

Motion event and deictic motion verbs as Path-conflating verbs

Tsuneko Nakazawa
University of Tokyo
tsuneko@boz.c.u-tokyo.ac.jp

1. Introduction

Talmy (2000) analyzes a Motion event as consisting of an object, called Figure, and its movement through a Path with respect to another reference object, called Ground, as shown in (1).

- (1) The bottle moved into the cove.
[Figure] [Motion] [Path] [Ground]

Some motion verbs, such as *enter*, express not only the fact of Motion, as is the case of *moved* in (1), but also the Path information such as "into an enclosure." These motion verbs, which include the Path of motion in their lexical meaning, are called Path-conflating motion verbs. According to Talmy, deictic motion verbs are a kind of Path-conflating verbs with a special choice of the Path and the Ground. The lexical meaning of *come*, for example, can be seen as conflated with the speaker as the Ground, as represented in (2).

- (2) *come*
MOVE TOWARD a point which is the location of the speaker
[Motion] [Vector] [Conformation] [Ground]
[Path]

The Vector is a component of the Path, and expresses "the basic types of arrival, traversal, and departure that a Figural schema can execute with respect to a Ground schema" (Talmy 2000:53). It is represented by abstract prepositions such as TOWARD and TO. The Conformation is another component of the Path and specifies the spatial relation of the Path to the Ground.

2. The Vector TO and the entailment of arrival

The Vector, in effect, specifies the boundedness of the Path. TOWARD indicates a path unbounded at the end while TO indicates a bounded path with an end point. Although Talmy's characterization of the lexical semantics of *come* in (2) is taken to be the initial assumption, the choice of the Vector in the semantics of various deictic motion verbs is not as uniform as Talmy suggests either across or within languages.

In English, Japanese, and Korean, the use of the *coming* verbs is unacceptable when followed by another sentence which states that the Figure has not arrived, as exemplified by the Korean example in (3).

- (3) Korean
ku-nun yeodelsi-ey hakyō-ey *wa-/ka-ss-nunte ku-nun acik tochakhaci-anh-assta.
he-TOP eight-at school-to come-/go-PAST-but he-TOP yet arrive-NEG-PAST
"He *came/went to school at eight, but he hasn't arrived yet."

The description of motion in terms of the *coming* verb in past tense or perfective aspect necessarily expresses the motion in which the Figure actually arrives at the school, while the description in terms of the *going* verb does not. In other words, the Path conflated in the lexical

semantics of the *coming* verb is bounded at the end, but it is not bounded at the end with the *going* verb. The same discrepancy in the interpretation of the Path as expressed by the *coming* and *going* verbs is reported in German (Rauh 1981, Watanabe 1994), and in Longgu, an Austronesian language (Wilkins and Hill 1995).

The unacceptability of the *coming* verb illustrated in (3) should not be taken as indicating that the *coming* verbs always cooccur with a PP that expresses the end point of the Path. Together with the preposition *toward*, for example, the VP as a whole expresses the motion with the Path not bounded at the end. Rather, the example in (3) illustrates that, combined with the same locative phrase *to school*, which presumably introduces the Vector TO, the VP headed by the *coming* verb necessarily expresses a bounded path, while the VP headed by the *going* verb does not.

3. The Vector TOWARD and the lack of entailment of arrival

Unlike the languages discussed in Section 2, the deictic motion verb in Chinese does not express a bounded path, as shown in (4). The acceptability of both motion verbs indicates that neither the *coming* verb nor the *going* verb entails the arrival of the Figure.

(4) Chinese

ta ba dian lai/qu xiexiao danshi ta hai mei dao.
 he eight o'clock come/go school but he has not arrive
 "(lit.) He came/went to school at eight, but he has not arrived."

The same lack of entailment is reported in Mparntwe Arrernte, an Australian language (Wilkins and Hill 1995). In these languages, both motion verbs can equally express an unbounded path, which can be characterized by the Vector TOWARD.

Although not reflected in the English translation, example (4) has an inchoative reading. That is, the time expression "at eight" expresses the departure time, rather than the arrival time, regardless of whether the motion is described by the *coming* or the *going* verb. Viewing the interpretation of point-of-time expressions as the indication of the boundedness of the Path, the *coming* and *going* verbs in (4) express the Path bounded at the start, rather than at the end.

Fillmore (1975) claims that, in English, the reference time of *come* is the arrival time and the reference time of *go* is the departure time. As claimed, the point-of-time expression in *He came to school at eight* can be interpreted only as the arrival time in English (as well as in Japanese and Korean though examples are not given due to space limitations). Despite Fillmore's claim, however, time expressions with the *going* verbs do not always indicate the departure time, as pointed out by Cinque (1972). This is true not only in English (and Japanese and Korean) but also in Chinese as demonstrated in (5): the context, which strongly suggests the arrival of the Figure at the end point of the Path, gives rise to the interpretation of the time expression as the arrival time even when the motion is described by the *going* verbs.

(5) Chinese

zhe yingyuehui yinggai shi yi dian kaishi, suoyi wo yi dian
 this concert be supposed to be one o'clock start so I one o'clock

 shi hui qu nage yingyueting
 at will go that-CL concert hall.
 "The concert is supposed to start at one. So I will go to the concert hall at one."

Dowty (1979:60) points out that "an activity verb describing movement behaves like an accomplishment verb if it occurs with either a locative-of-destination or with an adverb of extent," as in *John walked to the park/ a mile*. It is well known that the boundedness in time, i.e. telicity, is not a property of lexical verbs alone: (3) through (5) are all examples of the telic

(accomplishment) use of the motion verbs, and are telic by virtue of the cooccurring locative phrases. The relevant distinction here, however, is the point along the Path where the telic Motion event is interpreted as reaching the "climax" or "terminus" point in time (in Vendler 1957's terms).

Those motion verbs which entail the arrival of the Figure, such as the *coming* verbs in English, Japanese, and Korean, are lexically determined to express the Path as bounded at the end, and the terminus point in time is necessarily associated with the bounded end of the Path, i.e. point-of-time expressions are interpreted as the arrival time. On the other hand, the motion verbs that do not entail the arrival of the Figure, such as the *coming* verb in Chinese, and the *going* verbs in all the languages discussed, are not lexically determined to express a bounded path. Their lexical semantics, however, does not preclude the possibility that, if provided with the right context, the Path expressed by the entire VP is bounded either at the start or the end as a special case of an unbounded path, allowing point-of-time expressions to be interpreted as the departure time or the arrival time, respectively.

4. Other Vectors

Next, we explore the deictic motion verbs in other languages, which express a rather different kind of Vector, to determine if any generalization in the distribution of the boundedness of the Path emerges.

In Otomanguan languages, some deictic motion verbs express a "round trip" (in Kuiper and Merrifield's term 1975:32) or "two-way motion" (in Pickett's term 1976:163). Following the authors' analyses, the *coming* verbs refer to verbs whose initial motion is directed toward the location of the speaker, and they express the motion which might be translated as "come and then return," while the motion expressed by the *going* verbs might be translated as "go and then return."

According to Speck and Pickett (1976), Texmelucan Zapotec has two *coming* verbs and two *going* verbs. These *coming* and *going* verbs are cross-classified according to the notion of "Base," which is defined as "the place where the person in motion normally or expectedly returns" (Speck and Pickett 1976:61). Thus, for example, the motion expressed by the first *going* verb *-ya-* "go₁" is more accurately described as "go toward the Figure's Base and then return." The example in (6) describes the motion of Policarpo (Figure) to San Lorenzo, which is away from the utterance location but is his Base, and then back to the start point.

(6) Texmelucan Zapotec (Speck and Pickett 1976: 61)

karp bi b-ya-y škeey
 Policarpo already CMPL-go₁-he San Lorenzo
 "Policarpo already went to San Lorenzo."

Furthermore, the *going* verbs in Texmelucan Zapotec entail the arrival of the Figure. That is, they indicate the completion of the return trip back to the start point. Thus in (6), the description of the motion in completive aspect entails Policarpo actually being back at the start point.

The *coming* verbs, on the other hand, lack the entailment of arrival. In (7), the second *coming* verb *-iid* "come₂" or "come toward the Figure's non-Base and then return" in completive aspect indicates that the return motion from Oaxaca has been initiated while it does not necessarily imply that Policarpo has actually reached the place where he started from, as suggested by the second sentence. (Although the *going* verbs entail the arrival, the use of the first *going* verb *-ya-* in progressive aspect in (7) only indicates Policarpo headed back to his Base.)

(7) Texmelucan Zapotec (Speck and Pickett 1976: 61)

karp b-iid yu lola?. sa ya-y.
 Policarpo CMPL-come₂ he Oaxaca recently PROG go₁-he
 "Policarpo came to Oaxaca. He just left (for home)."

In Texmelucan Zapotec, it is the end point of the (return) Path expressed by the *going* verbs that is bounded, while, in English, Japanese, and Korean, the *coming* verbs express the Path bounded at the end. In other words, the Path is bounded either at the end of the one-way *coming* motion, or at the end of the two-way *going* motion.

Isthmus Zapotec, while containing a different set of deictic motion verbs, shows the same pattern in the distribution of the boundedness of the Path. As reported by Pickett (1976), in Isthmus Zapotec, both *coming* and *going* verbs entail the arrival of the Figure at the end of the Path. However, only one of the deictic motion verbs expresses a two-way motion. The *coming* verb *-eeda* expresses only a one-way motion while the *going* verb *-e* expresses a two-way motion. Again, the Path is bounded at the end of the one-way *coming* motion, and at the end of the two-way *going* motion.

The system of the deictic motion verbs in Diuxi Mixtec also has two-way motion verbs, as analyzed by Kuiper and Merrifield (1975). It includes two one-way *coming* verbs, *ndisi* and *vásí*, and two one-way *going* verbs, *nú?ú* and *hî?î*, and they are cross-classified according to the Figure's Base as the Ground as is the case with Texmelucan Zapotec. In addition to these one-way motion verbs, Diuxi Mixtec has a two-way *coming* verb *kiši* and a two-way *going* verb *šę?ę*. All six motion verbs express the unbounded path and do not entail the arrival of the Figure at the end of the motion as: "they view the movement of an Agent [Figure] as not yet initiated and, therefore, potential, or as initiated and, therefore, complete. The focus is on the initiation of the motion." (Kuiper and Merrifield 1975:33) The following example (8) shows the use of the one-way *going* verb *nú?u* "go₁" or "go toward the Figure's Base."

(8) Diuxi Mixtec (Kuiper and Merrifield 1975:35)

hwâ-nú?ú-te dyuší
 CMPL-go₁-he Diuxi
 "He went (home there) to Diuxi."

The motion verb *hwâ-nú?u* in completive aspect indicates the motion has been initiated but "does not necessarily imply that the Agent [Figure] of the verb actually reaches the expected destination [Ground] even when the destination is explicitly stated in the sentence." (Kuiper and Merrifield 1975:35) Thus, the deictic motion verbs in Diuxi Mixtec are similar to Chinese in that they do not entail the arrival of the Figure regardless of whether they express *coming* or *going* motion.

The distribution of the boundedness of the Path reveals that the choice of Vector employed by various deictic motion verbs is not always uniform even within a single language. At the same time, the distribution of the Vector is not totally random. The uniform characteristic of the deictic motion verbs which entail arrival is that they all express the motion with the Path ultimately directed toward the deictic center, i.e. the utterance location. That is, if a VP expressing a Motion event entails the arrival of the Figure, the deictic motion verbs heading the VP must be the ones that describe the motion ending where the speaker can perceive the Figure's arrival, as is the case with the one-way *coming* verbs and the two-way *going* verbs. On the other hand, the one-way *going* verbs and the two-way *coming* verbs express motion ultimately away from the deictic center, and necessarily lack the entailment of arrival.

5. Analysis

It has been shown that the *coming* verbs with a locative phrase, e.g. *come to school*, entail the arrival of the Figure in English, Japanese, and Korea, and the Path expressed by the VPs is bounded at the end. The same locative phrase does not necessarily indicate the arrival location when combined with the *coming* verb in Chinese and the *going* verbs in all the languages discussed. It is clear that the Vector expressed by the VP as a whole is contributed both by locative phrases and the deictic motion verbs, which are taken to be Path-conflating verbs and thus to contain a Vector as part of their lexical semantics. The following lexical entries for *come*

in (9) (as well as the *coming* verbs in Japanese and Korean) and *to* in (10) attempt to capture the way the Vector of the VP is calculated in some compositional fashion. The feature configuration is loosely based on Pollard and Sag (1994) and Sag et al. (2003).

(9) *come*

$$\left[\begin{array}{l} \text{SYN} \left[\begin{array}{l} \text{HEAD } \textit{verb} \\ \text{VAL} \left[\begin{array}{l} \text{SPR } \langle \text{NP}_i \rangle \\ \text{COMPS } \langle (\text{PP} \left[\begin{array}{l} \text{INDX } j \\ \text{RSTR } \langle \dots [1] \dots \rangle \end{array} \right] \rangle) \rangle \end{array} \right] \\ \text{CNT} \left[\begin{array}{l} \text{INDX } s_1 \\ \text{RSTR } \left\langle \left[\begin{array}{l} \text{RELN } \textit{move} \\ \text{SIT } s_1 \\ \text{FGR } i \\ \text{PATH } j \end{array} \right] \right\rangle, [1] \left[\begin{array}{l} \text{RELN } \textit{dir} \\ \text{INST } j \\ \text{D-GRND } k \\ \text{BOUND } \left[\begin{array}{l} \text{STRT } - \\ \text{END } \backslash + \end{array} \right] \end{array} \right] \right\rangle \\ \text{CNTXT|RSTR } \left\langle \left[\begin{array}{l} \text{RELN } \textit{speaker-loc} \\ \text{INST } k \end{array} \right] \right\rangle \end{array} \right. \end{array} \right]$$

In (9), the index i of the subject NP provides the index of FGR (Figure) of the Motion event expressed as the *move* RELN (relation). The PATH index j is shared with the INDX (index) value of the (optional) locative complement, which makes it possible for both the verb and the complement PP to contribute to the RSTR (restriction) on the Path. The fact that the verb is deictic is captured by the D-GRND (deictic-Ground) value k , which, in effect, indicates the index of the speaker's location as the INST(ance) value of the *speaker-loc*(ation) RELN in the contextual restriction, CNTXT|RSTR. That is, the deictic verb expresses a Motion with the Path directed toward the location of the speaker.

The restriction [1] on the PATH index j is specified as the directional relation [RELN *dir*], which represents both kinds of paths with Vectors TO and TOWARD. The positive value + of BOUND|STRT (start) and BOUND|END will indicate Paths bounded at the start and at the end, respectively. As shown in (9), *come* is lexically specified to express a path which is unbounded at the start, i.e. [BOUND|STRT -], while the default positive value \+ of BOUND|END allows the verb to occur either in an expression of a bounded path, e.g. *come to school*, or an unbounded path, e.g. *come toward school*. The boundedness specification in (9) means that, if the Path expressed by the entire VP is bounded at all, it must be bounded at the end. It is assumed that the interpretation of point-of-time expressions is sensitive to the BOUND values, and that the terminus point in time indicated by the time expression is necessarily associated with the bounded point of the Path, i.e. either a bounded end point, [END +], or a bounded start point, [STRT +]. Since *come* is lexically specified to be [BOUND|STRT -], a cooccurring point-of-time expression, e.g. *come at eight o'clock*, is taken to induce [BOUND|END +] and to be interpreted as the arrival time.

The boundedness specification of the Path is also induced by the locative phrases headed by the preposition *to* in (10).

(10) *to*

$$\left[\begin{array}{l} \text{SYN} \left[\begin{array}{l} \text{HEAD } \textit{prep} \\ \text{VAL} \left[\begin{array}{l} \text{SPR } \langle \rangle \\ \text{COMPS } \langle \text{NP}_i \rangle \end{array} \right] \end{array} \right] \\ \text{CNT} \left[\begin{array}{l} \text{INDX } j \\ \text{RSTR } \left\langle \left[\begin{array}{l} \text{RELN } \textit{dir} \\ \text{INST } j \\ \text{GRND } l \\ \text{BOUND|END } +v- \end{array} \right] \right\rangle \end{array} \right. \end{array} \right]$$

The unspecified value, i.e. + v -, of BOUND | END of the preposition is intended to allow for

both a bounded path, e.g. *come to school*, and an unbounded path, i.e. *go to school* in a sentence like (3). The prepositions which necessarily indicate an unbounded path, e.g. *toward*, will be lexically specified as [BOUND|END –]. The index of the Path [INDX *j*] is projected onto the PP via the Semantic Inheritance Principle. The index *l* of the prepositional object NP provides the index of the GRND of the Path. When the deictic motion verb *come* combines with the locative complement *to school*, the restriction on the Path index *j* is instantiated as in (11).

(11) *come to school*

$$\left[\begin{array}{l} \text{RELN } dir \\ \text{INST } j \\ \text{D-GRND } k \\ \text{GRND } l \\ \text{BOUND}[\text{STRT } - \\ \text{END } +] \end{array} \right]$$

The resolved feature structure (11) states that the Path *j* is directed toward the speaker (the index *k*), with the school as its Ground (the index *l*), and bounded at the end, which signifies the arrival of the Figure. The cooccurrence of the location of the speaker as the deictic ground, i.e. [D-GRND *k*], and the bounded end, i.e. [BOUND|END +], of the Path represents the generalization discussed in Section 4: if an expression of a Motion event entails the arrival of the Figure, then the deictic motion verb involved must be the one that expresses the Path directed toward the location of the speaker.

The lexical entry for *go* (as well as the *going* verbs in Chinese, Japanese, and Korean) is identical to that of *come* in (9) except for the restriction on the Path, shown in (12).

(12) *go*

$$\left[\begin{array}{l} \text{RELN } dir \\ \text{INST } j \\ \text{D-GRND } \neg k \\ \text{GRND } l \\ \text{BOUND}[\text{STRT } +v- \\ \text{END } +v-] \end{array} \right]$$

The restriction on the Path represents the Path whose deictic ground is NOT the location of the speaker, i.e. [D-GRND $\neg k$], and is totally unspecified for the boundedness. When combined with a locative phrase headed by *to* in (10), the interpretation of the VP is still ambiguous between a bounded and an unbounded path. The ambiguity is resolved to be [BOUND|STRT +, END –] in a context such as (3), where the time expression indicates the departure time, or to be [BOUND|STRT –, END +] in a context such as (5) with the time expression indicating the arrival time.

The lexical entry for *lai* "come" in Chinese, which, unlike English, Japanese, and Korean, does not entail the arrival of the Figure, shares the unspecificity of the boundedness of the Path with *go* in (12), while its D-GRND value is the speaker's location in the same way as the *coming* verbs in the other languages.

6. Conclusion

This paper attempts to decompose the Motion event into such elements as Figure, Path, Vector and Ground based upon Talmy's framework, which makes it possible to analyze and compare the lexical semantics of the deictic motion verbs within and across languages. It is shown that the interpretation of the Path is attributable to the lexical specifications of both verbs and locative phrases. A formal analysis is presented based upon the HPSG framework in order to identify the elements of a Motion event contributed by each element of the VP, and the compositional fashion in which they are combined to determine the interpretation of the Motion event as a whole.

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