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A TYPOLOGY OF THE PATH OF DEICTIC MOTION VERBS AS PATH-CONFLATING VERBS: THE ENTAILMENT OF ARRIVAL AND THE DEICTIC CENTER

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ABSTRACT

This paper analyzes deictic motion verbs in various languages using Talmy's framework, and isolates the Path of motion expressed by these verbs. It is argued that the different interpretations of the Path so discovered are attributable to the lexical meaning of deictic motion verbs as well as locative phrases. Furthermore, deictic motion verbs are claimed to be lexically specified for the entailment of arrival only if they express the Path eventually directed to the deictic center. The arrival-time and departure-time interpretations of cooccurring point-of-time expressions are shown to coincide with the entailment of arrival, or the lack thereof, which is inherent to the semantics of deictic motion verbs.

KEYWORDS: Deictic motion verbs; Path-conflating verbs; *come* and *go*; entailment of arrival.

1. Introduction

This paper attempts to analyze the lexical semantics of typical deictic motion verbs, e.g. *come* and *go*, in different languages, Chinese, English, Japanese, and Korean, as well as other languages in the literature. The aim of the analysis is to decompose the lexical semantics of these deictic motion verbs into different components, particularly the path of motion, and to determine cross-linguistic patterns. The verb phrases *came to school* and *went to school* express different kinds of paths of motion: *came to school* necessarily implies that the agent actually arrived at the school while *went to school* does not. Since the locative phrase *to school* is identical in both cases, the entailment of arrival must be attributed to the lexical semantics of the motion verbs themselves. It is claimed that the motion verb *come* and its counterparts in various languages follow the same generalization that if the deictic motion verbs are specified for the entailment of arrival, then they must describe the motion directed to the deictic center, i.e. they must be *com-*

ing verbs. Not all *coming* verbs in various languages, however, are lexically specified to entail the arrival, giving rise to cross-linguistic variations of the lexical semantics of the deictic motion verbs.

Another difference between *come* and *go*, which is more obvious, is the direction of the described motion in relation to the location of the speaker. The location of the speaker seems to be the universal goal of *coming* verbs, but, in addition, the location of addressee plays the role of the goal in many languages such as English, Japanese, and Korean, but not in Chinese. The cross-linguistic comparison of the goals of *coming* verbs is definitely a topic of research worth pursuing. The focus of the present paper, however, is not on what constitutes the goal of the path of motion described as *coming* and *going*, but rather whether or not the path is lexically specified to extend to the goal. The possible goal of the path in different languages is briefly discussed only to the extent that is necessary for the encoding of the semantic components of the motion verbs. For a detailed analysis of the deictic center in various languages, along with its justification through data, refer to Nakazawa (2007). The present paper is intended as yet another attempt to analyze the lexical semantics of deictic motion verbs as a whole.

The decomposition analysis of deictic motion verbs is cast in the framework of Talmy (1975, 1985, 2000). The analysis of the phenomena presented in the present paper, however, does not hinge on the particular framework of representation, and the decomposed meaning of verbs can be captured in other frameworks as well, such as those used in Generative Semantics (e.g. McCawley 1971), Lexical Conceptual Structure (e.g. Jackendoff 1983) and Generative Lexicon (e.g. Pustejovsky 1995).

In the following section, Talmy's framework for analyzing motion verbs is briefly described. In Section 3, different interpretations of the path of motion described by the coming and going verbs and the locative phrase are discussed, based upon the data mainly from English, Japanese, and Korean. In Section 4, it is shown that the asymmetry of the interpretation of the path of motion is not universal, based upon the data mainly from Chinese. Section 5 explores the deictic motion verbs in other languages which express a rather different kind of paths of motion, to determine if any generalization in the interpretation of the path emerges. Section 6 gives the summary of all languages considered in the present paper and claims that the generalization holds that if the deictic motion verbs are lexically specified to entail the arrival of the agent, then they must describe the motion directed to the deictic center.

The data from Chinese, English, Japanese, and Korean in the following sections have been collected and analyzed by the present author. Other examples and analyses are borrowed from various sources as 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 goal 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. The deictic motion verbs, or at least the *going* verbs, in many languages have usages which describe a

manner of motion, e.g. *He went around the track*. The scope of the present paper does not include these non-deictic usages of the verbs.

2. Talmy's framework to represent the semantics of motion verbs

Talmy (1975, 1985, 2000) schematizes a situation containing motion as a Motion event. The basic Motion event is analyzed to comprise distinct components: e.g. 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 (Talmy 1975: 187):

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

The Path is further decomposed into yet other subcomponents: the Vector and the Conformation. 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 TO and FROM. The Conformation represents a geometric relation between the Figure and the Ground object. Thus, the Motion event in (1) can be schematically represented as in (2).

(2)	a point	MOVE	TO	a point which is of the inside of		an enclosure	
	[Figure]	[Motion]	[Vector]	[Conformation	]	[Ground	]
			[Path		]		

In (2), MOVE is an abstract verb which represents the fact of motion in a Motion event, and TO is the Vector which expresses the arrival of the Figure.

The Path of Motion is not always determined by a prepositional phrase alone, but rather some motion verbs contribute Path information as part of their lexical semantics. For example, motion verbs such as *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, a similar notion to the verbs which "incorporate" a path-function into their lexical conceptual structures (Jackendoff 1996: 326).

According to Talmy, deictic motion verbs are a kind of Path-conflating verbs 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 the deictic motion verb come can be seen as conflated with the speaker as the Ground as represented in (3).

(3) *come*

MOVE	TOWARD	a point which is the location of	the speaker
[Motion]	[Vector] [Path	[Conformation]	[Ground]

The Vector TOWARD and the Ground "the speaker" express the Path information conflated within the semantics of motion verbs.

In the present paper, the meanings of deictic motion verbs viewed as Path-conflating verbs are schematized and compared across different languages. Talmy's claim is taken as the starting point that the choice of Path 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". Various Vectors in the semantics of deictic motion verbs in different languages are analyzed, and it is shown that, beyond typical examples, Talmy's characterization 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. The distribution of the Vectors within and across languages is analyzed to demonstrate that the motion verbs can be lexically specified with the Vector TO only if the described Path is directed toward the deictic center.

3. TO as the Vector of *coming* verbs in English, Japanese, and Korean

The Vector, which expresses "the basic types of arrival, traversal, and departure" 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 a specific end point. The examples in (4) 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: e.g. the use of *come*, but not *go*, requires that the speaker is or was located at the school. The aim of the examples is, however, 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, 2]

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

[2] The asterisk "*" that marks data throughout the paper indicates unacceptability rather than ungrammaticality of the data.

(4) 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-NONPAST-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 all three languages. In other words, only the *going* verbs, not the *coming* verbs, allow the unbounded interpretation of the Path that is compatible with non-arrival. The same discrepancy in the interpretation of the Path expressed by the *coming* and *going* verbs together with a locative phrase 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). The distinct boundedness of the Path is attributed to the lexical specification of the motion verbs in (5), which are the only distinct sentence elements in (4).

(5) the *coming* verbs in English, Korean, and Japanese:
"MOVE TO a point which is the location of the speaker or the addressee"

the *going* verbs in English, Korean, and Japanese:
"MOVE TOWARD a point which is not the location of the speaker or the addressee"

In English, Korean, and Japanese, the Vector of the Path conflated in the lexical semantics of the *coming* verbs is specified to be TO as in "MOVE TO a point", indicating that the Path expressed by *came to school* is necessarily bounded, while the *going* verbs are specified with an unbounded path, "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 (6), where the arrival of the Figure, i.e. the typhoon, rather than the fact of its motion is questioned, the unanimous choice of the *coming* verb indicates the inappropriateness of the *going* verb, which is not specified to entail the arrival of the Figure at the end of the Path expressed by the

locative phrase. The example in (6) assumes a telephone conversation with a distant friend.

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

In Korean, not only the speaker but also the addressee can constitute a deictic center, and the location of the addressee can play the role of the Ground of the *coming* verb. The shift of the deictic center to the addressee indicates that the speaker is describing the event from the perspective of the addressee, rather than from the perspective of her/his own or of any other participant of the event. The perspective of the speaker is called "empathy" by Kuno and Kaburaki (1977; also Kuno 1987) in the analysis of similar phenomena in English and Japanese, and the deictic center can be identified with the participant of the event that commands the most empathy of the speaker. Since it is unlikely that *tayphwung* 'typhoon', the Figure, commands more empathy from the speaker than the addressee does, it is predictable that the addressee, the Ground of motion, constitutes the deictic center and the motion toward the addressee is described by the *coming* verb.

In contrast to example (6), the following example (7), 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 (7) assumes a telephone conversation and that the addressee is located at her/his own house. The indefinite noun phrase *nwukwunka* 'someone' 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 unknown, triggering the use of the coming verb as is the case in (6). The first choice of the motion verb of all six Korean speakers tested, however, is kata 'go', while some speakers additionally accept ota 'come'.

(7) K: ecey pam-ey nwukwunka nenuy cip-ey wo-/ka-ass-e?
yesterday night someone your house came/go-PAST-Q
'Did anybody come to your house last night?'

Both examples (6) and (7) assume a situation where the choice of the *coming* verb is possible in terms of the empathy hierarchy between the Figure and the Ground in Korean. Therefore, the difference of the preference of motion verbs 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 (6), the bounded Path expressed by *ota* 'come' and the locative phrase, and hence the entailment of arrival, play the critical role in describing the motion, leaving the use of *kata* 'go' unacceptable, while in (7), where the 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 schematization of the lexical semantics of the motion verbs in (5) is intended to indicate that the coming verbs induce the bounded interpretation of the Path when combined with a locative phrase, while the going verbs do not. Thus, in the examples in (4), combined with the same locative phrase *to school*, which presumably introduces the Vector TO, the *coming* verbs conflated with the Vector TO necessarily express a bounded path, while the *going* verbs conflated with the Vector TOWARD express an unbounded path. However, it is generally not defined how the two Vectors TOWARD and TO can describe a single path. It appears that in Talmy's (1975, 1985, 2000) analysis of the Path-conflating verbs, as well as the LCS analysis of verbs into which path-functions are "carved up" (Jackendoff 1988: 183), schematic Paths are instantiated, or "particularized" (Talmy 1975), in a monotonic fashion: i.e. the Path information contributed by a motion verb and a locative phrase is incrementally accumulated. While the interpretation of the verb phrase *went to school* requires the Vector TOWARD conflated in the *going* verb to be combined with the Vector TO contributed by the locative phrase, two distinct Vectors cannot be accumulated incrementally.

The idea is that the Vector TO conflated in the *coming* verbs, when combined with the Vector TO contributed by a locative phrase as in *came to school* in (4), requires the bounded interpretation of the Path. On the other hand, the Vector TOWARD conflated in the *going* verbs is permissive in the sense that, when combined with the Vector TO contributed by a locative phrase, it allows the unbounded interpretation of the Path. That is, the combination of the Vectors TOWARD and TO gives rise to the interpretation of the Vector TOWARD. Consequently, the Vector TO conflated in the *coming* verbs should not be taken as indicating that they never express the unbounded Path. Together with the preposition *toward*, which introduces the Vector TOWARD and allows the unbounded interpretation of the Path, verb phrases as a whole, e.g. *came toward the goal*, express the motion with the Path not bounded at the end.[3]

4. TOWARD as the Vector of the *coming* verb in Chinese

Unlike the languages discussed in Section 3, neither the *going* nor *coming* verb in Chinese is lexically specified to entail the arrival of the Figure at the end of the Path – see (8).

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[3] As shown in (4), 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 nonfinite 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.

(8) 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 (8). When combined with the locative phrase *xuexiao* 'school', neither *lai* 'come' nor *qu* 'go' entails the arrival of the Figure, and both verbs are compatible with the second clause that indicates non-arrival. The same lack of entailment of arrival is reported for the *coming* verb *peyte-* in Mparntwe Arrernte, an Australian language (Wilkins and Hill 1995).[4] In these languages, both motion verbs are equally specified with an unbounded path: i.e. "MOVE TOWARD a point", as in (9).

(9) the *coming* verb in Chinese[5]
"MOVE TOWARD a point which is the location of the speaker"

the *going* verb in Chinese:
"MOVE TOWARD a point which is not the location of the speaker"

Although not reflected in the English translation, example (8) has an inchoative reading. That is, the time expression *ba dian* 'at eight' expresses the departure time, rather than the arrival time, regardless of whether the motion is described by the *coming* verb or the *going* verb. It is generally understood that the points in time and the points in the path of motion coincide with each other in the motion event whether the space-time progression is viewed as discrete (e.g. Pustejovsky 1991) or continuous (e.g. Jackendoff 1996). The connection between time and space establishes the correspondence between the temporal delimitation of an event and boundedness of the path, as argued in Jackendoff (1996), and consequently, the time expression which indicates the departure time in (8) can be taken to indicate that the path is bounded at the start, rather than at the end.[6]

It is well known that boundedness in time, i.e. telicity, is not a property of lexical verbs alone as demonstrated in the difference between ran (atelic) and ran a mile (telic)

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

[5] Chinese does not allow the location of the addressee to play the role of the Ground of *lai* 'come'. See Nakazawa (2007) for more details.

[6] 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 express a bounded path which predicates "an end-of-path location [...] of the Figure" (Aske 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 spatial notions. Slobin and Hoiting (1994) interpret Aske's telic path as a characterization of movement across some kind of boundary, again a spatial notion.

(Vendler 1957). 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*. The motion verbs which otherwise describe an atelic event (i.e. activity or process) express a telic event when accompanied by a goal expression or a measure phrase. Likewise, a time expression alters, or "coerces" (Jackendoff 1996), the telicity of a sentence which contains it: e.g. point-of-time expressions such as *ba dian* 'eight o'clock' in (8) induce the telic interpretation of the event. The data described in (4) through (8) are all examples of the telic use of motion verbs by virtue of the co-occurring locative phrases and/or point-of-time expressions. In the determination of TO or TOWARD as the Vector conflated in the motion verbs, however, the relevant distinction is whether or not the verb phrases headed by these verbs express a Path which is bounded at the end, rather than whether or not they express a bounded Path.

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 (4). The invariable arrival time interpretation of the time expression with the *coming* verbs in the languages in Section 3 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 (10): the context, which strongly suggests the arrival of the Figure at the end 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.

(10) C: Yinyuehui yinggai shi yi dian kaishi,
concert be.supposed.to be one o'clock start
suoyi wo yi dian qu yinyueting.
so I one o'clock go concert.hall
'The concert was supposed to start at one. So I went 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 (10), 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 of the motion, rather than merely heading in the direction of the concert hall. Thus, the examples demonstrate that though the lexical semantics of the *going* verbs in all the languages above is schematized with the Path "TOWARD the point", these *going* verbs allow the interpretation of the Path bounded at the end in the presence of the time expression. Although it is beyond the scope of the present paper to formalize how the Path specification interacts with the semantics of time expressions, the Vector TOWARD conflated in the lexical semantics of the *going* verbs allows for the possibility that the delimitation is placed at the end of both the time and space intervals. On the other hand, the *coming* verbs in English, Japanese, and Korean, which are lexically specified with the Vector TO, preclude the possibility of interpreting the time expression as the departure time.

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 (11) 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.

(11) E: What time will you be coming/ going?

J: Nanji-ni ki/iki-masu-ka?
what.time-at come/go-nonpast-q
'What time are you coming/going?'

K: Myechsi-ey o-/ka-nayo?
what.time-at come/ go-Q
'What time are you 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.

Those motion verbs which entail the arrival of the Figure when combined with a locative phrase, such as the coming verbs in English, Japanese, and Korean, are lexically determined to express the Path as bounded at the end, and accompanying 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 3 and 4, 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 locative phrase is bounded either at the start or the end as a special case of an unbounded path, allowing accompanying point-of-time expressions to be interpreted as the departure time or the arrival time, respectively.

5. Other Vectors

In Sections 3 and 4, it is shown that only *coming* verbs in some languages are lexically specified to express the Path bounded at the end, entailing the arrival of the Figure 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, languages of central and southern Mexico, 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). 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*.[7]

According to Speck and Pickett (1976), Texmelucan Zapotec has two coming verbs and two going verbs as shown in (12). 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).

[7] 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 deictic motion verb *tsajni* expresses a two-way motion "go from and come back to the base of the addressee" (Hoopert and Warkentin 1977:15). These verbs indicate that deictic motion verbs that express a two-way motion are not unique to the Otomanguean language family. However, they are not included in the following discussion since it is not clear whether they express a bounded or an unbounded path.

(12) 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)'

Note that the distinction between the *coming* and *going* verbs is characterized in terms of the location of the speaker while the distinction between Base and non-Base, indicated by the subscripts 1 and 2 respectively, is characterized in terms of the "normal" location of the Figure. 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 following example in (13) with -ya describes the motion to San Lorenzo and then from San Lorenzo back to the start point.

(13) 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 are specified to 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 (13), the description of the motion by *b-ya-y*, in completive aspect, together with the locative phrase entails that Policarpo has arrived back at the start point.

The *coming* verbs, on the other hand, lack the entailment of arrival. In (14), the second coming verb *-iid* 'come$_2$' or 'come toward a non-Base of the Figure and then return', though in completive aspect, does not necessarily imply that Policarpo has actually reached the place where he started from.

(14) 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 use of the completive aspect of *b-iid* only expresses that the Figure initiated the return trip as suggested by the second sentence. Although the *going* verb *ya-* 'go$_1$' in the second sentence is specified to entail the arrival of the Figure in completive aspect as described in (13), the use of progressive aspect in (14) only indicates that Policarpo headed for his Base. Thus, two sentences in (14) together describe a sequence of motions of Policarpo to Oaxaca, which is not his Base, and then back toward his Base.

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 in "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 refers 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 lexical meaning of the second *coming* verb *-iid* as in (14) may be, more accurately though somewhat clumsily, schematized as in (15). The verb *-iid*, as well as the first *coming* verb *-yeed*, is conflated with a path unbounded at the end of the return motion, i.e. TOWARD. The difference between the two *coming* verbs is that the Ground of Vector VIA is a Base of the Figure in *-yeed* 'come$_1$' while it is not in *-iid* 'come$_2$'. On the other hand, both the first *going* verb *-ya* in (13) and the second *going* verb *-a* are conflated with a path bounded at the end, i.e. TO. The Ground of Vector VIA for neither *going* verb is the deictic center; the difference between them is whether or not the Ground is a Base of the Figure.

(15) the *coming* verbs in Texmelucan Zapotec

-yeed 'come$_1$': "MOVE TOWARD a start point VIA a point which is the location of the speaker or the addressee AND which is a Base of the Figure"

-iid 'come$_2$': "MOVE 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"

the *going* verbs in Texmelucan Zapotec

-ya 'go$_1$': "MOVE 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"

-a 'go$_2$': "MOVE TO a start point VIA a point which is neither the location of the speaker nor the addressee AND which is not a Base of the Figure"

The Vector TO employed in the schematization of the two-way Path makes it clear that, in Texmelucan Zapotec, it is the *going* verbs that are specified to entail the arrival of the Figure at the end of the Path, while in the languages discussed in Section 3, i.e. English, Japanese, and Korean, it is the *coming* verbs that are specified to 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 language that has been discussed, both *coming* and *going* verbs are specified to 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 conflated with a bounded Path, the lexical semantics of the *coming* and *going* verbs is schematized with the Vector TO, but only the *going* verb expresses a two-way motion and employs the Vector VIA.[8]

(16) the *coming* verb in Isthmus Zapotec
-eeda-: "MOVE TO a point which is the location of the speaker"

the *going* verb in Isthmus Zapotec
-e-: "MOVE TO a start point VIA a point which is not the location of the speaker"

Note that the bounded end of the conflated 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 more complicated as analyzed by Kuiper and Merrifield (1975). As shown in (17), it includes two one-way *coming* verbs, *ndisi* and *vásí*, and two one-way *going* verbs, *núʔú* and *hįʔį́*, and they are cross-classified according to whether or not the Ground is a Base of the Figure, as is the case in 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 *šę́ʔę́*.

(17) Deictic motion verbs in Diuxi Mixtec (Kuiper and Merrifield 1975)
ndisi 'come$_1$ (come toward a Base)'
vásí 'come$_2$ (come toward a non-Base)'
kiši 'come toward a non-Base and return'
núʔú 'go$_1$ (go toward a Base)'
hįʔį́ 'go$_2$ (go toward a non-Base)'
šę́ʔę́ 'go toward a non-Base and return'

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

None of these six motion verbs are specified to express the bounded path or the entailment of arrival of the Figure: "they view the movement of an Agent [Figure] as not yet initiated and, therefore, potential [aspect], or as initiated and, therefore, completive [aspect]. The focus is on the initiation of the motion"(Kuiper and Merrifield 1975: 33).[9] Thus, the deictic motion verbs in Diuxi Mixtec are similar to Chinese in that they are not specified to entail the arrival of the Figure regardless of whether they express *coming* or *going* motion.

The following example (18) shows the use of the one-way going verb *núʔú* 'go$_1$' or 'go toward a Base of the Figure'.

(18) 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-núʔú-* in completive aspect indicates that the motion has been initiated but "does not necessarily imply that the Agent [Figure] of the verb has actually reached the expected destination [Ground] even when the destination is explicitly stated in the sentence" (Kuiper and Merrifield 1975: 35). The lexical semantics of the one-way motion verb *-núʔú-* 'go$_1$' in (18), as well as of the other deictic motion verbs in Diuxi Mixtec, is schematized as in (19), where the Path of all six verbs is represented with the Vector TOWARD, indicating an unbounded end of the Path.[10]

(19) the *coming* verbs in Diuxi Mixtec
ndisi 'come$_1$' "MOVE TOWARD a point which is the location of the speaker AND which is a Base of the Figure"

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[9] In spite of the claim that all deictic motion verbs express the Motion with an unbounded Path, every example which illustrates the point contains one of the two one-way *going* verbs *núʔú* and *híʔí* in Kuiper and Merrifield (1975). Furthermore, in spite of their claim that it expresses an unbounded Path, a one-way *coming* verb *vásí* 'come$_2$' is said to be translatable as perfect 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)
váší-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 *vásí* entails the arrival of the Figure. Even if that is the case, however, the claim of the present paper still holds that if a one-way Path is bounded, it must be the end point of a motion described as *coming*.

[10] It is not clear from Kuiper and Merrifield (1975) whether the location of the addressee plays the role of the Ground of the *coming* verbs.

vásí 'come$_2$'	"MOVE TOWARD a point which is the location of the speaker AND which is not a Base of the Figure"
kiši 'come'	"MOVE TOWARD a start point VIA a point which is the location of the speaker AND which is not a Base of the Figure"

the *going* verbs in Diuxi Mixtec

núʔú 'go$_1$'	"MOVE TOWARD a point which is not the location of the speaker AND which is a Base of the Figure"
hɨ́ʔɨ́ 'go$_2$'	"MOVE TOWARD a point which is not the location of the speaker AND which is not a Base of the Figure"
šɛ́ʔɛ́ 'go'	"MOVE TOWARD a start point VIA a point which is not the location of the speaker AND which is not a Base of the Figure"

Two *coming* verbs, *ndisi* and *vásí*, and two *going* verbs, *núʔú* and *hɨ́ʔɨ́*, in Diuxi Mixtec are cross-classified whether or not the Path is directed toward a Base of the Figure as is the case of Texmelucan Zapotec, but unlike Texmelucan Zapotec, those verbs express a one-way motion. The two-way *coming* verb *kiši* and the two-way *going* verb *šɛ́ʔɛ́* are not factorized according to a Base of the Figure, and express only a motion through a location which is not a Base of the Figure.

The distribution of deictic motion verbs in all three languages discussed in this section, Texmelucan Zapotec, Isthmus Zapotec, and Diuxi Mixtec, is more complicated in that those languages incorporate the notion of a Base of the Figure as a component of the Ground and contain some verbs which lexically express a two-way motion. They consequently give rise to a more complicated system which cannot directly be mapped onto the typical two-member system with a single *coming* verb and a single *going* verb, like that of English. A close observation reveals, however, that various one-way or two-way deictic motion verbs with the entailment of arrival follow the same pattern: the Path is bounded either at the end point of the one-way motion expressed by *coming* verbs, or at the start point of the two-way motion expressed by *going* verbs.

6. Concluding remarks

The distribution of Vectors, TO and 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, as revealed in Figure 1.

In Figure 1, deictic motion verbs are classified according to the Vector conflated into their lexical semantics. The Vector conflated into either one-way or two-way motion verbs in the left column is TO, which gives rise to the entailment of arrival of the Figure. The Vector conflated into the verbs in the right column is TOWARD, and these verbs lack the specification for the entailment of arrival. In the upper row, one-way

	TO	TOWARD
'come'	*come* (English) *kuru* (Japanese) *ota* (Korean) *kommen* (German) *la mai* (Longgu) *-eeda-* (Isthmus Zapotec)	*lai* (Chinese) *peyte-* (Mparntwe Arrernte) *ndisi*, *vásí* (Diuxi Mixtec)
'go and return'	*ya-*, *a-* (Texmelucan Zapotec) *-e-* (Isthmus Zapotec)	*šę́ʔę́* (Diuxi Mixtec)
'go'		*go* (English) *iku* (Japanese) *kata* (Korean) *gehen* (German) *la hou* (Longgu) *qu* (Chinese) *ihe-* (Mparntwe Arrernte) *núʔú*, *hi̱ʔi̱* (Diuxi Mixtec)
'come and return'		*-yeed*, *-iid* (Texmelucan Zapotec) *kiši* (Diuxi Mixtec)

Figure 1. Distribution of the Vector.

coming verbs and two-way *going* verbs are classified together. They share the property that their lexical semantics is schematized as a Motion event with the deictic center as the Ground of the Vector TO/TOWARD: i.e. these verbs express a motion ultimately directed toward the deictic center. In the lower row, one-way *going* verbs are classified together with two-way *coming* verbs, and their lexical semantics is schematized as a Motion event with the non-deictic center as the Ground of the Vector TO/TOWARD.

The languages discussed in Section 3, e.g. English, Japanese, and Korean, appear in the upper left cell and the lower right cell. Their *coming* verbs are specified to entail the arrival of the Figure while their *going* verbs are not. Chinese, discussed in Section 4, appears only in the right column: neither the *coming* verb nor the *going* verb is specified to entail the arrival of the Figure. Among the languages discussed in Section 5, Texmelucan Zapotec appears in the upper left cell and the lower right cell, exhibiting the same distributional pattern as English, Japanese, and Korean. Its two two-way *going* verbs are specified to entail the arrival of the Figure while its two two-way *coming* verbs are not. Isthmus Zapotec appears only in the upper right cell since both motion verbs in the language, a one-way *coming* verb and a two-way *going* verb, are specified to entail the arrival of the Figure. Finally, Diuxi Mixtec, which has two one-way and four two-way motion verbs, appears only in the right column, which indicates that none of the six verbs are specified to entail the arrival of the Figure, following the pattern of Chinese.

Figure 1 clearly shows a uniform characterization of the deictic motion verbs: the verbs with the specification for the entailment of arrival (i.e. those in the left column)

all express a motion with the Path ultimately directed to the deictic center (i.e. they appear in the upper row). That is, a language can specify for the entailment of arrival as part of the lexical semantics of the deictic motion verbs only if the verbs describe the motion directed to a point where the speaker can perceive the Figure's arrival. This generalization, however, does not mean that all such deictic motion verbs in the upper row are specified to entail the arrival of the Figure, as indicated by the motion verbs without the specification for the entailment in the upper right cell. Rather, languages vary as to whether or not verbs which express the motion ultimately directed toward the deictic center are specified to entail the arrival of the Figure. On the other hand, the verbs which express the motion away from the deictic center where the speaker has no way of perceiving the Figure's arrival (i.e. those in the lower row) necessarily lack the specification for the entailment of arrival (i.e. they appear in the right column). In other words, it is not a mere coincidence that the lower left cell is empty; it indicates that no motion verbs express the motion away from the deictic center AND are specified to entail the arrival, and it is predicted to remain empty even when a wider range of languages are considered.

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