlds. Then I will explain data which are sorted according to its temporal interpretations, and will show that the infinitive in all of the data receives the single but non-abstract interpretation.

#### 3.1. Possible worlds

First compare the following sentences:

(17) The earth is flat.

(18) I wish the earth were flat.

Current science would regard (17) as false. However, people talk about counterfactuals all the time as in (18). This fact shows that we entertain situations other than the present situation, which are called possible worlds (cf. Lewis 1986). Thus, although (17) is false in the real world, one can truthfully say (18) because the semantic content of the embedded clause may hold in at least one possible world. If one makes use of this notion, unifying the semantics of the infinitive becomes very simple.<sup>8</sup>

#### 3.2. *To* as 'future'<sup>9</sup>

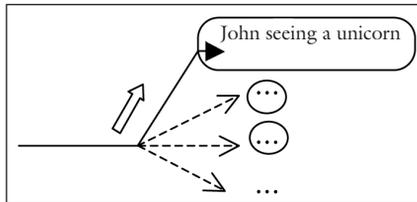
Here I claim that the infinitive builds a possible world which is created by the predicate of the infinitive. I also assume that there is a type of possible world called the 'real' world, which the matrix subject or the speaker thinks reflects the reality.<sup>10</sup> The infinitive describes how the 'real' world enters, and hence, incorporates, the possible world represented by the predicate of the infinitive. In other words, what holds in the possible world comes to hold in the 'real' world too.

As an illustration, consider (19):

(19) John<sub>i</sub> wants to PRO<sub>i</sub> see a unicorn.

Following the tradition of generative grammar, I assume that the logical subject (or external argument) of the infinitive in (19) is denoted by “PRO”, which refers to ‘John.’ The semantic representation is shown as below:

(20) John wants:



In (20), the undotted arrow indicates the path of the ‘real’ world while the dotted arrows describe paths which the ‘real’ world does not follow. Round spaces denote other possible worlds. The uppermost possible world in (20) represents a world where John can see a unicorn. I argue that the meaning of the infinitive is that the ‘real’ world enters and incorporates the possible world denoted by the predicate of the infinitive among many other possible worlds. Specifically, the content of the possible world is added to the ‘real’ world inside the rectangle, and this change is what John wants.

Above I have discussed a case in which the time of the infinitive is subsequent to that of the matrix predicate. There are many matrix predicates of this type in English: *want*, *expect*, *seek*, *attempt*, *plan*, and so on. One feature common to such predicates is that the movement process denoted by the infinitive is most naturally interpreted if the process happens at a later point than the time of the matrix predicates.<sup>11</sup> For example, in the case of *want*, when one wants something, one normally thinks of its realization as in the future, and one cannot want something that has already been realized. Similarly, in the case of *plan*, one does not plan events which have already passed. On the basis of the argument above, it is reasonable to assume that the time of the movement process denoted by the infinitive is determined by the semantics of the matrix predicate. Therefore, it is not always the case that the time of the infinitive follows that of a matrix predicate. Next we examine the cases in which the time of the infinitive overlaps with that of a matrix predicate.

### 3.3. To as ‘present’

First, we discuss the following two examples:

(21) John<sub>i</sub> seems to *t<sub>i</sub>* be sad.

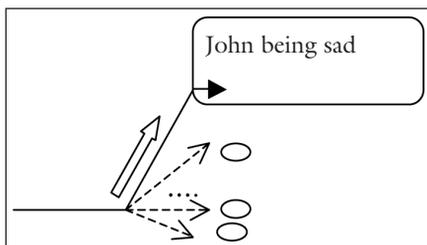
(22) Mary considers John<sub>i</sub> to *t<sub>i</sub>* be honest.

Both examples above have one feature in common: the time of the infinitive overlaps with that of the matrix predicate. However, there is one difference in terms of the possessor of the ‘real’ world. In the case of raising-to-subject predicates as in (21), the speaker of the sentence, not the subject (John), entertains his or her own ‘real’ world. This is because before the movement of John to the matrix subject, the matrix verb, *seem*, is a one-place predicate and selects the infinitive, and the implicit thinker of *seem* is the speaker of the sentence, not John.<sup>12</sup>

On the other hand, in the case of raising-to-object predicates as in (22), the matrix subject, Mary, possesses the ‘real’ world because the infinitive is selected by *consider* and the subject (or external argument) of *consider* is Mary. This difference apart, the two examples can be explained in a similar manner. They are represented as follows:

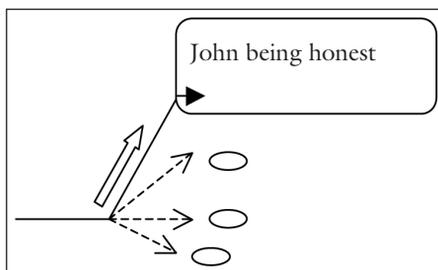
(23) (for (21))

It seems (or the speaker perceives):



(24) (for (22))

Mary considers:



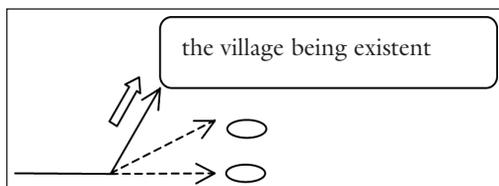
In (23) the speaker’s ‘real’ world chooses the world where John is sad, among many other choices. Hence, in the perception of the speaker, it seems that John’s being sad is true. On the other hand, in (24), the matrix subject, Mary, considers the path of her ‘real’ world, which enters the world where John is honest. In other words, in Mary’s thinking, John’s being honest is true.

Before discussing the ‘past’ use of *to*, let me account for a problematic example for Duffley (1992) mentioned above. Consider (16) again:

(16) The village<sub>i</sub> ceased to *t<sub>i</sub>* exist.<sup>13</sup>

The reason for its failure is that the transition from an unrealized to a realized event of the infinitive is temporal, i.e., occurs on the same time axis as in Duffley (1992). However, if that is the case, the sentence is expected to imply that there was a transition from a time when the village did not exist to a time when the village existed, which is not the intended meaning of (16). However, this kind of problem does not arise in the present account. (16) is represented as follows:

(25) What ceased is:



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Similarly to *seem*, *cease* is a raising-to-subject and one-place predicate and selects the infinitive as its sole argument, so the possible worlds belong to the speaker in (25). The rectangle there represents the movement of the speaker’s ‘real’ world into the world where the village existed. However, due to the matrix verb *cease*, the transition stopped, which implies that the world where the village existed was not part of his or her ‘real’ world. Hence, the speaker perceived that the village did not exist. Moreover, (the failure of) the transition happened in the mind of the speaker, not over time; hence, the interpretation is compatible with the presupposition that the village used to exist before, unlike Duffley’s (1992) account.<sup>14</sup>

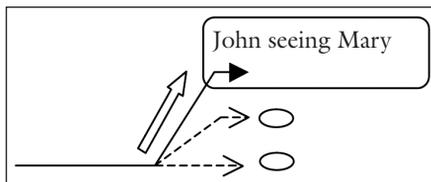
#### 3.4. *To* as ‘past’

The predicates which belong to this group denote some kind of emotion as discussed in Bolinger (1984), Wierzbicka (1988) and Duffley (1992) in detail. I examine the following example here:

(26) John<sub>i</sub> was surprised to PRO<sub>i</sub> see Mary.

In (26), the infinitive serves as the cause of John’s surprise, so it is natural to think that the time of the infinitive precedes that of the matrix predicate. This fact has been a problem for all the proposals mentioned in this paper except Duffley (1992). However, it is easy to give a uniform account to examples such as (26) in the current proposal. (26) is represented as follows:

(27) John was surprised at:



(27) shows the movement process from John's 'real' world to the world where John sees Mary, which means that John thought he saw Mary. This movement was the direct cause of John's being surprised.<sup>15</sup> Therefore, the meaning of (32) is that John was surprised at the new realization brought about by the movement.<sup>16</sup>

To sum up so far, the infinitive represents the 'real' world's incorporation of a possible world denoted by the infinitive by entering it, and it does not have its independent tense in relation to the utterance time. In other words, the time of the infinitive is decided by the meaning and time of predicates which select the infinitive. Nonetheless, the past interpretation of the infinitive is quite restricted and mostly limited to emotion predicates. Most uses of the infinitive refer to present or future. This tendency owes much to the semantics of the infinitive, which describes movement between possible worlds. Thus, it is unsuitable to use the infinitive to represent past events using possible worlds because the content of the past is normally fixed in the 'real' world and incompatible with change (of possible worlds). In contrast, the infinitive can refer to future or present more easily because they are subject to change of states, events, and perception, and hence, creation of possible worlds.

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#### 4. Comparison between infinitive and gerund

In this section I would like to discuss how certain predicates select either an infinitive or a gerund or both, and if a predicate allows both of the forms, to show how the two forms can (or cannot) be differentiated in terms of interpretation. Before we proceed further, I would like to make one assumption. In the previous section, it has been shown that the infinitive creates possible worlds. I assume, in contrast, that the gerund itself does not produce a possible world apart from the 'real' world, which always exists in the mind of individuals.

As has been suggested by linguists such as Mair (2003), De Smet (2004), and Fanego (2004), semantics alone is not sufficient to explain why certain predicates select an infinitive or a gerund form. Nevertheless, it seems possible to provide a general tendency about the choice. For example, Rudanko (1989: 150) claims the following:

infinitival [...] constructions typically co-occur with verbs of positive volition while the *ing* pattern, lacking *to* and the historical associations of *to*, displays a tendency to favor verbs expressing negative volition.

Therefore, verbs of positive volition such as *want*, *hope*, *wish*, and *decide* take an infinitival form, whereas verbs of negative volition such as *avoid*, *cancel*, and *postpone* take a gerundive form. However, verbs such as *anticipate* and *intend* have positive volition, but they can select a gerundive form, whereas verbs such as *refuse* and *decline*, which seem to require negative volition, take an infinitival form. Furthermore, historically speaking, *avoid*, which now selects only a gerundive form, took an infinitival form earlier (cf. Fanego 1996a). Thus, I would like to modify it as follows:

(28) If the main predicate is nonimplicative and its complement denotes future, the complement tends to take an infinitival form. Otherwise, it takes a gerundive form.<sup>17</sup>

Since this is a tendency, there are still counter-examples as will be discussed below. However, the present proposal can account for the problem of why a tendency such as (28) exists. The reason is that since implicative verbs are verbs whose complements are supposed to happen (or not to happen) in reality, there is no need to posit other possible worlds apart from the ‘real’ world. For example, the verbal complement of *cannot help* is known to happen as illustrated by the following:

(29) a. Mary couldn’t help laughing, so she laughed.  
b. ?Mary couldn’t help laughing, but she didn’t laugh.

Thus, it is unnecessary to form possible worlds in the mind.

On the other hand, in the case of nonimplicative verbs such as *refuse*, its verbal complement may not happen as in the following:

(30) a. Mary refused to go out with John yesterday, so she didn’t go out with him yesterday.  
b. Mary refused to go out with John yesterday, but she changed her mind and went out with him yesterday.

Since *refuse* is nonimplicative, it is not known in advance whether its verbal complement really happens or not. Therefore, something that may or may not happen causes the speaker to create a possible world which the ‘real’ world may incorporate. Hence, the statement in (28) follows.

#### 4.1. When the verbal complement refers to ‘future’

Despite the argument above, it is impossible to predict the form of the verbal complement with semantics of the main predicate alone for several reasons. One is

that the meanings of infinitive and gerund could overlap under certain situations. In that case, history rather than semantics plays a more important role. Fanego (1996a) has shown that many uses of infinitives have been replaced by the gerund gradually over a long period. In this subsection, I would like to show how historical changes have affected the present choice of the infinitive and the gerund and to discuss two apparent (but not real) counterexamples.

The first big change in the use of the infinitive and the gerund was the following:

(31) If the complement of a main predicate denotes future and will definitely happen (or will not happen), the complement cannot take an infinitival form.

Because of this change, predicates such as *avoid*, *put off*, *postpone*, and *cancel* come to select a gerundive form because their complements are implicative and denote future. Consider the following example:

(32) John postponed writing a letter to Mary.

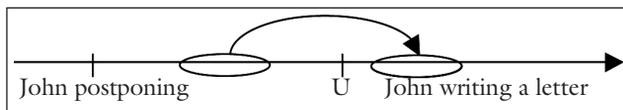
This sentence implies that although John's writing was postponed, it is assumed to happen, which I call future implicative. In contrast, predicates such as *want*, *hope*, *decide*, *promise*, *agree*, *plan* and many others take an infinitival form because their complements may or may not be realized, which I call future nonimplicative. Examine the following example:

(33) Mary has decided to go and see a movie.

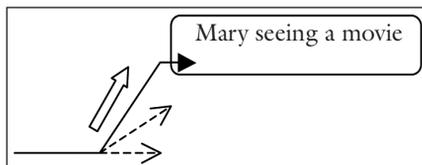
(33) does not necessarily indicate that Mary will go and see a movie, i.e. Mary may change her mind and may not go to see a movie; we cannot be absolutely sure which course of action she will choose.

The difference between (32) and (33) is illustrated as follows, where *U* stands for the utterance time:

(34) John postponed writing a letter to Mary:



(35) Mary has decided:



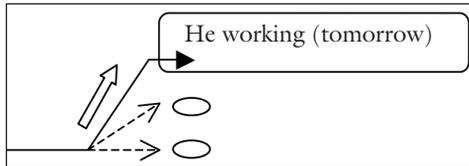
In the case of a predicate whose complement is future implicative such as (34), since the content of the complement will surely take place, it is unnecessary to prepare a possible world other than the ‘real’ world, which is the horizontal arrow. In contrast, in the case of a predicate whose complement is future nonimplicative, the creation of a possible world is necessary, by which one can describe the possibility of something happening. Thus, the generalization in (31) is consistent with the present claim. However, I would like to discuss two types of verbs which seem not to conform to (31) below.

4.1.1. *Intend to vs. -ing*

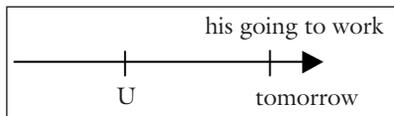
The first case is *intend*. The complement of this verb can take either an infinitival or gerundive form without apparent semantic difference.<sup>18</sup> Strictly speaking, this fact is not a counterexample to (31) because the verb *intend* selects a future nonimplicative complement. That is, if one intends to go to work tomorrow, he may change his mind and may not go to work tomorrow. Nevertheless, the verb could choose a future implicative complement. Thus, if one intends going to work tomorrow and regards the action of going to work as one’s plan, it is unnecessary to posit a possible world apart from the ‘real’ world. These two cases are illustrated as follows:

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(36) He intends:



(37) He intends going to work tomorrow:



In the case of (36), ‘his real’ world enters, and hence, incorporates the possible world where ‘he’ works tomorrow, among other possible worlds, and this is what ‘he’ intends (to do). In other words, there are (infinitely) many choices, but ‘he’ chooses the path of ‘his real’ world entering the world where ‘he’ works tomorrow. On the other hand, in (37), the speaker’s going to work is ‘his’ plan for tomorrow; in other words, ‘he’ knows that the plan will definitely happen. Accordingly, it is unnecessary to posit possible worlds and choose one. Both sentences describe the

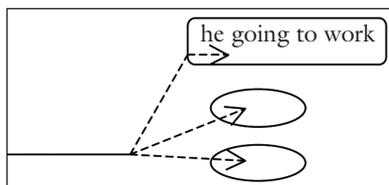
same situation. Therefore, either usage is grammatical.<sup>19</sup> Verbs such as *anticipate*, *plan*, and *propose* belong here although *anticipate* takes a gerundive form mostly.

#### 4.1.2. Verbs of imagination

Strictly speaking, verbs such as *consider*, *imagine*, *suggest*, *advise* and *risk* are not counterexamples to (31) because they are future nonimplicative. However, it is necessary to explain why an infinitival form is disallowed in such verbs. These verbs are exceptional in that they independently entertain possible worlds. Therefore, although they take a gerundive form, possible worlds are created too. Examine the following sentence and its semantic representation:

(38) He considers going to work tomorrow.

(39) He considers:



As assumed before, *consider* forms possible worlds without *to*. Thus, similarly to (36), there is a world where 'he' works tomorrow as well as other possible worlds. However, unlike (36), 'he' only considers a possibility of the 'real' world entering the world where 'he' works tomorrow: in other words, 'he' is not committed to any possible world there. Namely, 'he' is not strongly determined to make the possibility come true. Accordingly, the verbs of imagination cannot select an infinitive form if the 'real' world could turn into any of the possible worlds.

#### 4.2. When a matrix predicate and its verbal complement overlap

The generalization of (31) is not applicable when the time of a main predicate and that of its complement overlap. Nevertheless, the following generalization holds:

(40) When a matrix predicate and its verbal complement overlap time-wise,

- i) if the complement refers to some ongoing event, a gerundive form is appropriate, and
- ii) if the matrix predicate stresses the transition from an unachieved state to its achieved state, an infinitive form is appropriate.

For example, verbs such as *enjoy*, *finish*, *stop*, *keep*, and *mind* take a complement which describes an ongoing event. Thus, they take a gerundive form:

(41) Mary enjoys singing very much.

(42) The kids didn't mind their parents smoking.

Since those verbs select verbal complements which hold in reality, there is no need to assume a possible world apart from the 'real' world. Hence, they take a gerundive form.

In contrast, verbs such as *manage*, *fail*, *seem*, and *pretend* describe the transition from an unachieved state to an achieved one, which is achieved by the 'real' world's entry into the possible world denoted by the infinitive.

Consider the following sentences:

(43) They managed to solve the problem.

(44) They failed to solve the problem.

(45) They pretended to be innocent.

Although *manage* and *fail* are implicative verbs, their meanings have to do with the successful or unsuccessful transition from the 'real' world into the possible world where they solve the problem. In the case of *pretend* as in (45), the movement of the 'real' world into the possible world which the infinitive describes is unsuccessful as with *fail*; however, it is intentional failure unlike *fail*. Since all of the verbs represent (successful or unsuccessful) transition between the 'real' and a possible world, they need an infinitive form as their verbal complements.

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#### 4.2.1. Aspectual verbs

There are many verbs which select both an infinitival and a gerundive form without apparent semantic difference. I will discuss a few cases in this and the next subsection.

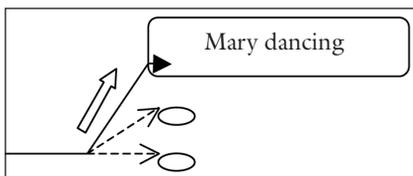
Verbs such as *start*, *begin*, and *cease* allow both an infinitive and a gerund form as their complements without apparent semantic difference.<sup>20</sup> Compare the following pair:

(46) a. Mary started to dance.

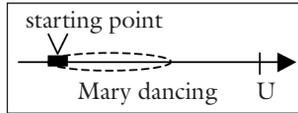
b. Mary started dancing.

The meanings of these two examples are the following:

(47) Mary started:



(48) Mary started dancing:



(47) says that movement from Mary's 'real' world into the world where she dances started whereas the gerundive form in (48) expresses the beginning of Mary's dancing in the actual world. However, as far as the 'real' world is concerned, there is no semantic difference. Thus, both forms can convey the same meaning.<sup>21</sup>

#### 4.2.2. *Like to vs. like -ing*

Kempson and Quirk (1971) claim that people show marked preference either to an infinitive or to an gerundive form under certain situations. Compare the following pair (1971: 552):

- (49) a. I like to get up as soon as the alarm rings.  
 b. I like getting up when the weather is warm.

De Smet (2004) explains the contrast above by arguing that (49)*a* involves the subject's volition to get up whereas (49)*b* describes the subject's enjoyment of getting up.

The contrast can be easily explained under the present account too. In the case of (49)*a*, the infinitive expresses the movement of the speaker's 'real' world into the world where the speaker gets up, and what the speaker likes to do when the alarm rings is to get up among other possible choices (or actions). Thus, it explains De Smet's (2004) association of the infinitive with 'volition' very nicely. On the other hand, options of action are not taken into consideration in (49)*b*. It simply describes that what the speaker likes is getting up when the weather is warm. Thus, few people would employ the infinitive in (49)*b*.

However, De Smet also shows that both forms can show a habitual reading, in which case it is impossible to predict which form arises as a verbal complement of *like* as follows:

- (50) a. He liked thinking of the past and the fun he'd had.  
 b. He liked to think of the past and the fun he'd had.

(Kempson and Quirk 1971: 552)

It is also possible to provide an account for this case. In the case of (50)*b*, what 'he' liked is to choose the action of thinking of the past among other choices in his spare time. In contrast, (50)*a* roughly means that 'he' thought of the past and the fun 'he' had as 'his' habit and 'he' enjoyed it, in which case the events of 'his'

thinking all appear on the time line of 'his real' world. Both of the meanings are possible to describe one's habit. Therefore, in the case of habitual readings, both options are available without much semantic difference. Hence, it is impossible to predict the form with the given information alone.

#### 4.3. When the verbal complement refers to 'past'

If the time of a verbal complement is anterior to that of its main predicate, it mostly adopts a gerund form. Verbs such as *admit*, *regret*, and *deny* belong here. This situation is not unpredictable in the present account. Past events are what really happened (or did not happen), so it is unnecessary to create possible worlds and choose one of them using the infinitive. Thus, the gerund is normally favored when the content of the complement refers to an event or situation in the past.

However, as has been discussed in 0, emotion predicates such as *surprised* may select the infinitive, in which case the time of the infinitive is posterior to that of the main predicate. Accordingly, the gerund is not the only option when the complement refers to 'past'. Furthermore, according to Fanego (1996b), verbs such as *remember* used to allow *to have p.p.* as well as *-ing* until the mid of the 20<sup>th</sup> century. Besides, verbs such as *claim*, *hope* and *intend* can take *to have p.p.* This suggests that the infinitive can express 'past' content in two situations. One is when the change of state becomes the cause of an event described by the matrix predicate such as *surprised*, so there is overlap of time between the state and the event. The other type always needs the perfective *have*, which may suggest their complements overlap with their main predicates temporarily. Therefore, strictly speaking, the infinitives in both situations are not genuine cases of past.

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## 5. Conclusion

I have shown above that the semantics of the infinitive can receive a uniform interpretation despite seemingly diverse uses. That is, the infinitive in English creates possible worlds, and the 'real' world enters, and hence, incorporates one of the possible worlds which is described by the predicate of the infinitive.

Moreover, deciding the time of the infinitive is dependent upon the semantics of the matrix predicate, due to which we typically have three uses of the infinitive in terms of its temporal interpretation: 'future', 'present', and 'past' to the time of the matrix predicate. As for the 'past' interpretation of the infinitive, its temporal positioning is very restricted and the 'real' world entry into the world denoted by the infinitive must serve as the direct cause of the emotional stated described by the matrix predicate (or perfective *have* is employed). Thus, the time of the

infinitive is not ‘past’ to that of the matrix predicate, but must be positioned at the beginning of the time of the matrix predicate. This argument, if correct, explains why predicates which require their objects to denote something in the past, such as *admit*, *regret*, and *remember* (when its object is a gerund), do not take the infinitive complement.<sup>22</sup>

As for the ‘present’ and ‘future’ interpretations, the former is often available with predicates of perception and realization because the movement of the ‘real’ world into the possible world denoted by the infinitive is directly perceived or realized; hence, their infinitives are naturally recognized as ‘present’. Moreover, as with *manage*, *fail*, and *pretend*, when the success or failure of the movement is described, ‘present’ interpretations are derived with the infinitive. In contrast, in the case of ‘future’ interpretations, the matrix predicates semantically require their complements to happen in future. Thus, verbs such as *want*, *hope*, *aim* and *decide* select the infinitive.

The discussion, if correct, predicts that once infants learn the semantics of matrix predicates (as well as complements) properly, they can restrict the availability of the infinitive to a great extent. Since infants do not need to memorize different usages of the infinitive one by one, their acquisition of the English complementation system would be largely eased; this evidently needs to be tested systematically.

## Notes

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<sup>1</sup>. I would like to thank Teresa Fanego, Liang Chua Morita, and the two anonymous *Miscelánea* reviewers for important comments and stylistic suggestions.

<sup>2</sup>. When I say the infinitive, it means the one with *to*, not the bare form (without *to*) in this paper.

<sup>3</sup>. When one reviews literature, s/he should do so in a chronological order in the case of works of the same author. However, I will intentionally introduce Duffley (2002, 2006) before Duffley (1992) because I believe that the older (i.e. latter) work is superior.

<sup>4</sup>. Following Duffley (1992), Duffley (2000, 2006) assumes that matrix predicates which show temporal relationship with the infinitive are further divided into two groups.

One, when used in the past tense, implies the completion of the infinitive (called “subsequent actualization” or “implicative”) as in *John managed to solve the question*. On the other hand, the other group (called “subsequent potentiality” or “nonimplicative”) does not have such implication. For example, *John wanted to be an artist* does not imply that John became an artist. I will discuss this distinction in section 4.

<sup>5</sup>. To be fair, Duffley’s (2000) scope is limited to “(the) complement of transitive verbs in English”, so the fact that examples such as (12) are not examined there is not a problem.

<sup>6</sup>. Duffley (2003), which is another work on the infinitive, applies the same view to the infinitive in the subject position.

<sup>7</sup>. In the case of examples such as (14), Duffley (1992) claims that there is a necessary before/after relationship between the event of the matrix clause and that of the infinitive. In comparison with the examples without *to*, it is clear that “*to* is used here to evoke an abstract before/after relation of condition to consequence” (Duffley 1992, 56). However, it seems more appropriate to say that the event of the matrix predicate includes the event of the infinitive in terms of time spans. Hence, the subsequent relationship between the matrix predicate and the infinitive seems unjustifiable.

<sup>8</sup>. It is possible to achieve the same effect with Fauconnier’s (1994) mental spaces, which are adopted in Morita (2011).

<sup>9</sup>. When I say ‘future’ here, it means a time subsequent to the matrix predicate time. The same logic applies when I say ‘past’. In the case of ‘present’, I assume that there is some overlap between the time of the infinitive and that of the matrix.

<sup>10</sup>. Here I depart from the standard assumption with regard to the use of the ‘real’ world in that the real world normally represents the world which truthfully reflects the current world whereas my use of the ‘real’ world can be subjective and be different from the real world. Thus, it is more correct to define the ‘real’ world as a set of worlds which are compatible with what the speaker or the matrix subject (which controls the infinitive) thinks is the case in the actual world.

<sup>11</sup>. Furthermore, such movement normally requires the “volition” of the subject. This is why linguists such as Wood (1956), Bladon (1968), Wierzbicka (1988), Rudanko (1989), and Smith & Escobedo (2001) have claimed that the meaning of the infinitive is claimed to be associated with “volition”. However, the concept is derivative from the concept of the movement. Hence, there are cases when no “volition” is involved as is shown below.

<sup>12</sup>. Similarly, in the sentence, “It seems that John is sad”, it is not John but the speaker who is thinking that John is sad, because the embedded clause is selected (and theta-marked) by *seem*. Of course, when a prepositional phrase appears as in *John*

*seems to Thomas to be sad*, the possible worlds will belong to the person after the preposition, in this instance, Thomas.

<sup>13</sup>. The verb *cease* can be transitive, so there can be PRO<sub>i</sub> instead of *t<sub>i</sub>* in the example. However, since *the village* has no intention, it cannot control itself (unless it is used metaphorically). Hence, *cease* in the example must be intransitive, and hence, a raising-to-subject predicate. I would like to thank the anonymous reviewer for suggesting clarification here.

<sup>14</sup>. Actually, the representation of the infinitive is also compatible with the context in which the village never existed. However, it implies that no change ever occurred as to the village (i.e. the village never existed), and if so, it is pragmatically inappropriate to use the verb *cease* because it indicates change of state. This is the reason why it is presupposed in (16) that the village existed before.

<sup>15</sup>. This is why that use of the infinitive is limited to emotion predicates such as *sorry*, *pleased*, and *happy*. For example, in *John ran to hear the noise*, the infinitive cannot be the direct cause of John’s running because its direct cause is not John’s perception of the sound but his subsequent neural command from his brain to move his leg muscles. Thus, in the example, the infinitive is interpreted posterior to the main predicate.

<sup>16</sup>. The infinitive in the subject such as *To be there made us feel happy* (Duffley 2003: 344) belongs here too.

<sup>17</sup>. Rudanko (1988) is unsure about whether *refuse* and *decline* are implicative, so I regard them as nonimplicative. Furthermore, verbs such as *omit*, *deny*, *neglect*, *escape*, and *eschew* are implicative, but since their complements are not posterior to the main verbs, (28) does not apply to them.

<sup>18</sup>. Dirven (1989) argues that there is a difference between the interpretation of *intend to* and that of *intend -ing* in that the former, but not the latter, contains the intention and volition of the matrix subject. However, Fanego (2004), on the basis of several corpora, indicates that there is no such difference. In other words, even *intend -ing* shows the intention and volition of the subject.

<sup>19</sup>. According to Fanego (2004), they differ only in terms of formality. That is, *intend -ing* is more informal.

<sup>20</sup>. Verspoor (1996: 442-) claims that there is a semantic difference between the infinitive and the gerund and presents the following pair:

(i) He paused for a while and then began to speak again.

(ii) ??He paused for a while and then began speaking again.

However, I consulted a native speaker and he found no difference between (i) and (ii). That is, both are grammatical.

<sup>21</sup>. This is the conclusion Mair (2003) reaches. He compared the use of *start/begin to* and *-ing* among American and British speakers, and found that the use of the infinitive and the gerund greatly depends on nonsemantic factors such as regional differences and formality.

<sup>22</sup>. However, as Duffley (2006: 63) observes, in Shakespeare's writing, one can find examples of *remember* taking an infinitival complement, such as *Such groans of roaring wind and rain, I never remember to have heard*. Nonetheless, as discussed above, this is not a counterexample due to the presence of the perfective inside the infinitive.

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