Notes

Chapter 1

1. See Pullum 1988 for a brief overview of the development of this hypothesis and similar hypotheses. Although Perlmutter's paper provided the impetus for recent explorations of the syntactic properties associated with members of the intransitive verb class, Hall 1965 probably contains the earliest proposal that there is a subclass of intransitive verbs whose surface subjects are underlyingly objects, as both Pullum (1988) and Dowty (1991) point out.

2. The syntactic encoding of unaccusativity does not necessarily have to be a configurational encoding, as it is in the GB framework. The approach to unaccusativity in Lexical Functional Grammar (LFG) as presented in Bresnan and Zaenen's (1990) analysis of the resultative construction is also one in which unaccusativity is syntactically encoded, even though LFG does not have a level of syntactic representation comparable to GB's D-Structure. LFG's a-structure, which is not configurational like GB's D-Structure, still allows a syntactic distinction between unergative and unaccusative verbs. In a-structure the argument that surfaces as the object of a transitive verb and the single argument of an unaccusative verb both receive the syntactic feature specification $[-r]$ (unrestricted syntactic function); this feature sets these arguments apart from the arguments that surface as subjects of unergative and transitive verbs, which receive the syntactic feature specification $[-o]$ (nonobjective syntactic function) at a-structure.

3. In fact, unaccusative verbs may differ from each other in another way as well: some may select one internal argument—a direct argument—whereas others may select more than one. The same holds of unergative verbs: some may and some may not select indirect internal arguments; however, an unergative verb never selects a direct internal argument.

4. There is no generally accepted account of how the inability of a verb to assign structural Case can be reduced to the unaccusative D-Structure configuration. For some attempts, see Everaert 1986, Laka 1993, and J. Levin and Massam 1985, among others. More recent work has suggested a need to reexamine the part of Burzio's Generalization that states that if a verb does not take an external argument, it cannot assign structural Case. Although this generalization appears to be

valid in English and some other languages, and we will take advantage of its validity in this book, several studies have reported phenomena in various languages involving a verb that lacks an external argument but is nevertheless able to assign structural Case; for example, see Sobin 1985 on the Ukrainian passive. Phenomena such as these make clear that the relationship between lack of an external argument and structural Case assignment is more complex than Burzio's Generalization suggests. It is most likely that the inability to assign structural Case is to be taken not as a defining property of unaccusative verbs but as a derived property. A full account of the relationship between lack of external argument and structural Case assignment is needed for a full account of unaccusativity.

5. The two definitions diverge in their classification of verbs with neither an external nor a direct internal argument, a set of verbs that does not really concern us. The major set of verbs that appear to meet this characterization are the weather verbs (e.g., *drizzle*, *rain*, *snow*). With respect to Burzio's definition, weather verbs qualify as unaccusative verbs. It is not so clear how they would be classified with respect to the definition in terms of direct internal argument, since they have neither an external argument nor a direct internal argument. If, as Ruwet (1991) argues, these verbs are unaccusative verbs, then there is empirical evidence bearing on the proper definition; however, the arguments that Ruwet cites in favor of this position need to be reassessed in light of the methodological considerations stressed throughout this chapter. The question of the classification of weather verbs is further complicated by claims that in English the *it* that turns up as their subject is a quasi argument (Chomsky 1981, Pesetsky 1995, Zubizarreta 1982; see also Bolinger 1972); if so, these verbs take an external argument and would have to be analyzed as unergative verbs.

6. C. Rosen (1984) cites the dual auxiliary verbs as disproving what she terms the "Little Alignment Hypothesis," formulated as follows: "For any one predicate in any one language, there is a fixed mapping which aligns each semantic role with an initial GR [= grammatical relation]. The alignment remains invariant for all clauses with that predicate" (1984:53). It should be noted that this hypothesis is not the same as the hypothesis that the syntactic expression of arguments is determinable on the basis of meaning, since it imposes the additional requirement that a given semantic role will always be associated with the same syntactic expression for each use of a predicator. One could imagine that the syntactic expression of the arguments of a predicator could be predictable, while still varying across different uses of that predicator. For example, suppose that the syntactic expression of the theme argument of a verb of change of state were characterized as follows: the theme is expressed as direct object when the verb is used transitively but as subject when the verb is used intransitively. Given such a statement, the syntactic expression of a theme, although variable, is nevertheless predictable. Such a statement, however, would not be allowed by Rosen's Little Alignment Hypothesis.

Rosen's Little Alignment Hypothesis also relies on the assumption that the syntactically relevant aspects of verb meaning remain constant across different uses of a verb; furthermore, it assumes that the semantic roles remain constant across uses. Therefore, even devising a way to test the validity of this hypothesis

would first require doing a certain amount of lexical semantic investigation as groundwork. This point is important since the Little Alignment Hypothesis seems to be the precursor of Baker's (1988a) Uniformity of θ Assignment Hypothesis, although research that makes use of Baker's hypothesis often does not show an awareness of these ramifications.

7. See section 4.2.1 for further discussion of the verb *blush*. There we cite evidence from McClure 1990 that the "translation equivalent" of *blush* in Dutch is an activity verb, accounting for a difference in the classification of this verb in Italian and Dutch.

8. See Everaert 1992 for further discussion of the ramifications of such data for the theory of auxiliary selection. In fact, the question arises whether telicity is even a necessary condition for unaccusativity in Dutch in light of the existence of the verb *blijven* 'remain', which takes the auxiliary *zijn* 'be', but is not telic. It appears to us from all the material we have read on auxiliary selection in Dutch that a fully accurate descriptive generalization of this phenomenon has not yet been offered for this language.

9. The specific phenomena that Martin (1991) discusses have also been discussed under the heading of "split intransitivity." This label is used by Merlan (1985) to describe patterns of case marking or verb agreement in various languages that subdivide intransitive verbs into two classes. Since then the label has sometimes been applied to any phenomenon that distinguishes among intransitive verbs, including phenomena that are cited as unaccusative diagnostics, as in Van Valin 1990. Merlan's study, which surveys split intransitivity in its original narrow sense in a range of languages and evaluates a range of semantic notions that might be responsible for the splits, suggests that split intransitivity is sometimes merely semantic. More extensive studies are needed to evaluate the exact relation between the phenomena typically cited under the label "split intransitivity" and the phenomena cited as unaccusative diagnostics.

10. In this context, we mention *ne*-cliticization, whose status as an unaccusative diagnostic was established by Belletti and Rizzi (1981), Burzio (1986), Perlmutter (1989), and C. Rosen (1984), among others. Although *ne*-cliticization has remained one of the most cited and least questioned of the unaccusative diagnostics, several researchers have suggested that it may not be a diagnostic after all (Lonzi 1985, Saccon 1992). In our own research we have found that in every instance where we examined a surface unaccusative diagnostic, questions about that diagnostic's validity arose. We conclude that further study of these diagnostics as a class is needed to assess the significance of these phenomena for the nature of unaccusativity. For additional discussion, see section 6.8.

11. If the VP-Internal Subject Hypothesis (Koopman and Sportiche 1991, Kuroda 1988, Fukui and Speas 1986, Sportiche 1988, Zagona 1982, among others) is adopted, the notion of external argument will need to be refined. Presumably, the internal arguments would be those realized within V′ and the external argument would be the one realized external to V′.

12. Since it is not relevant to the point under discussion, we do not consider whether the meaning of a verb of putting is more accurately characterized as

'cause to be at a location' (i.e., the causative of a stative) or 'cause to come to be at a location' (i.e., the causative of a verb of change), as in (21). See Carter 1976, 1978 for arguments in favor of analyzing all causative verbs as causatives of verbs of change. See also section 3.3.3 for some related discussion.

13. We leave aside the issue of additional meanings attributable to metaphorical extension that develop once the basic pairing of a meaning and a phonological form is in place. See Hale and Keyser 1993 for another approach to the problem of the pairing of verb meanings and verb names based on the incorporation of constants into empty verbal heads.

14. In some languages one of these two verbs is morphologically complex. Interestingly, in such languages *sell* is usually morphologically analyzable as 'cause to buy'. The association of morphologically complex forms with particular meanings is not arbitrary since morphemes have associated meanings, though such associations would benefit from examination in the context of the questions posed here.

Chapter 2

1. Since we will show in section 2.2.1 that not all postverbal NPs that have resultative XPs predicated of them are necessarily analyzed as objects, we refer to those NPs whose status as objects is in question as *postverbal NPs* in this section. However, we continue for the sake of convenience to refer to the restriction on the distribution of resultative phrases as the Direct Object Restriction.

2. As J. Grimshaw has pointed out to us, some speakers find a gradation in acceptability between the three types of resultative constructions based on unergative verbs, preferring the constructions with fake reflexives to those with nonsubcategorized NPs with possessive pronouns, and in turn preferring those to the resultative constructions with other nonsubcategorized NPs. Even this last kind of resultative, however, is extensively represented in the examples we have collected.

3. Pustejovsky (1991b) suggests that resultative phrases that appear with unaccusatives can only provide a further specification of the result that is lexically encoded in the verb to which the resultative phrase is added. This proposal cannot be true in general since this property holds of the examples in (19a–c) but not of the examples in (19d–e).

4. Reliance on Burzio's Generalization as an explanation of these examples is perhaps a weak point in our analysis, since, as mentioned, an explanation for this generalization is still lacking, and its absolute validity has been called into question. However, it is a fact of English that unaccusative verbs cannot be followed by bare NPs. Furthermore, this phenomenon does not appear to be reducible to any semantic generalization. Therefore, we are still justified in attributing the ungrammaticality of these examples to a syntactic property of unaccusative verbs.

5. A. Zaenen has pointed out to us that the differing status of the examples in (26) and (27) does not necessarily have to be attributed to the status of the posthead NPs as arguments or nonarguments, since there may be other explanations for the contrasting behavior. Although this is strictly speaking true, the fact that our

explanation is not the only explanation available does not detract from its validity. In any event, we are not aware of an explicit alternative account for the contrast.

6. We have checked these judgments with several informants, and the judgments that we obtained correspond to Rothstein's.

7. Given that they can be predicated of subjects, depictive phrases raise a more fundamental question about the validity of the mutual c-command requirement on predication. All accounts of depictive phrases that we are aware of seek to preserve this requirement, which we take to be valid. Roberts (1988) takes the data involving depictive phrases as support for VP-internal subjects. Rothstein (1989) accounts for the data using a theory of predicate merger.

8. This rule is relevant to the expression of the arguments of a verb. It is possible, and even likely, that predicators of different lexical categories map their arguments to syntax differently. In particular, the argument of an adjective that denotes a result state may not be subject to the requirement that it be governed by the adjective. Therefore, the fact that resultative phrases can be predicated of nonderived subjects of adjectival passives, as mentioned in section 2.2.1, is not necessarily a problem. A diagnostic should not be used blindly; rather, the explanation for the diagnostic must always be sought and taken into account.

9. Carrier and Randall (in press) note the existence of some idioms that have the syntactic form of a resultative construction, such as *bleed ... white*, *eat ... out of house and home*, *work one's fingers to the bone*. The existence of such idioms is not precluded by the proposal that the meaning of the resultative construction is compositionally derived. All idioms have the syntactic properties of constructions that typically are associated with compositionally derived meanings, so the existence of idioms that take the form of the resultative construction but do not have compositional meanings should be no surprise. These constructions would presumably take on idiomatic meanings in the same way as any other construction would. What is more important is that most resultative constructions are instances of innovative constructions with compositional meanings.

10. There also appear to be no lexically simple verbs that mean 'cause to become ADJECTIVE', where ADJECTIVE is individual-level (see section 3.2.1 for discussion). Thus, the absence of resultative phrases headed by individual-level predicates might be attributed to the fact that the resultative construction cannot create a verb type that is not capable of being a lexical verb.

11. Simpson (1983a) notes the restriction on resultative phrases with verbs of motion and formulates a similar restriction in terms of the notions of change of state and change of location. A. Goldberg's (1991) Unique Path Constraint is yet another formulation of this restriction.

12. A resultative construction such as *clean something clean* is rather odd. This oddness can probably be attributed to the fact that the verb *clean* itself lexicalizes the precise result state that the adjective specifies so that the adjective *clean* here does not contribute additional information. In such instances, the two result states —the one lexicalized in the verb and the one expressed via the resultative phrase— can be considered redundant. In fact, the resultative construction *clean something*

spotless is considerably better; here the adjective does have a contribution to make.

13. The unacceptability of resultative constructions in which the resultative phrase is predicated of the object of a preposition, as in **The silversmith pounded on the metal flat*, would have a similar explanation. The resultative phrase would again have to be part of a small clause headed by a PRO controlled by the object of the preposition, and this PRO would again be governed by the verb, violating the PRO Theorem.

14. We have found a similar phenomenon involving experiencer-object psych-verbs, as in (i) and (ii). Although we originally took these examples to be instances of transitive resultative constructions with a nonsubcategorized postverbal NP, as shown by the unacceptability of (iii) and (iv), we now believe that an alternative analysis should be possible that shows some broad similarity to the one we propose for the *wash* sentences.

(i) ... but Miss Chancellor made him feel that she was in earnest, and that idea frightened the resistance out of him ... [H. James, *The Bostonians*, 167]

(ii) The journalist ... has made it big by charming intimate truths out of powerful interview subjects. [M. Gallagher, review of *Best Intentions* by K. Lehrer, 16]

(iii) *The idea frightened the resistance.

(iv) *The journalist charmed intimate truths.

Again the NP that would ordinarily be expected to be the object of the verb in isolation—with these verbs, the experiencer argument—is expressed in these constructions, although as the object of a preposition. These constructions describe a change in the state of the experiencer that results in depriving the experiencer of what is described by the postverbal NP. It remains to be seen whether a verb-of-removal analysis is also desirable here or whether an alternative account is preferable.

15. Although Van Valin claims that his account is a semantic one, the notions of actor and undergoer are not really semantic notions, as we have already pointed out in chapter 1, since, as Van Valin himself stresses, the terms cannot be reduced to or equated with any semantic notion such as agent or patient. We disregard this point here and concentrate simply on the viability of Van Valin's account. And, in fact, the notion of undergoer is not really crucial to Van Valin's analysis since reference to a particular LS substructure can replace this notion, as we discuss here.

16. It seems to us that in Van Valin's approach it may be difficult to explain the inability of resultative phrases to be predicated of the object of a preposition, as in **The blacksmith pounded on the metal flat*. It is possible that this sentence is excluded since it does not have an undergoer for the resultative phrase to be predicated of, assuming that an undergoer cannot be expressed as the object of a preposition.

17. This amounts to saying that resultative phrases can only be added to verbs that in isolation describe some change: either a change of location or a change of state. This generalization is not true, since resultative phrases can follow verbs of contact by impact such as *hammer* and *pound*, which in isolation do not describe any change. We disregard this point here and continue to develop the analysis, but it should be clear that this fact already detracts from its viability.

Chapter 3

1. The unaccusative status of verbs of change of state, especially those that participate in the causative alternation, has been assumed by linguists working on unaccusativity beginning with Perlmutter (1978), who included them among the semantic classes of unaccusative verbs on the basis of their behavior with respect to impersonal passivization. In Italian these verbs pass the standard unaccusative tests, including selection of the auxiliary *essere* 'be'. In English these verbs can appear in the unaccusative resultative pattern and cannot assign accusative Case, as shown by their inability to take various types of nonsubcategorized objects. We defer a systematic demonstration of the unaccusativity of these verbs until chapter 4, where we also present the linking rules that determine their unaccusative status. The verbs *laugh*, *play*, and *speak*, cited below as unergative verbs, are representative of the intransitive agentive activity verbs that are taken to be the prototypical unergative verbs cross-linguistically in Perlmutter 1978 and subsequent work. This classification is based on the behavior of these verbs with respect to standard unaccusative diagnostics.

2. Some English intransitive verbs without transitive causative counterparts are used transitively in the resultative construction discussed in chapter 2, but in this construction the verbs do not have the transitive causative meaning associated with the alternating verbs. Consider the verb *laugh* in the resultative construction *The crowd laughed the candidate off the stage*. This resultative example does not mean that the crowd made the candidate laugh, which would be the interpretation that would parallel the intended interpretation of (4b); it can only mean that the crowd laughed.

3. In languages that form the equivalent of the English periphrastic (i.e., *make*) causative through the use of a causative morpheme, these verbs will systematically have causatives. But this type of causative usually involves a different type of causation from the type associated with the alternating verbs, which is termed "direct" (or, sometimes, manipulative, contact, or immediate) causation, contrasting with English periphrastic causatives, which allow an "indirect," as well as a direct, causation interpretation (Comrie 1976b, Cruse 1972, Nedyalkov and Silnitsky 1973, Shibatani 1976, among others). The type of causative expressed with alternating verbs in English is not available to all verbs, unlike the type of causative expressed by the periphrastic causative construction in English, which is productive. In some languages both direct and indirect causation are morphologically encoded, but in such languages the two typically involve distinct morphological devices. We refer to the kind of causative we are focusing on here as the

"lexical causative," since it is typically formed using the lexical resources of a language and shows the hallmarks of a lexical process (Wasow 1977).

4. Chierchia (1989) also takes the transitive variant of an alternating verb to be basic, but he takes the presence of reflexive morphology on the intransitive unaccusative variant in Italian and other languages seriously, proposing that the unaccusative use is derived by a lexical operation of reflexivization, which identifies the internal argument of a dyadic causative verb such as *break* with its external argument. Chierchia proposes that the causative interpretation associated with the dyadic variant of most of these verbs carries over in some sense to the monadic variant: the reflexivization process is associated with a particular kind of "static" causative interpretation. To illustrate, the verb *sink* is taken to be a basically dyadic causative verb. Its intransitive unaccusative form is derived from the transitive form by the process of reflexivization, a sentence like *The boat sank* being given the interpretation 'a property of the boat causes the boat to sink' (Chierchia 1989:19). As evidence for this aspect of his analysis, Chierchia notes that unaccusative verbs are commonly associated with reflexive morphology across languages. This property is explained on his analysis since these verbs are explicitly derived by a process of reflexivization. Although we agree with Chierchia that the causative variant is in some sense basic, we do not commit ourselves to the reflexivization part of Chierchia's analysis.

5. Our investigation of selectional restrictions was inspired by Rothemberg's (1974) study of French verbs with transitive and intransitive uses. This study includes examples of many verbs whose transitive and intransitive uses have diverging selectional restrictions.

6. Of course, there are some languages where the reverse type of morphology is used to create a dyadic causative predicate from the monadic predicate. Nine of the sixty languages in Nedjalkov's sample show this property. However, it is difficult to tell from Nedjalkov's paper whether the morpheme used to form transitive *break* is the same one used to derive causatives in general in the languages concerned, although the data Nedjalkov cites in an appendix suggest that in the majority of these languages it is at least not the morpheme used to form the causative of *laugh*.

7. Nedjalkov (1969) notes that in those languages where the verb *laugh* has both transitive and intransitive uses, this verb typically means 'laugh at' rather than 'make laugh' when used transitively.

8. More comprehensive inventories of the members of the four groups, together with extensive descriptions of their properties, can be found in B. Levin 1993; see also B. Levin 1991 for a study focusing on the verbs of sound emission. Many of the verbs of sound emission have agentive uses; in this section we are concerned only with their nonagentive uses (see section 5.1.2 for some discussion of the agentive uses).

All the verbs of emission take the emitter as the subject; however, the verbs of substance emission differ from the other subclasses in showing more variety in the expression of their arguments (see B. Levin 1993). One of these other possible expressions of arguments is discussed in section 6.4.2.

9. Agentive internally caused verbs like *run* can appear with the adverbial *by itself* under the 'without outside help' interpretation, as in *Carrie ran by herself today.* This interpretation, however, is only available under very restricted circumstances, say, if Carrie suffered an injury and as a result of much physical therapy she finally was able to run unaided.

10. We have restricted our attention here to verbs that are syntactically intransitive. It may be that there are internally caused verbs that are syntactically transitive. We leave this question for future research, which will explore the nature of these representations more fully.

11. Actually, with the exception of the verb *blush*, which interestingly takes an animate subject, the internally caused verbs of change of state cited here have both a change-of-state interpretation and a 'be in state' interpretation. The two interpretations can be brought out using the following pair of sentences: *The flower bloomed for three days, The flower bloomed in a day.*

12. See Brousseau and Ritter 1991 for further discussion of the circumstances that allow verbs to take both instruments and agents as subjects. See Hale and Keyser 1993 for some similar ideas on how the specification of a manner or means can impede detransitivization.

13. There is an interesting gap in the set of observed verb meanings, which is probably significant: although there are verbs such as *break* that describe the bringing about of a specified change of state by an unspecified activity, there are no verbs that describe the bringing about of an unspecified change of state by a specified activity.

14. Our account shows some similarity to the account proposed by van Voorst (1993), which also ties detransitivization to whether or not a verb specifies properties of an argument. Unfortunately, this manuscript came to our attention too late to be able to include a full discussion of it.

15. Some researchers include the verb *walk*, which is found in pairs such as *The visitor walked to the museum/Lisa walked the visitor to the museum*, among the agentive verbs of manner of motion that can be causativized. The interpretation of the transitive *walk* sentence differs crucially from that of the causative (b) sentences in (66)–(68). Unlike these sentences, the transitive *walk* sentence lacks any sense of coercion. It is unclear to us whether the behavior of *walk* is representative of a general pattern.

16. There may be some disagreement about whether the directional phrases are absolutely necessary in the transitive causative uses of these verbs, particularly with the verb *jump*. But even if these phrases need not be expressed in certain circumstances, they are always understood in the transitive causative use. For example, sentence (70c) cannot mean that the rider made the horse jump in place; rather, it must receive a directional interpretation, where the horse jumps, say, over a fence. We provide an explanation for this property in section 5.1.1.2.

17. In fact, it is also possible that unaccusative verbs that are not externally caused will develop transitive causative variants. In such instances we would predict, once again, that the relationship between the two variants in such causative

pairs will not be the same as the one that holds in the *break*-type causative pairs. We illustrate this phenomenon in section 3.3.3.

18. The Modern Hebrew causative pairs involving agentive verbs of manner of motion do not show the directional phrase restriction manifested in the comparable English pairs. In chapter 5 we present an analysis of the English pairs in which the directional phrase in some sense licenses the position needed for the external cause. We assume that the causative affix in Modern Hebrew has its own argument structure, which includes an external cause, so that Modern Hebrew need not have recourse to the English strategy.

19. We acknowledge that occasionally a restricted and specialized transitive causative use of one of these verbs does arise and might even gain general currency, as in the recent transitive use of the verb *disappear*, which has emerged in connection with certain political events in South America. However, these are idiosyncratic causative pairs of the type illustrated with the verb *burp* in section 3.2.5. The idiosyncratic nature of the causative use of *disappear* is reflected in the absence of a comparable use of its near synonym, the verb *vanish* (**The police vanished the activists*).

20. The greater number of verbs of existence and appearance with the reflexive morpheme in Russian than in Italian or French might be attributable to the rather different distribution of this morpheme in Russian, and concomitantly to the different function that this different distribution reflects. As discussed in B. Levin 1985, in Russian this morpheme is even found with some unergative verbs and seems to signal inability to assign accusative Case, rather than lack of an external argument. (The unergative verbs that do occur with *-sja* are never paired with transitive causative variants without this morpheme, contrasting with the suffixed unaccusative verbs of change of state.) In French and Italian the reflexive morpheme need not signal inability to assign accusative Case, as sentences such as the Italian *Maria si è lavata i capelli* 'Maria washed her hair' show. Rather, it is taken to signal the existence of a binding relation between the subject and an argument inside the VP (Burzio 1986, C. Rosen 1984, among others). It is only when a verb does not have an external argument that, by Burzio's Generalization, it is unable to assign accusative Case.

21. The facts are actually more complicated. At least in English, the interpretation of the adverbial *by itself* relevant to Chierchia's argument—the 'without outside help' interpretation—is found in the following sentence: *The explosion occurred/happened by itself.* This example, as well as the other problematic examples we have found, involve verbs of occurrence, a subset of the larger set of verbs of existence and appearance whose members take events, rather than entities, as arguments. Perhaps their distinctive behavior arises because events are themselves caused and thus can license the adverbial phrase on the 'without outside help' interpretation. Nevertheless, it is worth pointing out that only some verbs in this class appear felicitously with the adverbial. Contrast the previous example with **The riot ensued by itself*, ??*The infection recurred by itself.*

22. The exact function of these completive particles deserves further investigation.

It appears that in the progressive these particles are compatible with the maintain position sense as well.

23. A reviewer questions our inclusion of the verb *balance*, suggesting that it can be used intransitively. Our own intuition, which appears to be supported by corpus evidence, is that *balance* can be used intransitively only with an animate agentive subject, as in *She could balance on one foot for hours*—hence, in the maintain position sense and not in the simple position sense, the sense that is relevant here. The verb *mount* also has a transitive noncausative, though agentive, use, as in *She mounted the horse;* this use seems to involve something resembling the assume position sense. Finally, we note that we have also included the verb *perch* among the verbs used to illustrate this point, although there appears to be dialectal variation involving its use; some speakers can use it intransitively with inanimate subjects, and others cannot. For the latter speakers, *perch* patterns precisely like *balance:* it can have only the maintain position sense when intransitive, giving rise to the animacy restriction.

Chapter 4

1. We have formulated the linking rules in terms of the argument structure notions "external argument" and "direct internal argument" since we see these rules as mapping the lexical semantic representation into the lexical syntactic representation or argument structure. The external argument and direct internal argument are then "projected" into the syntax as the D-Structure grammatical relations of subject and object, respectively. It would also have been possible to formulate the linking rules in terms of the corresponding D-Structure grammatical relations.

2. These verbs have also been argued to be unergative in Italian on the basis of their failure to permit *ne*-cliticization. Given the questions concerning whether *ne*-cliticization is indeed a true unaccusative diagnostic (see note 10 of chapter 1 and section 6.8), we have decided not to cite *ne*-cliticization as an unaccusative diagnostic either here or at any of the other points in chapters 4 and 5 where this might have been possible.

3. We recognize, however, that the viability of the impersonal passive diagnostic is still controversial. For instance, it needs to be further scrutinized in view of observations such as those made by Zaenen (1993) that suggest that in certain circumstances some unaccusative verbs are found in impersonal passive constructions. In the final analysis, the status of this construction as an unaccusative diagnostic depends in part on showing that the syntactic properties of unaccusative verbs explain the lack of impersonal passive constructions containing these verbs. See Marantz 1984 and Baker, Johnson, and Roberts 1989 for possible explanations along these lines. If these explanations are indeed valid, as we feel they are, then the data that Zaenen discusses must be reevaluated.

In some languages, including Lithuanian, all predicates can undergo impersonal passivization (Baker, Johnson, and Roberts 1989, Marantz 1984, Timberlake 1982). Following Baker, Johnson, and Roberts (1989), we assume that their existence does not invalidate the impersonal passive test and the related English

prepositional passive test introduced in section 4.1.1.2 in languages like English and Dutch, but rather indicates that there is something special about the passive construction in languages like Lithuanian.

4. Couper-Kuhlen (1979) presents a careful large-scale study of a wide range of verbs aimed at isolating the semantic factors that determine whether an English verb allows the prepositional passive. The results of this study confirm the existence of an animacy restriction.

5. As our analysis stands, the Immediate Cause Linking Rule applies both to the external cause of an externally caused verb and to the internal cause of an internally caused verb. However, these two types of arguments do not correspond to any one position in lexical semantic representation: the external cause is the argument of a CAUSE predicate; the argument of an internally caused verb is not. It remains to be seen whether or not this is a disadvantage of the proposed approach.

6. There is, however, a fundamental difference in the way the two linking rules are formulated: the Change-of-State Linking Rule is formulated in terms of D-Structure positions, and the Directed Change Linking Rule is formulated in terms of argument structure positions. We stated the Change-of-State Linking Rule in terms of D-Structure syntactic positions in chapter 2 because it was intended to encompass the postverbal NP in resultative constructions based on unergative verbs even though on our analysis that NP is not part of the argument structure of the verb in the construction. We believe that the Change-of-State Linking Rule can be nonetheless dispensed with in favor of the Directed Change Linking Rule once additional facets of the analysis of the resultative construction are elaborated. It is likely that a fully worked out analysis of this construction will involve the formation of a complex predicate, along the lines suggested by Neeleman and Weerman (1993). If so, the postverbal NP will be the argument of the complex predicate, allowing this NP to fall under the Directed Change Linking Rule as applied to the arguments of the complex predicate, allowing the fundamental insight of the analysis in chapter 2 to be maintained. Specifically, the complex predicate analysis does not require positing that the verb in the resultative construction acquires a new argument structure; instead, the arguments of the verb in isolation are input to the rule of complex predicate formation, which creates a new predicate with its own arguments. The linking rules would then apply to the arguments of the complex predicate.

7. It is interesting that there is no need to subdivide the verbs of inherently directed motion according to internal and external causation in order to account for their properties. In fact, the meaning of these verbs seems to leave open whether they are to be understood as denoting internally or externally caused eventualities. It is likely that, as suggested in B. Levin and Rappaport Hovav 1992, this property is to be attributed to the element of meaning lexicalized by these verbs or, from the perspective in section 1.4, the element of meaning that these verbs take their name from. These verbs lexicalize a direction, rather than a means or manner. Means or manner, when lexicalized in the verb, can determine whether or not a verb will be agentive, and hence whether the verb can describe an internally caused eventual-

ity, but direction, it seems, does not have this effect. In this respect these verbs are more like verbs of existence and appearance.

8. In fact, Centineo (1986), Martin (1991), and Van Valin (1990) have all cited *fiorire*, the Italian counterpart of English *bloom*, *blossom*, and *flower*, as being a verb that can select either the auxiliary *avere* 'have' or the auxiliary *essere* 'be'. It may be that this verb is open to both the state and change-of-state interpretations in Italian, and that the variation in auxiliary selection correlates with the variation in meaning.

9. The Italian verb *salire*, though sometimes glossed with English *climb*, has a purely directed motion sense. That is, it corresponds to *climb* only in the sense of 'go up', not in the manner-of-motion 'clamber' sense.

10. The unacceptability of these sentences cannot be attributed simply to the presence of a particle in the prepositional passive. There are well-formed prepositional passives that include a particle, such as *This kind of behavior is looked down on by everyone.*

11. Although agentivity and the related notion of protagonist control are not aspectual notions strictly speaking, they have continued to figure in aspectual accounts of the semantic underpinnings of unaccusativity, presumably because the verbs most often used to illustrate activities have agentive subjects (e.g., *jog*, *laugh*, *shout*, *work*). As pointed out by Verkuyl (1989), the existence of nonagentive activity verbs casts doubt on the use of agentivity and protagonist control as indicators of aspectual status. Indeed, agentivity is not really directly related to the internal temporal constituency of a predicate: as Dowty (1979) shows, there are both agentive and nonagentive verbs in all the traditional aspectual classes.

12. We do not, of course, deny the important role telicity plays in the aspectual analysis of sentences. Legendre (1991) also presents a critique of Van Valin's account that is based on a large-scale study of French intransitive verbs. She finds that, with the possible exception of the notion of activity, the components of meaning that Van Valin employs are not very effective for classifying a verb.

13. It is important to distinguish the emitter from what is emitted: in graphic representations, odor exuded and light emitted are typically depicted as flowing from the emitter, although the emitter itself is not represented as undergoing a change. In fact, some verbs of emission can take the emittee as subject (*Water oozed out of the crack*) and in this use show clearly unaccusative behavior (see section 6.4.2). The very term "emission" suggests a kind of change, although again with respect to what is emitted and not the emitter. This duality may account for the fact that the sentences in (92), which are intended to illustrate the stativity of these verbs, are not completely unacceptable.

14. Although it is possible to deny that these verbs are stative, as Carter (1978) does, they are considered stative under most definitions of stativity. This is certainly true by the definitional criteria we cited. Sitting and lying do not involve any change, nor do they ordinarily require any input of energy to maintain.

15. Punctual verbs such as *die* also do not fall under Dowty's notion of incremental theme, just as they do not technically fall under Tenny's (1987, 1992) related

notion "measuring out." It seems to us that the argument of a verb such as *die* ought to fall under the same linking rule as the other arguments that undergo a directed change, but at this point we have no direct evidence for this.

Chapter 5

1. In the recent generative literature this observation about differences between languages is generally attributed to Talmy, but it has been made previously (although sometimes in a less general form), particularly in the work of traditional grammarians and comparative stylisticians (Bergh 1948, Malblanc 1968, Vinay and Darbelnet 1958, among others). In particular, Bergh (1948) provides a careful and thorough descriptive study of differences in the expression of direction in French, and to a lesser extent Italian and Spanish, on the one hand, and Swedish, English, and German, on the other. Talmy's important contribution has been to articulate the significance of these observations, synthesizing them into a typology of lexicalization patterns. Following up on Talmy's influential papers, other investigators have continued to explore the lexicalization of motion and direction in other languages (see, for example, Aske 1989, Choi and Bowerman 1991, Olsen 1991, Schaefer 1985, Tsujimura 1991, 1993, Yoneyama 1986). Bergh's work, taken together with these other studies, suggests that the patterns of behavior in the Romance languages are less clear than Talmy's work suggests and that Talmy's typology of the possible lexicalizations of verbs of motion across languages needs refinement. Specifically, our own impression is that certain properties of the prepositional system of a language—particularly the expression of the notions of location and goal—interact with the lexicalization patterns that a language makes available to give rise to the different patterns of behavior found across languages. We hope to look more closely at these issues in future work.

2. The lexicalization patterns of verbs of motion in Japanese have been the subject of some controversy. Tsujimura (1991) argues that, despite a claim to the contrary by L. Levin, Mitamura, and Mahmoud (1988), Japanese is an English-type, and not a Romance-type, language. On the basis of further, more recent investigations, Tsujimura (1993) finds that the evidence bearing on the status of Japanese is more complicated than she suggested in her earlier paper and that as a first approximation Yoneyama's (1986) analysis, which we present here, is a reasonable description of the lexicalization patterns of verbs of motion in Japanese. It is interesting that the disagreement concerning whether Japanese is like English or not stems from differences of opinion about what constitutes a goal phrase in Japanese. Thus, as foreshadowed in note 1, a full understanding of Japanese's place in a typology of the lexicalization of motion requires a deeper understanding of the means of expressing goals and locations in Japanese.

3. The absence of an external argument must be viewed as a necessary, but not a sufficient, condition on the ability of a verb to introduce an external cause to its representation because there are two classes of unaccusative verbs, verbs of existence and appearance and internally caused verbs of change of state, that do not allow the introduction of an additional external cause, as noted in chapter 3, except in occasional novel coinages.

4. It is clear from the full context of (22a) that the riders are on separate horses, so that the example cannot be dismissed as having the accompaniment interpretation found in sentences such as *The boy walked his dog*, which might be argued to represent a distinct phenomenon (see note 15 of chapter 3).

5. Because of differences in the selectional properties of the adjectives that head them, the resultative phrases that can be predicated of animates are typically headed by the adjectives *free* and *clear*, whereas those predicated of inanimates are typically headed by *open*, *closed*, and *shut*.

6. S. Pinker (personal communication) has pointed out to us that there is a preference for a directional phrase when some verbs of light emission are used causatively: *The stagehand shone the light across the stage*. We assume that this is just another instantiation of the same phenomenon in which the meaning shift to verb of directed motion licenses a causative use of the verb.

7. Some notes about the French examples. In (51b) the French verb *vrombir*, unlike the English verb *roar*, is very literary. In (52b) the French noun *fracas*, like the English noun *din*, can be used for a range of loud noises and thus does not capture any of the properties that make the sound associated with the verb *rumble* different from those associated with other verbs describing loud sounds.

8. Nonetheless, Dowty (1991) does attribute the two uses of locative alternation verbs like *spray* and *load* to the existence of two lexical entries for these verbs, possibly related by a lexical rule.

9. The *roll* verbs could also be internally caused for certain choices of inanimate arguments that can be viewed as self-propelled such as certain types of vehicles or machines. For purposes of simplicity we will ignore this possibility and restrict ourselves to those inanimate arguments for which this is not the case.

10. This is not strictly true since there are nonagentive uses of *run*, as in *The machine is running*. However, this is clearly not a basic use of the verb. In contrast, there is no sense in which either the agentive or the nonagentive use of *roll* can be said to be nonbasic.

Chapter 6

1. More often than not the preverbal PPs found in the locative inversion construction are locative with verbs of existence and directional with verbs of appearance (typically, a source or goal PP). When they are not locative or directional, they tend to be temporal PPs since some verbs such as *occur* and *happen* locate events in time; these temporal PPs can be regarded as locative PPs since an analogy can be made between time and space. The only exceptions are the "comitative"-like PPs headed by *with*, which are found almost exclusively with the verbs *come* and *go*, and most often in their purely nonmotional appearance sense. And even with these verbs, benefactive, manner, and instrumental phrases are never found.

2. In the few instances of locative inversion involving transitive verbs, the NP that is understood as the subject of the verb turns up after the object of the verb, rather than in immediately postverbal position, as in *In this room took place a meeting*

between several famous kings. However, locative inversion is found extremely infrequently with transitive verbs. Those transitive verbs that are found in the construction often form fixed phrases with their objects (e.g., *take place* in the example just given); these phrases are understood to be predicates of existence or appearance, thus not interfering with the discourse function of locative inversion introduced in section 6.3.

3. There is a third possible position for the PP: following an immediately postverbal NP. This order would instantiate precisely the type of *there*-insertion construction referred to as an inside verbal. This option does not seem particularly acceptable with the example in (1), possibly because of the heaviness of the NP.

4. A study of *there*-insertion must explain the different positions that the PP can occupy, as well as which of these positions are open for different choices of verbs. Various studies (Aissen 1975, Burzio 1986, Milsark 1974, among others) have noted that there is some correlation between the verb in the construction and the possible placement of the PP, but a thorough analysis remains to be carried out.

5. The actual behavior of these verbs is more complex than the discussion here suggests. Like the verbs of sound emission described in sections 3.2.5 and 5.3, some of these verbs have an externally caused meaning as well as the internally caused meaning that is of interest here. This externally caused meaning, like that of the verbs of sound emission, is found with manipulable entities and involves a transitive, causative use of the verb, as in *The soldier waved the flag*. In addition, some of these verbs may take a second argument on their internally caused use; with these verbs, this second argument is the body part manifesting the motion, as in *The bird fluttered its wings*. We believe that these uses are not true causative uses (e.g., **The child fluttered the parakeet's wings*), but we leave their precise analysis as a topic for further research. See section 6.4.2 for a brief discussion of somewhat similar, dyadic uses of verbs of emission.

6. As discussed in chapter 3, there are a few exceptions: the most "canonical" verbs of existence and appearance—*appear*, *develop*, *happen*, *occur*, and *exist*—do not require a locative PP, as in *An accident occurred*, although it seems to us that even in these instances a location or a time—which is simply a location on a temporal dimension—is understood.

7. The fact that verbs that are syntactically dyadic (i.e., transitive) but semantically monadic (i.e., they are paraphrasable by an intransitive verb in these phrases) appear in the locative inversion construction strongly suggests that the constraint is semantic rather than syntactic. This situation contrasts with auxiliary selection in Dutch, where, as described in section 1.2.2, verbs that are semantically consistent with the selection of the auxiliary *zijn* 'be' (i.e., they are telic in certain phrases) but syntactically inconsistent with the selection of this auxiliary (i.e., they are transitive) cannot, in fact, take it. We took this to be evidence that there are syntactic factors that determine auxiliary selection.

8. Actually, this characterization of *go*'s inherent deictic orientation is not quite accurate. Studies of this verb show that it is quite complicated to characterize the actual direction of motion described in sentences using *go*, since it depends on multiple factors. For some discussion, see Fillmore 1971 and Jensen 1982.

Interestingly, the verb *go* is the only verb of motion that is found in instances of locative inversion that at first glance might seem to have a disappearance rather than an appearance sense.

(i) There are no more horses there and the stable itself has been pulled down. With it HAVE GONE those wonderful, dark, smelly conveyances known as cabs which conveyed the citizenry with dignity to and from funerals and weddings. [L. Bromfield, *The Farm*, 220]

Although we would like to understand why this interpretation is possible with this verb and not others and believe that the key lies in a more careful analysis of the inherent deictic orientation of this verb, we point out once again that on our account verbs of disappearance are not a priori ruled out from occurring in the locative inversion construction if the construction's discourse function can be met (see section 6.3). An examination of the NPs in such locative inversions with *go* suggests that these inversions do link less familiar to more familiar information, so that the basic discourse requirement of the construction is indeed satisfied. In fact, the one locative inversion we have found with a verb of disappearance—the verb *die*—satisfies the basic discourse requirement of locative inversion. This example, which is cited in (ii), could have had the verb *die* replaced by the verb *go* without a change in meaning.

(ii) With the demise of Dennis Conner as defender of the America's Cup this year also DIED the possibility of turning the cup races into an advertising campaign. [G. McKay, "America's Cup '92 + Love, Beauty, and Science," 29]

As in the locative inversions that involve the disappearance sense of the verb *go*, the inverted PP in (ii) is headed by the preposition *with*. We believe that this shared property will turn out to be important to a full understanding of such locative inversions.

9. As mentioned in note 12 of chapter 1 in the context of verbs of putting, it is difficult to tell whether a transitive causative verb such as *put* means 'cause to come to be at a location' (i.e., cause to appear) or 'cause to be at a location' (i.e., cause to exist). There may be good reason for choosing the first option, given Carter's (1976, 1978) arguments that all causative verbs are causatives of verbs of change. Although Carter does not discuss verbs of creation, his arguments could be extended to such verbs, supporting lexical semantic representations in which they do not embed a state predicate directly. Since these verbs are accomplishments, Carter's representations resemble in this respect the aspectually motivated predicate decompositions that these verbs would be assigned by Dowty (1979).

10. Clouds and fog, though not animate agents, can be conceived of as having self-controlled bodies so that when they are the arguments of *sail*, the verb is still internally caused. As already mentioned, agentive verbs of manner of motion might be more accurately described as internally caused verbs of manner of motion since some do permit nonagentive, though self-controlled, arguments.

11. A near analogue of the argument that the verb in the locative inversion construction must be an unaccusative or passive verb can be constructed within LFG.

A theme argument may be realized as a subject or an object, whereas an agent argument must be realized as a subject; thus, an agent argument, but not a theme argument, would compete with a location argument for the subject grammatical function, preventing locative inversion. It is precisely for this reason that it is important that a locative inversion have the ⟨*th loc*⟩ argument structure associated with unaccusative or passive verbs, rather than the ⟨*ag*⟩ argument structure associated with unergative verbs. See Bresnan 1993 and Bresnan and Kanerva 1989.

12. We have put the PP inside the V′, but it is possible that with unergative verbs the PP should be outside the V′ and either inside the VP or adjoined to the VP, since it is not selected by the verb. To keep the structure simpler, we have also not shown the movement of the PP to Spec, CP position, proposed by some researchers.

13. Our discussion of Bresnan's analysis of locative inversion here and throughout this chapter is based on Bresnan 1993, which appeared as Bresnan 1994 while this book was in press. The published paper maintains the basic analysis of the earlier version, refining certain aspects of it. However, Bresnan 1994 does not include the discussion of locative inversion with sentential complement-taking verbs included in Bresnan 1993 and discussed here; such locative inversions are discussed in a recent paper (Bresnan 1995), which also came to our attention while this book was in press. We mention also that Bresnan 1994 moves beyond Bresnan 1993 in dealing with the problem of unergative verbs in locative inversion. Bresnan proposes that a theme-location analysis can be "overlaid" on an unergative verb precisely when the verb's sole argument can be located by locating the event the verb denotes, thus allowing locative inversion.

We thank B. Birner, J. Grimshaw, and D. Pesetsky for discussion of the material in this section.

14. Not only does Saccon (1992) adopt the VP-Internal Subject Hypothesis in her analysis of *ne*-cliticization, but she further assumes that the unaccusative/unergative distinction is not syntactically represented. She does not give a reason for this assumption; it may be based on the data showing that *ne*-cliticization is not sensitive to this distinction. Our own understanding is that the VP-Internal Subject Hypothesis does not preclude an unaccusative analysis of some verbs, but simply forces unergative verbs to have their external argument within the VP. Although *ne*-cliticization may not after all be an unaccusative diagnostic, other evidence has been cited for the unaccusative/unergative distinction in Italian, and we believe that much of it will hold up even if the VP-Internal Subject Hypothesis is adopted for Italian.

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