

Expressing Motion through Space: Lexical versus Compositional Meanings

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1. Introduction

In English, there are two classes of verbs that may occur in the sentences expressing motion through space. Verbs such as *come* and *go* inherently have this meaning and express it without the help of path expressions. But verbs of manner of motion such as *dance* and *wiggle* do not. They can describe motion of this type only if they occur with a path expression: a person can either dance into the room or dance in one place. In addition, there are some other verbs which cannot describe motion through space though they seem to have the meaning of a kind of motion. For example, the verbs *laugh* and *shrug* include the component of motion, but they do not occur in sentences expressing motion through space: we cannot say that John laughed into the room, meaning that he went into the room while laughing.

The verbs *dance* and *wiggle* seem to share with the verbs *laugh* and *shrug* a component of meaning, namely, body-internal motion, which may be characterized as motion within an entity or a person, or motion in which a part of an entity moves with respect to some other part. But only *dance* and *wiggle* may occur in the sentences expressing motion through space; *laugh* and *shrug* are not allowed in such sentences. Then, a question arises why some of the verbs of internal-motion are allowed to express it and others are not.

The purpose of this paper is to give an answer to the above question. We may restate the question as two related but separate ones: what class of verbs are permitted to express motion through space as well as internal motion? And how is the process of conversion carried out? It will be shown that the assumption that every verb has a single lexical meaning and the principle which we will call the Compatibility Condition account for this phenomenon. We will claim that when a verb is combined with a path expression, its meaning undergoes interpretation and suppression to show up as part of the compositional meaning of a sentence. At first sight, the questions might seem to be minor ones, but they are important because the phenomenon gives us clues to the relation between the lexical meaning and the compositional meaning of a sentence.

In the next section, we will examine the recent approaches by Jackendoff (1990) and by Levin and Rappaport Hovav (1992), and show that they do not answer the above questions. In the third section, we will put forward a proposal for accounting

for verbs of manner of motion. In the subsequent two sections, we will show that it explains the syntactic and semantic properties of other classes of verbs as well.

The word "motion" is ambiguous: it may mean either motion through space or body-internal motion. As this might be the cause of a confusion between the two concepts, we will use the term "travel" for motion through space for the sake of clarity, leaving the word "motion" ambiguous.

2. Limitations of Previous Analyses

Jackendoff (1990: 88-90) notes a difference in meaning between sentences in (1) and (2):

- (1) a. Willy wiggled.
- b. Debbie danced.
- (2) a. Willy wiggled out of the hole.
- b. Debbie danced into the room.

Sentences in (1) express only the internal motion of the subject, while those in (2) express the internal motion combined with the concept of travel along a path. For instance, when Willy wiggles, he moves his body in a specific manner denoted by the verb *wiggle* but does not have to move or travel with respect to some other entity. In contrast, when he wiggles out of the hole, he, while moving in the same way, gets out of the hole. Similarly, when Debbie dances, she may dance in one spot without leaving. But when she dances into the room, she travels in a direction while dancing. Thus in (2) the subjects do both the internal motion and the travel along a path.

The body-internal motion of the subject as in (1) is encoded by the function MOVE, and the external motion or travel along a path as in (2) is encoded by the function GO. These are represented as in the following:

- (3) a. MOVE ([_{Thing}])
- b. GO ([_{Thing}], [_{Path}])

MOVE has a single argument and GO has two arguments: an entity that travels and the path it traverses. With these functions, we may say that the sentences in (1) have a MOVE function only, while those in (2) have both a MOVE function and a GO function with the subject as an argument of both functions. Thus the sentences with a manner-of-motion verb followed by a path expression as in (2) are analyzed as consisting of two different components of meaning captured by MOVE and GO.

In order to account for the relation between (1) and (2), Jackendoff (1990: 223-224) proposes the *GO-Adjunct Rule*, which adds a superordinate function GO and subordinates the original function MOVE to a modifying conceptual clause.¹ He assumes that verbs such as *wiggle*, *dance*, *spin*, *bounce* and *jump* have a MOVE

function as part of their lexical representations, and that when they occur in a verb phrase with a path expression, the *GO*-Adjunct Rule associates the verb phrase with the conceptual structure in which *GO* is the main function and *MOVE* is the subordinating function. The associated conceptual structure seems to be close to the structure for the sentences paraphrased with the main verb *go* or *get* as in (4).

- (4) a. Willy went/got out of the hole wiggling.
 b. Debbie went/got into the room dancing.

Let us turn to the question what class of verbs may occur in a sentence expressing travel along a path. Under his proposal, whatever the details of the conceptual structure may be, at least part of this class is designated by the *MOVE* function. If a verb has a *MOVE* function, the *GO*-Adjunct Rule permits it to occur with a path expression and assigns the verb phrase the *GO* function. In other words, the analysis predicts that any *MOVE* verb may be used with a path expression to describe an entity traveling along a path. However, this is not the case: the verbs which Jackendoff (1990: 90) states appear to fall into the class of *MOVE* verbs, namely, *laugh* and *sneeze*, do not permit a path phrase to follow.

- (5) a. *Mary laughed into the room.
 b. *John sneezed down the street.

These sentences are not acceptable with the relevant reading: (5a) does not mean that Mary went or got into the room while laughing; (5b) does not have the reading of John's going down the street sneezing, though it may be acceptable if the prepositional phrase *down the street* is interpreted not as a path but as a place, as in *down the street from here*. The *MOVE* function, therefore, cannot single out the verbs that can be used in a sentence describing travel along a path.

The characterization of the *MOVE* function as it stands is too vague to correctly select only those verbs that can occur in a sentence expressing travel. Notice that the *MOVE* function has been proposed for isolating the internal motion of an entity from its travel along a path. But there are various kinds of internal motions that can occur without a change of location with respect to other objects. So a question arises what is meant by the concept of internal motion. If it is characterized simply as motion within an entity, animate or inanimate, any of the verbs in the above sentences in (2) and (5) is a *MOVE* verb. It is clear, therefore, that we cannot capture the difference in acceptability between (2) and (5) in terms of the *MOVE* function, namely, the notion of the internal motion of an entity.

A similar analysis for this phenomenon is proposed by Levin and Rappaport Hovav (1992: 259–260). Taking the verb *run* for example, they suggest the two lexical semantic representations in (6).

- (6) a. *run* (manner of motion): [x MOVE in-a-running-manner]
 b. *run* (directional): [x GO TO y BY [x MOVE in-a-running-manner]]

(6a) and (6b) may be realized in sentences such as (7a) and (7b), respectively.

- (7) a. John ran.
 b. John ran to the station.

Given (6b), it follows that the sentence (7b) roughly means that John went to the station running. They state that, in the lexical representations (6), GO represents change of location, and MOVE represents movement without any necessary displacement. Clearly, the predicates GO and MOVE encode essentially the same meanings that are captured by the semantic functions GO and MOVE proposed by Jackendoff (1990). Therefore, the comment on his GO and MOVE also applies to the predicates given the same names by Levin and Rappaport Hovav (1992). MOVE is not specific enough to designate only those manner-of-motion verbs that may also occur in a sentence meaning travel: it does not distinguish possible travel verbs such as *run*, *wiggle* and *dance* from verbs such as *laugh* and *sneeze*, which are unacceptable with a path phrase as in (5).

Although Levin and Rappaport Hovav (1992) assign their MOVE and GO in (6) the same contents that Jackendoff assigns his functions, they propose a different treatment in which GO is given to the travel sentences. In contrast to Jackendoff's analysis that GO is associated with the verb phrase whose head has a MOVE function, they assume, following Talmy (1985), that GO is incorporated into the lexical representation of the verb to create an extended lexical representation.² This process is called lexical subordination or extension, which makes an extended lexical representation for a verb by adding a new predicate and thereby subordinating the original predicate under a means clause.³ In particular, the process maps the basic lexical form (6a) into the extended form (6b). However, with no constraint proposed, it will incorrectly create representations like (6b) for the verbs such as *laugh* and *sneeze*, and the sentences with them as in (5) will be wrongly permitted.

Summing up, though it has been observed that some of the verbs of internal motion can appear in a sentence describing travel along a path, as far as I know, no serious attempt seems to have been made to clarify exactly what kind of verbs they are and how they show up in such sentences. We will consider these questions in the following sections.

3. Verbs of Manner of Motion

In this section I will outline a different approach to the problems of verbs of manner of motion and consider some of the consequences resulting from it. First, let us make the assumption concerning lexical semantic representations of verbs:

(8) At the level of lexical representation every verb has a single entry.

This is proposed to ensure that every verb has only one lexical meaning with no distinction between basic and extended senses, so that we do not require a process of lexical subordination or extension at least for the account of manner-of-motion verbs. Some of these verbs such as *wiggle*, *dance* and *spin*, which may mean either internal motion or travel along a path in a particular manner as shown in (9) and (10), are assumed to be represented in the lexicon as a single item with the meaning of internal motion and with no specification of travel part of meaning, though others like *run*, *walk* and *sneak* may have a lexical meaning with these two parts as an inseparable whole.⁴

- (9) a. John wiggled in one place.
- b. John danced in one place.
- c. The top spun in the center of the table.
- (10) a. John wiggled out of the hole.
- b. John danced into the room.
- c. The top spun across the table.

The second assumption is concerned with the compositional meanings of the sentences describing travel along a path:

(11) Compatibility Condition

In the sentence consisting of a noun phrase, a verb and a path, i.e. [NP V Path], the path selects the part in motion from the meaning of the verb and interprets it as an entity traveling along it.

This condition demands that the path be compatible with the motion denoted by the verb, where the motion includes body-internal motion and motion through space. We will call an entity traveling along a path a theme. (11) may follow from a more general condition on the interpretation of sentences to the effect that lexical meanings must be compatible with each other within a sentence, but a full study of this possibility is outside the scope of this paper.

Let us look at how these assumptions account for the sentences involving manner of motion. In the sentences in (9) the lexical meanings of the verbs, which specify only internal motion, are realized as part of the compositional meaning of the sentence without modification. But when these verbs occur with a path expression in a travel sentence as in (10), the condition (11) demands that the action or some part of the action denoted by the verb be interpreted as travel along the path. With these verbs, the internal motion of the actor as a whole is regarded as its travel along a path: when a person wiggles or dances, his whole body moves in a certain way, and, given (11),

this motion is interpreted as its travel along a path in a sentence with a path expression.

Consider, in contrast, the verbs *laugh*, *sneeze* and *shrug*, which usually do not occur in a sentence with a travel sense such as (12).

- (12) a. *John laughed into the room.
 b. *John sneezed down the street.
 c. *John shrugged out of the house.

When these verbs occur with a path expression, the Compatibility Condition requires that some part of the meaning of the verb must be interpreted as an entity's travel along a path, but it turns out that such an interpretation is pragmatically anomalous. When a person laughs or sneezes, from the point of view of motion in space, his lungs and face move in a certain way, but not his entire body. Hence, if these verbs occur with a path expression, the condition (11) selects the motion of the actor's lungs and face and interprets it as their travel along a path. However, in the real world it is impossible that when a person laughs or sneezes, his lungs and face go somewhere leaving the rest of his body behind. Thus, the sentences (12a) and (12b) are assigned a weird interpretation, and usually are not used. On the other hand, the readings of John's going into the room while laughing and his going down the street while sneezing never show up even as anomalous ones, because the subject *John* does not qualify as a theme, namely, an entity traveling along a path. The lexical meaning of *laugh* and *sneeze* does not contain the motion of the actor's whole body, which is what the subject refers to, so that there is no source in the lexical meaning from which the travel of the actor's entire body is derived by the condition (11). A similar account can be given to the case of *shrug* in (12c). When a person shrugs, his shoulders move, but not his body as a whole. If the verb *shrug* is accompanied by a path phrase, the proposed condition forces the motion of the actor's shoulders to be interpreted as their travel along a path. But it is pragmatically impossible that only John's shoulders move out of the house, while the rest of his body remains there. Hence, the anomaly. On the other hand, the sentence (12c) cannot mean that John went out of the room while shrugging, because the subject *John* cannot be interpreted as a theme by the condition (11). A person's whole body, the referent of the subject *John* in (12c), does not have to move when he shrugs, and so it is not qualified to be interpreted as a theme. In general, in the case of the verbs *laugh*, *sneeze* and *shrug*, the Compatibility Condition specifies as a theme some part of the actor's body, but not the actor as a whole, which yields anomalous readings in travel sentences.

Notice that this analysis is different from the account given by the lexical subordination or extension. Under the lexical extension hypothesis, a new superordinate predicate GO is added to the lexical meaning of a verb, and therefore in principle it can be added to the lexical representations of verbs *laugh*, *sneeze* and

shrug, deriving a new entry of the same phonological form with the meaning of "go somewhere laughing or sneezing or shrugging." But since such a lexical item is impossible, it is necessary to require the process of extension not to apply to these verbs. Under the present analysis, however, such a requirement automatically follows from the Compatibility Condition, which does not simply add a new meaning to a verb but selects some entity's motion from the lexical meaning of a verb and interprets it as its travel. The crucial difference is that the Compatibility Condition may select a part in motion which does not necessarily correspond to the referent of the subject or actor, while in the analyses by Levin and Rappaport Hovav (1992) and by Jackendoff (1991) it is always the actor of the original predicate that becomes the theme of a travel sentence.

So far we have assumed the following: (a) a verb has a single lexical representation with no distinction between basic and extended entries. (b) When verbs of internal motion are combined with a path phrase to form a sentence, only the part of their meaning compatible with it shows up in the sentence. We have seen that these conditions account for the difference among the verbs of internal motion with respect to sentences meaning travel without any ad hoc requirement. Below we will see that if appropriate lexical semantic representations are hypothesized, the Compatibility Condition accounts for the behaviors of verbs of other classes as well.

4. Verbs of Sound Emission

It has been pointed out by Levin and Rappaport Hovav that verbs of sound emission may occur with a path expression "if the sound is a necessary concomitant of the motion of some entity."⁵ For instance, the verb *whistle*, which is a verb of sound emission in (13a), is allowed to occur with a path phrase in a sentence which has the reading of an entity's travel accompanied by the whistling sound, as in (13b), where the traveling entity is the train. In contrast, as shown in (13c), it cannot be used with a human subject in a sentence meaning its travel along a path while whistling: (13c) is unacceptable with the reading of Shelly's going down the street while whistling a tune. What is important here is that in (13b) the sound cannot be made without the travel: the travel of the entity and the emission of the sound are two aspects of a single event; but in (13c) two coincidental events are involved: the traveling happens at the same time as the person's whistling of a tune, and it is possible that one of these two events takes place without the other.

- (13) a. John whistled.
 b. The train whistled into the station.
 c. *Shelly whistled down the street.

This is not an idiosyncratic feature of the verb *whistle*. The same kind of difference in acceptability can be observed for some other verbs of this class: Levin and

Rappaport Hovav (1991: 138) show another pair in (14) and we can make similar ones.⁶

- (14) a. The beautiful new Mercedes purred along the autobahn.
b. *The cat purred down the street.
- (15) a. The wind screamed down the chimney. LDCE
b. *Mary screamed down the street.
- (16) a. The train roared past the bridge. KNDEC
b. *The lion roared past us.
- (17) a. The wind was howling through the smashed windowpanes. COBUILD
b. *The dog was howling into the house.
- (18) a. The car screeched to a stop.
b. *Mary screeched away from the dog.

In (14)–(18), (a)–sentences are acceptable with a sense of an entity's travel, but (b)–sentences are not acceptable with the reading of the actor's travel while making a certain kind of voice.

In order to account for the systematic differences shown by the examples above, one might propose a rule such as (19).

- (19) A verb of sound emission can be a verb of travel if and only if the travel is necessarily accompanied by the sound denoted by the original verb.

However, the rule is devised specifically for the verbs of sound emission and does not apply to other types of verbs of travel. It is possible that the stipulation in (19) results from the proposed assumptions independently motivated for the verbs of internal motion. The assumption on the lexical representations of verbs and the Compatibility Condition may produce the same effect that is stated in (19).

Let us explore this possibility. We will take the verb *scream* for example, and assume that the same argument applies to other verbs of sound emission as in (13)–(18) as well. Suppose, in accordance with the assumption (8), that it has a single lexical semantic representation consisting of two parts:

- (20) *scream* (a) a person makes a long piercing sound by means of his vocal organ to express his emotions, etc. and
(b) the particular sound travels.

Part (a) specifies an action in which an actor does an internal motion to make a sound of a certain type, and part (b) says that the produced sound is a theme, an entity which travels along a path. The lexical meaning (20) as a whole shows up in the following sentences.

- (21) a. Mary screamed.

- b. Mary screamed out.
- c. Mary screamed out a warning.

In (21a) the actor is realized as a noun phrase *Mary*, while the theme is covert, i.e., the sound does not appear as a noun phrase in the syntactic structure. The same is the case with (21b), except that the path expression *out* is added so that the Compatibility Condition (11) applies and vacuously interprets the sound as a theme. What is added here is the specification of the path: *out* represents the path going out of the actor in all directions.⁷ In (21c), just as the actor is realized as *Mary*, the sound is realized as a noun phrase *a warning*: the sound is the medium for the warning and cannot be separated from it in space. The condition (11), appropriately modified to apply to the transitive structures, would account for (21c), interpreting the warning conveyed by the sound as a theme.

We are now in a position to consider the sentence (15b), repeated here as (22).

(22) *Mary screamed down the street.

This sentence is unacceptable with the intended reading of Mary's going down the street while screaming, which is correctly predicted by the present assumptions. Since the sentence has a path phrase *down the street*, the condition (11) selects from the verb meaning (20) the sound as a theme. Unlike *dance*, *run* and *sneak*, the lexical representation for *scream* (20) specifies that the actor is a different entity from the theme. Given (20), therefore, the condition (11) never interprets the actor *Mary* as a theme: (22) cannot have the reading of Mary's travel down the street. Thus, the Compatibility Condition, together with the lexical representation of the verb *scream*, accounts for the unacceptability of (22).

Consider, next, the sentence (15a), repeated here as (23).

(23) The wind screamed down the chimney.

Here again, the sentence has a path phrase so that the condition selects part (b) of the lexical meaning (20) and interprets the sound as a theme, which is realized as *the wind* in the subject position. It is inanimate and cannot be an actor. The sentence means, therefore, that the sound realized as the wind traveled down the chimney. Notice that under the present analysis the sentence does not mean that the wind went down the chimney emitting the sound, in which the sound is treated as the secondary theme spreading from the primary theme wind. Rather, the wind and the sound are regarded as forming a single theme, and the wind-sound went down the chimney.⁸ Thus, the condition (11) accounts for the meaning of (23).

A question arises why an actor is absent from the meaning of the sentence (23) even though it is present as part (a) in the lexical meaning of the verb (20). The disappearance of an actor does not follow from the condition (11), which gives the role

of theme to an entity in the lexical representation but does not delete an actor or action. A different mechanism seems to be involved here. One might suppose that an actor is absent from the sentence meaning because it does not occur as a noun phrase in the syntactic structure. However, such a solution cannot account for a covert theme. Sentences (21b-c), repeated here as (24a-b), show that a theme may exist in the meaning of a sentence whether it is syntactically present or not.

- (24) a. Mary screamed out.
b. Mary screamed out a warning.

In the case of (23) an actor, syntactically absent, is also absent from the meaning of the sentence, while in the case of (24a) a theme, also syntactically absent, does exist in the sentence meaning. Why is it possible that in one case a syntactically unrealized participant exists in the sentence meaning and in the other it does not? The question seems to be related to implicit agents in passive sentences.⁹ Compare the following:

- (25) a. The ship was sunk.
b. The ship sank.

(25a) implies that there was an agent that sank the ship, but (25b) does not. In other words, in (25a) a syntactically unrealized agent is present in the meaning of the sentence, but in (25b) it is not. The difference lies in the verb forms: in (25a) the passive form, *was sunk*, indicates the presence of an unspecified agent in the sentence meaning, while in (25b) there is no morpheme indicating its presence. A similar observation can be made for (23) and (24a). In (24a) the path expression *out* shows the presence of a covert theme, while in (23) there is no morpheme except the verb itself that suggests the presence of an actor. In general, it may be that a syntactically absent participant may exist in the semantic structure of a sentence if and only if there is some grammatical morpheme indicative of its presence. The problem is interesting, but we will not pursue it any further and leave it open. For the purpose of our discussion, let us simply assume that under certain conditions an actor in the lexical representation does not show up in the compositional meaning of a sentence. Thus, with the process of eliminating an actor, the sentence (23) is given an appropriate reading by the condition (11) and the lexical representation (20).

Notice, incidentally, that there is a condition on the meaning of verbs that are permitted to occur without an actor. Among the verbs which may be considered verbs of sound emission, *call*, *cry*, *shout* and *yell* do not occur in a sentence with a theme subject:

- (26) a. Mary called/cried/shouted/yelled out.
b. *The train called/cried/shouted/yelled into the station.

Though the meanings of these verbs are similar to that of *scream* (20) in that they consist of two parts, they seem to be different from it in the specificity of voice. These verbs all mean that an actor makes a loud voice but the sound does not seem to be so specific as that of the verbs such as *scream*, *whistle*, *purr*, *roar*, etc., which permit a theme subject, as we have seen in (13)–(18). It seems that if the quality of the sound is detailed enough, it can describe an entity's manner of motion or travel without an actor. We may assume, therefore, that verbs denoting an act of making a sound can occur in a sentence without an actor if the quality of the sound is specific enough, and that *scream* is an instance.

In summary, it has been observed that some of the verbs of sound emission can appear as verbs of manner of travel if the subject of the sentence is a theme and that in such a sentence the actor of the emission of sound does not show up as a theme. We have shown that the unacceptability of the reading of an actor as a theme can be explained by the Compatibility Condition and the lexical semantic representations of these verbs. Under our proposal, the actor cannot be interpreted as a theme because a theme exists in the lexical representation independently of an actor and so the condition cannot select the actor as a theme. This is not the case with manner-of-motion verbs such as *wiggle*, *dance* and *spin*, where, as we have seen, an actor is interpreted as a theme by the condition. As for the disappearance of the actor of sound emission from the sentence meaning, we need to assume a separate process of eliminating a participant in the lexical meaning of a verb when it occurs in a travel sentence. This assumption forces us to accept that not all parts of the lexical meaning of a verb emerge in a sentence meaning and that other morphemes in the sentence may influence the meaning of the verb. We have seen that given the proper lexical representations and the elimination process, the Compatibility Condition, which has been proposed originally for the manner-of-motion verbs, explains the use of verbs of sound emission as travel verbs.

5. Conative Construction

As a further motivation let us turn now to a type of travel sentences known as the conative construction. We will argue that the Compatibility Condition designates the class of verbs occurring in conative sentences and accounts for the compositional meanings of these sentences. First, we will look at the syntactic and semantic characterizations observed by Pinker (1989) and then consider their implications for the present analysis of travel sentences.

Some of the transitive verbs are allowed to take a prepositional phrase headed by *at*, when they imply that an actor is attempting to affect an entity but may or may not succeed in it. Sentences of this form, exemplified in (27) and (28), are referred to as the conative construction. We will summarize what is observed by Pinker (1989: 104–9). (27) and (28) show that verbs of cutting and hitting are permitted to occur in conatives, while (29) and (30) show that verbs of touching and breaking are not.

- (27) a. Mary cut at the bread.
 b. Sam chipped at the rock.
- (28) a. Bill hit at the dog.
 b. Irv kicked at the wall.
- (29) a. *Nancy touched at the cat.
 b. *Jane kissed at the child.
- (30) a. *Jerry broke at the bread.
 b. *Bob split at the wood.

On the basis of the above observations we can make the following generalization:

- (31) Verbs that may occur in the conative construction must contain the meaning of motion resulting in contact.

Verbs of cutting, *cut*, *chip*, *chop*, *hack*, *slash*, etc., have a lexical meaning consisting of motion, contact and effect; verbs of hitting, *hit*, *beat*, *kick*, *poke*, *slap*, etc., consist of motion and contact but do not require effect. Thus, these two classes of verbs have in common the feature of motion followed by contact. In contrast, verbs of touching, *touch*, *kiss*, *contact*, etc., have the meaning of contact, and verbs of breaking, *break*, *shatter*, *crack*, *split*, *crumble*, etc., the meaning of effect. The latter two classes do not contain the component of motion followed by contact and are not allowed to be in the conative construction, as shown in (29) and (30). We may assume, therefore, that it is the feature of motion followed by contact that permits a verb to occur in the conative construction.¹⁰

The conative construction is said to convey the meaning of an attempted action, which may or may not be successful.¹¹ But it is difficult to give a precise description of its meaning. Pinker (1989: 108-9) suggests that in this construction the preposition *at* is not used in the same way as the spatial *at*, which refers to a path oriented toward a goal but not necessarily arriving there, as in (32).

- (32) John threw the rock at the tree.

However, he is not clear about what the preposition means in the conative sentences. Despite his suggestion and the name of this construction, we will try to give a strictly spatial account, assuming that conatives are a type of travel sentences expressing motion through space and that the preposition *at* has only a spatial meaning, namely, a path toward a target. This assumption will lead us to an accurate semantic analysis of this construction.

Consider how the generalization (31) can be explained. If we assume that a verb occurring in a conative construction somehow obtains the component of "attempting" in addition to the original lexical meaning, then it would be difficult to explain why

there is such a generalization. We would have to impose it on the process of conativization as an ad hoc condition: it would be regarded as an accident in English that the generalization is stated in terms of motion and contact rather than, say, effect. Action denoted by any of the verbs occurring in (27)–(30) can be attempted, but it is not verbs of touching or breaking but verbs denoting both motion and contact that are permitted in this construction. The assumption that an "attempting" component is added to verbs in conatives would have no explanation for the fact.

Suppose, instead, that conative sentences do not involve any addition of meaning and that they are a type of travel sentences whose path expression is headed by the preposition *at*, which denotes a path toward a target. This assumption is supported by the cooccurrence of another path expression *out*.

(33) a. He hit out at me without thinking. LDCE

b. Never walk behind a horse in case it kicks out at you. LDPV

If the prepositional phrase headed by *at* is a path expression, then the Compatibility Condition must apply to conative sentences as well. It selects from the meaning of the verb the part that can be an entity traveling toward the target. With the verbs encoding both motion and contact, the condition finds the part of the meaning compatible with the *at*-phrase: in (27a), an instrument like a knife moves and therefore the condition interprets it as a theme traveling toward the bread; in (28a), Bill's hand or something in his hand moves and so the condition interprets it as a theme moving toward the dog. However, with the verbs of touching or breaking, it cannot find an entity that can be interpreted as a theme: the verb *touch* denotes contact but does not require motion so that if the condition applies to (29a), it cannot find an entity in motion and therefore cannot designate a theme compatible with the path expression, which marks the sentence as ill-formed. Similarly, (30a) is also ill-formed, because the verb *break* denotes separation of something into parts but does not encode motion so that the condition cannot find an entity compatible with the path phrase. Therefore, the generalization (31) follows from the Compatibility Condition. Given the proper analysis of the meanings of verbs, the condition gives an explanation to the facts observed in (27)–(30).

Notice that the condition (11) is sensitive to the component of motion, but not to the contact, which is used in (31). Contact is relevant in designating a kind of transitive verbs if we try to capture the phenomenon in terms of the alternation from transitive to conative verbs. However, under the present proposal, there is no rule deriving one lexical entry from another. Rather, the condition, which does not require the contact component and is applicable to a wider range of sentences with path phrases, accounts for the conatives as well.

It is now clear how the "attempting" component is accounted for by the Compatibility Condition. Consider (27a), repeated here as (34).

(34) Mary cut at the bread.

The condition interprets it as expressing travel and selects a covert sharp instrument as a theme moving toward the target: the actor Mary did the act of moving a blade toward the target bread. Though the lexical meaning of *cut* includes not only the motion of an instrument but also its contact and effect, in the travel sentence (34) the contact and effect do not show up as part of the sentence meaning because of the condition and the preposition *at* denoting a path toward a target: whether the blade reached the bread is not relevant in the sentence with the preposition *at*. In this way, "attempting" meaning is composed. Not all parts of the lexical meaning of a verb emerge in the compositional meaning of a sentence. This is the case with the conative sentences with other verbs as well.

In this section, we have shown that the Compatibility Condition predicts the class of verbs that are allowed to occur in conative sentences and gives the compositional meanings specific to these sentences. We assume that there is a single lexical semantic representation for each verb. If a verb occurs in a transitive sentence, its lexical meaning as a whole appears in the sentence meaning. But if it occurs in a conative sentence, only the motion component of its lexical meaning is selected, and the other part is suppressed, by the path expression headed by *at*. The Compatibility Condition, in conjunction with the lexical representations of verbs and the preposition *at*, explains the characterizations of conative sentences.

6. Conclusion

We will emphasize two consequences of accepting the Compatibility Condition. First, compositional meanings of sentences are not just the result of the addition of lexical meanings, but involve interpretation and suppression of them. In the sentences consisting of a verb followed by a path phrase, the path selects the part in motion from the lexical semantic representation of the verb and interprets it as a theme traveling along it. With some verbs of internal motion such as *wiggle* and *dance*, the actor is interpreted as a theme; with some verbs of sound emission, the sound is interpreted as a theme; and with verbs in conative sentences such as *cut* and *hit*, an instrument or a hand becomes a theme but its contact with, and possible effect on, another entity is suppressed. Path imposes the role of theme on an entity in motion in the lexical meaning of a verb and suppresses the rest.

Second, the condition reduces the class of possible travel sentences: it blocks the unacceptable sentences that may be allowed by the theory that adds the component of travel, or GO predicate, to the verb meaning as the main predicate. Given the condition, an entity which does not move cannot be interpreted as a theme. It follows that verbs without motion component cannot occur in travel sentences and that an actor cannot be interpreted as a theme if the lexical meaning does not specify that its whole body moves. Thus, the condition explains why verbs such as *touch* and

break are not permitted in conatives and why an actor cannot be a theme with verbs such as *shrug* and *scream*. It prevents the generation of impossible travel sentences without a further restriction.

NOTES

1. I do not reproduce the *GO*-Adjunct Rule here. For the two versions of the rule see Jackendoff (1990: 224).
2. For more examples and characterizations of lexical subordination, see Levin and Rapoport (1988), Rappaport and Levin (1988) and Levin and Rappaport Hovav (1991).
3. Pinker (1989: 182) adopts a similar analysis for the verbs of manner of motion. He assumes that there are two distinct lexical entries for the verb *roll* corresponding to the sentences *The ball rolled* and *The ball rolled down the hill* and that they are related by a lexical rule. He refers to Jackendoff's *MOVE* as *MANNER*.
4. I assume that *run*, *walk* and *sneak* involve travel. But if the following sentences are acceptable without the reading of travel,
 - (i) John ran in one place for exercise
 - (ii) John walked in one place for exercise
 there are two possibilities for their analysis: (a) *run* and *walk* may not have the meaning of travel in their lexical representations. (b) They are lexically specified for it, but in these sentences readings with no travel are forced by the phrase *in one place*. With *sneak*, such a sentence is less acceptable,
 - (iii) *John sneaked in one place
 and so we may assume that it is lexically specified for travel.
5. This expression and the examples (13b-c) are cited from Levin (1993: 236). See also Levin (1991: 213) and Levin and Rappaport Hovav (1991: 138).
6. Acronyms to the right of the example sentences refer to the dictionaries they are cited from.
7. See Lindner (1983: 101) for a semantic description of verbs of sound emission followed by *out*.
8. This analysis is at variance with Levin's (1991: 213) description of the meaning of verbs of sound emission. She states that in the following sentence
 - (i) A rocket whistled by, missing the hill...

whistle means "move while causing a whistling sound to be emitted." Under our proposal, the rocket and the whistling sound form a single theme and so the sentence (i) may be paraphrased as (ii):

(ii) A rocket-whistling sound traveled by, missing the hill...

9. See Keyser and Roeper (1984: 405) and Pinker (1989: 91) for discussions on implicit agents. Sentences in (25) are cited from Pinker (1989).
10. See Pinker (1989: 104-9) for the justifications for the components of meaning distinguishing the four classes of verbs.
Guerssel et al. (1985: 59) claim that verbs in conatives must contain the features of both contact and effect, rather than motion and contact. But the generalization in terms of motion and contact would be more precise, because verbs of hitting, allowed in conatives, do not have the feature of effect, and verbs of hitting and cutting both have motion and contact.
11. For the semantic descriptions of conatives, see Levin (1993: 42), Dixon (1991: 279), as well as Pinker (1989: 108-9), among others.

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