

Chapter 5

Verbs with Multiple Meanings

In chapter 1 we stressed the importance of isolating those aspects of verb meaning that are relevant to the syntax. In evaluating whether the actual syntactic classification of a verb as unaccusative or unergative is the classification that is expected given its meaning, it is important to begin by carefully determining the meaning of the verb under consideration, especially with respect to the syntactically relevant aspects of meaning. Failure to do this has meant that some attempts to compare verbs from different languages that appear to be translation equivalents are flawed. As discussed in chapters 1, 3, and 4, verbs said to be translation equivalents may differ in just those aspects of meaning that are relevant to determining a verb's class membership. However, even in the analysis of the verbs of a single language, the same care must be taken in determining verb meaning: a single verb may be associated with a range of meanings differing from each other in precisely the syntactically relevant aspects of meaning, leading to different classifications of the verb on the different meanings.

It appears that all languages show—although to varying degrees—the phenomenon that Apresjan (1973, 1992) terms “regular polysemy”: instances of polysemy that are consistently exhibited by words with certain types of meanings (see also Ostler and Atkins 1991). For instance, in English and Russian, at least, nouns such as *reel* and *cup* that name containers can often be used to refer to the quantity of a substance held by that container (*a reel of thread, a cup of milk*). Apresjan notes that there are instances of regular polysemy involving verbs as well. Atkins, Kegl, and B. Levin (1988) discuss one such example. They show that the verb *bake* can be associated with both a change-of-state meaning, as in *Max baked the potatoes*, and a creation meaning, as in *Max baked a pound cake*. Furthermore, these two meanings are associated with other verbs of cooking as well; thus, verbs of cooking manifest regular polysemy.

As mentioned in chapter 1, we call verbs that show regular polysemy “variable behavior verbs.” This name is intended to emphasize the fact, illustrated in Atkins, Kegl, and B. Levin 1988, Laughren 1988, B. Levin 1991, B. Levin and Rappaport Hovav 1991, and Rappaport and B. Levin 1988, that verbs that are systematically associated with a range of meanings are also found in a range of syntactic configurations and display a range of patterns of syntactic behavior. These syntactic configurations and patterns of behavior are precisely the ones compatible with the various meanings associated with a given verb. Each meaning can be shown to be correlated with the appropriate syntactic behavior. Furthermore, as noted in chapter 1, this property of variable behavior verbs means that a careful consideration of the different meanings associated with such verbs can facilitate the isolation of the syntactically relevant aspects of verb meaning.

The ability of some verbs to be associated with multiple meanings can sometimes be used to explain their seemingly unexpected behavior with respect to the Unaccusative Hypothesis. This is true, for example, of some of the Italian verbs discussed by C. Rosen (1984) that select both the auxiliaries *avere* ‘have’ and *essere* ‘be’ (see section 1.2.1). In chapter 1 we showed how a single constant can often be associated with more than one lexical semantic template, and we have given additional examples of this process as it pertains to the variable behavior of certain verbs with respect to the causative alternation in the discussion of *buzz* and verbs like it in section 3.2.5 and in the discussion of the verbs of spatial configuration in section 3.3.3. If two or more lexical semantic representations sharing a single constant—and, thus, a common core element of meaning—differ from each other in exactly those meaning components that are relevant to the classification of verbs as unaccusative or unergative, and if, moreover, these lexical semantic representations are associated with the same name, then a single verb is actually predicted to exhibit variable behavior.

English is particularly rich in variable behavior verbs, although this may not be obvious since the morphological shape of the verbs themselves is constant across meanings. The absence of morphological clues often masks the fact that a single verb is associated with more than one meaning in English. In some languages, variations in verb meaning are signaled morphologically: verbs with related meanings share a verbal root, but are differentiated by affixes or changes in the shape of the root. For instance, in B. Levin and Rappaport 1988 we argue that the verbs found in the locative alternation (e.g., *spray paint on the wall/spray the wall with paint*)

have different, but related, meanings associated with each of the argument expressions characteristic of the alternation despite the invariant morphological shape of the verb (see also Dowty 1991 and Pinker 1989 for analyses along similar lines). In contrast, the example of locative alternation in Russian in (1) shows the use of distinct perfective verb prefixes in the two variants. The use of verb prefixes to distinguish the verb forms in the two variants also characterizes this alternation in Hungarian, as the example in (2) shows.

- (1) a. Kryst'jany na-gruzili seno na telegu.
 peasants (NOM) *na*-loaded hay (ACC) on cart-ACC
 'The peasants loaded hay on the cart.'
- b. Kryst'jany za-gruzili telegu senom.
 peasants (NOM) *za*-loaded cart-ACC hay-INST
 'The peasants loaded the cart with hay.'
- (2) a. János ráházolta a festéket a falra.
 John onto-smear-ed-he-it the paint-ACC the wall-onto
 'John smeared paint on the wall.'
- b. János bemázolta a falat festékkal.
 John in-smear-ed-he-it the wall-ACC paint-with
 'John smeared the wall with paint.'
- (Moravcsik 1978:257)

As the translations show, in English there is no change in the morphological shape of the verb in the locative alternation.

Knowledge of the possible multiple meanings that a verb can show and the factors that license them is an important part of the lexical knowledge of a language, and it figures prominently as part of knowledge of English, which, as just mentioned, is a language extremely rich in variable behavior verbs. Native speakers of a language are able to make judgments about possible and impossible multiple meanings for a verb and the syntactic behavior associated with these different meanings, suggesting that this phenomenon falls under the rubric of Plato's problem (Chomsky 1986b). Thus, this phenomenon can be considered central to knowledge of language, and a theory of language will not be complete without a full theory of variable behavior verbs.

Many interesting and important questions arise in the context of verbs with multiple meanings. If lexical syntactic properties are a projection of lexical semantic properties, as suggested by certain formulations of the Projection Principle (and as stipulated in the theory of c-selection

and s-selection developed by Pesetsky (1982) and adopted by Chomsky (1986b)), then the fact that so many verbs can appear in a range of syntactic configurations, as happens with variable behavior verbs, may entail the wholesale proliferation of the lexical semantic representations associated with verbs. But the fact that knowledge of what are possible and impossible sets of multiple meanings for a verb seems to be part of core grammar suggests that multiple meanings are not merely listed in the lexical entries of verbs. If so, then an extremely important question arises: what is the source of the multiple meanings? In this chapter we describe two sources of multiple meanings, introducing them in the context of verbs that, because of their multiple meanings, alternate between unergative and unaccusative behavior. In section 5.1 we describe a type of polysemy that arises, we argue, from the existence of a lexical rule. In section 5.2 we contrast our approach to verbs showing this kind of polysemy with another approach that, although taking several forms, avoids lexical rules by attributing the multiple meanings of such verbs to their ability to be found in several constructions. In section 5.3 we highlight the properties of the type of polysemy discussed in section 5.1 by comparing it to a second type of polysemy, and we show that there is good reason to distinguish the two. We propose that the second type of polysemy, which has already been introduced in chapter 3 in the context of verbs of sound emission and verbs of spatial configuration, arises from the basic compatibility of particular constants with more than one lexical semantic template.

5.1 Rule-Governed Variable Behavior

In this section we discuss a range of verbs that qualify as internally caused verbs, but can acquire an additional meaning—that of a verb of directed motion—through the application of a lexical rule. Consequently, these verbs fall under either the Immediate Cause Linking Rule (on their basic meaning) or the Directed Change Linking Rule (on their directed motion meaning), giving rise to either an unergative or an unaccusative classification.

5.1.1 Verbs of Manner of Motion

Of the many variable behavior verbs found in English, the agentive verbs of manner of motion have probably received the most attention. As has often been pointed out (Hoekstra 1984, B. Levin and Rappaport Hovav 1992, L. Levin 1986, C. Rosen 1984, Talmy 1975, 1985, among many

others), agentive verbs of manner of motion can regularly appear with directional phrases, resulting in the specification of both direction and manner of motion. The directed motion use of agentive verbs of manner of motion is found in some languages, but not in many others.¹

Besides English, German and Modern Hebrew allow the directed motion use of agentive verbs of manner of motion, as shown in (3) and (4), respectively.

- (3) a. Die Kinder liefen in das Zimmer (hinein).
 the children ran into the-ACC room (into)
 'The children ran into the room.'
- b. Die Kinder sind an das andere Flußufer geschwommen.
 the children are to the-ACC other riverbank swum
 'The children swam to the other side of the river.'
- (4) a. Hu rakad el mixuts la-xeder.
 he danced to outside to the-room
 'He danced out of the room.'
- b. Ha-saxyan saxa la-gada ha-šniya šel ha-nahar.
 the-swimmer swam to the-side the-second of the-river
 'The swimmer swam to the other side of the river.'

In contrast, as Talmy (1975, 1985) has amply illustrated (see also Bergh 1948 and Carter 1988), most verbs of manner of motion in the Romance languages cannot take directional phrases (although see note 1 of this chapter); that is, they cannot be used as verbs of directed motion. (The Italian verb *correre* 'run', cited in section 1.2.1, is one of the few exceptions to this generalization in Italian; other exceptions are the verbs *saltare* 'jump' and *volare* 'fly'.) This contrasting behavior is illustrated by the English/French pair in (5). The English sentence in (5a) is ambiguous: the prepositional phrase *under the table* may be interpreted as the location of the motion or as the direction or goal of the motion. Its French translation in (5b) is unambiguous, the prepositional phrase receiving only the locative interpretation.

- (5) a. The mouse is running under the table.
 b. La souris court sous la table.

To express the directional interpretation available to agentive verbs of manner of motion in English, languages such as French and Spanish must use a complex expression involving a verb of inherently directed motion, chosen to specify the direction, together with a prepositional, adverbial,

or gerundive phrase indicating the manner of motion, as in the French examples in (6) and (7).

- (6) Une vieille femme arriva en boitant de l'arrière-boutique.
 an old woman arrived in limping from the back-store
 'An old woman hobbled in from the back.'
 (Vinay and Darbelnet 1958:105)

- (7) Blériot traversa la Manche en avion.
 Blériot crossed the Channel by plane
 'Blériot flew across the Channel.'
 (Vinay and Darbelnet 1958:105)

In fact, work in comparative stylistics, noting the need for periphrastic expression of the directed motion use of verbs of manner of motion, has referred to this difference between the two types of languages as a "chassé croisé," since there is a reversal between English and French with respect to what is encoded in the verb and what in a subordinate phrase (Vinay and Darbelnet 1958:105).

Some languages are intermediate between the English type and the Romance type, in that agentive verbs of manner of motion can be used as verbs of directed motion only with the addition of a special morpheme. For instance, Schaefer (1985) writes that in Tswana the morpheme *-èl-* must be adjoined to an agentive verb of manner of motion to convey the idea of motion toward a goal.

- (8) Mò-simàné ó-tábóg-à fá-gòdí mò gá-thàbà.
 CL.1-boy he-run-IMP NEARBY-top LOC-mountain
 'The boy is running on top of the mountain.'
 (Schaefer 1985:64, table II, 1)
- (9) *Mò-simàné ó-tábóg-à gòdí mò gá-thàbà.
 CL.1-boy he-run-IMP top LOC-mountain
 'The boy is running to the top of the mountain.'
 (Schaefer 1985:67, (4a))
- (10) Mò-simàné ó-tábóg-èl-à kwá-gòdí mò gá-thàbà.
 CL.1-boy he-run-to-IMP DISTANT-top LOC-mountain
 'The boy is running to the top of the mountain.'
 (Schaefer 1985:66, table III, 1)

Japanese also appears to instantiate the intermediate type of language.² As examples (11) and (12) show, agentive verbs of manner of motion in

Japanese cannot take goal phrases directly; however, they may combine with the verb *iku* 'go' or another verb of inherently directed motion to form complex verbs that can take goal phrases.

- (11) a. ?John-wa ekie-e hashitta.
 John-TOP station-to ran
 (Yoneyama 1986:1, (1a))
 b. ?John-wa kishi-e oyoida.
 John-TOP shore-to swam
 (Yoneyama 1986:1, (1b))
- (12) a. John-wa ekie-e hashitte-itta.
 John-TOP station-to running-went
 'John ran to the station.'
 (Yoneyama 1986:2, (3a))
 b. John-wa kishi-e oyoide-itta.
 John-TOP shore-to swimming-went
 'John swam to the shore.'
 (Yoneyama 1986:2, (3b))

On their nondirected motion use agentive verbs of manner of motion, as internally caused verbs, fall under the Immediate Cause Linking Rule and are unergative as discussed in section 4.1.4. If, as suggested in chapter 4, the Directed Change Linking Rule takes precedence over the Immediate Cause Linking Rule, then we would expect agentive verbs of manner of motion to exhibit unaccusative behavior in the presence of directional phrases. Indeed, the pattern of auxiliary selection demonstrated by these verbs in Dutch, German, and Italian has been cited in support of this dual classification (Hoekstra 1984, L. Levin 1986, C. Rosen 1984, among others). In these languages, verbs of manner of motion typically select the auxiliary *have*, but they select the unaccusative auxiliary *be* in their directed motion use; this property is taken as an indication that the verbs are unaccusative in the directed motion use. This pattern of auxiliary selection is illustrated with the Dutch and Italian examples in (13) and (14); recall that the Italian verb *correre* 'run' is one of the few agentive verbs of manner of motion that shows a directed motion use in Italian.

- (13) a. Hij heeft/*is gelopen.
 He has/is run
 'He ran.'
 (Zaenen 1993:136, (22a))

- b. Hij is/?heeft naar huis gelopen.
 he is/has to home run
 'He ran home.'
 (Zaenen 1993:136, (22b))
- (14) a. Ugo ha corso meglio ieri.
 Ugo has run better yesterday
 'Ugo ran better yesterday.'
 (C. Rosen 1984:66, (86a))
- b. Ugo è corso a casa.
 Ugo is run to home
 'Ugo ran home.'
 (C. Rosen 1984:67, (86b))

Although the evidence cited above is quite well known, there are two additional types of subtle evidence from English, not previously noted in the literature, that agentive verbs of manner of motion are unaccusative in the presence of directional phrases. We discuss these in turn in the following two sections.

5.1.1.1 The Resultative Construction The first piece of evidence from English for the dual classification of agentive verbs of manner of motion comes from the resultative construction, which we analyzed in chapter 2. The agentive verbs of manner of motion show rather complicated behavior in the resultative construction. As noted by Simpson (1983b), these verbs may occur in the unaccusative resultative pattern with resultative phrases headed by one of a restricted group of adjectives, including *free* and *clear*, or by either of the intransitive directional elements *apart* and *together*.

- (15) a. She danced/swam free of her captors.
 b. They slowly swam apart.
 c. However, if fire is an immediate danger, you must *jump clear of the vehicle*. [State of Illinois, *Rules of the Road*, 81; italics in original]

The agentive verbs of manner of motion in these examples are clearly found in the unaccusative resultative pattern: there is no apparent object, and the resultative phrase is predicated directly of the surface subject. The behavior of these verbs is particularly intriguing in light of the fact that the very same verbs can also appear in the unergative resultative pattern with a fake reflexive or nonsubcategorized object.

- (16) a. He danced his feet sore.
 b. Don't expect to swim/jog yourself sober!

Thus, these verbs seem to be behaving both as unaccusative and as unergative verbs in the resultative construction.

A clue to solving this puzzle comes from comparing the resultative phrases in (15) and (16). The resultative phrases in the two types of resultative constructions cannot be interchanged, suggesting that they are drawn from distinct classes.

- (17) a. *He danced sore.
 b. *Don't expect to swim/jog sober.
- (18) a. *You must jump yourself clear of the vehicle.
 b. *They swam themselves apart.

The resultative phrases in (15) denote the result of a change in location, whereas those in (16) denote the result of a change of state. The adjective *clear* may describe a state, as in *a clear table*, but in the phrase *clear of the vehicle* found in (15c), this same adjective is to be interpreted as a location that is defined as being away from the vehicle. In fact, Talmy (1985:104) calls these types of adjectives and directional elements “paths,” although clearly these particular elements describe a path by naming its endpoint. The difference in the types of resultative phrases selected in the two forms of the resultative construction is correlated with the interpretation of the verbs: (15) involves the directed motion use of agentive verbs of manner of motion and (16) involves the use of such verbs in which direction is not specified. These facts indicate that agentive verbs of manner of motion can indeed be associated with two related, though distinct, meanings, one consistent with an unaccusative and the other with an unergative classification of these verbs. Given this assumption, the odd behavior of these verbs in the resultative construction can be explained; they enter into different resultative patterns depending on whether they describe directed or nondirected motion.

5.1.1.2 The Causative Alternation Additional evidence from English that agentive verbs of manner of motion are unaccusative when they receive a directed motion interpretation comes from their behavior in the causative alternation. In chapter 3 we suggested that externally caused verbs are inherently dyadic and that the transitive use of prototypical causative alternation verbs is not the result of a process of lexical

causativization. We also showed in chapter 4 that the Immediate Cause Linking Rule ensures that monadic internally caused verbs will not have transitive causative uses since such uses would involve two arguments competing for the same position in argument structure. Despite this, we also presented evidence in chapter 3 that certain agentive verbs of manner of motion do have causative uses, as shown in the examples repeated here.

- (19) a. The soldiers marched (to the tents).
 b. The general marched the soldiers to the tents.
 c. ??The general marched the soldiers.
- (20) a. The horse jumped (over the fence).
 b. The rider jumped the horse over the fence.
 c. The rider jumped the horse.
- (21) a. The mouse ran (through the maze).
 b. We ran the mouse through the maze.
 c. *We ran the mouse.

The existence of such uses can be explained given the assumption that these verbs are unaccusative in their directed motion sense. Thus, their single argument is a direct internal argument, and they do not take an external argument; therefore, the external argument position is left unfilled and can be filled by an external cause.³ (We do not, however, formulate the rule that introduces the external cause.) Since the alternative linking that permits the introduction of an external cause is available only in the context of a directed motion interpretation, we have an explanation for the fact that a directional phrase is needed or, at the very least, must be understood when verbs of manner of motion are used causatively, as the examples above show.

As we argued in section 3.2.5, there is ample evidence that the causative pairs involving agentive verbs of manner of motion represent a different phenomenon from the causative pairs involving verbs of change of state such as *break*. The analysis we propose for the causative use of agentive verbs of manner of motion does in fact differ from our analysis of the causative use of a verb of change of state such as *break*. As we stressed in chapter 3, verbs of change of state do not undergo a process of causativization; they have a causative lexical semantic representation, reflecting the proposal that these verbs are externally caused.

Our account of why agentive verbs of manner of motion causativize capitalizes on properties of the lexical semantic representation of these verbs, so that this process would be expected to be productive. As the

examples in (22) show, the phenomenon is more widespread than the few examples cited in the literature suggest, although its relatively limited use suggests that speakers of English are conservative about exercising this option; see also B. Levin and Rappaport Hovav 1994 for further discussion of the factors that may play a part in licensing such causative uses.⁴

- (22) a. "... I promised Ms. Cain I would ride her around the ranch ..."
 [N. Pickard, *Bum Steer*, 92]
 b. ... several strong Teamsters ... shuffled Kit out of the room ...
 [L. Matera, *A Radical Departure*, 79]

Our account of the unaccusative and causative uses of such verbs also contrasts with our account of the same uses of the *roll* verbs, although both types of verbs are verbs of manner of motion. As we showed in section 4.1.4, the *roll* verbs are unaccusative when externally caused. The classification of these verbs is established by the Default Linking Rule independent of the presence of a directional phrase. Furthermore, as an externally caused verb, a *roll* verb is basically dyadic just like *break* and should allow for a causative counterpart whether or not a directional phrase is present. And in fact, the verb *roll*, unlike the verb *run*, can be used causatively even in the absence of a directional phrase.

- (23) a. The bowling ball rolled (into the room).
 b. The bowler rolled the bowling ball (into the room).

The different pattern of causative uses associated with the two types of verbs supports the classification of the agentive verbs of manner of motion as unaccusative in their directed motion sense and unergative otherwise.

5.1.2 Verbs of Sound Emission

Members of a second class of English verbs—the verbs of sound emission—can also regularly become verbs of directed motion. These verbs, which constitute the largest subset of the verbs of emission discussed in chapters 3 and 4, describe the emission of sounds by either animate or inanimate entities. As the examples in (24) show, verbs of sound emission are frequently found with directional phrases in English, and in such uses they describe the directed motion of an entity, where the motion is necessarily characterized by the concomitant emission by that entity of a sound whose nature is lexicalized in the verb.

- (24) a. ... the elevator wheezed upward. [M. Muller, *There's Nothing to Be Afraid Of*, 3]

- b. At that moment, a flatbed truck bearing a load of steel rumbled through the gate. [M. Muller, *There's Nothing to Be Afraid Of*, 39]
- c. The kettle clashed across the metal grid. [S. Miller, *Family Pictures*, 34]

We showed in chapter 4 that verbs of sound emission, if internally caused, are unergative. The fact that these verbs in clearly internally caused uses appear with directional phrases suggests that English also allows verbs of sound emission to become verbs of directed motion. In fact, as we show in this section, verbs of sound emission with directional phrases show the range of unaccusative behavior expected if this meaning shift is allowed. To better illustrate this, we first present a semantic restriction on the meaning shift.

Not all verbs of sound emission can become verbs of directed motion. The source of this restriction is related to a striking property of verbs of sound emission: unlike the members of the other subclasses of verbs of emission, many of them can take animate agentive subjects, as well as inanimate nonagentive subjects. In this respect, the verbs of sound emission contrast with other unergative verbs, which generally only take animate subjects. In general, verbs of sound emission, when agentive, cannot become verbs of directed motion.

- (25) a. *He yelled down the street.
(cf. He yelled his way down the street.)
- b. *She shouted down the street.
(cf. She shouted her way down the street.)
- c. *The frogs croaked to the pond.
(cf. The frogs croaked their way to the pond.)

However, sometimes verbs of sound emission are found with both animate subjects and directional phrases.

- (26) a. ... Sedgwick often clanked into town in sabre and spurs from the cavalry camp. [E. Thane, *Yankee Stranger*, 133]
- b. She rustled out of the room without waiting for a word from Lind. [M. Ostenso, *Wild Geese*, 30]

The verbs in the examples in (26), *clank* and *rustle*, specify sounds that are never emitted by the vocal tract; rather, they are emitted by contact between two surfaces. In fact, as M. Laughren has pointed out to us, the sounds in these particular examples are actually emitted by the clothes or

accessories that the animate subject is wearing, though the sound is being attributed to the animate subject itself. In contrast, the verbs in (25) can be used solely to describe sounds emitted via the vocal tract by an animate entity; furthermore, *shout* and *yell* describe sounds that are often emitted specifically for the purpose of communication.

As discussed in B. Levin 1991 and B. Levin and Rappaport Hovav 1991, in order for a verb of sound emission to be used as a verb of directed motion, the sound must be emitted as a necessary concomitant of the motion. Thus, verbs of sound emission where the sound is emitted via the vocal tract would necessarily be precluded from taking directional phrases, as shown by the unacceptability of the examples in (25). Verbs of sound emission are found with animate subjects and directional phrases precisely when the associated sound is emitted through the actual motion of an animate entity; in the examples in (26) the subject, though animate, is treated no differently than the inanimate subjects in the examples in (24). When verbs that describe sounds that may or may not be emitted via the vocal tract are found with directional phrases, only the interpretation that does not involve the emission of the sound via the vocal tract is available. Thus, there are constraints that govern the shift in meaning displayed by verbs of sound emission, suggesting that this is a regular process. We turn now to evidence that the verbs of sound emission, like the agentive verbs of manner of motion, change classification as a consequence of this shift, as predicted by the linking rules of chapter 4.

5.1.2.1 The Resultative Construction Verbs of sound emission, like agentive verbs of manner of motion, can appear in the unaccusative resultative pattern illustrated in (27), a class of examples that was brought to our attention by R. D. Van Valin.

- (27) a. ... the refrigerator door clicked open ... [M. E. Robertson, *Family Life*, 139]
 b. ... the curtains creak open and radiant evening light streams into the cluttered room. [S. Cheever, *Elizabeth Cole*, 70]
 c. The skylight thudded open with a shower of powdery plaster and some lopsided bricks. [M. Spark, *The Girls of Slender Means*, 158]
 d. The lid of the boiler clunked shut. [P. Lively, *The Road to Lichfield*, 52]

Furthermore, verbs of sound emission are found in such resultatives only

under the restricted circumstances that allow them to be used as verbs of directed motion, namely, when they are predicated of inanimates (or animates regarded as inanimates) and the resultative phrase denotes a result location rather than a result state. (The resultative phrases in (27) do not denote the result of a change of location; rather, they denote the result of a change of position, which is probably a kind of change of location with no displacement.) Although the adjectives *open* and *shut* could denote result states, it is clear that in these examples they do not. Rather, they denote the positions associated with the states of being *open* or being *shut*. Indeed, comparable sentences with the same verbs become ungrammatical when the resultative phrases are replaced with resultative phrases that unambiguously denote result states rather than result locations.

- (28) a. *The door banged to pieces.
 b. *The curtains creaked threadbare.
 c. *The skylight thudded to smithereens.
 d. *The lid clunked flat.

Verbs of sound emission are found in the unaccusative resultative pattern under the same conditions that allow them to be used as verbs of directed motion. That is, they must describe a sound that is a necessary concomitant of the motion of that entity, whether animate or inanimate.

(29) We splashed clear of the oncoming boat.

(30) ... the curtains creak open and radiant evening light streams into the cluttered room. [S. Cheever, *Elizabeth Cole*, 70]

As expected, verbs of sound emission cannot appear in the unaccusative resultative pattern when they describe any type of sound emitted by an animate entity via the vocal tract.⁵

- (31) a. *He yelled clear of the falling rocks.
 b. *The frogs croaked apart.
 c. *They shouted free of their captors.

With such verbs, we find the unergative resultative pattern, just as might be expected, and, as with the agentive verbs of manner of motion, the resultative phrases clearly denote result states.

- (32) a. We searched the woods and cliffs, yelled ourselves hoarse and imagined you drowned ... [M. Wesley, *A Sensible Life*, 327]
 b. Well, the conclusion was that my mistress grumbled herself calm. [E. Brontë, *Wuthering Heights*, 78]

The restrictions on which verbs of sound emission can be found in the unaccusative resultative pattern are the same as those on which of these verbs can take directional phrases, supporting the assignment of a common meaning to the verb in both instances.

We have demonstrated, then, that verbs of sound emission, when they show variable behavior, do so in a regular way. These basically unergative verbs show unaccusative behavior precisely when they are used as verbs of directed motion, causing the emitter argument to fall under the Directed Change Linking Rule. As with agentive verbs of manner of motion, the appearance of verbs of sound emission in the unaccusative resultative pattern with result locations is not unexpected, since such resultative constructions make use of the independently existing directed motion sense these verbs display.

5.1.2.2 The Causative Alternation In section 3.2.5 we proposed that certain verbs of sound emission can be either internally or externally caused and that the externally caused verbs of sound emission, as expected, show what can be characterized as “causative” uses, as in (33).

- (33) a. The postman buzzed/rang the doorbell.
 b. The impatient driver honked his horn.
 c. Nora jingled the keys.
 d. The cook clattered the dishes.

Although we have not been explicit about it, it is the internally caused verbs of sound emission that undergo the meaning shift to verbs of directed motion since only they are monadic. As a consequence of the meaning shift, these verbs become classified as unaccusative; thus, the possibility presents itself that internally caused verbs of sound emission should causativize in the presence of a directional phrase just as agentive verbs of manner of motion do. In fact, this type of causativization does seem to be attested, as in the examples in (34), although it seems to happen more sporadically than the comparable causativization of agentive verbs of manner of motion.

- (34) a. Vroooming his plane up and down ... Malcolm was holding onto whatever attention he could get ... [M. Grimes, *The Old Silent*, 225]
 b. Slowly, they rumbled the Big Wheel across the sidewalk ... [R. Robinson, *Summer Light*, 28]
 c. The driver roared/screached the car down the driveway.

The examples in (35) show that the directional phrases are required in the causative examples in (34), suggesting that the directed motion use of these verbs is involved.

- (35) a. *Malcolm vroomed his plane.
 b. *They rumbled the Big Wheel.
 c. *The driver roared/screached the car.

Thus, the examples in (34) provide a striking contrast with those in (33), which show no directional phrase requirement. The existence of causatives with the directional phrase requirement, which suggests that such causatives are based on the directed motion use of verbs of sound emission, is also further evidence for the unaccusative classification of the directed motion use for the reasons discussed in section 5.1.1.2.

To recapitulate, we have just proposed that verbs of sound emission are found in two different types of causatives: one based on the internally caused verbs of sound emission and the other based on the externally caused verbs of sound emission. Since an internally caused verb of sound emission will only enter into causatives as a result of a shift in meaning to a verb of directed motion, such causatives will show a directional phrase requirement. Externally caused verbs of sound emission are dyadic by their very nature, so causatives involving such verbs will not show a directional phrase requirement. Although the existence of causatives of verbs of sound emission with and without a directional phrase requirement is precisely what we would expect given the two sources of causatives we have identified, our account of how the causatives arise makes another prediction: the directional phrases should only appear with causatives of internally caused verbs of sound emission, and, in fact, they must appear in such causatives. Thus, our account would receive strong support if we can show that the presence or absence of the directional phrase correlates appropriately with an internally or externally caused classification. Therefore, it is important that we clarify exactly where the directional phrase requirement arises in causative uses of verbs of sound emission.

Establishing such correlations is important for another reason. On the surface, it appears that verbs of sound emission, although internally caused, differ from agentive verbs of manner of motion in showing causative uses that lack a directional phrase requirement. In fact, this difference is only apparent. In discussing the directional phrase requirement, only the internally caused verbs of sound emission should be taken into consideration, since the meaning shift to verb of directed motion is rele-

vant only to them. In this sense, internally caused verbs of sound emission are analogous to the agentive verbs of manner of motion and would be expected to show causative uses under the same conditions—that is, only in the presence of a directional phrase. In fact, we argue that if we restrict ourselves to these verbs, then we will find that they indeed causativize only in the presence of a directional phrase. Thus, once the appropriate comparison is made, the directional phrase requirement can be shown to extend to verbs of sound emission. What sets verbs of sound emission apart from agentive verbs of manner of motion is that certain verbs of sound emission can be either internally or externally caused. In contrast, agentive verbs of manner of motion are unable to describe externally caused eventualities, although there is a class of externally caused verbs of manner of motion—the *roll* verbs introduced in chapter 4. Verbs of sound emission with both internally and externally caused uses can be seen as combining the properties of the two types of verbs of manner of motion. We return to further similarities between the verbs of sound emission and the *roll* verbs in section 5.3.

Let us examine whether we can show the predicted correlation between the directional phrase and internal/external causation with verbs of sound emission. There are two possibilities to consider: verbs of sound emission that are only internally caused and verbs of sound emission that can be both internally and externally caused. We predict that those verbs of sound emission that are necessarily internally caused should show causatives only with directional phrases (and, then, only if they permit the meaning shift). For those verbs of sound emission that can be either internally or externally caused, we predict that the directional phrase requirement must surface in those uses where the verb is necessarily internally caused.

We begin by examining those verbs of sound emission that must receive an internally caused classification, such as *roar* and *screech*. Such verbs describe the sounds emitted by entities with “self-controlled” bodies, such as people, animals, vehicles, and machinery. Although we cannot exhaustively examine the causatives of such verbs, a survey of the examples of causatives of verbs of emission that we have found in texts suggests that this prediction is verified. The examples in (34) all involve such verbs, and a comparison of these examples with those in (35) shows that the directional phrase requirement holds for these particular verbs.

We turn next to those verbs of sound emission that are open to both internally and externally caused classifications. Such verbs describe

sounds that can be externally caused by direct manipulation of the emitter, although they can also describe the emission of sounds under the emitter's own control, giving rise to the internally caused uses. As discussed in section 3.2.5, the externally caused use arises only if the emitter is manipulable. Thus, if we restrict ourselves to causative uses with non-manipulable emitters, these must involve internal causation, and we would predict that they would require a directional phrase. In fact, this prediction is difficult to test for the following reason: most verbs of sound emission that are both internally and externally caused describe sounds resulting from contact between two surfaces (e.g., the verbs *clatter* and *rattle*). Such sounds are almost always brought about by manipulable emitters, so it is almost impossible to find the relevant examples. Nevertheless, on the basis of the behavior of the necessarily internally caused verbs of sound emission, we suggest that not only agentive verbs of manner of motion, but also internally caused verbs of sound emission, require a directional phrase in their causative use, and that this requirement supports the unaccusative classification of the directed motion use of internally caused verbs of sound emission.⁶

To conclude this section, we point out that the behavior of verbs of sound emission with respect to resultatives and causatives provides support for the existence of parallels between certain verb classes that might not have been a priori obvious. It appears that agentive verbs of manner of motion behave more like verbs of sound emission than like verbs of inherently directed motion, though the latter are also verbs of motion. This observation shows that the components of meaning that determine syntactic behavior are not always the most obvious ones.

5.1.3 The Nature of the Meaning Shift

We have shown, then, that agentive verbs of manner of motion and internally caused verbs of sound emission regularly exhibit multiple meanings: all of these verbs can have directed motion senses. As we have foreshadowed throughout this book, we take this to be the result of a lexical rule. In this section we outline the reasons for assuming a lexical rule and discuss some of the characteristics of the lexical rule we are assuming. In section 5.2 we compare our approach with alternative approaches that do not posit lexical rules.

We assume that both agentive verbs of manner of motion and internally caused verbs of sound emission have basic classifications in which they are

not verbs of directed motion. That is, the constants these verbs take their names from fairly well determine the lexical semantic template they are basically associated with, and this is the template of an internally caused verb rather than that of a verb of directed motion. However, we assume that English has a lexical rule that maps members of these two semantically coherent classes onto the class of verbs of directed motion. English makes use of this rule in a completely productive way, and, therefore, the availability of the multiple meanings does not have to be listed in the lexical entry of any individual verb. In fact, as far as we can tell, all agentive verbs of manner of motion and all internally caused verbs of sound emission where the sound emission is a necessary concomitant of the motion show both meanings.

The ability to show these multiple meanings appears to be rule-governed in two respects: first, as we have illustrated, it is productive over classes of verbs, and second, it is still restricted to certain classes of verbs. Garden-variety activity verbs cannot show this type of variable behavior, as illustrated in (36), again suggesting that a lexical statement of some kind is needed to restrict the domain of the rule.

- (36) a. *Kelly laughed out of the room.
 (cf. Kelly went out of the room laughing.)
 b. *Dorothy sang out of the room.
 (cf. Dorothy went out of the room singing.)
 c. *Terry swore out of the room.
 (cf. Terry went out of the room swearing.)
 d. *Mildred exercised into the room.
 (cf. Mildred went into the room exercising.)
 e. *Kim hesitated out of the room.
 (cf. Kim went out of the room hesitating.)

Furthermore, this rule appears to be a rule that English makes use of, but other languages, such as the Romance languages, do not. Still other languages, like Tswana and Japanese, can lexicalize the additional component of meaning only when signaled by overt morphology.

Finally, the assumption that a lexical rule is involved in the meaning shift to verbs of directed motion can help explain a rather complicated set of facts regarding the behavior of these verbs. As already shown in section 2.2, the English resultative construction serves as a device for allowing the subject of an unergative verb to meet the Directed Change Linking Rule (there referred to as the Change-of-State Linking Rule) without any need

for the verb to change its unergative classification. This is accomplished by the introduction of a postverbal NP (perhaps the subject of a small clause) that is either a reflexive pronoun coreferential with the subject or contains a body part bound to the subject, as in *She shouted herself hoarse* or *She cried her eyes blind*. The *X's way* construction introduced in chapter 4 serves as a similar device allowing English unergative verbs to express a change in the location of their subject while retaining their original unergative classification.

- (37) a. Kelly laughed her way out of the room.
 b. Sing your way around the world!
 c. Sam joked his way into the meeting. (Jackendoff 1990:211, (1c))
 d. We ate our way across the U.S. (Jackendoff 1990:212, (8a))
 e. Mickey Mantle fanned his way into the Hall of Fame.
 (Jackendoff 1990:213, (11a))

On closer analysis, it is clear that the *X's way* construction is parallel in its essentials to the *Xself* and body part resultative constructions, a point also made by Marantz (1992). If the *X's way* phrase is assumed to involve an inalienably possessed head—the special noun *way*—so that it is on a par with the body part NPs in resultative constructions like *She cried her eyes blind*, then, just as in the resultative construction the properly bound body part can be used to allow the subject to meet the Directed Change Linking Rule, so can a phrase like *X's way*. The phrase *X's way* is obligatorily bound to the subject (**The children laughed the clown's way out of the room*). As a result of the binding relation, the PP predicated of this phrase is understood to be predicated of the subject. The PP describes a goal: typically an attained location, as in (37a), although it may receive a metaphorical or figurative interpretation, as in (37b).

Unlike the resultative construction, the *X's way* construction is not semantically restricted to a narrow class of verbs. Almost all unergative verbs can participate in the construction, as the examples in (37), as well as the corpus examples in (38), suggest; studies of this construction, particularly Salkoff's (1988), have illustrated its productivity by pointing to nonce uses involving denominal verbs—some of them even having compounds as bases—as in (39).

- (38) a. The candidate off in the provinces, plotting and planning and dreaming his way to the nomination . . . [R. Toner, "While Others Shrank from Race, Clinton Clung to Dream of Presidency," 14]

- b. Corporate executives wined, dined and golfed their way to a record \$36.53 billion in expense account spending. [AP Newswire 1990, 45780080]
 - c. ... volunteers sneezed, sniffled and coughed their way through years of tests ... [AP Newswire 1990, 23612106]
 - d. ... Louis Rukeyser grins and winks his way into the homes of 10 million television viewers every Friday ... [AP Newswire 1990, 40311856]
- (39) ... hoping to whistlestop his way to reelection. [CBS radio news, 27 September 1992]

Jackendoff notes two semantic constraints on the verbs that can appear in the *X's way* construction: "the verb must be capable of being construed as a *process*" [italics in original] and, furthermore, "the verb must express a process with some kind of internal structure" (1990:213). These properties of the *X's way* construction would predict that agentive verbs of manner of motion and internally caused verbs of sound emission could appear in this construction, and, as the examples in (40) and (41) show, this prediction is borne out.

- (40) a. ... young performers have sung and danced their way around the world many times since 1965. [AP Newswire 1990, 26684432]
 b. When they finally creep their way to the front of the line, a smiling mouseketeer named Brad manhandles them into the front seat of a boat ... [P. Klass, *Other Women's Children*, 29]
 c. "Now they are swimming their way toward Toronto." [AP Newswire 1990, 25826360]
- (41) a. Then he watched as it gurgled its way into a whiskey tumbler. [M. Grimes, *The Five Bells and Bladestone*, 200]
 b. ... the train was soon shrieking and grinding its way toward St. Bridget. [F. Sullivan, *The Cape Anne*, 15]
 c. Above her flew a great gaggle of geese, honking their way south. [M. L'Engle, *An Acceptable Time*, 91]

The examples of the resultative construction given in (18) and repeated in (42), which are ungrammatical with a reflexive, are rendered grammatical by replacing the reflexive with an *X's way* phrase.

- (42) a. *You must jump yourself clear of the vehicle.
 b. *They swam themselves apart.

- (43) a. They jumped their way clear of the vehicle.
 b. They swam their merry way apart.

Thus, although most activity verbs can appear only in the unergative resultative construction, the agentive verbs of manner of motion and the internally caused verbs of sound emission can appear in either unergative or unaccusative resultative constructions. But even with these verbs, not just any resultative construction is possible. As the examples in (17) and (28) illustrate, verbs of manner of motion and verbs of sound emission can assume an unaccusative classification if the resultative phrase denotes a change of location, but not if it denotes a change of state. This restriction arises because the lexical rule that allows these verbs to undergo a class shift maps agentive verbs of manner of motion and internally caused verbs of sound emission onto verbs of directed motion, but not onto verbs of change of state. Thus, in order to predicate a change of state in the theme (i.e., moving entity) argument of a verb of manner of motion or the emitter argument of a verb of sound emission, the syntactic device available to unergative verbs for this purpose must be employed.

The assumption, then, is that *They swam apart* involves a shift in the lexical classification of the verb, whereas *Pat swam her way across the Channel* does not. There is, in fact, support for this assumption. The evidence involves a difference in the interpretation of the two constructions. For ease of exposition we illustrate this point with agentive verbs of manner of motion, but the same point can be made with internally caused verbs of sound emission. Since we are assuming that verbs of manner of motion have a multiple *lexical* classification, we predict that they can predicate directional phrases of their subject in two ways. As unergative verbs, they can predicate directional phrases of their subject via the NP *X's way*. When they become verbs of directed motion via the lexical rule, not only do they change classification, becoming unaccusative, but they predicate a directional phrase of their surface subject directly without the need for an *X's way* NP. What is interesting is that there is often a subtle, but detectable, difference in interpretation between the two directed motion uses. For example, Jackendoff (1990:224) points out that the sentences in (44) show a slight difference in interpretation.

- (44) a. Willy jumped into Harriet's arms.
 b. Willy jumped his way into Harriet's arms.

Whereas (44a) strongly implies a single jump, (44b) strongly implies a series of jumps. The sentences in (45) show a similar difference in interpretation.

- (45) a. The passengers jumped clear of the burning bus.
 b. The passengers jumped their way clear of the burning bus.

It is significant that sentences like (44b) and (45b), in which agentive verbs of manner of motion retain their unergative classification, often involve a *series* of events, whereas the sentences in which the verbs show an unaccusative classification necessarily involve a single event. This difference in interpretation suggests that the distinction between inherent and derived aspect is relevant, and that it is inherent directed change, and not derived directed change, that determines unaccusative behavior. It appears that the unergative use of agentive verbs of manner of motion need not always involve multiple events, as the examples in (37a) and (37c), repeated in (46), illustrate, but the unaccusative use *must* never involve an iteration of events, always involving the directed motion use of the verb itself.

- (46) a. Kelly laughed her way out of the room.
 b. Sam joked his way into the meeting. (Jackendoff 1990:211, (1c))

This difference is not surprising, since unaccusativity, on the theory we are proposing, is a *lexical* property and therefore should be determined by the lexical properties of a verb and not by sentence-level properties such as derived aspect.

This last point may actually shed some light on the distinction between derived and inherent aspect. In the literature on lexical aspect, it is usually suggested that the telic use of verbs of manner of motion involves derived aspect, precisely because verbs of manner of motion in isolation do not describe directed motion (Smith 1991, Verkuyl 1972, among others). However, if our approach is correct, then the shift is a lexical one. On our understanding of the phenomenon, the directed motion reading of unergative verbs in the *X's way* construction is derived compositionally in the syntax. For most unergative verbs, this is the only device available for achieving this interpretation. But for a subclass of unergative verbs, there is a second option, because these verbs have another lexical semantic representation.

The results of this section complement the results of chapter 2. There we noted that the explanation we gave for the syntax of the resultative construction implied that the resultative construction makes use of existing lexical entries and does not create new lexical entries. Initially, it might appear that this is not true of agentive verbs of manner of motion when they turn up in the unaccusative resultative pattern. That is, these verbs appear to change their lexical classification in the resultative construction.

However, in this section we showed that the agentive verbs of manner of motion are independently known to have multiple lexical classifications. English allows *Sally jumped clear of the car* for the same reason that it allows *Sally jumped out of the car*. English allows *Sally jumped clear of the car* but not **Sally jumped to exhaustion* because the latter sentence would involve an agentive verb of manner of motion becoming a verb of change of state, and English does not have such a lexical rule. Furthermore, although English permits agentive verbs of manner of motion to become verbs of directed motion, it does not permit most other verbs to undergo this shift. Therefore, English does not allow **The girls laughed apart* or **The children laughed clear of the oncoming car*, which it should allow if *laugh* were allowed to undergo a shift in lexical properties, for the same reason that it does not allow **Sally laughed out of the room*. Currently, we do not have any explanation for the fact that only verbs from certain semantic classes can become verbs of directed motion or for the fact that they can become verbs of directed motion but not verbs of change of state. These explanations must await a full theory of possible and impossible meaning shifts. What is important is that just those verbs that can independently become verbs of directed motion also can show a shift in syntax in the resultative construction. Although we do not have an explanation for this last fact, the correlation between the behavior of the verbs in the resultative construction and their behavior in isolation is most likely a principled one.

5.1.4 The Meaning Shifts in a Cross-Linguistic Context

Before concluding this section, we discuss the cross-linguistic aspect of the meaning shift phenomenon. Although we have not had the opportunity to explore in a systematic and thorough way the cross-linguistic availability and manifestation of the meaning shift with internally caused verbs of sound emission, it is striking that according to our preliminary investigations, the languages that allow verbs of sound emission to be used as verbs of directed motion are the same languages that allow agentive verbs of manner of motion to become verbs of directed motion. That is, just as the shift from verb of manner of motion to verb of directed motion is not manifested in all languages, neither is the shift from verb of sound emission to verb of directed motion. For example, the meaning shift involving verbs of sound emission is found in German and Modern Hebrew, both languages that resemble English in permitting agentive verbs of manner of motion to be used as verbs of directed motion, as shown in section 5.1.

The availability of the directed motion use of verbs of sound emission in German and Modern Hebrew is illustrated in (47) and (48), respectively.

- (47) a. Die Kugel pfiff durch die Luft.
the bullet whistled through the-ACC air
'The bullet whistled through the air.'
- b. Der Lastwagen rasselte den Berg hinunter.
the truck rattled the-ACC hill down
'The truck rattled down the hill.'
- (48) a. Ha-kadur šarak le'evra.
the-bullet whistled toward her
'The bullet whistled toward her.'
- b. Ha-tankim ra'amu el me-ever la-gvul.
the-tanks roared to across the-border
'The tanks roared across the border.'

In contrast, Japanese, which does not allow verbs of manner of motion to be used as verbs of directed motion, also does not allow verbs of sound emission to be used as verbs of directed motion. Instead, to express the meanings that English can express using verbs of sound emission plus directional phrases, Japanese uses a verb of inherently directed motion together with adverbial phrases involving onomatopoeic nouns expressing sounds.

- (49) Torakku-ga gatagatato (oto-o tatete)
truck-NOM rumbling sound (sound-ACC making)
doraibuwei-ni haitte-kita.
driveway-to enter-came
'The truck rumbled into the driveway.'
- (50) Kanojo-wa kasakasato oto-o tatete heya-o dete-itta.
she-TOP rustling sound sound-ACC making room-ACC exit-went
'She rustled out of the room.'

In French, as in Japanese, verbs of sound emission resemble verbs of manner of motion: like them, they cannot be used as verbs of directed motion. In general, it is unnatural in French to attempt to mention a sound when the motion of an entity is being described. Meanings comparable to the English (a) sentences of (51) and (52) might be expressed periphrastically in French as in the (b) sentences, but even such translations would be considered poor and unnatural versions of the English sentences.⁷

- (51) a. The car roared down the street.
 b. La voiture descendit la rue en vrombissant.
 the car went down the street in roaring
- (52) a. The truck rumbled into the yard.
 b. Le camion entra dans la cour dans un grand fracas.
 the truck entered in the yard in a big din

Our preliminary investigations, then, suggest that if a language allows one class of verbs to shift, it will allow the other class to shift as well. Further study is necessary to determine not only the viability of this generalization but also whether the availability of meaning shifts reflects some deeper property of a language's lexical semantic organization. Certainly once the nature of these shifts is better understood, it should become possible to predict, at least to some extent, which languages will exhibit such shifts. If it turns out to be true that all languages that allow the shift for agentive verbs of manner of motion also allow the shift for verbs of sound emission, this strongly suggests that, as mentioned in section 1.4, whatever the lexical statement is that governs these shifts, it does not make direct reference to the classes of verbs, but instead refers to some more basic meaning component in terms of which these verb classes are defined.

Other considerations also suggest that direct reference to verb classes is not made in the lexical statement governing the meaning shifts. Agentive verbs of manner of motion and internally caused verbs of sound emission are not the only semantic classes of verbs that can become verbs of directed motion. Among intransitive verbs, verbs of body-internal motion, such as *flap*, *flutter*, and *wiggle*, also exhibit the shift, as in *The bird fluttered onto the branch*. The shift is also found among transitive verbs. For example, as noted in B. Levin and Rappaport Hovav 1991, the verbs *rub*, *sweep*, and *wipe*, and other verbs of contact through motion, whose removal sense was discussed in section 2.4.1, also show a verb-of-putting sense as a consequence of this meaning shift, as in *She swept the dust into the corner* or *I rubbed the oil into the furniture*. Verbs of exerting force, such as *pull* and *push*, are another type of transitive verbs that permit this shift: *They pushed the cart into the garage*. It is unlikely that the lexicon contains a rule that makes reference to all of these verb classes. It is more likely, as mentioned in section 1.4, that the statement makes reference to the meaning components in terms of which the relevant semantic classes are defined. This would be analogous to phonological rules, which are

formulated not in terms of classes of phonemes but in terms of distinctive features that define these classes. Only further research on the cross-linguistic patterns of these shifts will allow the development of a predictive theory.

5.2 Consequences for Lexical Representation

In the previous section we investigated a number of verb classes where members are systematically associated with more than one meaning. We have informally referred to this phenomenon as “meaning shift.” Although we have concentrated on those shifts that involve the multiple classifications of verbs as unergative and unaccusative, it is clear that the general phenomenon pervades the English verb lexicon and is not restricted to intransitive verbs. For example, we mentioned that, as discussed in Atkins, Kegl, and B. Levin 1988, verbs of cooking are systematically associated with more than one meaning. In section 2.4.1 we briefly discussed the phenomenon of verbs of contact through motion taking on the meaning of verbs of putting and removal (a phenomenon discussed in more depth in B. Levin and Rappaport Hovav 1991). What all these shifts have in common is that semantically coherent classes of verbs are systematically mapped into other existing semantically coherent classes of verbs.

In this section we compare the approach developed here with another one, which does not involve a lexical statement for the derivation of verbs with multiple meanings, but derives the meaning of a verb from the construction it appears in. Dowty (1991:608, fn. 41) writes, “Hypothesizing that a large semantically coherent group of verbs have duplicate categorization in unaccusative and unergative syntactic classes (and with corresponding different semantics in the two frames) would be missing the point, I argue.” He suggests that if such duplicate categorization holds in general, this is evidence for the *semantic* approach to unaccusativity rather than the syntactic approach.⁸ An analysis of the phenomenon of meaning shift in terms of the semantic approach would involve the assumptions that constructions are associated with different meanings and that variable behavior verbs by virtue of their core meaning are compatible with more than one construction. The meaning of a verb in a given construction is compositionally derived from the meaning of the predicates in the construction and the meaning of the construction itself. Since the semantic approach to unaccusativity does not take the unaccusative/unergative distinction to be a lexical property, the variable behavior of agentive verbs

of manner of motion in the resultative construction, for example, would arise not from the existence of multiple lexical entries for these verbs but from the fact that these verbs are compatible with two different constructions, one (the unaccusative pattern) expressing only directed motion and the other (the unergative pattern) expressing either change of state (in the resultative construction) or directed motion (in the *X's way* construction).

Another, similar approach to variable behavior verbs, although one that still maintains that unaccusativity is syntactically encoded, is developed in work by Hoekstra (Hoekstra 1988, 1992, Hoekstra and Mulder 1990). Hoekstra explicitly denies that lexical rules are responsible for the multiple meanings associated with verbs. Rather, he suggests, verbs are free to project arguments of various semantic (and hence, syntactic) types; the meaning that a verb is ultimately associated with is determined by the construction it appears in. For example, Hoekstra and Mulder write, "The way in which the argument structure is projected onto the syntax contributes to (or determines within the limits set by the concept a predicate refers to) the meaning" (1990:7). They write further that "[c]ertain predicates vary, within limits, in their meaning, such that they take arguments of different types" (1990:75). The projection of verbs onto syntactic structure is constrained in two ways: (i) by the compatibility between the meaning of the predicator and the constructions that arise from the particular projections of arguments and (ii) by general syntactic principles. A further constraining factor would be the set of constructions that are available in any particular language. We have already compared our lexical approach to Hoekstra's approach in section 2.4.1, and we do so again in this section; we hope to show that the lexical approach is more plausible.

Although Dowty and Hoekstra differ in many ways in their conception of lexical structure, they both assume that there is no need for any kind of lexical statement in dealing with variable behavior verbs. Rather, verbs are projected fairly freely onto different syntactic configurations. We refer to this general approach as the *constructional* approach. (For a somewhat different version of the constructional approach to the problem of multiple meanings, see A. Goldberg 1992, 1994a.) Thus, if two languages have a particular construction, there should be no difference in the range of verbs that could enter into that construction. On the face of it, this is not correct. We are unaware of any language that lacks a means of expressing directed motion, yet languages vary with respect to which verbs can appear directly with a directional prepositional phrase. The fact that in

English this option is available to agentive verbs of manner of motion and internally caused verbs of sound emission cannot obviously be attributed merely to plausibility, since many other languages do not allow this option.

To extend the argument further, we consider how the lexical approach and the constructional approach would deal with the possibilities available to verbs in resultative constructions. Any analysis of the resultative construction will have to account for the fact that agentive verbs of manner of motion can appear in the unaccusative resultative pattern with an XP denoting a result location, but not with an XP denoting a result state, as illustrated by the following contrast:

- (53) a. Bob jumped/ran clear of the car.
 b. *Bob jumped/ran into a frenzy.

The ungrammaticality of (53b) cannot be attributed to the fact that the unaccusative resultative pattern is always associated with a nonagentive reading, as (53a) indicates. Nor can it be said that the unaccusative pattern can only express a change of location, and not a change of state, as the following sentences show:

- (54) a. The river froze solid.
 b. The bottle broke open.
 c. The soldiers starved to death.

If we wanted to derive these restrictions from the construction itself, we would have to distinguish unaccusative resultative constructions denoting changes of state from those denoting changes of location and propose that the former allow only nonagentive readings, whereas the latter allow agentive readings as well. But this would be missing the point entirely. It would make an unnatural division among the unaccusative resultative constructions only to capture a fact that needs to be independently stated in any event: agentive verbs of manner of motion can become verbs of directed motion, but not verbs of change of state.

The controversy over the representation of multiple meanings can be compared to the controversy over the existence of an independent morphological component. An issue that has received much attention in the area of morphology in recent years is whether there is a need for a morphological component with its own distinct set of principles or whether it is possible to reduce all morphological phenomena to independently established syntactic and phonological principles (for discussion, see

Aronoff 1994, Baker 1988b, Lieber 1992, Spencer 1991, among many others). Similarly, with respect to multiple meanings, the question is whether multiple meanings are handled via principles or rules specific to the lexicon or whether they can be shown to reduce to properties of syntactic configurations. There is no doubt that our understanding of multiple meanings will benefit from an explicit debate on these issues, just as our understanding of morphology has benefited from the debate over an independent morphological component. We see the study of multiple meanings—both in terms of developing a taxonomy of types and in terms of formulating a theory of their sources—as one of the most important open questions that has emerged in the course of our research on unaccusativity. Although we may not have resolved the issue conclusively, we would like to stress the importance of research into the problem of variable behavior verbs. No theory of linguistic competence will be complete without an account of such phenomena. Even if our discussion does not fully decide between available approaches, our discussion should at least show the kind of phenomena any theory will need to account for and clarify the types of predictions different theories make.

5.3 Variable Behavior That Is Not Rule-Governed

We have characterized variable behavior verbs as two verbs whose lexical semantic representations involve different lexical semantic templates that have a shared constant. In the previous sections we suggested that certain pairs of this type arise from a lexical rule of some sort. In this section we propose that other pairs do not arise from a lexical rule; instead, they arise simply because certain constants happen to be compatible with more than one lexical semantic template.

When we first introduced the *roll* verbs in section 4.1.4, we described them as the subclass of the verbs of manner of motion whose members are not necessarily agentive. As noted there, the members of this class are compatible with both animate and inanimate arguments; when these verbs take an animate argument, they permit both agentive and non-agentive interpretations, although the nonagentive interpretation, even with animate arguments, is perhaps the more natural. The availability of the two interpretations is reflected in the ambiguity of (55), which is discussed by Gruber (1965), Jackendoff (1972), and many others.

(55) Max rolled down the hill. (Jackendoff 1972:34, (2.46))

On one interpretation of this sentence, Max is an agent, rolling down the hill of his own volition; on the second interpretation, he is not an agent, but rolls down the hill because of some external cause, such as a push or, if he trips, gravity.

When the *roll* verbs take an animate argument, they can be viewed as describing an internally caused eventuality when agentive and an externally caused eventuality when nonagentive.⁹ When they describe an internally caused eventuality, they are no different from agentive verbs of manner of motion such as *run* or *swim* and would be expected to behave like them. What sets a verb like *roll* and a verb like *run* apart is that the latter is necessarily agentive.¹⁰ Presumably, this difference reflects the nature of the constant associated with the lexical semantic representation of each verb, which specifies the means or manner of motion unique to that verb. Not only does this component of meaning serve to distinguish one verb of manner of motion from another, but it also determines whether the verb will allow an agentive interpretation, a nonagentive interpretation, or both.

The linking rules predict that a member of the *roll* class will display unergative behavior when it takes an animate agentive argument and unaccusative behavior otherwise, since it will fall under the Immediate Cause Linking Rule if agentive and the Default Linking Rule otherwise. In fact, in English, when the verb *roll* takes an inanimate subject, it can be found in the unaccusative resultative pattern, as shown in (56), but not in the unergative pattern or the related *X's way* construction, as shown in (57); presumably, the examples in (57) are ungrammatical since the unaccusative verb cannot assign Case to its nonsubcategorized object.

(56) This time the curtain rolled open on the court of the Caesars . . .
[Olivia (D. Bussy), *Olivia*, 35]

- (57) a. *The curtain rolled itself open.
b. *During the spring thaw, the boulders rolled the hillside bare.
c. *Because it was repeatedly opened and closed, the door rolled the groove in the floor smooth.
d. *The pebbles rolled their way into the stream.

However, when it takes an animate agentive subject, the verb *roll* can be found in the unergative resultative pattern and in the *X's way* construction, as in (58). (The relevant reading of (58a) is the one where the children's own rolling causes the grass to become flat; there is also an

irrelevant reading in which the children are using some sort of garden tool in order to make the grass flat.)

- (58) a. The children rolled the grass flat.
 b. The children rolled their way across the field.

A further illustration of the variable behavior of the *roll* verbs in English comes from the prepositional passive construction. When the verb *roll* takes an animate agentive subject, it can be found in the prepositional passive construction, as in (59), as expected if in such instances the verb *roll* is internally caused and is therefore classified as unergative. In this respect, the verb *roll* is again behaving like the agentive verb of manner of motion *run*, which, as shown in (60), is also found in the prepositional passive.

(59) This carpet has been rolled on by three generations of children.

(60) This track has been run on by our finest young athletes.

There is also evidence from Italian for the variable behavior of the *roll* verbs. The Italian *roll* verbs were discussed briefly in section 4.1.4, where we pointed out that some can take the reflexive clitic *si* when intransitive. Those *roll* verbs whose Italian counterparts optionally take this clitic also show properties that fit in with the picture presented here concerning the source of the variable classification of these verbs. In the absence of *si*, these Italian verbs are compatible with the unaccusative auxiliary *essere* ‘be’, as well as with the auxiliary *avere* ‘have’, suggesting a dual classification. What is significant is that they are preferred with the unaccusative auxiliary *essere* ‘be’ if their argument is inanimate and therefore definitively nonagentive (B. Levin and Rappaport Hovav 1992)—that is, precisely in the circumstances where the verbs must clearly be externally caused.

In the discussion of lexical semantic representation in section 1.4 we proposed that the concept associated with a constant that a verb takes its name from usually determines the lexical semantic template that verb is basically associated with. This property gives the sense that there is a “basic” meaning to many verbs. For example, English speakers feel that the nondirected motion sense of *run* is more basic than the directed motion sense. However, not all verbs need have a single basic sense. In particular, it appears to us that the constant associated with the verb *roll*—the manner or means component of its meaning—can equally well be asso-

ciated with the lexical semantic template of either an internally or an externally caused verb. Therefore, in formulating an account of the variable behavior of verbs like *roll*, there is no need to posit a lexical rule that will map the members of one semantically coherent verb class onto another, in this instance a rule mapping the nonagentive verbs of manner of motion onto the agentive verbs of manner of motion or vice versa. The variable behavior of certain verbs of manner of motion is simply the result of the existence of a lexical semantic constant that, by virtue of its nature, is basically compatible with more than one lexical semantic template.

We have previously proposed that certain constants are compatible with more than one lexical semantic template. For instance, we made this proposal in section 3.2.5 in order to explain the appearance of *buzz* and certain other verbs of sound emission in causative pairs that do not involve directional phrases, as in (61), repeated from chapter 3.

- (61) a. The doorbell buzzed.
 b. The postman buzzed the doorbell.

Such behavior was considered problematic since the causative use of such verbs suggested an externally caused classification, yet we had initially characterized these verbs as internally caused, a characterization consistent with their unergative classification (see section 4.1.1.1). The explanation we offered for this behavior was the same as the one we have just given for the variable behavior of the *roll* verbs. We proposed that certain verbs of sound emission take their name from a lexical semantic constant that is compatible with two distinct lexical semantic templates, one associated with internal causation and the other with external causation. (This constant presumably represents the sound associated with a given verb of sound emission.) Causative uses of verbs of sound emission without directional phrases such as (61b), we argued, reflect the externally caused option. As support for this, note the existence of restrictions on the possible emitters observed for the causative use: the emitters must be directly manipulable, a property necessary if they are to be externally caused to emit a sound. This requirement explains why a verb like *buzz* is found in causative pairs only for certain choices of argument, as shown by contrasting (61) with another example repeated from chapter 3.

- (62) a. The bees buzzed.
 b. *The postman buzzed the bees.

There is a difference, however, between the *roll* verbs and the verbs of sound emission. Unlike the *roll* verbs, externally caused verbs of sound emission generally show only the transitive, causative expression of their arguments. They do not detransitivize, showing unaccusative intransitive uses without directional phrases because the associated sound cannot be emitted spontaneously without the intervention of an agent. Thus, there are no externally caused verbs of sound emission that are found in the causative alternation. As discussed in section 3.2.5, we believe that apparent causative pairs such as (61) or *Sheila jingled the keys/The keys jingled* do not involve a derivational relation. Rather, the transitive use contains an externally caused verb and the intransitive use an internally caused verb, but the two verbs happen to share the same constant in their lexical semantic template and hence have the same name. They are instances of spurious causative pairs. Support for this analysis comes from the observation that if Sheila jingled the keys, it is not possible to say of the same event that the keys jingled; in contrast, if Pat breaks a window, it is possible to say of the same event that the window broke.

Having discussed the source of the causative uses of verbs of sound emission without directional phrases, we want to pull this discussion together with the discussion of the causative uses of these verbs with directional phrases in section 5.1.2.2, laying out the full picture that emerges concerning the possible meanings of verbs of sound emission. We have introduced four meanings for verbs of sound emission: an internally caused meaning, an externally caused meaning, a directed motion meaning, and a causative meaning related to the directed motion meaning. The first two meanings arise from the compatibility between certain constants associated with particular sounds and particular lexical semantic templates. The third meaning arises from a regular lexical rule of meaning shift that applies to the internally caused verbs of sound emission, and the fourth meaning arises from a process of causativization as applied to the third meaning. Which meanings are associated with the constant describing a given sound depends on the nature of the sound. Only sounds that can be both externally and internally caused, such as those associated with the verbs *buzz* and *honk*, will show both of the first two meanings. Only sounds that are emitted as necessary concomitants of motion such as *rumble* and *screech* will show the third and fourth meaning, in addition to the internally caused meaning. To show all four meanings, the sound must be able to be both internally and externally caused, and it must be a

necessary concomitant of motion; clearly, only a limited set of sounds will have the appropriate properties.

The account of the variable behavior of verbs like *roll* and *buzz* leads to certain predictions that should, in principle, be verifiable. In examining the parametric variation that exists across languages in the behavior of agentive verbs of manner of motion and internally caused verbs of sound emission with respect to the ability to appear with directional phrases, we showed that languages vary systematically: either the option is available to the entire class of verbs, or it is completely unavailable (except, perhaps, to a handful of exceptions, as in Italian, where the verbs *correre* ‘run’, *saltare* ‘jump’, and *volare* ‘fly’ may take directional phrases, though in general agentive verbs of manner of motion cannot take such phrases). This pattern is expected if this behavior is rule-governed. In contrast, given the source of the variable behavior of the verbs *roll* and *buzz*, we predict that if there are differences among languages with respect to the variable behavior of such verbs, the differences will be associated with individual lexical items rather than with an entire class of verbs. For example, we could imagine that a language might exist with two verbs corresponding to the English verb *buzz*: one predicated of animals and other entities that buzz by their very nature—that is, an internally caused verb—and one used for doorbells and comparable devices—that is, an externally caused verb. What we would not expect to find is a language that does not allow for the possibility of a predicate that can have either an internally caused or an externally caused construal—that is, a language that cannot have any verbs like English *roll*, *buzz*, or *burn*. Indeed, we are unaware of the existence of such a language.

5.4 Conclusion

In this chapter we have examined a number of classes of verbs whose members can display both unaccusative and unergative behavior. We have shown that, far from undermining the idea that the syntactic classification of verbs is semantically determined, these verbs actually support this hypothesis, since in each instance the multiple syntactic classification is correlated with a multiple semantic classification in a manner consistent with the linking rules. The components of meaning we isolated as syntactically relevant in chapter 4 are precisely the aspects of meaning that determine the variable behavior of these verbs. Thus, these

case studies lend further support to the linking rules introduced in chapter 4. We also presented some preliminary hypotheses concerning the nature and derivation of multiple meanings. The important questions left for future research concern the principles that determine and constrain the meaning shifts that were posited to account for the multiple semantic classifications and the exact way these meaning shifts are to be represented.

Chapter 6

The Problem of Locative Inversion

The unaccusative diagnostics that we have discussed so far are instances of what we called “deep unaccusative diagnostics” in chapter 1. That is, the D-Structure object of an unaccusative verb becomes an S-Structure subject, so that its underlying grammatical relation is obscured on the surface. In this chapter we present a detailed study of another widely cited diagnostic, the locative inversion construction, which has been taken to be one of two surface unaccusative diagnostics in English (the other being the *there*-insertion construction, which we will only mention briefly). That is, in the locative inversion construction the D-Structure object of an unaccusative verb does not become an S-Structure subject; instead, it maintains a postverbal position.

Locative inversion has been claimed to be a diagnostic for the unaccusative syntactic configuration (Bresnan and Kanerva 1989, Coopmans 1989, Hoekstra and Mulder 1990, L. Levin 1986, among others). Two kinds of evidence typically figure in arguments for its diagnostic status: evidence involving the set of verbs attested in the construction and evidence involving the syntax of the construction. The set of verbs that appears in the locative inversion construction bears a startling resemblance to the unaccusative verb class. The verb most frequently found in the locative inversion construction is the verb *be*, which we will not discuss here, but whose presence in the construction does not detract from an unaccusative analysis. More relevant to our concerns is the existence of an intransitivity constraint on this construction that is noted in traditional grammars. But even more striking, the intransitive verbs most commonly found in this construction—verbs such as *come*, *go*, and *appear*—are “prototypical” unaccusative verbs. Finally, passive transitive verbs, which are classed with unaccusative verbs in having no external argument, also figure prominently in the locative inversion construction, contrasting