Motion Event and Deictic Motion Verbs as Path-Conflating Verbs

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Abstract

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 formally analyze and compare the lexical semantics of the deictic motion verbs within and across languages. It is shown that the difference in interpretations of the Path is attributable to the lexical specifications of both deictic motion verbs and locative phrases. It is argued that deictic motion verbs can be lexically specified for the entailment of arrival only if they express the Path eventually directed to the deictic center. A formal analysis is given based upon the HPSG framework in order to identify the elements of a Motion event contributed by each element of a verb phrase, and to determine the compositional fashion in which they are combined to give the interpretation of the verb phrase as a whole.

1 Introduction

This paper examines typical deictic motion verbs *come* and *go* in different languages, Chinese, English, Japanese, and Korean, as well as other languages in the literature, using Talmy's framework for analyzing motion verbs (Talmy 1975, 1985, 2000). It is an attempt to determine the cross-linguistic patterns of spatio-temporal semantic properties of those deictic motion verbs, which are represented as the Ground and the Path of motion in Talmy's analysis.

Talmy (1975, 1985, 2000) formalizes a situation containing motion as a Motion event. The basic Motion event is analyzed to consist of an object (the Figure) and its movement through a path (the Path) with respect to another reference object (the Ground). These components can be identified in the following sentence:

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

Some motion verbs, e.g. *enter* and *exit*, express not only the fact of Motion as is the case of *moved* in (1), but also (part of) the Path information such as 'into/out of 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 verb with a special choice of the Path and the Ground, and 'the Deictic component of Path typically has only the two member notions "toward the speaker" and "in a direction other than toward the speaker."' (Talmy 2000:56) Thus, the lexical meaning of *come* 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]		

In (2), MOVE is an abstract verb which represents motion in a Motion event, and TOWARD is a component of the Path called Vector. The Vector expresses 'the basic types of arrival, traversal, and departure that a Figural schema can execute with respect to a Ground schema' (Talmy 2000:53), and is represented in terms of abstract prepositions, called 'deep prepositions,' such as TOWARD and TO. It expresses the meaning of a preposition as well as the Path information conflated within the semantics of motion verbs. The Conformation is another component of the Path and specifies the spatial relation of the Path to the Ground.

Talmy's analytical framework makes it possible to schematize the meanings of deictic motion verbs viewed as path-conflating verbs, and to compare the elements of meanings of the deictic motion verbs across different languages. More specifically, this paper takes Talmy's claim as the starting point that the choice of Path and Ground in the lexical meanings of *come* is 'TOWARD a point which is the location of the speaker,' and *go* expresses the motion with the Ground which is complementary to that of *come*, i.e. 'TOWARD a point which is not the location of the speaker.' It will then show, beyond typical examples, that this characterization of the lexical semantics of the deictic motion verbs is too simplistic: the Vector TOWARD does not always describe the Path involved in the meanings of all deictic motion verbs even within a single language. It is argued that the distinction of the Vectors TOWARD and TO in the semantics of *come* and *go* provide a natural account for the asymmetry in the interpretation of time expressions that modify the motion verbs, a long-standing problem since Fillmore (1975). The distribution of the Vectors within and across languages is analyzed to demonstrate that only the Path directed toward the deictic center can give rise to the Vector TO.

In the following sections, data from Chinese, English, Japanese, and Korean are collected and analyzed by the present author. Other examples and analyses borrowed from other sources are indicated by the accompanying references. The term '*coming* verbs' is used as a cover term to refer to the deictic motion verbs (or verb affixes) in various languages which require the Ground of the described motion to be the location of the speaker, as well as other locations that are analyzed to constitute the deictic center. The term does not presuppose the same denotational range as the English verb *come*, nor the uniqueness of such a verb within a language (cf. Wilkins and Hill (1994) and Lucy (1994) for a criticism of such assumptions).

2 The Vector TO and the Entailment of Arrival

The Vector is typically represented by the preposition of locative or directional prepositional phrases. In Path-conflating motion verbs including deictic motion verbs, the Vector also appears as part of the lexical semantics of the verbs. The Vector, in effect, specifies the boundedness of the Path: e.g. TOWARD indicates a path unbounded at the end while TO indicates a bounded path with an end point. The examples in (3) show that the motion does not have exactly the same Vector when it is described as *coming* and *going* in English, Japanese, and Korean. Although the use of the *coming* and the *going* verbs, if acceptable at all, naturally requires different utterance situations, the examples are intended to show the different acceptability of the *coming* and *going* verbs when they are followed by the second clause 'he has not arrived yet,' which forces the unbounded reading of the Path.[1]

(3) E: He *came/ went to school at eight, but he hasn't arrived yet.

J: Kare-wa hatizi-ni gakkou-ni *ki-/ iki-masita-ga mada
he-TOP eight o'clock-at school-to come-/ go-PAST-but yet

tuite-ima-sen.
arrive-NONPST-NEG
'He went to school at eight, but he hasn't arrived yet.'

K: Ku-nun yeodelsi-ey hakyo-ey *wa-/ ka-ss-nunte ku-nun acik
he-TOP eight-at school-to come-/ go-PAST-but he-TOP yet

tochakhaci-anh-assta.
arrive-NEG-PAST
'He went to school at eight, but he hasn't arrived yet.'

Given the second sentence which states that the Figure has not arrived, the use of the *coming* verbs in past tense or perfective aspect in the first clause is unacceptable. In other words, only the *going* verbs, but not the *coming*

[1]In the following examples, the uppercase letters which precede sentences, C, E, J and K indicate the examples are in Chinese, English, Japanese, and Korean, respectively. In the gloss, abbreviations are used as: CMPL for completive; INF(initive); NEG(ative); NOM(inative); NONPAST for non-past; PAST; PROG(ressive); Q(uestion); and TOP(ic).

verbs, allow the unbounded interpretation of the Path which is compatible with non-arrival. The same discrepancy in the interpretation of the Path expressed by the *coming* and *going* verbs is reported in *kommen* 'come' and *gehen* 'go' in German (Rauh 1981; Watanabe 1994), and *la mai* 'come (move hither)' and *la hou* 'go (move thither)' in Longgu, an Austronesian language (Wilkins and Hill 1995). In these languages, the Vector of the Path conflated in the lexical semantics of the *coming* verbs is TO as in 'MOVE TO a point,' indicating the expressed path is necessarily bounded, while the *going* verbs express the motion 'MOVE TOWARD a point.'

The difference of the Vectors conflated in the lexical semantics of the *coming* and *going* verbs manifests itself in the choice of motion verbs in the situation where the arrival of the Figure is at issue. In the Korean example in (4), where the arrival of the Figure, i.e. the typhoon, rather than its motion is questioned, the unanimous choice of the *coming* verb indicates the inappropriateness of the *going* verb, which does not entail the arrival of the Figure at the end of the Path. The example (4) assumes a telephone conversation with a distant friend.

(4) K: Tayphwung-i nenuy tongnay-ey o-/ *ka-ass-e?
typhoon-NOM your town-to come-/ go-PAST-Q
'Has the typhoon come to your town?'

The location of the addressee can play the role of the Ground of the *coming* verb in Korean when the speaker empathized with the Ground more than with the Figure. Since it is unlikely that the speaker empathizes more with the typhoon than with the addressee, the choice of *coming* verb in (4) is predictable in Korean. At the same time, the contrast with the following example (5), in which the arrival of the Figure is not the direct issue, shows that there is more to the choice of deictic motion verbs in Korean. The example in (5) assumes a telephone conversation, and the indefinite noun phrase as the sentence subject is intended to solicit the interpretation of the situation where the speaker empathizes more with the addressee, located at the Ground, than with the Figure, i.e. someone from the power company, triggering the use of the *coming* verb as is the case in (4). The first choice of the motion verb of all six Korean speakers tested, however, is *kata* 'go,' while four speakers additionally accept *ota* 'come.'

(5) K: Cenkihoysa-ey cenhwa-hamyen, nwukwunka ol-/ kal-kepnita.
power company-to telephone-do if, someone come/ go-will
'If you call the power company, someone will come.'

Both examples (4) and (5) assume the situation where the choice of the *coming* verb is possible in terms of the empathy hierarchy between the

Figure and the Ground in Korean. The difference of the preference of motion verbs, however, is only attributable to the different Vectors conflated in the lexical semantics of the motion verbs: when the arrival of the Figure is questioned as in (4), the bounded Path expressed by *ota* 'come,' and hence the entailment of arrival, play the critical role in describing the motion, leaving the use of *kata* 'go' unacceptable, while in (5), where the entailment of arrival is not an issue, *kata* 'go' is equally acceptable or preferred to express the motion toward the location of the addressee as the Ground.

The choice of the *coming* verbs illustrated in (3) and (4) above should not be taken as indicating that the *coming* verbs never cooccur with a prepositional phrase that expresses an unbounded path. Together with the preposition *toward*, e.g. *came toward the goal*, the verb phrase as a whole expresses the motion with the Path not bounded at the end, i.e. 'MOVE TOWARD a point.' Rather, the examples in (3) illustrate that, combined with the same locative phrase *to school*, which presumably introduces the Vector TO,[2] the verb phrases headed by the *coming* verbs necessarily express a bounded path while the verb phrases headed by the *going* verbs do not. Since the Vector expressed by the locative phrase *to school* is identical regardless of whether the motion is described as *coming* or *going*, the different acceptability of the motion verbs in (3) must be attributed to the Vector expressed as part of the lexical semantics of the motion verbs themselves. In a formal analysis, it is necessary to capture the compositional fashion in which the Vector expressed by the verb phrase as a whole is calculated from both Vectors contributed by the deictic motion verbs, which are taken to be path-conflating verbs and thus to contain a Vector, and by the cooccurring locative phrases.

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[2]As shown in (3), locative phrases are indicated by the suffixes *-ni* 'to' (or *-e* 'to') in Japanese, *-ey* 'to' (or *-lo* 'to') in Korean. In addition to these suffixes, each language has a way to explicitly express an unbounded path, i.e. the Vector TOWARD:

(i) J: gakko-ni mukat-te ki-/ it-ta
school-to head-INF come-/ go-PAST
'(lit.) went/ came heading for school'

K: hakyo-ey hyangha-ye wa-/ ka-ssta
school-to head-INF come/ go-PAST
'(lit.) went/ came heading for school'

The verbs *mukat-te* in Japanese and *hyangha-ye* in Korean are non-finite forms of path-conflating verbs *muka-u* 'head (for)' and *hyangha-ta* 'head (for)' respectively, which are not deictic and may occur independently of the deictic motion verbs.

3 The Vector TOWARD and the Lack of Entailment of Arrival

Unlike the languages discussed in Section 2, the deictic motion verbs in Chinese, do not entail arrival as (6) shows.

(6) Chinese

Ta	ba	dian	lai/ qu	xuexiao	danshi	ta	hai	mei	dao.
he	eight	o'clock	come/ go	school	but	he	yet	not	arrive

'(lit.) He came/went to school at eight, but he has not arrived.'

In Chinese, a locative phrase directly follows the verb without a preposition as shown in (6), and the use of neither *lai* 'come' nor *qu* 'go' together with the locative phrase entails the arrival of the Figure as indicated by the acceptability of both motion verbs. The same lack of entailment of arrival is reported for the *coming* verb in Mparntwe Arrernte, an Australian language (Wilkins and Hill 1995).[3] In these languages, both motion verbs can equally express an unbounded path: i.e. 'MOVE TOWARD a point.'

Although not reflected in the English translation, example (6) 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 (6) can be taken to express the Path bounded at the start, rather than at the end.

In his seminal work on deictic motion verbs in English, Fillmore (1975) claims, without a further explanation, that 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 in (3). The invariable arrival time interpretation of the time expression with the *coming* verbs in the languages in Section 2 is associated with their invariable bounded interpretation of the Path, i.e. 'TO a point.' 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, Japanese, and Korean, but also in Chinese as demonstrated in (7): the context, which strongly suggests the arrival of the Figure at the end point

[3]Willkins and Hill (1995) claim that, though *peyte-* 'come' and *ihe-* 'go' in Mparntwe Arrente are pragmatically oppositional, the motion verb *ihe-* 'go' is not semantically deictic. The deictic interpretation of *ihe-* arises only pragmatically since the use of it implies that the described motion cannot be described by, and hence must be the opposite of, *peyte-* 'come,' which is claimed to be semantically deictic.

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.

(7) C: Yinyuehui yinggai shi yi dian kaishi,
concert be supposed to be one o'clock start

suoyi wo yi dian hui qu yinyueting.
so I one o'clock will go concert hall
'The concert is supposed to start at one. So I will go to the concert hall at one.'

E: The concert was supposed to start at one. So I went to the concert hall at one.

J: Konsaato-wa itizi-ni hazimaru-kotoninatte-imasita.
concert-TOP one o'clock-at begin-be supposed to-PAST

Dakara watasi-wa itizi-ni kaizyo-ni iki-masita.
so I-TOP one o'clock-at concert hall-to go-PAST
'The concert was supposed to start at one. So I went to the concert hall at one.'

K: Khonsethu-nun hansi-ey yellilo toyeissee-ssta.
concert-TOP one o'clock-at start be supposed to-PAST

Kureseo, na-nun hansi-ey khonsethu-ey ka-ssta.
so I-TOP one o'clock-at concert-to go-PAST
'The concert was supposed to start at one. So I went to the concert at one.'

In (7), the natural reading of 'one o'clock' is the time when the Figure arrives at the concert hall. That is, while expressed by the *going* verbs, the Figure is described to have reached the concert hall at the end point of the motion, rather than merely heading for the direction of the concert hall. Thus, though the lexical semantics of the *going* verbs in all the languages above is schematized with the Path 'TOWARD the point,' the Vector is defeasible in the sense that the meaning of the entire verb phrase including the locative phrase may be calculated to be 'MOVE TO a point.' The Vector TOWARD conflated in the lexical semantics of the *going* verbs does not preclude the possibility that the Path is bounded at the end as a special case of the

unbounded path if provided with the right context. The examples in (7) demonstrate that, when the arrival of the Figure is implied at the end of the motion described by the *going* verbs, the cooccurring time expression is interpreted as the arrival time, as is the case of the *coming* verbs with the lexically specified Path 'TO a point.'

The asymmetry of the Vector conflated in the lexical semantics of the *coming* verbs and the *going* verbs in languages like English, Japanese, and Korean, is further evidenced by utterances where no additional Vector is introduced by an explicit locative phrase. Example (8) assumes a telephone conversation with a friend, inquiring what time the addressee plans to arrive at the party to which the speaker plans to go as well.

(8) What time will you be coming/ going?

When the arrival time is inquired, and thus the bounded end of the Path is the concern, the motion can be described either as *coming* or *going*, regardless of the absence of a locative phrase. On the other hand, when the departure time is inquired due to concern about a traffic jam, for example, the motion can be described only as *going*, e.g. *What time will you be *coming/going?*, again indicating that the Vector associated with *come* is lexically determined to be TO, which precludes the possibility of interpreting the time expression as the departure time.

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 (7) 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 (Vendler 1957) in time.

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 in Sections 2 and 3, 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]

4 Other Vectors

In Sections 2 and 3, it is shown that only *coming* verbs in some languages exhibit the bounded end of the Path, entailing the arrival of the Figure of the motion at the Ground. This section explores the deictic motion verbs in other languages which express a rather different kind of Path, to determine if any generalization in the distribution of the boundedness of the Path emerges.

Otomanguean languages exhibit a very different kind of Vectors of the Path as documented in Texmelucan Zapotec (Speck and Pickett 1976), Isthmus Zapotec (Pickett 1976), and Diuxi Mixtec (Kuiper and Merrifield 1975).[5] In these languages, (some) deictic motion verbs express a 'round trip' (Kuiper and Merrifield 1975:32) or 'two-way motion' (Pickett 1976:163). Following the authors' analyses, the *coming* verbs refer to the verbs whose initial motion is directed toward the location of the speaker and/or the addressee, i.e. verbs expressing the motion which might be expressed in English as 'come and then return.' The motion expressed by the *going* verbs, on the other hand, might be translated as 'go and then return.'

According to Speck and Pickett (1976), Texmelucan Zapotec has two *coming* verbs and two *going* verbs as shown in (9). 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).

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[4]Aske (1989), analyzing the Path-conflating verbs in Spanish in Talmy's framework, distinguishes the notions of boundedness and telicity of the Path. The 'telic path phrase' is claimed to be a bounded path which predicates 'an end-of-path location [...] of the Figure' (Ask 1989:6). Although the distinction between the boundedness and the telicity of the Path is not clear to the present author, both appear to be a spatial notion. Slobin and Hoiting (1994) interpret Aske's telic path as a characterization of movement across some kind of boundary, again a spatial notion.

[5]Wilkins and Hill (1995) report a non-deictic two-way motion verb root *alpe-* in Mparntwe Arrernte, an Australian language. When it is suffixed to a deictic one-way motion verb *petye-* 'come,' *pety-alpe-* expresses a motion event in which 'the figure moves back along a return path towards the place thought of as the place where speaker is' (Wilkins and Hill 1995:223). In Tila Chol, a Mayan language, the two-way motion verb *tsajni* expresses a two-way motion 'go from and come back to the base of the addressee' (Hoopert and Warkentin 1977:15). However, it is not clear whether or not the Path expressed by these verbs are bounded, and they are not included in the following discussion.

(9) Deictic motion verbs in Texmelucan Zapotec (Speck and Pickett 1976)

-yeed 'come$_1$ (come toward a Base and return)'

-iid 'come$_2$ (come toward a non-Base and return)'

-ya 'go$_1$ (go toward a Base and return)'

-a 'go$_2$ (go toward a non-Base and return)'

Thus, for example, the motion expressed by the first *going* verb *-ya* 'go$_1$' is more accurately described as 'go toward a Base of the Figure and then return. 'The example in (10) with *-ya* describes the motion to San Lorenzo and then from San Lorenzo back to the start point.

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

Karp	bi	b-ya-y	škeey
Policarpo	already	CMPL-go$_1$-he	San Lorenzo

'Policarpo already went to San Lorenzo.'

Furthermore, the *going* verbs in Texmelucan Zapotec entail the arrival of the Figure: they indicate not merely a two-way motion but also the completion of the return trip back to the start point. Thus in (10), the description of the motion by *b-ya-y*, in completive aspect, entails that Policarpo is actually back at the start point.

The *coming* verbs, on the other hand, lack the entailment of arrival. In (11), the second *coming* verb *-iid* 'come$_2$' or 'come toward a non-Base of the Figure 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 the second sentence only indicates Policarpo headed back to his Base.)

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

Karp	b-iid	yu	lolaʔ.	sa	ya-y.
Policarpo	CMPL-come$_2$	he	Oaxaca	recently	PROG go$_1$-he

'Policarpo came to Oaxaca. He just left (for home).'

The arrival, traversal, and departure represented by the small set of Vectors which Talmy (1975, 2000) proposes do not remotely describe the motion exemplified above. Given the lack of appropriate Vectors, the Path expressed by the two-way motion deictic motion verbs can be represented in terms of a sequence of abstract prepositions TO/TOWARD and VIA as 'BACK TO/TOWARD a start point VIA a point,' where TO and TOWARD

indicate the paths bounded and unbounded at the end of the return motion, respectively. The term *coming* verbs in those languages with the two-way motion verbs refer to those deictic motion verbs that express the motion initially directed to the deictic center, i.e. 'VIA a point which is the location of the speaker or the addressee,' while the *going* verbs refer to those which express the motion initially directed to the non-deictic center, i.e. 'VIA a point which is neither the location of the speaker nor the addressee.'

The second *coming* verb *-iid* in (11) expresses a motion of the Figure initially to Oaxaca, which is the deictic center and is a non-Base of the Figure, and then back toward the start point without entailing arrival at the start point. Thus, the lexical meaning of the *coming* verb *-iid* may be, more accurately though somewhat clumsily, schematized as: 'MOVE BACK TOWARD a start point VIA a point which is the location of the speaker or the addressee AND which is not a Base of the Figure.' On the other hand, the lexical semantics of the first *going* verb *-ya-* in (10), which entails the arrival of the Figure back at the start point, is schematized as: 'MOVE BACK TO a start point VIA a point which is neither the location of the speaker nor the addressee AND which is a Base of the Figure.'

The Vector BACK TO employed in the schematization of the two-way Path makes it clear that, in Texmelucan Zapotec, it is the *going* verbs that entail the arrival of the Figure at the end of the Path while in the languages discussed in Section 2, i.e. English, Japanese, and Korean, it is the *coming* verbs that entail the arrival of the Figure. Thus, the Path is bounded either at the end point of the one-way motion described as *coming*, or at the start point of the two-way motion described as *going*. In the rest of this section, various one-way or two-way deictic motion verbs with the entailment of arrival are shown to follow the same pattern.

In Isthmus Zapotec, unlike in any other languages that have been discussed, both *coming* and *going* verbs entail the arrival of the Figure at the end of the Path (Pickett 1976). However, not both deictic motion verbs express a two-way motion in Isthmus Zapotec. The *coming* verb *-eeda-* expresses only a one-way motion, while the *going* verb *-e-* expresses a two-way motion. Thus, both with the bounded Path, the lexical semantics of the *coming* verb is schematized with the Path 'TO a point which is the location of the speaker,' and the *going* verb is schematized with the Path 'BACK TO a start point VIA a point which is not the location of the speaker.'[6] Note that the bounded end of the Path is either the end point of the motion described by the one-way *coming* verb, as is the case of the *coming* verbs in English, Japanese, and Korean, or the end point of the return motion, i.e. the start point of the motion described by the two-way *going* verb, as is the case of the two-way *going* verbs in Texmelucan Zapotec.

The system of the deictic motion verbs in Diuxi Mixtec is somehow

[6]It is not clear from Pickett (1976) whether the location of the addressee plays the role of the Ground of the *coming* verb.

more complicated as analyzed by Kuiper and Merrifield (1975). As shown in (12), it includes two one-way *coming* verbs, *ndisi* and *vásî,* and two one-way *going* verbs, *nú?ú* and *hi?î*, and they are cross-classified according to a Base of the Figure as the Ground as is the case with Texmelucan Zapotec. In addition to these one-way deictic motion verbs, Diuxi Mixtec has a two-way *coming* verb *kiši* and a two-way *going* verb *še?ê.*

(12) Motion verbs in Diuxi Mixtec (Kuiper and Merrifield 1975)

ndisi	'come$_1$ (come toward a Base)'
vásî	'come$_2$ (come toward a non-Base)'
kiši	'come and return'
nú?ú	'go$_1$ (go toward a Base)'
hi?î	'go$_2$ (go toward a non-Base)'
še?ê	'go and return'

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, completive. The focus is on the initiation of the motion.' (Kuiper and Merrifield 1975:33)[7] The following example (13) shows the use of the one-way *going* verb *nú?u* 'go$_1$' or 'go toward a Base of the Figure.'

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[7]In spite of such a claim that all deictic motion verbs express the Motion with the unbounded Path, every example which illustrates the point contains one of the two one-way *going* verbs *nú?ú* 'go toward a Base' and *hi?î* 'go toward a non-Base' in Kuiper and Merrifield (1975). Furthermore, in spite of the claim for the unbounded Path, *vásî*, a one-way *coming* verb (toward a non-Base) is said to be translatable as perfective in English 'because of the implication that the Agent [Figure] remains at Goal [Ground]' at the utterance time as in:

(i) Diuxi Mixtec (Kuiper and Merrifield 1975:37; the gloss is given by the present author)

vásî-te	núndúa
CMPL come-he	Oaxaca

'He has come to Oaxaca.'

The implication that the Figure is located at the Ground at the utterance time seems to indicate, contrary to the authors' claim, that the one-way *coming* verb *vásî* entails the arrival of the Figure. Even if that is the case, however, the claim of this paper still holds that the bounded end of the Path is the end point of the one-way motion described as *coming* (or the start point of the two-way motion described as *going*).

(13) Diuxi Mixtec (Kuiper and Merrifield 1975:35; the gloss is given by the present author)

hwą́-núʔú-te dyuší

CMPL-go$_1$-he Diuxi

'He went (home there) to Diuxi.'

The motion verb *hwą́-núʔu* 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 Vectors, (BACK) TO and (BACK) TOWARD, surveyed throughout this paper 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, and a pattern of distribution across languages emerges: if deictic motion verbs entail the arrival of the Figure, i.e. are schematized with the Vector (BACK) TO, the bounded end of the Path is expressed either as the end point of the one-way *coming* motion or as the start point of the two-way *going* motion. The *coming* verbs which express the one-way motion 'TO a point' are represented by English, Japanese, Korean, German, Longgu, and Isthmus Zapotec. The *going* verbs which express two-way motion 'BACK TO a start point' are represented by Texmelucan Zapotec and Isthmus Zapotec. Since Isthmus Zapotec has only a one-way *coming* verb and a two-way *going* verb, both deictic motion verbs entail the arrival of the Figure. On the other hand, no deictic motion verbs entail arrival in Chinese, Mparntwe Arrernte, and Diuxi Mixtec.

A moment of reflection clarifies that the uniform characterization of the deictic motion verbs which entail arrival is that they all express the motion with the Path ultimately directed to the deictic center, typically the location of the speaker. That is, a language can include the entailment of arrival as part of the lexical semantics of the deictic motion verbs only if the verbs describe the motion ending where the speaker can perceive the Figure's arrival. On the other hand, the verbs which express the motion away from the deictic center, i.e. the one-way *going* verbs and the two-way *coming* verbs, necessarily lack the entailment of arrival.

5 A Unified Analysis of the Vector

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 of the languages. 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 (14) (as well as the *coming* verbs in Japanese and Korean) and *to* in (15) 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).

(14) *come*

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

In (14), 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 (14), *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 (14) 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 (15).

(15) *to*

$$\begin{bmatrix} \text{SYN} \begin{bmatrix} \text{HEAD} & \textit{prep} \\ \text{VAL} \begin{bmatrix} \text{SPR} & \langle\,\rangle \\ \text{COMPS} & \langle \text{NP}_l \rangle \end{bmatrix} \end{bmatrix} \\ \text{CNT} \begin{bmatrix} \text{INDX} & j \\ \text{RSTR} & \langle \boxed{1} \begin{bmatrix} \text{RELN} & \textit{dir} \\ \text{INST} & j \\ \text{GRND} & l \\ \text{BOUND|END} & +\vee- \end{bmatrix} \rangle \end{bmatrix} \end{bmatrix}$$

The unspecified value, i.e. + ∨ –, 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 (16).

(16) *come to school*

$$\boxed{1} \begin{bmatrix} \text{RELN} & \textit{dir} \\ \text{INST} & j \\ \text{D–GRND} & k \\ \text{GRND} & l \\ \text{BOUND} \begin{bmatrix} \text{STRT} & - \\ \text{END} & + \end{bmatrix} \end{bmatrix}$$

The resolved feature structure (16) 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 (14) except for the restriction on the Path, shown in (17).

(17) *go*

$$\begin{bmatrix} \text{RELN } \textit{dir} \\ \text{INST } \textit{j} \\ \boxed{1}\ \text{D–GRND } \neg \textit{k} \\ \text{GRND } \textit{l} \\ \text{BOUND}\begin{bmatrix} \text{STRT } +\text{v}- \\ \text{END } +\text{v}- \end{bmatrix} \end{bmatrix}$$

The restriction on the Path represents the Path whose deictic ground is NOT the location of the speaker, i.e. [D-GRND ¬*k*], and is totally unspecified for the boundedness. When combined with a locative phrase headed by *to* in (15), 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 (7) 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 (17), while its D-GRND value is the speaker's location in the same way as the *coming* verbs in the other languages.

An example of two-way motion verbs which entail the arrival of the Figure is given in (18), which illustrates the lexical entry for *-ya* 'go$_1$' or 'go toward a Base of the Figure and then return' in Texmelucan Zapotec.

(18) *-ya* 'go toward a base of the Figure and then return'

$$\begin{bmatrix} \text{SYN} \begin{bmatrix} \text{HEAD } \textit{verb} \\ \text{VAL} \begin{bmatrix} \text{SPR } \langle \text{NP}_i \rangle \\ \text{COMPS } \langle \text{NP}_l \rangle \end{bmatrix} \end{bmatrix} \\ \text{CNT} \begin{bmatrix} \text{INDX } s_1 \\ \text{RSTR} \left\langle \begin{bmatrix} \text{RELN } \textit{move} \\ \text{SIT } s_1 \\ \text{FGR } i \\ \text{PATH } j \end{bmatrix}, \begin{bmatrix} \text{RELN } \textit{bidir} \\ \text{INST } j \\ \text{GRND } l \\ \text{D–GRND } \neg k \\ \text{BOUND} \begin{bmatrix} \text{STRT } - \\ \text{END } + \end{bmatrix} \end{bmatrix} \right\rangle \end{bmatrix} \\ \text{CNTXT|RSTR} \left\langle \begin{bmatrix} \text{RELN } \textit{speaker–loc} \\ \text{INST } k \end{bmatrix}, \begin{bmatrix} \text{RELN } \textit{base} \\ \text{INST } l \\ \text{FGR } i \end{bmatrix} \right\rangle \end{bmatrix}$$

The bidirectional relation [RELN *bidir*] in the RSTR value specifies the restriction on the PATH index *j* and represents the 'round trip' expressed by the two-way motion verb. In this relation, the values of D-GRND and GRND specify the properties of the mid point of the Path where the return trip starts, rather than the end point of the Path. The mid point corresponds to the Ground of the Vector VIA. In (18), the D-GRND value ¬*k* indicates that the deictic Ground is not the location of the speaker *k*, which is the INST value of the *speaker-loc* RELN in the context restriction, CNTXT|REST. The GRND index *l* is contributed by the index of the locative complement. In addition, the GRND index *l* is shared with the INST value of the *base* RELN in CNTXT|REST, which indicates that the Ground is a Base of the Figure *i*. The Path represented by these indices is 'VIA a point which is not the location of the speaker AND which is a Base of the Figure.'

In Texmelucan Zapotec (as well as in other Otomanguean languages), the locative NP which indicates the Ground of the motion directly follows the verb without a preposition. In (18), the index *l* of the locative complement NP provides the index of the Ground: i.e. it is shared with the GRND value of the *bidir* RELN. Unlike English, Korean, and Japanese, the semantic content of a locative phrase does not contribute to the determination of the boundedness of the Path. Consequently, the bounded end [BOUND|END +] of the Path is solely determined by the lexical entry of the verb.

In the *dir* RELN such as for *come* in (14), which represents the direction of a one-way motion, [BOUND|END +] indicates the bounded end of the Path and corresponds to the Vector TO, while in the *bidir* RELN in (18), [BOUND|END +] indicates the bounded end of a return path and corresponds to the Vector BACK TO. As generalized in Section 4, deictic motion verbs that entail arrival express the motion with the Path ultimately directed to the deictic center. If two-way motion verbs entail arrival, i.e. [BOUND|END +], it implies that the initial motion is necessarily directed not toward the

location of the speaker, i.e. [D-GRND ¬*k*].

6 Conclusion

This paper has examined the deictic motion verbs in different languages, Chinese, English, Japanese, and Korean as well as other languages in the literature, using Talmy's framework as an attempt to determine the cross-linguistic patterns of spatio-temporal semantic properties of those deictic motion verbs. It has been shown that the lexical semantics of the *coming* verbs in English, Japanese, and Korean are conflated with a bounded Path, which gives rise to the entailment of arrival of the Figure. On the other hand, the *coming* verb in Chinese, as well as the *going* verbs in all of the languages are conflated with an unbounded Path and consequently, do not entail the arrival of the Figure. The difference in the Path is reflected in the interpretation of the cooccurring point-of-time expression: with the bounded Path schematized by the Vector TO, the time expression marks the arrival time, while it is either the arrival time or the departure time with the unbounded Path schematized by the Vector TOWARD, depending on the context of utterance.

In addition to these languages, Diuxi Mixtec, Isthmus Zapotec, and Texmelucan Zapotec, languages with two-way motion verbs, were analyzed to characterize the distribution of the entailment of arrival. As the unified pattern of the distribution of the Vectors TO and BACK TO, which represent the arrival of the Figure, the bounded end is shown to be either at the end point of the one-way *coming* motion, or at the start point of the two-way *going* motion. It is concluded that deictic motion verbs, whether expressing a one-way motion or a two-way motion, can be lexically specified for the entailment of arrival only if they express the Path eventually directed to the deictic center, typically the location of the speaker.

A formal analysis is given to represent the bounded end of the Path as the feature-value specification [BOUND|END +] in a (bi)directional relation restricting the Path. The boundedness value for an entire VP is determined by the lexical specifications of verbs as well as by locative phrases. The generalization that only an expression of a Motion directed toward the deictic center can entail arrival is captured as the cooccurrence of [BOUND|END +] with the location of the speaker as the deictic ground, i.e. [D–GRND *k*] for a one-way motion, and with [D–GRND ¬*k*] for a two-way motion.

References

Aske, Jon. 1989. Path Predicates in English and Spanish: A Closer Look. In Kira Hall, Michael Meacham, and Richard Shapiro (eds.) *Proceedings of the Fifth Annual Meeting of the Berkeley Linguistics Society*, pages

1-14.

Cinque, Guglielm. 1972. Fillmore's Semantics of 'Come' Revisited. *Lingua e Stile* 7, 575-599.

Dowty, David. 1979. *Word Meaning and Montague Grammar: The Semantics of Verbs and Times in Generative Semantics and in Montague's PTQ* . Synthese Language Library 7, Dordrecht; Boston; London: D. Reidel Publishing.

Fillmore, Charles J. 1975. Coming and Going. *Santa Cruz Lectures on Deixis, 1971, by Charles J. Fillmore*, pages 50-69, Bloomington: Indiana University Linguistics Club. [reprinted as Fillmore 1997]

Fillmore, Charles J. 1997. Coming and going. *Lectures on Deixis*, pages 77-102, Stanford: CSLI Publications.

Hoopert, Daniel A. and Warkentin, Viola. 1977. Tila Chol 'Come', and 'Go', and 'Arrive'. *Notes on Linguistics* 4, 11-16.

Kuiper, Albertha and Merrifield, William R. 1975. Diuxi Mixtec Verbs of Motion and Arrival. *International Journal of American Linguistics* 41(1), 32-45.

Lucy, John A. 1994. The Role of Semantic Value in Lexical Comparison: Motion and Position Roots in Yucatec Maya. *Linguistics* 32, 623-656.

Pickett, Velma B. 1976. Further Comments on Zapotec Motion Verbs. *International Journal of American Linguistics* 42(2), 162-164, Chicago: University of Chicago Press.

Pollard, Carl and Sag, Ivan A. 1994. *Head-Driven Phrase Structure Grammar*. Chicago: University of Chicago Press.

Rauh, Gisa. 1981. On Coming and Going in English and German. *Papers and Studies in Contrastive Linguistics* 13, 53-68.

Sag, Ivan A., Wasow, Thomas, and Bender, Emily M. 2003. *Syntactic Theory*, 2nd ed. Stanford: CSLI Publications.

Slobin, Dan I. and Hoiting, Nini. 1994. Reference to Movement in Spoken and Signed Languages: Typological Considerations. In Susanne Gahl, Andy Dolbey, and Christopher Johnson (eds.) *Proceedings of the Twentieth Annual Meeting of the Berkeley Linguistics Society*, pages 487-505, Berkeley: Berkeley Linguistics Society.

Speck, Charles H. and Pickett, Velma B. 1976. Some Properties of the Texmelucan Zapotec Verbs *Go*, *Come* and *Arrive*. *International Journal of American Linguistics* 42(1), 58-64, Chicago: University of Chicago Press.

Talmy, Leonard 1975. Semantics and Syntax of Motion. In John P. Kimball (ed.) *Syntax and Semantics* 4, 181-238, New York: Academic Press.

Talmy, Leonard. 1985. Lexicalization Patterns: Semantic Structure in Lexical Forms. In Timothy Shopen (ed.) *Grammatical Categories and the Lexicon.* Language Typology and Syntactic Description III, pages

57-149, Cambridge: Cambridge University Press.

Talmy, Leonard. 2000. *Typology and Process in Concept Structuring*. Toward a Cognitive Semantics, Vol.2, Cambridge; London: The MIT Press.

Vendler, Zeno. 1957. Verbs and Times. *The Philosophical Review* LXVI(2) (whole number 378), 143-160. [reprinted as Vendler 1967]

Vendler, Zeno. 1967. Verbs and Times. *Linguistics in Philosophy*, pages 97-121, Ithaca, New York: Cornell University Press.

Watanabe, Shinji. 1994. 'Kommen'-no Daikusisu-to Imi [Deicsis and Semantics of *Kommen*]. *Doitu Bungaku* [German Literature], 93, 125-133, Nihon Dokubun Gakkai [Japanese Society of German Literature].

Wilkins, David P. and Hill, Deborah. 1995. When 'Go' means 'Come': Questioning the Basicness of Basic Motion Verbs. *Cognitive Linguistics* 6(2/3), 209-259.