

UNIVERSITY OF CALIFORNIA

Los Angeles

Verb Incorporation and Elementary Predicates

**A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy**

in Linguistics

by

Murat Kural

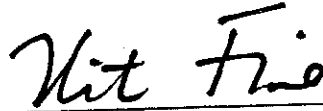
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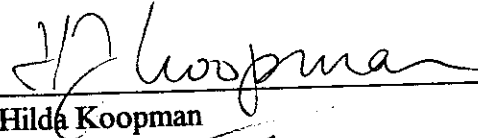
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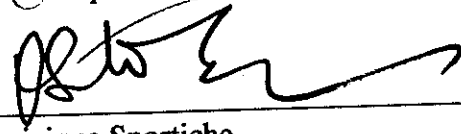
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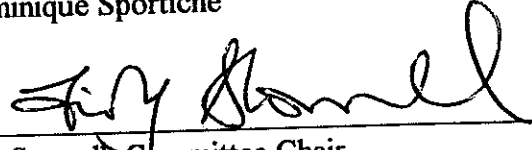
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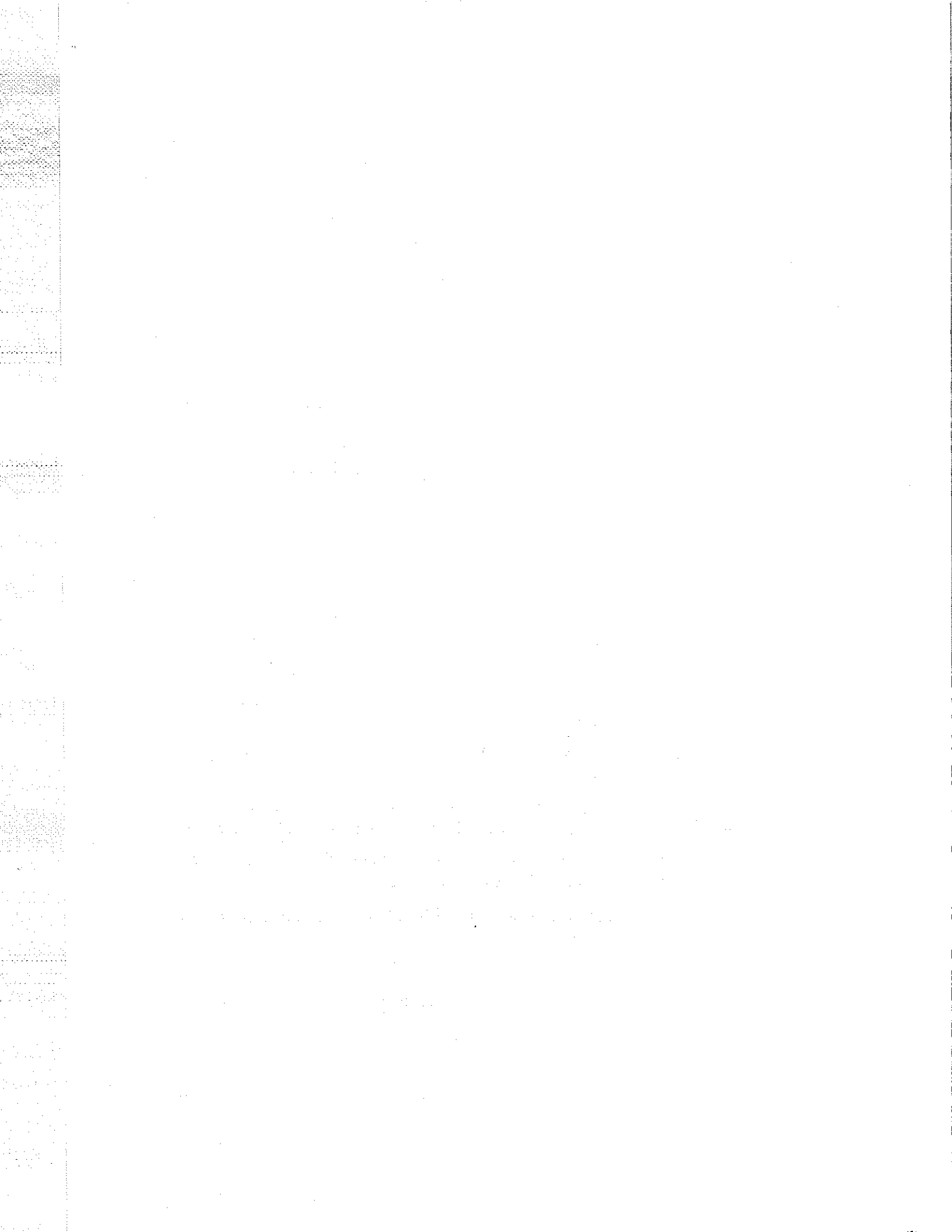
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ABSTRACT OF THE DISSERTATION

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The premise of this work is that the lexicon contains only the idiosyncratic information regarding lexical items, and that all regular alternations they exhibit are syntactically produced. As a consequence, the lexicon is simplified considerably, and the complexity is shifted to the predicate-argument structure in the syntax. All systematic correspondances between lexical items are derived by combining the simpler base forms that are drawn from the lexicon with other predicative units. For example, transitivity alternations are derived by incorporating the intransitive form of the verb into the elementary predicate CAUSE, while eventivity alternations are derived by incorporating the stative form into the predicate ACT. Under this approach, verbs that appear monomorphemic at the surface are very often decomposed into smaller units, each of which contributes to the syntactic and

semantic properties of the surface form. This added complexity leads to an enriched typology that can correlate the syntactic behavior of a verb with its meaning.

An important consequence of this proposal is that the simplified lexicon does not allow for optional thematic roles. In this study, roles that compete for the same argument position in the syntax are combined under the same role label, as in the case of Agent, Force, and Instrument subjects, which are merged as Actors. Roles that may appear as additions to the core predicate-argument structure are introduced as specifiers of various predicates. Beneficiary and Instrument arguments, for instance, are obtained through BEN and CAUSE, respectively. It is argued that the way in which elementary predicates combine to form a predicate-argument complex is determined by the organization of the complex event or state it describes. A similar type of transparency holds between the lexicon and the syntax, which prohibits the syntax from altering the properties of lexical items. Dethematization is thus ruled out as an option, and the passive construction is derived by the elementary predicate PASS, which introduces a *by*-phrase specifier that controls the external argument of its complement VP.

Chapter 1

INTRODUCTION AND BACKGROUND

A straightforward assumption one can make about the role of the lexicon is that it provides fully-formed words as the input for the syntax. Syntactic operations would then ensure that the words have the right morphology that matches the clause. This approach has become quite popular in recent years with the introduction of the checking theory by Chomsky (1991). Implicit in this view is the presupposition that the lexicon is capable of combining morphemes into words, e.g., it can attach tense and agreement markers to a verb, or Case morphology to a noun. However, the power to assemble words that the checking theory ascribes to the lexicon must extend far beyond simple morphology that combines roots with affixes. It must allow much more complicated operations in order to produce the complex words one finds in polysynthetic languages, where verbs regularly incorporate their objects and other constituents. In Chukchi, for example, *tə-meynə-levtə-pəyt-arkən* is a single word that means 'I have a fierce headache', and it is composed of '1SG-big-head-ache-IMPERF', with three distinct roots (Comrie 1981). The same procedure is replicated on a smaller scale in English with productive compounds such as *beer-drinking* and *bird-watching*. For the lexicon to be capable of providing such compounds, it would have to have a complex assembly mechanism that can mimic the entire range of incorporation structures, and not just simple morphological affixation. Therefore, the assumption that the lexicon provides fully-formed words for the syntax leads to a substantial increase in the power of the lexicon to the point where it duplicates all cases of syntactic head movement. The result is a highly redundant and uneconomical system that produces complex morphological forms in the lexicon and checks their composition in the syntax.

This work takes the opposite track and adopts a highly restrictive approach in which the lexicon is only a repository of the idiosyncratic properties of lexical items. This view is a consequence of the following principle.

(1) The Unpredictability of the Lexicon:

The lexicon consists of only the unpredictable properties of lexical items.

What makes (1) an interesting statement is that it excludes all predictable information from the lexicon. It denies the lexicon any power to assemble words, and in doing that, it

simplifies the lexicon and facilitates the acquisition. The purpose of (1) is to remove all alternating forms from the lexicon, such as a non-dative-shifting *give*₁ and a dative-shifting *give*₂. It prohibits the presence of such alternants whether they are listed as separate entries or derived by a lexical rule, e.g., *give*₁ → *give*₂, because all properties of *give*₂ would be predictable from the properties of *give*₁, except for its behavior with respect to dative shift.

The first section of this chapter presents the basic principles that guide the analyses throughout this work. These principles are all designed to either simplify the lexicon or to make the syntactic structure semantically transparent. The discussion starts with the Unpredictability of the Lexicon in (1) and the way it eliminates all optionality from argument selection and thematic role association. The second part of section 1 introduces three principles: (a) Dowty's (1991) principle that the thematic roles of a predicate must be determined solely on the basis of the event structure, (b) the Event Transparency of the Syntax, which mandates a parallelism between the organization of a predicate-argument complex and the organization of the complex event/state, and (c) the Lexical Core Principle, which establishes a close correlation between the lexical verb in a complex predicate and the core of a complex event/state. The third part argues that the properties of a lexical item must remain unchanged in the syntax, which is stated as the principle of Lexical Coherence. Section 2 is a survey of the literature on thematic relations, which provides background for chapter 2, concentrating primarily on the theories of Fillmore, Gruber, Jackendoff, and Dowty.

The purpose of chapter 2 is to redefine the inventory of thematic roles in accordance with the principles stated in chapter 1. It eliminates optional roles in one of two ways: (a) it either merges distinct roles into one, as in the case of the traditional cluster of Agent, Instrument, and Force, which are reduced to Jackendoff's (1987) Actor, or (b) it introduces them through higher elementary predicates, such as the Beneficiary arguments generated as the *for*-phrase specifiers of the predicate BEN. The chapter establishes Actor, Neutral, Experiencer, and Patient as the basic roles that all others are derived from, e.g., the traditional Beneficiary is reanalyzed as the Experiencer argument of BEN. The four basic roles are decomposed into two event-based thematic properties: (a) Protagonism indicates that the participant involved in the event/state in question must have engaged in some other act as well. Actors and Experiencers are Protagonist since an Actor that is pulling a cart must be moving, and an Experiencer that feels fear must have perceived or imagined the object of that fear. (b) Affectedness means that the participant has undergone a change of state due to its participation in the event/state in question. Patients and Experiencers are Affected, since a Patient that is freezing has undergone a change of state as a result of the freezing, and an Experiencer that fears something has acquired a state of fearfulness as a result of the fear.

Chapter 3 presents a theory of the causative construction and the predicate CAUSE, both of which play a major role in the analyses proposed in the course of this work. The first section argues for a modality-based account for the coercive (*make*) and permissive (*let*) causatives. It isolates the syntactic primitive CAUSE, and derives the coercive and permissive forms by combining it with universal and existential quantification over possible

worlds. The chapter then turns to Chomsky's (1986a) Principle of Full Interpretation, and generalizes it to all arguments, including oblique DPs and PPs. This forces the dative and *by*-phrase causees to be structurally licensed at the specifiers of specifically designated projections. The order of the movement to structural licensing positions is partially reversed in type II languages, such as Chamorro, where the causee appears as the accusative phrase. The preposition incorporation that derives this case alignment pattern is the blueprint for all cases of argument shift discussed in this work. The chapter closes with an account for the interactive and circumstantial causation readings through the distribution of the Patient role, which makes it possible to maintain a uniform treatment of CAUSE as two-place predicate.

Together with the Lexical Core Principle and Lexical Coherence, the mechanics of the causative construction outlined in chapter 3 provides the framework for the proposed verb typology in chapter 4. This chapter divides monadic verbs into four classes instead of the traditional split between unaccusative and unergative verbs. It identifies (a) verbs of presence, e.g., *appear, arrive, exist, occur*, (b) verbs of change of state, e.g., *sink, burn, freeze, break*, (c) verbs of motion, e.g., *run, swim, walk, jump*, and (d) verbs of production, e.g., *laugh, speak, dream, think*, all of which are assigned a unique VP architecture. It also distinguishes between two types of diadic verbs: (a) those with single-layered VPs, e.g., *dig, steal, paint*, which do not allow agentless passives; *The hole was dug* necessarily means that someone dug the hole, and (b) those that support double-layered VPs, where the lexical verb is embedded under CAUSE, e.g., *solve, destroy, offend*. These verbs allow the agentless passive reading; *The problem was solved* may describe a situation where the problem disappears without the involvement of any agent because of the way the situation plays itself out. Finally, triadic verbs are decomposed into a similar double-layered VP structure with CAUSE. The P-incorporation that is first invoked in chapter 3 for type II causatives is shown to be the tool that can also produce the argument shift phenomena, as in the case of dative shift with *give*, e.g., *Bill gave the book to Mary* and *Bill gave Mary a book*, and the locative alternation with *load* and *spray*, e.g., *John loaded the truck with hay* and *John loaded the hay onto the truck*.

Chapter 5 concentrates on the predicate-argument structure of Instrument *with*-phrases. It establishes two types of Instruments: (a) a Tool follows the entailment *Bill painted the wall with this brush* → *This brush painted the wall*, but (b) an Aide does not: *Mary ate the soup with this spoon* —/→ *This spoon ate the soup*. The principle of Event Transparency forces them to have different sources, which means they cannot receive a unitary treatment involving a single hypothetical predicate INST, cf. BEN in chapter 2. Instead, it suggests an underlying structure where the Tool starts out as a causee, e.g., *Bill CAUSE with this brush paint the wall*, and the Aide is generated as a (permissive) causer, e.g., *With this spoon CAUSE Mary eat the soup*. The argument realignment in Aide clauses is regulated by the predicate CONT, for 'control', which ensures that the subject (or the passive *by*-phrase) is of the kind that is appropriate for the event/state denoted by the predicate-argument structure. Typically, it matches the animacy of the subject with the level of animacy required by the predicate, a process that is responsible for the contrast in *The computer/*abacus calculated the results* and *The abacus/computer broke the*

window, where *calculate* demands more animacy than *break*.

Finally, chapter 6 derives a theory of passives where a passivized verb preserves its selectional and thematic frames in accordance with the principle of Lexical Coherence. It posits a passive predicate PASS that takes a *by*-phrase specifier and a VP complement, such that its *by*-phrase controls the PRO specifier of its complement VP. The movement of the internal argument to the subject position is motivated by the Extended Projection Principle of Chomsky (1982), which forces every clause to have a subject. The availability of passives with a given verb depends on whether or not it provides an argument for the subject position, either at S-structure or at LF, after expletive replacement (Chomsky 1986a). It is argued there that Turkish can passivize unaccusatives and produce double passives because it allows the generic operator GEN to be licensed as the specifier of PASS. Once the control relation between the *by*-phrase and PRO is obliterated by GEN, the uncontrolled PRO becomes free to raise to the subject position yielding the pro-*arb* interpretation of the impersonal passives discussed by Maling (1993a).

The following chapters cover a wide range of topics, all of which essentially relate to the organization of the predicate-argument structure. The framework that emerges is simple and flexible, and provides a coherent view of the organization of grammar. It is hoped that the ideas presented here can also be implemented in the future with other types of constructions that are not included in this work.

1 The Basic Principles

The principles adopted in this dissertation effectively restrict the range of possible analyses and allow only a limited set of procedures to be used in each construction. They are all designed to either simplify the lexicon or make the predicate-argument structure semantically transparent.

The simplicity of the lexicon is an important goal because it facilitates language acquisition. The fact is, unlike the essential syntactic structures and operations, the lexicon cannot be hard-wired in the brain.¹ It must be learned entry by entry, so simplifying the range of possible lexical items would crucially reduce the child's burden. On the other hand, semantic transparency enables speakers to systematically match the structure of a clause with its meaning. Although the principles that facilitate this matching can be hardwired and need not be learned, it will be argued below that the correspondance between the structure and its meaning must be fairly straightforward, so that a complex predicate-argument structure can be accurately correlated with the complex event it describes. Both types of principles are discussed in more detail in this section.

¹To give an example, there is no a priori reason why the English word *chair* should refer to the type of furniture that has a back, whereas *stool* refers to a furniture that may or may not have a back. Nor is there any reason why a chair with a headrest does not have a special name. Even in the case of predicates that appear to be hard-wired as universal categories because they denote abstract relations like causation, children must learn the actual phonetic content of the predicate.

1.1 The Role of the Lexicon

It is an uncontroversial assumption that all idiosyncratic information regarding lexical items needs to be stored in the lexicon since it cannot be predicted by any means. The issue is whether the lexicon should contain any predictable information. The basic premise of this work is that it should not, and this is spelled out as the following principle.

(1) The Unpredictability of the Lexicon:

The lexicon consists of only the unpredictable properties of lexical items.

The rationale for (1) lies in the process of language acquisition. Redundancy in the lexicon has very practical consequences with respect to acquisition and storage. It is clearly not a cost-effective strategy to list, for example, the past tense form of every regular verb in English as an independent entry, i.e., representing each regular past form, such as *walked*, in addition to its corresponding base form, *walk*. A much more efficient alternative would be to assume that children store all and only the idiosyncratic properties that they have encountered, but not anything that is predictable.

It may appear at first that the issue of predictability is independent of the question regarding the use of the lexicon as a quasi-syntactic level that can perform various word-level transformations, such as combining morphemes. However, these issues are closely related, as in the cases of lexical alternations involving dative shift with *give* or locative alternation with *load* and *spray*.² In principle, if the lexicon could assemble words out of morphemes, it would also have the capacity to combine the non-dative-shifting *give*₁ with a component C to derive the dative-shifting *give*₂.³ This option is fully exploited, though in a different form, in the Lexical-Functional Grammar (LFG) (Bresnan 1982, among others), which traditionally assumes some version of the following lexical conversion rule.

(2) *give*₁ <[- dative-shift]> → *give*₂ <[+ dative-shift]>

In more subtle forms of the transformational lexicon, the alternating forms are listed as separate entries, e.g., Oehrle (1976), instead of being created by lexical operations. Once the lexicon is designed this way, it would be able to encode the results of the lexical rules by 'base-generating' the output forms, without any derivational component.

²The examples for these alternations are as follows:

- (i) Dative-shift:
 - a. Bill gave this book to Mary
 - b. Bill gave Mary this book
- (ii) Locative Alternation:
 - a. John loaded the hay onto the truck
 - b. John loaded the truck with hay

³The conversion of one lexical form to another with no overt morphology is equivalent to adding null morphology, cf. the verbal *convict* converting into the nominal *convict*.

- (3) *give*₁ <[- dative-shift], see *give*₂>
*give*₂ <[+ dative-shift], see *give*₁>

The view of transformational lexicon sketched out in (2) is derivational in nature, while the lexicon that takes the approach in (3) is representational. As such, both types are very much equivalent in terms of their power and complexity.

Through different means, both versions of the transformational lexicon ultimately introduce a *give*₁ and a *give*₂. This is ruled out by the Unpredictability of the Lexicon in (1), since all properties of *give*₂ are predictable on the basis of *give*₁, i.e., they are identical in every respect except for their ability to dative shift. This generalization is a corollary of the Unpredictability principle.

- (4) The Dissimilarity Corollary:

In the lexicon, a lexical item L₁ cannot be identical to an L₂ in every respect, e.g., semantically and phonologically, except for some isolated syntactic property.

This corollary applies in situations where a V₁ is phonologically and semantically the same as a V₂. It allows phonologically distinct but semantically identical pairs to have different syntactic properties, as is the case with *cause* and the causative *make*, which vary in terms of selecting an infinitival versus bare VP complement. Forms with irregular morphology also fall in this category. For example, the alternating forms *see* and *saw* have the same meaning except for the syntactic property of tense, but they can be listed separately because there is nothing in the phonological form of *saw* that would suggest to a child that it is the past tense of *see*, cf. **seed*. This corollary also allows semantically distinct but phonologically identical forms of *film*, as in a motion picture or the roll of negatives in a camera, to be distinguished by the single syntactic property of being count or mass noun, respectively. Though the two meanings are clearly related, they are not the same, as they refer to distinct items.

The justification for the Dissimilarity Corollary is the same as the Unpredictability principle: Children simplify the lexicon in order to achieve more efficient storage, and one of the ways in which they do this is by collapsing sufficiently similar items into a single entry.⁴ The effect of this corollary is that it forces all predictable and systematic alternations to be derived in the syntax. In addition to the cases involving dative shift with *give*-type verbs and the locative alternation with verbs like *load* and *spray*, it also requires the transitivity alternations with the class of verbs containing *sink*, *burn*, and *break* to have a syntactic derivation.

- (5) a. The ship sank
b. The enemy sank the ship

According to the Dissimilarity Corollary, these verbs must be represented as single entries

⁴It is probable that there would occasionally be verbs that form a V₁ - V₂ pair in the sense that is prohibited by the Dissimilarity Corollary, but such cases should be extremely rare, and they should preferably be the result of some historical accident.

in the lexicon. The principle of Lexical Coherence, on the other hand, prohibits the lexical base of these verbs to be transitive, since the intransitive forms would have to be obtained by projecting only a part of the transitive forms in the syntax, see section 1.3. In other words, if *sink* is lexically represented as a transitive verb, the intransitive *sink* would have to be derived by picking *sink* apart and using only the part of it that refers to the act of the sinking object, in violation of Lexical Coherence. Therefore, the base form of verbs like *sink* must be intransitive, and the transitivization must take place in the syntax. In chapter 4, it is argued that the transitive forms are derived by incorporating *sink* into a null CAUSE.

Another instance where the Dissimilarity Corollary forces a syntactic derivation is the eventivity alternation observed with verbs like *follow*, *imply*, *define*, and *meet*. Verbs of this type are ambiguous between the stative reading that denotes a habitual state of affairs, and the eventive reading that denotes an act.

- (6) a. Tuesday follows Monday
b. John followed Bill (into the room)

The stative reading of *follow*, for example, merely asserts a spatio-temporal relation between two objects. In the eventive reading, *follow* describes the act performed by the subject, e.g., *John* in (6b), indicating that it moves behind the object and in the same direction. The Dissimilarity Corollary rules out the option of assigning two separate entries for *follow*. In chapter 2, it will be proposed that the base forms of these verbs are stative, and that the eventive forms are obtained by incorporating the stative forms, into the elementary predicate ACT to produce the complex predicate, e.g., *follow*-ACT.

1.1.1 Optional Roles

An interesting consequence of the Dissimilarity Corollary is that it leads to a prohibition against all forms of optional thematic roles when taken in the context of the θ -Criterion (or Thematic Biuniqueness, see chapter 2). The effect of the θ -Criterion is that it forces every thematic role of a predicate to associate with some argument.⁵ In other words, it ensures that if a role is specified in the lexical entry, it is mapped onto an argument in the syntax. This is a fundamental aspect of the interaction between the lexicon and the syntax that keeps the thematic structure of a predicate intact between the two components, which is also guaranteed under Chomsky's (1980) Projection Principle. This way, a verb like *paint* cannot be projected in a clause with its Actor/Agent or Patient role missing, e.g., **There painted some chairs* or **Some chairs painted*. This is also the reason that the null object versions, such as *Bill is painting* or *Bill is eating*, entail that Bill is painting or eating something, whereas the truly intransitive *The ship is sinking* does not entail that anyone is sinking it.

However, there is a small but well-defined class of thematic roles that can occur optionally. Beneficiary, Instrument, Material, and Comitative are among these roles, though this work concentrates only on Beneficiaries and Instruments.

⁵Whether or not each thematic role must associate with a unique argument is not a relevant issue in this discussion.

(7) Bill painted a picture (for Mary) (with that brush)

Unlike the null object of *paint* and *eat*, these optional phrases should not correspond to any covert arguments in the syntax because there is no understood Beneficiary or Instrument for the painting event in the simple form *Bill painted a picture*. This means that the Beneficiary and Instrument roles are not projected in the syntax when they are absent in a sentence like (7). The traditional strategy in these cases is to mark these roles as optional in the lexical entry, using the familiar parenthesis notation.

(8) *paint* <Agent, Patient, (Beneficiary), (Instrument)>

The most obvious and practical problem with this strategy is that marking these roles as optional would exempt them from the θ -Criterion and any of its equivalent principles, which would effectively deregulate their distribution. However, this is clearly not the case: (a) An Instrument cannot associate with a *for*-phrase, **Bill painted a picture for that brush*.⁶ (b) A Beneficiary and a Comitative (both animate expressions) cannot be conjoined, **Bill painted a picture for and with Mary*.

There are also conceptual problems with lexically marking the Beneficiary and Instrument as optional roles. First of all, it is not always clear what optionality means in this context. In a sense, it seems to suggest that the entry for the verb, e.g., *paint*, is sometimes specified for the Beneficiary role and sometimes not. Second, this type of optionality is merely a notational equivalent of the multiple entry approach, which would be listing each thematic role combination of *paint* as a separate item.

- (9) a. *paint*₁ <Agent, Patient>
b. *paint*₂ <Agent, Patient, Beneficiary>
c. *paint*₃ <Agent, Patient, Instrument>
d. *paint*₄ <Agent, Patient, Beneficiary, Instrument>

In (9), all that separates *paint*_x from *paint*_y is the number of thematic roles it licenses. This is why optionality of roles violates the spirit of the Dissimilarity Corollary, and ultimately, the Unpredictability of the Lexicon.⁷

1.1.2 Conversion to Non-Optionality

There are two types of optional thematic roles: the substituting type and the adjunct type. Substituting roles are mutually exclusive, and they are usually indicated by curly braces. A typical example of this type is the cluster of Agent, Instrument, and Force subjects.

⁶The *for*-phrase is intended as an Instrument. The sentence would be acceptable if *for that brush* is taken in the sense of *in exchange of that brush*, which is irrelevant.

⁷Just as the case was with *give* and dative-shifting, all properties of *paint*_x would also be predictable from the properties of *paint*_y, in the same way that all properties of *walk* are predictable from the properties of *walk quickly*.

- (10) { The man } broke the window
 { The brick }
 { The wind }

The curly-braces optionality is eliminated in this work by merging the roles in question into a single type. This approach is equally motivated by Dowty's (1991) principle that a thematic role must be defined solely on the basis of the event structure. As discussed in chapter 2, all three subjects participate in the window-breaking event in the same way, as window-breakers, so they must bear the same type of thematic relation with respect to *break*. The role that expresses this particular relation is Jackendoff's (1987) Actor, see section 2.2 below, which is crucially a role void of animacy and volitionality.

Adjunct-type roles are those that can be added optionally without having to remove any other role, as is the case with the Beneficiary and Instrument PPs discussed above. The standard notation that expresses this type of optionality is the parentheses.

- (11) a. Bill painted a picture (for Mary)
 b. Bill painted a picture (with that brush)

The most effective way to eliminate the parentheses optionality is the use of elementary predicates that introduce the relevant arguments as their specifiers. It is argued in chapter 2 that the Beneficiary *for*-phrase is introduced as the specifier of the predicate BEN, which reads as '(the argument) x is the beneficiary of (the event stated in) y'.

- (12) [VP [PP *for* DP] BEN [VP ...]]

The underlying structure for (11a) is as in (13a). The operations that derive (13b) from (13a) are discussed in chapters 2 and 3.

- (13) a. [VP [PP *for* Mary] BEN [VP [DP Bill] paint [DP a picture]]]
 b. Bill painted a picture for Mary

It is argued in chapter 5 that Instruments do not constitute a homogenous class that can be derived in a unitary manner. The following entailment pattern crucially distinguishes between two types of Instruments.

- (14) a. Tool instruments:
 Bill painted a picture with that brush → The brush painted the picture
 b. Aide instruments:
 Mary ate the soup with a spoon —/→ The spoon ate the soup

The principle of Event Transparency, discussed below in section 1.2, forces the predicate-argument structure to have a different organization in each case. It will be proposed in chapter 5 that Tool instruments are generated as intermediate specifiers, i.e., as causees, whereas the Aide instruments are generated as causers of permissive causatives.

- (15) a. Tool instruments:
 [VP [PP BY Bill] CAUSE [VP [PP with that brush] paint [DP a picture]]]

b. Aide instruments:

[VP [PP BY [PP with a telescope]] CAUSE [VP [DP Mary] watch [DP the stars]]]

All stages of the derivation of Tool and Aide arguments, including the BY-incorporation and the reversal of the argument alignment with the Aide type, are discussed in chapter 5.

1.2 The Event Structure

There are three principles mentioned in the introduction that establish a strict correlation between the syntax and the event structure. The first one is Dowty's (1991) principle that thematic relations are determined solely on the basis of the event/state that the predicate-argument structure describes. This is paraphrased below.

(16) The Event-Based Nature of Thematic Roles:

The thematic role of an argument is determined solely by the way its denotation participates in the event or state described in the predicate-argument structure.

The second principle ensures a straightforward mapping between the organization of the predicate-argument structure and the organization of the complex event/state it describes.

(17) The Event Transparency of the Syntax:

The parts of a predicate-argument complex are organized the same way as the corresponding parts of the complex event or state that the predicate-argument complex describes.

The third principle establishes that the core of a complex event corresponds to the verb that has the lexical content, i.e., the base that remains intact after all the elementary predicates are stripped away.

(18) The Lexical Core Principle:

The core event in a complex event corresponds to the lexical base in a complex predicate.

Although they are designed to serve different purposes, all three principles make a crucial point in establishing a direct relationship between the syntax and the event structure, and they are all motivated by the same rationale, namely, the need to make it easier for children to learn how to semantically interpret a given predicate-argument structure.

An essential ingredient in the meaning of a predicate is its thematic frame, i.e., the set of roles that it licenses. However, this is not the type of information that adults would be passing along to children in any explicit manner. Instead, children infer the thematic frame of a predicate on the basis of the type of situation that it describes. Note that the only reliable clue that a child has in untangling the meaning of a predicate is to identify the type of event/state that the predicate-argument structure describes.⁸ As a result, children

⁸In order to know that kickers are Actors, one must know that kickers do something. In order to know that kickers do something, one must know that kickers kick. In order to know that kickers kick, one must know what kicking is. In order to know what kicking is, one must know what type of an event kicking is. Thus, a child understands that *kick* takes

(and adults) can differentiate between the thematic roles of a given predicate-argument structure and identify them only by looking at the type of event/state it denotes.

The inventory of thematic roles are reduced to four in chapter 2: Actor, Neutral, Experiencer, and Patient, which are then decomposed into combinations of two event-based properties, Protagonism and Affectedness. Protagonism (event prominence) is defined by whether or not the participant has engaged in another event that leads up to the state of affairs that is described by the predicate. Affectedness is defined by whether or not the participant is in a different state as a result of being part of the state of affairs that is described by the predicate. Actors and Experiencers are protagonists, and Patients and Experiencers are affected.

The Event Transparency of the predicate argument complex in (17) above, is a crucial component of the grammar for precisely the same reason that the Event-Based Nature of Thematic Roles in (16) is. Children can posit the correct architecture for the predicate-argument complex only after they determine the meaning of the VP complex, and they can judge the meaning of the VP complex only after they identify the type of complex event it describes. For example, a child would recognize the argument realignment in the passive *The dog was bitten by a man* only after realizing that the sentence means the same thing as *A man bit the dog*, which is possible only if the child understands that both sentences refer to the same type of event. For the meaning of a predicate-argument complex to be transparent, the way it is assembled compositionally must match the way the corresponding complex event is built.

The principles that accomplish this mapping must be fairly simple since the predicate-argument structures and their corresponding events can be made quite complex. For example, an event where D causes C to cause B to kick A can be made more complex by adding another causation event where E causes D to cause C to cause B to kick A. The corresponding predicate-argument complex must be able to match the complexity of each step. If this mapping is complicated, such that an event where D causes C to cause B to kick A can be described as *C CAUSE D CAUSE B kick A*, then it would not be clear how this structure can be expanded to describe the more complex event, E causes D to cause C to cause B to kick A, a point that is emphasized in chapter 3. The most effective way to simplify the mapping is to ensure that the organization of the predicate-argument structure mirrors the event structure, as also argued by Croft (1991).

The notion behind the Lexical Core Principle is that the core events in (19) are *Mary kicked the ball* and *Bill painted a picture* rather than *Bill caused something* and *Mary benefitted from something*.⁹

- (19) a. [[BY Bill] CAUSE [Mary kick the ball]] cf. Bill made Mary kick the ball
 b. [[for Mary] BEN [Bill paint a picture]] cf. Bill painted a picture for Mary

an Actor argument only when he/she connects the act of kicking with the verb *kick*.

⁹This principle does not apply in cases of two lexical verbs (roots) either separated by a clausal boundary, or incorporated through restructuring or compounding.

This distinction is analogous to the one observed with adverbial constituents.

- (20) a. John walked quickly
b. John walked because his car is stolen

Speakers understand that the core event in both cases is *John walked*, but not *John was quick* or *John's car was stolen*.

At the heart of this principle are the intuitive concepts of a lexical verb and a core event. It presupposes a fundamental distinction between lexical verbs and elementary predicates. Lexical verbs, such as *walk* and *drink*, are the root forms that describe events that can be defined on their own terms. They constitute an open class whose members encode more idiosyncratic information than elementary predicates, and they are more prone to cross-linguistic variations in their semantics. Elementary predicates, such as BEN and CAUSE, are morphologically bound forms that refer to events that cannot be defined independently, and they need to combine with other events or states. They form a closed class whose members describe nondistinct relations between individuals and events/states, and they are semantically more constant across languages than lexical verbs.

The impact of the Lexical Core Principle is that it rules out the incorporation of an elementary predicate into a lexical verb, and allows only the incorporation of a lexical verb into an elementary predicate.¹⁰ Just as the core event provides the anchor of a complex event, the lexical core of a complex predicate provides the base onto which the elementary predicates attach, in a manner that is regulated by Event Transparency.

1.3 The Role of the Syntax

The last principle that plays an important role in the following chapters is the one that limits the capabilities of the syntax in organizing the items drawn from the lexicon. This is stated below as an independent principle, although it is ultimately a consequence of the way the syntactic component of the grammar operates.

(21) Lexical Coherence:

The syntax cannot alter the properties of lexical items.

It is widely agreed in the literature that the syntax can only manipulate structures. For example, it cannot take a two place predicate like *drink* from the lexicon and treat it as if it were a three-place predicate, or successfully fit *try* into a structure with a tensed clause complement despite the lexical specification that it must combine with an infinitival clause. This is basically the ground that was covered by Chomsky's (1980) Projection Principle. The power of the syntax is limited only to building structures and/or moving simplex or complex constituents from one position to another.¹¹ It has neither the capacity nor the

¹⁰Admittedly, this is not a principle that has much independent justification, but it is supported by the correlation between the order of morphemes in causative structures and their interpretation as captured by Baker's (1988) Mirror Principle.

¹¹In the terminology of Chomsky (1995), the syntax consists of nothing more than Merge and Move/Attract, and it is incapable of altering the initial array.

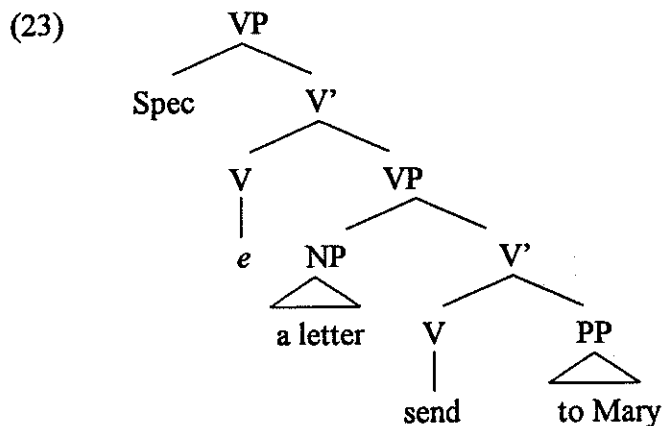
machinery to alter the properties of the items it has imported from the lexicon.

The view of the grammar adopted in this work simplifies the division of labor between the lexicon and the syntax by (a) performing all the assembly operations in the syntax, and (b) designating the lexicon as the only source for the parts that are assembled in the syntax. Lexical Coherence excludes the possibility that the parts drawn from the lexicon can be altered during the assembly in the syntax, which means all component of a complex predicate must be coherent and viable as lexical items.

(22) The Viability Corollary:

All parts that constitute a complex predicate must be lexically coherent and viable.

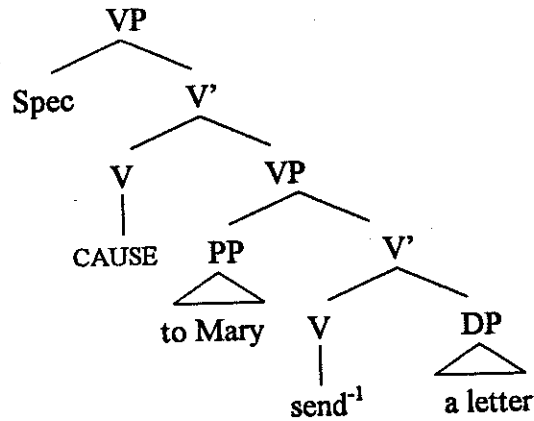
A significant consequence of this corollary is that it forces all (VP) parts of a predicate-argument complex to be meaningful. As such, it strongly argues against the view in the literature that the syntax can produce shell-type projections inside the predicate-argument structure that serve no real function other than making a specifier or head position available for movement. This approach is clearly visible in Larson's (1988) treatment of triadic verbs, where the higher VP layer is only a shell headed by an empty V that is included in the structure to provide a syntactic position for the verb *send*.



The derivation proposed in chapter 4 assumes that both VP layers are projected from predicates that have semantic content: The lower VP is headed by the lexical verb *send*⁻¹, and the higher VP, by the elementary predicate CAUSE.¹²

¹² The specifier is left empty in (24) to keep it parallel to Larson's structure in (23). A V⁻¹ is an incomplete verb that must combine with CAUSE in the syntax. The reason that the positions of the goal and theme arguments are switched will be discussed in chapter 4.

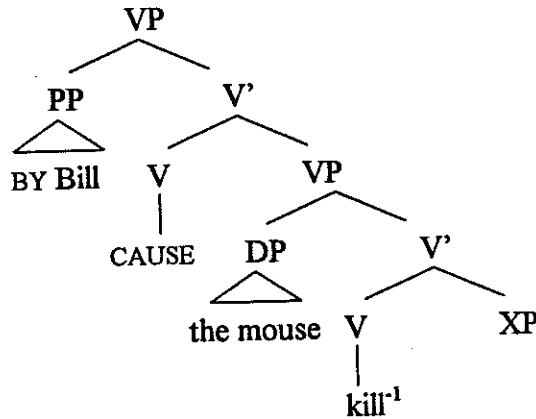
(24)



In this particular case, these two approaches yield compatible configurations. The differences are much more substantial and irreducible in other instances.¹³

A theory that adopts the Viability Corollary is necessarily more restrictive in terms of the structures it can legitimately generate. To give an example, it cannot assign the same type of VP architecture to *kill* and *touch*. Although they are both transitive verbs, only *kill* can support two well-defined and meaningful VPs.

(25) a. Bill killed the mouse
b.



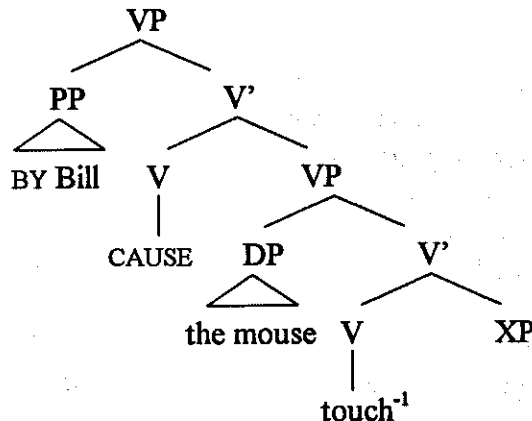
The lower VP in (25b) is headed by *kill*⁻¹, which refers to the state of the mouse. It is semantically equivalent to *die*, except that it needs to combine with CAUSE, and as such, it is a perfectly coherent and viable lexical item. By contrast, *touch* does not fit in a double-layered VP structure since the lower layer would have to be headed by an incoherent item

¹³Lexical Coherence prohibits the use of vacuous XPs only to provide the necessary specifier that would yield the correct word order, cf. Kayne (1994). It requires the head of each such XP to be a justifiable lexical entry. They should either contribute to the meaning or perform a well-defined syntactic function, such as Case licensing. In this view, word order is simply an incidental by-product and cannot be used as motivation to project structure into the syntax.

that means *be touched*, not a property or act that can be ascribed to the mouse.

(26) a. Bill touched the mouse

b.



This is true in general for all verbs that indicate contact in the abstract or concrete sense, such as *touch*, *kiss*, *see*, *watch*, and *mention*. They cannot be split into distinct VP layers because there is no lexically definable state that could be predicated of the surface object through a distinct verb.¹⁴

It must be clear from the discussion above that the optionality of thematic roles and the distribution of elementary predicates constitute the central theme of this work. The next section provides an overview of some of the basic issues and considerations that have shaped the debate on thematic relations over the years. The discussion is meant to establish the context for the theory that will be presented later in chapter 2.

2 Background on Thematic Relations

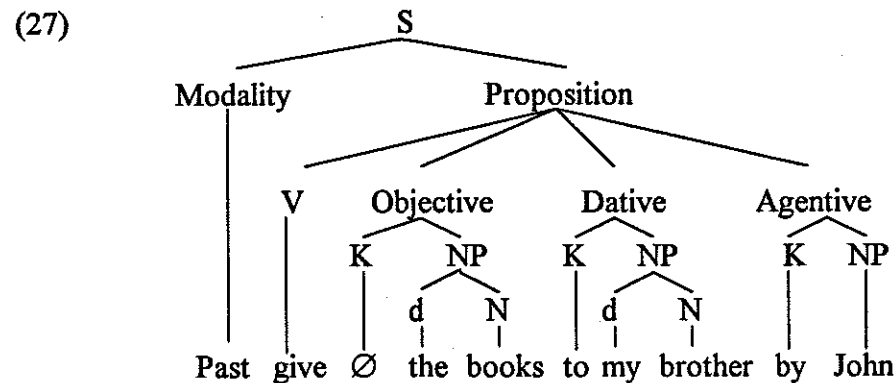
The theory of thematic relations that is developed in the following chapter presupposes familiarity with some of the points that have been raised in the literature. Chief among these are the disagreement on the degree of uniqueness in thematic role association, the distinction between spatial and eventive roles, and the question of whether or not thematic roles are theoretic primitives. This section provides some background that puts these issues in their proper context. It consists of three parts, reserved for a discussion on the theories constructed by Fillmore, Gruber and Jackendoff, and Dowty, respectively

¹⁴Empirical evidence for the structural difference between these verb classes is discussed in chapters 4 and 6. It is shown there that transitive verbs with double-layered VPs can form agentless passives, e.g., *The mouse was killed during the experiment*, where it is possible that no one actually killed the mouse. This reading is not available with verbs that project single-layered VPs, e.g., *The mouse was touched during the experiment* can only mean that someone touched the mouse. It will be argued, especially in chapter 6, that agentless passives are derived by combining the lower VP with the passive predicate PASS instead of CAUSE.

2.1 The Fillmorean Tradition

The theory of thematic relations laid out in Fillmore (1965) and (1968) has provided much of the groundwork for the standard θ -Theory adopted in the mainstream GB literature since Chomsky (1980). His work draws mainly from the implicit assumptions that have permeated the theory of syntax dating back to Chomsky (1957), as is evident in the very notion of movement, whichever way it is construed, which assumes the presence of a base position that the moved element originates in. The main function of deep/D-structure is to generate all elements in their base positions to account for the intuition that the subject in a passive sentence like *Bill was pushed*, in some sense, belongs in the object position. The relation between the derived subject and the passive form of the predicate, i.e., *Bill* and *push*, is the same relation that holds between the object and the active form of the predicate in *Mary pushed Bill*. This relation will be referred to in this work as a thematic relation, and the role of an argument in the predicate-argument structure *push* <*Mary*, *Bill*>, as its thematic role.

Fillmore's starting point was his assumption that subjecthood and objecthood are only surface phenomena. Without any subjects and objects, he envisioned a deep structure where the arguments are generated in a non-hierarchical manner under the Proposition node, which contains the predicate (typically the verb) and its deep cases, which are the event-based roles Agentive, Instrumental, Dative, Factitive, Locative, Objective, and Comitative (Fillmore 1968).¹⁵

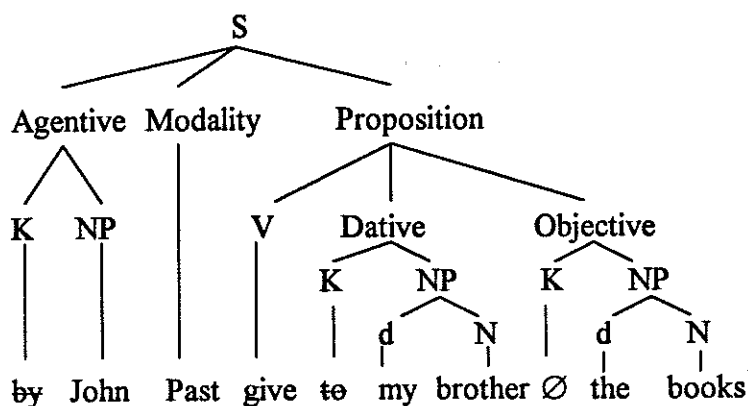


The transformations of subjectivization and objectivization create subjects and objects by moving these constituents to their respective positions and then deleting their case marker, K. These transformations can be seen simultaneously in the dative-shifted structures.¹⁶

¹⁵Dative is a combination of an experiencer and a possessor. Factitive is the object that is created as a result of the act, e.g., the object in *Leonardo painted Mona Lisa*. Objective is a label assigned to affected and unaffected objects. Fillmore (1968) explicitly downplays spatial relations, which are the centerpiece of Gruber's (1965) theory, see section 2.2.

¹⁶The structure of the Proposition is a precursor of the VP Internal Subject Hypothesis of Fukui and Speas (1986) and Kooman and Sportiche (1991), while the object-creating transformation anticipates the NP-movement to the accusative licensing position AgroP,

(28)



Crucially, predicates do not select their arguments categorially as NPs and PPs, but as thematic role labels, e.g., Agentive and Dative, which are then expanded to an NP with an appropriate case marker. The lexical entry of each predicate specifies the constellation of thematic roles it takes, i.e., its case frame, which is analogous to Stowell's (1981) θ -grid. In classical GB, by contrast, arguments are selected according to their categorial labels, so they must associate with their thematic roles through an independent procedure, such as the θ -assignment of Chomsky (1980) or the θ -marking of Chomsky (1986b).¹⁷ In Fillmore's theory, the mediated selection of arguments mechanically implements the thematic role biuniqueness that is familiar from the θ -Criterion of the classical GB and the Function-Argument Biuniqueness of the LFG. A simplified form of this biuniqueness relation can be stated as follows.

- (29) There is one-to-one correspondance (a bijection) between the thematic roles that a verb licenses and the arguments it selects.

An NP can be admitted into the Proposition in (27) only by being the expansion of a thematic role node, and a role node can expand into only a single NP (there may be coordination below this level).

The multiple-branching seen in (27) was common practice at the time, and it allowed Fillmore to generate all arguments in a flat structure with no hierarchical ordering. In this sense, his system does not have any version of Perlmutter and Postal's (1984) Universal Alignment Hypothesis or Baker's (1988) Universal Theta-Assignment Hypothesis that would constrain the structures it generates.¹⁸ Instead, it regulates the

that was later proposed by Kayne (1989) and Chomsky (1991).

¹⁷Both procedures implicitly assume that a thematic role is a syntactic feature analogous to Case. The alternative offered by Stowell (1981) and adopted in this work, is to have the predicate coindex its arguments in the syntax with the thematic slots in its lexical entry.

¹⁸The UAH states: 'There exists principles of universal grammar which predict the initial relation borne by each nominal in a given clause from the meaning of the clause' (Perlmutter and Postal 1984), whereas the UTAH states: 'Identical thematic relationships between items are represented by identical structural relationships between those items at

alignment of arguments as subjects and objects by a hierarchy that determines what the subjectivization and objectivization can take as their input in a given clause. The following shows the order in which arguments can become the subject.¹⁹

(30) Subjectivization Hierarchy (Fillmore 1968):

If there is an [Agentive], it becomes the subject; otherwise, if there is an [Instrumental], it becomes the subject; otherwise, the subject is the [Objective].

The X'-theory of Chomsky (1970, 1980) and the binary branching condition of Kayne (1984) force a more structured VP design in the classical GB and its offshoots, and make it necessary to generate the arguments according to some hierarchy. Therefore, the classical GB needs to align arguments at a much earlier level than Fillmore's system did.

2.2 The Gruber-Jackendoff Line

Gruber's (1965) theory of thematic relations grew out of his work on preposition incorporation in English, and as a result, it is primarily concerned with the concepts of motion and location. With the exception of Agent, all the roles in his system express spatial relations: Source, Goal, Location, and Theme. In addition to situations that involve concrete objects, these relations can cover abstract situations as well.²⁰

A significant way in which Gruber's system differs from Fillmore's is his treatment of thematic relations as interpretive properties that do not have the capacity to generate any arguments. As such, his system does not prohibit multiple associations between thematic roles and arguments. However, instead of stipulating a principle of thematic biuniqueness, Gruber exploits multiple associations to derive the agentive interpretations by allowing the Agent role to add on to the spatial roles like a second layer. This is how he differentiates the volitional and nonvolitional readings of *John rolled down the hill*. The subject *John* is a Theme in both readings because it moves; in the volitional reading, it also becomes an Agent. Similarly, the subjects of *buy* and *sell* are Agents since they are involved in volitional acts, in addition to being Goal and Source respectively.²¹ It is not

the level of D-structure' (Baker 1988).

¹⁹He does not include Dative in this hierarchy, but indicates elsewhere that the choice of the subject is lexically specified with verbs that have Dative-Objective case frame, such as *like* and *please*. It can be inferred from this that D and O have equal weight in the subjectivization hierarchy.

²⁰Theme is the most central role in Gruber (1965) and it is defined as the argument whose denotation either changes state/location, or has its state/location asserted. It is different from Fillmore's Objective: the object of *push* is a Theme for Gruber and an Objective for Fillmore, while the subject of *die* is a Theme for Gruber but a Dative (experiencer) for Fillmore. The notion of Theme most commonly invoked in the mainstream theories today is much closer to Fillmore's Objective than Gruber's original Theme.

²¹Sometimes the subject can be a pure Agent. These are typically the cases where the subject is a causer, and it is not involved in any change of state other than causing it.

clear, however, whether multiple role association is intended as an exceptional property of the Agent role, or a generally available option with all roles. The only combination Gruber explicitly argues against is the doubling of the same role in cases like **John received a book to Bill*, where *John* and *Bill* are both Goals. There is no discussion in Gruber (1965) as to whether an argument can be a Goal and a Source simultaneously.

The examples regarding multiple Goal and Source combinations are discussed in detail by Jackendoff (1972) in the context of countertransferral verbs. These are verbs that describe events where two distinct items change hands in opposite directions:

- (31) a. Harriet bought a pig from Zelda for \$5.98
- b. Zelda sold a pig to Harriet for \$5.98
- c. Harriet paid \$5.98 to Zelda for a pig

These examples contain two Themes: *a pig* and *\$5.98*, both of which have changed location. Each Theme argument has its own Goal and Source: *Harriet* is the Goal and *Zelda* is the Source of *a pig*, and *Zelda* is the Goal and *Harriet* is the Source of *\$5.98*. This means, the same argument, *Harriet*, is the Goal with respect to *a pig* but a Source with respect to *\$5.98*, which makes it a Goal and a Source at the same time, violating thematic biuniqueness.²² Jackendoff also points out that the direct object cannot be determined solely on the basis of the thematic role labels with these verbs. The fact that *buy* and *pay* take different Theme objects suggests that the choice of the direct object must be lexically specified.

Culicover and Wilkins (1986) provide further insight by systematizing the range of possible multiple associations in multiple predicate structures. One of their innovations is to relativize thematic role association with respect to predicates, such that an argument can simultaneously associate with two distinct roles licensed by two distinct predicates. For example, an argument A can associate with the role R_1 of a predicate P_1 and a role R_2 of another predicate P_2 as long as P_1 and P_2 are not the same predicate.²³ They also establish two autonomous sets of roles: (a) the extensional set consists of roles that express spatial relations, as in Gruber's Source, Goal, and Theme, and (b) the intensional set contains roles that are associated with the event structure, e.g., Agent, Patient, Instrument, and Benefactee.²⁴ They assume that every argument must associate with at

-
- (i) a. John turned the ball into a grapefruit
 - b. John rolled the ball down the hill
 - c. John reported to Mary that the war would end soon

²²Jackendoff (1972) handles this problem by encoding the primary and secondary events (*pig*-Theme and *\$5.98*-Theme) separately at the interpretive level, with each event taking its own coherent set of thematic relations.

²³The original intent of their system is to derive the PRO-control effects with infinitives and Small Clauses (causatives, resultatives, and so forth) without any null category PRO.

²⁴They define extensional roles as '[those that relate] to the human perceptual system, and

most one role from each set, relativized with respect to the predicate. Jackendoff (1987) expands on this idea and posits a two-tier system that places the extensional roles on the thematic tier, and the intensional roles on the action tier. The difference is, he does not make it obligatory for arguments to associate with a role from each tier as long as each argument associates with some role on some tier. A verb like *receive*, for example, provides no role in the action tier, while *push* provides none in the thematic tier.

In hindsight, it can be argued that the main achievement of the Gruber-Jackendoff is not the repeal of the thematic biuniqueness as a principle, but rather, its redefinition in ways that accurately reflect the event structure. Gruber (1965) makes a special case for Agents to account for volitional motion; Jackendoff (1972) relativizes the biuniqueness with respect to subevents, e.g., with verbs of countertransferal, and Culicover and Wilkins (1986) do the same thing with respect to predicates. It is also significant that both Culicover and Wilkins (1986) and Jackendoff (1987) distinguish between spatial and eventive roles, which is crucial for preserving the validity of thematic biuniqueness since the roles that belong in the same set/tier are more mutually exclusive than the ones that belong in different sets/tiers: The Patient of a predicate cannot be its Agent at the same time, but it can be its Theme or Goal as well.

Finally, a notable way in which Jackendoff's theory diverges from the Fillmorean tradition is that it does not regard thematic roles as primitives. In his system, a given role is defined with respect to the function that takes it as its argument in the lexical-conceptual representation. For example, a Goal is defined as the argument of the TO function, and a Source as the argument of the FROM function. He derives the Agent role by combining an Actor with the function VOL, where an Actor is the product of an Instigator combining with the function ACT, and an Instigator is the argument of CAUSE. These lexical functions are comparable to the concept of elementary predicates in what they achieve and how they operate except that they function at the lexical-conceptual level instead of the syntax.

2.3 Dowty's Theory

Dowty (1991) takes the question of primitiveness to the next step and argues that thematic relations should not be regarded as discrete entities in the first place. He treats them as nondiscrete interpretive generalizations that are best characterized as sets of entailments. These entailments are at the core of Dowty's system, and they provide the scales for Agenthood and Patienthood that determine the degree to which a given argument qualifies as an Agent or a Patient. In this conception, the roles Agent and Patient are not mere labels of fully-defined syntactic or semantic objects, but simply prototypes that actual arguments approximate. Each Proto-Role is a collection of five entailments.²⁵

to the categorization of objects as physical entities by virtue of their perceived properties', and intensional roles as '[those that relate] to objects with respect to their status as participants in actions'.

²⁵Dowty is noncommittal as to whether (32e) and (33e) should be included among the Proto-Agent and Proto-Patient entailments.

- (32) Proto-Agent
- a. volitional involvement in the event or state
 - b. sentience (and/or perception)²⁶
 - c. causing an event or change of state in another event
 - d. movement relative to the position of the event named by the verb
 - e. exists independently of the event named by the verb
- (33) Proto-Patient
- a. undergoes change of state
 - b. incremental theme²⁷
 - c. causally affected by another participant
 - d. stationary relative to movement of another participant
 - e. does not exist independently of the event, or not at all

Most arguments blend various Proto-Agent and Proto-Patient properties together, which makes them part Agent and part Patient. The argument with the most Proto-Agent properties is mapped onto the subject, and the one with the most Proto-Patient properties onto the direct object, while the rest remain as PPs.

Dowty defines roles other than the Agent and the Patient on the basis of the specific entailments in (32) and (33). For example, the Experiencer is sentience without volition or causation, while the Instrument is causation and movement without volition or sentience. In this system, the labels are not as important as the number of entailments they fulfill, and the issue of thematic biuniqueness matters only as far as it affects argument alignment. An important aspect of his theory is that the entailments directly factor into the alignment to order the coarguments of the same predicate, which allows him to avoid absolute hierarchies along the lines of 'Agent > Patient > Location'. Most of the intricacy in the alignment, however, is transferred to the choice of the entailments that constitute the Proto-Role scale. The theory needs to achieve a numerical balance between the Proto-Role entailments in order to maintain symmetry between the two sets. The particular way which this is implemented in Dowty (1991) relies on novel entailments to achieve the balance. The Proto-Role properties are not equivalent to features because the Proto-Agent and Proto-Patient properties are not always in opposition, e.g., there is no Proto-Patient entailment that is the opposite of 'sentience', and no Proto-Agent entailment that is the opposite of 'incremental theme'. They are also redundant to some extent, e.g., volitional involvement requires sentience.

²⁶Sentience is relativized with respect to the event or state denoted by the verb. This is because the objects of *nominate*, *idolize*, or *convict*, although necessarily human, do not have to be aware that they are nominated, idolized, or convicted.

²⁷This is the argument that 'measures out' the event in the sense of Tenny (1990). Dowty takes this to be a general property of arguments that is not necessarily restricted to objects. For example, just as *a glass of beer* measures out *drink* in *I drank a glass of beer*, the subject *the crowd* measures out the exiting in *The crowd exited the building*.

This approach poses difficulties that are illustrated by verbs of psychological states, which take Experiencer and Stimulus arguments. Dowty (1991) assumes that the argument alignment alternations with *please* and *like*, e.g., *The news pleased John* versus *John liked the news*, must be handled by lexically specifying the argument that will be mapped onto the subject. This means that the Experiencer and Stimulus arguments must have the same number of Proto-Agent and Proto-Patient entailments, so that the ordinary alignment principles can be rendered ineffective. They do, in fact, have one Proto-Agent property apiece: The Experiencer is sentient, and the Stimulus causes a change of state. However, it also turns out that they have equal number of Proto-Patient properties, which is not addressed in the discussion: Although the Experiencer undergoes a change of state and is perhaps causally affected by the Stimulus, the Stimulus has no readily identifiable Proto-Patient properties. This would force the Experiencer to be always mapped onto the object, making the *please* and *frighten* variety the only legitimate one, which is neither the case, nor what Dowty (1991) intends.

3 Conclusion

Despite their sometimes radical differences, all the theories sketched out in this section contribute greatly to the theory developed in chapter 2. The theory disregards the spatial roles and concentrates on the eventive ones. Following the Fillmorean line of research, it assumes that the association with thematic roles takes place in the syntax, though it does not grant them the power to generate arguments, i.e., thematic role association does not overlap with categorial selection. It allows multiple role association, in ways that are slightly different from Culicover and Wilkins (1986). Elementary predicates serve the same purpose as the lexical-conceptual functions do in Jackendoff's system. Finally, as mentioned above, it adopts Dowty's view that thematic roles must be determined on the basis of the event structure.²⁸ A coherent view of thematic relations emerges from this unique blend of ideas to provide the basis for much of the discussion that follows in later chapters.

²⁸One can also make the case that the concept of deriving thematic roles from thematic properties advocated in chapter 2 is a variation on Dowty's entailments. This is true only to a certain extent. The thematic role decomposition presented in that chapter also owes a great deal to J. Anderson's (1971, 1977) work on case features.

Chapter 2

THEMATIC RELATIONS

The predicate-argument structure defines the core meaning of a clause, and it is what gets modified by inflectional categories like tense and negation, and by adverbial elements. It denotes an event or state where the arguments refer to the participants that take part in the event/state, whereas the predicate refers to the state of affairs that is the essence of that event/state. The way in which a participant takes part in an event/state is the thematic role of the corresponding argument. The way that the participant relates to the state of affairs is the thematic relation borne by the corresponding argument with respect to the predicate. According to Dowty (1991), thematic relations between the arguments and the predicate are determined solely on the basis of the internal organization of the event/state described in the clause. This is adopted as the Event-Based Nature of Thematic Roles in chapter 1.

This chapter reduces the number of available thematic roles to four and eliminates all optional roles by either reanalyzing them as instances of the basic roles Actor, Neutral, Experiencer, and Patient, or by introducing them as specifiers of distinct (elementary) predicates. For example, it treats the traditional Instrument subject in *The brick broke the window* as an inanimate Actor, and the Beneficiary role of the *for*-phrase in *Bill baked a cake for Sue* as the *for*-phrase Experiencer specifier of the predicate BEN, meaning 'is the beneficiary of'.¹ It also provides an event-based characterization of the basic role types by decomposing them into the properties of affectedness and protagonism (event prominence), which are the true primitives of the theory developed here.

This chapter is organized as follows. Section 1 looks at the thematic role biuniqueness, which states that every thematic role is assigned to a unique argument and every argument is assigned a unique thematic role. It is argued there that this principle should be considered as a limitation on the number of arguments that a given role can associate with or the number of roles licensed by the same predicate that a given argument

¹It will be argued in section 2.3 that the source of Beneficiary arguments is as in (i), and that the surface order is derived by moving the subject and the object to their Case licensing, and the verb to some higher inflectional head at S-structure.

(i) [VP [for Sue] BEN [VP Bill bake [a cake]]]

can associate with, but not as a prohibition against the ability of predicates to specify two roles that happen to be of the same type, i.e., bearing the same role label. Evidence favoring this interpretation of thematic biuniqueness comes from verbs like *multiply* and *combine*, which allow the conjunction of their arguments without any real change in the meaning, e.g., *Bill multiplied five *(by seven)* as opposed to *Bill multiplied five and seven*. The ability of predicates to license multiple arguments with the same role type becomes significant in the discussion on the expected patterns of role distribution in section 4.

Section 2 employs two strategies to eliminate thematic role optionality. It first follows the event-based definition of thematic roles adopted in chapter 1, and reduces the number of distinct role types. In the first part, it discards volitionality as a relevant criterion in differentiating thematic roles and argues that it is a non-thematic interpretive property that arises when an Actor argument moves through the specifier position of the elementary predicate VOL, cf. Jackendoff (1987). In the second part, it turns to the other agentive roles, Instrument and Force, and merges them with the Actor role invoking a corollary to the Event-Based Nature of Thematic Roles that excludes any intrinsic property of an expression from determining the thematic role it bears. The third part discusses the second strategy, which is to introduce all adjunct-type optional roles as specifiers of elementary predicates. This proposal is presented in the context of the BEN predicate that generates the Beneficiary argument.

Sections 3 defines the four basic roles, Actor, Experiencer, Neutral, and Patient, and decomposes them into two event-based properties, affectedness and protagonism. Finally, section 4 proposes a set of two hierarchies that map the basic roles onto the arguments according to their affectedness and protagonism, instead of ranking the roles themselves as units. It is also suggested there that the feature of protagonism takes precedence over the feature of affectedness in argument alignment.

1 Thematic Biuniqueness

Thematic biuniqueness mandates that every argument associate with a unique thematic role and that every role be associated with a unique argument. It can be formulated in more specific terms as follows.

- (1) Thematic Biuniqueness:
 - a. Uniqueness of thematic roles: Each argument associates with a unique thematic role licensed by the predicate.
 - b. Uniqueness of arguments: Each thematic role licensed by the predicate associates with a unique argument.

This principle appears in different forms in various frameworks, such as the θ -criterion in the classical GB, and serves the same vital function in all its incarnations. It ensures that a fundamental component of its lexical meaning, the thematic nature of the predicate, will be preserved in the syntax, also see Chomsky's (1980) Projection Principle.

Following Fillmore (1968) and Stowell (1981), this work assumes that each predicate has thematic slots specified individually in the lexicon, and that the sum of these slots defines a thematic frame. The verb *bite*, for example, has the following frame.

- (2) *bite* < [Actor], [Patient] >

Each set of brackets inside the angled braces in (2) corresponds to a thematic slot, and the term inside the brackets is the label of the thematic role provided by the slot, which specifies the role type. An argument associates with a given role by coindexing with its corresponding slot as suggested by Stowell (1981). The indices are typed as superscripts in (3) to distinguish them from the conventional indexing used in the binding theory.

- (3) a. *bite* < [Actor]ⁱ, [Patient]^j >
b. [_{VP} [the man]ⁱ bite [the dog]^j]

The indexation mechanism will become important in chapters 3 and 4.

There are two ways to interpret thematic biuniqueness. In the label-based reading, no two slots can bear the same role label, which means verbs cannot license two roles of the same kind. In the slot-based reading, arguments are forced to associate with a unique slot, without paying any attention to what type of role each slot is labeled as in the lexicon. In this view, arguments can associate with the same type of roles as long as each role corresponds to a distinct slot. It will be argued in this section that the correct approach to thematic biuniqueness is the slot-based version. Although it is more permissive, this particular interpretation can still effectively regulate the mapping between the thematic slots of a predicate and its arguments in the clause, and it does not generate arguments that have no thematic justification.

There have been arguments in the literature against the label-based versions of thematic biuniqueness. As noted in chapter 1, Jackendoff (1972, 1987) raises this issue with respect to verbs of counter-transferal, where for example in *Bill bought the table from Mary for 120 dollars*, Bill is the Source for the money and the Goal for the table; Mary is the Source for the table and the Goal for the money; while the money and the table are Theme arguments since they both change locations. Dowty (1991), on the other hand, draws attention to the class of predicates that indicate two entities that are identical or comparable in some respect, where the arguments can be switched around without any significant change in the meaning.

- (4) a. John resembles his father
b. Square root of nine equals three
c. Clark Kent is Superman

There are other verbs that describe symmetrical states with arguments that are just as interchangeable, suggesting that their denotations participate in the state the same way.

- (5) a. These earrings complement that necklace
b. This tie matches that jacket
c. The 5th Street parallels the 7th Street.

Although interchangeability indicates identical thematic roles, the absence of it alone does not necessarily mean that the arguments have different roles. For example, reversing the arguments changes the meaning quite radically with verbs that describe a spatial, temporal,

or logical order or inclusion between participants. Nevertheless, it is very hard, if not impossible, to distinguish these coarguments thematically.

- (6) a. His surgery predates/precedes his wedding
- b. The records indicate/prove his innocence
- c. The walls surround/contain a well-preserved chamber

The choice of the subject with symmetrical verbs of both the *resemble* type in (1) and the *complement* type in (4) is determined solely by the speaker's point of view (Dowty 1991). Similarly, the alignment of arguments with nonsymmetrical verbs like *predate* and *prove* is also determined by a nonthematic criterion; though in this case, by the semantics of the verb in terms of the type of ordering or inclusion relation it denotes.

The stative verbs in the examples above appear to be licensing two independent roles that happen to be of the same type, i.e., the Neutral role, see section 3. The same type of role distribution is possible with eventive verbs as well, especially with those that denote symmetrical acts. One of the internal arguments of these verbs is a *with*-phrase that is normally not optional.

- (7) a. Bill multiplied five *(by seven)
- b. Sue confused Bill *(with John)²
- c. Mary compared Venus *(with the Earth)

The direct objects and the *with*-phrases are clearly not interchangeable in (7), but they can be conjoined as a single phrase, which indicates that both slots have the same type of thematic role (Fillmore 1965).

- (8) a. Bill multiplied [five and seven]
- b. Sue confused [Bill and John]
- c. Mary compared [Venus and the Earth]

The obligatory nature of the *with*-phrase in (7) reflects the fact that the acts denoted by *multiply*, *confuse*, and *compare* require two objects, which are mapped onto the syntax with two distinct internal arguments.³ The conjunction creates a single constituent in (8), and yet the thematic requirements of the verb are satisfied. The conjuncts cannot be individually associating with distinct roles as if they were independent arguments, since a

²The *with*-phrase cannot be omitted with *confuse* in (7b) in the 'misidentify' sense, but it can be dropped in the 'cause confusion' sense.

³When more than two numbers are multiplied or more than two objects are compared, they are placed in binary groups.

- (i) a. Bill multiplied [five] [by seven and eight]
- b. Bill multiplied [five and eight] [by seven]
- (ii) a. Mary compared [Venus] with [the Earth and Mars]
- b. Mary compared [Venus and Mars] [with the Earth]

single constituent can also have the same effect as long as it is a plural expression.

- (9) a. Bill multiplied [the numbers]
- b. Sue confused [her nephews]
- c. Mary compared [the planets]

The crucial point here is that the acts of multiplying, confusing, and comparing have exactly the same nature in all these cases, and they still require two independent entities that would ordinarily correspond to two internal arguments, which in these cases, are expressed with a single argument in the syntax.

Other verbs that display the same type of reduction actually alternate between triadic and diadic forms, such as *pair*, *merge*, *combine*, *mix*, *link*, and *switch*.⁴⁵

- (10) a. The boys paired with the girls for the closing number
- b. The first lane merged with the second lane
- c. The cement mixed with the water
- (11) a. The choreographer paired the boys with the girls for the closing number
- b. The highway patrol merged the first lane with the second lane
- c. The man mixed the cement with the water

The number of arguments in these examples can be reduced through conjunction.

- (12) a. The boys and the girls paired for the closing number
- b. The first lane and the second lane merged
- c. The cement and the water mixed
- (13) a. The choreographer paired the boys with the girls for the closing number
- b. The highway patrol merged the first lane with the second lane
- c. The man mixed the cement and the water

Plural expressions can substitute for the conjunctions in (12) and (13).

- (14) a. The dancers paired for the closing number
- b. The first two lanes merged
- c. The ingredients mixed
- (15) a. The choreographer paired the dancers for the closing number
- b. The highway patrol merged the first two lanes
- c. The man mixed the ingredients

⁴Some verbs that are strictly diadic, such as *kiss*, *meet*, *negotiate*, and *collide*, also display the same pattern: *Bill kissed with Mary* as opposed to *The students kissed*. Unlike the ones discussed in the main text, these verbs have overt reciprocal markers in Turkish, so they presumably have a covert reciprocal derivation.

⁵It will be argued in chapter 4 that the valency alternation seen with these verbs is derived by incorporating the diadic form of the verbs into a null CAUSE.

The availability of conjunction with these verbs suggests that the entities denoted by each conjunct participates in the pairing, merging, and the mixing events in the same way.

It is plausible to assume that argument reduction is licensed by the presence of some covert reciprocal, where the underlying form of *Sue confused her nephews* is *Sue confused her nephews with each other*, and the *with*-phrase does not surface as an overt argument. Whatever mechanism licenses covert reciprocals in these cases, it is clear that this reduction pattern is possible only when arguments have identical thematic roles. For example, *Bill showed the students* cannot mean that Bill showed the students to each other. Based on the behavior of these verbs, and the others cited previously, one can then conclude that the principle of thematic biuniqueness only enforces a one-to-one correlation between arguments and thematic slots, but it does not say anything about the type of labels that can be assigned to a thematic slot in the lexicon.

2 Thematic Role Optionality

There are two types of thematic role optionality that have been traditional in the literature. The sentences below display the substitution type, where the roles are in complementary distribution. In classic theories, the subject is an Agent in (16a), a Force in (16b), and an Instrument in (16c), and the choice of one excludes the others.

- (16) a. The demonstrators demolished the house
b. A hurricane demolished the house
c. A bulldozer demolished the house

In the adjunct type, one can add the optional roles without excluding any other. The *for*-phrases below are Beneficiaries, and the *with*-phrases are a Comitative in (17a) and an Instrument in (17b).

- (17) a. John baked a cake (for Mary) (with his mother)
b. Bill painted a picture (for Sue) (with that brush)

It was argued in chapter 1 that both types of role optionality must be removed from the grammar, and the reasoning was the following. These slots cannot be optionally present in the lexicon: *demolish* either specifies an Agent slot in its frame or not; *bake* and *paint* either specify Beneficiary, Comitative, and Instrument slots or not. The Unpredictability principle and its Dissimilarity Corollary discussed in chapter 1 prohibit assigning multiple representations for each verb, i.e., there cannot be multiple entries of *demolish* and *bake* each with different frames, e.g., *demolish*₁ with an Agent slot, *demolish*₂ with an Instrument slot, or *bake*₁ with a Beneficiary slot, *bake*₂ without a Beneficiary slot.

(18) The Dissimilarity Corollary:

In the lexicon, a lexical item L₁ cannot be identical to an L₂ in every respect, e.g., semantically and phonologically, except for some isolated syntactic property.

Once specified, these slots cannot be mapped optionally since this would violate thematic biuniqueness, which forces all slots to be mapped onto some argument in the syntax. Note also that the adjunct-type phrases cannot be covert when they are absent in the clause since *John baked a cake* does not necessarily mean that he baked the cake for anyone.

Role optionality is eliminated in this section in two ways: The substitution-type roles are reanalyzed as instances of the same role in section 2.1, and the adjunct-type roles are introduced as specifiers of elementary predicates in section 2.2.

2.1 Thematic Invariance

From the model-theoretic perspective, the exact identity of the participants in a given situation makes a difference in distinguishing one event/state from another, i.e., Bill reading a book is not the same event as Sue reading a book. However, thematic relations are not sensitive to the identity of the participants, so Bill and Sue are assumed to have engaged in the same type of act (book reading) when they are reading a book. This is due to the definition of thematic relations, which disregards the identity of the participants in an event/state. By the same token, the identity of the event does not matter much either. The relation between Bill and book reading is roughly the same as his relation would be with sandwich eating. In both cases, he performs some act that defines the event as book reading or sandwich eating, which distinguishes it from the role of the book and the sandwich in the book-reading and sandwich-eating events, since neither one performs any act in these events.

The irrelevance of the identity of the participants is taken further in this subsection to claim that the intrinsic properties of an expression that acts as an argument should be just as irrelevant in deciding its thematic role, whether it is animacy, humanness, or shape and color. In other words, it should not matter if it was a brick that broke the window, or the wind, or, some child, just as it makes no difference what color the brick was or what the name of the child was. The participant that breaks the window corresponds to the Actor of the clause that describes the window breaking. This is essentially a corollary of the event-based definition of thematic roles stated below (see chapter 1).

(19) **The Event-Based Nature of Thematic Roles:**

The thematic role of an argument is determined solely by the way its denotation participates in the event or state described in the predicate-argument structure.

(20) **The Invariance Corollary:**

The thematic role of an argument does not vary on the basis of the lexical properties of the category that occupies the argument position.

The Invariance Corollary effectively removes volitionality from the theory of thematic relations, and allows the reanalysis of the traditional Agent as Jackendoff's (1987) Actor. As will be seen in section 2.1.2, it also discards animacy and the potential to self-propel, and unifies the traditionally distinct roles of Agent, Instrument, and Force as an Actor.

2.1.1 The Volitionality Problem

Volitionality has traditionally been a defining characteristic of the Agent role, so much that Gruber (1965) and Jackendoff (1972) assume that the Theme subject that changes location in *John rolled down the hill* also becomes an Agent when the rolling down is intentional. However, the principle of event-based roles in (19) defines thematic roles only by the internal organization of the event/state. Volitionality does not change the role of the participant in an event/state, so it should not qualify as a relevant criterion that can

differentiate between thematic role types.

The tangential nature of volitionality in the core event can be seen in the following examples, which are all ambiguous between the intentional, incidental, and accidental readings, as are most eventive verbs.

- (21) a. John erased all the files
b. Mary confessed to her crimes
c. Bill burned the scrambled eggs
d. Sue broke the window

However prominent the deliberate act reading may be in these examples, it is also possible to accidentally erase a file, confess to a crime, burn eggs, or break a window with no prior intention. It is equally possible that all these are the incidental and unforeseen outcomes of intentional acts that were initiated with different purposes in mind, such as erasing only a single file, discussing the crime, making some eggs, or swatting a fly on the window. The incidental reading is best characterized as the accidental result of a deliberate act, and contrasts with the accidental and intentional readings, i.e., the accidental result of an accidental act, and the intended result of an intentional act, respectively.⁶ In all three readings, however, the basic organization of the events remains unchanged: John still erases the files, Mary still confesses, and so on.

There is also a very practical reason why volitionality should not be considered a relevant criterion in determining thematic roles. Namely, it is not an exclusive property of Agent arguments. This is shown in the following examples, which allow the construal that the kidnapping or the mugging is planned by the person who is being kidnapped or mugged. The target of these acts corresponds to the internal argument promoted to the subject position in the passive construction, i.e., the Patient argument, see below.

- (22) The ambassador was (deliberately) { kidnapped }
 { mugged |
 { robbed |
 { injured |
 { caught | }

These sentences are ambiguous between the kidnapper-intentional and the kidnappee-intentional readings. This ambiguity is not available with other verbs.

⁶I thank Robin Belvin for drawing my attention to this reading. It is not important for the discussion here whether this reading is fully independent or produced by combining parts of the accidental and intentional readings.

(23) The ambassador was (deliberately) { nominated }
 { selected }
 { pleased }
 { ignored }
 { ridiculed }

In these instances, the act of being nominated or selected cannot be intentional on the ambassador's part. Crucially for (22), volitionality is available for the Patient argument only when it appears as a subject, but not when it appears as an object.

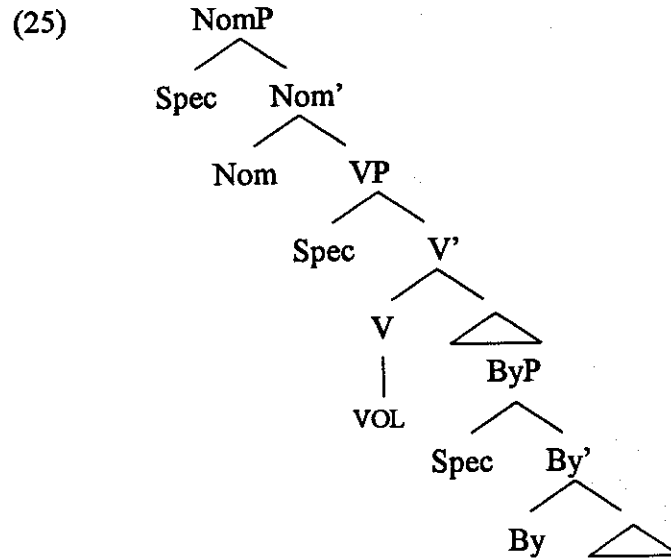
(24) The men (deliberately) { kidnapped } the ambassador
 { mugged }
 { robbed }
 { injured }
 { caught }

The ambassador cannot be the deliberate recipient of these acts in (24), which suggests that volitionality can be associated only with subjects and the passive *by*-phrases.⁷

Volitionality can be made available for specifically these arguments by assuming that it is contributed by a designated position that only subjects and the passive *by*-phrases have access to. It is plausible to presume that this position is introduced into the structure as the specifier of an elementary predicate, VOL, that is equivalent to Jackendoff's (1987) VOL function.⁸ Anticipating the clausal architecture presented in the following chapters, the relevant portion of the structure would be as follows.

⁷Martin (1991) argues that volitionality is associated with the subject position.

⁸Zubizarreta (1982) takes the adverb *deliberately* to be the source for the secondary role assigned to the volitional subjects.



NomP and ByP are defined in chapter 3 as the positions where nominative arguments and *by*-phrases are structurally licensed. Normally, the *by*-phrase moves to the [Spec, VP] of VOL at LF in passives, but in some contextually (or lexically) determined cases, the derived subject can move through the specifier of VOL before it reaches the [Spec, NomP] at S-structure. Other inflectional projections like tense and negation are located between the ByP and NomP, and they do not interact with the movement to the specifier of VOL.⁹

Volitionality is an integral feature of the traditional Agent role, so Jackendoff (1987) uses 'Actor' for the agent-like role that lacks the volitionality component. He treats Actor as the participant that performs the act denoted in the clause.¹⁰ In this sense, the subjects of both *kill* and *murder* are Actors, even though *murder* specifically requires a volitional subject.¹¹ Without any distinct Agent role, these verbs cannot be distinguished by specifying Agent and Actor arguments. Instead, the difference must come from a lexical requirement that *murder* must combine with VOL, which is not required of *kill*. The base forms of the *murder*-type verbs can be tagged with a raised 'V' in their lexical

⁹It will also be argued in chapter 5 that there is another VP that lies between the ByP and the VP of VOL, and it is headed by the predicate CONT ('control'), whose function is to check whether the subject or the *by*-phrase in the passive construction is capable of sustaining the event/state denoted in the clause.

¹⁰Jackendoff (1987) actually derives Actor by using the operator ACT. I diverge from his analysis by assuming that Actor is a basic role and that the use of the ACT predicate is confined to cases where an original Neutral optionally appears as an Actor, see section 4.

¹¹This is actually a misleading statement since as argued in chapter 4, *kill* is derived by a causative structure, and CAUSE takes a Neutral specifier (chapter 3). This is why the subject of *kill* need not perform any act, as in *The rumors about his wife killed John*, which defines Neutrals, see below. This point is ignored here for expository purposes.

representation, i.e., *murder*^V.

2.1.2 Animacy and Other Intrinsic Features

As stated in the Invariance Corollary in (20), the intrinsic properties of the phrase that serves as an argument are irrelevant for the internal organization of an event/state. As a result, it does not matter whether or not the demonstrators in (16) are animate and self-propelling (Agent/Actor), the hurricane is inanimate and self-propelling (Force), and the bulldozer is inanimate and not self-propelling (Instrument).

- (16) a. The demonstrators demolished the house
b. A hurricane demolished the house
c. A bulldozer demolished the house

Under the event-based definition of thematic roles in (19) and the Invariance Corollary in (20), all three subjects would bear the same thematic role as long as they participate in the demolition the same way, as the party that initiates the demolition.

By constraining the set of criteria that distinguish between thematic roles, the Invariance Corollary unifies traditionally distinct thematic roles like Agent, Instrument, and Force. This merger also explains why these three roles cluster the way they do, and why verbs that allow an Instrument or Force subject also allow an animate Actor subject, i.e., Instrument \rightarrow Force \rightarrow Actor (animate). Since they are all Actors, a verb that can take an Instrument or Force subject would also take an animate Actor subject. This relation does not hold in reverse, i.e., Actor (animate) \nrightarrow Force \nrightarrow Instrument, simply because some verbs require their subjects to be animate or be capable of self-propelling. For example, *add* needs an animate subject, as in *Bill added the numbers* but not **The abacus added the numbers*.¹² Crucially, neither animacy nor any other intrinsic property of a syntactic expression factor into the theory of thematic relations.

2.2 Elementary Predicates

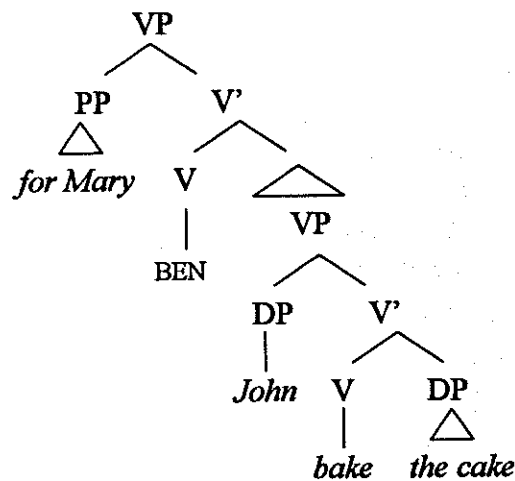
As argued above, the adjunct-type roles such as the Beneficiary cannot be provided by the lexical verb, i.e., *bake* and *paint* in (26).

- (26) a. John baked a cake (for Mary)
b. Bill painted a picture (for Sue)

This suggests that they are introduced by an elementary predicate, BEN, that takes the *for*-phrase as its specifier and the main VP as its complement. The basic structure is schematized in the diagram below.

¹²It will be argued in chapter 5 that different verbs may require different levels of animacy of their subjects, cf. *The calculator added the numbers*. This will be presented as the primary justification for the predicate CONT mentioned in a previous footnote above.

(27)



This particular organization of VPs and arguments satisfies Event Transparency and the Lexical Core Principle discussed in chapter 1, since Beneficiaries are understood to be benefiting from the event as a whole.

(28) The Event-Transparency of the Syntax:

The parts of a predicate-argument complex are organized the same way as the corresponding parts of the complex event or state that the predicate-argument complex describes.

(29) The Lexical Core Principle:

The core event in a complex event corresponds to the lexical base in a complex predicate.

The surface order in *John baked a cake for Mary* is derived by moving the subject and the direct object to the nominative and accusative Case licensing positions, and the verb to the some inflectional head above the accusative position, see chapter 3.

The *for*-phrase specifier of BEN is an Experiencer argument that experiences the benefit, or in the terminology presented in section 3 below, changes its status as a response to the benefit offered by the situation. The correlation between Beneficiaries and Experiencers can be seen more clearly with the verb *benefit*, which has two forms, *benefit* and *benefit from*.

- (30) a. The recent changes in the regulations benefitted John
b. John benefitted from the recent changes in the regulations

In (30), *John* is an Experiencer whose status changes as a result of the new regulations. This type of alternation is very similar to the one displayed by Neutral-Experiencer verbs like *please/like*, *frighten/fear*, and more to the point, *worry*.

- (31) a. The recent changes in the regulations worried John
b. John worried about the recent changes in the regulations

In Turkish, the verbs corresponding to those in (30) also appear in related forms *yara*

'benefit' and *yararlan* 'benefit from'.¹³

- (32) a. *Yasa-lar-da-ki son deęişiklik-ler Ahmet-e yara-dı*
 law-PLR-LOC-REL latest change-PLR-NOM A.-DAT benefit-PAST-3SG
 'The latest changes in the laws benefited Ahmet'
- b. *Ahmet yasa-lar-da-ki son deęişiklik-ler-den yararlan-dı*
 A.-NOM law-PLR-LOC-REL latest change-PLR-ABL benefit.from.PAST-3SG
 'Ahmet benefited from the latest changes in the laws'

The conclusion must be, then, that the Beneficiary role is actually an instantiation of the Experiencer role under special circumstances, either through the predicate BEN, or in the context of lexical verbs *benefit* and *benefit from*.

3 Thematic Properties

For practical reasons, it would be a daunting task to identify a complete set of thematic roles through deductive means, because it would require a survey of all predicates in all languages. Therefore, we simply postulate the four basic role types Actor, Experiencer, Neutral, and Patient, and assume that all traditionally distinct roles are derived from these four. It will be shown in the next section that the number of roles cannot be further reduced to two without compromising the procedure that correctly aligns arguments.

The basic roles can be described roughly as follows. An Actor manipulates the event, an Experiencer responds internally to some event/state, a Neutral remains outside the event/state, and a Patient undergoes a change of state as a result of the event. Even though these roles are basic, they are not atomic. They are each formed as a combination of two event-based properties: affectedness and protagonism (event prominence). Affectedness refers to the change of state that the denotation of an argument undergoes as a result of the event, and protagonism is determined by the active participation of the denotation of an argument. These properties distinguish the basic roles as follows.

(33)

Actor	Unaffected Protagonist
Experiencer	Affected Protagonist
Neutral	Unaffected Nonprotagonist
Patient	Affected Nonprotagonist

Note that these properties are intended as primitives, and as such, neither their significance nor their function in the theory need to be predicted from anything else. The crucial point is that they can credibly derive the four basic role types, draw the right distinctions between them, and that they are sufficiently grounded in the internal organization of

¹³It will be argued in chapter 4 that the alternations with verbs like *like* and *please*, or *fear* and *frighten* are derived through causative structures. However, the *yararlan/yara* alternation in Turkish has no causative morphology, so it may need to be derived from a slightly different source that relates *yararlan* to the nominal form *yara* 'benefit', analogous to the derivation of the verb *yaralan* 'be wounded' from the noun *yara* 'wound'.

events and states, as shown in this section.

Note that a full-fledged feature decomposition of thematic roles was previously proposed by J. Anderson (1971, 1977), while Rozwadowska (1988) presents a more partial analysis.¹⁴ What sets the current work apart from their is the low number of features it employs, ultimately because it has fewer roles to differentiate. Since it requires less features to be defined, the theory can avoid the overlaps and redundancies found in the other models, e.g., the Cause and Change features in Rozwadowska (1988).

The first part of this section introduces affectedness, which separates Experiencers and Patients from Actors and Neutrals. The second part looks at protagonism, which distinguishes Experiencers and Actors from Patients and Neutrals.

3.1 *Affectedness*

Affectedness is the property that separates the affected roles, Experiencers and Patients, from the unaffected ones, Actors and Neutrals. Rozwadowska (1988) establishes Neutral as an independent thematic role contrasting with the traditional Patient in order to account for M. Anderson's (1979) Affectedness Principle, which states that only affected objects can possessivize inside DPs.

- (34) a. *Algebra's knowledge (by John)
- b. *Cars' love (by Mary)
- c. *The facts' ignorance (by Bill)

Maling (1993b) observes that middle formation is also sensitive to affectedness, such that affected arguments, as in (35), are allowed as the derived subjects of middles as opposed to unaffected arguments, as in (36).

- (35) a. This surface scratches easily
- b. This wood rubs easily to a shiny finish

- (36) a. *Cats scratch easily behind the ears
- b. *Backs rub easily

The fact that affectedness has syntactic effects alone is not enough to qualify it as a property that distinguishes between thematic roles.¹⁵ It is more important in this respect that affectedness reveals something fundamental about the event/state described in the clause. Clearly, an event or state that changes the attributes of some participant necessarily has a very different internal organization compared to other events or states

¹⁴Dowty's (1991) Proto-Role entailments are similar to the feature analysis in spirit, but they are not designed with the same type of logic. Most significantly, they are not established as sets of binary oppositions. For more discussion, see chapter 1, section 2.3.

¹⁵Pseudo-clefting is not a useful test because it can be licensed pragmatically as long as there is some affectedness entailed in the context, e.g., *What happened to me is that my brother was kidnapped*, where *I/me* is not even an argument of the clause *My brother was kidnapped* (Tim Stowell, personal communication).

that do not cause any such change in any participant.

The informal understanding of affectedness as a change in the state of a participant can be formulated in more explicit terms as follows.

(37) Affectedness:

For a participant P denoted by an argument A, State₁ is the state of P in the event or state denoted by a predicate Pred, and State₂ is the state of P in the event or state denoted by the negation of Pred.

- a. If State₁ = State₂, A is unaffected
- b. If State₁ ≠ State₂, A is affected

The term 'state' refers to the physical, and if applicable, mental and social properties that make up the participant in question. Therefore, an individual changes states by burning, acquiring a new color, having a thought or desire, or by being promoted or offended. It does not change states by standing at a location, moving from one place to another, being seen or noticed, or by eating food.¹⁶ Note that ownership and possession also qualify as social attributes, so that one can change states by coming into the possession of some object as well.

There are two crucial points in determining affectedness. First, one must evaluate only the predicate-argument structure and exclude all thematically irrelevant inflectional material like modality and negation. This guarantees that the affectedness of the object *the window* in (38) below is decided by the same core *John break the window* regardless of whether or not the full sentence entails that the window is actually broken.

- (38) a. John broke the window
b. John will break the window
c. John could have broken the window
d. John did not break the window

The second point is an application of the Invariance Corollary in (20): Contextual information does not determine the affectedness of an argument, whether it is provided syntactically or pragmatically. For example, the object of the verb *touch* is not affected by the touching in terms of linguistic affectedness, even though in the real world, the final state of the recipient of the touching depends mostly on what is doing the touching.

- (39) a. A feather touched the man
b. A 2000 volt live wire touched the man

¹⁶Verbs of creation, which license the Factitive role in Fillmore (1968), can be defined with the zero State₂, while the verbs of destruction have a zero State₁. For some reason, the created arguments do not act like affected arguments, i.e., **Masterpieces composed easily in the 19th century* and **The 7th Symphony's composition by Beethoven*. By contrast, destroyed arguments seem to be affected, i.e., *?Old cities destroy very easily* and *The city's destruction by the enemy*. I do not have any explanation for this behavior.

Obviously, a person touched by a feather would not be in the same state as a person touched by a 2000 volt live wire. However, this is not due to the touching itself, but rather, what follows the touching. Any difference in the states of *the man* in (39a) and (39b) is because of the properties of the feather and the live wire, which is contextual information that is deemed irrelevant by the Invariance Corollary.

Affectedness has the following distribution across the four basic thematic roles: Actors and Neutrals are unaffected, whereas Experiencers and Patients are affected.

(40)

Actor	Unaffected
Experiencer	Affected
Neutral	Unaffected
Patient	Affected

Just as a Patient is defined by the change of state it undergoes, an Experiencer is defined by the change of mental attributes. The bold-faced arguments below are Experiencers, with eventive verbs in (41), and stative verbs in (42).

- (41)
- a. **John** is enjoying the game
 - b. Bill's dog scared **his neighbors**
 - c. **Mary** is thinking about her options
 - d. I convinced **Sue** that I should leave early

- (42)
- a. **John** likes football
 - b. Good music pleases **Bill**
 - c. **Mary** wants to move to Alaska
 - d. **Sue** believes in Santa Clause

In all these examples, the Experiencer has a different state of mind because of the event or state described in the clause. In (41a) for example, the particular mental state of John is different from what it would have been if he were not enjoying the game. Likewise, Sue's belief in Santa Clause in (42d) is a mental attribute that would not have been there if she did not hold that belief. This contrasts with the cases of Actors and Neutrals, which do not undergo any change of state. Actors are the bold-faced subjects in (43), and the Neutrals are the objects.

- (43)
- a. **John** is reading a book
 - b. **Bill** praised **his project**
 - c. **Mary** called **her son** on the phone
 - d. **Sue** measured **the flour**

None of the participants denoted by these arguments have changed states by virtue of taking part in the events given in (43). Any change of state one may infer in these examples would be incidental and not thematically significant. For example, John may have learned something by reading the book in (43a), but this is not what the sentence entails since it is also possible that he has not understood a word of what he is reading.

3.2 Protagonism

The second property that distinguishes between these roles is whether or not the argument actively determines the course of the events or the state, where 'actively' is the operative word. A brick that hits a wall or breaks a window is actively determining the course of the hitting and breaking events. The brick must have moved to contact its target in both cases. The wall and the window are also essential for the truth value of *The brick hit the wall* and *The brick broke the window*, but they do not actively participate in these events. They simply remain idle in the hitting and breaking situations, without doing anything else to determine the course of the events. Likewise, a person who is enjoying a game or wants some ice cream actively determines the type, intensity, and the duration of the enjoying event and the wanting state. The objects of the enjoyment and wanting, i.e., the game and the ice cream, are almost incidental in these situations. Just as the brick and window examples above, they do not do anything that would alter the course of the events/states in question, while the person who is enjoying or wanting something is engaged in a mental activity that determines the enjoying or the wanting.

As a rule, an argument actively determines the course of an event or state when it engages in some other event that leads to it, without necessarily causing it. Therefore, protagonism (event prominence) can be defined by whether or not the situation described in the clause entails that the participant in question has engaged in some other act as well.

(44) Protagonism:

The participant P denoted by an argument A is a protagonist iff the event/state E/S denoted by the predicate Pred entails an event E denoted by Pred', where E and E/S are not variants.

The reason that an event must be entailed in (44) is to exclude the initial or the final states entailed in a change of state verb for protagonism, e.g., a broken vase is intact prior to the breaking, which does not mean *the vase* is a protagonist in *Bill broke the vase*. This particular definition of protagonism intends to isolate the act that the protagonist performs in order to determine the course of the event/state as the entailed event.

The value that the four basic roles take with respect to protagonism is as follows.

(45)

Actor	Protagonist
Experiencer	Protagonist
Neutral	Nonprotagonist
Patient	Nonprotagonist

An Actor is a protagonist, since it is, by definition, the argument that manipulates the event, which also means that it performs a mental or physical act that would determine the course of the event, e.g., a person who is reading a book necessarily follows the order of the letters in the writing. An Experiencer is a protagonist because it is characterized by its mental processing of some entity or some event/state, e.g., a person who is reminiscing or fantasizing about some situation must also be mentally constructing that situation.

The nonprotagonists Neutral and Patient arguments, on the other hand, do not contribute to the event/state in any way other than just being themselves. All that is

required of a book that is being read or a radio that is being fixed is simply that it remains in the relevant situation. Obviously, a person that is hurt feels the sensation of hurt, but the sensation is not distinct from the hurt itself. In fact, *hurt* refers to a particular type of sensation, so the sensation does not qualify as the entailed event prescribed in the definition of protagonism in (44). By contrast, following the order of letters is not a type of reading, and neither is mentally constructing a situation a kind of remembering.

The thematic properties of affectedness and protagonism identified in this section refer to the fundamental features of the way events and states are organized. These features combine to produce the basic role types as in (33), repeated below.

(33)

Actor	Unaffected Protagonist
Experiencer	Affected Protagonist
Neutral	Unaffected Nonprotagonist
Patient	Affected Nonprotagonist

Note that the labels Actor, Experiencer, and so forth, are used in this work only as convenient names for the role types that are more accurately defined as unaffected protagonist, affected protagonist, and so on.

4 Argument Alignment

Arguments are generated in the syntax by being selected by the predicate in order to fulfill its formal requirements. They associate with their thematic roles by coindexing with the corresponding slots in the lexical representation of the predicate. In this work, the term 'association' refers to the coindexation, and 'argument alignment' refers to the exact pairing between thematic slots and arguments. The rules of alignment are presented below as two independent hierarchies that map the roles to their arguments according to the thematic properties of affectedness and protagonism.

The purpose of adopting an overall rule of alignment is to avoid individualized mapping instructions, where it would be specified for a verb like *bite* that its Actor role is mapped onto its subject and its Patient role onto its object, and the same specification would be repeated with other verbs like *eat* and *drink*. Such an approach would be missing a significant generalization in argument alignment. It would also allow for quirky mapping patterns where *bite* takes an Actor subject but **pate* takes an Actor object, since there would be no a priori reason why all Actor roles would be mapped higher than the Patient roles. However, a hierarchy of the form Actor > Patient makes a general statement about the alignment pattern of Actors and Patients that covers all verbs with the Actor-Patient frame, including *bite*, *eat*, and *drink*.

It was argued in the preceding section that the role labels Actor and Patient do not have any independent status in the theory of thematic relations. Therefore, it would not be consistent with that claim to have a mapping rule that treats these role labels as primitives, and ranks them as Actor > Patient. The following guidelines of argument alignment rank these roles according to their thematic properties.

- (46) The Affectedness Hierarchy:
An unaffected role is mapped onto a higher argument.
- (47) The Protagonism Hierarchy:
A protagonist role is mapped onto a higher argument.

The term 'higher argument' refers to the argument that occupies a position higher than the position of its coargument. Crucially, the rules of mapping are arranged as hierarchies. That is, they make use of the relative positions of arguments instead of their absolute positions as specifiers or complements. This distinction will be crucial in chapter 4 to maintain some flexibility in deriving the VP architecture of various verb types.

To see how the hierarchies function, consider the verb *bite*, which has two slots in its thematic frame, one for an Actor and one for a Patient. The Affectedness Hierarchy (AH) maps the unaffected role, which is the Actor, to the higher argument, and the Protagonism Hierarchy (PH) maps the protagonist role, which is also the Actor, to the higher argument. In this case, the two hierarchies converge in associating the Actor of *bite* with the subject, which leaves the Patient role for the the object. The hierarchies do not always converge, as will be seen in the case of the Experiencer-Neutral verbs below.

It was argued in section 1 that verbs may take two arguments that bear the same thematic role label. Assuming this is true, the unordered combination of the four basic roles would yield ten thematic frames, each of which defines a distinct verb type.

(48) Possible Thematic Frames:

a.	Actor-Actor	Unaffected Protagonist, Unaffected Protagonist
b.	Actor-Neutral	Unaffected Protagonist, Unaffected Nonprotagonist
c.	Actor-Experiencer	Unaffected Protagonist, Affected Protagonist
d.	Actor-Patient	Unaffected Protagonist, Affected Nonprotagonist
e.	Neutral-Neutral	Unaffected Nonprotagonist, Unaffected Nonprotagonist
f.	Neutral-Experiencer	Unaffected Nonprotagonist, Affected Protagonist
g.	Neutral-Patient	Unaffected Nonprotagonist, Affected Nonprotagonist
h.	Experiencer-Experiencer	Affected Protagonist, Affected Protagonist
i.	Experiencer-Patient	Affected Protagonist, Affected Nonprotagonist
j.	Patient-Patient	Affected Nonprotagonist, Affected Nonprotagonist

Each combination in (48) is briefly reviewed below. A critical point in the following discussion is that Actors and Experiencers do not have to be animate, since their defining components, affectedness and protagonistism, are concerned only with the way an argument interacts with a given event/state. So even though a text may describe an object, the verb *describe* takes an Actor subject because describing entails the organization and conveying of a set of ideas, which the text does as well. Likewise, the object of the verb *stimulate* must be an Experiencer despite the fact that what is stimulated need not be an animate entity capable of feelings and sensation. In *The treasury stimulated the economy*, the

market responds to the stimulation, which is what defines the Experiencer role.¹⁷

1. Actor-Actor, (48a): Verbs that take two Actors indicate symmetrical acts where the event is mutually manipulated by both parties. They are not as common as some of the other verb types, presumably because they require highly specialized contexts and very specific types of events. Some verbs in this class are *clash*, *converse*, *interact*, *mate*, and *wrestle*,¹⁸ all of which describe transitive events where the second Actor appears as a *with*-phrase, see chapters 4 and 5. The subject and the *with*-phrase are both understood to be performing an independent act that contributes to the course of the event.¹⁹ Since the roles are of the same type, neither the AH nor the PH can determine the mapping between the arguments. Therefore, the choice between *The president clashed with the agency* and *The agency clashed with the president* is made solely on the basis of non-thematic criteria, e.g., the speaker's point of view.

2. Actor-Neutral, (48b): Actor-Neutral verbs include *check*, *count*, *detect*, *imitate*, *mention*, *mimic*, *name*, *photograph*, *read*, *recite*, and *watch*. Most verbs that appear to be in this class are actually Neutral-Neutral verbs disguised by the predicate ACT, to be introduced in entry 5 below. The subjects of these verbs determine the course of the event and they are not affected by it. The objects are also unaffected, but they are the passive participants in the event. The PH maps the Actor role to the higher argument. The AH is inapplicable because both roles have the property of being unaffected.

3. Actor-Experiencer, (48c): Verbs that take Actor and Experiencer arguments are also fewer than expected because they are also typically Neutral-Experiencer verbs embedded under ACT, see entry 6 below. Among those that are truly in this category, one finds *con*, *influence*, *irritate*, *ridicule*, *stimulate*, and *train*, which have an unaffected subject and an affected object that responds to the outside situation brought about by the subject. The Actor is mapped onto the higher argument by the AH, whereas the PH does not apply

¹⁷This approach is necessary to eliminate thematic role optionality. If one assumes that *the economy* is not an Experiencer in this example, but a Patient instead, the verb *stimulate* would have to have two frames, one with an Experiencer, and another with a Patient. This would violate the Dissimilarity Corollary, argued in chapter 1.

¹⁸The events need to be symmetrical with these verbs, and that is why *collide* does not qualify, see **The car and the lightpole collided* versus *The car and the lightpost collided*.

¹⁹The *with*-phrases are not comitatives in the traditional sense because their acts are reciprocal with respect to the acts of the subject, but not parallel. Standard cases of comitatives behave like sentential conjuncts, where (ia) entails (ib), whereas the *with*-phrases that appear with these verbs do not have the sentential conjunct interpretation, so (iia) does not entail (iib).

- (i) a. Mary sang the national anthem with Bill
b. [Mary sang the national anthem] and [Bill sang the national anthem]
- (ii) a. Mary interacted with Bill
b. *[Mary interacted] and [Bill interacted]

because both roles are of the protagonist type.

4. Actor-Patient, (48d): Just as the previous two classes, the verbs with the Actor-Patient frame must be distinguished from verbs with the Neutral-Patient frame, see entry 7 below. Some of them are derived through null causatives, as in the transitivized *break* and *burn* and the diadic verbs *cut* and *fix*, discussed later in chapter 4. Nevertheless, there are quite a few verbs that fit this profile, such as *dig*, *eat*, *kidnap*, *punch*, *steal*, and *strangle*. Both the AH and the PH map the Actor onto the higher argument.

5. Neutral-Neutral, (48e): Some of the purely Neutral-Neutral verbs are discussed in section 1 above, e.g., *complement*, *face*, *resemble*, and *suit*, along with verbs of logical relations, such as *contradict*, *define*, *indicate*, and *entail*. Since both arguments bear identical roles, neither the AH nor the PH can distinguish between them. As mentioned above, the choice of the subject is determined by nonthematic criteria in these cases: The speaker's point of view with verbs that denote reciprocal states, e.g., *The tie complements the jacket* or *The jacket complements the tie*, and the actual ordering of the participants with verbs that denote ordered relations, e.g., *Fifteen follows fourteen* as opposed to the semantic anomaly of *Fourteen follows fifteen*.

Perhaps the most prominent characteristic of these verbs is that whenever their subject optionally receives the Actor reading when it is an animate expression and the verb is eventive. For example, both arguments are Neutral, and the verb is stative in *The picture faces the mirror*, but there is an eventive reading in *Bill faced the mirror*, where *Bill* is an Actor that turns towards the mirror, contrasting with the other reading where the verb remains stative, and *Bill* is a Neutral that simply stands there, analogous to the picture example. The Invariance Corollary in (20) forbids the animacy of an argument from causing any thematic role alternations. Once a verb is specified for a Neutral argument in the lexicon, it must always take a Neutral argument. Therefore, the Actor in these instances must be introduced by some other predicate, which I take to be the elementary predicate ACT, which introduces an Actor argument, cf. Jackendoff's (1987) ACT function. This would also account for the shift into eventivity if ACT is assumed to be an eventive predicate. To preserve the thematic integrity of the lexical verb, ACT would have to be a control predicate whose Actor specifier controls the Neutral specifier of the lower VP. The relevant portion of the structure is schematically given in (49) below.

- (49) a. [_{VP} [the picture] face [the mirror]]
b. [_{VP} Bill face [the mirror]]
c. [_{VP} Bill_i ACT [_{VP} PRO_i face [the mirror]]]

In (49a) and (49b), the subjects *the picture* and *Bill* are both Neutral arguments, and the verb is stative. In (49b), *Bill* simply stands in front of the mirror the same way that the picture does in (49a). In (49c), *Bill* performs the act of standing in front of the mirror, where he is the Actor of the facing, which becomes an event when *face* incorporates into ACT.²⁰ The lexical verb *face* still takes a Neutral argument in (49), and the Actor

²⁰It is possible that there is an intermediate VP headed by the inchoative predicate INCH

interpretation comes from the specifier of ACT. This type of derivation is available in all cases of Neutral subjects, as will be seen in entries 6 and 7 below.

6. Neutral-Experiencer, (48f): The Neutral-Experiencer frame is unique among those listed in (48) because it causes a clash between the two hierarchies AH and PH. The AH maps the Neutral role to the higher argument, while the PH maps the Experiencer role to the higher argument. It would seem that under such conflicting requirements, the choice of the subject should be dictated by the lexical requirements of individual verbs. This is suggested by the alternating patterns of alignment, where verbs like *admire*, *envy*, *fear*, *hate*, *like*, *pity*, and *resent* take Experiencer subjects, while *amuse*, *confuse*, *disgust*, *frighten*, *offend*, *please*, and *satisfy* take Neutral subjects. However, it cannot merely be a coincidence that the majority of verbs in this class, covering a wide range of mental activity verbs, such as *believe*, *hope*, *need*, *taste*, *think*, *understand*, and *want* among others, take Experiencer subjects in English. Nor can it be disregarded that the verbs with the Neutral-Experiencer frame predominantly take Experiencer subjects in the world's languages, e.g., there are only four morphologically simplex verbs in Turkish that take Neutral subjects and Experiencer objects. Clearly, Experiencer-subject verbs are more natural in this class than Neutral-subject verbs.

Since the balance between the two alignment patterns is tilted towards Experiencer subjects, it is plausible to think that the balance between the two hierarchies is also tilted towards the Protagonism Hierarchy in (47). This suggests that the hierarchies do not have equal weight, and that the PH takes precedence over the AH.

(50) Protagonism Hierarchy > Affectedness Hierarchy

The ranking of the PH above the AH designates it as the primary arbiter of argument alignment, and relegates the AH to the status of a tie breaker. Protagonism is the main factor that determines the alignment by mapping the Actor and Experiencer roles to the higher argument. Affectedness becomes a factor only when protagonistism cannot differentiate between the roles, and in these cases, the AH maps the Actor and Neutral roles to the higher argument. With verbs that have the Neutral-Experiencer frame, the PH maps the Experiencer role onto the subject, and the AH does not apply. It will be argued in chapter 4 that all Neutral-subject verbs in this class have a causative derivation, where CAUSE takes a Neutral specifier (chapter 3), and the Actor-subject reading of verbs like *amuse*, *frighten*, or *please* is derived by embedding the causative forms under ACT.

7. Neutral-Patient, (48g): A number of Actor-Patient verbs are underlyingly Neutral-Patient verbs that have combined with ACT, as in *cancel*, *complete*, *embellish*, *help*, and *shock*. A verb like *help* takes a Neutral subject in its basic form such that the subject in *The article in the magazine helped my investment* does not actively participate in the helping event, so it cannot be an Actor. It is also very common to have underlyingly monadic verbs like *sink*, *stop* and *topple* that are transitivized through a causative layer in the syntax that provides the Neutral argument, as in *The scandal toppled the government*,

that lies between the VPs of *face* and ACT, converting stative verbs into eventive (activity) verbs by defining its inception, see chapter 4.

in contrast with the monadic form *The government toppled*. The PH is ineffective with Neutral-Patient verbs, but the AH maps the Neutral role onto the subject argument.

The availability of ACT in converting Neutral arguments into Actors raises the question whether all instances of Actors are derived by this mechanism.²¹ However, the type of decomposition proposed in this work makes this an untenable proposition for the following reason. If ACT simply introduced the Actor and did nothing else, there would be three roles, Experiencer, Neutral, and Patient, to be differentiated by a [\pm] value for a single feature, which would create irreducible redundancies. Alternatively, one could imagine that ACT could be a raising predicate, ACT[†], that introduces a thematic feature that converts Neutral arguments into Actors. This feature would have to be protagonism, which would also derive Experiencer arguments by moving Patient arguments through the specifier of ACT[†]. The derivation of Actors and Experiencers through ACT[†] would leave only two basic roles in the core predicate-argument structure: the affected Patient[†] and the unaffected Neutral[†]. Even though the AH would correctly map Neutral[†] onto the higher argument in the case of Neutral-Patient verbs, it would incorrectly align Neutral[†] as the subject with all Neutral-Experiencer verbs, contrary to the pattern observed with the vast majority of verbs in this class, including *want*, *think*, and *hope*. Consequently, one cannot reduce the number of mapping hierarchies (the AH and the PH) without redefining the relevant thematic property that determines the mapping. Because the reduction is not possible, all instances of Actor cannot be introduced exclusively by ACT either.

8. Experiencer-Experiencer, (48h): The absence of Experiencer-Experiencer and the Experiencer-Patient verbs, discussed in the next entry, is a real gap in the paradigm. A verb with this frame would indicate a situation where two participants internally respond to some event/state with a change of attribute. The only verb that comes close to this description is *commiserate*, but the scarcity of verbs of this type suggests that Experiencer-Experiencer verbs should be excluded altogether, and *commiserate* should be derived in some other way.

The problem with these verbs is the fact that they do not introduce any independent event/state that the arguments would be responding to. It may also be significant that most Experiencer subject verbs tend to be stative, but Experiencer object verbs are typically eventive. One can argue that Experiencer-Experiencer verbs are unavailable because of the clash between the Experiencer subject forcing the verb to be stative, and the Experiencer object forcing it to be eventive.

9. Experiencer-Patient, (48i): Verbs in this class would indicate that the internal response of the Experiencer subject, mapped there by the PH, somehow relates to the change of the Patient object's state. There is no verb that I am aware of that can illustrate this complex relation. The absence of Experiencer-Patient verbs is presumably due to the same reason as the absence of Experiencer-Experiencer verbs.

10. Patient-Patient, (48j): Patient-Patient verbs were also discussed briefly in section 1.

²¹This is certainly Jackendoff's (1987) view, since he introduces all Actors with the use of his ACT function

They include *combine*, *link*, *merge*, and *mix*, which indicate a mutual change of state that is initiated by some outside force. The choice of the subject in *The concrete mixed with the gravel* or *The gravel mixed with the concrete* depends on the speaker's point of view.

The verbs that are discussed in this section are all transitive diadic verbs whose VP architecture is relatively simple: A single-layered VP where the subject is generated as the specifier, and the object as the complement. Verbs with more complicated structures, monadic, diadic, and triadic, will be presented in chapter 4.

5 Conclusion

The approach taken in this chapter has been to simplify the inventory of thematic roles by merging them into four basic types, Actor, Neutral, Experiencer, and Patient. These roles are defined on the basis of the event structure by virtue of being composed of the primitives of affectedness and protagonism, which are irreducible properties of the internal organization of events and states.

The elimination of thematic role alternations and adjunct-type optional roles is achieved with the use of elementary predicates, such as VOL, ACT, and BEN. As a result, the theory that has emerged in this chapter greatly simplifies the lexicon, the learned component of the grammar, and shifts the complexity to the syntax to be handled by the built-in machinery that the Universal Grammar provides for children. The basic dynamics of the structures that combine lexical verbs with the elementary predicates are presented in the following chapters. Chapters 3, 5, and parts of 4 concentrate on the predicate-argument structure of CAUSE and the mechanics of the causative construction from different angles. Chapter 4 presents the internal structure of complex predicates that appear monomorphemic at the surface. Finally, chapter 6 combines the basic components of elementary predicates devised in the preceding chapters to develop a theory of passives that observes the principles and objectives stated in chapter 1.

Chapter 3

CAUSATIVES

The defining characteristic of the causative construction is what verbs like *make* and *let* do to derive clauses like *Bill made Mary leave* from the simpler *Mary left* in English. It increases the level of the complexity of the predicate-argument structure by adding a causation event, and asserts that the state of affairs described in the simpler, smaller clause is initiated by a distinct individual or event. This is a recursive operation, such that one can always add more levels of causation to *Bill made Mary leave* to obtain *Sue made Bill make Mary leave*, *Joe made Sue make Bill make Mary leave*, and so on. In principle, causatives can be iterated ad infinitum to match the additional links in the causal chain of the event they describe.

The predicate that produces the causative construction, CAUSE, plays a major role in the transitivity alternations discussed in the section 4 of this chapter and in chapter 4 later on. It also acts as a building block with various verb types surveyed in chapter 4, and as will be argued in chapter 5, it introduces Instrument phrases, one of the adjunct-type optional arguments mentioned in chapters 1 and 2. This chapter prepares the groundwork for the analyses that follow in subsequent chapters by presenting a theory that accounts for various interpretive and structural properties of the causative construction. In terms of the interpretive properties, the discussion will concentrate on coercive and permissive causatives, e.g., the English *make* and *let* respectively, as well as the interactive and circumstantial readings, which are defined by whether the causer acts on the causee or simply manipulates the circumstances. As for the structural properties, the focus will be on the morphological status of the causative as a bound or free morpheme, and the distribution of Case in causative clauses. The chapter is organized as follows.

Section 1 looks at the issue of coercive and permissive causatives. On the basis of the interaction between negation and the English verbs *make* and *let*, it will be shown there that the coercive *make* and the permissive *let* display the pattern of duality associated with pairs that contain universal and existential quantification, such as *every* and *some*, or *always* and *sometimes*. This will be taken as an indication that *make* and *let* are formed by combining the predicate CAUSE with the operators that provide universal and existential quantification over possible worlds, respectively.

Section 2 turns to the causative morphology, and argues that the distinction

between bound and free causative morphemes is a surface phenomenon. The predicate CAUSE and the root verb are generated as separate heads in both constructions, and form as a complex predicate at the LF representation. Languages vary only in terms of the level at which the complex predicate is formed through verb movement, at LF or at S-structure.

Section 3 discusses the distribution of Case in causatives. It argues that CAUSE selects different syntactic constituents in different languages or constructions, determined by whether or not a given Case can be duplicated. The absence of any Case duplication indicates that CAUSE takes a bare VP complement, whereas the multiple occurrence of a Case indicates that CAUSE selects the projection that provides the licensing position for the relevant Case, which in turn, embeds the VP headed by the root verb. This section then presents an account of the contrast between languages that license accusative causees, e.g., Chamorro and Chichewa, and those that license dative (or oblique) causees, e.g., Turkish and French, in terms of the ability of a language to incorporate the preposition of the causee into the verb. The inability of the languages of the former type to iterate causatives leads to the discussion on the mechanics of complex event formation argued to be reason that verb incorporation is a universal property of the causative construction. The section closes with an analysis of causative structures where either the causee or the CAUSE predicate is phonetically null.

Finally, section 4 presents a theory of thematic role association in causatives that derives the contrast between the interactive readings of sentences like *Bill made Mary leave*, where Bill directly acts on Mary, and the circumstantial one, where he manipulates the circumstances to obtain Mary's leaving. This ambiguity is framed in structural terms since each reading is favored in a well-defined syntactic context. The interactive reading is unavailable with unaccusative verbs like *arrive* and *appear* in languages that incorporate the root verb into CAUSE at S-structure, e.g., Turkish and Hungarian, while null causatives that transitive verbs like *run* and *march* in English block the circumstantial reading.

The analysis of null causatives and Patient association in chapter 4 will be crucial in developing a four-way classification of monadic verbs, which comprises of single-layered null-specifier, single-layered thematic specifier, causative-layered, and inchoative-layered verbs. Complex event formation will be revisited in the context of the instrumental construction in chapter 5.

1 The Modality of Causatives

Causatives that describe coercive and permissive causation use the specialized verbs *make* and *let* in English, and *faire* and *laisser* in French. Coercive and permissive causation can be differentiated by the extent of the causer's involvement in the causation. The causer has a high level of involvement in the caused event with the coercive type, but the involvement is minimal with the permissive. This contrast can be seen in the following.

- (1) a. Bill made the prisoner escape
- b. Bill let the prisoner escape

With the coercive *make* in (1a), the causer (Bill) is very much integral to the caused event, i.e., the prisoner's escape. This is true even when the causer is relatively inactive, as in

The terrible conditions in the prison made the prisoner escape. Terrible conditions clearly do not perform any act like Bill can in (1a), but they can be directly involved in the prisoner's escape. This is very different from the role Bill plays in the escape in (1b). With the permissive *let*, the causer (Bill) does not contribute to the escape more, but he is still responsible for it by virtue of having granted permission or not having stopped the escape from taking place. The causer is quite low on the involvement scale in these cases, compared to the causer with the coercive *make*.

Apart from responsibility, the most obvious reason to classify permissives like *let* and *laisser* as causative verbs is that they are not morphologically distinguished from the coercive forms in many languages like Dutch, Turkish, and Japanese. The Turkish causative morpheme *-t-*, for example, yields both the coercive and permissive readings.¹

- (2) Çocuklar-ı uy-u-t
 children-ACC sleep-CAUSE
 i. 'Make the children sleep'
 ii. 'Let the children sleep'

The systematic ambiguity of the causative morpheme across languages suggests that there is a core meaning of causation that the specialized coercive and permissive predicates of English and French have in common. Presumably, this core meaning is related to (or derived from) the concept of responsibility mentioned above. This is represented by the predicate CAUSE, which is neither coercive nor permissive in itself. The lexical verbs *make* and *let* are specified as coercive and permissive, but the abstract predicate CAUSE is not. It is plausible that the ambiguous causative morpheme in Turkish and other languages are instances of CAUSE, whose coercive and permissive components are either unspecified or phonetically null.

As mentioned by Löbner (1987) in passing, negation interacts with the coercive and permissive causatives in ways that parallel the behavior of dual elements.

- (3) a. Bill made the children not sleep
 b. Bill did not let the children sleep
 (4) a. Bill let the children not sleep
 b. Bill did not make the children sleep

The sentences in each set, (3) and (4), are truth-conditionally equivalent. If Bill makes the children not sleep, he necessarily does not let them sleep, and if he lets them not sleep, he necessarily does not make them sleep. This is essentially the same relationship one finds between negation and quantificational elements like *every* and *some*.

- (5) a. Everyone seems not to be guilty
 b. It does not seem that someone is guilty

¹Turkish has two regular causative morphemes: *-t-* after bisyllabic roots ending in a vowel or a liquid, and *-Dir-* elsewhere. The distribution of the irregular *-Ir-* is lexically specified.

- (6) a. Someone seems not to be guilty
 b. It does not seem that everyone is guilty

If everyone seems not to be guilty, it cannot be true that someone is guilty. Likewise, if someone seems not to be guilty, it cannot be true that everyone is guilty. Quantificational elements that display this particular pattern of interaction with negation are duals, which is, one of the elements taking scope over negation produces the same reading as negation taking scope over the other element. This correlation can be stated as follows.

- (7) A pair of quantifiers Q_1 and Q_2 are duals iff $Q_2(x) \neg P(x)$ is truth-conditionally equivalent to $\neg Q_1(x) P(x)$, where \neg is negation, and P is a proposition.

By this definition, *everyone* and *someone* qualify as duals because *everyone* taking scope over *not* is equivalent to *not* taking scope over *someone*, just as *someone* taking scope over *not* is equivalent to *not* taking scope over *everyone*, see (5) and (6).

Duality is considered to be an indication of universal and existential quantification. Löbner (1987) provides an extensive list of elements that display this property. Among these are *always* and *sometimes*, along with *certain* and *possible*. The first pair *always* and *sometimes* involve universal and existential quantification over event times.

- (8) a. It is always the case that Bill does not leave early
 b. It is not the case that Bill sometimes leaves early
- (9) a. It is sometimes the case that Bill does not leave early
 b. It is not the case that Bill always leaves early

The other pair *certain* and *possible* provide universal and existential quantification over possible worlds:

- (10) a. It is certain that Bill did not leave early
 b. It is not possible that Bill left early
- (11) a. It is possible that Bill did not leave early
 b. It is not certain that Bill left early

The sentences in each set from (8) to (11) are truth-conditionally equivalent.

The fact that *make not* means *not let*, and *let not* means *not make* suggests that universal and existential quantification constitutes a defining component of coercive and permissive causatives. In other words, *make* and *let* are formed by combining the core predicate CAUSE and universal and existential quantification over possible worlds. If P is a variable over propositions, then *make* P is true only if CAUSE P is true in every causally possible world, and *let* P is true only if CAUSE P is true in some causally possible world.²

²This is why causation cannot be satisfactorily defined with counterfactuals and possible worlds. Lewis' (1973) definition states 'an event c causes an event e if e would not have occurred without c ', which essentially describes *make* rather than CAUSE, since it implicitly assumes that c must cause e in all possible worlds, not in just some of them. Also note

- (12) a. A *let* P = 1 iff $\exists w_C, w_C$ a causally possible world, such that A CAUSE P = 1 in w_C .
 b. A *make* P = 1 iff $\forall w_C, w_C$ a causally possible world, A CAUSE P = 1 in w_C .

The same notions are expressed below by using CAUSE with the causal possibility operator \diamond_C and the causal necessity operator \Box_C , which quantify over causally possible worlds.

- (13) a. *let* P = CAUSE \diamond_C P
 b. *make* P = CAUSE \Box_C P

I remain neutral here as to whether the operators \diamond_C and \Box_C are represented in the syntax or whether (13) is merely a meaning postulate along the lines of Dowty (1979).³

This modality-based account crucially allows permissive causatives to have a non-interference reading. For example, *John let the prisoners escape* can describe a situation where John simply sits still and does nothing to prevent the escape. John's inaction would qualify as (permissive) causation because by not preventing the escape from taking place, he would have caused the world to continue to be in a way that *the prisoners escape* holds true. This means John effectively shapes the escape by not interfering with it.

The modality analysis also explains why negation can appear outside the causative morpheme in the verbal complex but take scope lower than CAUSE in Turkish (Bainbridge 1987) without violating the Mirror Principle (Baker 1985), see Göksel (1993):

Berofsky's and Kim's comments on Lewis' work in the same issue, where they point out that this type of definition cannot differentiate causes and necessary conditions, as in *if I had not written 'r' twice in succession, I would not have written 'Larry'*.

³ Turkish has no clear syntactic reflex for the choice between the two readings, but Koopman (1994) reports that fronting the VP complement of *laten* blocks the coercive reading even though *laten* is normally ambiguous between coercive and permissive types.

- (i) de auto wassen laat ik Jan nooit
 the car wash let/*make I J. never
 'Wash the car, I never let Jan'
- (ii) het huis shoonmaken laat Marie hem iedere week
 the houseclean let/*make M. him every week
 'Clean the house, Mary lets him every week'

This asymmetry may be the result of an operation comparable to the existential closure of Heim (1982), Diesing (1989), and Kratzer (1995). If VP-fronting structurally introduced the unselective existential operator \exists at the VP level after the VP preposes, it would lead to the *let* interpretation when \exists combines with *laten*. This implies that the operators \Box_C and \diamond_C are indeed represented in the syntax. However, it is not clear how CAUSE would be able to 'assign' its Patient role to the specifier of its complement VP, as done in section 4, if \Box_C and \diamond_C were null heads in the syntax.

- (14) a. John Mary-i koş-tur-ma-dı
 J.-NOM M.-ACC run-CAUSE-NEG-PAST-3SG
 i. 'John did not make Mary run' (= she ran on her own accord)
 ii. 'John made Mary not run' (= he prevented her from running)
- b. *pro* Emine-yi bugün çalış-tır-ma-dı-m
 1.SG E.-ACC today work-CAUSE-NEG-PAST-1.SG
 i. 'I didn't make Emine work today' (= she might have worked on her own)
 ii. 'I made Emine not work today' (= I didn't allow her to work)

Göksel (1993) notes that the narrow scope negation readings in (ii) are unexpected under the Mirror Principle, since they present a mismatch in the position of negation relative to the causative morpheme (NEG > CAUSE) and its scope (CAUSE > NEG). The modality view, however, recognizes that the Turkish causative morpheme *-Dir-* is ambiguous between CAUSE \Box_C (*make*) and CAUSE \Diamond_C (*let*), and that CAUSE $\Box_C \neg P$ is truth-conditionally equivalent to \neg CAUSE $\Diamond_C P$. One would, therefore, obtain the narrow scope negation with respect to the coercive (universal) CAUSE in (14aii) and (14bii) by allowing negation to take wide scope over the permissive (existential) CAUSE. The problematic reading of CAUSE \Box_C > NEG, i.e., *make* > NEG is available in (ii) simply because it is equivalent to the unproblematic reading NEG > CAUSE \Diamond_C , i.e., NEG > *let* due to the duality of the operators \Box_C and \Diamond_C . As a result, it can be maintained that negation uniformly takes scope over CAUSE in Turkish without violating the Mirror Principle.

2 The Phrasal Structure of Causatives

The debate on whether causatives are formed in the lexicon or in the syntax has a long history, partly because there are different types of causative constructions in and across languages. The causative morpheme appears in three forms: (a) as an independent verb, e.g., analytic or periphrastic causatives; (b) as a bound morpheme attached on to the root verb, e.g., synthetic or morphological causatives; or (c) without any discernible morphology, e.g., lexical causatives. In the latter group, the causative form may be identical to the root form, as in the null causatives that derive the transitivized *run*, or the two forms may be phonologically different, as in the suppletive forms like *die* and *kill*.

Languages use at least one of these constructions as a productive strategy for causatives, typically the periphrastic or morphological type. It is a clear case that the nature of periphrastic causatives must be syntactic (phrasal), since each verb remains recognizably distinct, and they are often separated by other syntactic material.

- (15) Sue made Bill sign the forms

What is controversial is the status of the second category, where the causative appears as a dependent morpheme affixed on the root verb, as is the case in Turkish.

- (16) Ayşe Ahmet'e formları imzala-t-tı
 A.-NOM A.-DAT forms-ACC sign-CAUSE-PAST-3SG
 'Ayşe made Ahmet sign the forms'

A problem raised by suppletive forms is that they render the relationship between the root and causative forms opaque in most cases, calling into question whether irregular morphology should be treated the same way as regular morphology. They are sometimes partially similar to their root forms, as in the clearly related pairs in Turkish, *gel* 'come' and *getir* 'bring', as well as *git* 'go' and *götür* 'take', where the expected forms **geldir* and **gittir* are not possible. Full suppletion is rare in Turkish, but there are examples like *bırak* 'leave' as the causative of *kal* 'remain, stay', replacing the expected **kaldır* (in fact, *kaldır* means 'lift, raise', corresponding to the causative of *kalk* 'rise', which in turn, has no corresponding **kalktır*).⁴ The absence of the regular forms are due to the blocking effect that lexicalization has on the productive morphology (Aronoff 1976), e.g., the irregular *went* blocks the regular **goed*. The presence of lexicalized and suppletive forms does not, however, warrant assigning a completely different derivation for the irregular forms. At least, this has not been the case with inflectional suppletion. It is agreed that *went* is derived the same way as *walked*, whether in the syntax or in the lexicon.

The basic premise in this work is that all types of causatives mentioned above, i.e., periphrastic, morphological, as well as lexical and null causatives, are derived from the same syntactic base that involves the elementary predicate CAUSE.⁵

3 Case Distribution in Causatives

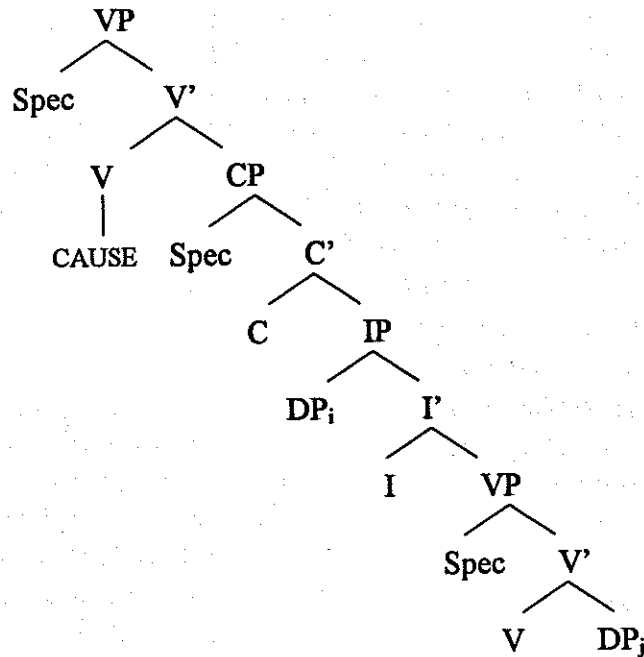
The structures in (19) and (20) assume that CAUSE takes a VP complement, which diverges from Baker's (1988) structures, where an entire CP is embedded under CAUSE.⁶

⁴In Japanese, the intransitive verbs *wak-u* 'to boil' and *kawak-u* 'to dry' cannot combine with the causative *-ase* to form **wak-ase-ru* 'to make boil' and **kawak-ase-ru* 'to make dry' (Miyagawa 1989) because the transitive forms already exist as the lexicalized forms *wakas-u* 'to boil' and *kawakas-u* 'to dry' (Nakamura Akira, personal communication).

⁵The more difficult problem is the way some verbs resist causativization, like *koru* 'protect' and *sakla* 'hide' in Turkish, cf. **korut* 'make protect' and **saklat* 'make hide'. These verbs causativize in other languages, such as *mamosase* 'make protect' from *mamo* 'protect' and *kakusase* 'make hide' from *kakus* 'hide' in Japanese, as well as *chupvaa* 'make hide' from *chuupaa* 'hide' in Hindi. This phenomenon seems to have a random and arbitrary nature, contrasting with the more principled restriction in Vata (Koopman 1984) and Berber (Baker 1988) that bars transitive verbs from causativizing. At the moment, I have no insights why *koru* and *sakla* do not causativize in Turkish.

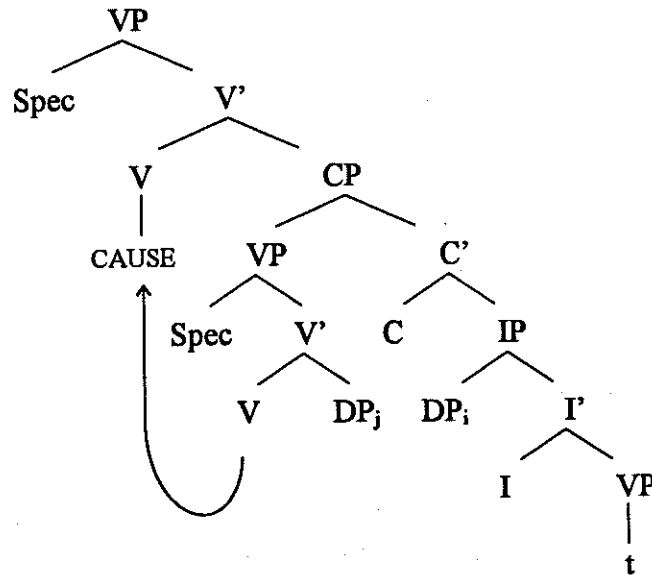
⁶Baker's structure is updated in (21) in terms of the CP/IP format and the specifier of VP.

(21)



In hindsight, it appears that this structure was designed to provide a specifier to prepose the lower VP and to ensure that the lower V remains adjacent to its complement DP_j for accusative assignment (Stowell 1981) after it moves to CAUSE.

(22)



In current theories, string adjacency and government have been replaced by accusative licensing at the specifier of a functional head (Kayne 1989, Chomsky 1991, Koopman and Sportiche 1991). As a result, there is no real motivation for the VP-preposing in (22) and the CP-level embedding under CAUSE.

On the other hand, the recent shift towards the Spec-head licensing of Case forces

CAUSE to take a complement that is a much larger constituent than VP in the periphrastic causatives of English due to the fact that each occurrence of *make* (or *let*) licenses another accusative Case:

(23) Mary made **us** make **them** make **him** eat his broccoli

Therefore, it seems that CAUSE selects an accusative licenser as its complement, see (24) below. Arrows indicate the movement of arguments to the specifiers of the nominative and accusative Case licensing projections, NomP and AccP.⁷⁸

⁷ I use the theory-neutral labels NomP and AccP for these projections, which are clearly the same as the AgrsP and AgroP of Pollock (1989), Kayne (1989), and Chomsky (1991).

⁸ It is plausible that the intermediate projection AccP blocks the S-structure incorporation of the lower V into CAUSE. Li (1990) proposes a version of this idea by classifying heads as A-heads (θ -related) and A'-heads (non- θ -related), and arguing that head movement from an inflectional head to a verb constitutes improper movement. This is an interesting proposal, but it is incompatible with the assumption that the lower verb must incorporate into CAUSE at LF in periphrastic structures to create a complex event.

Frameworks that apply word formation rules only in the lexicon, such as the Lexical-Functional Grammar (LFG) and the Head-Driven Phrase Structure Grammar (HPSG), also see Chomsky (1995), derive causative forms like *imzalat* 'make sign' in the lexicon. Frameworks that allow word derivation in the syntax, such as the classical Government-Binding (GB), treat *imzalat* as a product of syntactic head movement. There is not much difference between lexical and syntactic derivation, as long as they remain notationally equivalent strategies to produce regular morphology. The issue becomes more substantial when the question is whether the periphrastic, morphological, and lexical constructions all have fundamentally different structures, or whether they are essentially the same type of construction with perhaps some minor, though consequential differences.

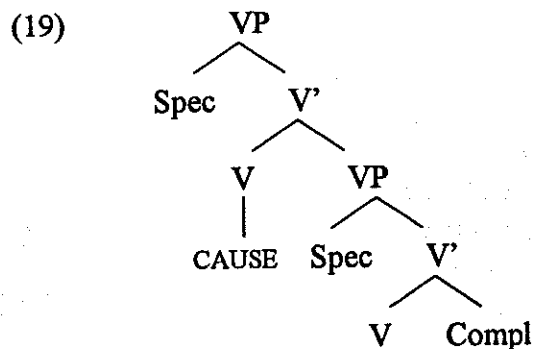
The answer to either question ultimately depends on how structural differences are determined in one's theory. It is assumed in the theory presented here that all three constructions, periphrastic, morphological, and lexical, have the same structure. There are two reasons for this. First, they mechanically function in similar ways. They all add a causer argument, which, among other things, surfaces as the subject of the whole clause, takes the nominative Case, and triggers subject agreement on the inflected verb. The 'subject' of the root verb assumes some object function, bears either the accusative or the dative Case, and so forth. Second, and perhaps more importantly, all three constructions yield the same type of complex event interpretation, which is significant for a framework that employs a unique level of syntactic representation, such as LF, that feeds into the semantic component. Identical semantic interpretations entail identical LF representations that serve as the input, and therefore, all three types must have the same configuration at LF despite their S-structure differences. Since it is unlikely that morphological causatives would start out as a single verb and split at LF to become morphological periphrastic, one can assume that periphrastic causatives convert into morphological causatives at LF by the incorporation of the lower verb into CAUSE.

- (17) a. S-structure:
Sue made Bill sign the forms
- b. LF:
Sue sign_i-made Bill t_i the forms

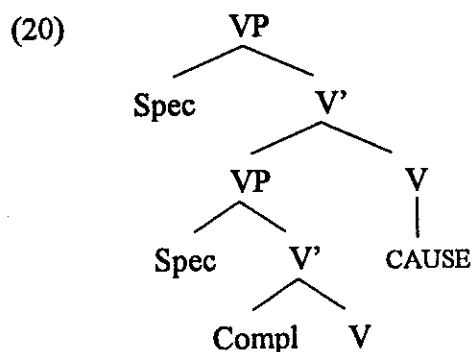
In principle, the procedure that converts periphrastic causatives into morphological causatives between S-structure and LF can also convert periphrastic causatives into morphological causatives between D-structure and S-structure.

- (18) a. D-structure:
[[Ayşe [Ahmet'e formları imzala] t] [INFL t₁]]
A.-NOM A.-DAT forms-ACC sign CAUSE PAST-3SG
'Ayşe made Ahmet sign the forms'
- b. S-structure:
Ayşe Ahmet'e formları imzalattı
A.-NOM A.-DAT forms-ACC sign-CAUSE-PAST-3SG

This would suggest that periphrastic and morphological causatives are both generated with the periphrastic architecture at D-structure, and they are both morphological at LF. Verb incorporation into CAUSE takes place at S-structure with morphological causatives, and at LF with periphrastic causatives. The following D-structure representation is the universal base of the causative construction.



This is essentially the structure proposed by Li (1990), and it is also reminiscent of Larson's (1988) VP shells and Stowell's (1981) VP small clauses. The VP structure appears right headed in head-final languages like Turkish, Japanese, and Hindi.

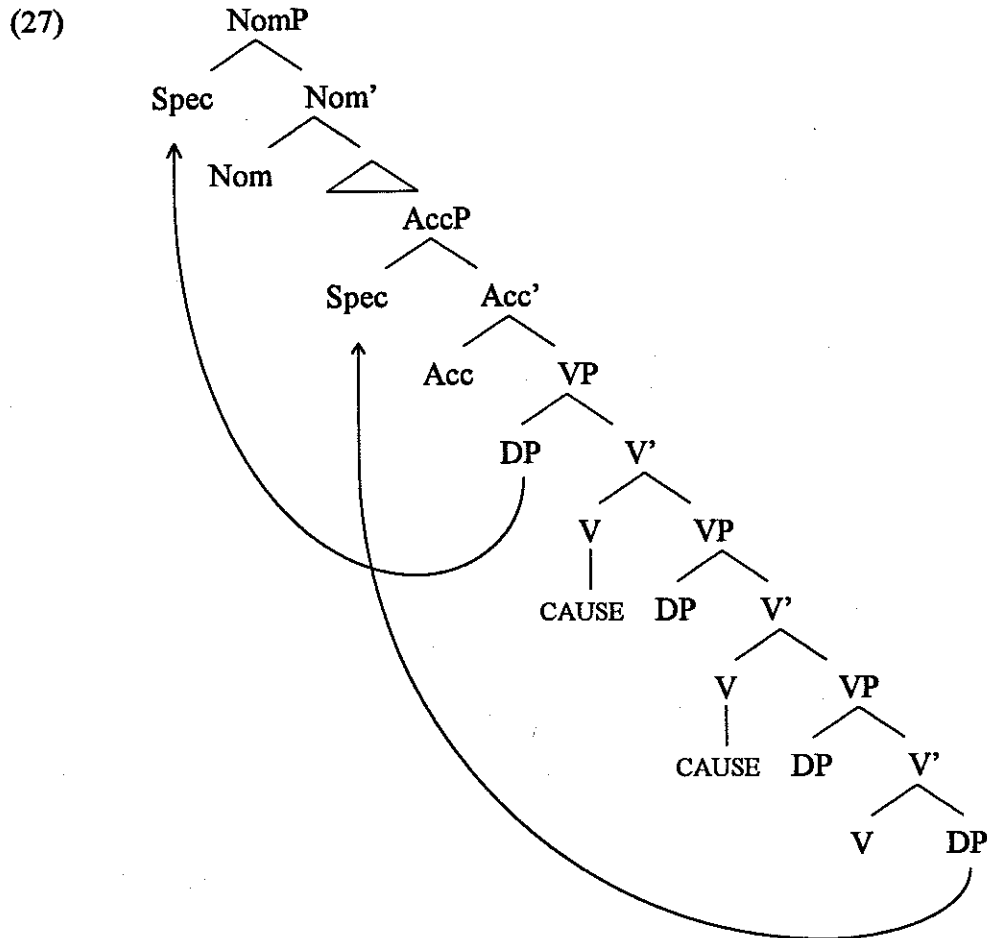


It will become apparent in the next section that neither (19) nor its equivalent (20) fully represents all causative structures. Languages vary to a great extent as to whether they allow the addition of inflectional projections specifically designed to license various Cases between the VP layers. Therefore, both structures provide the skeletal base that is common to all forms causative structures. Throughout the discussion, (19) will be used as a schematic representation for both head-initial and head-final languages since directionality does not play a role in the theory developed in this work. Also, the term 'periphrastic' will be used for the type of causative that has CAUSE as an independent verb, and 'morphological' will be reserved for constructions where CAUSE is a bound morpheme. Within morphological causatives, the term 'segmental' will refer to cases where there is a distinct boundary between the root verb and the causative morpheme, as in the Turkish *imzala-t* 'sign-CAUSE'; 'suppletive' will be used for cases that have no distinct boundaries, as in *kill* and *show*; and 'null' will indicate forms with no visible causative morpheme, as in the transitive *run*.

c. Georgian (Harris 1981):⁹

mamam mzas daantebina cecxli
 father-ERG M.-DAT CAUSE-light-PAST fire-ABS
 'Father made Mzia light the fire.'

Abstracting away from the account of the dative causes for the moment, it appears that the absence of accusative duplication is captured by the VP embedding in (19) or (20), which is approximately the structure of morphological causatives in Turkish and some of the other languages mentioned in (26). The movement of the internal argument into the specifier of the accusative licensing AccP in iterated causatives is shown in (27).



The status of the intermediate DPs is discussed below.¹⁰

⁹Georgian has a complex set of rules that determine the Case distribution across tenses. In the past tense, the subject is marked for the ergative and the object for the absolutive.

¹⁰One can argue that Turkish has the same type of causative embedding as the English (24), except that the AccP positions between VPs are not active. It is hard to construct any empirical argument for or against this position. It is rejected here solely on the

3.1 Structural Licensing of Oblique Arguments

Although the dative Case has been considered lexical in the classical GB framework, it has also been evident that its distribution is contextually determined in causative structures. The source of the dative in causatives cannot be the CAUSE itself since it is available (for the causee) only when the causativized verb is a transitive verb, i.e., a verb that takes an internal argument as in (25) and (26) above. When the root verb is intransitive, the causee appears as an accusative/absolute phrase.

(28) French:

Jean a fait partir Marie
J. has made leave M.
'Jean made Marie leave'

(29) Turkish:

Ahmet Ayşe-yi uyu-t-tu
A.-NOM A.-ACC sleep-CAUSE-PAST-3SG
'Ahmet made Ayşe sleep'

(30) Japanese:

Taroo ga Hanako o hatarak-ase-ta
T. NOM H. ACC work-CAUSE-PAST
'Taro made Hanako work'

(31) Georgian (Harris 1981):

dedam bavs&vi daazina
mother-ERG child-ABS CAUSE-sleep-PAST
'The mother made the child sleep'

If the source of the dative were CAUSE, causees would uniformly surface as dative phrases regardless of whether the verb is transitive or intransitive.

The structural nature of the dative Case has been captured by the dative-insertion rule of Kayne (1975), as well as Rouveret and Vergnaud (1980) and Burzio (1986), which essentially looks for two consecutive NPs in [_{VP} V NP NP], and turns one of them into a dative phrase. In a theory that licenses Case in the specifier of functional projections (Chomsky 1991, Sportiche 1992), the equivalent of dative insertion would be the licensing of a dative DP at the specifier of a corresponding functional projection, DatP (or Agr-ioP) that lies in the inflectional field outside the VP. The indirect object precedes the direct object in the neutral word order in German (Webelhuth, 1989), Hindi (Mahajan 1990), and Japanese (Saito 1992), where the dative phrase can bind an accusative phrase, and the accusative phrase triggers weak crossover effects with respect to the dative phrase. All these suggest that the DatP is higher than the AccP.¹¹ Accusative DPs precede dative

grounds that structures along the lines of (27) are more transparent.

¹¹The Basque agreement morphology is also significant in this respect, as long as one assumes a one-to-one mapping between the agreement morphemes on the verbal complex

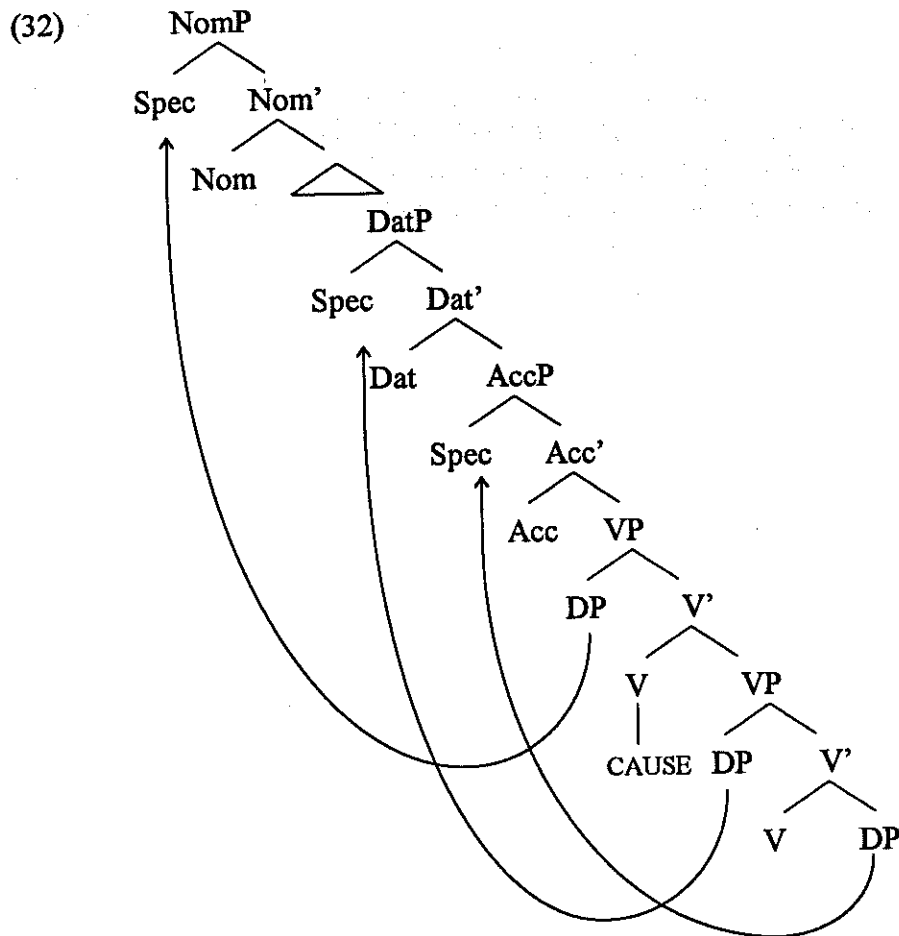
DPs in the neutral order in Turkish because the accusative is licensed at S-structure, but the dative licensing through movement to DatP is delayed until LF.

With the dative licensing projection DatP placed above the accusative licensing position AccP, the structure partially looks like (32) below. Note that the movement of the arguments out of the VP to the Case licensing positions in the inflectional field create the type of crossing lines that have been quite problematic in classical theories.

and the Case position of the agreeing arguments. As seen in (i), the dative agreement is inside the ergative agreement, and the number part of the absolutive argument is a suffix that appears inside the dative agreement, although the person part is a prefix, (Laka 1993).

- (i) Zu-k *pro* liburu-a-k irakurri d-i-zki-gu-zu
2sg-erg 1pl book-the-pl read 3sg/abs-have-pl/abs-1pl/dat-2sg/erg
'You have read the books to us'

The order in (i) is meaningful if Bobaljik (1993) is right in his claim that ergative and absolutive are equivalent to nominative and accusative, respectively. There is evidence for this in Georgian, where a given argument switches between ergative and nominative, or absolutive and accusative Cases, depending on the tense of the clause (Harris 1981).



The derivation in (32) violates the Specified Subject Condition (Chomsky 1973), which states that phrases cannot move out of a domain that has a subject.¹² Judging from the geometry of (32), it seems that movement to Case positions would unavoidably violate the prohibition against crossing lines, i.e., the SSC and its later equivalents, as long as the argument generated as the specifier of the highest VP moves to the highest Case position, NomP. In this work, rather than trying to disguise the line crossing in (32) with technical devices, I will simply assume that arguments are allowed to move across others (subjects)

¹²Over the years, the SSC has been reformulated in different ways, as in the Generalized Condition A of Aoun (1985), Relativized Minimality of Rizzi (1990), and the Economy considerations of Chomsky (1993), i.e., Shortest Move. Chomsky (1993) argues that verb movement equalizes the distances between the VP-internal positions of the subject and the object and their targets AgrsP and AgroP. Equidistance is defined as an intransitive relation, so it only works for two arguments, but fails to equalize the distances when there are three or more arguments.

¹³Chomsky (1993) may be correct in saying that verb movement is a factor in the crossing pattern. However, it is uncertain whether this can be done only by overt head movement at S-structure or covert movement at LF has the same effect.

¹⁴The sole *by*-phrase licensed in the multiple causatives of (34) is interpreted as having associated with either the first causee or the second causee.

The sentence would be good without either *by*-phrase, which suggests that *by*-phrases must also be structurally licensed at the specifier of a licensor, a BYP.¹⁴ This BYP lies above the DAT, and the movement to the licensing positions proceeds as follows.

(34) *pro* [*[Ahmet tarafından][Ayşe tarafından] Ali-ye soğanlar-ı
 1SG A by A by
 doğra-t-ir-t-i-m
 chop-CAUSE-CAUSE-CAUSE-PAST-1SG
 I made Ahmet make Ayşe make Ali chop the onions'

Just like the accusative and dative arguments, only one *by*-phrase is allowed per clause.

(33) *pro* [Ayşe tarafından] Ali-ye soğanlar-ı doğra-t-ir-di-m
 1SG A by A-DAT onions-ACC chop-CAUSE-CAUSE-PAST-1SG
 I made Ayşe make Ali chop the onions'

More complex structures indicate that dative phrases are not the only oblique arguments that need structural licensing. When a transitive verb is causativized the second time in Turkish, the fourth argument must appear as a *by*-phrase, because there can only be a single dative argument in a clause (another reason why it must be a structural Case).

when they move to their Case positions.¹³ This implies a fundamental difference between A-movement and A'-movement, which is conceivable since they are driven by different needs, i.e., argument licensing versus scope taking.

Case-marking is what licenses DPs at LF. The fact is, however, the effects of both Visibility and the PFI extend far beyond the domain of the traditional Case Filter. Because they make the LF interpretability of arguments contingent on structural licensing, they also force all categories, i.e., PPs, DPs, and CPs alike, to be structurally licensed when they appear as arguments in a clause. The licensing entails either the movement of the entire argument to the specifier position of a designated licensing head as an XP, or the incorporation of its head into the predicate (Baker 1988, Koopman 1994).

With the addition of DatP and ByP to the inventory of licensing projections, it becomes even more important to be able to regulate the distribution of Case and ensure that the correct argument is licensed at the correct projection. Whether the licensing positions are always projected in the structure or not, the correct alignment of 'Case' requires an additional hierarchy. In case the licensors are always projected, the hierarchy would determine the order in which they are filled, i.e., NomP > AccP > DatP > ByP, whereas if they are projected optionally, it would determine the order of projection. In the absence of empirical evidence, it would be reasonable to maintain uniform structures by projecting the positions automatically according to the following hierarchy.¹⁵

(36) Case Alignment Hierarchy:

NOM > ACC > DAT > BY

Ultimately, (36) should be derived from some component(s) of the universal grammar. For purposes of clarity, it is treated as a primitive in this discussion.

It appears, however, that some languages do not go to the extremes that English and Turkish do. They generate a single class of structural licensing position between VPs, but restrict others. The iterated Case is typically the dative or some kind of oblique. In French for example, it is the dative Case (or *by*-phrases in the *faire-par* construction).¹⁶

(37) J'ai fait faire nettoyer les toilettes **au** general **au** le premier ministre
 I-havemade make clean the toilets **to** the general **to** the prime minister
 'I made the prime minister make the general clean the toilets'

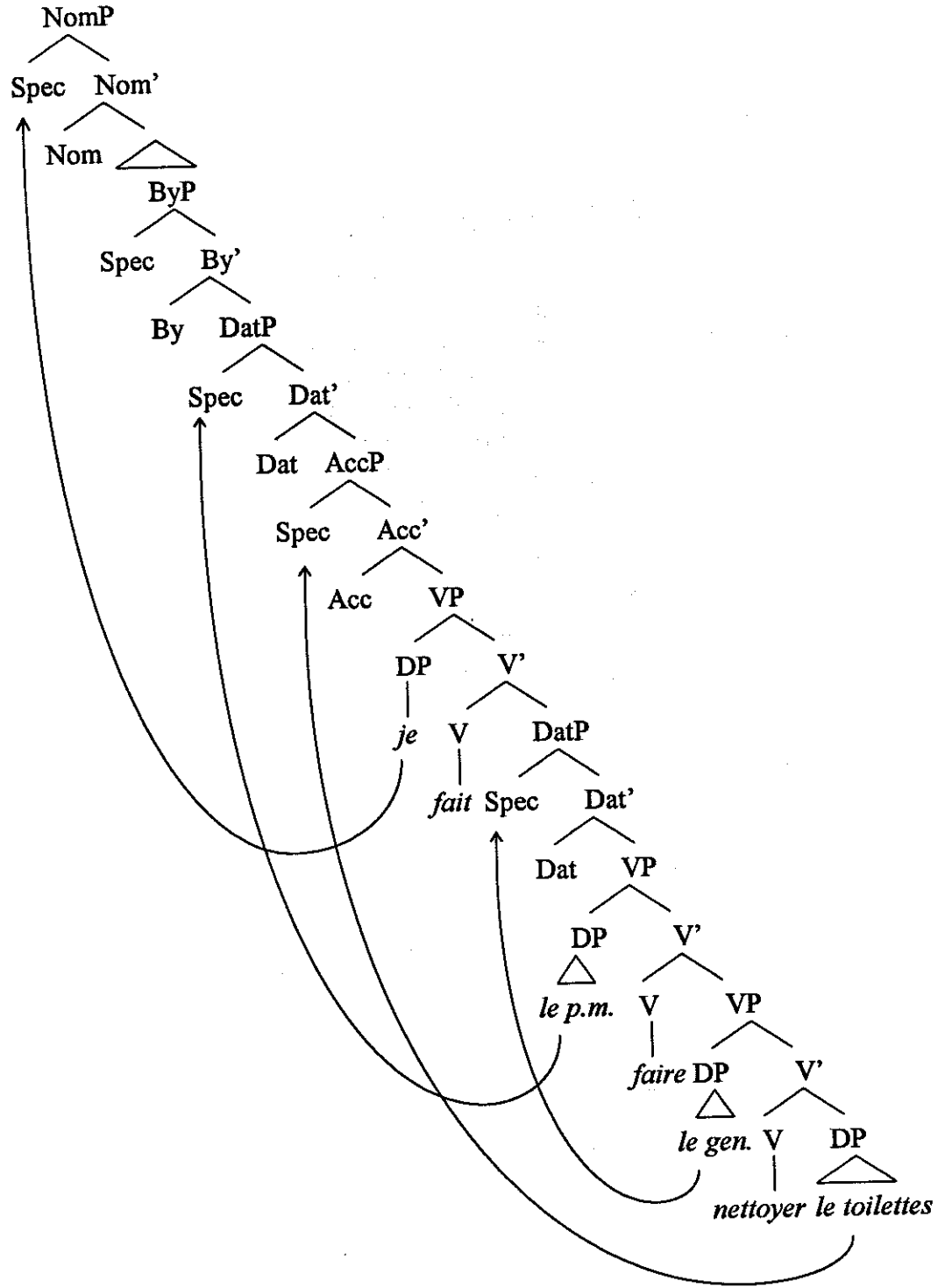
The dative iteration in (37) suggests that each causative VP layer can project a DatP in French. The D-structure of (37) will roughly be as in (38), where arrows indicate S-structure or LF movement to structural licensors (non-essential projections omitted).

¹⁵This hierarchy may in fact be a generalized version of Chomsky's (1982) Extended Projection Principle, which requires every clause to have a subject.

¹⁶The second dative cannot be licensed at the ByP position in (37) since French marginally allows a third dative causee as long as the topmost causee is cliticized, with a slightly degraded status due to the repetition and processing problems.

(i) ??Jean lui a fait faire manger de la soupe Henri a Marie
 J. to.him have made make make eat of the soup to H. to M.
 'Jean made him make Marie make Henri eat soup'

(38)



The verbal complex *fait faire nettoyer* is produced by successive verb movement. The surface order in which the higher causee *le premier ministre* follows the lower causee *le general* indicates VP-fronting as argued by Rouveret and Vergnaud (1980). The lower

object *le toilettes* is in the accusative, which means it skips the lowest available position, i.e., the embedded DatP, and moves directly to AccP. The alignment pattern in this case deviates from the full-crossing pattern observed with the morphological causatives in (35). This suggests that there is a principled reason that the complement of a verb is forced to bear the accusative Case.¹⁷

It appears that Romance languages behave differently with respect to their ability to project DatPs between causative VPs: Double datives are mostly acceptable in Spanish, but completely unacceptable in Italian.

(39) Spanish

?Juan hizo a Maria hacer a Pedro comer la coliflor
 J. made to M. make to P. eat the cabbage
 'Juan made Maria make Pedro eat the cabbage'

(40) Italian:

*Gianni ha fatto far mangiare la minestra a Roberto a Maria
 G. has made make eat the soup to R. to M.
 'Gianni made Maria make Roberto eat'

By contrast, in Hindi and related languages, such as Gujarati and Marathi, the Case that can be iterated is the instrumental.¹⁸ In most cases, the lowest causee is marked with the *se* instrumental, while all higher causees bear the *dwaaraa* instrumental, which is the Case that iterates in these languages.¹⁹

¹⁷It is possible that accusative expressions are selected by special semantic considerations, cf. Tenny (1990). However, this correlation may also have a mechanical reason; such as a condition that forces the movement to the accusative position to cross the base positions of all arguments that lie within the path of the moved verb.

¹⁸Dative has a very limited distribution in Hindi causatives. It occurs only with the so-called 'ingestive' verbs like *pii* 'drink', *dekh* 'see', *siikh* 'learn', and *kha* 'eat', all of which denote a directional act where the subject is some sort of a Goal. The higher causee with these verbs is marked as the *se* instrumental:

(i) Māā ne naukar se bacce ko duudh pilvaayaa
 mother ERG servant INST child DAT milk drink-CAUSE-PAST
 'The mother made the servant make the child drink the milk'

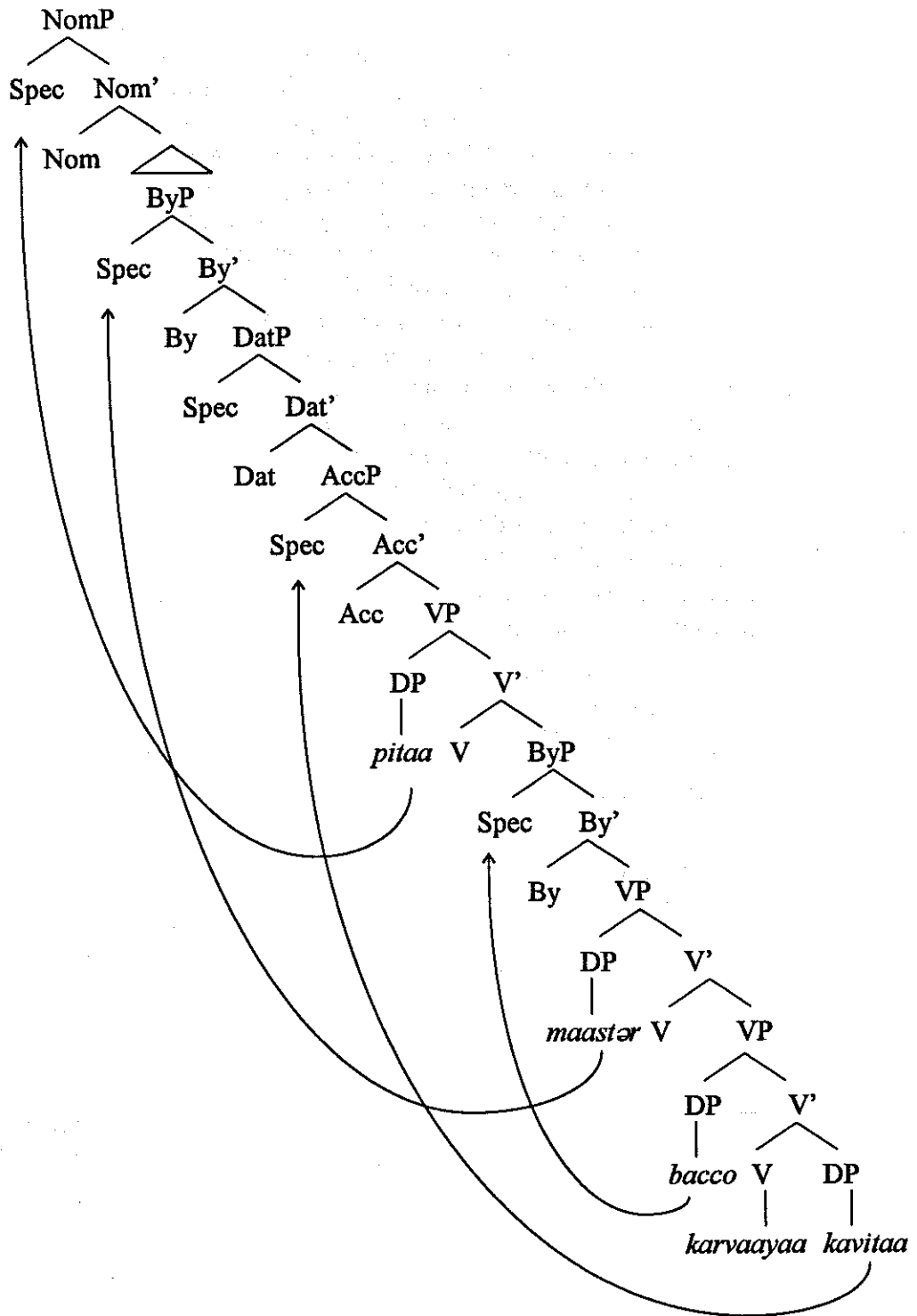
There is considerable, and perhaps meaningful, overlap between these verbs and the ones that can trigger unspecified object deletion in English and Chichewa (Alsina 1992).

¹⁹According to Anoop Mahajan (personal communication), some speakers are more tolerant with *se* iteration. Sentences like (41) are slightly awkward due to the repetition of *dwaaraa*, but they are acceptable.

- (41) a. Pitaa ne maastər dwaaraa bacco se kavitaa karvaayaa
 fatherERG teacher INST child INST poem wrote-CAUSE-PAST
 'The father made the teacher make the child write a poem'
- b. ?Māā ne pitaa dwaaraa maastər dwaaraa bacco se kavitaa
 mother ERG father INST teacher INST child INST poem
 karvaayaa
 wrote-CAUSE-PAST
 'The mother made father make the teacher make the child write a poem'

It is assumed below that both *se* and *dwaaraa* are licensed in the ByP, though they might require distinct licensors By₁P and By₂P. The D-structure (42) is parallel to the French (38), with ByPs corresponding to DatPs. It is schematized as a left-branching structure.

(42)



The operations and the pattern of movement that derive (42) in Hindi are presumably the same as those that derive the French (38), except for the VP-fronting in French.

The cross-linguistic variation regarding whether structural licensing positions can

be generated between VPs or what category CAUSE selects as its complement eventually raises the learnability question. The issue of negative evidence (the absence of licensing positions between VPs) can be avoided altogether by assuming that the default setting in the UG is for CAUSE to select a bare VP complement without any intervening structural licensors between the VPs. Children decide to project a particular licensing projection between VPs only when they encounter data regarding Case iteration. This crucial input comes from sentences that have multiple accusatives in English, multiple datives in French, and multiple *dwaaraa* in Hindi, which are presumably not very exotic or infrequent.

The main focus in this section has been the consequences of the claim that the PFI forces all arguments to be structurally licensed. The movement of the arguments to the licensing positions creates a full-crossing pattern in structures without any Case duplication, where the lowest argument moves to the lowest licensing position, and the next argument to the next licensor, and so on. This inevitably creates a violation of the SSC and other restrictions against line-crossing, which seems to imply that A-movement tolerates the crossing pattern, and perhaps even requires it. A case that deviates from this pattern is when CAUSE introduces a licensing position between VPs that is other than an AccP. In such instances, the internal argument of the lower verb skips the intermediate licensors and moves to the AccP position above the VP layers. Another case that does not conform to the full-crossing pattern is discussed below.

3.2 Type II Causatives and P-Incorporation

In languages like French, Turkish, Japanese, and Georgian, adding a causative layer does not change the direct object of the clause. The basic relations remain the same:

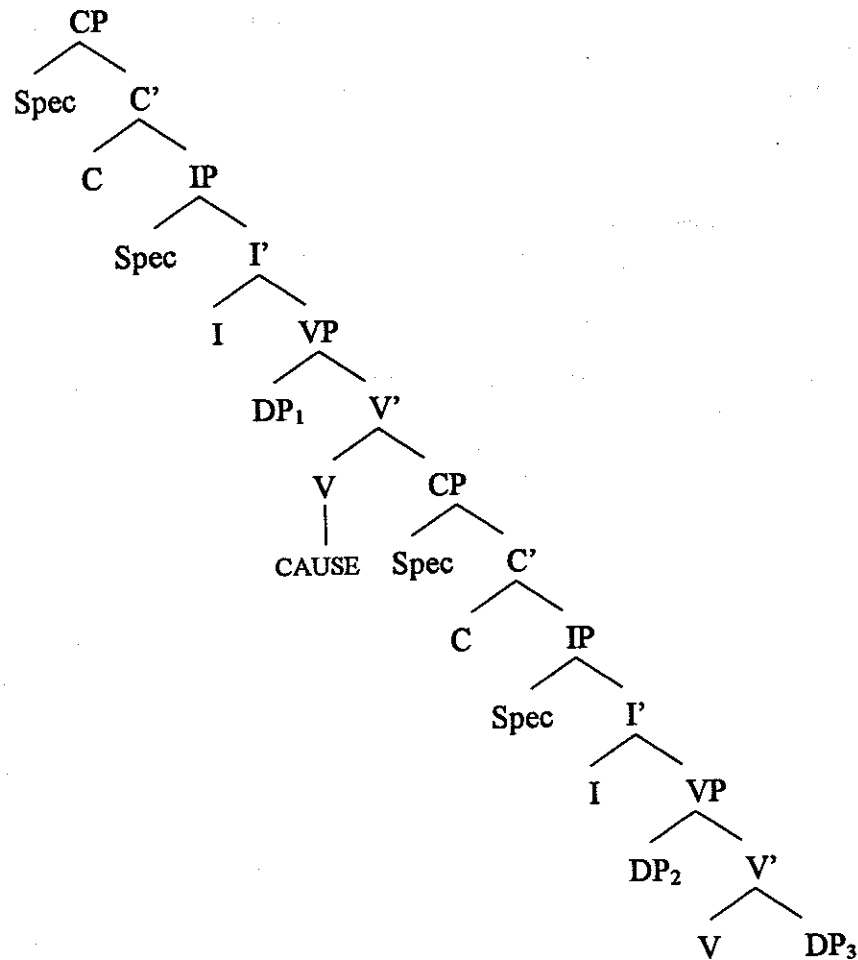
- (43) a. [John] pushed [the chair]
 SUB DO
- b. [Mary] made-push [John] ___ [the chair]
 SUB IO/OBL DO

In these languages, the argument corresponding to *the chair* in (43) maintains its direct object properties after causativization: It is marked for the accusative Case, it triggers object agreement, patterns like other direct objects in terms of extraction, and readily passivizes, producing roughly the equivalent of *The chair was made-push to John by Mary*. Marantz (1984) classifies these languages as type I languages, which contrast with languages with type II causatives, where the original 'subject' of the lower verb becomes the direct object of the clause, and its internal argument surfaces as an oblique phrase.

- (44) a. [John] pushed [the chair]
 SUB DO
- b. [Mary] made-push [John] ___ [the chair]
 SUB DO IO/OBL

The argument corresponding to the causee *John* bears the accusative morpheme, triggers object agreement, extracts like a direct object, and passivizes as *John was made-push to the chair by Mary*. These causatives are found in Chamorro (Gibson 1980) and Bantu

(48)



In type I languages, the lower VP preposes to the [Spec, CP] as mentioned earlier in the beginning of section 3. In type II languages, the lower verb moves to CAUSE directly by head movement, and separates from the lower object DP₃, which cannot receive the accusative Case since it is not adjacent to the verb. After the verb movement, the causee DP₂ ends up adjacent to the V-CAUSE complex and receives the accusative Case. Baker (1988) concludes that verb movement in (48) is allowed only if the language has a special rule that assigns an oblique Case to the stranded DP₃, or a second accusative as in the case of Kinyarwanda.²⁰

Baker (1988) observes that languages with type II causatives also allow dative-shift, which he treats as a form of the applicative construction. Type II languages also allow applicatives, as a rule. This is true not only for Bantu languages, e.g., Chimwiini,

²⁰Languages that cannot provide Case for the DP₃ in (48) must use the type I strategy. In these cases, the causee gets Case by the dative insertion rule of Kayne (1975), and Rouveret and Vergnaud (1980).

Sesotho, Chichewa,²¹ and Ndendeule, but also for unrelated ones like Chamorro (Austronesian). Observe the change in the object agreement in Chimwiini below.

(49) Chimwiini (Kisseberth and Abasheikh 1977; cited in Marantz 1984, p. 231):²²

- a. Hamadi sh-pisile chaakuja
 H. OBJ.AGR-cook-TENSE/ASPECT food
 'Hamadi cooked the food'
- b. Hamadi wa-pik-il-ile waana chaakuja
 H. OBJ.AGR-cook-APPL-TENSE/ASPECT children food
 'Hamadi cooks food for the children'

The preposition *na* 'with' is missing in the Ndendeule applicative in (50b).

(50) Ndendeule (Ngonyani 1995)

- a. a-ki-dindú n-dyango na pungulu y-ake
 1SG-PAST-open 3-door with 9-key 9-her
 'She opened the door with her key'
- b. a-ki-dindul-i n-dyangu pungulu y-ake
 1SG-PAST-open-APPL 3-door 9-key 9-her
 'She opened the door with her key'

In addition to the missing preposition, applicatives also alter the word order in Chamorro.

(51) Chamorro (Gibson 1980, p. 108):²³

- a. Ha punu' si Juan i bábui pára guahu
 1SG kill NOM J. the pig for me
 'Juan killed the pig for me'
- b. Ha punu'-i yu' si Juan nu i bábui
 1SG kill-APPL 1SG NOM J. OBL the pig
 'Juan killed me the pig'

Type II causatives and the applicative construction have the same fundamental dynamics. They both promote an oblique argument to the accusative while demoting an initially accusative argument to an oblique phrase. It would be safe to assume then, that type II causatives are essentially the same as type I causatives except that they have an additional operation that applies the dative or the oblique marking of the causee onto the CAUSE.

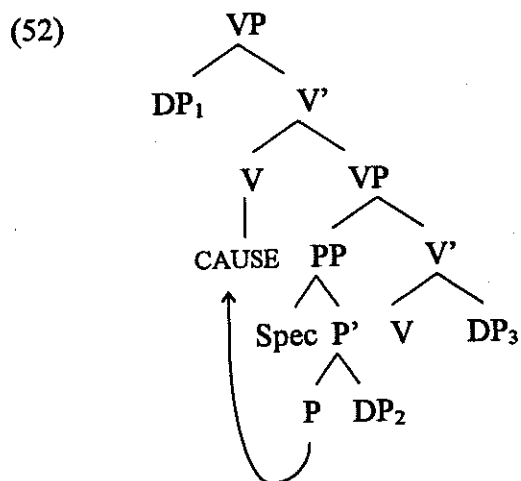
The following discussion adopts the basics Baker's (1988) treatment of the applicative morphology as a case of preposition incorporation (also see Marantz 1984). What applies in type II causatives is a null preposition or Case marker that is familiar from

²¹Alsina (1992) notes that Chichewa has both types of causatives as dialectal variation.

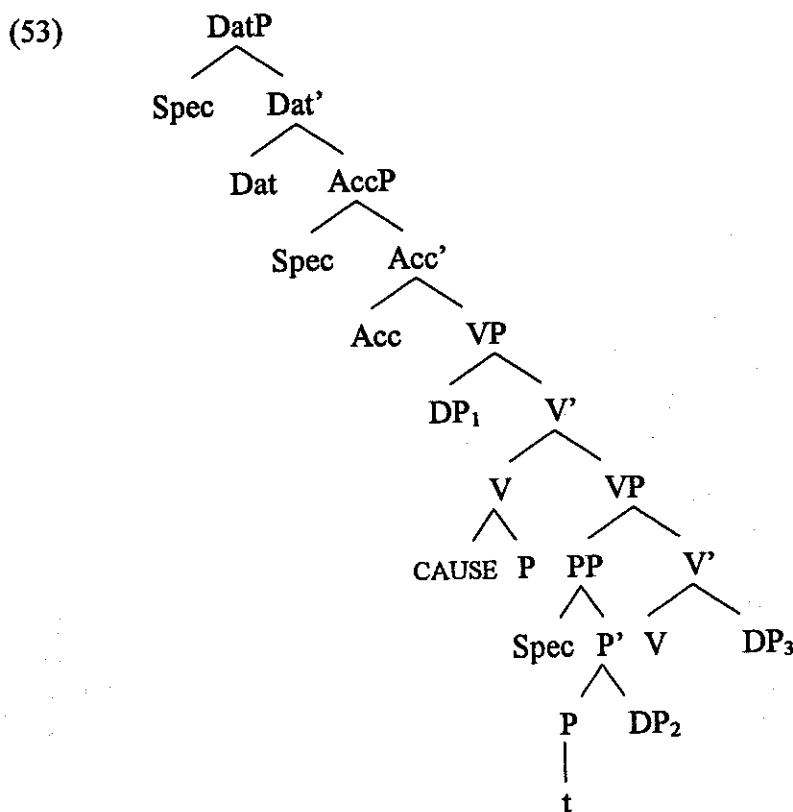
²²Chimwiini has goal, instrumental, and source applicatives as well (Marantz 1984).

²³Chamorro also has goal applicatives (Gibson 1980).

Kayne's (1984) analysis of the dative shift in English. This procedure presupposes that Case morphology is essentially a P that has incorporated a N. In type II languages, what incorporates into CAUSE is this dative P (Case).

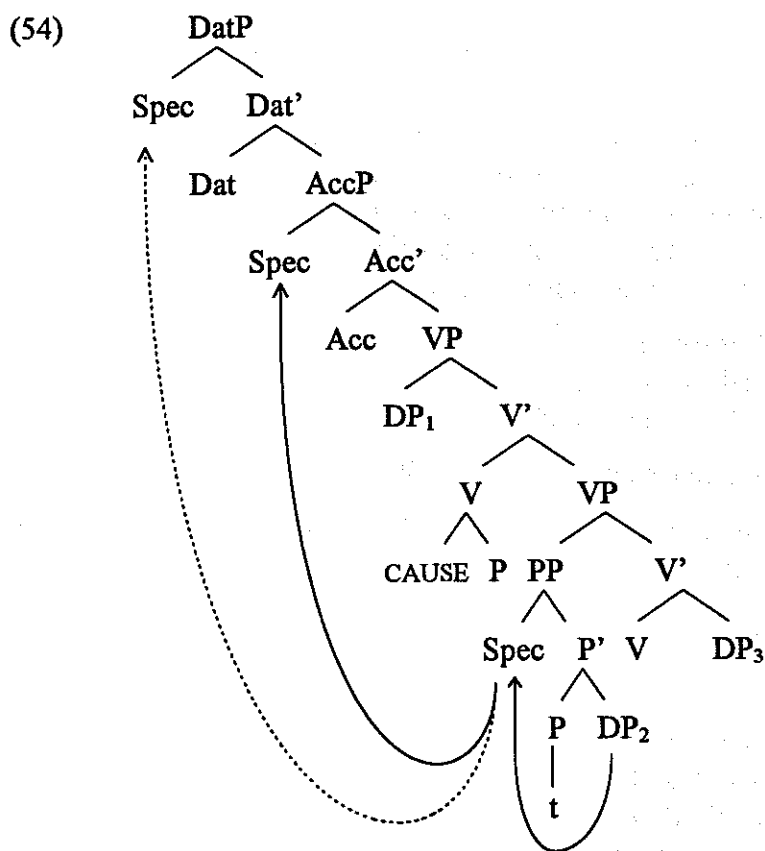


The P-incorporation in (52) leads to the following configuration.



In Baker (1988), the Government Transparency Corollary (GTC) ensures that after the P-incorporation into CAUSE, the DP₂ complement of P is governed by CAUSE for accusative assignment. In more contemporary theories, Case is licensed at the specifier of designated

functional projections. One way to preserve the effects of the GTC in this scheme is to force the DP₂ in (53) to move to the specifier of AccP instead of DatP as a result of the P-incorporation. The movement that needs to be ruled out is marked with a dotted line in (54). The movement of DP₂ to [Spec, AccP] proceed through the [Spec, PP].



The derivation of the desired movement pattern in (54) exploits the fact that AccP is the lowest licensing position in the inflectional field. Note first that although the P-incorporation into CAUSE licenses the P, and quite possibly the PP, it arguably does not help its complement DP₂, which has neither moved to a structural licensing position nor had its head incorporated. Assuming that the trace of a P cannot license a DP in [Spec, PP] or host a head, the DP₂ in (54) would be forced to move to a licensing position to be licensed independently. Movement out of [Spec, PP] is problematic because it is a case of movement out of a specifier of a specifier, which violates the Left Branch Condition of Ross (1967) and its later versions, e.g., Chomsky's (1973) Subject Condition and Huang's (1982) Conditions on Extraction Domains. In the terminology of the classical GB, the trace left behind is not properly head governed (Chomsky 1980, 1986b), so it must be antecedent governed. The equivalent of antecedent government in current terms (by way of Rizzi 1990) is Chomsky's (1993) Shortest Move. It would have to state that a trace inside the specifier of a specifier can only form a legitimate chain with the closest potential link, and prohibits the DP₂ in (54) from skipping the first possible landing site [Spec,

AccP]. Clearly, the movement of DP₂ out of [Spec, PP] is very local under these circumstances. Whatever ultimately motivates this locality, it will be assumed here that the mechanical foundation of all argument shift structures is the procedure just outlined.

Once the DP₂ in (54) occupies the [Spec, AccP], the lower object DP₃ would be left with no choice but to skip the accusative position and land in either [Spec, DatP] or [Spec, ByP], whichever is designated as the appropriate position in the language.

3.2.2 The Absence of Causative Iteration

The P-incorporation of the causee into CAUSE not only derives the Case pattern in type II causatives, but it also plays an important role in blocking causative iteration in these languages.²⁴ The definition of complex event formation below is based on Koopman's (1994) theory of head licensing that is discussed below. The purpose of this subsection is to show that P-incorporation effectively interferes with the formation of a complex event.

(55) Complex Event Formation:

The events denoted by VP₁ and VP₂, where VP₁ contains VP₂, form a single (complex) event iff V₂ i-commands V₁ and no head intervenes between them.

Sportiche (1992) and Koopman and Sportiche (1991) define i-command as follows.

(56) α i-commands (immediate commands) β if the first constituent (distinct from α) containing α contains β .

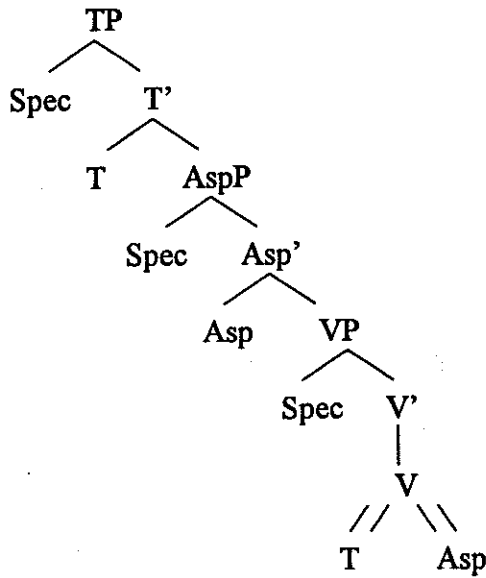
Specifically, α i-commands only the contents of its sister, and if it has none, it does not i-command anything. The requirement in (55) for the lower verb to i-command the higher verb is satisfied after the movement of the lower verb.²⁵

The reversal in the i-command relations and the restriction against intervening heads in (55) are both consequences of Koopman's (1994) theory of head licensing. In her system, licensing (predicative) heads have receptors such that H₂ is licensed by an H₁ when it binds the appropriate receptor on H₁ after head movement. For example, verbs have tense and aspect as well as argument receptors, indicated below with double lines.

²⁴This generalization was suggested to me by Mark Baker (personal communication).

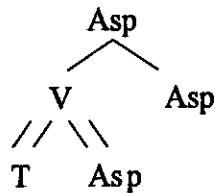
²⁵I will argue in chapter 5 that the purpose for complex event formation in causatives is to provide a controlling argument for each event and its corresponding VP.

(57)

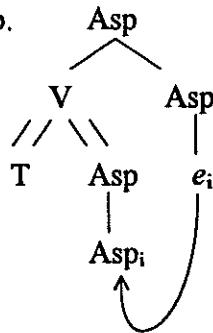


If the licensing head H_1 is lower than H_2 , it raises to adjoin to H_2 . In the case of tense and aspect licensing, the licensing head V adjoins to Asp as in (58a). This is followed by the head Asp substituting for the Asp receptor of V, as in (58b). Crucially, once the Asp receptor of V is saturated, the higher Asp node converts to V, as in (58c)

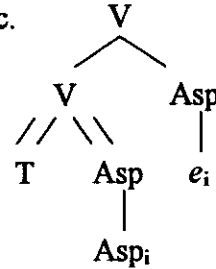
(58) a.



b.



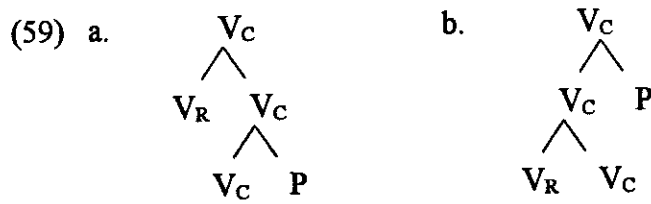
c.



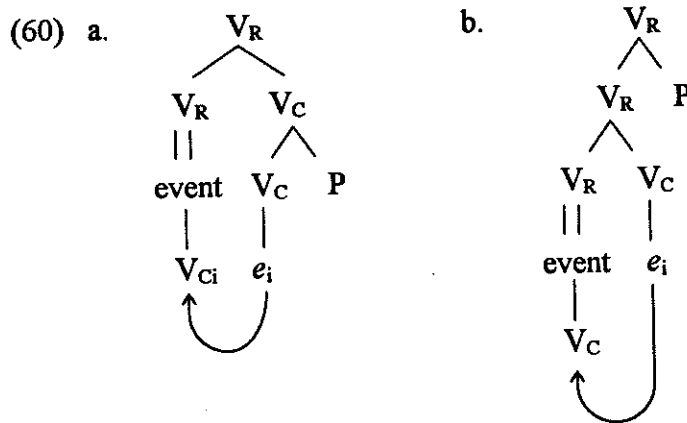
This conversion is crucial for Koopman for two reasons: It makes the lowering operation in (58b) a legitimate move, with Asp i-commanding its trace, and it allows the lower V head (or the segment) to exincorporate and move up to adjoin the T node to repeat the same procedure with T. Koopman argues that movement to the receptor position takes place at S-structure, after each head adjunction. I will diverge from her proposal and assume that head adjunction is performed at S-structure and receptor saturation is delayed until LF. This is necessary in order to separate head adjunction from head substitution, which will become crucial in sections 3.3.2 and 4.

Causative verbs select VP complements and trigger verb incorporation, so they must be licensed via receptor saturation, as is the case with Asp in (58). Presumably, CAUSE is licensed by saturating the event receptor of the verb it incorporates, which means that each CAUSE must saturate the event receptor of the CAUSE that has adjoined to it. In cases with two verbs, the movement of the lower V into CAUSE and the P-incorporation in

type II causatives yield two possible configurations (V_C is CAUSE, and V_R is the root).

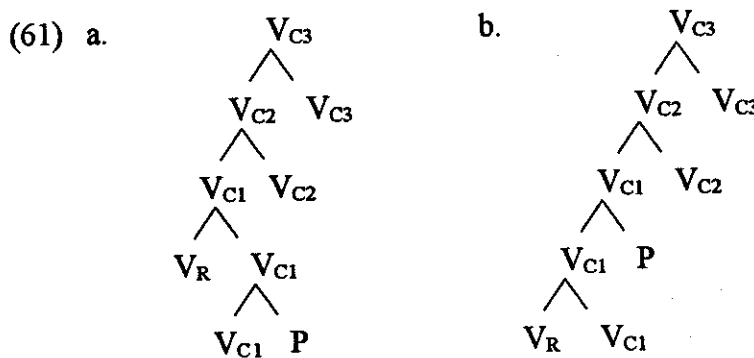


The causative V_C and the root verb V_R can form a complex event in both configurations since the saturation of the event receptor of V_R by the V_C would convert the V_C nodes dominating V_R into V_R . This would allow V_C to i-command its trace.



Thus, either structure would satisfy the Complex Event Formation (CEF) rule in (55), so that type II languages can successfully causativize verbs once.

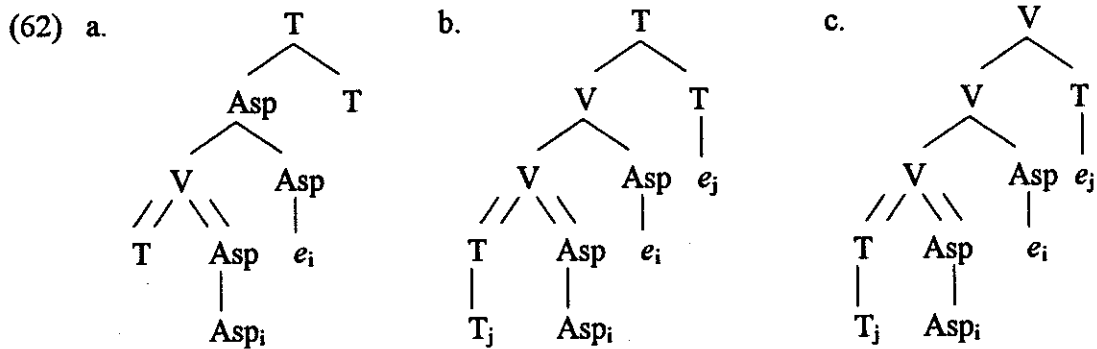
Under causative iteration, however, the incorporated preposition interferes with the movement to the event receptor. This can be seen in the examples below, where the root verb is combined with three causative verbs.



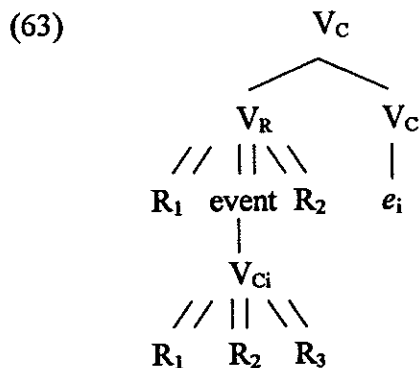
In both cases, the topmost CAUSE, V_{C3} , can move to the receptor of the lower one, V_{C2} . Once it does that, the top V_{C3} node becomes a V_{C2} , which allows the lowered V_{C3} to i-command its trace. The same cannot be said for the movement of V_{C2} to the receptor of V_{C1} in (61a) since V_R lies between V_{C1} and V_{C2} , triggering Relativized Minimality (Rizzi 1990) or Shortest Move (Chomsky 1993) effects. Likewise, the movement of V_{C2} to V_{C1} is blocked in (61b) by the P that intervenes between the V_{C1} and V_{C2} . The incorporated

preposition is what creates both structures, and as the defining characteristic of type II causatives, it is responsible for the absence of causative iteration in those languages.

Finally, note that the minor adjustments made above do not change Koopman's (1994) system in any substantial way. The delaying of receptor saturation until LF does force the lowering to apply to structures with successive head adjunction, e.g., V adjoined to Asp, and V-Asp adjoined to T, but it does not necessarily mean that T must be licensed by Asp. It is still possible for both T and Asp to be licensed directly by V due to the fact that each step in the receptor saturation converts the dominating node into a V.



Observe also that the intermediate functional projections that lie between the root verb and CAUSE in the periphrastic structures would not stop CAUSE from moving to the event receptor of the root verb at LF. Even if the Case-licensing heads have their own receptors on the verb, which may or may not be the case, these receptors would be peripheral to the event receptor of the verb. As such, they would be saturated independently of the saturation of the event receptor by CAUSE. The relevant configuration prior to the conversion of the dominating node is shown in (63), where R_1 , R_2 , and R_3 are the peripheral receptors reserved for the Case licensing heads and others.



From this point on, all references to the complex event formation rule should be taken as a shorthand for Koopman's (1994) theory of receptor saturation by head movement, since it naturally derives the effects that are stipulated in (55).

3.3 Null Causatives

This subsection looks at the licensing conditions of causatives where either the causee or the verb CAUSE is phonetically null. It is argued in section 3.3.1 that null causes licensing

involves incorporation into CAUSE at LF. Section 3.3.2 claims that transitivity alternations with motion verbs like *run* are a type of verb incorporation where the root verb substitutes for CAUSE. It introduces the restriction against successive substitution for CAUSE, which is discussed in more detail in the appendix at the end of this chapter.

3.3.1 Null Causees

Turkish places no upper limit as to how many times the causative morpheme may be iterated, as long as the number of overt causees are kept at three at most (accusative, dative, and *by*-phrases). In careful use, each causative morpheme corresponds to a distinct causation event as much as one can reasonably expect, but in colloquial Turkish, multiple causatives with no overt causees are typically used to indicate a long chain of causation without paying attention to the actual number of intermediate links.

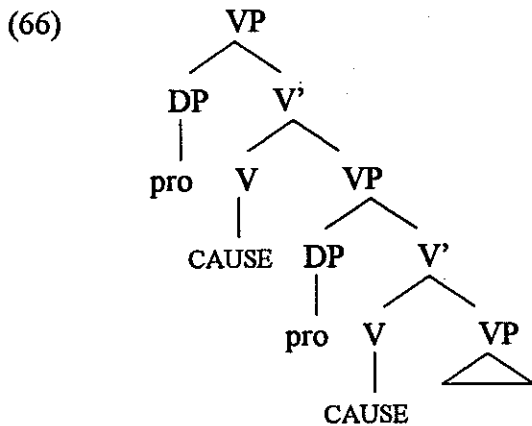
- (64) Ahmet soğanlar-ı Ali-ye doğra-t-tır-t-tır-t-tı
 A.-NOM onions-ACC A.-DAT chop-CAUSE(x5)-PAST-3SG
 'Ahmet had the onions chopped by Ali'

The passive in the translation conveys the indirectness, but the literal meaning of (64) is roughly 'Ahmet made someone make someone else make another person make someone different make Ali chop the onions'.²⁶ A *by*-phrase inserted in (64) would be interpreted as either the first causee below the subject or the first causee above the dative phrase.

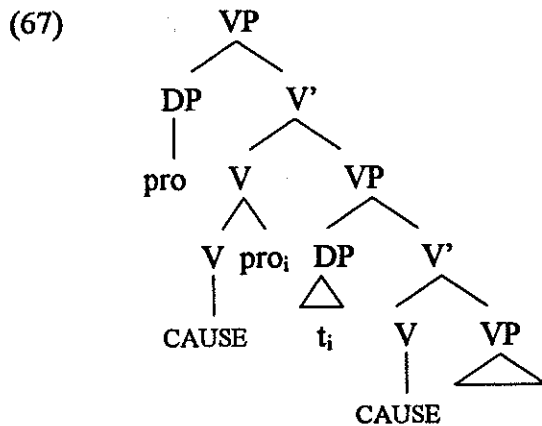
- (65) Ahmet [Ayşe tarafından] soğanlar-ı Ali-ye doğra-t-tır-t-tır-t-tı
 A.-NOM A. by onions-ACC A.-DAT chop-CAUSE(x5)-PAST-3.SG
 i. 'Ahmet made Ayşe have the onions chopped by Ali'
 ii. 'Ahmet had Ayşe make Ali chop the onions'

The assumption that CAUSE is a verb that projects a VP entails that each causative morpheme generates a causer as its specifier. Clearly, this specifier must be a phonetically null argument with arbitrary reference, which fits the description of the silent pronoun *pro*.

²⁶In the haphazard iteration of the causative morpheme, speakers prefer the recursion of the heavy syllable *tİrt* as a unit (as in *tİrt-tİrt-tİrt*), which is made up of two alternating causative suffixes *-tİr* and *-t*. The only reason for this pattern seems to be speech rhythm.



As argued above, the PFI requires all arguments to be structurally licensed, which would also hold for the *pro*'s in (66). The fact that there is no limitation as to how many *pro*'s can occur in a clause suggests that they are not licensed at the predesignated positions that the overt causees are. This leaves noun incorporation as the only option (Baker 1988). The incorporation of *pro* into CAUSE yields the following structure.

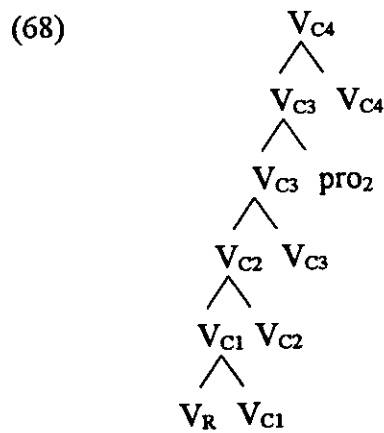


The Case Alignment Hierarchy in section 3.1 (or a generalized EPP) forces the higher *pro* in (67) to move to NomP, and the remaining arguments to fill the specifiers of AccP, DatP, and ByP. After that, any additional causee would have to be generated as a *pro* argument and be incorporated into CAUSE.

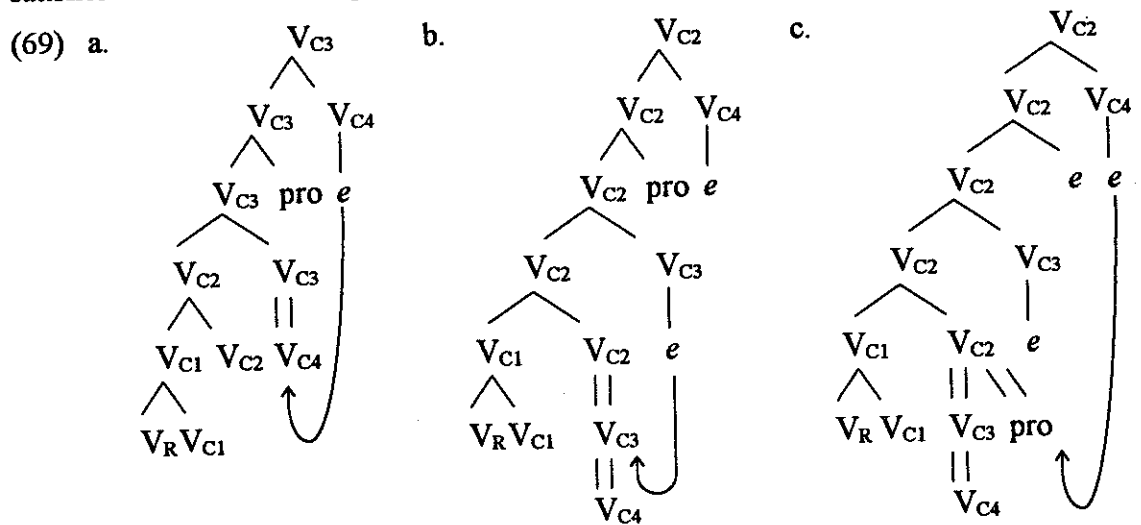
The adjunction of *pro* into CAUSE need not occur at S-structure. The verbal complex already needs to reconstruct at LF for the N-incorporation out of arguments to fulfill the selectional requirements, see Koopman (1994), and this would also enable *pro*-incorporation.²⁷ Unlike the P-incorporation of type II causatives, an adjoined *pro* needs to saturate its receptor on the verb, and therefore, *pro*-incorporation does not interfere with the complex event formation. In the most basic case in (68), *pro* is generated as the

²⁷Koopman (1994) licenses DP arguments as specifiers, but she forces the N heads of the arguments to incorporate into V at LF for θ -licensing.

specifier of the second CAUSE (the root verb takes a dative specifier, and the first causer is a *by*-phrase), whose receptor it must saturate in order to be licensed. From its base position at [Spec, V_{C2}], *pro* can only move up and adjoin to the third CAUSE.



The licensing of the verbs and *pro* proceeds as indicated in (69) below. Intermediate stages in the derivation contain various violations of proper movement, but the output satisfies all conditions and principles (receptor labels omitted for simplicity).



As V_{C4} moves to the event receptor of V_{C3} , the top V_{C4} node converts to V_{C3} , (69a). Next, V_{C3} moves to the event receptor of V_{C2} , and all dominating nodes convert to V_{C2} , (69b). This allows *pro* to i-command its trace when it moves to the argument receptor of V_{C2} , (69c). Unlike the incorporated P in type II causatives, *pro* gets out of the way by moving to a lower receptor, and enables V_{C4} to move to the receptor on V_{C3} .

3.3.2 Null CAUSE

A number of monadic verbs like *run*, *jump*, and *march* can be transitivity with no morphological marking in English, as in (70) below. The conventional view is that they

are transitivized with the aid of some null causative morphology.²⁸

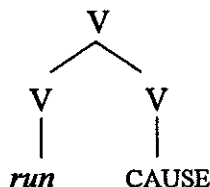
- (70) a. John ran the horses around the rink
 b. The commander marched the soldiers onto the field

This causative approach appears to be correct since the pattern of transitivization in these cases is typical of causatives: The original subject is demoted to an object and the new argument is added on as the subject. What is unusual here is that the causative is not overt, which, for the following reason, indicates that its morphology is formed differently.

In the absence of phonological evidence for the presence of CAUSE, the only reason that a child would posit a complex structure in cases like the transitive *run* is their semantics. One could argue that the semantic complexity of such forms conflicts with their phonologic simplicity, and the child resolves this by assigning them a unique morphological structure that combines both properties. A nonbracketed union such as [*run*-CAUSE] satisfies both demands. By contrast, the causativized form *koştur* 'make run' is phonologically distinct from the root form *koş* 'run' in Turkish. The overt morphology would be represented as a bracketed union in the form of [[*koş*]*tur*] in this example, or as [[*run*] CAUSE] schematically.

The syntactic reflex of the bracketed and nonbracketed forms is the branching and nonbranching structures derived by two types of movement: adjunction and substitution.

- (71) a. Adjunction:



- b. Substitution:



The substitution erases the phonetic content of CAUSE in (71) but preserves its semantic content and passes it on to the substituting *run*. In doing so, it enables the derivational morpheme to be phonetically null while simultaneously contributing to the complex event formation by fusing with the root verb.

The choice between substitution and adjunction has real consequences. Leaving aside the interpretive differences for section 4.2, what is important in this section is that null causatives, the result of substitution into CAUSE, are not allowed to iterate:

²⁸This is also predicted by the Principle of Lexical Coherence presented in chapter 1, which prohibits the syntax from selecting only a part of a lexical item as its input. In other words, motion verbs cannot be represented as transitive verbs in the lexicon to be imported into the syntax as intransitive verbs.

- (72) a. *John ran (to) Mary the horses (around the rink)
 cf. John made Mary run the horses (around the rink)
- b. *The commander marched (to) the sergeant the soldiers (onto the field)
 cf. The commander made the sergeant march the soldiers (onto the field)

This is unlikely to be a Case related problem since English has no difficulty elsewhere in licensing double accusatives under dative shift, i.e., *John gave Mary the book*. Instead, this appears to be a restriction against successive substitution into (null) CAUSE.

- (73) a. [John ran [the horses t_V [around the rink]]]
 b. *[John ran [(to) Mary t_V [the horses t_V [(around the rink)]]]]

Crucially, however, this restriction is not against successive substitution into any null head. It is significant in this respect that Hindi allows any number of causees to appear without any overt causative morphology, which suggests that the root verb can incorporate into a series of null CAUSE predicates in this language.

- (74) a. Māā ne naukar se kaam karvaayaa
 mother ERG servant INST work do-CAUSE-PAST
 'The mother made the servant do the work'
- b. Pitaa ne māā dwaaraa naukar se kaam karvaayaa
 father ERG mother INST servant INST work do-CAUSE-PAST
 'The father made the mother make the servant do the work'
- c. ?Raam ne pitaa dwaaraa māā dwaaraa naukar se kaam karvaayaa
 R. ERG father INST mother INST servant INST work do-CAUSE-PAST
 'Raam made the father make the mother make the servant do the work'

The first causative produced with overt morphology *-vaa* in (74a) must be derived by adjunction, while the following null causative in (74b) must be due to substitution. The problem is the second substitution in (74c), which is disallowed in English.

Another substantial difference between the null causatives of English and Hindi is that each causative VP introduces a ByP in Hindi to license the instrumental causees. Assuming that this correlation is not just an accident, it would suggest that the availability of intermediate licensing projections is related to the ability to successively incorporate into null CAUSE. Therefore, what is ruled out in English is not the successive head substitution itself, but the successive substitution into the same type of head.

(75) Null Head Restriction:

A null head H_1 can substitute for another null head H_2 only if $Type(H_1) \neq Type(H_2)$.

The NHR specifically rules out the incorporation of a null CAUSE into another null CAUSE, as well as a null VOL into another null VOL, or a null ACT into another null ACT, but crucially, not the incorporation of a null CAUSE into a null ACT, or a null ACT into a null VOL. Causative iteration does not violate the NHR in Hindi, because the null CAUSE is

substituted for a null By, and the null By is substituted for a null CAUSE.

Ultimately, the NHR is a descriptive generalization that must follow from more general principles. A possible route that makes use of the indexation mechanisms and a well-formedness condition on chains is pursued in the appendix at the end of this chapter.

4 Thematic Relations in Causatives

This section focuses on the ambiguity between the interactive and circumstantial readings, regularly available in the causatives of transitive eventive verbs like *eat*, as in *Sue made Bill eat some cabbage*. The interactive reading is defined by the interaction between the causer and the causee, i.e., Sue acting on Bill in some way, either coercing or persuading him to eat the cabbage. Circumstantial reading is defined by the absence of an interaction, where Sue brings about the event of Bill eating the cabbage by merely manipulating the situation, e.g., by placing small quantities of it in his favorite dish, or by convincing him that eating cabbage lowers cholesterol and leaving it at that. The causer only sets up the circumstances in this reading and lets the event run its own course.²⁹

Although this ambiguity may appear pragmatically driven, it must be rooted in the syntax since each reading is blocked in a well-defined syntactic context. The following subsections will show that unaccusative verbs cannot support interactive causation in languages with morphological causatives, e.g., Turkish and Hungarian, and that the circumstantial reading is unavailable with null causatives in English. The account given in both cases crucially relies on the thematic properties of CAUSE, which are discussed below.

It was mentioned in passing in section 1 that both the permissive and coercive causatives are ambiguous as to whether their causers are active or inactive. In both cases, the causation is initiated by the causer, but an active causer does this by performing some act, whereas an inactive causer remains detached from the event. The distinction is quite robust with the coercive *make*:

- (76) a. Her superiors in the company made Sue buy the house
b. The view of the ocean made Sue buy the house

Pragmatics associated with these sentences makes one of the readings more immediately available: the causer is active in (76a), where Sue's superiors issue an order, but inactive in (76b), where the view provides the reason only by being there and not doing anything else. The contrast is more subtle with the permissive *let*, but it is still accessible:

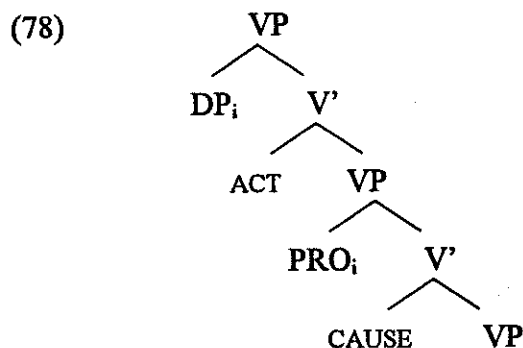
- (77) a. The loan officer let Sue buy the house
b. The neighbors let Sue buy the house

Again, each reading is amplified by pragmatics. The loan officer in (77a) can be an active

²⁹This ambiguity also obtains with permissives. In the interactive reading of *John let the prisoners escape*, John may act on the prisoners by providing them the keys, whereas in the circumstantial reading, he may simply turn the security cameras off, and the prisoners may be completely unaware of John's act. John's involvement in the escape is low enough in both readings to qualify as permissive causation.

causer that removes the obstacles that had stopped Sue before, while the neighbors in (77b) are likely to be inactive causers that grant her the permission to buy the house.

This ambiguity suggests that the external argument of CAUSE displays a thematic role alternation: It has the characteristics of an Actor (protagonist) in the active reading, but a Neutral argument (nonprotagonist) in the inactive reading, see chapter 2. Recall from chapter 1 that this type of alternation (the substitution-type optionality) is excluded from the grammar by the Dissimilarity Corollary, which requires lexical items that have identical phonological and semantic content to have the same syntactic properties, which includes thematic frames. The Dissimilarity Corollary can be maintained by taking causers as Neutrals across the board, and deriving the Actor reading with the use of the control predicate ACT, as was the case with verbs like *follow* and *imitate* in the previous chapter.



The volitionality predicate VOL can be added into this structure at a higher position as argued in chapter 2, which provides the volitional reading when the Actor causer raises through its specifier. Both ACT and VOL are ignored in the discussion below for simplicity.

The defining property of causation is that the causer triggers a subordinate event. At the receiving end of this relation is a change in the state of affairs, or a change in the state of a nonprotagonist argument. Thus, CAUSE licenses an affected nonprotagonist, a Patient argument, in addition to the Neutral, where the Neutral is mapped onto the higher argument by the hierarchies discussed in chapter 2. However, it is not obvious what associates with the Patient role since the complement of CAUSE is a predicative category, either a bare VP or a VP that projects Case positions. An insightful proposal is made by Alsina (1992), who argues that CAUSE is a three-place predicate that takes an Agent causer, the caused event, and a Patient.

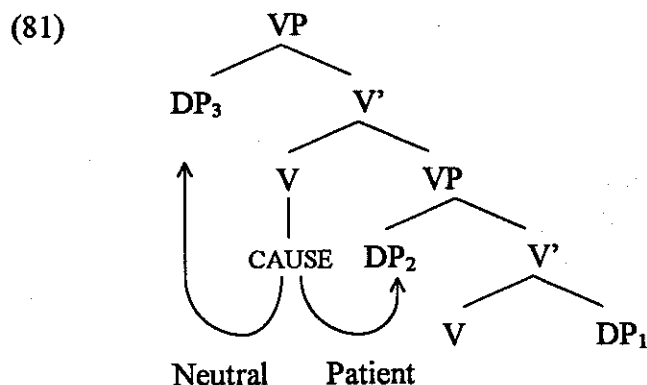
(79) CAUSE <ag pt PRED>

Crucially for Alsina, the Patient role fuses with an argument inside the PRED.

(80) CAUSE < ag pat PRED <...θ...>>

The type of interpretation assigned to the causative is determined by the exact argument that the Patient of CAUSE fuses with. In the equivalent of the interactive reading above, it fuses with the external argument of the lower predicate, but in the reading that matches closely to circumstantial causation, it fuses with the internal argument of PRED.

It needs to be pointed out, however, that as long as one adopts the view that categorial selection and thematic role association are separate processes, (79) would be describing a predicate with two arguments, not three. CAUSE has only two thematic roles, the Agent and the Patient, and selects two constituents, the causer and PRED. Patient fusion enables selection and role association to be expressed in a single frame in (80). Alsina's derivation for interactive causation is maintained with a two-place CAUSE in (81) by associating the Patient role with the external argument of the lower VP.



Recall that the causer triggers a subordinate event by directly acting on the causee in this reading, where the two individuals interact. This is the reading of *make* or CAUSE that can be paraphrased using the verb *force*.³⁰ Association with a thematic role across a VP boundary would not violate the Projection Principle only if the D-structure is built through thematic relations. In the system adopted here, arguments are generated only through categorial selection.³¹

The problem in Alsina's (1992) theory is his derivation of circumstantial causation through the association of the Patient of CAUSE with the internal argument of the lower V, i.e., the DP₁ in (81). Since the theory does not restrict how far into the predicative complement the Patient association can be extended, it also predicts a number of readings that are not available in sentences that have the following layout.

(82) [_{VP} DP₁ CAUSE₁ [_{VP} DP₂ CAUSE₂ [_{VP} DP₃ V DP₄]]]

With no locality restriction, the Patient of CAUSE₁ would be able to associate with DP₄, just as the Patient of CAUSE₂ would with the DP₃. This would mean that a sentence like *Alice made Bill make Don eat some cabbages* should allow the reading that Bill acts on

³⁰The verb *force* is like *order* and *use* in that it is a three-place predicate with a DP direct object and an infinitival indirect object, cf. *Bill was forced/ordered to leave the room* and **Bill was made leave the room*. It is a paraphrase for the interactive reading because the forcee is the Patient of *force*, just as the causee is the Patient of CAUSE in this reading.

³¹The type of dual thematic role association in (81) is also observed in the resultative construction and the bare VP complements of perception verbs such as *I saw Bill leave*. See Baker (1989) and Campbell (1989) for a similar situation in terms of object sharing,

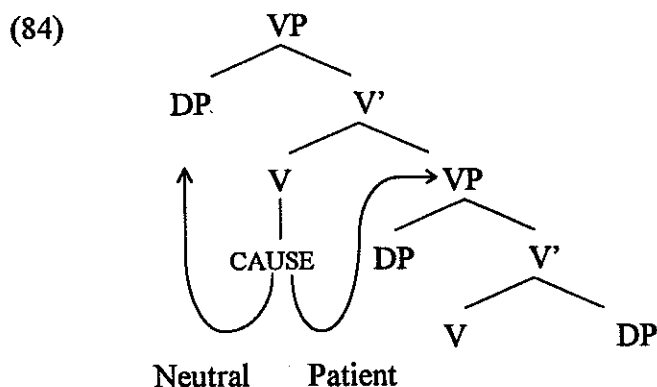
Don, Alice acts on the cabbages, and Don eats the cabbages as a result. This describes a plausible event where Bill is forcing Don to eat the cabbage, while Alice is serving it. Yet the sentence clearly does not have that meaning.³² This suggests that Patient association is regulated in a way that is particularly familiar from Rizzi's (1990) Relativized Minimality and Chomsky's (1993) Shortest Move.

(83) The Intervention Effect:

An XP may not associate with a thematic role R provided by a predicate P if there is a YP such that P i-commands YP and YP i-commands XP.

This restriction prohibits an argument from associating with a thematic role across another argument position. By excluding all intermediate argument positions, (83) makes only the highest specifier available for the Patient of CAUSE, which is akin to the way heads are allowed to govern into the specifiers of their complements in Chomsky (1986b).³³

The Intervention Effect limits the set of available candidates for the Patient of CAUSE in the circumstantial reading. In fact, it forces the Patient role to associate with the VP complement of CAUSE, which also happens to stand for the entire caused event.



In this reading, the causer triggers a subordinate event without interacting with the causee. When the VP becomes the Patient of CAUSE, the clause receives the interpretation that the causer has manipulated the circumstances. In the interactive reading schematized in (81), the VP is not forced to associate with any role presumably because of its dual character as a predicative category.

4.1 The Absence of Interactive Causation

Unaccusative verbs may be causativized in Turkish, but the resulting structure cannot have

³²This, in a sense, is Croft's (1991) premise that the order of causative relations must parallel the order of causal links in the corresponding event.

³³The Intervention Effect in (83) is very similar to Aoun's (1985) Generalized Binding Conditions, and can be treated as a case of binding-based constraint. This is an appealing approach since it is consistent with Stowell's (1981) coindexation between the argument and the verb as a means for thematic role association, also adopted by Campbell (1989).

the interactive causation reading.

- (85) a. Ahmet ben-i iş-e zamanında var-dır-dı
 A.-NOM I-ACC work-DAT on.time arrive-CAUSE-PAST-3SG
 'Ahmet made me arrive at work on time'
- b. *[*pro* al-dı-ğ-ım emir] ben-i iş-e zamanında
 1SG receive-PAST-COMP-1SG order-NOM I-ACC work-DAT on.time
 var-dır-dı
 arrive-CAUSE-PAST-3SG
 'The order I received made me arrive on time'
- (86) a. Ahmet Ayşe-yi hastalan-dır-dı
 A.-NOM A.-ACC be.sick-CAUSE-PAST-3SG
 'Ahmet made Ayşe become sick'
- b. *Salmonella Ayşe-yi hasta-landır-dı
 S.-NOM A.-ACC be.sick-CAUSE-PAST-3SG
 'Salmonella made Ayşe become sick'

The unaccusative verbs *var* 'arrive' and *hastalan* 'be sick' can only have the circumstantial reading when causativized. In (85a), Ahmet can make me arrive on time by giving me a ride or letting me leave early, but he cannot force me to arrive on time. The pragmatics associated with the subject *aldığım emir* 'the order I received' in (85b) elicits the interactive reading due to the speakers' understanding that orders act on the individuals who receive them.³⁴ Similarly, Ahmet may make Ayşe become sick by making her drink bad milk in (86a), which is a case of Ahmet manipulating Ayşe's environment without acting on her. The causer, however, cannot be the actual agent of sickness, e.g., the salmonella in (86b), which pragmatically forces the interactive reading.³⁵

It can be seen in the following examples that the ungrammaticality of (85b) and (86b) is not due to the inanimacy of their subjects.

- (87) a. [*pro* al-dı-ğ-ım emir] ben-i iş-e
 1SG receive-PAST-COMP-1SG order-NOM I-ACC work-DAT
 başla-t-tı
 start-CAUSE-PAST-3SG
 'The order I received made me start the work'

³⁴The sentence would be grammatical in an unusual situation where the order I receive forces me to perform an unrelated act, which has the effect of making me arrive on time.

³⁵An apparent counterexample is *öl* 'die', whose causative *öldür* 'kill' is compatible with interactive causation. However, as will be argued in chapter 4, *die* is not an unaccusative verb. It allows cognate objects, as in *die a horrible death*, unlike other unaccusatives.

- b. Salmonella Ayşe-yi kus-tur-du
 S.-NOM A.-ACC vomit-CAUSE-PAST-3SG
 'Salmonella made Ayşe throw up'

The sentences in (87) are good with both the interactive and circumstantial readings, so the animacy of the subjects must not be the source of the problem in (85b) and (86b). The factor that determines the absence of interactive causation is verb class. The verbs in (85) and (86) are unaccusatives, while those in (87) are not.³⁶

The same facts hold in Hungarian as well. For example, the magician may not act on the sun to make it appear in the sky in (88a), nor may the tour guide force the group to arrive in Rome on Monday in (88b).

- (88) a. A varázsló megjelentette a napot az éjszakai égbolton
 the magician PERF-appear-CAUSE-PAST the sun-ACC the nightly sky-LOC
 'The magician made the sun appear in the night sky'
- b. A túravezető hétfőn érkezett Rómába a csoportot
 the tour leader Monday-LOC arrive-CAUSE-PAST Rome-DAT the group-ACC
 'The tour leader made the group arrive in Rome on Monday'

The interactive reading is pragmatically possible in (88a), given that the context involves magic. However, the magician needs to manipulate the visibility of the sun rather than the sun itself. Likewise, the tour guide is only allowed to play with the travel schedule of the group in (88b), but not act on or direct them in any way.

Unaccusativity is only one of the factors in this paradigm. The other one is the

³⁶The most reliable test of unaccusativity in Turkish is the generic interpretation forced by the passives (Knecht 1985, Sezer 1991) in the dialects that allow unaccusative passives. This construction will be discussed in chapter 6. Generic passives do not support reference to any specific time or location, and they require the demoted subject to be human. The verbs in (85) and (86) behave this way, the ones in (87) do not. Note that the distribution of the passive morphemes *-(I)l* and *-(I)n* is phonologically determined: *-(I)n* is used after vowels and the liquid /l/, and *-(I)l* elsewhere.

- (i) Demin o toplantı-ya başla-n-dı/*var-ıl-dı
 just.now that meeting-dat start-pass-past-3sg/arrive-pass-past-3sg
 'There was started/arrived (at) that meeting just now'
- (ii) Dün bu oda-da bayağı kus-ul-du/*hastalan-ıl-dı
 yesterday this room-LOC quite vomit-PASS-PAST-3SG/be.sick-PASS-PAST-3SG
 'There was vomited/been sick a lot in this room yesterday'

As another test of unaccusativity, Özkaragöz (1986) suggests that the subjects of the time adjunct *-ArAk* clauses and main clauses must be parallel in terms of their underived versus derived status. Unfortunately, my judgments regarding that construction are not as clear.

morphological nature of the causatives in Turkish and Hungarian. It is significant that the periphrastic causatives of English and Greek allow the interactive reading.

- (89) a. John's threats made/let me arrive on time
 b. The magician made/let the rabbit appear on stage
- (90) a. [I apili tou Nikou] m-ekane na ftaso
 the threat the-GEN Nikos-GEN 1SG.ACC.CL-made-3SG SUBJ arrive-1SG-SUBJ
 stin ora mou
 at-the time 1SG.GEN.CL
 'Nikos' threat made me arrive on time'
- b. O maghos ekane na emfanisti to kouneli sti skini
 the magician made-3SG SUB appear-3SG-SUBJ the rabbit at-the stage
 'The magician made the rabbit appear on stage'

The English *make* and *let* and the Greek *kano* 'make' allow the type of interpretation that is not allowed with the morphological causatives of Turkish and Hungarian. In (90a), the subject *i apili tou Nikou* 'Niko's threat' pragmatically isolates the interactive reading, while a readily available interpretation of (90b) is that the magician is chasing the rabbit towards the stage. The same range of interpretation is observed in the compound forms in Turkish. Unlike the causative form *hastalandır* 'make sick' in (86b), the adjective *hasta* 'sick' yields the interactive reading when embedded under the auxiliary *et* 'do'.

- (91) Salmonella Ayşe-yi hasta et-ti
 S.-NOM A.-ACC sick do-PAST-3SG
 'Salmonella made Ayşe sick'

The light verb *et* 'do' takes a small clause AP complement (Stowell 1981), allowing the interpretation that is normally available only in periphrastic causatives.³⁷

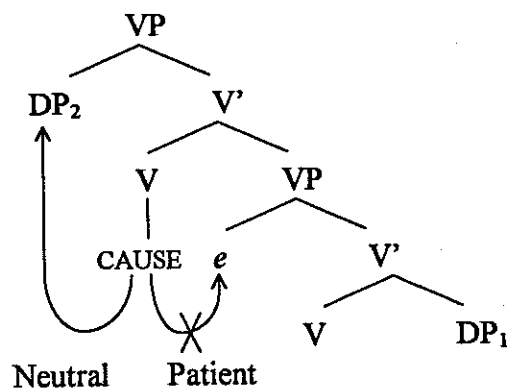
Assuming that the interactive reading is derived by associating the Patient of CAUSE with the argument in the specifier of the lower VP, the causee, there is a very straightforward reason why it is not allowed with unaccusative verbs in morphological causatives. Unaccusative verbs, by definition, do not have any arguments in their specifiers at D-structure (Perlmutter 1978, Burzio 1986). Whether their specifiers are empty or occupied by an expletive, these verbs do not provide any phrase in the lower specifier that could associate with the Patient role, and their thematic complements are not

³⁷Deadjectival verbs derived by *-lan* uniformly act like unaccusative verbs, whereas those derived by *-laş* behave like unergatives. Both forms in (i) below would be good with a human subject who is not an interactive causer.

- (i) Çamaşır suyu çarşaf-lar-ı beyaz-laş-tır-dı/*beyaz-lan-dır-dı
 laundry water sheets-acc white-laş-cause-past-3sg/ white-lan-cause-past-3sg
 'The bleach whitened the sheets'

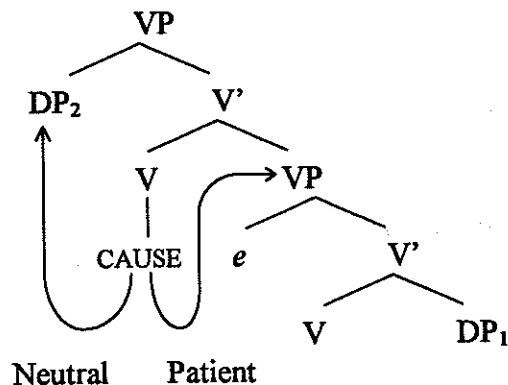
accessible across the specifier of VP due to the Intervention Effect in (83).

(92)



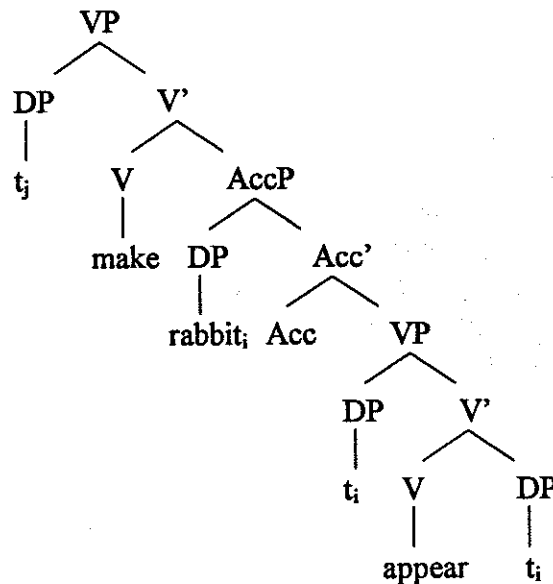
The absence of an argument in the specifier does not affect the circumstantial reading, since it is derived by associating the Patient role with the VP complement of CAUSE.

(93)



The interactive reading is available in periphrastic structures like the English *The magician made the rabbit appear on stage* and its equivalent in Greek presumably because they allow the Patient association to take place at some level after D-structure, where the complement of the unaccusative verb has moved out of its base position to or through the accusative licensing position.

(94)



It is not significant for the issue at hand whether or not the causative verb *make* moves out to some functional head, and the lower verb *appear* moves to Acc. What is crucial is that *rabbit*, the argument of *appear*, must be fronted to some preverbal position, cf. **The magician made appear the rabbit*. Assuming that this movement does not stop at [Spec, VP], but continues further to [Spec, AccP] at S-structure, the argument would be placed at the highest specifier and become accessible for the Patient of CAUSE.³⁸ In short, the Patient association takes place at S-structure in these cases.

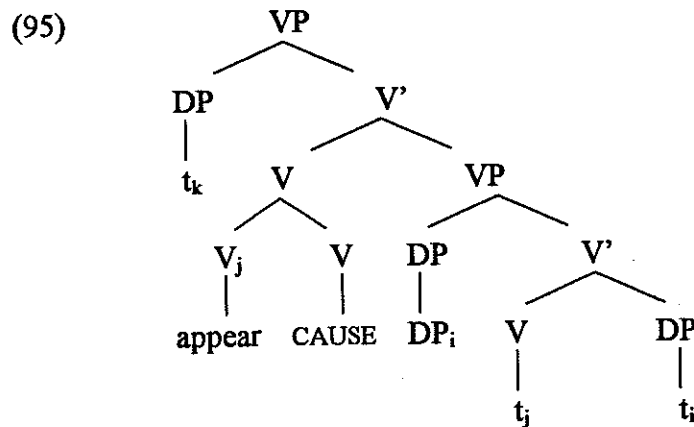
The movement in (94) is essentially movement to a θ -position, but this is not a problem in this theory, since argument positions are licensed through categorial selection at D-structure, rather than θ -assignment/selection.³⁹ Therefore this view, there is no longer an obvious reason why thematic role association must be an exclusive property of D-structure representations, i.e., the lowest ends of LF chains. As long as all selected positions are filled at D-structure, and the Principle of Recoverability ensures the transparency of S-structure and LF by blocking the deletion of material that has actual content, categorial selection would be able to rule out all problematic cases that were traditionally covered by the prohibition against movement to a θ -position. For example, the complement of *hit* cannot move to the specifier in **[_{VP} Bill_i hit t_i]* and mean *Bill hit*

³⁸This basic mechanism may be at work with the ECM and small clause constructions as well. In this view, *John believes Bill to be sick* means something different from *John believes that Bill is sick*. This is true in subtle ways: the former is interpreted as *John believes of Bill that the attribution of being sick holds for him*, whereas the latter can be paraphrased as *John believes the proposition that Bill is sick*.

³⁹In the terminology of Pesetsky (1995), arguments are generated through c-selection, not s-selection.

himself because it is movement to a selected position:⁴⁰ *hit* selects a distinct argument as its specifier, e.g., *Frank*, which cannot be deleted since its content is unrecoverable.⁴¹

The issue now becomes how and why the same option is not available with morphological causatives in Turkish, Hungarian, and others. The difference between these two types of languages is the syntactic level that the root verb incorporates into CAUSE. In Turkish and Hungarian, this operation takes place at S-structure, but in English and Greek, it takes place at LF. The relevant portion of the S-structure in the Turkish-type languages is schematically outlined below. Note that the complement of the lower V, DP_i, may have moved further up in a given language, in which case, all that is said about the DP_i below simply carries over to its copy or trace.



It appears that the inability of DP_i to associate with the Patient of CAUSE in (95) is due to the early (S-structure) formation of the complex predicate, which contrasts with the periphrastic structures in (94). This difference suggests that arguments can associate with the thematic roles of a predicate only when it is simplex. Once CAUSE combines with *appear* to form *appear*-CAUSE, it is no longer a simplex predicate whose Patient role is accessible for the DP_i. This restriction is formulated below as an independent condition, though it presumably follows from the mechanics of thematic role association.⁴²

(96) The Opacity of Role Association

For an argument A, thematic relation R, and predicates P and P', R((P ∧ P') A) holds iff R(P, A) holds.

⁴⁰I assume here that the specifier is just as a selected position as the complement is.

⁴¹In theories that dispense with movement and rely on chain formation instead, the same result is obtained as a combination of two principles:

- (i) All selected positions must be the lower end of a chain.
- (ii) All selected positions must introduce a novel chain.

⁴²This condition is in the spirit of the set-theoretic $[(x \notin A) \wedge (x \notin B)] \leftrightarrow [x \notin (A \cup B)]$.

Opacity states that an argument may bear the Patient-of-CAUSE relation with V-CAUSE only if it bears the same (Patient-of-CAUSE) relation with the simplex verb CAUSE. It may not associate with the Patient of CAUSE in a syntactic representation where CAUSE is a part of the complex predicate V-CAUSE, and not an isolated one.⁴³ This effectively eliminates the S-structure derivation of the interactive reading in morphological causatives. Note that Opacity constitutes an additional constraint against movement to a θ -position.

Romance languages provide evidence that the relevant factor in the Opacity effect is the morphological process of complex verb formation, instead of the syntactic operation of verb movement. Koopman (1994) argues that at S-structure, the lower verb moves out of its VP and adjoins to *faire* in French and *fare* in Italian, while the causative verbs excorporate and move up to T, which yields the correct order of verbs.⁴⁴ Romance causatives are like morphological causatives in terms of verb movement, but like periphrastic causatives in terms of the absence of complex verb formation. It is therefore significant that the causers are allowed to act on the causees in the following examples.

(97) French:

- a. Jean a fait arriver Marie à temps
J. has made arrive M. at time
'Jean made Marie arrive on time'
- b. Le magicien a fait apparaître le lapin sur la scène
the magician has made appear the rabbit on the stage
'The magician made the rabbit appear on stage'

(98) Italian:

- a. Le minacce di Gianni hanno fatto arrivare Maria in tempo
the threats of G. have made arrive M. in time
'Gianni's threats made Maria arrive on time'
- b. Il mago ha fatto apparire il coniglio dal cappello
the magician has made appear the rabbit from-the hat
'The magician made the rabbit appear from the hat'

The availability of the interactive reading in these languages⁴⁵ suggests that arguments can

⁴³Crucially, syntactic conditions and principles must be checked only at the predesignated syntactic levels (D-structure, S-structure, LF, and its equivalents). Otherwise, allowing them to be checked between levels would make it possible to derive the interactive reading by reordering the movements in (96): The DP_i would move first, associate with the Patient-of-CAUSE while CAUSE is simplex, and then the lower verb would move to CAUSE. This means thematic role association ought not to be considered to be feature checking.

⁴⁴The fronted VP in French does not contain a V.

⁴⁵The speakers that I have consulted with respect to Spanish differed in their judgments on the availability of the interactive reading with unaccusative verbs. I am not certain at

enter into a thematic relation with a verb as long as the verb is simplex at the relevant level, i.e., it has not formed a complex morphological unit with some other predicate.

The morphological causatives of Korean and Japanese present the only cases that appear as counterexamples to the generalization drawn in this subsection. In Korean, John can actually be Mary's boss who tells her to arrive on time tomorrow in (99a), or else she will be in trouble; and the magician can be directly acting on the rabbit in (99b).

- (99) a. John-i Mary-lul cenggi-ey tochaka-key hay-ess-ta
 J.-NOM M.-ACC on.time-LOC arrive-CAUSE do-PAST-INDIC
 'John made Mary arrive on time'
- b. Mapepsa-ka thokki-lul mutay-ey nathana-key hay-ess-ta
 magician-NOM rabbit-ACC stage-LOC appear-CAUSE do-PAST-INDIC
 'The magician made the rabbit appear on stage'

Same facts obtain in Japanese. In (100) for example, Taro can force Hanako to arrive on time by threatening her.

- (100) Taroo ga Hanako o zikan-doori-ni tuk-ase-ta
 T. NOM H. ACC on.time arrive-CAUSE-PAST
 'Taro made Hanako arrive on time'

However, appearances are somewhat misleading in the causatives of Korean and Japanese since both languages license the null CAUSE predicate as well as the null causees discussed in section 3.3. This is evident in the way the examples below can describe situations where the causer acts on some intermediary causee, who then forces Mary or Taro to run, without any additional causative morpheme or a causer.

- (101) a. Korean:
 Bill-i Mary-lul talli-key hay-ess-ta
 B.-NOM M.-ACC run-CAUSE do-PAST-INDIC
 'Bill made Mary run'
- b. Japanese:
 Hanako ga Taroo o hasir-ase-ta
 H. NOM T. ACC run-CAUSE-PAST
 'Hanako made Taro run'

this point whether this difference corresponds to any established dialect split.

- (i) Las amenazas de Juan hicieron a Maria llegar puntual
 the threats of J. made to M. arrive on.time
 'Juan's threats made Maria arrive on time'
- (ii) Pedro hizo suceder el accidente
 P. made occur the accident
 'Pedro made the accident occur'

The equivalent of these sentences in Turkish cannot imply the involvement of an unnamed third party as an intermediate causee. The subject in (102) must personally set the lower event in motion in both the interactive and the circumstantial senses:⁴⁶

- (102) Ahmet Ayşe-yi koş-tur-du
 A.-NOM A.-ACC run-CAUSE-PAST-3SG
 'Ahmet made Ayşe run'

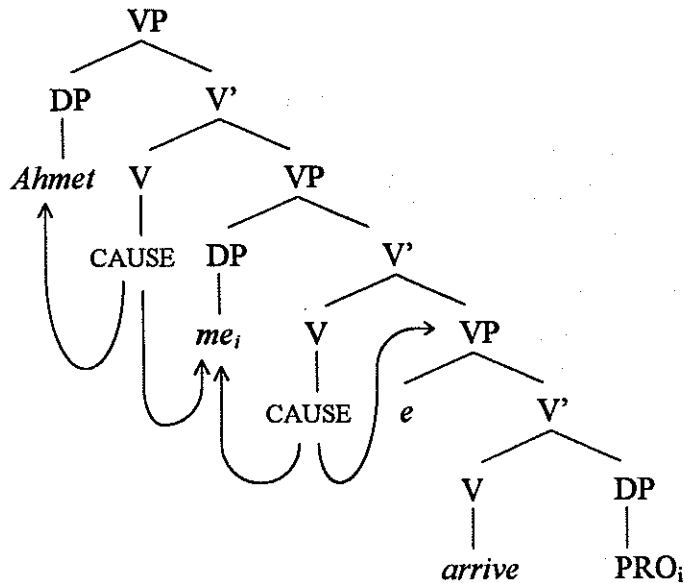
Multiple causation is relevant in this context because Turkish allows unaccusative verbs to have the interactive reading when it has two causative suffixes:

- (103) a. Ahmet ben-i iş-e zamanında var-dır-t-tı
 A.-NOM I-ACC work-DAT on.time arrive-CAUSE-CAUSE-PAST-3SG
 'Ahmet made me arrive at work on time'
- b. ?Salmonella Ayşe-yi hasta-lan-dır-t-tı
 S.-NOM A.-ACC be.sick-CAUSE-CAUSE-PAST-3SG
 'Salmonella made Ayşe be sick'

The sentences improve because the intermediate causative VP generates a causee argument high enough to associate with the Patient of the higher CAUSE. This causee is then coindexed with the lower causee along the lines of PRO-control, where the binding theory dictates that the overt category *c*-commands the covert one.

⁴⁶Mediated causation is possible in limited contexts where the actions of the intermediary is assured an automatic outcome. For example, I may have the president sign a document by giving it to his secretary, and describe the situation with the equivalent of *I made the president sign the document* (Jaklin Kornfilt, personal communication). Technically, it is the secretary who makes the president sign the document, and all I do is to make the secretary takes the document to the president. I will argue later on that the links in the causation chain are 'skipped' when the intermediate causee of the event (the secretary) does not present an independent will that must be overcome by the causer of the event, see the Non-Autonomy Exception in chapter 5.

(104)



The exact mechanics and the licensing conditions of these vacuous causatives in Turkish are not very well understood at this point. However, provided that a similar procedure is available in Korean and Japanese (see chapter 6), a structure based on (104) would allow the interactive causation reading with unaccusative verbs in these languages. The only difference would be that Turkish does not license a null CAUSE, so each link in the causal chain has a corresponding causative morpheme, whereas only a single CAUSE can be overt in Korean and Japanese, and the other CAUSE must be null.⁴⁷ It can be concluded then, that these languages do not constitute a problem for the analysis proposed above.

4.2 The Absence of Circumstantial Causation

The null causatives of English, such as the transitivized versions of *run*, *jump*, and *march*, allow only the interactive causation reading.

- (105) a. The man ran the horses around the field
 b. The lion tamer jumped the lions through the hoop
 c. The commander marched the soldiers into the stadium

These sentences do not allow the circumstantial reading, where the man may make the horses run by setting their stable on fire; the lion tamer may make the lions jump by placing their meal on the other side of the hoop; and the commander may make the soldiers march by telling them that they are free to go to the stadium, but they should always make the military proud. These readings are available in the periphrastic versions:

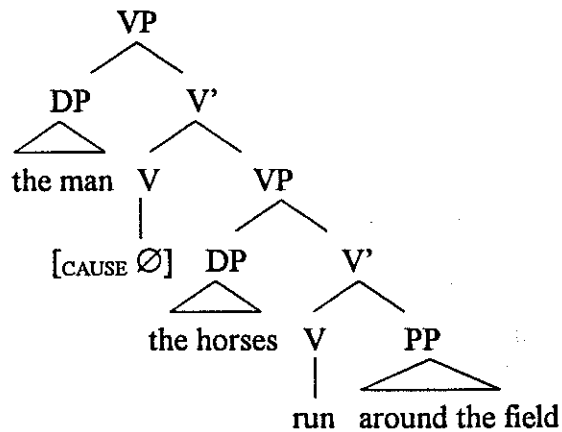
⁴⁷This is not successive verb substitution since one of the two CAUSE morphemes is overt, indicating that one of the steps in the derivation involves adjunction. Therefore, either V adjoins to the first CAUSE above, [CAUSE [v V] [CAUSE CAUSE]], which then substitutes for the second CAUSE, [CAUSE [CAUSE [v V] [CAUSE CAUSE]]], or V substitutes for the first CAUSE, [CAUSE [v V]], which then adjoins to the second CAUSE [CAUSE [CAUSE [v V]] CAUSE].

- (106) a. The man made the horses run around the field
 b. The lion tamer made the lions jump through the hoop
 c. The commander made the soldiers march into the stadium

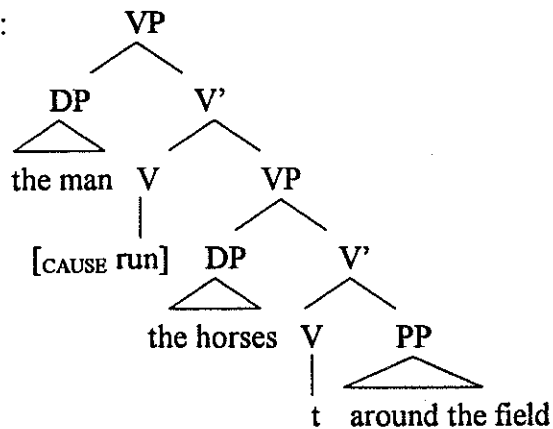
The morphological causatives that correspond to (105) and (106) in Turkish also have the same range of readings as that of the periphrastic structures in English.

There are three assumptions that are necessary to account for the behavior of null causatives. The first is that they are derived by verb substitution. Recall that morphological segmentation in periphrastic and morphological causatives was taken above as an indication for verb adjunction, while the absence of it in null causatives was argued to be the result of verb substitution. Abstracting away from the tangential issue of argument movement, the derivation of the null causatives in (105) is schematized below.

(107) a. D-Structure:



b. S-structure:



The second assumption is that the index of the substituting head replaces the index of the host in head-substitution, while the index of the adjoining head simply adds on to the index of the adjoined head in head-adjunction. The output of these procedures is represented below, where H is the host head and H[†] is the head that has moved to H.

- (108) a. Adjunction: [H [H[†] H[†]]_i [H]_j]_(i,j)
 b. Substitution: [H [H[†] H[†]]_i]_i

The results in (108) can be achieved by adopting the following convention:

(109) The Indexation Convention I:

A head must bear the same index as its terminal node(s).

The segmental structure brought about by adjunction keeps terminal nodes distinct in the relevant sense, so that the index of each terminal node is passed on to the topmost head node that dominates them. On the other hand, the nonsegmental structure created by substitution eliminates the terminal node of the host head, and it leaves the terminal node of the moved head as the only source of index for the host head, leading to (108b).

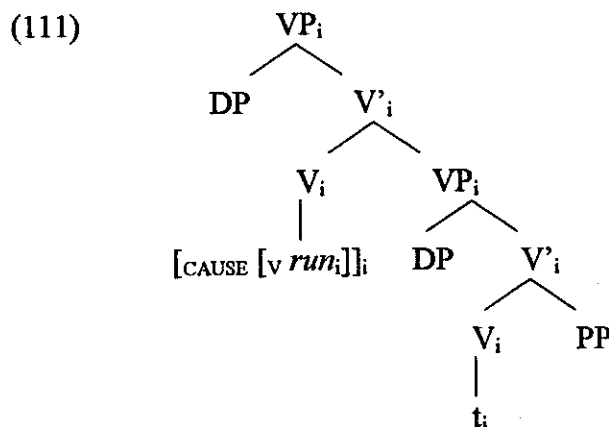
The third assumption is that an XP bears the same index as its head X. This is formulated as an independent convention below for ease of reference.

(110) The Indexation Convention II:

All bar level projections of a head X must bear the same index as X.

Both conventions, (109) and (110), are straightforward and plausible assumptions about the mechanics of the X-bar schema, whether it is a primitive of the theory (Chomsky 1970, 1980) or derived from more basic, structure-building operations (Chomsky 1994).

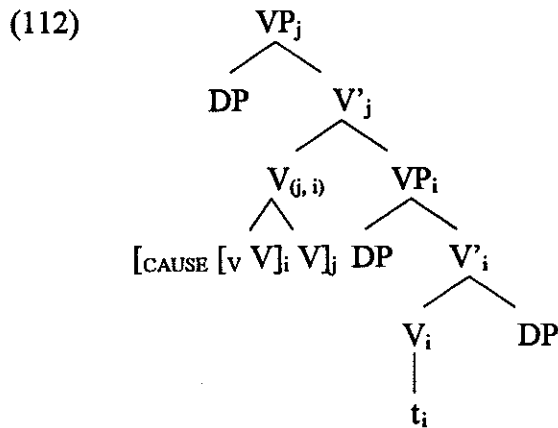
When combined, these assumptions derive a thematic circularity when the VP complement of CAUSE associates with the Patient of CAUSE. The substitution of the verb into the null CAUSE yields the following configuration in terms of verb movement.



Consider what happens when CAUSE takes its complement VP as its Patient in (111). By Convention I, the V that dominates the lower verb *run*_i at D-structure must bear the same index *i*, which is carried over to the VP by Convention II. After the verb substitution, the non-terminal head node V (originally [CAUSE]_j) in the higher VP is forced by Convention I to adopt the index of its new terminal node, [run]_i. This leads to a V_i dominating the verbal complex [CAUSE run]_i, whose complement VP_i as its Patient argument in the output representation. Since indices are merely representational devices that keep track of the identity of syntactic elements and their referents, when a V_i takes a VP_i as its Patient argument, it is equivalent to a predicate taking itself as its thematic argument, which is a

circularity that can be plausibly assumed not to be interpretable at LF.⁴⁸ This is similar to Stowell's (1991) principle that a constituent cannot be both a predicate and an argument simultaneously at LF.

The circularity problem does not arise in the interactive reading because the Patient of CAUSE associates with a DP_k that has an index different from the V_i . Meanwhile, it does not arise with morphological causatives either because adjoined structures create a complex index on the host verb, as in (108a).



The indexation conventions used in this section will provide the basis for the derivation of the Null Head Restriction in the appendix that follows.

5 Conclusion

There is an unexpected interaction between the accounts given for the inability of morphological causatives to induce the interactive reading with unaccusative verbs, and the unavailability of the circumstantial reading in null causatives. The account for the former case states that arguments can associate with the Patient of CAUSE only if they are at the highest specifier inside the complement VP, and CAUSE has not formed a complex predicate with the V at that particular level of syntactic representation. The account for the latter, meanwhile, blocks the complement VP from associating with the same Patient role just in case the V-CAUSE complex displays no morphological segmentation, i.e., V combines with a null CAUSE. When put together, these constraints force the conclusion that unaccusative verbs cannot be substituted for CAUSE at S-structure, i.e., unaccusative verbs may not participate in null causatives, because the Patient slot of CAUSE would not be able to associate with any constituent.

This claim has far-reaching consequences that will be explored in the next chapter.

⁴⁸For the circularity account to work, the principle that enforces thematic role association must apply at S-structure as well. Otherwise, it would be possible for the VP to associate with the Patient of CAUSE, satisfy the relevant principle at D-structure once and for all, and then proceed with verb substitution at S-structure. This approach also assumes that categorial selection does not constitute argument taking in the relevant sense, most likely due to its purely formal character.

The issue involves the transitive versions of verbs like *break*, *burn*, *cook*, *collapse*, *freeze*, *grow*, *heat*, *melt*, *sink*, and *split* derived by null causatives, as opposed to the absence of any transitivization with verbs like *appear*, *awake*, *emerge*, *expire*, *lapse*, *happen*, and *occur* (Levin 1993). The following chapter will discuss this and related issues regarding the role that null CAUSE and other elementary predicates play in deriving a typology of verbs and composing the internal structure of VPs they project in the syntax.

Appendix to chapter 3

THE NULL HEAD RESTRICTION

The Null Head Restriction is invoked in chapter 3 to block successive head substitution.

(1) Null Head Restriction:

A null head H_1 can substitute for another null head H_2 only if $\text{Type}(H_1) \neq \text{Type}(H_2)$.

It plays a key role in ruling out structures in which a verb incorporates into more than one null CAUSE in succession:

- (2) a. The horses ran to the stable
b. Bill ran the horses to the stable
c. *Mary ran (to) Bill the horses to the stable
cf. Mary made Bill run the horses to the stable

The first transitivity in (2b) is derived by substituting *run* for CAUSE, as shown in (3a). The second transitivity in (2c) is an attempt to substitute CAUSE for CAUSE, which produces (3b) (the predicate ACT is omitted in (3) for expository reasons).

- (3) a. [VP Bill [CAUSE run] [VP [the horses] tv [PP to the stable]]]
b. *[VP Mary [CAUSE [CAUSE run]_i]] [VP Bill tv [VP [the horses] tv [PP to the stable]]]

Crucially, the NHR allows successive verb substitution when the substituted verb is of a different type than the substituting verb. This exemption is necessary for the verb to be able to incorporate into a sequence of null predicates, as well as the Case licensing heads. The complex predicate in (4a) is derived by the successive substitution in (4b).

- (4) a. Bill ran the horses to the stable for Mary
b. [VP [PP for Sue] [BEN [ACT [CAUSE run]]] [VP Bill_i tv [VP PRO_i tv [VP [the horses] tv [PP to the stable]]]]]

Clearly, what the NHR restricts is not the substitution of CAUSE for ACT, and ACT for BEN, but the instances where a null CAUSE or ACT substitutes for another null CAUSE or ACT.

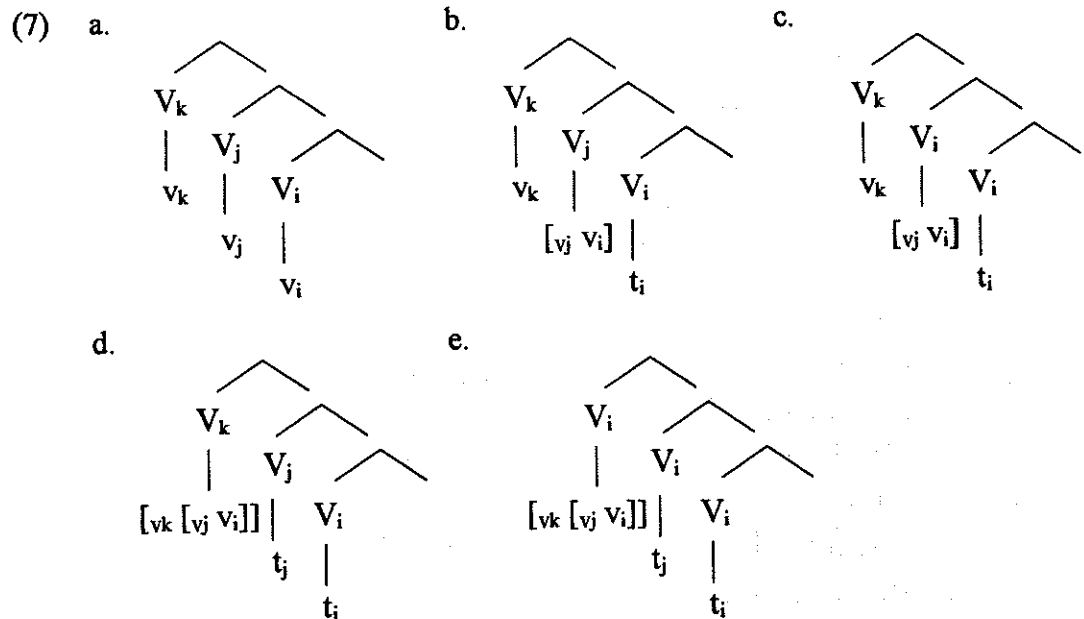
The NHR is not an independent principle. It is an incidental product of the chain formation rules that regulate head movement. The Indexation Convention I, which was posited in section 4.2 of chapter 3 to account for the absence of the circumstantial causation reading in null causative structures, derives the part of the NHR that prohibits

successive head substitution in coordination with the additional convention given in (6).

- (5) The Indexation Convention I:
A head must bear the same index as its terminal node(s).
- (6) The Indexation Convention III:
Traces cannot be reindexed.

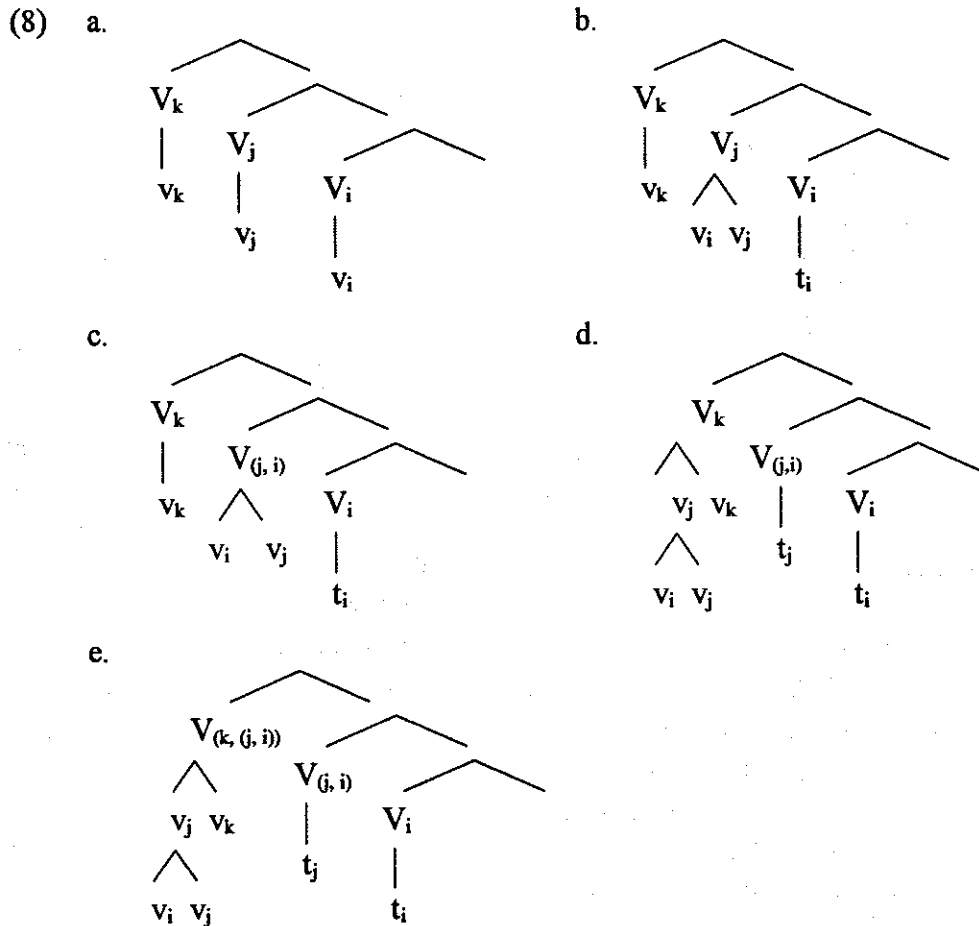
As mentioned before, these conventions are merely observations about the mechanics of the X'-theory, and in the case of Convention III, the syntactic nature of the movement operation. They are not meant to have any special theoretic status other than just being general statements about the way the grammar functions.

These conventions produce a chain formation violation when a head substitutes for two heads in a row. This is schematized in (7) below, where a V is a syntactic head, and a v is a terminal node.



When the lower verb v_i substitutes for the higher verb v_j in (7b), it becomes the terminal node of the host head V_j . As a result of Convention I, V_j adopts the index of v_j in (7c). The V_i that results from the conversion of V_j provides a local link for the trace of v_i , i.e., t_i , and makes it a legitimate member of the chain formed in (7). Next, the complex verb $[v_j v_i]$ substitutes for v_k in (7d). By Convention III, the trace left behind by $[v_j v_i]$ preserves the index of v_j as t_j . With or without the conversion of V_k into a V_i in (7e), the trace t_j is left with no local V_j , and cannot be a part of the chain. Therefore, the movement in (7) cannot form a coherent chain due to the second substitution in (7d).

The chain formation problem does not arise when the head movement proceeds as adjunction rather than substitution.



The host head V_j contains two terminal nodes after the adjunction in (8b): its own v_j and the adjoined v_i . By Convention I, it adopts the index of both terminal nodes as the complex index set (j, i) , and becomes $V_{(j, i)}$ in (8c). The $V_{(j, i)}$ allows the trace of v_i , i.e., t_i , to be a legitimate member of the chain since it contains the index (i) . The subsequent adjunction in (8d) provides two more terminal nodes for V_k , v_i and v_j . It acquires both indices in accordance with Convention I and becomes $V_{(k, (j, i))}$ in (8e). The trace of the second movement in (8d) maintains the index (j) by Convention III, and since (j) is contained in the index set $(k, (j, i))$, the trace t_j also becomes a legitimate member of the chain formed by the verb movement in (8).

The Indexation Conventions I and III allow successive adjunction but rule out all cases of successive substitution. This constraint is relaxed with respect to the actual type of the substituting head by the Type Conversion rule below, which is necessary for preserving the record of the substituted heads.

- (9) Type Conversion:
 $[H = H_1 \wedge H_2 \wedge \dots H_n] \rightarrow [\text{Type}(H) = \text{Type}(H_1) \wedge \text{Type}(H_2) \wedge \dots \text{Type}(H_n)]$

This rule states that the type of a complex head that is composed of other heads is the collection of the types of the heads that constitute the complex head. It means that the

type of *run*-CAUSE-ACT, i.e., $[\text{ACT} [\text{CAUSE } \textit{run}]]$, is $\text{Type}(\textit{run}) \wedge \text{Type}(\text{CAUSE}) \wedge \text{Type}(\text{ACT})$.

Despite its simplistic formulation, the statement in (9) has important consequences, especially from the point of view expressed before, that indexation is merely a notational device for keeping track of the identity of syntactic constituents. It would be plausible in this context to assume that the information regarding the type of a head is indicated in a matrix, [H], that is attached to the index of the head, (i), since the type of a head clearly provides the kind of information that is an integral part of its identity. Therefore, for the purposes of Type Conversion, a CAUSE with the index (i) would be represented as $\text{CAUSE}_{i[C]}$, another CAUSE with the index (j) as $\text{CAUSE}_{j[C]}$, and an ACT as $\text{ACT}_{k[A]}$.

There are two cases to consider: (a) $[\text{ACT} [\text{CAUSE } \textit{run}]]$, where CAUSE substitutes for a different type of predicate, an ACT, and (b) $[\text{CAUSE} [\text{CAUSE } \textit{run}]]$, where CAUSE substitutes for another CAUSE. In $[\text{ACT} [\text{CAUSE } \textit{run}]]$, the type of the complex predicate *run*-CAUSE-ACT is determined by the types of its parts. Crucially, the product of the second substitution between CAUSE and ACT is determined as $\text{Type}(\text{CAUSE}) \wedge \text{Type}(\text{ACT})$, where each head has a different matrix, such that $\text{Type}(\text{CAUSE}) \wedge \text{Type}(\text{ACT}) \neq \text{Type}(\text{CAUSE}) \wedge \text{Type}(\text{ACT})$. This means that the matrix of CAUSE, [C], must be preserved and passed on to ACT, which is done by transmitting the index of $\text{CAUSE}_{i[C]}$ to the terminal node $\text{ACT}_{k[A]}$, and eventually, to the syntactic head V_k . By contrast, the second substitution in $[\text{CAUSE} [\text{CAUSE } \textit{run}]]$ involves heads of the same type, $\text{CAUSE}_{i[C]}$ and $\text{CAUSE}_{j[C]}$. The type of the complex predicate that emerges at this stage is a $\text{Type}(\text{CAUSE}) \wedge \text{Type}(\text{CAUSE})$, which involves predicates with identical types. In categorial terms, though certainly not semantically, $\text{Type}(\text{CAUSE}) \wedge \text{Type}(\text{CAUSE}) = \text{Type}(\text{CAUSE}) \vee \text{Type}(\text{CAUSE})$. As a result, the matrix of the lower CAUSE is neutralized and its index cannot reach the higher CAUSE and to its syntactic head, V_j .

The exact implementation of Type Conversion is sketchy at the moment, but the underlying concept is intuitively appealing. It makes use of the type of machinery that needs to be incorporated into the grammar in some form in the first place. Though much work needs to be done in this regard, the overall approach appears to be on the right track, and it produces the right results in its rough formulation presented in (9) above.

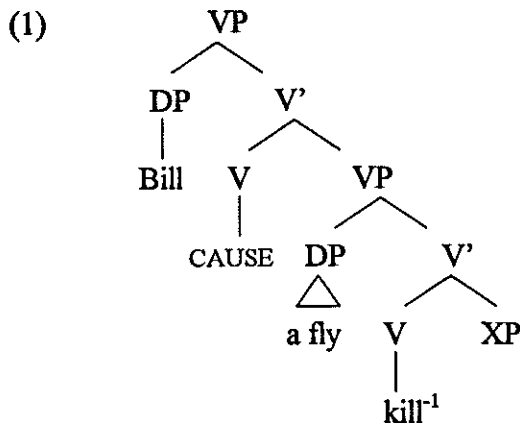
Chapter 4

VERB TYPOLOGY

The central issue in this chapter is the role played by elementary predicates in producing the systematic differences between verb types. It will be argued here that some of the verbs that appear monomorphemic at the surface are actually complex predicates that are formed in the syntax through verb incorporation. The concept of decomposing lexical items dates back to Lakoff's (1970) and McCawley's (1968) proposals, well-known for their derivation of *kill* from *cause to become not alive*. It has recently been reinterpreted using the mainstream GB machinery by Hale and Keyser (1991, 1993), who, among other things, use noun incorporation to derive *laugh* from *do a laugh*. The way in which it will be implemented in this chapter is as follows.

The lexical base of a decomposed complex predicate is the form that is stored in the lexicon. It provides the phonological content and the core semantic information regarding the complex predicate. For instance, the lexical base of the verb *kill* enters its phonological form as /kil/ and specifies that it is very similar to *die*. This base combines with the null elementary predicate CAUSE to produce the surface form *kill*, or more precisely, [_{CAUSE} *kill*]. This makes *kill* a causative verb that can be paraphrased roughly as *cause to die*.¹ Verbs that need to combine with a particular elementary predicate in the syntax are marked with a diacritic in the lexicon, e.g., the lexical base of verbs that must combine with CAUSE are represented as V¹. The predicate-argument complex of a sentence like *Bill killed a fly* has the following VP architecture, where XP is a placeholder for the complement position.

¹A more accurate paraphrase would be CAUSE-*die*. The infinitival form in *cause to die* allows a range of readings that does not arise with *kill* or the overtly causative *öldür* 'kill' in Turkish, derived from *öl* 'die'. The arguments against deriving *kill* from *cause to die* that were raised by Fodor (1970) mostly look at adverbial modification, and they appear to be arguments against a biclausal derivation of *kill*, where the part that means *die* is assigned a full clausal structure. These problems are avoided in the biphrasal structure in (1) since it does not project any inflectional categories like TPs between the VP layers. This structure correctly differentiates between *kill* and *öldür* 'kill' on the one hand and the biclausal *cause to die* on the other.



According to the terminology adopted here, *kill* is a causative-layered diadic verb since it requires the presence of two VPs, consisting of a lexical and a causative layer.

Lexical decomposition adds more complexity to the organization of a VP, and it allows for finer distinctions to be drawn between verbs with respect to their predicate-argument structure. These distinctions are explored in three chapters that present the monadic, diadic, and triadic verbs, respectively. Section 1 presents a four-way typology of monadic verbs that resolves some of the discrepancies observed in the traditional system that adopts a two-way split between unaccusative and unergative verbs (Perlmutter 1978, Burzio 1986). (a) Single-layered null-specifier verbs like *arrive*, *appear*, and *exist* correspond to the conventional class of unaccusatives, and their VPs have the classic unaccusative architecture. They project a single-layered VP where the thematic argument appears as the complement and the specifier is null, e.g., [*e arrive* DP]. (b) Inchoative-layered verbs indicate a change of state, like *sink*, *melt*, and *break*. The lexical base of these verbs refer to their respective states, represented as *sink^S*, *melt^S*, and *break^S*, and they combine in the syntax with a second layer of VP headed by the inchoative predicate INCH that denotes the transition. They have the VP architecture [DP_i INCH [PRO_i *sink^S* XP]], which roughly translates as *become sunk*. The complement position of V^S is open for resultatives and Bare Measure Phrases (BMPs), i.e., phrases without a pre-/postposition that scale the extent of an event or state, as in *sink five feet* or *melt/break halfway*. (c) Single-layered thematic-specifier verbs are verbs of motion, such as *run*, *jump*, and *slide*. They have the conventional unergative VP architecture, i.e., a single VP, whose specifier contains the thematic argument, and whose complement position can take various XP categories like Path PPs, BMPs, or resultative phrases, i.e., [DP *run* XP]. (d) Causative-layered verbs like *cry*, *laugh*, and *mumble* mostly belong to the traditional class of unergatives. They typically denote the production of their cognate objects, as in *cry*, *laughter* and *mumble*. They are derived from double-layered VPs. The lower VP is headed by the defective verbs *cry¹*, *laugh¹*, and *mumble¹*, and it takes cognate objects (CO) as specifiers, and BMPs or resultative phrases as complements. The lower VP is embedded under a causative VP, i.e., [DP CAUSE [CO *cry¹* XP]], which roughly translates as *cause a cry to cry*. The section closes with a discussion on the phenomena of split ergativity and auxiliary selection, and proposes that CAUSE always selects a PP specifier.

Section 2 introduces a dichotomy between diadic verbs according to whether their VPs are comprised of a single layer or two. Verbs like *destroy*, *solve*, and *carve*, whose passives do not mandate the involvement of any agent, as well as the Neutral subject psych-verbs like *please* and *scare*, are built by double-layered VPs. The top VP is the causative layer and the lower VP is headed by the lexical base that denotes the state of the object, e.g., *destroy¹*, *solve¹*, and *carve¹*. Verbs that entail the participation of an agent in the passive, e.g., *dig*, *steal*, and *kiss*, have single-layered VPs. These verbs have the traditional transitive VP architecture, where both the specifier and the complement contain thematic arguments. The relevant contrast between the diadic verb classes is observed in (a) *The problem was solved*, which allows a reading where the problem gets solved without any intervention by an agent, but simply as a result of the way the situation plays itself out; as opposed to (b) *My wallet was stolen*, which necessarily involves the act of an agent that steals the wallet.

Section 3 looks at triadic verbs, beginning with the alignment of arguments inside a causative-layered VP structure that builds triadic verbs, cf. Larson's (1988) VP shells. It adopts the traditional view that the dative-shift construction is a case of preposition incorporation, and recasts it in terms of the mechanisms introduced in chapter 3 in the context of type II causatives and the applicative construction. The section then presents an analysis of the *load* and *spray* type of triadic verbs, where the accusative Case appears on alternating arguments: *Bill loaded the truck with hay* and *Bill loaded the hay onto the truck*. The analysis crucially relies on Tenny's (1990) claim that objects measure out the events denoted by the verb, also captured by Dowty's (1991) incremental theme. One of the more significant conclusions in this section is that *with*-phrases are specifiers of VPs embedded under CAUSE, which will have consequences in chapter 5.

1 Monadic Verbs

Classical GB assumes a clear distinction between monadic verbs: The surface subjects of unaccusative verbs like *arrive* and *appear* are generated as complements, while those of unergative verbs like *laugh* and *joke* are generated as specifiers (Perlmutter 1978, Burzio 1986). These two classes are differentiated by a number of tests: Impersonal passives are generally restricted to unergative verbs (Perlmutter 1978, Perlmutter and Postal 1984). Only unaccusative verbs allow *there*-insertion in English and locative inversion in English and Chichewa (Burzio 1986, Bresnan and Kanerva 1989, Bresnan 1994). Unergative verbs take *avere* 'have' as the perfective auxiliary in Italian, while unaccusative verbs take *essere* 'be' (Burzio 1986). Subjects of unergative verbs are marked for the ergative Case in Basque and Hindi, whereas the subjects of unaccusative verbs are absolutive (Laka 1993, Mahajan 1990). Likewise, subjects trigger subject agreement with the unergative verbs in the Muskogean language Creek, but object agreement with unaccusative verbs trigger object agreement (Martin 1991). Finally, cognate objects (Hale and Keyser 1991), resultatives and the *way*-construction (Jackendoff 1992, Marantz 1992) are possible only with unergative verbs (Levin 1993).

Each of these tests identifies two distinct verb classes, but with considerable mismatch. For instance, the verb *walk* qualifies as an unaccusative verb by the *there*-

insertion and locative inversion tests, e.g., *There walked into the room three men* and *Into the room walked three men*, but as an unergative by the cognate object and resultative tests, e.g., *Bill walked a long walk* and *Bill walked the soles of his shoes off*. Part of the reason for this mismatch is the absence of clarity in specifying what exactly is being diagnosed by these tests, along with a general desire to maintain a two-way distinction. However, a discriminating use of these tests that concentrates on the internal organization of VPs reveals at least four distinct classes of monadic verbs that are presented below.

1.1 Single-Layered Null-Specifier Verbs (Unaccusative Verbs)

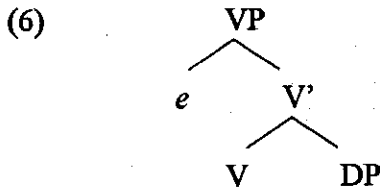
There are two crucial factors that suggest a unique internal organization for VPs projected from verbs like *arrive*, *appear*, *occur*, *exist*, *arise*, *emerge*, *ensue*, and *lapse*. First, they allow the expletive *there* subjects and locative inversion in English, which is otherwise quite restricted. Second, they disallow all types of Non-Thematic Complements (NTCs), i.e., the complements that do not bear any thematic relation with respect to the verb, such as cognate objects, as in (4), and Bare Measure Phrases (BMPs), resultatives, and the *way*-construction, as in (5).

- (2) *There*-insertion:
- a. There arrived three suspicious looking men at the scene of the crime
 - b. There appeared a huge steamboat in the middle of the corn field
 - c. There occurred a chain accident on the freeway
 - d. There exist various possibilities
- (3) Locative inversion:
- a. Into the room arrived three shady characters
 - b. Around the corner emerged an elephant
 - c. Over the river arose a colorful balloon
 - d. In the ocean exist many strange fishes
- (4) Cognate objects:
- a. *Bill arrived a timely arrival (at the airport)
 - b. *Sue appeared a nifty appearance
 - c. *The accident occurred a terrible occurrence
 - d. ?*Some people exist a meager existence²
- (5) Bare Measure Phrases, resultatives, and the *way*-construction:
- a. *The new superintendent arrived a great anticipation
 - b. *The toothpaste appeared three inches (out of the tube)
 - c. *The earthquake occurred the city into devastation
 - d. *Cockroaches will exist their way into dominance on the planet

The traditional structure for unaccusative verbs proposed by Burzio (1986) accommodates

²Speakers tend to find *exist a meager existence* relatively better than *appear a nifty appearance* or *arrive a timely arrival*. I do not have any explanation for this difference.

for all these facts. In (6), the verb generates its thematic argument as its complement, and its specifier position remains null.³



This alignment pattern is presumably the result of the procedure that forms D-structure representations bottom up, cf. Chomsky's (1994) Merge. The complement position takes the thematic argument, and this leaves the specifier position empty.

The fact that *there*-insertion and locative inversion are limited only to these verbs in English suggests a strong link between the thematic status of [Spec, VP] and the availability of the subject position [Spec, NomP] for nonthematic constituents.⁴ The complement position is taken by the thematic argument in this structure, so it is not available for the NTCs mentioned above, i.e. cognate objects, resultatives, and so forth.⁵ Another consequence of the VP architecture in (6) is that since the complement position is occupied by the derived subject, a verb in this class would not be able to denote scalable events. In fact, *arrive*, *exist*, and *appear* cannot denote continuous acts made up of successive stages that cumulatively lead to the arrival, existence, or appearance of the entity in question.⁶ As such, a VP that has the structure in (6) can only denote states and

³The specifier position is either filled with an expletive at D-structure, or it is not even projected. The choice between the two is not very significant for the discussion here.

⁴It is a plausible hypothesis that due to language-specific restriction, English can generate expletives only VP-internally, while languages that are more permissive with expletives, like Dutch, can generate them at a higher position, presumably at [Spec, NomP].

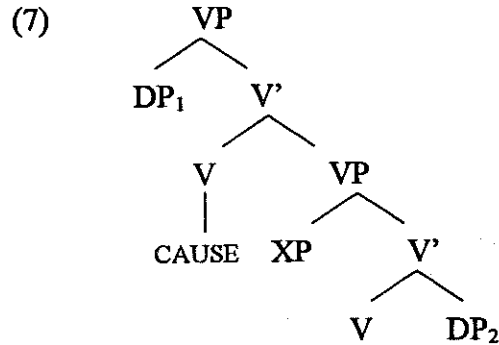
⁵Cases like *John appears sick* are not counterexamples because the surface subject *John* is generated as the specifier of the AP small clause headed by *sick* from an underlying structure analogous to *It appears John (is) sick* (Chomsky 1980, Stowell 1981), schematically represented below.

(i) e [appears [John sick] → John; [appears [t; sick]]

⁶Scalability is similar to Tenny's (1990) measuring out function to an extent, but there is a difference. Scalability is a property of the predicate, while measuring out is a property of the event structure. Dowty (1991) points out that the exiting event in *The crowd exited the auditorium* is coextensive with the subject *crowd*, just as the arriving event is in *The crowd arrived at the auditorium*. However, these verbs are not the same in terms of scalability since one can partially exit but cannot partially arrive. This contrast also extends to group terms: Each exiting person constitutes a stage in the overall exiting of the crowd, such that the crowd would be in the process of exiting with each person going

continuous events. It can support only achievements and states, but not accomplishments or activities.⁷ Conversely, accomplishments and activities cannot have the structure in (6).⁸ The verbs in this class all fit in this profile as they generally denote being or coming into being in some location in the abstract or concrete sense.

As mentioned in the conclusion of the previous chapter, unaccusative verbs must be excluded from the null causative construction because of their VP architecture.



The Patient role cannot associate with the complement VP in null causatives since it would lead to a type of thematic circularity discussed in chapter 3.⁹ It cannot associate with DP₂, the complement of the lower VP, because the lower V presents a minimality barrier in the sense of Chomsky (1986b) in morphological causatives, which is what null

through the gates. However, each arriving person does not constitute a stage in the arrival of the crowd, such that one cannot talk about the crowd being in the process of arriving with each person who arrives.

⁷It is not always clear what is being tested by the tests that are designed to distinguish these aspectual (aktionsart) types (Dowty 1979). So I will use a very simplistic set of criteria: States do not describe any event, and they do not have any beginning or endpoint, e.g., *love*, *want*. Achievements describe events that hold for a point in time, and they are not durational, e.g., *die*, *jump*. Activities are open ended events, and they do not have any logical endpoint. Even though we pragmatically assume that one can eat only up to a certain amount, the act of eating itself has no logical endpoint, e.g., *swim*, *laugh*. Accomplishments are activities with a logical endpoint, e.g., *eat a sandwich*, *recover*.

⁸Neither condition holds in reverse. It is not the case that all achievement and state verbs must have the unaccusative architecture in (6), nor is it true that any verb that does not project this architecture must be activity or accomplishment. The stative verb *stink* and the achievement verb *sneeze* arguably do not have this structure. The unaccusative architecture is a sufficient but not necessary condition for being an achievement or stative verb. McClure (1993) reaches the same conclusion using different structures.

⁹When the lower V is substituted for CAUSE, it transmits its index up to CAUSE and becomes the new terminal node of CAUSE. This leads to an LF configuration where CAUSE takes itself as its Patient argument, which constitutes a thematic circularity.

causatives are, since verb incorporation takes place at S-structure. With the unavailability of the null specifier of the lower VP for the Patient role, no constituent left for association with the Patient of CAUSE, and so an unaccusative verb cannot participate in the null causative construction. This prediction is borne out.

- (8) a. *John arrived Bill at the wrong party
b. *The magician appeared the rabbit on stage
c. *The rains occurred a lot of accidents on the freeway
d. *That incident in the 16th century existed a feud between the families

These verbs cannot passivize because their sole thematic arguments are 'demoted' to a *by*-phrase, and there is no other argument left inside the VP to move to the subject position, [Spec, NomP], see chapter 6. Facts regarding split ergativity and auxiliary selection in the perfective tense will be discussed later on in section 1.5.

1.2 Inchoative-Layered Verbs (Change of State Verbs)

Intransitive verbs such as *sink*, *melt*, *burn*, *break*, *fold*, *grow*, *change*, *shrink*, *heat*, and *heal* all indicate a change of state in their subjects, and they are generally known as inchoative verbs. It is a distinctive property of these verbs that they all participate in the type of transitivity alternation that is characteristic of null causatives. Compare the intransitive forms in (9) with the transitive forms in (10).

- (9) a. The boat sank in the harbor
b. The ice melted on the sidewalk
c. The house burned to the ground
d. The vase broke yesterday
- (10) a. The enemy sank the boat in the harbor
b. The sun melted the ice on the sidewalk
c. An arsonist burned the house to the ground
d. The kids broke the vase yesterday

The principle of Lexical Coherence discussed in chapter 1 prohibits the syntax from partially importing a lexical item, which means that the lexical base of the verbs that display the type of transitivity alternation in (9) and (10) must be intransitive.

(11) Lexical Coherence:

The syntax cannot alter the properties of lexical items.

As argued in chapter 3, the fact that these verbs can transitive with null CAUSE indicates that their subjects are generated as topmost specifiers, and can associate with the Patient role of CAUSE. This is also expected on the basis of the correlation observed above, between the thematic specifiers in a predicate-argument complex and the unavailability of expletive subjects and locative inversion in English.

(12) *There*-insertion:

- a. *There sank a boat (in the harbor)
b. *There melted some ice (on the sidewalk)

- c. *There burned a house (to the ground)
- d. *There broke a vase (yesterday)

(13) Locative inversion:

- a. *To the bottom sank a boat
- b. *Onto the sidewalk melted some ice
- c. *To the ground burned a house
- d. *Into size three shrank the shirt

Their ability to take thematic specifiers separates these verbs from the null-specifier (unaccusative) verbs.

Another characteristic that distinguishes the inchoative class from the others is that they allow BMPs and/or resultatives, but uniformly exclude cognate objects.

(14) Cognate objects:

- a. *The boat sank a complete sink
- b. *The ice melted a quick melt
- c. *The house burned a spectacular burn
- d. *The vase broke a loud break

(15) BMPs or resultatives:

- a. The boat sank five feet
- b. The ice melted halfway through
- c. The house burned to a crisp
- d. The vase broke into little pieces

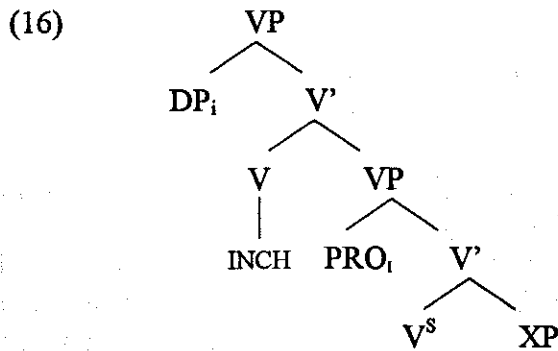
It will be suggested below that the type of category inchoative verbs can take as their NTCs is not compatible with cognate objects.

Finally, inchoative verbs form a semantically coherent class defined by the way their thematic arguments undergo a change of state. Unlike the null-specifier verbs, e.g., *arrive* and *occur*, which involve the concept of being present at some location, inchoatives convey the sense of coming into a certain state, e.g., the states of being sunk, open, broken, melted, and so on. The validity of the event described through an inchoative verb can be confirmed by the state that the denotation of its argument is in. That is, one can easily verify that the ice cream has melted, the door is open, or that the glass is broken by simply observing the state of the ice cream, the door, or the glass. Lakoff (1970) posits the inchoative transformation to account for this reading, which McCawley (1968) treats as a case of predicate-raising into *become*. The essence of their proposals can be preserved in this framework by taking the lexical base of these verbs as the stative forms *sink^s*, *melt^s*, *burn^s*, and *break^s*, and combining them in the syntax with the elementary predicate INCH, for inchoative, to form a complex predicate that can refer to the inception of the states denoted by the lexical base.¹⁰ This is why a sentence like *The boat is sinking* can describe the beginning of the sinking of the boat. Since INCH does not define any

¹⁰The diacritic 'S', as in V^s, indicates that the verb must combine with INCH.

endpoints, the sentence can also describe the situation that follows the inception, where the boat is going further down under the water, but has not reached the bottom yet. The addition of a BMP like *five feet* has the effect of scaling the atelic INCH, which converts the activity verb *sink*-INCH into an accomplishment verb as in *sink five feet*, analogous to the way the activity verb *eat* becomes an accomplishment verb with the addition of a delineating object, as in *eat a sandwich* (Tenny 1990).

Since inchoative verbs are allowed in null causatives, their thematic argument must be located at the topmost specifier at D-structure, which is the specifier of INCH. Adding INCH into the predicate-argument complex does not increase the number of arguments, which means INCH is a control predicate whose specifier controls the specifier of the lower VP projected from the V^s.



In the case of *The boat sank*, (16) would read as *The boat came to be in a sunk state*. The XP complement of V^s can be a BMP or a resultative phrase, but not a cognate object. These BMPs modify the type of state the participant is acquiring, which is a predicative relation between the V^s and the BMP. For example, the BMP in *sink five feet* indicates the extent to which the ship has acquired the sunk state, or in other words, it indicates 'how sunk' the ship is. This predication relation is established by selecting a predicative category as the XP complement, such as an NP, instead of an argumental category, e.g., a DP.¹¹ This is why the BMP complements do not passivize with these verbs, which is not the case with the change of location verbs, as will be seen in the next subsection.

- (17) a. *Five feet were sunk by the boat
 b. *Thirty degrees were tilted by the picture on the wall
 c. *Two yards were separated by the cables
 d. *Three feet were grown by the tree

Since they are predicative, these BMPs cannot bear the accusative Case in the corresponding structures in Turkish, which is also different from the change of location verbs presented in section 1.3.

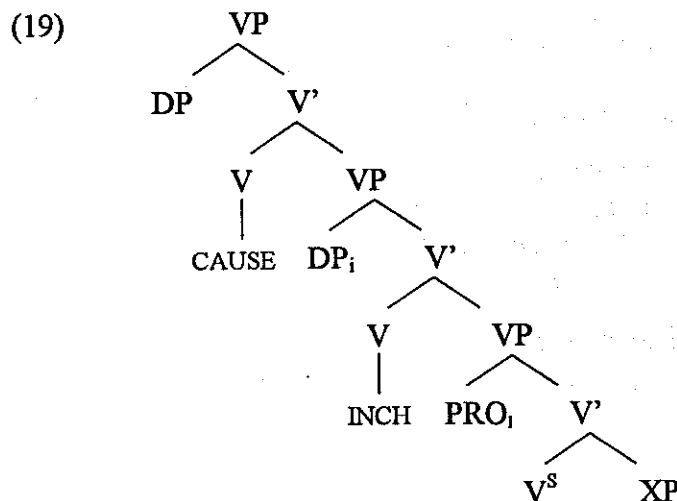
¹¹For the predicative/argumental distinction between NPs and DPs, see Stowell (1989).

- (18) a. Bot beş metre(*yi) battı
boat-NOM five meter-ACC sink-PAST-3SG
'The boat sank five meters'
- b. Hava onbeş derece(*yi) ısındı
air-NOM fifteen degree-ACC warm-PAST-3SG
'It got fifteen degrees warmer'
- c. Gömlek iki boy(*u) çekti
shirt-NOM two size-ACC shrink-PAST-3SG
'The shirt shrank two sizes'

Predicative categories are not referential, so they cannot be specific (Enç, 1991). A cognate object, on the other hand, must be an argumental category, such as a DP, since it can be quite complex and specific, e.g., *Bill walked that extremely long and painful walk*. Therefore, the inability of inchoative verbs to license cognate objects is simply a consequence of the restriction on the type of category that a V^S can take as its NTC.

Note that just because these verbs can in principle take BMPs as complements does not mean all verbs in this class must be scalable (activity or accomplishment). Verbs like *break*, *pop*, *singe*, and *explode* are not scalable (achievement), but they display the basic properties of inchoative-layered verbs in terms of transitivity, *there*-insertion, and so on. They cannot license BMPs because of their aspectual status, i.e., they denote nonscalable events. Verbs with the architecture in (16) may or may not be scalable, but those with the null-specifier architecture in (6), are necessarily nonscalable since their complement positions are reserved for their thematic arguments and can never support BMPs.

In the null causative construction, the inchoative-layered VP in (16) becomes a complement of CAUSE.



The overt argument of the V^S -INCH complex is generated as the specifier of INCH and associates with the Patient role of CAUSE for the interactive causation reading. In these

structures, the V^S substitutes for INCH to form [INCH V^S], which in turn, substitutes for CAUSE to form [CAUSE [INCH V^S]].¹²

The presence of a phonologically distinct verb in the lexicon that corresponds to the transitive version of an inchoative verb blocks the transitivity of the intransitive inchoative verb through null causatives. This is the case with the pair *rise* and *raise* in the dialects of English that distinguish the two verbs.¹³

- (20) a. *There rose a statue in the park
b. *The statue rose a satisfactory rise
c. The statue rose five feet above the ground
- (21) a. *The workers rose the statue in the park
b. The workers raised the statue in the park

The unavailability of a transitive *rise* is a case of Aronoff's (1976) blocking effect, where the presence of an irregular form in the lexicon blocks the formation of the regular form, as seen in the contrast between *went* and **goed*.

1.3 Single-Layered Thematic-Specifier Verbs (Change of Location Verbs)

Verbs like *run*, *walk*, *jump*, *skip*, *march*, *flow*, *fall*, *turn*, *swing*, and *roll* do not indicate any change of state, since the state of the individual that has performed the act of running, walking, or jumping is no different before and after performing the relevant act. One cannot decide whether an individual has run, walked, or jumped by merely looking at him or her. Unlike the null-specifier verbs, they do not convey a sense of being present in a location, except in the trivial sense that one needs to be present at a location in order to run, walk, or jump just as an object must exist in order to undergo a change of state. These verbs all entail that the denotation of their thematic argument has changed location.

There are four fundamental properties of these verbs that separate them from the other types. First, they all allow cognate objects with varying degrees of naturalness.¹⁴

¹²The structures in (16) and (19) satisfy Baker's (1988) Uniformity of Theta-Alignment Hypothesis (UTAH) since the sole thematic argument of the V^S -INCH complex is in the same position with or without the causative VP layer on top.

¹³Technically, *raise* qualifies as a defective verb, i.e., a V^{-1} , on a par with *kill* (see the introduction to this chapter). Its base form is *raise^{S,-1}*, which needs to incorporate into INCH to become an inchoative (eventive) verb, and into CAUSE to become the transitive *raise* at the surface. There will be more discussion on V^{-1} verbs in later sections.

¹⁴As an interesting aside, observe that the verb *die* behaves more like a single-layered thematic-specifier, motion verb in English, rather than an inchoative-layered, change-of-state verb as one would expect. It takes cognate objects, as in *The man died a horrible death*, and marginally licenses resultatives, as in *??Elvis Presley died into sainthood* (it cannot license BMPs because it denotes a nonscalable event). By contrast, its French equivalent, *mourir*, behaves like an inchoative-layered (change of state) verb in not allowing cognate objects, though it can apparently license a comparable NTC. Unlike

(22) Cognate Objects:

- a. Bill ran a long run to get ready for the marathon
- b. Mary walked a quiet walk in the woods
- c. Sue jumped an impressive jump in the competition
- d. The soldiers marched an orderly march towards the stadium

Second, they take BMPs, resultative phrases, and *the way* construction as complements.

(23) BMPs:

- a. Bill ran five miles in the race
- b. Mary walked five steps between the table and the chair
- c. Sue jumped six feet in the competition
- d. The soldiers marched twenty-six kilometers during their morning practice

(24) Resultatives, the *way* construction:

- a. Bill ran the soles of his shoes off
- b. Mary walked herself into a state of exhaustion
- c. Sue jumped her way into the record books
- d. The soldiers marched the enemy away

Third, they allow their BMPs to passivize, as expected from their ability to license cognate objects, see the previous subsection.

- (25)
- a. Five miles were ran by Bill in the race
 - b. Five steps were walked by Mary between the table and the chair
 - c. Six feet were jumped by Sue in the competition
 - d. Twenty-six kilometers were marched by the soldiers in the morning practice

Correlating with their passivizability is the fact that these BMPs take the accusative marker in Turkish when the distance that is traversed is a specific one.¹⁵

- (26)
- a. Ahmet o beş mili yarışta koştu
A.-NOM that five mile-ACC race-LOC run-PAST-3SG
'Ahmet ran those five miles in the race'
 - b. Ayşe masayla iskemle arasındaki beş adım yürüdü
A.-NOM table-WITH chair between-REL five step-ACC walk-PAST-3SG
'Ayşe walked the five steps (that are) between the table and the chair'

ordinary cognate objects, the complement *une mort horrible* can only appear as an *of-PP*:
*Jean est mort *(d')une mort horrible* 'Jean has died of a horrible death'.

¹⁵The passivized BMPs in (25) also refer to a specific distance. *Five miles were ran by Bill in the race* is acceptable only if one can point at a course and say *These are the five miles that Bill ran*. BMPs do not have this ability with inchoative verbs, e.g., *The boat sank five feet*, but not **These are the five feet that the boat sank*.

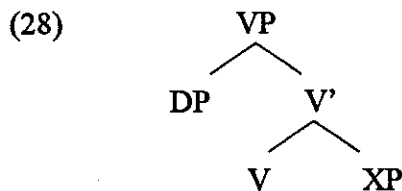
- c. Ali seçmelerde iki metreyi atladı
 A.-NOM selections-LOC two meter-ACC jump-PAST-3SG
 'Ali jumped the two meters in the selections'

Finally, they can all be transitivized through a null CAUSE.

- (27) a. Bill ran his dog in the park
 b. Mary walked his guests to the door
 c. Sue jumped the horses over the fence
 d. The sergeant marched the soldiers into the enemy line

Like the inchoative-layered verbs, the ability of the verbs in this class to participate in the null causative construction indicates that their thematic arguments are generated at the highest specifier position, and can associate with the Patient role of CAUSE at D-structure for the interactive causation reading.

These verbs do not make any assertions about the state of their arguments, so there is no need to posit an independent VP layer. This suggests the simpler VP architecture shown below.



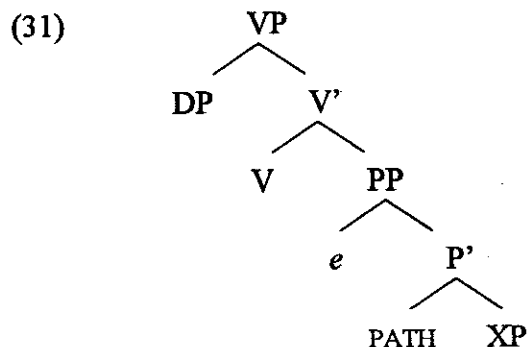
The XP in (28) ranges over argumental categories, such as a DP. It provides the base position for cognate objects and referential BMPs, which may be marked for the accusative in Turkish, and can passivize in English and Turkish, e.g., *Five miles were walked by Bill*, see chapter 6.

Just as the null-specifier verbs, thematic-specifier verbs also allow *there*-insertion and locative inversion:

- (29) *There*-insertion:
 a. There ran three people away from the crime scene
 b. There walked a woman into the room
 c. There jumped four or five horses over the fence
 d. There marched an entire army towards the enemy line
- (30) Locative inversion:
 a. Away from the crime scene ran three people
 b. Into the room walked a woman
 c. Over the fence jumped four or five horses
 d. Towards the enemy line marched an entire army

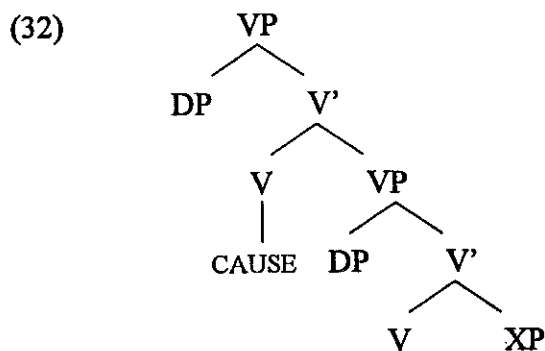
This seems to suggest that perhaps the correlation between the thematic status of [Spec, VP] and the types of constituents that can appear at [Spec, NomP] is not so strict. However, *there*-insertion and locative inversion are allowed with this class only when the

verbs are directional, cf. **There walked a woman in the room* and **In the room walked a woman*. The inability of these verbs to support either construction in nondirectional (locational) clauses indicates that neither the *there*-insertion nor the locative inversion can be attributed to the verb itself. Instead, these constructions are licensed by the VP-internal component that is responsible for the directional interpretation, such as a PP complement headed by the abstract preposition PATH (Jackendoff 1990). It can be argued that in these instances, PATH has a null specifier that triggers the *there*-insertion.



It would also be plausible to suggest that PATH can optionally take a PP specifier, which can raise to [Spec, NomP] at S-structure for the locative inversion. At LF, the inverted locative would have to reconstruct and be replaced by the thematic argument that originates at the [Spec, VP], cf. the expletive replacement procedure in Chomsky (1986a).

Verbs that project the structure in (28) can incorporate into a null CAUSE in the usual manner. Their thematic arguments are generated at the topmost specifier, so they allow the interactive causation reading when transitivized.



Verbs like *come* and *go* do not transitivize with null causatives because of the blocking effect triggered by the presence of verbs like *bring* and *take*. In a similar situation in Turkish, the presence of lexicalized forms like *getir* 'bring' and *götür* 'take' block the derivation of **geldir* and **gittir* from the corresponding *gel* 'come' and *git* 'go'. As mentioned earlier in the context of *raise* and *kill*, *bring* and its Turkish equivalent *getir* are generated at D-structure as defective verbs *bring*¹ and *getir*¹, which are satisfied at S-structure by incorporating into a null CAUSE, which yields the regular *bring* and *getir*.

1.4 Causative-Layered Verbs (Unergative Verbs)

Verbs such as *dance*, *sing*, *laugh*, *speak*, *cough*, *smile*, *cry*, *mumble*, *sleep*, *sneeze*, and *dream* are traditionally identified as unergatives (Perlmutter 1978, Burzio 1986). Their properties are very similar to those of the thematic-specifier (motion) verbs, but not identical. First, they allow cognate objects, as seen in (33) below. In fact, these verbs typically take a much wider variety of complements that can be classified as 'related objects', as in (34). These are objects whose head nouns are not cognates with the verb, but belong in the same overall semantic class, e.g., *waltz* as opposed to the cognate object *dance*, or *national anthem* as opposed to the cognate object *song*.¹⁶

(33) Cognate objects:

- a. Bill danced a crazy dance
- b. Mary sang a song
- c. Sue laughed a hearty laughter
- d. John slept a good night's sleep

(34) Related objects:

- a. Bill and Jane danced a tango
- b. Mary sang a lullaby
- c. Sue spoke Spanish
- d. John whistled an awful tune

Second, they license BMPs, resultatives, and other types of NTCs. The BMPs tend to be temporal in most cases, although some more straightforward ones are also allowed.

(35) BMPs:

- a. John danced two hours straight
- a. Sue spoke a few words
- b. Bill slept the whole night
- c. Mary dreamed an entire story

(36) Resultatives, the *way* construction:

- a. John danced his way to the grand prize
- b. Sue talked herself out of that nasty situation
- c. Bill cried his eyes out during the play
- d. Mary laughed her sister out of the room

(37) Other NTCs:

- a. John wept bitter tears after his lost love
- b. Mary smiled her appreciation
- c. Sue mumbled her objections during the meeting

¹⁶The distinctions between different types of NTCs are more blurred in this class than the others; e.g., the cognate objects in (33), related objects in (34), and the miscellaneous NTCs in (37) below all seem to be scaling the event as do the BMPs in (35).

- d. Bill boasted his proposal in front of the CEOs

The third and perhaps most significant property of these verbs is that they cannot be transitivized through null causatives (Hale and Keyser 1991), which separates them from both the inchoative-layered and thematic-specifier verbs.

- (38) a. *The MC danced the crowd during the festival
b. *The clown laughed the children
c. *The dust sneezed Bill
d. *Sue coughed John with her cigarette smoke

Unlike the null-specifier verbs (unaccusatives), however, these verbs do not license *there*-insertion or locative inversion, which suggests that their topmost specifiers are occupied by a thematic argument.¹⁷

(39) *There*-insertion:

- a. *There danced fourteen people at the party
b. *There laughed some people in the audience
c. *There sneezed a student in the classroom
d. *There coughed a passenger in the bus

(40) Locative Inversion:

- a. *At the party danced fourteen people
b. *In the audience laughed some people
c. *Into the salad sneezed a student
d. *On my face coughed a passenger

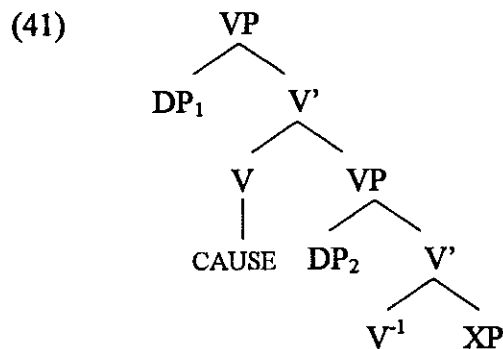
Therefore, the reason that these verbs cannot incorporate into a null CAUSE cannot be for the same reason that null-specifier verbs cannot.

Verbs in this class typically convey a sense of production, where the cognate (or related) object comes into existence as a result of the event denoted by the verb. This is the case not only with verbs like *sneeze*, *yawn*, *cough*, *scream*, *speak*, *sing* and *laugh*, all suggesting the production of a sneeze, a yawn, a cough, and so on, but also with *sleep*, *dream*, *think*, and *dance*, where the sleep, the dream, the thought, and the dance can be thought of as coming into existence through the acts of sleeping, dreaming, thinking, and dancing.¹⁸ Even *live*, which is clearly in this class, can be construed as the production of

¹⁷It also means that they do not take PATH complements, but considering that these verbs do not denote directional events, this is not a surprise.

¹⁸There are a number of traditionally unergative verbs, such as *study*, *work*, *shop*, and *exercise*, that do not take cognate objects, although they do allow other NTCs. Note that these verbs also do not have the production sense comparable to *laugh*. Unfortunately the derivation and structure of these verbs remains a mystery at the moment, but it is likely that they constitute a distinct verb class with a distinct VP architecture.

life brought about through the act of living.¹⁹ The production reading is encoded in the VP architecture below by embedding the lexical base of these verbs under CAUSE.



The superscript '-1' on the V in (41), i.e., V⁻¹, indicates that the verb is thematically defective.²⁰ It has the same content as a V except for a missing thematic slot. A monadic V⁻¹ is thematically similar to weather verbs like *rain* and *snow*, but unlike the weather verbs, the semantics of a V⁻¹ requires an additional argument, i.e., the act denoted by *sneeze* requires the presence of a sneezer, but the act denoted by *rain* does not license a rainer, at least not in the way it is conceptualized in English.²¹ It will be argued in chapter 6 that a V⁻¹ is satisfied by incorporating a BY from a specifier, which is provided by CAUSE, see section 1.5, and by the passive predicate PASS, see chapter 6.

In (41), the defective verbal category V⁻¹ constitutes the lexical base for *dance*⁻¹, *laugh*⁻¹, *sneeze*⁻¹, and *cough*⁻¹, which combine with the CAUSE in the higher VP to produce the surface forms *dance*, *laugh*, *sneeze*, and *cough*. The surface subject of these verbs are generated as the highest specifier, in the position of the DP₁, while the lower specifier DP₂, occupies the position where the cognate and related objects are generated. In this respect, the structures associated with *dance*, *laugh*, and *sneeze* would roughly translate as *cause (a dance) to dance*, *cause (a laughter) to laugh*, *cause (a sneeze) to sneeze*, and so on.²² This specifier position is equivalent to Hale and Keyser's (1991) complement

¹⁹Cognate objects and BMPs are allowed with *live*, but not null causatives.

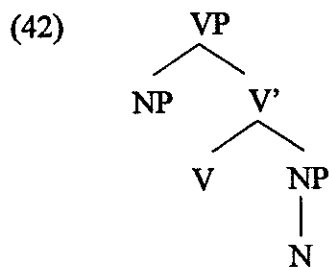
- (i) John lived a wonderful life
- (ii) John lived 90 years
- (iii) *Dr. Frankenstein lived his monster

²⁰A V⁻¹ is essentially a typographically more convenient version of Pesetsky's (1995) \sqrt{V} .

²¹The verb *yağ* 'rain' in Turkish requires the presence of a rainer, which is *yağmur* 'rain', i.e., *yağmur yağıyor* roughly 'rain is raining'. The equivalent of the English *It is snowing* comes out as *kar yağıyor* 'snow is raining'.

²²The reason that **The joke laughed* or **The music danced* cannot mean *The joke caused there to be laughing* or *The music caused there to be dancing* is that the structure [*the*

position in their unergative VP structure:²³



For Hale and Keyser, the surface form of the verb is determined by the content of the N head of its complement NP, which incorporates into V at a lexical level that precedes the syntax. Clearly a movement relation between the V and the N in (42) would fail to explain overt cognate objects, as in *dance a dance*. Copy theory, in terms of Chomsky (1994), fare much better with cognate objects but it has difficulty accounting for related objects as in *dance a waltz*. Both problems are resolved in this work by assuming a more abstract binding relation between CAUSE and DP₂ in (41), i.e., either a case of LF N-incorporation or some form of control.²⁴ This approach allows there to be a cognate (related) object in the specifier of the lower VP at all times, and in cases where there is no overt category, the cognate object is presumably a bound pro. The DP₂ associates with the Patient role of CAUSE.

Cross-linguistically, a cognate (or related) V¹ is not the only possible output of the schema in (41). In Basque, unergative verbs are produced in semi-compound forms that involve a light predicate corresponding to *do* and the 'cognate' nominal form, which provides the semantic and lexical content, i.e., V spells out as N + *egin* 'do' (Laka 1992).

- (43) a. *agur egin* 'greet do' = 'to greet'
 b. *barre egin* 'laugh do' = 'to laugh'
 c. *eztul egin* 'cough do' = 'to cough'

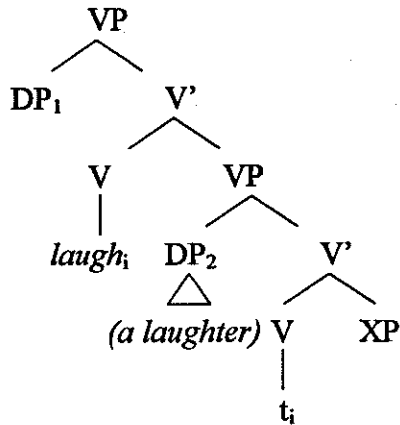
In this case, the lower defective verb, V¹, would be *egin*¹, the equivalent of *do*¹, which is semantically parallel to *be*, as opposed to *egin* 'do'. Once *egin*¹ incorporates into CAUSE, the structure reads as *cause a greeting to be* and *cause a laughter to be*. This means the difference between English and Basque is quite minor, as seen in the derivation of *laugh*:

joke CAUSE [_ laugh _] does not mean the joke caused someone to laugh. Intermediate links of a causal chain cannot be omitted with CAUSE, so I cannot pinch someone to make them scream, and describe the situation as *I made a loud screaming sound*.

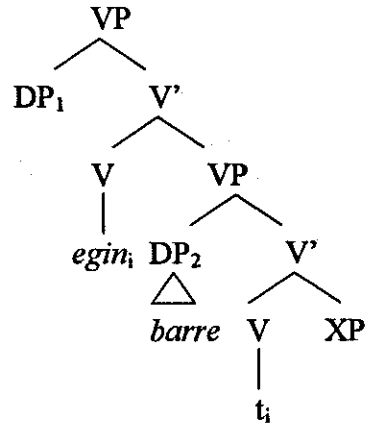
²³Actually they argue that these verbs must be generated without any external arguments, but that is not a crucial point in this discussion.

²⁴It is possible that the incorporated cognate objects are generated in different positions than the cognate and related objects, and the availability of the XP position in (41) raises interesting possibilities. In this regard, Hale and Keyser's structure in (42) does not have any equivalent position.

(44) a. English:



b. Basque:



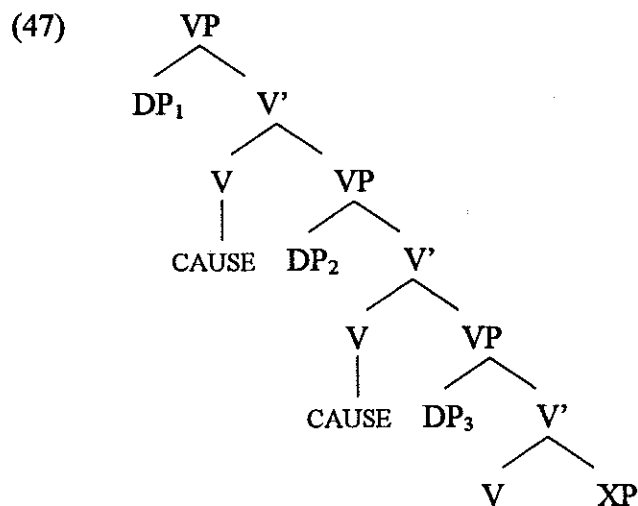
The content of *laugh* is provided by the lower V^1 in English, so the cognate object is optional. In Basque, the content is provided by the cognate object, so it remains overt.

The causative layer associated with these verbs in (41) also accounts for their inability to participate in the null causative construction by reducing the unavailability of (45) to the unavailability of (46), which was discussed in the previous chapter.

(45) *The clown laughed the children,
cf. The clown made the children laugh,

(46) *John ran Mary the horses,
cf. John made Mary run the horses

More specifically, after V^1 substitutes for the first CAUSE to produce V, the Null Head Restriction in chapter 3 prohibits it from successively substituting for another CAUSE.



Actually, a more accurate representation would embed the structure in (47) under ACT, which introduces the Actor argument that controls the Neutral specifier of CAUSE, see chapters 2 and 3. Unergative verbs like *stink* are more likely to be derived directly from

the VP architecture in (47), since they are not eventive, and do not take Actor subjects.

1.5 Split Ergativity and Auxiliary Selection

The causative derivation posited for the traditionally unergative verbs allows at least a partial account for the split ergativity pattern observed in languages like Hindi and Basque (Mahajan 1990, Laka 1993), and the possibly related phenomenon of auxiliary selection in the Romance and Germanic families (Kayne 1993, Mahajan 1994a). Split ergative languages mark their subjects for the ergative Case when the verb is unergative, but for the absolutive Case when it is unaccusative. This pattern is optional and restricted to the perfective tense in Hindi, but it is more regular in Basque.

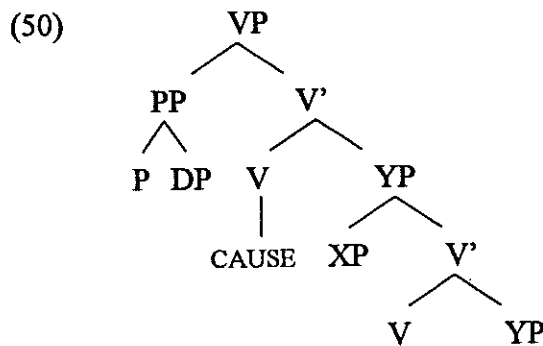
(48) Hindi (Mahajan 1990):

- a. kutte bhōke
 dogs(MASC-PLUR) barked(MASC-PLUR)
 ‘The dogs barked’
- b. kuttō ne bhōkaa
 dogs(PLUR) ERG barked(MASC-SING)
 ‘The dogs barked’
- c. Sitaa (*ne) aayii
 S.(FEM) ERG came(FEM)
 ‘Sitaa came’

(49) Basque (Laka 1993):

- a. emakume-a-k hitz egin du
 woman-the-ERG word made has
 ‘The woman has spoken’
- b. emakume-a etorri da
 woman-the-ABS arrived is
 ‘The woman has arrived’

The Case alignment pattern in these languages would have a natural explanation if it is assumed that CAUSE (as well as ACT) universally selects a PP specifier.



The PP specifier in (50) is the equivalent of the ergative-marked subjects in Hindi and

Basque, cf. Fillmore (1968). Since the iterated causatives introduce a *by*-phrase argument in Turkish after the accusative and dative Cases are used up, which suggests that the preposition that heads this specifier is the abstract form of *by*.

- (51) *pro* [Ahmet tarafından] [bu kitab]ı Ayşe'ye oku-t-tur-du-m
 1.SG A. by this book-ACC A.-DAT read-CAUSE-CAUSE-PAST-1SG
 'I made Ahmet make Ayşe read this book'

The absolutive Case on the subjects of unaccusatives in split ergativity indicates the absence of a causative layer, in which case, they are generated as straight DPs.

Mahajan (1994a) argues that the split ergativity in the perfective tense in Hindi is related to the auxiliary selection in the perfective tense in most Romance and Germanic languages. Drawing largely on Kayne's (1993) proposal that the auxiliary *have* is derived by incorporating a preposition into the auxiliary *be*, Mahajan generates perfective subjects as PPs at D-structure by stipulating that the participial verbs cannot license structural Case. In Hindi, these PP subjects surface as PPs and the auxiliary remains a *be*.

- (52) raam-ne vah kitaabē paṛī thī
 R.-ERG those book-PLUR read-PERF- FEM-PLUR be-FEM-PLUR-PAST
 'Ram had read those books'

In Romance languages such as French, the ergative P of the subject incorporates into the auxiliary *be* to produce a *have* along the lines of Kayne (1993).²⁵

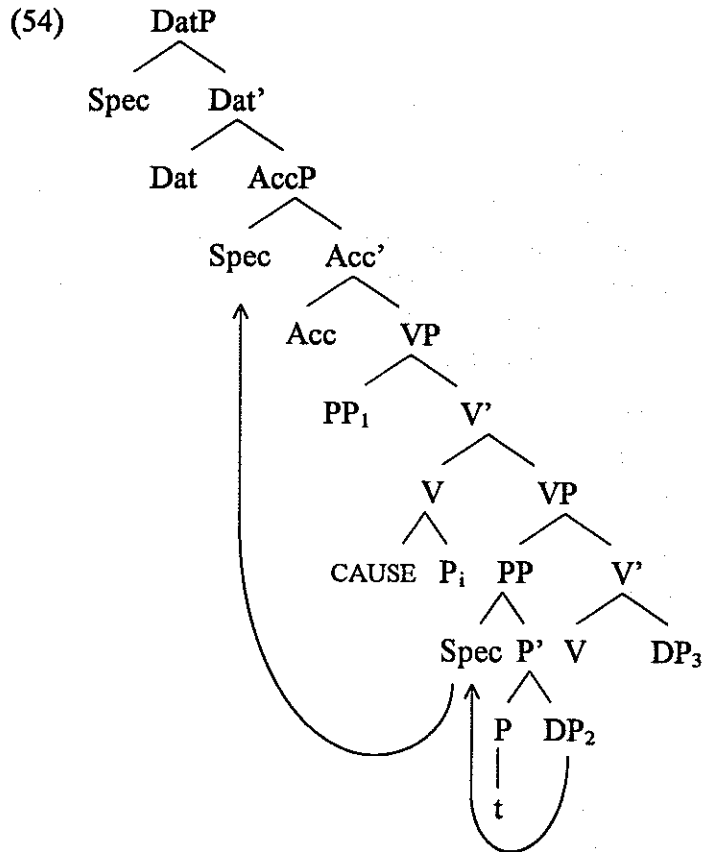
- (53) Paul les a repeintes
 P. them has repainted
 'Paul has repainted them'

Assuming that the specifiers of CAUSE and ACT are generated as *by*-PPs, they would provide a uniform source for Mahajan's ergative P that converts *be* into *have* in Romance and Germanic. The advantage in diverging from Kayne's and Mahajan's systems, and making the availability of the preposition no longer contingent upon the participial morphology of the clause, is that it produces the more regular split ergativity pattern observed in Basque. Also, it does not require any major category shifts in the participial clauses, i.e., it does not convert a participial VP into a nominal category (Kayne 1993), or into an adjectival category (Mahajan 1994a).

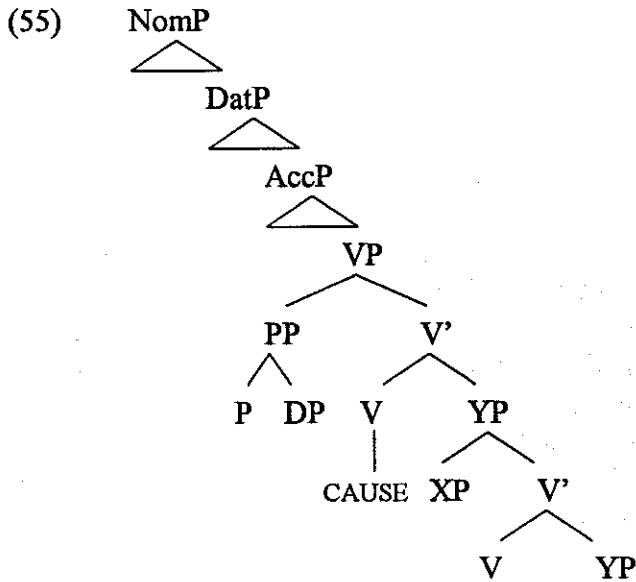
The launching site of the preposition in languages that do not have split ergativity has crucial consequences in the distribution of Case. In the context of the applicative construction discussed in chapter 3, argument shift occurs as a result of the P-incorporation into the verb. Once P moves up, its complement DP can no longer satisfy

²⁵Mahajan (1994a) differs from Kayne (1993) regarding the source of the preposition that incorporates into *be*. Kayne generates the preposition (his D/P_e) at a position higher than the participle head that the verb moves to in the perfective to acquire the participial morphology. For an earlier analysis of the relatedness of *be* and *have*, see Bach (1967).

the Case requirement inside the PP, so it is forced to move independently to a Case licensing position above the VPs. This movement has to proceed through the [Spec, PP] position, a specifier of a specifier, which leads to a potential Left Branch Condition violation. Therefore, the movement of the DP is more restricted. It can raise no further than the specifier of the closest Case licenser, [Spec, AccP].



If the P were launched from the specifier of the causative VP, the mechanism already in place for the applicatives would force the causer DP to move directly to the closest Case position for [Spec, VP], i.e., [Spec, AccP]. However, this is not what happens in the causative construction. The causer surfaces as a nominative phrase, not accusative.



This suggests that P-incorporation is initiated at the specifier of a projection that is higher than the AccP and DatP, where NomP remains the closest Case position. It will be suggested in the next chapter that the P is launched from the specifier of an independently motivated VP headed by the predicate CONT, for 'control', whose function is to verify that the argument in its specifier is capable of supporting the event described in the clause. This VP is situated right below NomP and above all VPs and the non-nominative structural licensing positions.

There are three major issues regarding the distribution of ergative subjects and the *have* auxiliary that need to be addressed in future work.

1. Agentivity: The ergative marking in Hindi and the *have* auxiliary in Romance and Germanic are also triggered by agentive verbs whose VP architecture does not seem to contain any layers for CAUSE or ACT. This problem is particularly acute with a class of transitive verbs like *push* or *steal* which always entail the presence of an agentive subject, as opposed to *solve* and *destroy*, which do not, see section 2.1 below. This suggests that Actor and Neutral arguments may both be generated as *by*-phrases regardless of what verb actually heads the VP, see Fillmore (1968).
2. Valency: In purely ergative languages like Dyrbal, the distribution of Case is governed by the valency of the verb, where the subject of a monadic verb is uniformly marked for the absolutive Case, and the subject of a polyadic verb is marked for the ergative. These languages seem to pay attention only to the number of arguments that occur in a clause, as opposed to the verb typology within the monadic or polyadic verbs. The equivalent of this pattern in terms of auxiliary selection would be a language that selects *be* auxiliary with polyadic verbs (correlating with the ergative Case), but the *have* auxiliary with all monadic verbs (correlating with the absolutive Case). The absence of any such language suggests that the source for the ergative Case in these languages is not the pre/postpositional nature of the subjects, but due to some additional factor that rearranges the priority of the Case licensing projections. It is

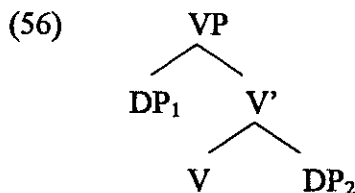
possible that in these languages, the specifier of the absolutive licenser AbsP, corresponding to AccP, must be filled before the specifier of the ergative licenser ErgP.

3. Mismatch between verb types: In French, the auxiliary selection is sensitive to the verb typology, but the distinction is not drawn in the same manner as in Italian or Hindi. Null-specifier verbs (unaccusatives) like *arriver* 'arrive' and *apparaître* 'appear' take the *être* 'be' auxiliary, whereas all other verb types take *avoir* 'have', including the inchoative-layered verbs *couler* 'sink' and *brûler* 'burn', e.g., *La navire a coulé* 'the ship has sink' and *La maison a brûlé* 'the house has burned down', as well as the thematic-specifier verbs *courir* 'run' and *sauter* 'jump'. In this case, it appears that not only all Actors and Neutrals, but all arguments that start out as specifiers at D-structure are generated as *by*-phrases.

All three patterns, which are unexpected under the assumptions sketched out above, are indicative of an interesting parameterization in the distribution of PP specifiers and Case alignment that needs to be explored in the future.

2 Diadic Verbs

Diadic verbs have traditionally been assigned a uniform VP structure, where the subject is generated as the specifier, and the object as the complement.



However, evidence from passives suggests a more complex VP architecture in a class of diadic verbs like *solve*, *destroy*, and *carve*, whose passives allow the agentless reading, contrasting with the simpler structure of *steal*, *dig*, and *scrape*, whose passives do not. The first part of this section distinguishes between two types of diadic verbs in terms of whether they have a causative derivation, and the second part concentrates on the causative nature of Neutral subject psych-verbs like *please* and *scare*.

2.1 Causative-Layered Diadic Verbs

Turkish does not allow the kind of transitivity alternation one observes with the inchoative-layered verbs in English, such as *sink*, *burn*, *melt* and *break*. A good number of these verbs are intrinsically intransitive, e.g., *bat* 'sink', *buruş* 'wrinkle', *çök* 'collapse', *dol* 'fill', *don* 'freeze', *eri* 'melt', *gevş* 'loosen', *kayna* 'boil', and *kop* 'break'. They are all transitivized through overt causative morphology to produce the equivalent of their transitive versions in English, i.e., *batır* 'sink', *buruştur* 'wrinkle', *çökert* 'collapse', *doldur* 'fill', *dondur* 'freeze', *erit* 'melt', *gevşet* 'loosen', *kaynat* 'boil', and *kopar* 'break'. Interestingly, quite a few of the inchoative-layered verbs in English appear only as transitive verbs in Turkish, e.g., *aç* 'open', *bük* 'bend', *dök* 'spill', *ez* 'smash', *kapa*

'close', *kır* 'break', *yar* 'split', and *yırt* 'tear'.²⁶ The intransitive forms of these verbs are derived through passivization, i.e., *açıl* 'open', *bükül* 'bend', *dökül* 'spill', *ezil* 'smash', *kapan* 'close', *kırıl* 'break', *yarıl* 'split', and *yırtıl* 'tear'.²⁷

These 'detransitivizing passives' are different from ordinary passives in that they allow the interpretation that no agent is involved in the event. The following examples are all ambiguous between the agentive and agentless readings.

- (57) a. Kapı açıldı
 door-NOM open-PASS-PAST-3SG
 'The door opened'
- b. Çubuk büküldü
 rod-NOM bend-PASS-PAST-3SG
 'The rod bended'
- c. Kağıt yırtıldı
 paper-NOM tear-PASS-PAST-3SG
 'The paper tore'
- d. Su döküldü
 water-NOM spill-PASS-PAST-3SG
 'Water spilled'

In the agentive reading, the sentences above would be understood to contain a covert *by*-phrase with an arbitrary reference, e.g., *The door was opened by someone or something*. This is not the case in the agentless sense, and the door either opens on its own, with no outside force applying. In this reading, (57a) is the equivalent of the English sentence *The door opened*, and it describes the same type of situation.

Despite their semantic similarities, it cannot be the case that the VP architecture of the Turkish *açıl* 'be opened' is analogous to the intransitive *open* in English, since *açıl* is morphologically more complex, consisting of a passive morpheme in addition to the transitive root *aç*. Recall that the principle of Lexical Coherence discussed in chapter 1 mandates that transitivity alternations, as in the case of the English *open*, be resolved by designating the simpler, intransitive version as the lexical base. Therefore, the relevant

²⁶There seems to be no semantically coherent pattern as to whether a given inchoative-layered verb in English would correspond to a transitive or intransitive verb in Turkish. Consider for example, *kır* 'break' and *kop* 'break', both of which describe the fragmenting of an object. The verb *kır* implies breaking due to some impact that is associated with cracking, as in a vase breaking, and it is transitive. The verb *kop* implies breaking due to some pulling and detachment, as in a wire breaking, and it is intransitive.

²⁷The passive morphology has two forms whose distribution is phonologically determined: *-n-* attaches after vowels and liquids /l/ and /r/, and *-il-* elsewhere.

V-INCH-CAUSE-ACT.

The class of verbs that allow the agentless passivization in Turkish is not limited only to the ones that have their English counterparts participate in the transitivity alternation. Some of the verbs that are detransitivized through passives in Turkish correspond to transitive verbs in English, e.g., *boya* 'paint/color', *çöz* 'solve', *sök* 'undo', and so on, in addition to those that alternate, e.g., *as* 'hang', *ayır* 'separate', *diz* 'line up', *salla* 'swing', and *tak* 'stick, hook', among others. Note that some of these verbs, as in *as* 'hang' and *salla* 'swing', are motion verbs that do not project an inchoative VP layer. With these verbs, the VP headed by CAUSE immediately dominates the VP that contains the lexical content, V^1 , without any VP projected from INCH lying in between.

Verbs that can license the agentless passive reading are represented as V^1 in the Turkish lexicon, which are combined with CAUSE in the syntax to yield the transitive V forms. A comparable class of transitive verbs in English, consisting of *bind*, *carve*, *destroy*, *humiliate*, *offend*, *solve*, and *stain* display the same pattern

- (59) a. The coastline was carved in the shape of a dog's head (over the years)
 b. The evidence was destroyed (during the storm)
 c. Bill was offended (when his ex-wife walked in)
 d. The problem was solved (on its own)

All examples above can describe situations that do not involve any agent, e.g., Bill's ex-wife does not have to have offended him in (59c), while (59d) could be true even if no one has solved the problem, which may have simply disappeared as a result of the way the events shaped up. The agentless readings are derived the same way as was argued for the Turkish cases, and the verbs are represented in the lexicon as V^1 , i.e., *bind*⁻¹, *carve*⁻¹, *destroy*⁻¹, and so forth, on a par with *aç* 'open' in Turkish.²⁹

Transitive verbs that are derived from an underlying V^1 contrast with the majority of the transitive verbs, which are truly diadic and take two arguments. Crucially, they do not allow the agentless passive reading. Among these verbs in Turkish are, *çal* 'steal', *çiz* 'draw', *kaz* 'dig', *kes* 'cut', *kur* 'set', *sık* 'squeeze', *soy* 'undress/peel', *tara* 'comb', *vur* 'shoot', *yaz* 'write', *ye* 'eat', *yut* 'swallow'.

- (60) a. Çukur kazıldı
 hole-NOM dig-PASS-PAST-3SG
 'A hole was dug'

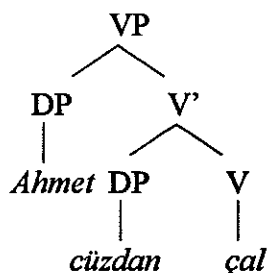
²⁹Languages sometimes conceptualize events differently than expected. For example, the act of writing requires the presence of a writer, but the verb *write* is treated as a V^1 that does not entail the involvement of any Actor, cf. *The fate of mankind is written in the stars*, which does not necessarily require a divine writer that actually wrote the fate.

- b. Cüzdan çalındı
 wallet-NOM steal-PASS-PAST-3SG
 'The wallet was stolen'
- c. Limon sıkıldı
 lemon-NOM squeeze-PASS-PAST-3SG
 'Lemon was squeezed'
- d. Ekmek kesildi
 bread-NOM cut-PASS-PAST-3SG
 'Bread was cut'

The absence of the agentless reading indicates that VP structure of these verbs cannot be split. In a single layered VP, both arguments would have to cooccur at all times, and the agent introduced jointly by CAUSE and ACT could not be separated.

- (61) Ahmet cüzdanı çaldı
 A-NOM wallet-ACC steal-PAST-3SG
 'Ahmet stole the wallet'

(62) *çal* 'steal'



Some of the verbs that project the equivalent of (62) in English are *dig*, *repair*, *tie*, *hire*, *engrave*, *eat*, *read*, and *calculate*. All these verbs have the obligatory agentive reading when passivized.

- (63) a. My name was engraved in the cement
 b. The hole was dug during the war
 c. The damage was repaired overnight
 d. The bait was eaten at the end of the day

Each of these sentences entail the involvement of an agent.

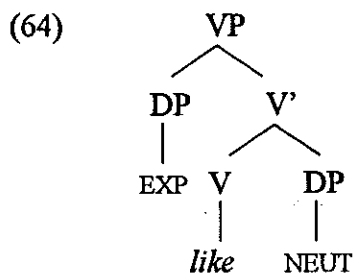
These verbs may clearly be distinguished on the basis of the tacit knowledge of the speakers that the state of affairs described by these verbs require the involvement of an agent. This may technically be a sufficient criterion to assign different VP structures for both classes, but it still does not explain how children acquire this knowledge. A more interesting distinction comes from the state of affairs these verbs denote with respect to their objects. Consider the case of *steal* or *çal* 'steal'. If these verbs were to be derived from double-layered causative structures, the lexical base *steal*⁻¹ would have to refer to

the state of the stolen object. Unlike *solve*, *paint*, or *destroy*, the determination of an event as stealing is purely due to the act performed by the stealer. Since being stolen is not an identifiable state, the hypothetical verb *steal*⁻¹ would not satisfy the Viability Corollary of Lexical Coherence discussed in chapter 1, which requires that all parts in a complex predicate be lexically coherent and viable.

Similar remarks can be made for the more subtle distinction between *engrave* and *imprint*, as in *My name was engraved/imprinted on the cement*. The verb *engrave* refers to a special technique of shaping a surface that is determined by the engraver's acts, while *imprint* is a more indistinct act.³⁰ In other words, *engrave* describes the act performed by the Actor, whereas *imprint* refers to the state of the object. Therefore, *imprint* is more coherent in describing the state of the object, so it can form a VP as [_{VP} my name [_{V'} imprint PP]], while *engrave* is dependent on the agent, so it cannot be a coherent lexical item as an intransitive, *[_{VP} my name [_{V'} engrave PP]]. Though there needs to be more work done with respect to the distinction between the two diadic verbs types, the ability to describe the state of the object appears to be a promising start.

2.2 Neutral Subject Psych-Verbs

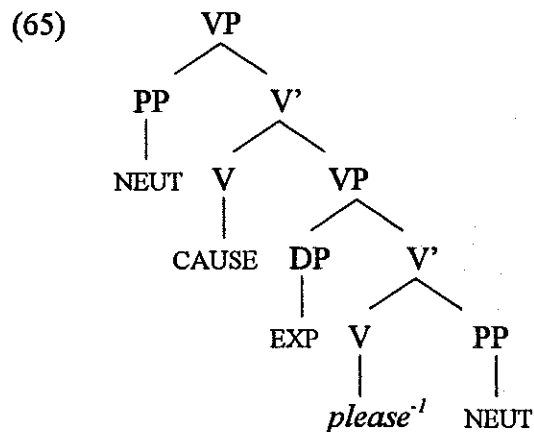
The thematic role alignment algorithms in chapter 2 map the Experiencer argument onto a position higher than the Neutral argument. This means that between pairs of verbs like *like/please* or *fear/frighten*, only the ones that take Experiencer subjects and Neutral objects, such as *like* and *fear*, can project a simple VP structure. As pointed out in chapter 2, the majority of the verbs that license Experiencer and Neutral arguments, such as *want*, *think*, and *believe*, align their arguments in this manner.



Verbs like *please* and *frighten*, as well as *scare*, *anger*, *satisfy*, *excite*, and *depress*, reverse the thematic alignment by taking Neutral subjects and Experiencer objects, which suggests that these verbs have a more complex structure than that of the *like* and *fear* type. Specifically, it seems reasonable to argue that the Experiencer argument is licensed through a lower predicate, while the Neutral argument is introduced separately by another predicate. The predicate that most commonly adds a Neutral argument into the structure is CAUSE. In (65), *please* is treated as a triadic V⁻¹ verb that takes an Experiencer specifier and a Neutral complement embedded under CAUSE. This approach has had a long history in the theory of syntax, and it has been revived recently in an interesting way by Pesetsky

³⁰Note that one can refer to the product of the imprinting as 'an imprint', but the product of the engraving cannot be 'an engrave'.

(1995). As usual, an additional VP layer headed by ACT can be added into the structure in (65) when the subject of *please* is an Actor rather than a Neutral.



The Neutral specifier of CAUSE is the argument that initiates the pleased state of the Experiencer, cf. Pesetsky's Subject Matter, while the Neutral complement of *please*¹ is the one that the Experiencer is in a pleased state with respect to, cf. Pesetsky's Target.

The causative layer in the derivation of *please* and *frighten* also makes the agentless reading available in their passivized forms.

- (66) a. The supervisor is pleased with the employees
 b. The captain is frightened of his first officer
- (67) a. The supervisor was pleased by the employees
 b. The captain is frightened by his first officer

The agentless readings do not require the person who is pleased or frightened to be put in that state by anyone or anything in particular. In (66) for example, the supervisor is in a pleased state with respect to the employees, and the captain is in a frightened state with respect to his first officer. One can follow these sentences with *but the employees did not please the supervisor* or *but his first officer did not frighten him* without any contradiction. This is not true for the agentive passives of (67), where if the supervisor was pleased by the employees, the employees must necessarily have pleased him, and if the captain is frightened by the first officer, the first officer must have frightened him. This is because the employees induce the pleased state of the supervisor, and the first officer induces the frightened state of the captain, on a par with the active sentences below.³¹

³¹Pesetsky (1995) observes that in the absence of a Neutral complement, the causer becomes the target for the emotional state of the Experiencer. In (68a) for instance, the employees induce the pleased state of the supervisor, and the supervisor becomes pleased with respect to the employees. Similar effects can be observed in Turkish as well.

- (68) a. The employees pleased the supervisor
 b. His first officer frightened the captain

The idiosyncratic PPs in (66) are the complement Neutral arguments in (65). The agentless readings, on the other hand, arise when the passive morphology combines with only the lower VP. For the agentive reading, the passive combines with the larger VP that contains the causer, and the PP is the *by*-phrase introduced by the passive.

Pesetsky (1995) also notes that, with the *please* type verbs, the argument that induces the psychological state in the Experiencer cannot occur with the argument that the Experiencer holds the state with respect to. That is, the Neutral specifier of CAUSE cannot be licensed if the clause contains the Neutral complement of the lower verb, *please*³².

- (69) a. *[Bill] worried Mary [with his progress in the class]
 b. *[The recent reports] frightened Bill [of the impending downsizing in his firm]
 c. *[John] angered Sue [at the hiring practices at her company]
 d. *[Mary] depressed John [with his job]

However, this does not necessarily indicate that the architecture in (65) is fundamentally incorrect. In fact, there are reasons to assume that the cooccurrence restriction in (69) is a surface phenomenon that relates to structural licensing conditions. First, as observed by Pesetsky (1995), the two Neutral arguments are allowed to cooccur in cases where each argument is introduced by heads that are kept distinct at S-structure, such as the

- (i) Suna Mehmet'i (balıktan) iğrendirdi
 S.-NOM M.-ACC fish-ABL disgust-CAUSE-PAST-3SG
 'Suna made Mehmet disgusted (with fish)'
- (ii) Ahmet Ayşe'yi ([*pro* ortağın]dan) kuşkulandırdı
 A.-nom A.-acc 3sg partner-3sg-abl suspect-cause-past-3sg
 'Ahmet made Ayşe suspicious (of his/her partner)'

Without the internal arguments *balıktan* 'from the fish' and *ortağından* 'from his/her partner', the Experiencers *Mehmet* and *Ayşe* would be understood to be disgusted or suspicious with respect to the causers *Suna* and *Ahmet*, respectively. It is possible that this reading is pragmatically induced, and that the listeners resort to the Gricean maxim of informativeness to assume that the clause has provided all the information necessary to evaluate the emotional state of the Experiencer.

³²Pesetsky accounts for this generalization (his Target/Subject Matter restriction) by generating both arguments at the same position, which is possible in his system because he also assumes that the causer argument is generated as a PPs at a much lower location inside the VP, somewhat analogous to the adverbial phrase *because (of)*. The causative analysis developed in this work is clearly incompatible with this position.

periphrastic causatives in (70), and the verb-particle construction in (71).³³

- (70) a. [Bill] made Mary worry [about his progress in the class]
 b. [The review of her book] made Sue satisfied [with her accomplishments]
 c. [John] made Sue angry [at the hiring practices at her company]
 d. [Mary] made John depressed [with his job]
- (71) a. The check calmed Bill *(down) about the accident
 b. The news cheered Sue *(up) about her plight
 c. The lectures turned Bill on to classical music
 d. The article really pissed Bill off at Mary

There are two properties that are shared by the periphrastic causatives in (70) and the verb-particle structures in (71) that differ from the null causatives of (69): First, the head that licenses the lower Neutral argument remains relatively low at S-structure, i.e., the passivized V^{-1} in the periphrastic, and the particle in the verb-particle construction. If for some reason, a head from inside the Neutral complement had to incorporate into its licensing head, this would be possible with the lower head V^{-1} in (70) and the particle in (71), but not with the null causatives in (69) because of the overt movement of the V^{-1} to CAUSE. Second, there are more available structural Case positions in the periphrastic causative and the verb-particle constructions, compared to the null causative structures in (69).³⁴ Both properties may prove to be relevant in the ultimate account for the cooccurrence restriction, although neither option will be pursued in this work.

More convincing evidence that this restriction is basically a surface phenomenon comes from the context in which it is overridden in Turkish, where Neutral subject psych-verbs are derived by combining Experiencer subject verbs with overt causatives. The following examples show the effects of the cooccurrence restriction.

- (72) a. Ahmet [*pro* hataları]na kızdı
 A.-NOM 3SG mistakes-3SG-DAT be.angry-PAST-3SG
 'Ahmet got angry with his mistakes'
- b. Ali Ahmet'i (*[*pro* hataları]na) kızdırdı
 A.-NOM A.-ACC 3SG mistakes-3SG-DAT be.angry.-CAUSE-PAST-3SG
 'Ali angered Ahmet (*with his mistakes)'
- (73) a. Mehmet [Suna'nın köpeği]nden korktu
 M.-NOM S.-GEN dog-3SG-ABL fear-PAST-3SG
 'Mehmet feared the dog'

³³The examples in (71) are taken from Pesetsky (1995).

³⁴This is not to mean that the particle is an accusative Case assigner in the traditional sense, but it clearly makes the accusative available for its complement. Compare **Bill looked the information* with *Bill looked up the information*.

- b. Suna Mehmet'i (*[*pro* köpeği]nden) korkuttu
 S.-NOM M.-ACC 3SG dog-3SG-ABL fear-CAUSE-PAST-3SG
 'Suna frightened Mehmet (*of her dog)'
- (74) a. Ali habere şaşırdı
 A.-NOM news-DAT surprise-PAST-3SG
 'Ali got surprised with the news'
- b. Ahmet Ali'yi (*habere) şaşırttı
 A.-NOM A.-ACC news-DAT surprise-CAUSE-PAST-3SG
 'Ahmet surprised Ali (*with the news)'

The following verbs are among those that do not display this restriction.

- (75) a. Ahmet Ayşe'ye cazı sevdirdi
 A.-NOM A.-DAT jazz-ACC like-CAUSE-PAST-3SG
 'Ahmet made Ayşe like jazz'
- b. Suna Mehmet'e [hükümetin yolsuzlukları]nı
 S.-NOM M.-DAT government-GEN improprieties-3SG-DAT
 umursattı
 care-CAUSE-PAST-3SG
 'Suna made Mehmet care about the government's improprieties'
- c. Ali Ahmet'e [*pro* annesi]ni özletti
 A.-NOM A.-DAT 3SG mother-3SG-ACC miss-CAUSE-PAST-3SG
 'Ali made Ahmet miss his mother'

The difference between the verbs that obey the restriction and those that do not is in the type of emotional state they denote.³⁵ The dictionary of the Turkish Language Institute (TDK), 1988 edition, lists 96 non-causative emotional state verbs. Of these, 37 are transitive verbs that also take a Neutral object in the accusative, oblique or some other Case, and the rest are intransitive.³⁶ The overwhelming tendency that emerges in this survey is that only the verbs that denote temporary emotions obey the cooccurrence restriction in Turkish, e.g., *kederlen* 'be sorrowful', *kız* 'be angry', *sevin* 'be happy/glad', *şaşıır* 'be surprised', *utan* 'be ashamed', and *ürk* 'be frightened'. Those that denote more permanent types of emotions allow the causative Neutral to appear with the target Neutral, e.g., *bez* 'get tired of', *bunal* 'depress', *gocun* 'be offended', *iğren* 'disgust',

³⁵The relevant factor that defines this class is not the Case of the Experiencer argument. The verbs *kuşkulun* 'suspect', *öykün* 'aspire to', and *iğren* 'disgust' take dative, dative, and ablative objects, respectively, but they do not obey the cooccurrence restriction.

³⁶Of these verbs, only three were Neutral subject: *etkile* 'affect, touch', *sars* 'shake', and *üz* 'sadden'.

imren 'envy', *kuşkulan* 'suspect', *öykün* 'aspire to', and *sev* 'love'. A striking example is the verb *kork* 'fear', which clearly obeys the cocurrence restriction, except in cases where the fear becomes an individual level property of the Experiencer that he/she holds with respect to some generic object. Compare (73b) with (76), which is licensed in a context where Suna is Mehmet's mother and Mehmet becomes a dog fearer due to his mother's influence.

- (76) Suna Mehmet'i köpekten korkuttu
 S.-NOM M.-ACC dog-ABL fear-CAUSE-PAST-3SG
 'Suna frightened Mehmet of dogs'

Fear is an emotional state that can be a permanent property directed at generic objects, whereas anger, surprise, and shame are temporary states that are aroused anew in each situation, typically directed at specific individuals.

The fact that Turkish can override this restriction in such well-defined contexts suggests that the VP architecture illustrated in (65) is essentially correct, though it needs to be augmented with the theory of stage and individual level predicates (Kratzer 1995) and the syntactic representation of Davidson's (1967) event argument. The status of the event argument falls beyond the scope of this study.

3 Triadic Verbs

The traditional X'-schema (Chomsky 1970) makes only two positions available for arguments inside a VP, which forces all additional arguments to be licensed at other locations. Causatives provide the third argument in triadic verbs, which is implicitly assumed in Larson's (1988) VP shells.³⁷

- (77) [_{VP} PP CAUSE [_{VP} DP V⁻¹ DP]]

The prohibition against successive substitution into CAUSE, discussed in chapter 3, prevents an additional CAUSE to introduce a fourth argument, as in (78a). It also restricts the range of possible triadic verbs by ruling out causative-layered diadic verbs from participating in the derivation of a triadic verb, (78b).

- (78) a. *[[_{VP} PP CAUSE [_{VP} PP CAUSE [_{VP} DP V⁻¹ DP]]]]
 b. *[[_{VP} PP CAUSE [_{VP} PP CAUSE [_{VP} DP V⁻¹ XP]]]]

This prohibition also excludes from the lexicon, any super-defective verbs of the form V⁻² that would require two additional arguments introduced by two causative VPs to be satisfied at S-structure.

This section derives triadic verbs from double-layered VPs, where the lower VP is headed by a single-layered diadic V⁻¹ verb, and the higher one, by CAUSE. It first argues for a parallel derivation for source and goal arguments, assigning them the same position at D-structure and S-structure. It then expands the preposition incorporation analysis of the English dative shift mentioned in chapter 3. P-incorporation is also shown to be the

³⁷This section and the following chapters adopt the view that CAUSE selects a PP specifier.

driving force behind the locative/theme alternations observed with the *spray* and *load* type of verbs. The discussion leads to an analysis of the symmetrical predicates *multiply* and *combine*, first presented in chapter 2, and concludes by explicitly claiming that all instances of non-idiosyncratic *with*-phrases are licensed as intermediate specifiers.

3.1 Goal and Source Alternations

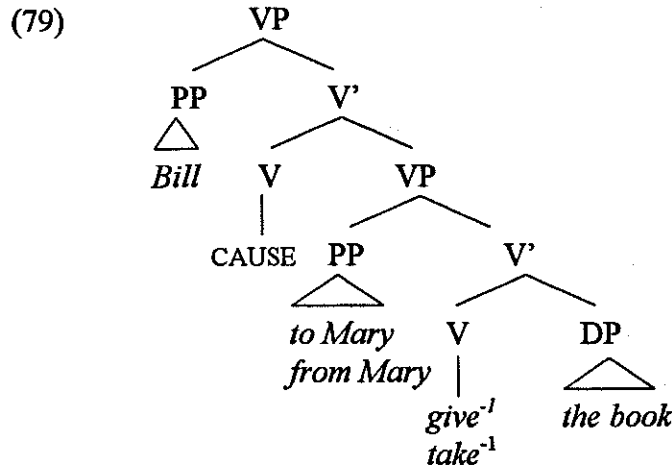
The most thoroughly studied triadic verbs in the literature are those that indicate the transfer of some object (the traditional theme) either concretely, as in *give*, *sell*, and *donate*, or abstractly, as in *tell*, *teach*, and *dedicate*. These verbs often form pairs in which the subject is the source that the theme moves away from, e.g., *give*, *lend*, *send*, and *sell*, or the goal that moves towards, e.g., *take*, *borrow*, *receive*, and *buy*.

Traditionally, the argument X in *X gives Y to Z* is said to be a source, and Z, a goal. The alignment is reversed in *X takes Y from Z*, where X is the goal and Z is the source argument. Verbs like *loan*, *rent*, and *lease* are ambiguous between the source-subject and goal-subject readings (Gruber 1965), distinguished only with the use of the preposition *to* or *from*, as in *X loans Y to Z* and *X loans Y from Z*.³⁸ The verbs *loan*, *rent*, and *lease* are not allowed to have double entries in the lexicon with entirely different thematic frames because of the Dissimilarity Corollary in chapter 1. Therefore, the interchangeable goal and source arguments must be generated in relation to the same type of thematic role slot. This is not so surprising, since the theory of thematic relations proposed in chapter 2 only refers to the roles that relate to the event structure, and ignores the ones that deal with purely spatial relations, i.e., the extensional roles by Culicover and Wilkins (1986), and the thematic tier of Jackendoff (1987).

The consequence of associating the goal and source arguments with the same thematic slot is that they are thematically indistinct, and so the corresponding *to*- and *from*-phrases are projected onto the same structural position in the syntax. In overt causative structures *to*-phrases correspond to the causee arguments generated at the specifier of a lower VP, there is no reason that the *to*-phrases in the null causatives of lexically decomposed predicates should be located at a different position.

³⁸ The same phenomenon occurs in Turkish with verbs like *kiralat* 'rent'. A dative phrase in the clause associates with the goal argument, and indicates a source subject; whereas an ablative phrase indicates the source argument, and indicates a goal subject.

- (i) Ahmet evi Mehmet'e/Mehmet'ten kiraladı
 A.-nom house-acc M.-dat/ M.-abl rent-past-3sg
 'Ahmet rented the house to/from Mehmet'



In this configuration, *the book* does not undergo any change of state, so it is the Neutral argument of *give*⁻¹ and *take*⁻¹. It is only transferred from one location or possessor to another. The intermediate specifiers *to Mary* and *from Mary* are protagonist arguments that undergo a change of state/possession, so they are the Experiencers of *give*⁻¹ and *take*⁻¹. They come into the possession of the theme with *give*⁻¹, and they lose possession of it with *take*⁻¹.³⁹ They are also the Patients of CAUSE, whose specifier, *Bill*, is the Neutral subject. The ACT predicate that provides the Actor role is omitted in (79).

The Case alignment with triadic verbs parallels the type I causatives of Turkish and French, discussed in chapter 3. The highest specifier *Bill* moves to the nominative Case licenser NomP, the lower specifier *to Mary* or *from Mary* moves to DatP, and the complement *the book* moves to AccP. The movement to DatP takes place at LF, while the movement to NomP and AccP takes place at S-structure in English. It is accompanied by a short movement of the verb out of the VP into the inflectional field, to a position above the object at [Spec, AccP] and below tense, as argued in the previous chapter. Note that DatP is merely a convenient name for the third structural licensing projection in a clause that typically hosts a dative phrase, but it is not exclusively reserved for dative or *to*-phrases, so they can structurally license ablative or *from*-phrases as well.⁴⁰

The thematic licensing of the dative (*to*) and ablative (*from*) phrases at the same licensing position [Spec, DatP] effectively prohibits them from occurring in the same clause. However, verbs that denote the directional movement of a theme argument from one location to another appear to contradict this conclusion.

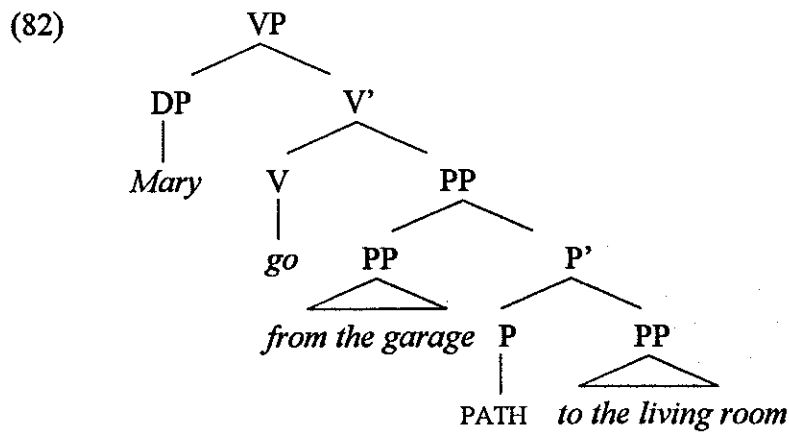
(80) a. Bill travelled from Alaska to Yucatan

³⁹Although it is convenient to think of *give* as *cause to have*, *give*⁻¹ is not the same as *have*, just as *kill*⁻¹ is not the same as *die*. They may have very similar meanings, but they are not identical.

⁴⁰Alternatively, one can posit an AblP that licenses ablative and *from*-phrases, located between the AccP and ByP, perhaps also adjacent to the DatP.

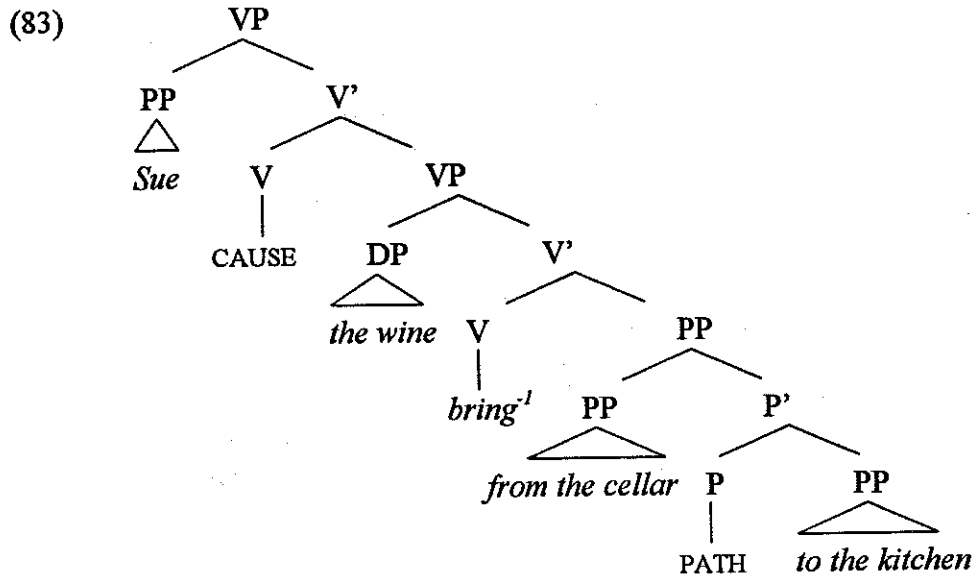
- b. Mary went from the garage to the living room
 - c. John moved from Santa Monica to San Diego
- (81)
- a. Sue brought the wine from the cellar to the kitchen
 - b. Ted carried the boxes from the truck to the front yard
 - c. Jo pushed the speakers from this corner to that corner

These verbs are different from the *give* and *take* type in that their source and goal phrases are not thematic constituents. They merely indicate the direction of the movement by defining the path that the theme moves along (Gruber 1965). Therefore, it seems unlikely that *travel*, *go*, and *move* could be triadic verbs that take the theme, the source, and the goal as three distinct arguments. Rather, it is a more plausible approach to let them take two arguments, a Neutral subject, i.e., the theme, and a PP complement that defines the path. As such, the source and goal phrases are not generated as independent constituents, but as part of a PP that is headed by the abstract preposition PATH.



Likewise, *bring*, *carry*, and *push* would qualify as triadic verbs that take a Neutral subject, a Patient theme, and a complement path PP. They are built by taking the VP architecture in (82) and embedding it under CAUSE. The implicit claim in (83) below is that the VP architecture of *bring*⁴¹ parallels that of the thematic-specifier verb *go*.⁴¹

⁴¹As mentioned, the verb *getir* 'bring' and *götür* 'take' are arguably the causative forms of *gel* 'come' and *git* 'go', respectively.



The Path argument is treated on a par with other NTCs such as Bare Measure Phrases and cognate objects, discussed in section 2.3 above.

3.2 Dative Shift

Dative shift is defined by the way the goal argument becomes the direct object of the clause. It loses its dative marking (the preposition *to* in English), takes the accusative Case, acquires the ability to passivize, and triggers object agreement in some languages.⁴² The theme argument keeps its accusative marking in English, but can no longer act like a direct object. The regular form in (84) below is shifted in (85).

- (84) a. Bill gave that book to Mary
 b. i. That book was given to Mary
 ii. *To Mary was given that book
 iii. *Mary was given that book to

- (85) a. Bill gave Mary that book
 b. i. *That book was given Mary
 ii. Mary was given that book

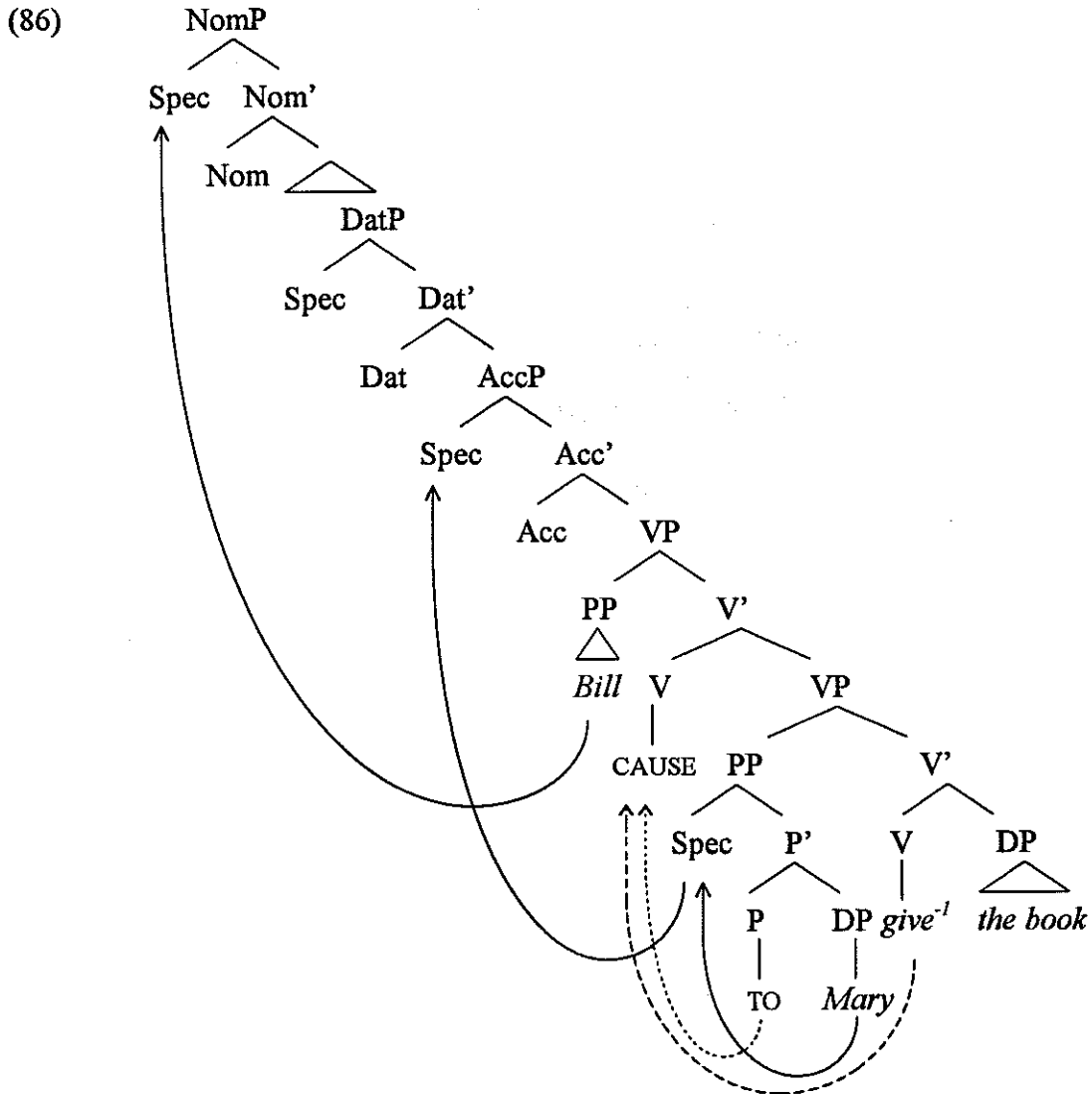
The theme argument *that book* cannot passivize after the dative shift in (85bi), which shows that it loses its direct object properties despite its accusative morphology.

As stated in the previous chapter, this work adopts Baker's (1988) insight that dative shift is a form of the applicative construction, which is derived by incorporating the preposition into the verb at S-structure.⁴³ This is essentially the same as the applicative

⁴²Also see in Barss and Lasnik (1986) that a shifted dative c-commands the original accusative phrase.

⁴³Kayne's (1984) treatment of dative shift makes use of an empty preposition that heads

derivation of type II causatives discussed in chapter 3:

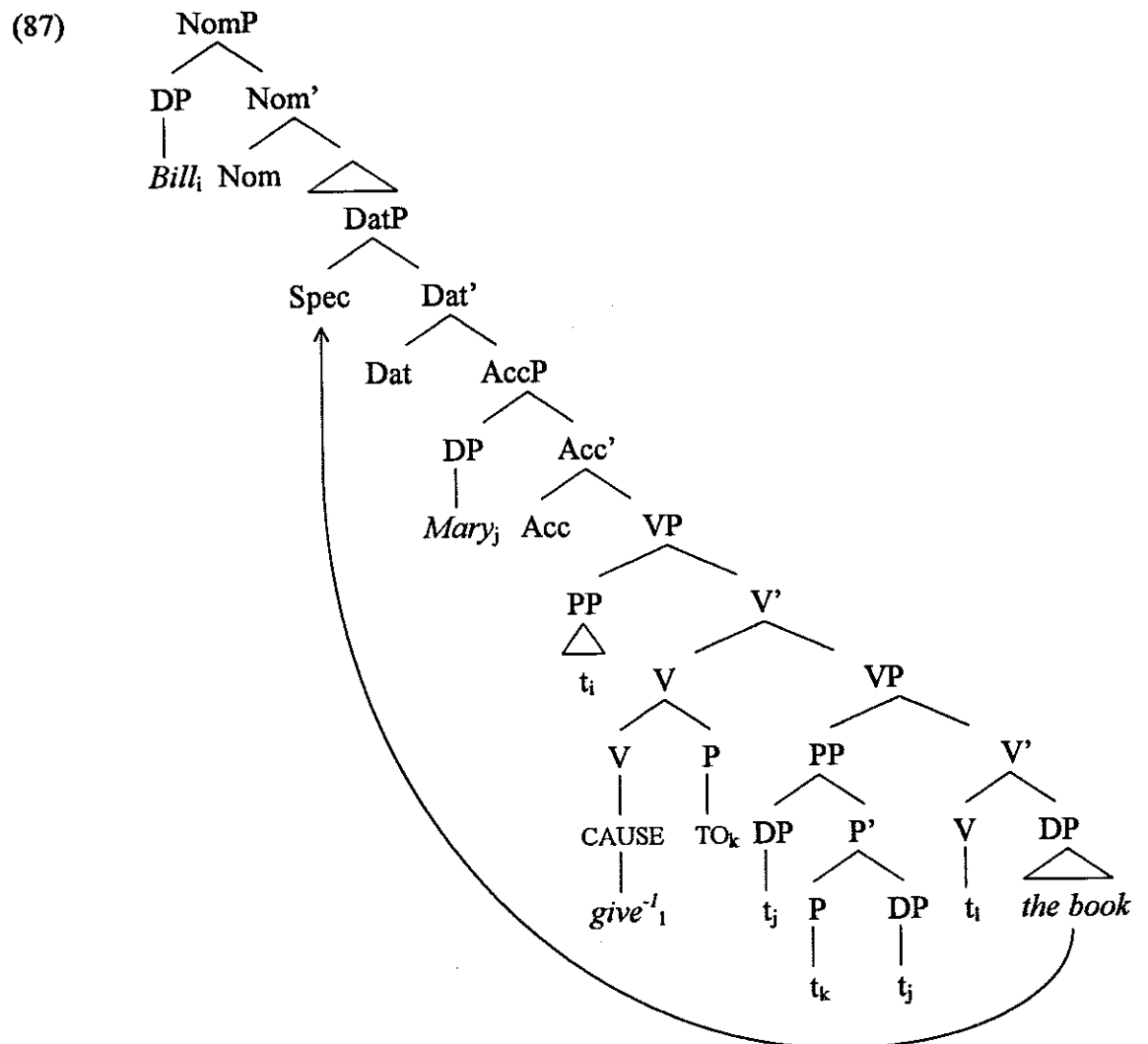


The incorporated P cannot structurally license its complement DP in (86), which forces it to move out of the VP through the [Spec, PP] position. Because the PP itself is in the specifier of the VP, movement out of [Spec, PP] is a highly marked step that can only be allowed to go short distance to the first available Case licensing position above the VPs, which in this case is the [Spec, AccP].

The movement of the goal DP to [Spec, AccP] leaves the theme DP, *the book*, in need for structural licensing. In Type II causatives, the corresponding internal arguments appear as oblique phrases. In the English dative shift, these arguments morphologically appear as accusative phrases, but without any direct object properties. One can argue that this morphological accusative does not correspond to the true accusative Case associated

the fronted goal PP, [_{VP} V PP NP], which corresponds to Baker's trace under the P.

with the [Spec, AccP], and that it is structurally licensed elsewhere in some oblique Case licensing position, e.g., the [Spec, DatP]. This hypothesis is illustrated in (87).



The word order in English is derived by moving the accusative goal DP to [Spec, AccP] in the overt syntax, while delaying the movement of the oblique theme argument to [Spec, DatP] until LF.

Dative shift is obligatory in English when the theme argument is an abstract entity that does not literally change hands, it is acquired by the indirect object.

- (88) a. John gave me a headache
 b. Sue gave John chickenpox
 c. John gave Bill a kick
 d. Mary gave me an idea
 e. Allen gave Sue a ride

Not shifting the dative argument yields an anomolous interpretation where the abstract

entity is treated as a concrete object that somehow changes owners.

- (89) a. #John gave a headache to me
b. #Sue gave chickenpox to John
c. #John gave a kick to Bill
d. #Mary gave an idea to me
e. #Allen gave a ride to Sue

The sentences in (89) are ungrammatical in the intended quasi-idiomatic reading. They would be grammatical if there were any way that one could physically hold a headache, chickenpox, a kick, an idea, and a ride, and pass it along to the next person. This behavior can be partially attributed to the non-referential character of these theme arguments. It has been a well-documented fact that languages treat nonreferential differently than the referential ones. The difference is particularly robust especially with respect to the direct object properties, e.g., accusative Case marking (Enç 1991) or object agreement (Mahajan 1990). It can be conjectured that the nonreferential themes in (88) resist the movement to [Spec, AccP], which leaves dative shift as the only option available in these cases.⁴⁴

The analysis presented here connects the dative-shifting ability of a language to two independent factors: (a) whether or not the dative marker can incorporate into CAUSE, and (b) whether or not the language can license accusative phrases in an oblique Case licensing position, such as a DatP.⁴⁵

3.3 Internal Argument Alternations

There is a clear semantic correlate to the Case alignment pattern with verbs like *spray* and *load*, which take instrumental (material) and locative (base) arguments and allow either one to shift to accusative at S-structure.

- (90) a. Bill loaded the hay onto the truck
b. Bill loaded the truck with the hay
- (91) a. John sprayed the paint onto the wall

⁴⁴Other cases of obligatory dative-shifting cannot be explained in the same way. For example, *envy* and *spare* can take referential subjects but still require dative shift.

- (i) I envy Bill his beautiful house
(ii) Mary spared me the irrelevant details

⁴⁵The exact nature of structural licensing and what it entails is open for debate. If indeed the morphological accusative of *the book* is licensed at the dative position, then structural licensing cannot be morphological checking. Otherwise, the accusative morphology on the DP would trigger a mismatch with the Dat head that would be checking for the accusative. For practical purposes, the derivations in this work treat the functional projections AccP, DatP, ByP, and NomP as undifferentiated licensors that are not selective about the morphological properties of the constituent that moves to their specifiers, as long as each phrase obeys the general restrictions on movement.

b. John sprayed the wall with the paint

As observed by Tenny (1990), the argument that is marked for the accusative Case defines the extent of the loading and spraying events. For example, the accusative marked *hay* in (90a) indicates that there was as much loading as there was hay, while the accusative marked *truck* in (90b) indicates that there was as much loading as there was room in the truck. Likewise, the spraying event is measured out by the amount of paint in (91a), and surface of the wall in (91b).⁴⁶ Some other verbs that display this alternation are listed by Levin (1993) as *cram*, *inject*, *pile*, *pump*, *smear*, *spread*, *squirt*, *string*, and *wrap*.

The same alternation and the same contrasts are found in Turkish as well, though there are fewer verbs that display this behavior.

- (92) a. Ahmet samanı kamyonu yükledi
 A.-NOM hay-ACC truck-DAT load-PAST-3SG
 'Ahmet loaded the hay onto the truck'
- b. Ahmet kamyonu samanla yükledi
 A.-NOM truck-ACC hay-WITH load-PAST-3SG
 'Ahmet loaded the truck with hay'
- (93) a. Ayşe alçıyı duvara sıvadı
 A.-NOM plaster-ACC wall-DAT smear-PAST-3SG
 'Ayşe coated the plaster on the wall'
- b. Ayşe duvarı alçıyla sıvadı
 A.-NOM wall-ACC plaster-WITH smear-PAST-3SG
 'Ayşe coated the wall with plaster'

Just as in (90) above, the loading event is coextensive with whichever argument is marked for the accusative Case. The loading exhausts the hay in (92a), and the room available in the truck in (92b). The same is true for the coating in (93): there is no more plaster left in (93a), and the wall is completely covered in (93b).

The determining factor in this alternation is the measuring out function of objects. Verbs like *cover* do not participate in this alternation because they entail completion, as do *bind*, *clutter*, *douse*, *drench*, *encircle*, *mask*, *pollute*, or *soak*. The act of covering, by definition, exhausts the base that is being covered, i.e., the locative phrase, but not the material that is doing the covering, i.e., the instrumental phrase.⁴⁷ These verbs allow only

⁴⁶It appears that while the measuring out function is associated with accusative Case, scalability is a property of the complement position, where BMPs are generated. They are very similar concepts, though as mentioned before, scalability is a property of the predicate, and measuring out is a property of the event structure.

⁴⁷By contrast, verbs like *pour* and *put* are coextensive with the material that is poured or put, which is why the locative phrase remains locative, and the instrumental is shifted to

the covered object to appear as an accusative phrase in English and Turkish.⁴⁸

- (94) a. Mary covered the table with the tablecloth
b. *Mary covered the tablecloth onto the table
- (95) a. Sue cluttered the table with pieces of paper
b. *Sue cluttered pieces of paper onto the table
- (96) a. Ahmet masayı örtüyle kapladı
A.-NOM table-ACC tablecloth-WITH cover-PAST-3SG
'Ahmet covered the table with the tablecloth'
- b. *Ahmet örtüyü masaya kapladı
A.-NOM tablecloth-ACC table-WITH cover-PAST-3SG
'Ahmet covered the tablecloth onto the table'
- (97) a. Ayşe boruyu paçavrayla tıkadı
A.-NOM pipe-ACC rags-WITH clog-PAST-3SG
'Ayşe clogged the pipe with rags'
- b. *Ayşe paçavrayı boruya tıkadı
A.-NOM rags-ACC pipe-DAT clog-PAST-3SG
'Ayşe clogged the rags into the pipe'

The remarkable aspect of these verbs is that they are essentially diadic in both languages, and they are causativized with null morphology to become triadic in (94) through (97). The argument alignment in their diadic forms provides clues for the VP architecture of their triadic forms. The argument that becomes the subject at S-structure is the material that does the covering, cluttering, or clogging, which corresponds to the instrumental phrase in their triadic forms above.

(98) The tablecloth covered the table

(99) Pieces of paper cluttered the table

(100) Örtü masayı kapladı
tablecloth-NOM table-ACC cover-PAST-3SG
'The tablecloth covered the table'

the accusative.

⁴⁸Some of the verbs that behave this way in Turkish are: *kapla*, *ört*, and *kapa*, all of which refer to slightly different types of covering, as well as *çevrele* 'surround', *tıka* 'clog', and *yama* 'patch'.

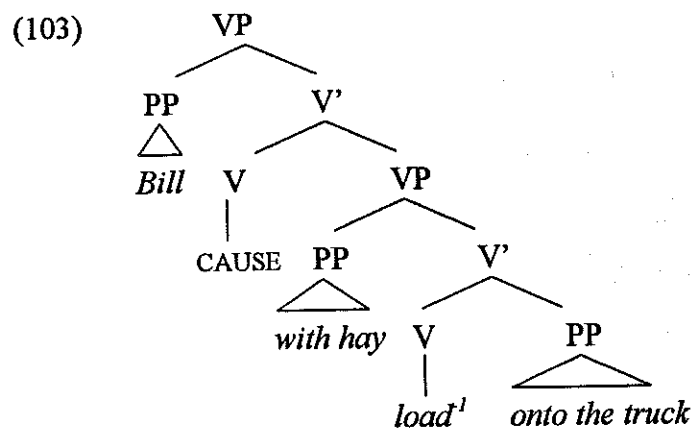
- (101) Paçavra boruyu tıkadı
 rags-NOM pipe-ACC clog-PAST-3SG
 'The rags clogged the pipe'

The argument alignment in (98) through (101) indicates that the material argument is generated as the specifier of the diadic VP, and the base argument is generated as the complement. Once this VP is embedded under CAUSE to obtain their triadic forms, the instrumental phrases in (94) through (97) would be generated as the lower specifiers, and the locative phrases as the complements of the lower VPs.

- (102) a. [VP [PP (by) Mary] CAUSE [VP [PP with the tablecloth] cover [PP (onto) the table]]
 b. [VP [PP (by) Sue] CAUSE [VP [PP with pieces of paper] clutter [PP (onto) the table]]

The prepositions in parentheses in (102) are eliminated by P-incorporation at S-structure when the locative argument is shifted to the accusative position. This shift produces the reading that the locative base measures out the extent of the covering or cluttering.

The position of the instrumental phrase in the VP architecture of the triadic *cover* suggests that the instrumental phrase of verbs like *load* is also generated as the specifier of the lower VP, and the locative phrase as its complement. The configuration in (103) provides the source for both alternants *X loaded Y onto Z* and *X loaded Z with Y* in (90a) and (90b). The choice of the incorporated preposition that produces the accusative phrase reflects the argument that is meant to measure out the loading event.



The argument mapping at D-structure is guided by the hierarchies established in chapter 2. Omitting the role of ACT for simplicity, the main subject *Bill* appears as the specifier of CAUSE. The specifier of the lower VP headed by *load*⁻¹ is the instrumental phrase *with hay*, which is the Neutral argument of the incomplete loading event. The directional locative phrase *onto the truck* is the Patient complement of *load*⁻¹. As required by the Principle of Full Interpretation, the unshifted *with*- and *onto*-phrases are structurally licensed in specifically designated licensing positions.

3.4 Inherently Diadic Verbs

As discussed in chapter 2, verbs like *combine*, *merge*, *replace*, *substitute*, *multiply*, *pair* as

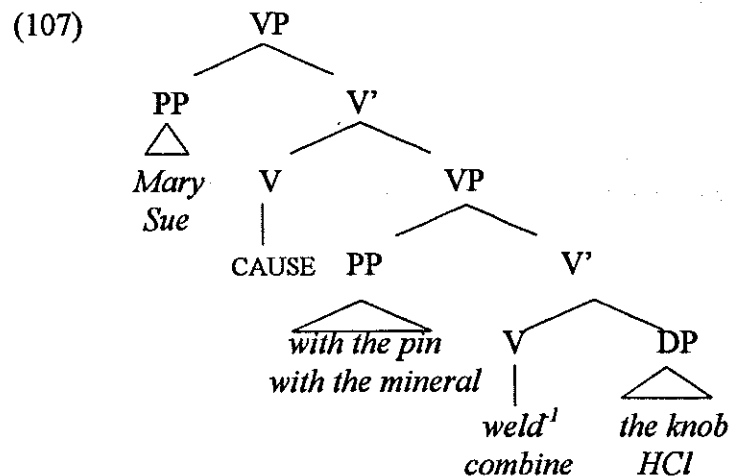
well as *glue*, *weld*, *add*, *separate*, *connect*, *blend*, *mix*, and *incorporate* take two Patient arguments, and a causer argument that initiates the lower event.

- (104) a. Bill multiplied five with seven
 b. John glued the larger piece with the smaller one
 c. Mary welded the knob with the pin
 d. Sue combined hydrochloric acid with the minerals
 e. I replaced the old bulbs with the new ones
 f. The workers separated the rotten apples from the good ones

These are verbs that typically denote operations that an agent performs on two entities to obtain one (*combine*, *merge*, and *connect*); on a single entity to obtain two (*separate* and *dislodge*); or on one entity at a time for a zero sum (*replace* and *substitute*). They also differ with respect to whether they require the involvement of a higher agent to perform the operation. Verbs like *multiply*, *glue*, and *weld* clearly do, while *combine*, *merge*, *replace*, *separate*, and *connect* do not.

- (105) a. *Five multiplied with seven
 b. *The larger piece glued with the smaller one
 c. *The knob welded with the pin
- (106) a. The hydrochloric acid combined with the minerals
 b. The new bulbs replaced the old bulbs
 c. The rotten apples separated from the good ones

This suggests that the verbs in (105) are incomplete, *multiply*⁻¹, *glue*⁻¹, and *weld*⁻¹, which require CAUSE in the syntax, whereas the ones in (106) are complete verbs that optionally combine with CAUSE to yield the triadic forms. With the insight gained in the preceding discussion on *cover* and *load*, one can assign the following architecture to the triadic verbs in (104), where the instrumental phrase is generated as a specifier.



Note that between the two Patient arguments of the lower VP, there is no thematic criteria that determine which argument should be generated as the specifier and which one as the

complement. The selection is based on nonthematic factors; depending on the point of view with *combine*, and the initiation of the act described by the verb with *replace* and *separate*. The VP architecture in (107) does not determine which argument will project as the specifier, but it dictates that the specifier will be projected as a *with*-phrase.

The verbs *weld* and *combine* denote symmetrical acts, so one cannot decide whether the *with*-phrases in the triadic forms in (104c-d) actually correspond to the subjects of the diadic forms in (105c) and (106a). That is, the event described in *Mary combined the hydrochloric acid with the minerals* is the same as the one described in *Mary combined the minerals with the hydrochloric acid*, as is the case with *The hydrochloric acid combined with the minerals* and *The minerals combined with the hydrochloric acid*. Nonsymmetrical verbs like *replace* in (104e) and (106b), repeated below, are more conclusive in showing that the alignment in (107) is correct.

- (108) a. I replaced the old bulbs with the new ones
b. The new bulbs replaced the old ones

The minor difference in the *one*-ellipsis notwithstanding, the sentences in (108) describe the same replacement event, which supports the view that instrumental phrases are generated as specifiers. This claim will be explored fully in the next chapter.

4 Conclusion

The complexity of the VP architecture is regulated partly by the intrinsic nature of the elementary predicates INCH and especially CAUSE, and partly by the types of VPs that they can take as their complements. It was shown in this and the previous chapters that the VP complement of a null CAUSE must have an argument in its specifier position at D-structure, which has proved crucial in deciding the relative position of arguments within their VPs. It was also shown that the prohibition against successive substitution to CAUSE, first presented in chapter 3, is another factor that restricts the range of possible VP types.

The generalization that will carry on to the following chapter is that instrumental arguments, the *with*-phrases, are generated at the specifier position of VPs that are embedded under CAUSE. It will be argued there that clauses with instrument arguments, as in *Bill cut the bread with a knife*, are syntactically derived from causative structures by incorporating the lexical verb into a null CAUSE. A typology of instruments will lead to the discussion of the predicate CONT, for 'control', which checks whether the subject of a given clause is of the right type that can control the event or state denoted in the clause.

Chapter 5

INSTRUMENTS

It was concluded in chapter 1 that all optional roles must be eliminated from the lexicon as a consequence of the interaction between the Thematic Biuniqueness and the Dissimilarity Corollary of the principle of the Unpredictability of the Lexicon: Thematic Biuniqueness forces all lexically specified roles to associate with some argument in the syntax, and the Dissimilarity Corollary prohibits multiple representations of the same lexical item that are phonologically and semantically identical, but differ only with respect to some syntactic property, including their thematic frames. In chapter 2, the cases where an Instrument argument appears as a subject to the exclusion of an Agent or Force argument, as in *The forklift lifted the box* versus *Bill/The wind lifted the box*, were treated as cases of substitution-type optionality, and they were eliminated by merging all three roles, Agent, Force, and Instrument to one, the Actor role. As an instance of the adjunct-type optionality, Beneficiary arguments, as in the *for*-phrase in *Bill baked a cake for Sue*, were handled in the same chapter by introducing them as the specifiers of the predicate BEN. This approach was not extended to the *with*-phrase Instrument arguments because they do not constitute a homogenous class. The type of Instrument that follows the the entailment in (1) will be referred to as a Tool argument, and the type that does not, as an Aide.

- (1) Tool:
Sue hit the ball with the racket → The racket hit the ball
- (2) Aide:
Bill ate the soup with the spoon —/→ The spoon ate the soup

As observed by Marantz (1984), whether or not an Instrument argument will follow this entailment is determined by the main verb, i.e., *hit* versus *eat*. This contrast is quite significant from the point of view of the principle of Event Transparency, which asserts a parallelism between a complex event and the corresponding predicate-argument complex.

- (3) The Event Transparency of the Syntax:
The parts of a predicate-argument complex are organized the same way as the corresponding parts of the complex event or state that the predicate-argument complex describes.

This would suggest that the predicate-argument structures that produce Tool and Aide arguments cannot have the same type of organization. Consequently, Instrument arguments cannot be introduced into the structure in a unitary fashion. Unlike Beneficiaries, they cannot both be generated above the core predicate-argument structure e.g., [VP [PP *with* DP] INST VP]], because the Tool-type instruments act as intermediaries between the subject and the object: In (1), Sue acts on the racket, and the racket acts on the ball. The structure proposed by Lakoff (1968), roughly adapted in modern terms as [VP DP USE [VP *with* DP] V XP]], cannot be the common source either because the Aide-type instruments do not participate in the core event: In (2), the spoon cannot be the external argument of *eat*.¹

The analysis proposed in this chapter makes use of both structures. It uses the INST-type configuration for Aide instruments, and the USE-type for Tool instruments. The unitary aspect of their derivation is that they are both introduced by the same predicate, CAUSE, instead of two distinct ones, INST and USE. It is claimed here that the instrument arguments arise out of the causative construction, and the Tool and Aide readings are derived from a different alignment of arguments. The structures are shown in (4) and (5), where Tool arguments originate as lower Actors, and Aide arguments as causers.

(4) [VP Sue CAUSE [VP [PP *with* the racket] hit [the ball]]]

(5) [VP [PP (*with*) the spoon] CAUSE [VP [Bill] eat [his soup]]]

Crucially, each causative structure has a different modality in the sense discussed in chapter 3, section 1. With Tool arguments, CAUSE is coercive, cf. *make* in English.

(6) [VP Sue CAUSE-□_C [VP [PP (*with*) the racket] hit [the ball]]]

In the case of Aide arguments, CAUSE is permissive, cf. *let* in English.

(7) [VP [PP (*with*) the spoon] CAUSE-◇_C [VP [Bill] eat [PP his soup]]]

Both are null causative structures, where the lower verb substitutes for CAUSE.

Section 1 presents the derivation of structures with Tool-type arguments and the basic machinery that regulates the distribution of surface causatives as opposed to the instrumental construction. They are distinguished in two ways: (a) Verb morphology: CAUSE is always null in the instrumental, but may be overt in the causative construction. (b) Case morphology: an instrument appears as a *with*-phrase or as an instrumental DP, but

¹This does not pose any problem in Lakoff's original proposal since his structure involves ternary branching along the lines of [DP USE [*with* DP] [(to) VP]], where the instrument DP is never the subject of USE or the lower VP at any time. The problem with his approach is that the argument that controls the PRO inside the complement VP/infinitival is determined by the verb that heads the VP: [DP USE knife; [PRO_i cut salami] (Tool) as opposed to [DP_i USE spoon [PRO_i eat soup] (Aide), also see Ngonyani (forthcoming). This would be equivalent to having a verb like *convince*^t that is a subject control verb when its complement has a V₁, but an object control verb when it has a V₂.

the subject of a causative is nominative, and causees are accusative, dative, or *by*-phrases. It is shown that null causative morphology, i.e., verb substitution, extends the capacity of the subject to control the complex event. On the other hand, the instrumental Case marking is regulated by the animacy differential between the causer and the causee. Animacy is the centerpiece of discussion in this chapter. It is argued to be a scalar property that is evaluated relative to the verb. This evaluation is performed at the specifier of the elementary predicate CONT, for 'control', which checks whether the subject is of the appropriate type that can sustain the event/state described in the clause. The section closes with a discussion on the restriction against successive verb substitution into CAUSE which was discussed in chapters 3 and 4, the Null Head Restriction, where it is suggested that P-incorporation is shown plays a crucial role in licensing a second substitution for CAUSE in the instrumental construction.

Section 2 applies the proposals made in section 1 to clauses with Aide arguments. The only novel claim in this section is that the argument alignment is reversed in these structures in order to find an appropriate phrase for the specifier of CONT. It is motivated by the need to ensure that the subject of the clause is of the type that can control all components of the causation, which leads to the causee being promoted to subject over the *let*-causer in the structure represented in (7) above.

1 Tool Phrases

As mentioned above and in chapter 1, the principle of Event Transparency requires a close correlation between the internal organizations of an event/state and its corresponding predicate-argument complex. This parallelism is established with respect to the simplex parts that constitute a complex event/state and the simplex predicates that combine to form the complex predicate. The instantiation of this principle in terms of causal events is formulated below as the Causal Mapping Hypothesis (CMH), which has been assumed implicitly in the previous chapters, also cf. Croft (1991).

(8) Causal Mapping Hypothesis:

Every causal chain *cause*(L₁, L₂) in an event is represented as CAUSE(A₁, A₂) in the syntax, such that:

- a. L₁ and L₂ are the links in the causal chain, and A₁ and A₂ are arguments that denote these links in the syntax.
- b. If L₁ precedes L₂ in the causal chain, A₁ c-commands A₂ in the syntax.

Interestingly, the strict correlation mandated by the CMH is usually disregarded in a very well-defined set of circumstances. Consider for example, the equivalent of the phrase *make the car work* in Turkish, which is used for starting the car engine.

(9) *pro* arabayı çalıştırdım

1SG car-ACC work-CAUSE-PAST-3SG

'I made the car work'

The event telegraphed in (9) ignores a sequence of subevents, i.e., my turning the ignition key, the key setting off an electrical spark in the engine, the spark igniting the fuel, and so

on. The sentence in (9), on the other hand, treats the starting of the engine as if it were a single event, while dismissing all the intermediate causal events that involve the ignition key, the sparks, and the other elements.

It is significant that all the omitted intermediaries in the causal chain, the key, the sparks, and so on, are the interconnected parts of the engine that work as a single unit, such that each part can respond to its causal stimulus in only one predestined way. In other words, the intermediate links that are ignored in cases like this are those that yield an automatic output in the causal event.² Crucially, (9) cannot describe an event where someone else holds the ignition key, and I tell them to start the engine. This would require a second causative morpheme in Turkish. The difference is that this situation involves humans and humans are much more autonomous in the way they respond to causal inputs compared to engine parts. This generalization is expressed below as an exception clause for the CMH.

(10) The Non-Autonomy Exception:

A causative structure may omit the links in the causal chain whose acts are fully predictable in the context of the preceding links.

It must be emphasized that the Non-Autonomy Exception (NAE) does not reorder the causal links. It only states that predictable links can be omitted,³ and in doing that, it does not define what counts as a predictable causal connection. This determination is made by speakers on the basis of their world knowledge.⁴

The CMH forces a Tool argument to be generated as a covert causee in a null causative structure because of the way it interacts with the other arguments in the same predicate-argument complex, which is captured by the entailment in (1). In this sense, the instrumental (11b) and the surface causative (12b) have very similar sources at D-structure, cf. (11a) and (12a).⁵

- (11) a. [_{VP} Bill CAUSE [_{VP} [with the knife] slice [the bread]]]
b. Bill sliced the bread with the knife

²As mentioned in a footnote in chapter 4, the equivalent of *I made the president sign the form* in Turkish can describe a situation where I give the form to the president's secretary, who then passes it along to the president. Although I have no interaction with the president, the secretary's act is considered automatic, which allows the omission of any additional level of causative embedding involving the secretary.

³The reason that the predicable links are often omitted is presumably due to the Gricean Maxim of Brevity, which bans all vacuous information.

⁴It is very likely that this predictability can be linked to event control, discussed below.

⁵Using the same rationale, Wojcik (1976) also derives the Tool type instruments from underlying causatives. However, his derivations are not tampered with any equivalent of the Non-Autonomy Exception, so they contain considerably more complex levels of causative embedding that encode all the real world subevents of a complex event.

- c. The knife sliced the bread
- (12) a. [VP Bill CAUSE [VP Mary slice [the bread]]]
- b. Bill made Mary slice the bread
- c. Mary sliced the bread

In both cases, the causer, Bill, acts on some intermediary, Mary or the knife, which in turn acts on the bread by slicing it. The key factor here is that *Bill sliced the bread with the knife* entails *The knife sliced the bread*, just as *Bill made Mary slice the bread* entails *Mary sliced the bread*. The null causative of the instrumental construction is derived by substituting the lower verb *slice* for the higher predicate CAUSE, which rules out the circumstantial reading, see chapter 3. The lower specifier, *with the knife*, associates with the Patient role of CAUSE for the interactive reading.

The NAE also makes it entirely optional to specify the Tool argument in a clause.⁶

- (13) a. Bill dug the hole (with a shovel)
- b. Mary scraped the wall (with a spatula)
- c. Sue tightened the screw (with a screwdriver)

The underlying VP structure for (13) is as in (14) in the presence of the Tool phrase, and as in (15) in its absence.

- (14) a. [VP Bill CAUSE [VP [with a shovel] dig [the hole]]]
- b. [VP Mary CAUSE [VP [with a spatula] scrape [the wall]]]
- c. [VP Sue CAUSE [VP [with a screwdriver] tighten [the screw]]]
- (15) a. [VP Bill dig [the hole]]
- b. [VP Mary scrape [the wall]]
- c. [VP Sue tighten [the screw]]

The omission of a Tool phrase due to the NEA is not role optionality. It is only a matter of not choosing to embed the lower VP under CAUSE and selecting a different of subject. What the NEA ensures is that the core events in (15) are the same as those in (13).

This section has two parts. The first part provides an account for the differences between surface causatives and the instrumental construction through animacy and event control. The second part discusses the licensing conditions of the instrumental clauses, in particular, additional substitution to CAUSE that is required when a Tool argument is generated with verbs that are already projected into the syntax with a causative VP layer.

1.1 Animacy and the Event Structure

Tool type arguments are not allowed as ordinary causees, even if they are otherwise capable of appearing as the subject of the root verb in isolation. Contrast the instrumental (16) with the causative in (17).

⁶In order to delay the discussion of the successive substitution into a null CAUSE, the verbs below are selected among those that project single-layered VPs.

- (16) a. The key opened the door
- b. The hammer broke the window
- c. The needle punctured the paper
- (17) a. *Bill made the key open the door
- b. *John made the hammer break the window
- c. *Mary made the needle puncture the paper

The causative sentences in (17) are possible only if the instrument is anthropomorphized in a cartoon or fairy tale context, or if the subject lacks full control over the instrument, which is understood to be resisting the agent's control, as will be discussed below. These Tool arguments, however, can be licensed as instrumental phrases.

- (18) a. Bill opened the door with the key
- b. John broke the window with the hammer
- c. Mary punctured the paper with the needle

This suggests that animacy is a factor in determining whether an argument will surface as an overt causee or a Tool phrase.

1.1.1 Event Control

Animacy is not an either/or type property in the lexicon. It is a scalar property that ranks individuals according to their intrinsic complexity and sophistication. Very simple objects, such as needles, hammers, and pens, are at the lowest end of the scale since they cannot perform any task on their own. Just above them are the mechanical devices with moving parts, such as photographic cameras, typewriters, and pumps, which do not have any internal power source but can perform limited operations once they are activated. Higher up on the scale are electronic devices, such as video cameras, VCRs, and computers, as well as self-propelling machinery and engines of all kinds. The more programmable the device is, the more animate it becomes. For example, a VCR that can be programmed to record certain channels at certain times is more animate than another that can only record when someone pushes the record button. The top of the animacy scale is occupied by living beings, which are presumably ranked according to their perceived level of sentience.

The animacy scale is not merely a taxonomic phenomenon. It has real effects in the syntax in terms of the types of arguments that a given verb can license as its subject. The verb *add*, for instance, takes an Actor subject and requires a level of animacy that *abacus* cannot meet, but *calculator* can.

- (19) a. *The abacus added the numbers
- b. The calculator added the numbers
- c. The computer added the numbers

The verb *estimate*, by contrast, requires a subject that is more animate than *calculator*.

- (20) a. *The abacus estimated the result
- b. *The calculator estimated the results

- c. The computer estimated the results

On the other hand, *break* requires very little animacy of its subject since any object hurled in the right direction with the right amount of force can break its (breakable) target.

- (21) a. The abacus broke the window
- b. The calculator broke the window
- c. The computer broke the window

The syntactic characterization of the animacy of an argument is the ability of its denotation to sustain an event/state that is already initiated in some way. An abacus cannot continue or complete adding numbers after the addition is initiated, but it can complete the breaking of the window once the breaking is initiated.⁷ Likewise, a calculator is not a type of thing that can sustain the act of estimating, but it can complete an addition on its own.

Stative forms require a much lower level of animacy than eventive forms. The effects can be seen in the habitual and perfective tenses, as in (22) and (23), as opposed to the past tense in (24).

- (22) a. This cloth cleans better
- b. This broom sweeps better
- c. This spoon stirs better

- (23) a. This cloth has cleaned many windows
- b. This broom has swept the floors in that room many times
- c. This spoon has stirred everyone's tea

- (24) a. *This cloth cleaned that window
- b. *This broom swept the floors in that room
- c. *This spoon stirred my tea

The habitual tense lowers the animacy threshold of the verb by creating a generic context with no specific time or place to frame the event/state. This allows the verb to bring out an attributive reading in addition to its predicative reading. For example, *This cloth cleans better* defines an attribution of the cloth, as in *This cloth is a better cleaner* more than it actually defines a generic cleaning event, and as such, it requires less animacy. The perfective tense, meanwhile, refers to the completion of an event/state but not to each of its components. Therefore, (23a) makes no reference to any of the subordinate events that take place in the duration of the cleaning. It is concerned mostly with the output, i.e., the clean windows, instead of the procedure, i.e., the actual cleaning event, and so it is tolerant of lower levels of animacy. Note, however, that the mitigating effect of stativity is very limited. It cannot license subjects that are much lower on the animacy scale than could be tolerated by the verb, e.g., **This abacus calculates well*.

⁷The fact that *break* is an achievement verb is clearly relevant in this regard, since the beginning of the breaking event is also its termination. This suggests that instruments lower on the animacy scale are more likely to survive as subjects of achievement verbs.

It should also be noted that when a direct object contributes to the complexity of an event/state, it also factors in to the animacy level required of the subject.

- (25) a. This pen writes beautiful 'e's
b. ??This pen writes beautiful words
c. *This pen writes beautiful poems

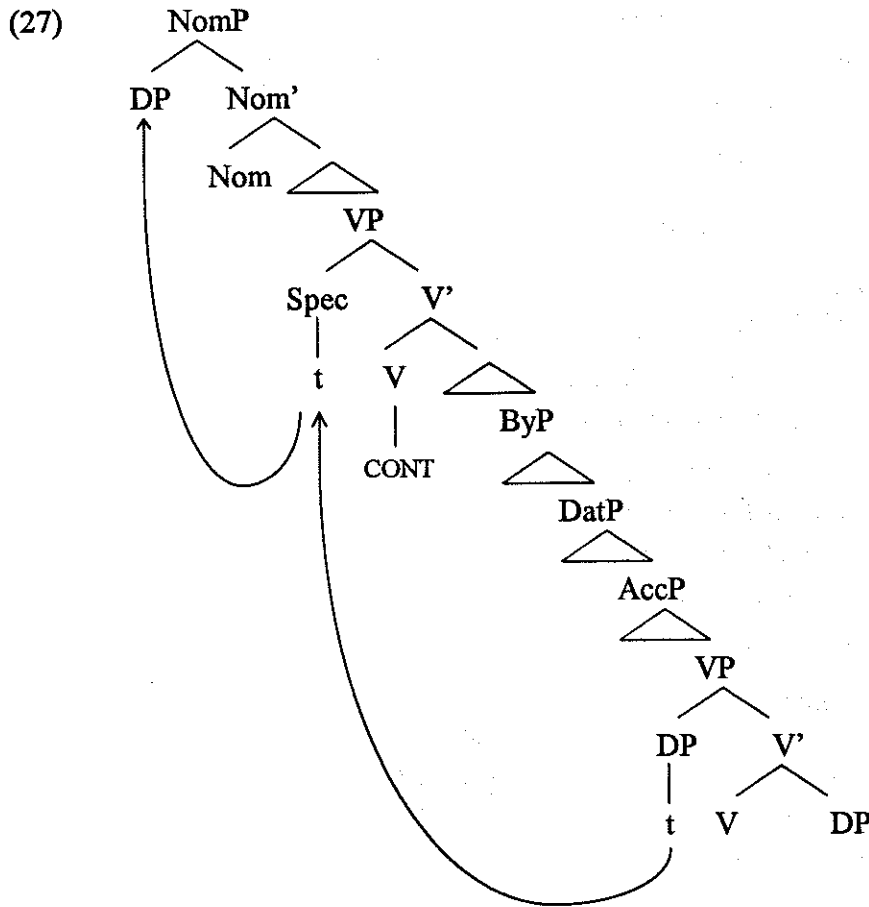
A pen is animate enough to support *write* if there is no content to what is being written, e.g., the letter 'e' in (25a). As the content of the written form is increased, such as a word or a poem, *write* begins to require a higher level of animacy that *this pen* cannot match, as in (25b-c). This is because producing ink-marks in the shape of a letter requires less animacy than putting together the complex content of a poem.

The ability to sustain the event/state described in a clause is required of only the subjects and the *by*-phrases in the passive construction. It is not determined by a selectional restriction that is checked directly at the [Spec, VP] position. (a) As just mentioned, inflectional projections like tense and aspect influence the suitability of an argument by turning the entire clause into a stative proposition. (b) The contrasts that are discussed so far disappear in the causative forms, which does not otherwise affect the selectional requirements of the root verb. These suggest that the checking takes place in a higher position, which is assumed here to be the specifier of the elementary predicate CONT, for control. This predicate mediates the checking between the animacy level of the subject (or the *by*-phrase) and the level required by the verb in the clause. It is located above the *by*-phrase licenser ByP and below the nominative licenser NomP. The function of CONT is stated as the Principle of Event Control (PEC) below.

(26) Principle of Event Control:

All events/states are controlled by the argument associated with the chain that includes the specifier of CONT at LF.

Whether or not a given argument is capable of carrying a particular event/state is decided by the tacit understanding the speakers have regarding the control capabilities of a given argument. An argument that can plausibly be a candidate to control the event/state of the clause is allowed to move to or through the [Spec, CONT].



The subject in *The computer estimated the results* can go through the [Spec, VP] of CONT because it can sustain the task of estimating results. By contrast, an abacus cannot sustain such an act, so the subject in **The abacus estimated the results* cannot transit through the specifier of CONT. It can, however, break the window once it is thrown in that direction, which means *the abacus* in *The abacus broke the window* can pass through the specifier of CONT before landing in NomP.

The reason the VP headed by CONT is placed above the ByP is that the only argument other than the subject that is allowed to move to the [Spec, CONT] is the passive *by*-phrase, licensed at [Spec, ByP], see chapter 6. At this level, all arguments in (27) would have to move to the specifier of CONT from their structural licensing positions, except for the subject, which moves there from its base position. Since these arguments have completed their movement to their structural licensors, they must observe the SSC effects, or the Shortest Move of Chomsky (1993), as discussed in chapter 3, and can no longer skip specifiers to reach the [Spec, CONT]. The *by*-phrase at the [Spec, ByP] occupies the highest specifier below CONT, so it can move to the [Spec, CONT] without violating the restrictions against movement.⁸

⁸VOL must be placed above CONT since the derived subjects in passives never move to

Since CONT is located at such a high position, it cannot be embedded under CAUSE. Direct evidence for this ordering comes from a class of verbs in Tsawana that require male subjects, as reported by Cooper (1975).

- (28) a. Kgosimang o-nayala Kidibone
 K.(MASC) married K.(FEM)
 'Kidibone married Kgosimang'
- b. *Kidibone o-nayala Kgosimang
 K.(FEM) married K.(MASC)

Presumably, the gender of the subject is checked against the verb *nyala* 'marry' at the [Spec, CONT] position in (28). This restriction disappears under CAUSE.

- (29) a. Ke-nyad-isa Kgosimang go-Kidibone
 1SG-marry-CAUSE K.(MASC) to-K.(FEM)
 'I married Kgosimang to Kidibone'
- b. Ke-nyad-isa Kidibone go-Kgosimang
 1SG-marry-CAUSE K.(FEM) to-K.(MASC)

This suggests that once embedded under CAUSE, *nyala* cannot check whether its specifier argument denotes a male individual or a female.⁹ Similarly, with no CONT generated below CAUSE, a causee argument's level of animacy ceases to be a factor in the acceptability of a clause. The following examples contrast with (20) through (25) above, where the same arguments are subjects.

- (30) a. *Bill made the abacus add the numbers
 b. *Bill made the calculator add the numbers
 c. *Bill made the computer add the numbers
- (31) a. *Mary made this pen write beautiful 'e's
 b. *Mary made this pen write beautiful letters
 c. *Mary made this pen write beautiful poems

Abstracting away from the anthropomorphization or the resistance interpretation, the absence of any acceptability gradation in (30) and (31) as opposed to the cases in (19) and (25) indicate that CONT cannot be embedded under CAUSE. Once the occurrence of CONT is restricted to fully clausal categories the same way as tense and negation, there would be structural grounds to disallow instruments from becoming overt causees, unless they are pragmatically interpreted as being more animate than they are.¹⁰

CONT although they may move to VOL in cases discussed in chapter 2.

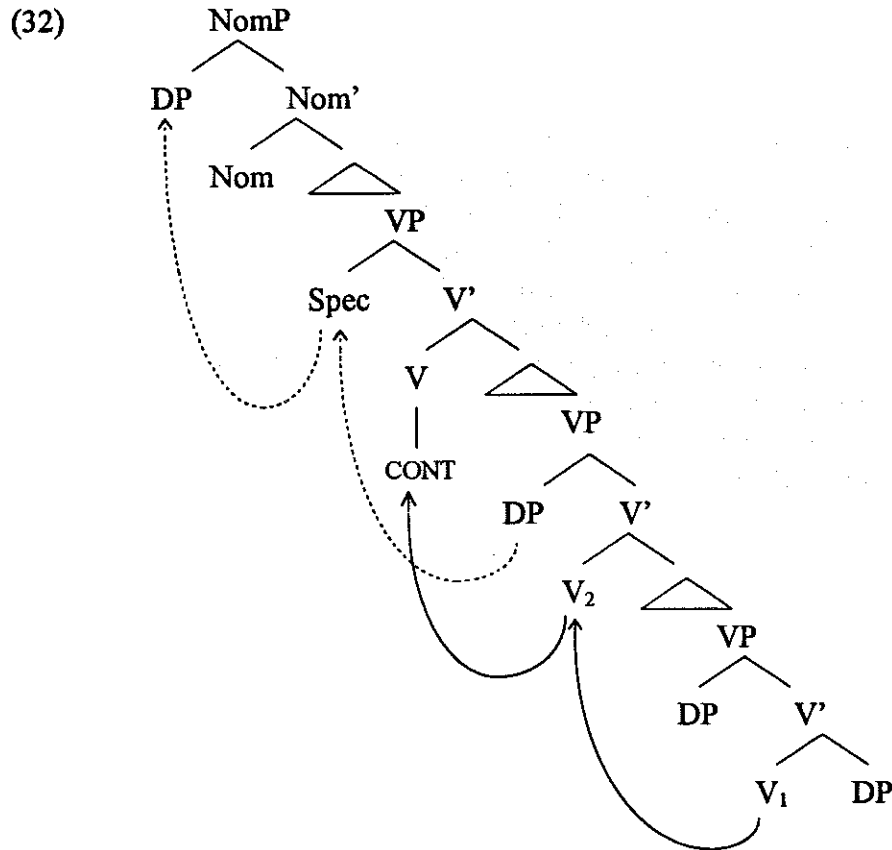
⁹The paradigm also supports the notion that the type of properties checked by CONT do not belong with the selectional requirements that are satisfied at the [Spec, VP].

¹⁰Even though Turkish is generally more liberal in allowing inanimate DPs as subjects, it still does not tolerate them as overt causees.

Once it is assumed that every predicate must have a controller for the event/state it denotes, the unavailability of CONT under CAUSE would also provide motivation for complex event formation in causative structures. In the absence of an independent CONT in the embedded VPs, the only way a causativized verb could have access to a CONT would be by moving up and incorporating into a higher V that will eventually incorporate into CONT. The incorporation of the lower verb V_1 into the higher V_2 leads to the complex verb $[[V_1] V_2]$ (adjunction) or $[V_2 V_1]$ (substitution) at S-structure or LF, and combines their corresponding events/states E_1 and E_2 into a single E_1-E_2 . Thus, the lower event/state E_1 , which otherwise is not controlled inside the embedded VP avoids violating the Principle of Event Control (PEC) in (26) by becoming a part of the larger (complex) event E_1-E_2 . This means that after the verb incorporation, the subject controls not just the causative V_2 , but more precisely, the complex verb V_1-V_2 in causative structures. This is schematically represented in (32).

-
- (i) ?[İğne-iplik] / [Dikiş makinası] söküğü dikti
 needle-thread-NOM / sewing machine-NOM hole-ACC sew-PAST-3SG
 'The needle and the thread/The sewing machine sewed the hole'
- (ii) **pro* [iğne-ipliğe] / [dikiş makinasına] söküğü diktirdim
 1SG needle-thread-DAT / sewing machine-DAT hole-ACC sew-CAUSE-PAST-1SG
 'I made the needle and the thread/the sewing machine sew the hole'

The loss of the contrast in causatives shows that the lenience towards instrument subjects in main clauses, (i), does not carry over to the VPs embedded under CAUSE, (ii).



Therefore, one can conclude that the verb incorporation is forced in causatives by the absence of CONT in the lower VP levels and the need for the lower V to be controlled.¹¹

1.1.2 Event Unity

The choice between the lower verb adjoining to CAUSE or substituting for it is significant in determining how deep into the complex event the subject (or a *by*-phrase) can control. The morphological type of the verb incorporation affects the interpretation in terms of the degree of control the subject can exercise over the intermediary argument, i.e., the causee in the overt causatives, and the Tool in the instrumental construction. The following examples in Turkish highlight this difference (the verb *vur* 'hit' takes a dative object).

- (33) a. *pro* [beyzbol sopası]nı topa vururdum
 1SG baseball stick-3SG-ACC ball-DAT hit-CAUSE-PAST-1SG
 'I made the baseball bat hit the ball'
- b. *pro* [beyzbol sopası]yla topa vurdum
 1SG baseball stick-3SG-WITH ball-DAT hit-PAST-1SG
 'I hit the ball with the baseball bat'

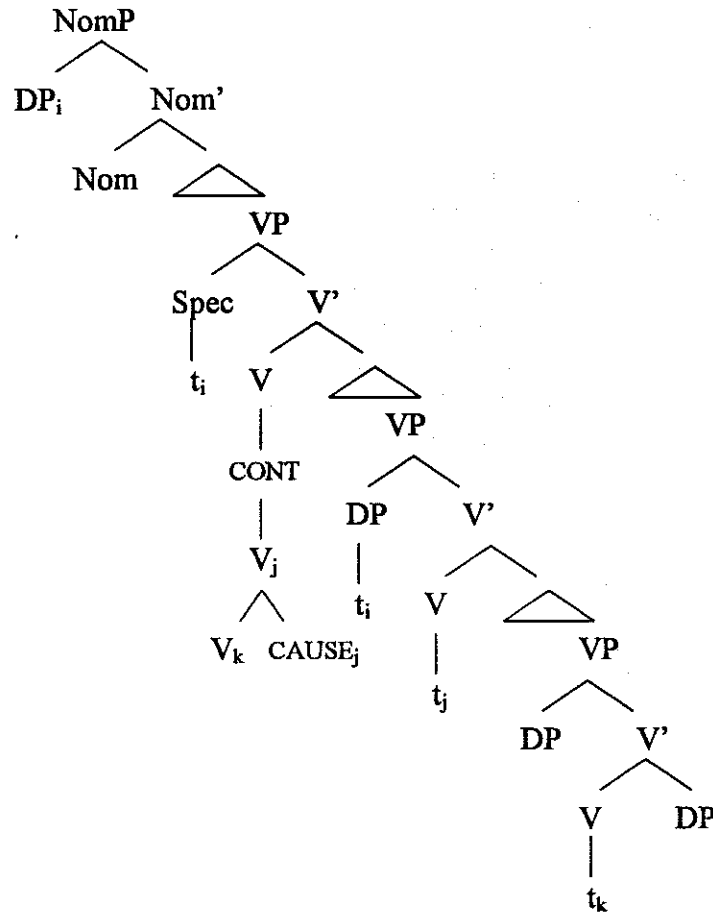
¹¹This is the type of motivation that is compatible with Chomsky's (1994) Greed.

Both sentences describe very similar situations where I act on (use) the baseball bat and the bat hits the ball. The difference is that I have to have engaged in a struggle against the bat in the causative (33a) perhaps because I am a novice or there is something unusual about the bat. By contrast, the instrumental (33b) implies that I have a complete command of the bat, although I may or may not miss the ball in a given situation.

The instrumental construction is allowed only when the subject is in complete command of the instrument, which is why instrumental sentences like (33b) do not have the anthropomorphization or resistance reading. This is not the case in overt causatives even when the causees are inanimate, as in **I made the key open the door*. Speakers pragmatically accommodate for sentences with such Tool-type causees by assuming that if an inanimate causee has performed an act like hitting the ball without being in the complete control of the subject, it must have acquired some animate-like quality that puts it on a par with ordinary causees. This is the source for the resistance reading, and the special contexts that require anthropomorphization.

The same contrast is also available in the English translations of (33), *I made the baseball bat hit the ball* and *I hit the ball with the baseball bat*, suggesting that periphrastic causatives act like morphological causatives in the relevant sense, and undermine the ability of the subject to exert a complete command over a Tool-type causee. As argued in chapter 3, the complex predicate V-CAUSE displays a branching structure at LF in both causative types. Raising the complex verb to CONT would produce the structure in (34), where all irrelevant XP categories and the prepositional nature of the causer are ignored. In the ultimate LF representation, the complex verb would be at a higher position, perhaps at the matrix C (Koopman 1994).

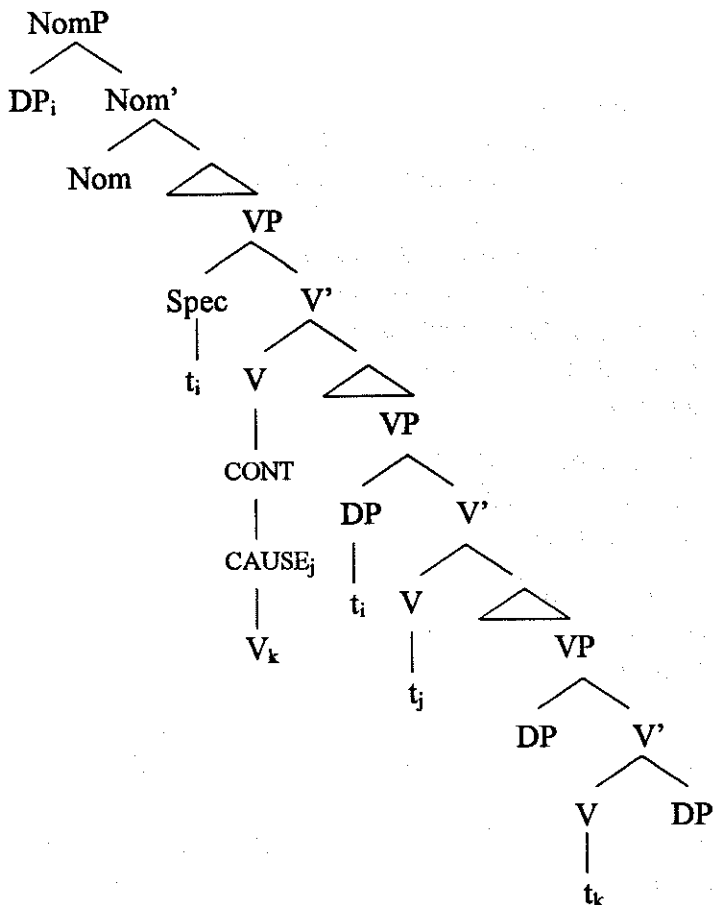
(34)



The interpretation of morphological and periphrastic causatives suggests that the branching inside the complex verb in (34) creates an opaque domain for the argument in the specifier of CONT (later the subject) in terms of event control. Under the branching in (34), it can control only the complex verb V-CAUSE, but not the lower V. In (33a), for example, the subject *I* can control the event of hit-causing, but not the hitting itself.

The null CAUSE incorporation in the instrumental construction is formed by substitution, so the complex verb has a nonbranching structure, as seen in the schematic representation below (all irrelevant details omitted).

(35)



The non-branching structure of V-CAUSE maintains the transparency between the two events, which means the controller of the V-CAUSE complex can also control the lower verb V. In the instrumental (33b), the subject *I* controls not only the complex event of hit-causing, but also the embedded hitting event.

Event unity is also observed in the ordinary null causative construction in (36), contrasting with the periphrastic structures in (37).

- (36) a. Bill ran the horses (towards the stable)
b. Mary walked her mother (to the door)
c. John sank his boat

- (37) a. Bill made the horses run (towards the stable)
b. Mary made her mother walk (to the door)
c. John made his boat sink

In addition to the causation of the walking, running, and sinking, the subjects in (36) also control every stage of the lower walking, running, and sinking events, even though they are not the ones that are walking, running, or sinking. In the periphrastic (37) on the other hand, the subjects are more likely to have initiated the walking, running, and sinking, and left the events run their own course.

1.1.3 Animacy Differential

Event transparency only accounts for the degree of control that can be exercised by the subject in the causal chain of events. It correlates with the distribution of overt and null CAUSE, but does not determine the distribution of the morphological form of the underlying causee as an instrumental or a dative/accusative phrase. The morphology of the causee is decided by the differences in the levels of animacy between the causer and the causee. This is what facilitates the speakers' tendency to pragmatically attribute animate-like qualities to inanimate arguments when they appear as overt causees, as in *I made the baseball bat hit the ball*. The complementarity between Tools and causees breaks down with instruments that are more animate, since they are closer to the required level of animacy in the first place.

- (38) a. I made the computer tabulate the results
b. I made the VCR record the radio broadcast
c. I made the grinder make a lot of noise
- (39) a. I tabulated the results with the computer
b. I recorded the radio broadcast with the VCR
c. I made a lot of noise with the grinder

Computers, VCRs, and grinders are more animate than baseball bats and keys, and they seem to be tolerated far better in causative structures when their task is made more complex, such as doing more than just adding numbers in the case of computers, or when they are used for something other than their primary purpose, e.g., the grinder making noise instead of just grinding coffee.

However, for the following reason, it would be incorrect to assume that the low level of animacy alone determines the distribution of Tool phrases and overt causees. Suppose there is a wire that is attached to a door handle, and the door opens when the wire is pulled. Such a situation can only be described with an overt causative in Turkish instead of an instrumental clause.¹²

- (40) a. Tel kola kapıyı açtırdı
wire-NOM handle-DAT door-ACC open-CAUSE-PAST-3SG
'The wire made the handle open the door'
- b. *Tel kapıyı kolla açtı
wire-NOM door-ACC handle-WITH open-PAST-3SG
'The wire opened the door with the handle'

The intermediate argument *kol* 'handle' in (40) is just as inanimate as other Tool phrases discussed above, yet it surfaces as a dative causee in an overt causative structure rather than an instrumental phrase in a null causative structure. The significant factor in (40) is

¹²The word order in (40) is the neutral one, and it is determined by movement to structural licensing positions at S-structure.

that the first clausemate argument that c-commands the intermediate *kol* 'handle' in (40) is another inanimate argument, the subject *tel* 'wire'.

It would be fair to conclude that the animacy differential between the causer and the causee is what makes the causee surface as a *with*-phrase, as a Tool. It surfaces as an ordinary causee in the dative or accusative Case when the causer and the causee are equal on the animacy scale, i.e., when they are both animate or inanimate. On the other hand, instrumental phrases cannot be generated as the lowest argument in a clause, as shown in the examples below.

- (41) a. *Mary melted with the ice-cream
b. *Bill broke with the window

These conditions can be expressed as a rule of distribution, stated below in its first approximation.¹³

- (42) The Distribution of Instrumental Arguments (first approximation):
A DP is generated as an instrumental phrase if (a) and (b).
a. It is not generated as the lowest thematic argument of its clause.
b. There is a clausemate DP[†] that immediately c-commands DP, and it is higher on the animacy scale.

Clausemateness can be defined here as being in the clausal domain of the same CONT. As it stands, (42) is quite complex. So, hopefully, it will be simplified after more insight is gained from future studies concentrating on other instrumental phrases like Comitatives (*I went to a movie with my mother*) and Material (*I made the chicken with lemon juice*).

Finally, note that the role of predictability in the Non-Autonomy Exception clause of the Causal Mapping Hypothesis, repeated below, is understood better as a function of event unity induced by null causatives in the instrumental construction.

- (10) The Non-Autonomy Exception:
A causative structure may omit the links in the causal chain whose acts are fully predictable in the context the preceding links.

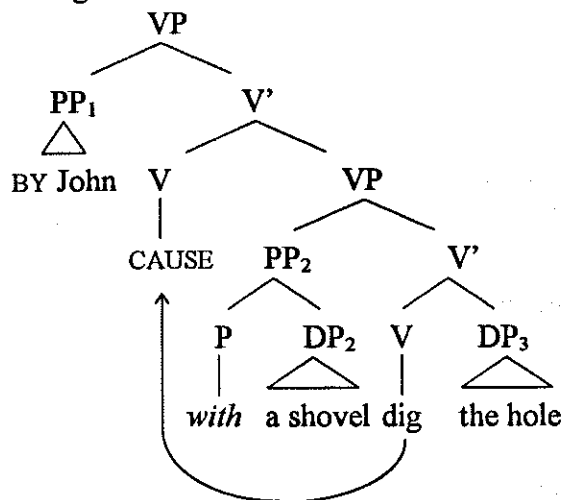
Null causatives require the subject to control the entire complex predicate/event, which means that an instrument generated as an inanimate causee will be under the full control of the subject. Unlike ordinary null causatives like *Bill ran the horses*, the causee does not show any level of animacy in the instrumental construction, and certainly no independent will. It is in this context that it acts in a predictable manner as a link in the causal chain.

1.2. Null CAUSE Licensing

The examples discussed so far in this section were carefully constructed using verbs that project only a single-layered VP in the syntax, e.g., *dig*, *hit*, or *slice*.

¹³The DIA will be revised in the context of argument alignment in clauses with Aide arguments primarily by parametrizing the syntactic levels where these conditions hold.

- (43) a. John dug the hole with a shovel
 b.



In such simple structures, the Tool arguments is generated as the specifier of the lowest VP, so the lexical verb incorporates into a single null CAUSE. Such clauses are licensed without any of the Null Head Restriction complications discussed in chapter 3.

- (44) Null Head Restriction:

A null head H_1 can substitute for another null head H_2 only if $\text{Type}(H_1) \neq \text{Type}(H_2)$.

In more complicated cases, such as transitivity-layered monadic verbs like *break* and *open*, and causative-layered transitive verbs like *destroy* and *carve*, the verbs themselves require the presence of a causative layer. The derivation of Tool phrases proposed here forces these causative VPs to be embedded under CAUSE, yielding two successive layers of null causative VPs.

- (45) Transitivity-layered monadic verbs:

- a. Mary opened the door with a key
- b. Bill broke the window with a hammer
- c. Sue burned the letters with matches

- (46) Causative-layered diadic verbs:

- a. Bill erased the board with an eraser
- b. Sue destroyed the evidence with a shredder
- c. Mary painted the wall with that brush

The additional CAUSE introduced by the instrumental construction yields the following VP architecture at D-structure.

- (47) a. Transitivity-layered verbs, cf. (45a)

$[\text{VP} [\text{PP BY Mary}] \text{CAUSE} [\text{VP} [\text{PP with a key}] \text{CAUSE} [\text{VP} [\text{the door}]_i \text{INCH} [\text{VP PRO}_i \text{open}^s]]]]]$

- b. Causative-layered diadic verbs, cf. (46a)

$[\text{VP} [\text{PP BY Bill}] \text{CAUSE} [\text{VP} [\text{PP with an eraser}] \text{CAUSE} [\text{VP} [\text{the board}] \text{erase}^{-1}]]]]]$

However, unlike other instances of successive substitution for a null CAUSE, as in (48) below, the instrumental construction does not seem to violate the NHR.

- (48) a. The troops marched towards the ditch
 b. The sergeant marched the troops towards the ditch
 c. *The commander marched (to) the sergeant the troops towards the ditch
 cf. The commander made the sergeant march the troops towards the ditch

This raises the question of how the instrumental construction can circumvent such a robust restriction against null causative iteration.

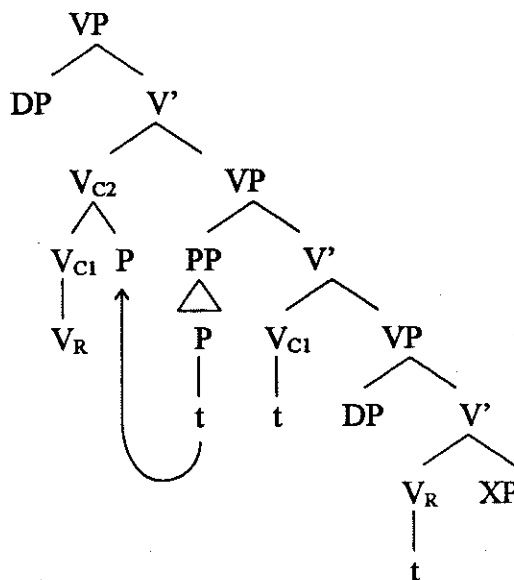
There are two possible ways the iterated null causatives in (44) can avoid the NHR: One strategy is to generate a different type of null head between each null CAUSE, as is the case with the alternating heads *By* and CAUSE in Hindi, mentioned in chapter 3. This could be done either by generating all instruments as specifiers of a unique head, e.g., INST, or by embedding a distinct null head, e.g., HEAD, between each causative layer just in case the clause has a Tool argument.¹⁴ Neither approach is viable in this work, however, since the INST strategy clashes with the principle of Event Transparency discussed in the beginning of this chapter, while the HEAD strategy would simply be an ad hoc solution with no semantic or structural justification.

The alternative approach would be to create a head adjunction structure whenever the presence of a Tool argument requires an additional null CAUSE. The purpose here is to target not the NHR itself, but the deeper principle discussed in the appendix to chapter 3 that the NHR is derived from: the chain formation rules that determine the legitimacy of the head movement. This can be achieved by creating an intermediate adjunction structure that would enrich the indexation at every level of the substitution, but without interfering with the nonbranching between the verbs, in order to maintain event unity. Incorporating a pre-/postposition out of the specifier that contains the instrumental Tool argument would fulfill this condition. This procedure is sketched out below, where V_{C1} and V_{C2} are the first and second CAUSE predicates, and V_R is the root verb.

¹⁴The INST and HEAD approaches would lead to the structures in (i) and (ii) respectively.

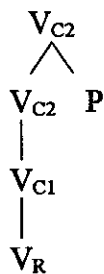
- (i) a. [_{VP} [BY Mary] CAUSE [_{VP} [with a key] INST [_{VP} [the door] open]]]
 b. [_{VP} [BY Bill] CAUSE [_{VP} [with an eraser] INST [_{VP} [the board] erase⁻¹]]]
 (ii) a. [_{VP} [BY Mary] CAUSE [_{VP} *e* HEAD [_{VP} [with a key] CAUSE [_{VP} [the door] open]]]]]
 b. [_{VP} [BY Bill] CAUSE [_{VP} *e* HEAD [_{VP} [with an eraser] CAUSE [_{VP} [the board] erase⁻¹]]]]]

(49)

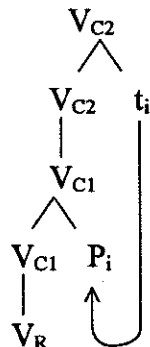


The incorporated P in (49) creates an adjunction configuration at the level of the highest causative verb V_{C2} , which is not enough to license the substitution of the lower causative verb V_{C1} for the higher causative V_{C2} . This would be corrected by lowering the P one step down to the V_{C1} level, as in (50b) below.

(50) a.



b.



This move is not only sanctioned under Koopman's (1994) theory of head licensing, it is also required. As discussed in chapter 3, section 3.2.2, head incorporation plays a crucial role in categorial selection in her system. The incorporated P in (49) must reach the V_{C1} because it is licensed as the head of the PP argument selected by the V_{C1} .¹⁵ As desired, the branching in (50b) is not introduced between the substituted verbs, but it does allow the index transmission between heads to be comparable to adjunction structures.¹⁶ As

¹⁵ This procedure cannot be repeated to add another instrument phrase because the incorporated preposition would have to lower to reach the V_C that has selected it at D-structure. To do that, it would have to cross over the trace of the first preposition and violate constraints against movement

¹⁶ The higher segment of V_{C1} in (50b) adds the index of the P_i to its own, e.g., 'j', since it

such, it enables the instrument phrase to avoid the restrictions imposed by the Indexation Conventions discussed in more detail in the appendix to chapter 3, and successfully circumvents the effects of the NHR in the instrumental construction.¹⁷

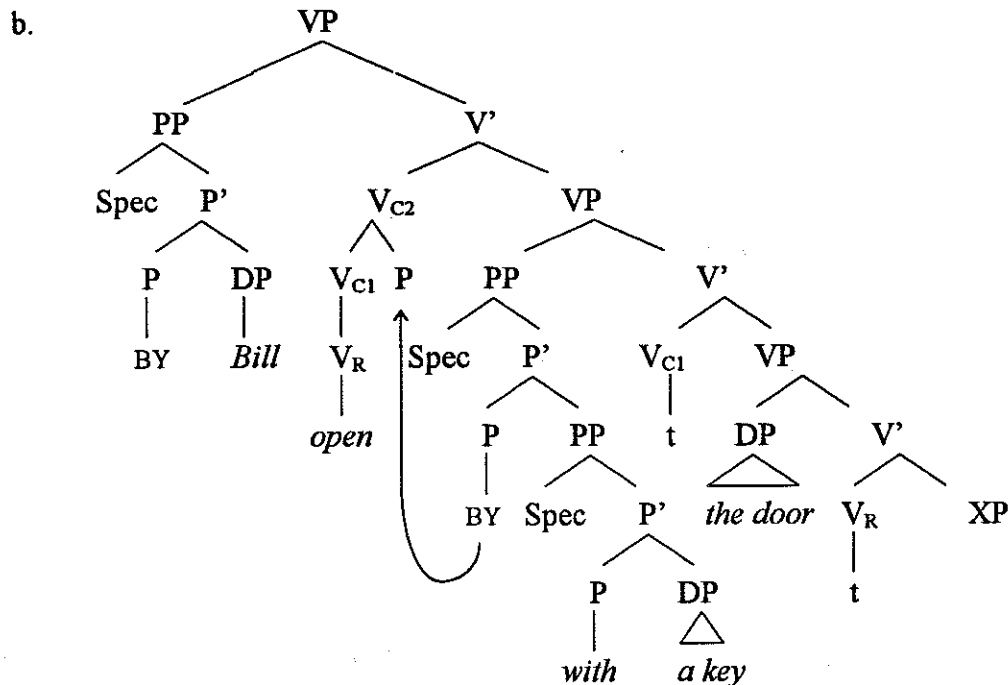
The pre-/postposition that incorporates into the complex verb in (49) cannot be the instrumental *with* vacating its PP at LF since it would be stranding the Tool DP in a configuration identical to the applicative construction, and force it to shift to the accusative licensing position.¹⁸ This would make [Spec, AccP] unavailable for the direct object, which is certainly not what happens in the instrumental construction. The solution is to assume that Tool DPs are embedded under two layers of PPs just in case they are generated as the specifier of a CAUSE. This way, the instrumental *with*-phrase would remain intact in the syntax, while allowing the incorporated P in (49) to originate from the specifier that contains the Tool argument. Suppose that these double-layered PPs are the instrumental *with*-phrases that are contained within a *by*-phrase, as in [PP *e* BY [PP *e* *with* DP]]. This would conform to the proposal made in chapter 4 that CAUSE uniformly selects a *by*-phrase specifier, which accounts not only for the split ergativity pattern in languages like Hindi and Basque, but also the perfective *have/be* alternation in Romance and Germanic languages by way of incorporating the null BY into the auxiliary (Kayne 1993, Mahajan 1994a). In principle, there is no reason why Tool arguments should be exempt from the generalization that the specifiers of CAUSE must be generated as *by*-phrases. *With* is not just the inanimate variety of *by* since it can be used with animate arguments, especially in the comitative construction. Conversely, *by* is also acceptable with inanimate arguments, as in the case of passives. In this view, a Tool argument introduced by CAUSE would be generated as a *by-with*-DP instead of a *with*-DP, where the *with* is introduced by the animacy differential, and the *by*-phrase is required because the Tool phrase is the specifier of CAUSE. The derivation is as in (51).

(51) a. Bill opened the door with a key

dominates two head categories: the lower segment of V_{C1} and the P. The complex index set (i, j) is passed on first to the lower segment of V_{C2} , and then to the higher segment of V_{C2} , along with the index of P to form the index set $((i, j), i)$, which is different from (i, j) .

¹⁷The P-incorporation strategy that licenses a single additional substitution to CAUSE would not be available in the case of ordinary null causatives if it is assumed that ordinary *by*-phrases, [PP *by* DP], cannot launch their Ps. Such *by*-phrases are licensed by moving to [Spec, ByP], and as such, they do not need to incorporate their pre-/postpositions. It is argued below that an instrumental *by*-phrase consists of a PP embedded under another PP, [PP *by* [PP *with* DP]], which is what forces the outside P, *by*, to incorporate into V.

¹⁸The effects of the applicative construction were presented in the context of type II causatives in chapter 3, and the argument shift with *give* and *load* type verbs in chapter 4.



It must be pointed out here that the only Tool arguments that are generated as double-layered PPs are those that are generated as the specifiers of CAUSE. The Tool arguments that are generated as the specifiers of lexical verbs are simply *with*-phrases, as is the case with verbs like *dig* and *hit*, but the NHR does not apply in these cases anyway.

The incorporation of BY into CAUSE does not trigger the applicative pattern presumably because it leaves behind a *with*-phrase PP instead of a DP. The remaining *with*-phrase needs to be structurally licensed to satisfy the PFI, and the licensing must proceed through a uniquely designated WithP. Note below that multiple *with*-phrases cannot cooccur even when they are semantically well-differentiated as Instruments, Comitatives, and Material. This suggests that the *with*-phrases above are all competing for the same structural licensing position, i.e., the [Spec, WithP].

- (52) **pro* [bu kapı]yı Ahmet'le anahtarla açtım
 1SG this door-ACC A.-WITH key-WITH open-PAST-1SG
 'I opened this door with Ahmet with the key'
- (53) **pro* iskemleyi [mavi boya]yla [bu fırça]yla boyadım
 1SG chair-ACC blue paint-WITH this brush-WITH paint-PAST-1SG
 'I painted the sky with blue paint with this brush'
- (54) **pro* tavuğu Ahmet'le [limon suyu]yla yaptım
 1SG chicken-ACC A.-WITH lemon water-3SG-WITH make-PAST-1SG
 'I made the chicken with Ahmet with lemon juice'

However, the PP has a much wider range of movement than the shifted arguments mentioned in chapters 3 and 4. This is evident in the way that *with*-phrases and most other

PPs can scramble in English, whereas the position of accusative phrases is much more fixed. The following is the neutral word order in Turkish, where the direct object moves to AccP at S-structure (Kural 1994).

- (55) Ahmet kapıyı [Ali tarafından] anahtarla Ayşe'ye açtırttı
 A.-NOM door-ACC A. by key-WITH A.-DAT open-CAUS-CAUS-PST-3SG
 'Ahmet made Ali make Ayşe open the door with a key'

The order in (55) suggests that both *by*- and *with*-phrases are licensed at LF in Turkish.

Finally, as observed in chapter 3, P-incorporation out of the topmost *by*-phrase causers does not lead to an applicative shift either, but yields a nominative subject. This suggests that the null BY incorporation is triggered at a position that lies above all structural licensing positions, except for the NomP. The specifier of the VP headed by CONT is a good candidate in this regard since the first structural licensor above it is the NomP. Once BY incorporates out of this position into Nom, its DP complement would become free to move up to the first available Case position, which is the [Spec, NomP].

2 Aide Phrases

As was mentioned in the beginning, there are two types of instrument phrases, which are differentiated by their ability to enter into the entailment in (56) and (57) below.

- (56) Tool phrases:
- a. Bill opened the door with a key → A key opened the door
 - b. Mary broke the window with a hammer → A hammer broke the window
 - c. Seymour cut the salami with a knife → A knife cut the salami

- (57) Aide phrases
- a. Bill ate his meal with a fork → *A fork ate his meal
 - b. Sue watched the stars with a telescope → *A telescope watched the stars
 - c. Mary reached the top shelf with a ladder → *A ladder reached the top shelf

The unavailability of this entailment in (57) is not due to the level of animacy required by the VPs in question. In fact, the sentence *A telescope watched the stars* would be completely acceptable if it were referring to a telescope that is recording data during some astronomic surveillance. What fails in (57b) is that *A telescope watched the stars* is not a part of the larger event described in *Sue watched the stars with a telescope*.

The contrast between these instrument types has been observed by Wojcik (1976), Marantz (1984), and Carlson and Tanenhaus (1988), among others, who all correctly point out that clauses with Aide phrases cannot have the same type of derivation as clauses with Tool phrases.¹⁹ However, it is possible to capture the right causal relation

¹⁹Aide arguments (facilitating or enabling instruments) are typically brought up as evidence against generalizing the derivation of Tool arguments to all instruments. To my knowledge, the only proposal regarding the derivation of Aide arguments comes from Wojcik (1976), who says '...enabling instruments should also be treated as derived from

between an animate subject and an Aide argument within the same basic causative schema that derives Tool arguments, provided that some modifications are made with respect to the alignment of arguments. In this structure, the Aide phrase is generated higher than the animate subject as the specifier of CAUSE. The animate subject, meanwhile, starts out as the causee argument. The CAUSE in this construction is of the permissive *let*-type instead of the coercive *make*-type that derives Tool arguments. In short, the D-structure VP configuration of the sentences in (57) is as follows.

- (58) a. [VP [PP BY with a fork] CAUSE- \diamond_C [VP Bill eat [his meal]]]
 b. [VP [PP BY with the telescope] CAUSE- \diamond_C [VP Sue watch [the stars]]]
 c. [VP [PP BY with a ladder] CAUSE- \diamond_C [VP Mary reach [the top shelf]]]

The *let*-causative derivation for Aide instruments is much more transparent in cases of monadic verbs like *walk*.

- (59) a. John walked with a cane
 b. [VP [PP BY with a cane] CAUSE- \diamond_C [VP John walk]]

It is clear in this example that the Aide argument remains outside the core event, and interacts only with the animate subject. This is the parallelism between *John walked with a cane* and *A cane let John walk*, which is what the configuration in (59b) provides.

There are three parts in this section. The first part motivates the reversal of the arguments between D-structure and S-structure in clauses with Aide instruments. The second part adapts the general structural licensing conditions for Aide arguments. The section closes with a discussion on the effects of modality in lowering the required level of animacy in overt causatives.

2.1 Argument Alignment

Clauses with Aide phrases also need to obey the event control requirements, but unlike other clause types, the argument generated in the topmost VP specifier is characteristically low on the animacy scale than the causee argument in these structures. The causer can control the causation event and the complex event associated with V-CAUSE, but not the event introduced by the lower V. Recall that verb substitution in the instrumental construction forms a non-branching structure, which creates a unified event that must be controlled by the argument that has moved to [Spec, CONT].

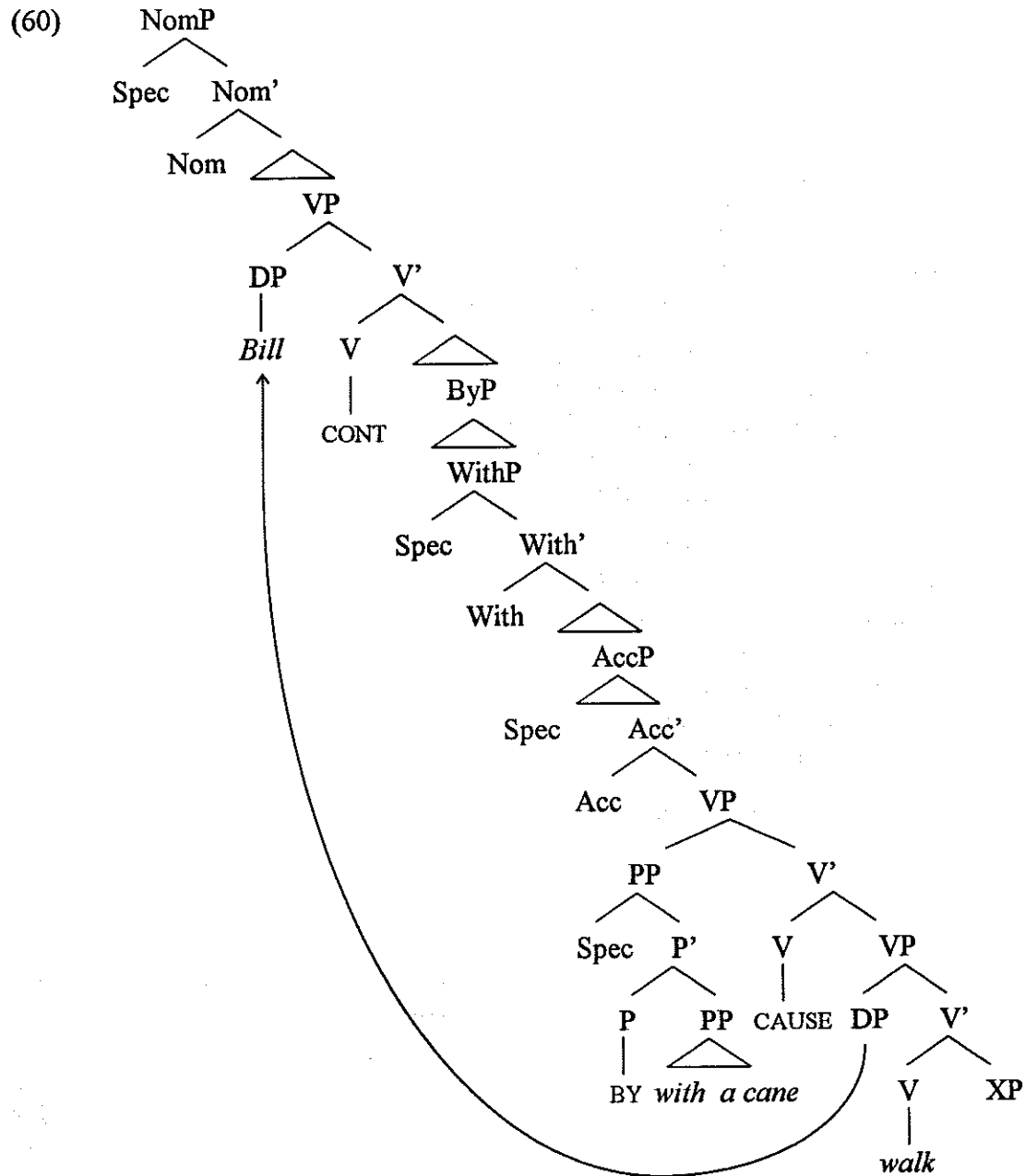
- (58) a. [VP [PP BY with a fork] CAUSE- \diamond_C [VP Bill eat [his meal]]]
 b. [VP [PP BY with the telescope] CAUSE- \diamond_C [VP Sue watch [the stars]]]
 c. [VP [PP BY with a ladder] CAUSE- \diamond_C [VP Mary reach [the top shelf]]]

In other words, *a fork* cannot become the subject in (58a) because it is not the type of thing that can control the lower V *eat*, which requires its subject to be much higher on the animacy scale. By contrast, the animate causee *Bill* has the necessary level of animacy, so

the sentential subject of CAUSE'. Although he does not elaborate his point, I suspect that what he had in mind is essentially similar to what I propose in this section.

it is pulled over the Aide phrase to the specifier of CONT in order to satisfy the Principle of Event Control in (26), and eventually to the specifier of NomP at S-structure.

The configuration that results from this movement is roughly given in (60), with all irrelevant operations omitted. It is followed by the movement of *Bill* to [Spec, NomP].



In the more expected alignment, the causer argument would be generated as a *by*-phrase, without the instrumental *with*, and move to the subject position. This would yield the S-structure **A cane walked Bill*. Clearly, *a cane* cannot move through the specifier of CONT in this case because a cane is not something that can sustain the walking event. An

alternative would be to move *a cane* to the subject position and move *Bill* to the [Spec, CONT], from where it can control both *walk*-CAUSE and *walk*. This would resolve the control situation, but it would create a problem with respect to *by*-incorporation, i.e., **By a cane walked Bill*. If *by* were to incorporate from the base position of the causer *by a cane*, then its complement DP, *a cane*, would be shifted to the nearest licensing position, the [Spec, AccP]. Consequently, *a cane* cannot move to the [Spec, NomP] under any circumstance. The clause acquires a subject to satisfy the Extended Projection Principle with the movement of *Bill* to [Spec, NomP] from [Spec, CONT].

2.2 Structural Licensing

The animate causer that raises to the subject position becomes the nearest animate argument that c-commands the inanimate causer at S-structure. The following amendment to the Distribution of Instrument Arguments in (42) ensures that the inanimate causer will be generated as *with* phrase and surface as an Aide argument.

(61) The Distribution of Instrumental Arguments:

A DP is generated as an instrumental phrase if (a) and (b).

- a. It is not generated as the lowest thematic argument of its clause.
- b. There is a clausemate DP[†] that immediately c-commands it at S-structure, and it is higher on the animacy scale.

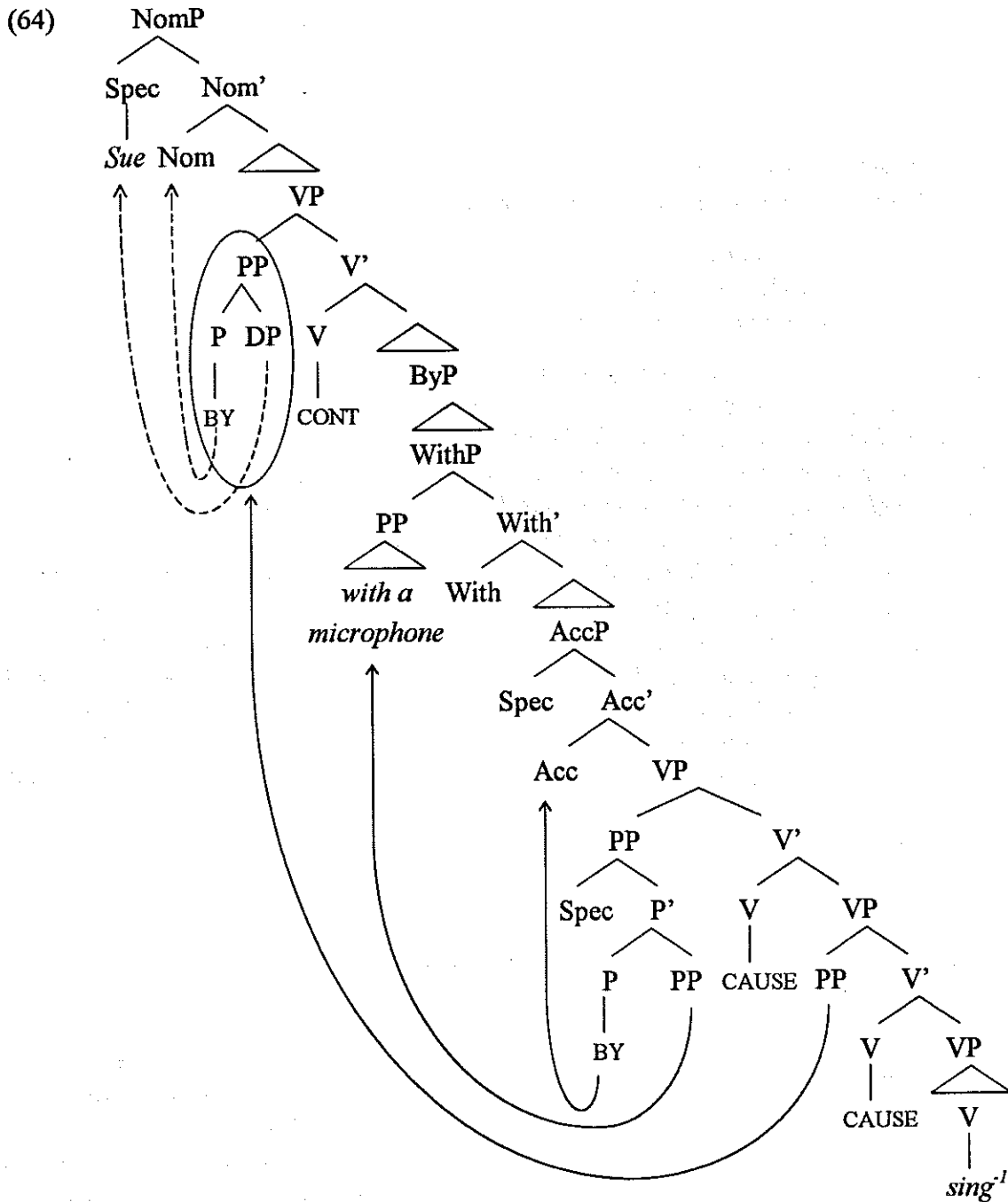
Note again that the DIA is meant as a generalization about the contexts that license instrumental arguments. Ultimately, the distribution conditions in (61) should be derived from more basic principles of grammar.

Just as the case was with Tool arguments, the presence of an Aide argument also indicates successive substitution into CAUSE in clauses that contain a verb that already requires a causative VP layer in the syntax, see the unergative VP structure in chapter 4 (CO stands for 'cognate object' below).

- (62) a. Sue sang with a microphone
 b. Bill slept with sleeping pills

- (63) a. [_{VP} [_{PP} BY with a microphone] CAUSE [_{VP} [_{PP} BY Sue] CAUSE [_{VP} CO sing⁻¹]]
 b. [_{VP} [_{PP} BY with sleeping pills] CAUSE [_{VP} [_{PP} BY Bill] CAUSE [_{VP} CO sleep⁻¹]]

The null CAUSE iteration in (63) is licensed in exactly the same way the causative layers are licensed with splittable transitive verbs like *destroy* and *erase* in the presence of a Tool phrase. The Aide phrases are generated as *by*-PPs, where the BY incorporates into the first head above, Acc. From the Acc-adjoined position, it first lowers to the higher CAUSE, and then to the lower CAUSE, producing the necessary branching structure as argued for Tool instruments in section 1.2. The remaining *with*-phrase of the Aide argument moves to the [Spec, WithP] for structural licensing. On the other hand, the lower causer which is the more animate argument, moves to the [Spec, CONT], where it incorporates into the verb, and then moves to the [Spec, NomP].



Most aspects of the derivation of (63a) in (64) are already discussed in the previous section. The only novel aspect in this construction is the movement of the intermediate argument *Sue* in (64) to the main subject position, NomP.

2.3 The Animacy Threshold and Modality

The nonbranching structure formed by verb substitution forces the subject to be capable of controlling all subparts of the complex event. By contrast, the subject is not required to

have the same depth of control inside a complex event In the branching head structures derived from periphrastic and morphological causatives. This is particularly true when the causative clause is made stative with habitual or perfective tense, also see section 1.1.1.

- (65) a. This fork lets Bill eat his meal
b. This telescope lets Sue watch the stars
c. This ladder lets Mary reach the top shelf
- (66) a. This cane lets John walk
b. These shoes let Mary dance
c. The sleeping pills let Bill sleep

Though some of these sentences may sound less natural than others, they are far better than the noninstrumental null causative paraphrases of (58) and (63), such as **A fork ate/eats Bill his meal* or **A cane walked/walks Bill*. They are also better than clauses with Tool-type overt causees in the context of the verb *make*, e.g., **Bill made/makes the hammer break the window* and **Seymour made/makes the knife cut the salami*.

The modality difference between *let* and *make* affects the acceptability of inanimate subjects. The permissive *let* lowers the threshold of animacy that CAUSE demands of its subject controller with the coercive *make*. This is due to the existential quantification provided by the permissive *let*-causatives (CAUSE- \diamond_C), which requires the causation to hold in only one causally possible world. As such, its subject can control a *let* clause as long as it is capable of determining the outcome of a single possible causation event, which lowers the level of animacy required of the controlling argument. By contrast, the universal quantification of the coercive *make*-causatives (CAUSE- \square_C) implements the causation in all causally possible worlds. As a result, the controller of a *make*-causative needs to be much more animate to be able to determine the outcome of every possible causation event.

3 Conclusion

This chapter concludes the thread that began in chapter 3 regarding how the elementary predicate CAUSE participates in a range of syntactic constructions. The derivation of instrument arguments from causative structures altogether eliminates Instrument as an optional role from the grammar while preserving the principle of Event Transparency. It also interacts in interesting ways with the generalization that instrumental phrases are generated as specifiers, see chapter 4. It was shown here that the distribution of overt causees and instrumental arguments is fundamentally related to the concept of animacy and the internal structure of the complex verb formation. There are a number of questions raised by the analysis presented here, some more serious than others, and they are left unresolved here to be explored in future work. On the other hand, there are two main concepts that have emerged in this discussion that will no doubt prove useful in other areas of research as well. The first one is the fact that the syntax is sensitive to the animacy differential between arguments, especially inside a full-fledged clause, which can be appropriately defined as the domain of a given CONT predicate. The second concept is the way that the choice between the types of verb incorporation in terms of substitution versus adjunction affects the extent to which a given subject can control into the complex

event and its components.

The event is a complex phenomenon that involves multiple components and interactions. It is a dynamic process that evolves over time and space, influenced by various factors and conditions. The components of the event are interconnected and interdependent, forming a cohesive whole. The event is a result of the interaction between these components, which are themselves influenced by external factors and conditions. The event is a complex system that exhibits emergent properties that are not predictable from the individual components alone. The event is a dynamic process that evolves over time and space, influenced by various factors and conditions. The components of the event are interconnected and interdependent, forming a cohesive whole. The event is a result of the interaction between these components, which are themselves influenced by external factors and conditions. The event is a complex system that exhibits emergent properties that are not predictable from the individual components alone.

Chapter 6

PASSIVES

The principle of Lexical Coherence prohibits the syntax from altering the properties of a lexical item. It is designed to maintain consistency between the way an item is represented in the lexicon and the way it is projected in the syntax. For example, *paint* is represented as an Actor-Patient verb, and Lexical Coherence forces it to preserve its Actor-Patient frame in the syntax, e.g., *Sue painted that picture*. In the passive construction, however, the arguments are aligned differently, e.g., *That picture was painted (by Sue)*. Passive clauses have two characteristic properties: (a) the direct object of the active clause appears as the derived subject, and (b) the subject of the active clause appears as an optional *by*-phrase. The cornerstone for the classical GB in terms of the passive construction has been Burzio's (1986) biconditional, $\neg \theta_s \leftrightarrow \neg A$, where θ_s is the θ -role of the subject, and A is the accusative Case. This generalization is intended to cover not only the passive construction, but also the verbs that are traditionally classified as unaccusatives.

(1) Burzio's Generalization:

All and only the verbs that can assign a θ -role to the subject can assign (accusative) Case to an object.

It is presupposed in (1) that the θ -role of the subject may be made available in the syntax. A family of theories represented in various forms by Jaeggli (1986), Baker (1988), and Baker, Johnson, and Roberts (1989) account for Burzio's Generalization by assuming that both the external θ -role and the accusative Case are taken up by the passive morphology, and that the *by*-phrase is an adjunct that is identified with the external θ -role borne by the passive morpheme. This treatment of the passive *by*-phrase is incompatible with Event Transparency because the denotation of a *by*-phrase is a key participant in the event structure, and as such, it must be represented in the predicate-argument complex as an argument, not as an adjunct.

The alternative proposed in this chapter explores this approach and follows the strategy adopted by Keenan and Timberlake (1985), Marantz (1985), Li (1990), Hoekstra and Roberts (1993), and Mahajan (1994b), who treat the passive morpheme as a predicative head instead of a cliticized argument. Specifically, it assumes that PASS is an elementary predicate that takes Neutral and Patient arguments, and selects for a *by*-phrase

specifier and a VP complement. PASS has two fundamental properties: (a) Its *by*-phrase specifier controls the specifier of its VP complement, and (b) it does not allow the *by* of its specifier to incorporate into V. The absence of P-incorporation distinguishes PASS from the other predicates that take *by*-phrase specifiers, such as CAUSE and ACT.

(2) [_{VP} [*by* DP]_i PASS [_{VP} PRO_i V DP]]

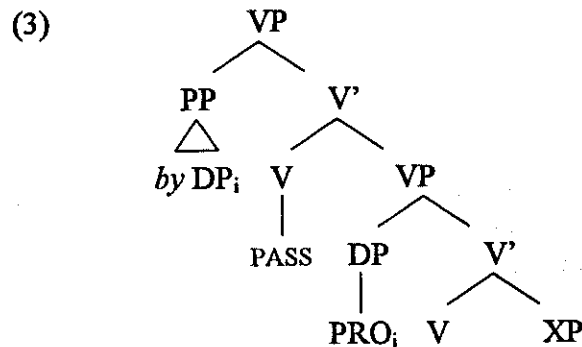
The first part of Burzio's Generalization becomes irrelevant in this structure because the external argument is still thematically licensed, albeit in a form that cannot occupy the subject position for reasons that will be discussed below. The inability of both the *by*-phrase and the PRO specifier of the lower VP to move to the [Spec, NomP] position leaves the clause with no subject, and violates the Extended Projection Principle of Chomsky (1982), which requires every clause to have a subject, cf. Mahajan (1994b). This prompts the complement of the lower VP in (2) to move to the [Spec, NomP] through the [Spec, AccP], although this intermediate stage has no visible morphological effect. By landing in the accusative licensing position, the derived subject makes the accusative Case unavailable for the other arguments, which captures the second part of Burzio's Generalization regarding the accusative Case.

This chapter is organized as follows. Section 1 elaborates on the mechanism of the passive construction just sketched out. It argues that the overlap between the causative and passive morphology in Korean and Japanese, as well as the active passive construction in Hindi (Mahajan 1994b), receive a more uniform treatment when the passive morpheme is assumed to be an elementary predicate. It also discusses the derivation of the agentless passives of incomplete verbs, e.g., *The city was destroyed*, that were introduced in chapter 4. In sections 2 and 3, it is shown that the passivizability of monadic verbs depends on their ability to provide an argument that can become the subject at S-structure or at LF after expletive replacement (Chomsky 1986a). Section 2 shows that single-layered thematic specifier verbs like *run* and causative-layered verbs like *laugh*, the traditional unergatives, can easily passivize because they license such arguments in the form of Non-Thematic Complements (NTCs), e.g., Bare Measure Phrases (BMPs), cognate and related objects, and others discussed in chapter 4. Section 3 suggests that null-specifier verbs like *arrive* and inchoative-layered verbs like *sink*, the traditional unaccusatives, do not have a suitable NTC that could occupy the subject position at either level, so they fail to passivize except in languages that have an additional mechanism that obliterates the control relation between the *by*-phrase and the PRO. In these languages, PASS optionally takes the generic operator GEN as its specifier, which plays a crucial role in licensing unaccusative passives in Polish, Turkish, and German. Finally, section 4 looks at the cross-linguistically rare double-passive construction. It concentrates mostly on Turkish, though it also provides a partial analysis of the double passives in Lithuanian. By ruling out multiple control structures, this section derives the fact that the second PASS in the Turkish double passives must introduce the generic operator GEN as its specifier instead of a regular *by*-phrase.

1 The Basic Structure and Derivation

The basic predicate-argument structure in the passive construction is schematically shown

in (3) below. It is headed by the predicate PASS, which takes a *by*-phrase specifier that controls the specifier of its VP complement. The XP in (3) is the complement of the lower V, ranging over thematic arguments and NTCs alike.



All components of the VP architecture of PASS in (3) were independently justified for other elementary predicates in the preceding chapters. PASS takes a *by*-phrase specifier, like ACT and CAUSE, and a VP complement, like BEN and ACT. Just as ACT and INCH, it mediates a control relationship between its specifier and the specifier of its complement. It takes a Neutral specifier and a Patient complement just like CAUSE, while ACT takes an Actor, BEN takes an Experiencer, and INCH takes a Patient specifier.

The underlying structure and the derivation of the passive construction is the topic of this section, which is organized in four parts. The first part makes the case for a control relation between the *by*-phrase and the lower [Spec, VP] in (3). The second part discusses the licensing of the arguments. The third and fourth parts survey the main differences and similarities between the causative and passive constructions.

1.1 The Control Relation

The significant claim in (3) is that passives are built by adding a predicate and an argument into the structure, instead of removing any. As such, it avoids novel procedures regarding dethematization or argument suppression (or demotion). This not only respects the principle of Event Transparency argued for in chapter 1, but it also accommodates for the fact that passives normally introduce covert agents, which can control the PRO subject of a purpose clause. In this sense, they are different from true intransitives. In (4a), the party that is responsible for sinking the ship collects the insurance money, while in (4b), there is no covert agent responsible for the sinking that can collect the money.

- (4) a. The ship was sunk [PRO to collect the insurance money]
 b. *The ship sank [PRO to collect the insurance money]

The structure-building approach also retains the external argument of the passivized verb as a PRO. As a result, it voids the first half of Burzio's Generalization regarding the assignment of the subject θ -role, and ultimately, undermines the validity of the entire generalization stated in (1).

There are conceptual as well as empirical reasons to assume that the passive *by*-phrase and the argument in the specifier of the lower VP is in a control relation, rather

than raising, cf. Fillmore (1968). First of all, it complies with the overall pattern that has emerged in the previous chapters, where all elementary predicates that lie below the structural licensing positions introduce new arguments, whether they are controlled or not, which was argued independently for CAUSE, BEN, ACT, and INCH.¹ This is not true for the raising predicates VOL and CONT, which lie above the structural licensing positions. The position of PASS in the tree is low enough to suggest that it is a control predicate.

There is also an empirical reason why this relation must be based on control and not raising. The defining property of a control predicate is its ability to introduce its own specifier argument. As such, it typically imposes its own particular set of selectional requirements on its specifier, which may or may not coincide with the selectional requirements imposed by a lower predicate. On the other hand, a raising verb does not license a novel argument as its specifier, so it places no particular restrictions on the argument that appears as its surface subject. Crucially, raising verbs are indifferent to all the idiosyncratic choices of arguments made by the predicate in the lower clause, which is where the surface subject of the raising verb is generated.

(5) Control:

- a. *There tried to be three people in the room
- b. *The shit tried to hit the fan (every time he has a bright idea)
- c. *Five dollars try to buy a decent meal in this restaurant

(6) Raising:

- a. There seem to be three people in the room
- b. The shit seems to hit the fan (every time he has a bright idea)
- c. Five dollars seems to buy a decent meal in this restaurant

If the passive *by*-phrase is selected by a distinct predicate, i.e., PASS, but not by the passivized verb, there would have to be some discrepancy between the range of possible subjects in an active clause and the possible *by*-phrases in the corresponding passive, a fact also observed by Jaeggli (1986). One relevant case in this respect is the way the idiomatic reading of subjects is lost under passivization.²

(7) a. The shit hit the fan (idiomatic)

¹CAUSE and BEN both add an overt argument into the clause. As suggested in chapter 2, ACT must be a control predicate so that its complement VP may uniformly take a Neutral specifier. On the other hand, INCH is determined to be a control predicate due to the ability of the inchoative verb to enter into the null causative alternation, see chapter 4.

²Unlike the *take advantage* idioms that allow their parts to be moved, e.g., *advantage was taken of John* or *the advantage we have taken of John*, the more opaque idioms resist any movement of their parts: **The bucket was kicked by the mobster* or **The tabs were kept on the suspects*. The inability of idiom chunks to passivize may explain (7b), since *the fan* moves to the subject position, but not (8b) and (9b), where *it* is presumably an expletive object, along the lines of *I like it that the mobster died*.

- b. The fan was hit by the shit (non-idiomatic)
- (8) a. That doesn't cut it (idiomatic)
- b. It isn't cut by that (non-idiomatic)
- (9) a. That does it (idiomatic)
- b. It is done by that (non-idiomatic)

Likewise, passives do not preserve the idiosyncratic subjects selected by the verb.³

- (10) a. Five dollars buys a decent meal in this restaurant
- b. *A decent meal is bought by five dollars in this restaurant

Finally, overt *by*-phrases are not allowed to have any arbitrary reference.

- (11) a. They eat dinner at 10 o'clock in this country (arbitrary *they*)
- b. Dinner is eaten at 10 o'clock in this country (arbitrary 'understood agent')
- c. Dinner is eaten by them at 10 o'clock in this country (*arbitrary *they*)
- (12) a. They make deals with a handshake in this town (arbitrary *people*)
- b. Deals are made with a handshake in this town (arbitrary 'understood agent')
- c. Deals are made by people with a handshake in this town (*arbitrary *people*)

Simple indefinites that refer to a kind are possible as *by*-phrases in passives, as in *Flies are eaten by frogs*, as well as the singular definites that function as generic *by*-phrases, as in *The Kiwi is hunted to extinction by the cat*. However, the arbitrary reference intended by the use of *they* and *people* in these examples is not available when they are generated as specifiers of PASS.⁴ The arbitrary reading is actually possible with covert *by*-phrases that allow the type of reference denied for *they* and *people*, e.g., the 'understood agent' of *Flies are eaten* must be nonspecific and human, cf. Baker, Johnson, and Roberts (1989).

Although the passive *by*-phrase is generated by the distinct predicate PASS, it appears to have the same type of thematic role as the specifier of the VP it controls.⁵

- (13) a. Bill stole my wallet (Actor)
- b. Sue likes my chicken soup (Experiencer)

³Whether or not the subject in (10a) is the product of some middle formation rule is irrelevant. All that matters is that PASS cannot make the same specifier selection that *buy* can make, cf. *Five dollars seems to buy a decent meal in this restaurant*.

⁴*People* can be used as an indefinite *by*-phrase, as in *These rocks were carved by people*.

⁵There are no examples with Patient subjects in (13) and (14) since a Patient subject is compatible only with a Patient object or some Non-Thematic Complement. The Patient objects appear as *with*-phrases in these cases, which produces pseudo-passive structures like ??*The concrete is combined with by water*. On the other hand, Patient subject verbs that have NTCs are change of state verbs, which take predicative NTCs that are not allowed in structural licensing positions, e.g., **Five hundred yards are sunk by the boat*.

- c. Tuesday follows Monday (Neutral)
- (14) a. My wallet was stolen by Bill (Actor)
- b. My chicken soup is liked by Sue (Experiencer)
- c. Monday is followed by Tuesday (Neutral)

However, this is mostly an illusory effect of the Neutral role borne by the *by*-phrase. As established in chapter 2, on the basis of Rozwadowska's (1988) work, a Neutral argument is defined by the way its denotation stays outside the core event structure, and does not interact with any other participant in the event/state described in the clause. This can be seen in the following sentences where the Neutral subjects are licensed by an overt CAUSE, a null CAUSE, and a lexical verb, respectively.

- (15) a. This magnificent view made me buy this house
- b. The scandal toppled the government
- c. The article in the magazine helped me with my investment

The view, the scandal, and the article do not interact with the buying, toppling, and the helping events in any significant way in (15). They participate in these events simply by being there and doing nothing, where the causal relation is expressed independently by CAUSE. In this sense, Neutral arguments are essentially transparent with respect to their subordinate event/states, which also holds for the *by*-phrases in (14). The apparent variation in the thematic role is contributed by the PRO argument inside the lower VP that associates with the exact role that the specifier of that particular VP associates with.

- (16) a. [VP [by Bill] PASS [VP PRO steal [my wallet]]]
- b. [VP [by Sue] PASS [VP PRO like [my chicken soup]]]
- c. [VP [by Tuesday] PASS [VP PRO follow Monday]]]

The *by*-phrases in (14) and (16) are all Neutral, whereas the Actor, Experiencer, and Neutral readings in (16) are provided by the PRO arguments in the specifier of the lower VPs in connection with *steal*, *like*, and *follow*, respectively.

Nevertheless, unlike most other elementary predicates that are located at around the same level in the tree, e.g., CAUSE, BEN, and ACT, PASS clearly has little semantic content. In this regard, it appears more like an aspectual predicate, as is INCH, perhaps along the lines of the English *get*, another thematically transparent control predicate:

- (17) a. *There got to be three people in the room
- b. *The shit gets to hit the fan (every time he has a bright idea)
- c. *Five dollars gets to buy a decent meal in this restaurant

Note that the subject of *get* can also be construed as having different thematic roles.

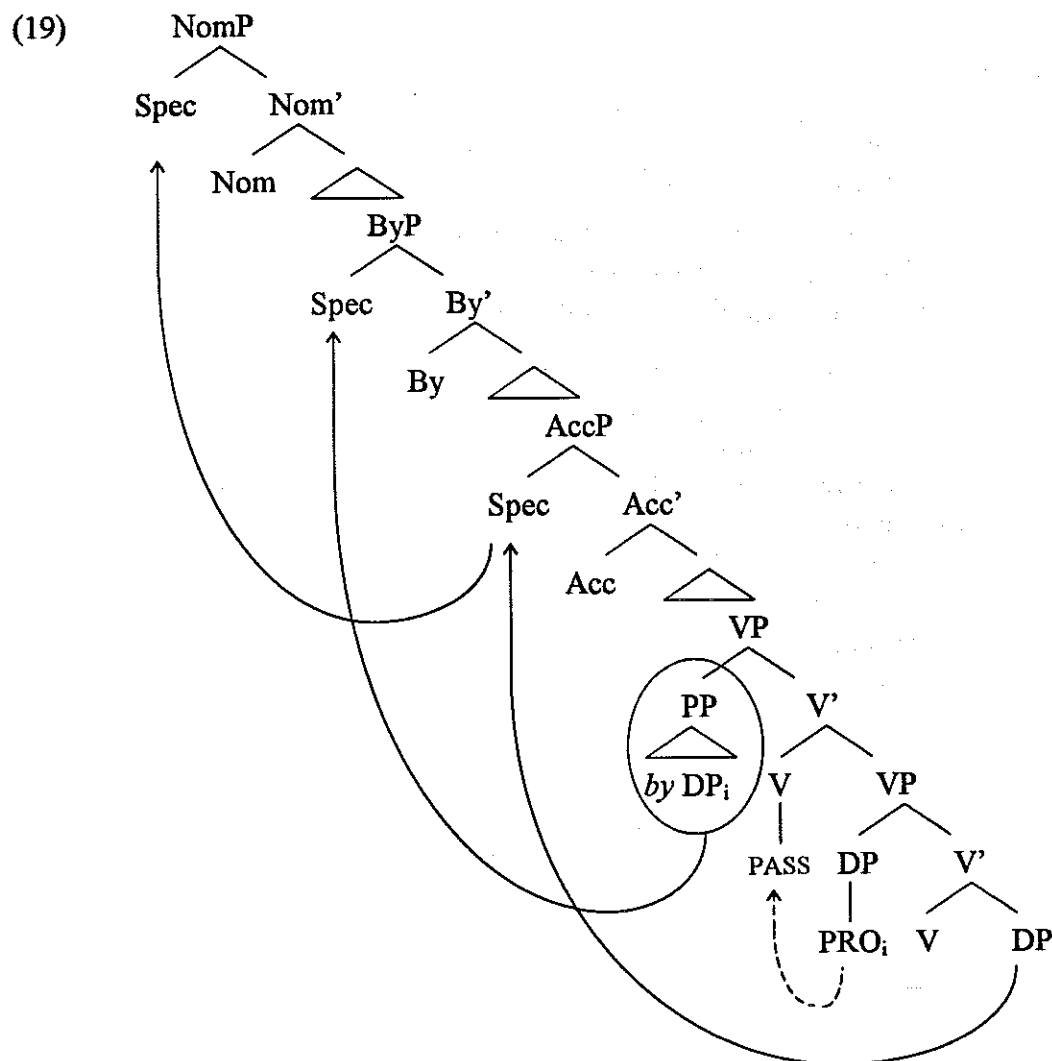
- (18) a. Bill got to steal my wallet
- b. Sue got to like my chicken soup
- c. Tuesday gets to follow Monday

As awkward as some of these sentences may sound, the Neutral role borne by the subject

of *get* ultimately does not interfere with the additional thematic reading that is provided by the PRO subjects of *steal*, *like*, and *follow*, respectively.

1.2 The Derivation (Transitive Verbs)

The proposed derivation of passives is comprised of a series of movement given below. In some languages, the completion of some of these stages may be delayed until LF.



All of the movement in (19), except for the one to the [Spec, NomP], is motivated by the requirement imposed by the Principle of Full Interpretation (PFI) (Chomsky 1986a) that all arguments be structurally licensed. Movement to the [Spec, NomP] is motivated by the need to create a subject for the clause in accordance with the Extended Projection Principle (EPP) of Chomsky (1982). The successive steps in (19) are as follows.

1. The *by*-phrase moves to the ByP to be structurally licensed, the same way that the *by*-phrases in the causative construction do, see chapter 3.
2. PRO remains in situ at S-structure, but it is head incorporated into the verbal complex

at LF, which is allowed under Baker (1988) and Koopman (1994).

3. The lower DP moves to the [Spec, AccP] for structural licensing, just as it would have if it were an active clause.⁶

The derivation up to this point leaves the [Spec, NomP] vacant, with no subject for the clause, and violates the EPP.

4. The subject is provided by moving the argument in the lowest structural licensing position, the [Spec, AccP], further to the [Spec, NomP].

The movement from the [Spec, AccP] to the [Spec, NomP] can be regarded as the 'second cycle' triggered by the absence of a subject after the 'first cycle', i.e., the first batch of movement to the structural licensing positions. Since as a general rule, two distinct Cases cannot be licensed on the same argument, the movement of the lower argument to the [Spec, AccP] is morphologically vacuous, and leaves no morphological marking. This argument is licensed as a nominative phrase at the [Spec, NomP], so it bears the nominative morphology. In fact, it is the absence of the accusative licensing at the [Spec, AccP] that allows movement to the [Spec, NomP] to proceed across all the other argument positions that lie between AccP and NomP.⁷ The accusative Case has no morphological manifestation on the derived subject, and it is also unavailable for any other argument. This derives the accusative absorption effect in the traditional theories of passives, which is meant to account for the second part of Burzio's Generalization.

The remainder of this subsection provides motivation and evidence for each of the components that are spelled out above in connection with the derivation in (19).

1.2.1 By-Phrase Licensing

It was argued in the context of the causative construction that *by*-phrases need to be structurally licensed. The evidence presented in chapter 3 involves the restriction against multiple *by*-phrases in a given clause in Turkish, which normally allows the causative morphology to iterate. With transitive verbs, the dative phrase is reserved for the first causee, i.e., the one who opens the letter in (20), and the second causee is a *by*-phrase.

- (20) a. Ahmet bana mektubu aç-tır-dı
A.-NOM I-DAT letter-ACC open-CAUSE-PAST-3SG
'Ahmet made me open the letter'
- b. Ayşe [Ahmet tarafından] bana mektubu aç-tır-tı
A.-NOM A. by I-DAT letter-ACC open-CAUSE-CAUSE-PAST-3SG
'Ayşe made Ahmet make me open the letter'

⁶It will be argued in section 4 that the nonspecific direct objects of Turkish, which cannot bear the accusative Case (Enç 1991) move directly to the [Spec, NomP].

⁷Movement after the structural licensing obeys the familiar Relativized Minimality (Rizzi 1990) and Economy (Chomsky 1991) conditions. Recall from chapters 2 and 5 that this is what allows *by*-phrases to be the only nonnominative (subject) arguments that can move to the specifiers of VOL and/or CONT in the passive construction.

A third overt causee cannot be added to (20b), as discussed in chapter 3.⁸

- (21) Ali (*[Ayşe tarafından]) [Ahmet tarafından] bana mektubu
 A.-NOM A. by A. by I-DAT letter-ACC
 aç-tır-t-tır-dı
 open-CAUSE-CAUSE-CAUSE-PAST-3SG
 ‘Ali made Ayşe make Ahmet make me open the letter’

The limitation on the number of possible *by*-phrases persists in passivized causatives, which indicates that the passive *by*-phrases are licensed the same way as the causative *by*-phrases. Causative clauses with single (dative) causees passivize with no problem.⁹

- (22) a. Ahmet bana mektubu aç-tır-dı
 A.-NOM I-DAT letter-ACC open-CAUSE-PAST-3SG
 ‘Ahmet made me open the letter’
 b. Mektup [Ahmet tarafından] bana aç-tır-ıl-dı
 letter-NOM A. by I-DAT open-CAUSE-PASS-PAST-3SG
 ‘The letter was caused by Ahmet to be opened by me’

An additional *by*-phrase causee introduced by a second causative layer competes for the same licensing position that the passive *by*-phrase must move to.

- (23) a. Ayşe [Ahmet tarafından] bana mektubu aç-tır-t-tı
 A.-NOM A. by I-DAT letter-ACC open-CAUSE-CAUSE-PAST-3SG
 ‘Ayşe made Ahmet make me open the letter’
 b. Mektup (*[Ayşe tarafından]) [Ahmet tarafından] bana
 letter-NOM A. by A. by I-DAT
 aç-tır-t-ıl-dı
 open-CAUSE-CAUSE-PASS-PAST-3SG
 ‘The letter was caused by Ayşe to be caused by Ahmet to be opened by me’

With only a single licensor ByP in the structure, the passive *by*-phrase cannot cooccur with a causative *by*-phrase, just as two causative *by*-phrases are ruled out in (21b).¹⁰

1.2.2 PRO Licensing

The PFI forces all arguments, overt or otherwise, to be structurally licensed, and the same should equally hold for the PRO in passives. An argument is licensed by moving to a

⁸The single *by*-phrase that is licensed in the configuration in (21) with triple-causatives is interpreted ambiguously as either the second or the third causee.

⁹The English translations in (22b) and (23b) are inaccurate but close approximations.

¹⁰The single *by*-phrase that is licensed in (23b) is ambiguous between the passive and causative *by*-phrase readings.

specifically designated position as an XP, or by incorporating its head into the predicate as an X⁰. The XP-type licensing is not tenable for PRO arguments for three reasons. First, if PRO were to raise to a licensing position, it would have to move across the base position of its controller *by*-phrase at the [Spec, VP], which would violate the Condition C of the binding theory with respect to the either the *by*-phrase or its trace.

Second, there is a practical problem with licensing PRO at a structural licensing position because a single clause may have multiple PROs introduced by other elementary predicates. For example, a relatively simple sentence like *The ship was sunk by the enemy* contains at least three distinct PROs, since it presents just as many control predicates. The successive layers of the VP structure of this particular sentence is given in (24) below. (The superscript 'S' indicates that the stative *sink* must incorporate into an INCH.)

- (24) a. [VP [the boat]_i; INCH [VP PRO_i sink^S XP]]
 b. [VP [the captain's mistakes] CAUSE [VP [the boat]_i; INCH [VP PRO_i sink^S XP]]]
 c. [VP [the enemy]_j; ACT [VP PRO_j CAUSE [VP [the boat]_i; INCH [VP PRO_i sink^S XP]]]]
 d. [VP [by the enemy]_k PASS [VP PRO_k ACT [VP PRO_k CAUSE [VP [the boat]_i; INCH [VP PRO_i sink^S XP]]]]]

The core VP architecture of *The boat sank* is as in (24a): the VP containing the change of state verb *sink* is generated as the complement of an inchoative VP headed by the control predicate INCH, see chapter 4. The transitivized version of *sink* is produced by embedding the inchoative VP under CAUSE, as in (24b), which introduces a Neutral specifier, as seen in *The captain's mistakes sank the boat*. The Actor subject in *The enemy sank the boat* is introduced by the control predicate ACT in (24c). Finally, the third PRO is introduced in (24d) by the passive. Structurally licensing all three PROs as XPs would require multiple PRO licensing projections in a given clause, which is quite unlike all other licensors, like AccP, DatP, and ByP, which are limited to one per clause.

The third problem is that even if there were uniquely designated structural licensors for PRO that are allowed to iterate as an exceptional case, this licensor would have to distinguish arguments according to their lexical and phonetic content in order to specifically target PRO. This is very unusual for structural licensors, since they normally pay attention only to the morphological form of an argument, i.e., its Case and/or pre-/postpositional properties. Drawing distinctions on the basis of lexical or phonetic content would raise the possibility of distinct licensors for anaphors, pronouns, referential expressions, and perhaps even expletives. This may in itself be a possibility, but such licensors would hardly be in the same family of licensors as those that license arguments according to their morphological forms, such as nominative, accusative, etc.

The X⁰-type licensing where PRO head incorporates into the verb has none of these drawbacks.¹¹

¹¹Head incorporation of a controlled PRO (or a *pro*) was also mentioned and adopted in chapter 3 in the context of the concealed causatives of Korean and Japanese.

1.2.3 Movement through the Accusative Case Position

The progression of the movement to the specifier of NomP through the specifier of AccP in (19) is analogous to the conventional view that the derived subjects of passives start out as direct objects. This view is also supported by two facts: (a) The measuring-out effects with verbs like *load* and *spray* are preserved in passives. (b) The accusative Case is available in the passive construction in the Northern Slavic, and other languages.

As discussed in chapter 4 for verbs like *spray* and *load*, the argument that moves to the specifier of AccP is understood to be measuring out the extent of the spraying and loading events (Tenny 1990, among others). The loading is coextensive with the size of the room available in the truck in (25a), but with the amount of hay in (25b).¹²

- (25) a. Bill loaded the truck with hay
b. Bill loaded the hay onto the truck

The same readings are preserved under passivization.

- (26) a. The truck was loaded with hay
b. The hay was loaded onto the truck

The loading event ends when the truck has no room left in (26a), and when there is no hay left in (26b), cf. (25a) and (25b), respectively. This is despite the fact that subjects do not trigger any measuring-out effects on their own. Note that the loading is never coextensive with the farmers in *The farmers loaded the hay/truck* or *The farmers put the hay on the truck*. Neither sentence implies that the loading ends when all the farmers have done their share of the loading. The fact that the derived subjects of passives retain their measuring out capacity while underived subjects do not, strongly suggests that the surface subjects of passives move through the [Spec, AccP] position.

More concrete evidence for this movement comes from the transitive passive construction in various languages (Baker, Johnson, and Roberts 1989), where the lower argument that would otherwise become the derived subject optionally appears as an accusative phrase. Ukrainian is one such language.

(27) Ukrainian (Sobin 1985):

a. Cerkva bula zbuovana v 1640 roc'i
church-NOM/FEM was-FEM built-PASS-FEM in year
'The church was built in 1640'

b. Cerkvu bulo zbuovana v 1640 roc'i
church-ACC/FEM was-NEUT built-PASS-NEUT in year
'The church was built in 1640'

Transitive passives are also found in North Russian dialects (Timberlake 1976), Polish (Keenan and Timberlake 1985), and perhaps Welsh (Perlmutter and Postal 1984). Baker,

¹²The accusative Case is visible in the alternates corresponding to (25a) and (25b) in Turkish, see chapter 4.

Johnson, and Roberts (1989) propose that the accusative Case absorption is only optional in these passives. Accusative absorption is a critical component of the traditional analyses of passives. By contrast, the difference between transitive and ordinary passives is not as substantial under the assumption that derived subjects must always pass through the accusative licensing position during the derivation. What is unusual in these structures is that the derived subject is allowed to surface in the intermediate position at S-structure. It is also noteworthy that this landing site, the [Spec, AccP], is morphologically manifested in (27), though this is not anything fundamentally problematic or unexpected.

1.3 Differences and Similarities between PASS and CAUSE

There are obvious differences between the passive and the causative constructions in terms of their nature and the way they align their arguments. Nevertheless, the VP architecture of PASS sketched out in (2) resembles the causative structures in some respects.

(2) [_{VP} [_{by DP}]_i PASS [_{VP} PRO_i V DP]]

(28) [_{VP} [_{by DP}] CAUSE [_{VP} DP V DP]]

In fact, there are also some surface similarities between these two constructions, as will be seen below. However, these similarities are better appreciated when they are framed in the context of their differences.

The most prominent and irreducible difference between PASS and CAUSE is the range of constituents they can take as their complements. As was argued in chapter 3, CAUSE selects different complements in different languages. In English, *make* and *let* take an AccP complement, which enables them to iterate the accusative Case, allowing CAUSE that occurs in the structure to bring an accusative licensing projection with it. The French *faire* can take a DatP or a ByP complement and license multiple dative or *by*-phrase causees (Kayne 1975), modulo parsing limitations. By contrast, the Turkish causative suffix(es) can only take bare VP complements, which disallows any Case iteration. PASS is very different from CAUSE in this regard, since it does not add any additional Case licensing position in any of the world's languages. The complementation of PASS is more comparable to the other control predicates ACT and INCH, discussed in chapters 2 and 5.

Another way in which CAUSE differs from PASS is that it is not a control predicate under normal circumstances. The only exception appears to be the concealed causatives of unaccusative verbs in Korean and Japanese, see chapter 3. The following sentences allow the interactive causation reading, where the causers *John* and *Taro* force the causees *Mary* and *Hanako* to arrive on time, which is not possible in Turkish or Hungarian.

(29) a. Korean

John-i Mary-lul cengsi-ey tochaka-key hay-ess-ta
 J.-NOM M.-ACC time-LOC arrive-CAUSE do-PAST-DECL
 'John made Mary arrive on time'

b. Japanese

Taroo ga Hanako o zikan-doori-ni tuk-ase-ta
 T. NOM H. ACC on.time arrive-CAUSE-PAST
 'Taro made Hanako arrive on time'

The underlying structure that yields this reading involves control between the lower causer and the argument of the lexical verb, as shown below (slightly modified from chapter 3).

(30) [_{VP} [BY John] CAUSE [_{VP} [BY Mary]_i CAUSE [_{VP} *e* arrive PRO_i]]]

The capacity of CAUSE to be a control predicate specifically in Korean and Japanese will be better understood in the context of the discussion in sections 1.3.1 and 1.3.2 below.

Finally, CAUSE allows the *by* of its specifier PP to incorporate into the verb,¹³ but PASS normally does not, which will prove very significant in this work. The exception is the agentless passives of transitive verbs like *solve* or *destroy* in English, and *aç* 'open' or *kır* 'break' in Turkish, mentioned in chapter 4, and discussed in section 1.3.4 below.

Despite these differences, there are remarkable similarities between CAUSE and PASS, such that they occasionally perform identical syntactic functions, as is the case with the Korean causatives and the agentless passives. Other times, they can produce the same alignment of arguments, though with differences in meaning, as in the Japanese passives and the Hindi active passives. The remainder of this subsection looks at these cases.

1.3.1 Korean Causatives

Park (1986) observes that causative morphemes are identical to passive morphemes in Korean. What makes this an especially meaningful fact is that the Korean causative morphemes are not regular. Verbs differ with respect to which causative suffix they take, yet each causative morpheme may also perform a passive-like function, as seen below.

¹³It is possible that *by*-incorporation also plays a role in the appearance of the dative Case on the first causee with transitive verbs in languages with type I causatives (chapter 2). It can be conjectured that just as any other case of argument shift, the causee would be freed up by the incorporation of BY into the verb, and move to the first available Case licenser. With the accusative position already taken by the object of the transitive verb, the causer would then move to the next position, which is the dative licenser, [Spec, DatP]. This is parallel to the Beneficiary shift to dative in Turkish (Özkaragöz 1986), where an oblique Beneficiary phrase optionally appears as a dative, provided that the dative is available.

- (i) *pro* Ahmet için resim yaptım
 1SG A. for picture make-PAST-1SG
 'I made a picture for Ahmet'
- (ii) *pro* Ahmet'e resim yaptım
 1SG A.-DAT picture make-PAST-1SG
 'I made a picture for Ahmet'

- (31) a. na-nin ibalse-eye mæri-ril kak-ki-æss-ta
 I-NOM barber-BY hair-ACC cut-CAUSE-PAST-DECL
 'I had the barber cut my hair'
- b. næ mæri-ka ibalse-eke kak-ki-æss-ta
 my hair barber-BY cut-PASS-PAST-DECL
 'My hair was cut by the barber'

Marantz (1985) and Li (1990) derive the passive function of the causative morpheme by detransitivizing it. This approach is not viable in a theory that adopts Lexical Coherence, which rules out detransitivization. A plausible alternative would be to treat CAUSE as an optional control predicate in Korean, much like the English *get*, a point that is also made by Lee (1973). The ability of the Korean CAUSE to be a control predicate was suggested in chapter 3, and revisited above in the context of (30). The only additional assumption needed here is that a control CAUSE can no longer incorporate the pre-/postposition of its specifier, BY, so that the arguments may align the same way as passives in (31b).

1.3.2 Japanese Indirect Passives

The morpheme *-(r)are-* produces two types of passives in Japanese. The regular (direct) passives have all the usual properties of the passive construction.¹⁴

- (32) Kodomo ga Hanako ni yob-are-ta
 child NOM H. by call-PASS-PAST
 'The child was called by Hanako'

Indirect passives, meanwhile, display the same Case and argument alignment pattern of causatives. They add a new argument that appears as a nominative phrase, and turn the external argument of the root verb into an oblique phrase. Compare the surface forms of the indirect passive in (33a) with the causative in (33b).

- (33) a. Taroo ga Hanako ni kodomo o yob-are-ta
 T. NOM H. by child ACC call-PASS-PAST
 'Taro had Hanako call the child'
- b. Taroo ga Hanako ni Zi-roo o yob-ase-ta
 T. NOM H. by J. ACC call-CAUSE-PAST
 'Taro made Hanako call Jiro'

Regardless of their differences in meaning, these two constructions are formally identical in terms of their Case distribution, so much that one can simply replace the passive *-(r)are-* in (33a) with the causative *-(s)ase-* to obtain the surface form of (33b). One must bear in mind, though, that this parallelism is mostly mechanical. The passive and causative clauses in (33) do not have the same meaning because they are built by different predicates, PASS and CAUSE. Nevertheless, their similarity at the surface suggests that PASS optionally has

¹⁴The examples are taken from Miyagawa (1989).

the relevant property of CAUSE, which is the capacity to introduce an argument with a novel reference. That is, PASS can be non-control in Japanese, which is, again, analogous to the optionality of control with *get* in English.¹⁵ Assuming that a non-control PASS acquires the ability to incorporate the BY pre-/postposition of its specifier into the verb, the passive construction in (33a) would produce the same argument alignment pattern as the causative construction in (33b).

1.3.3 Hindi Active Passives

Mahajan (1994b) discusses a particular type of passive construction in Hindi that is formed with the auxiliary *gaayaa* 'go'. He shows that in these 'active passives', the instrumental equivalent of the *by*-phrase is located at the subject position. An example for the active form is given in (34a), and the active passive, in (34b).¹⁶

- (34) a. shikaariyoo ne haathii maaraa
 hunters ERG elephant kill-PERF-MS-SG
 'The hunters killed the elephant'
- b. shikaariyoo dwaaraa haathi maaraa gayaa
 hunters by elephant-MS-SG kill-PERF go-PERF-MS-SG
 'The elephant was killed by the hunters'

The oblique subject of (34b) displays all the subject properties: It binds anaphors, controls PRO, and triggers disjoint reference effects, while the object displays the object properties in terms of Case and agreement, and maintains its object control capacity.

Mahajan points out that the passive morphology does not absorb any thematic role or Case in this construction. Instead, it preserves the original argument alignment as if it were an active clause. The framework proposed in this chapter can produce these passives by generating the *dwaaraa*-phrase as the specifier of PASS, and then moving it to the subject position, i.e., the [Spec, NomP]. The active passive in (34b) has the basic argument alignment of a causative construction, except for the oblique subject, which may be related to the ergative-absolutive Case pattern in the Hindi perfectives.¹⁷

¹⁵The availability of the interactive reading with unaccusative verbs in the causative construction (chapter 3) suggests that CAUSE can also be a control predicate optionally, just as it is in Korean in more obvious ways.

¹⁶The postposition *dwaaraa* is glossed as *by* in the original work, but it is actually a form of instrumental postposition (Anoop Mahajan, personal communication, also see chapter 3).

¹⁷The derivation of the active passives is essentially the same as the derivation of split ergativity from causative structures in Hindi. Recall from chapter 4 that the causative VP introduced by the traditionally unergative verbs licenses an oblique (*by*-phrase) specifier, which becomes the ergative subject as it moves to the subject position. Mahajan (1994b) concludes that the active passive construction is possible only in languages that can license such oblique subjects. This is the same ability that allows the pre-/postposition of oblique subjects in split ergativity not to incorporate into the auxiliary *be* to yield the *be/have*

1.3.4 Passives of Incomplete Verbs

As mentioned in chapter 4 that some of the verbs that display the transitivity alternation with null causatives in English, such as *open*, *close*, *break*, *bend*, and *tear*, are inherently transitive in Turkish, e.g., *aç* 'open', *kapa* 'close', *kır* 'break', *bük* 'bend', and *yırt* 'tear'. It was argued there that the VP architecture of these verbs requires an inchoative layer in both English and Turkish. The only difference between the English *open* and the Turkish *aç* 'open' in this sense is that *open* is a complete verb, a V, which survives as a monadic verb at the surface, whereas *aç* is an incomplete verb, a V⁻¹, which must incorporate into CAUSE at S-structure. A particularly interesting contrast can be observed between the two verbs that mean *break* in Turkish, the inherently transitive *kır* (by impact) and the inherently intransitive *kop* (by detachment). The base forms of these verbs are as follows.

- (35) a. Tel kop-tu
 wire-NOM break-PAST-3SG
 'The wire broke'
- b. Ahmet camı kır-dı
 A.-NOM glass-ACC break-PAST-3SG
 'Ahmet broke the glass'

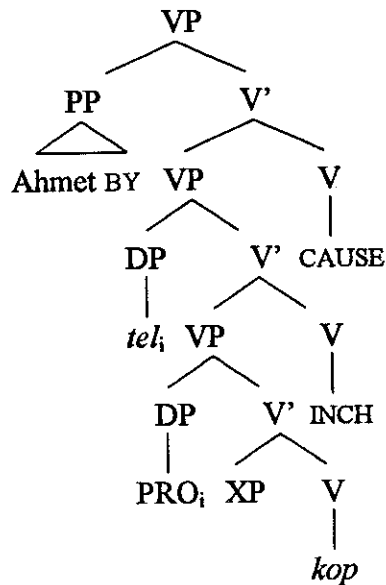
The inherently monadic *kop* is transitivized through an overt causative.

- (36) Ahmet teli kop-ar-dı
 A.-NOM wire-ACC break-CAUSE-PAST-3SG
 'Ahmet broke the wire'

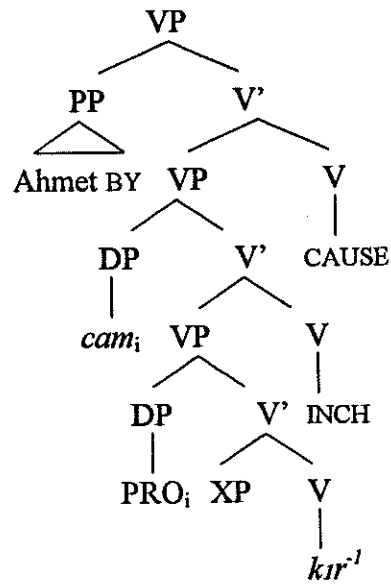
To maintain parallelism between the two verbs, their transitive and intransitive forms must be assigned comparable VP structures. Since the monadic *kop* incorporates into an overt CAUSE to become transitive, the diadic *kır* must be derived by incorporating it into a null CAUSE. This point is made in (37) below (the representations in this subsection omit both the V^S notation, which indicates that the verb must combine with INCH, and the ACT layer, which introduces the Actor that controls the Neutral specifier of CAUSE).

alternation of Kayne (1993) and Mahajan (1994a). For more discussion, see chapter 4.

(37) a. Ahmet teli kopardı



b. Ahmet camı kırdı.



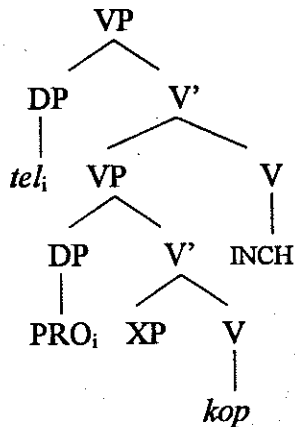
The null postposition BY incorporates into the verb in both (37a) and (37b), and its complement *Ahmet* is moved to the nominative position, the [Spec, NomP]. The V^{-1} notation on the verb *kır* indicates that it must have the causative layer at S-structure.

The intransitive form of the monadic *kop* is produced by leaving the inchoative VP alone at the surface, as in (39a) below. The lower VP of the diadic *kır* would not be able to survive on its own because it is an incomplete verb, V^{-1} , that must incorporate into a CAUSE. Such diadic verbs are detransitivized through passives, which in these cases, are always ambiguous between the ordinary and the agentless passive readings, comparable to *It was broken (by someone)* and *It broke*.

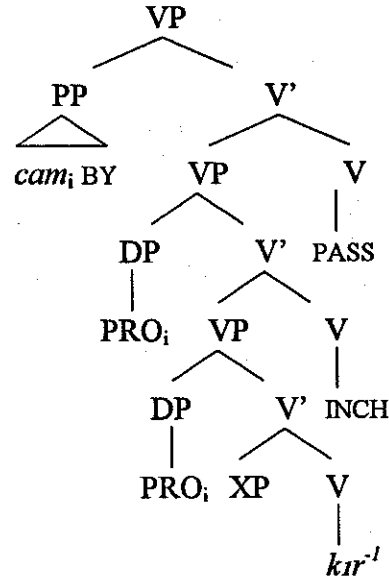
- (38) Cam kır-ıl-dı
 glass-NOM break-PASS-PAST-3SG
 i. 'It was broken (by someone)'
 ii. 'It broke'

As argued in chapter 4, the ordinary passive reading of (38) is derived by combining the causative VP in (37b) with PASS, while the agentless reading is obtained by truncating the causative layer and directly embedding the inchoative VP under PASS, as in (39b).

(39) a. Tel koptu



b. Cam kırıldı.



Just as in (37), the BY in (39b) above incorporates into the verb, and its complement DP, *cam* in this case, moves to the [Spec, NomP]. Crucially, the V^{-1} requirements of an incomplete verb are satisfied when it combines with PASS. In fact, this suggests that what satisfies a V^{-1} and makes it a legitimate verbal form at S-structure is the incorporation of BY. That is, a V^{-1} is defined as a verb that has an open BY-slot that can only be filled in the syntax via the specifiers of CAUSE, ACT, and PASS. Although the exact mechanics of this procedure are uncertain at this time, it is clear that the licensing of a V^{-1} is another context where PASS behaves like CAUSE.¹⁸

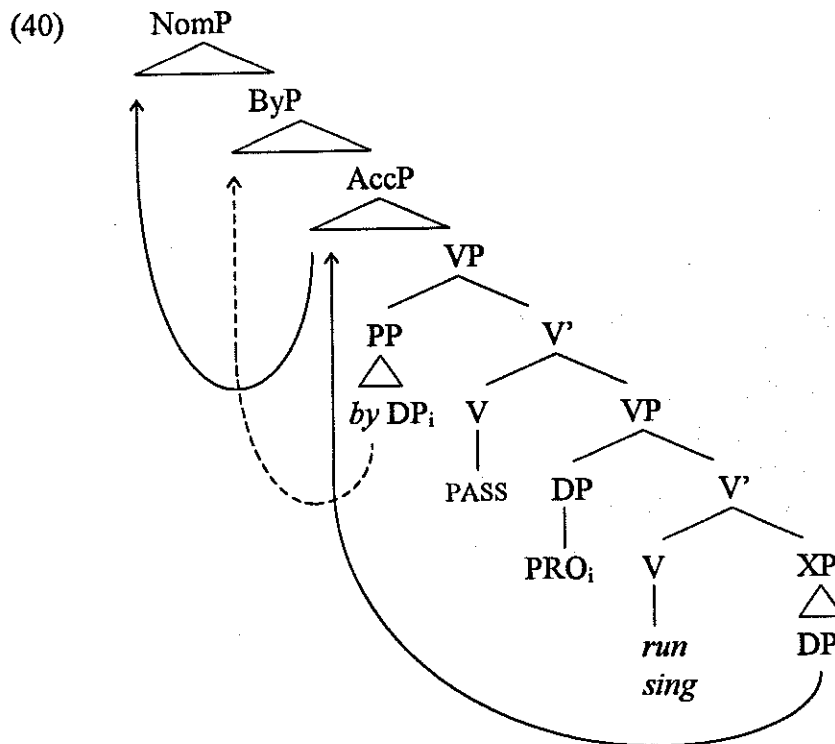
Having examined the basic mechanics of the passive construction with transitive verbs, the next step is to consider the behavior of intransitive verbs. The significance of these verbs with respect to passivization is that they license only a single thematic argument, which is generated as a PRO and is controlled by the *by*-phrase. This leaves no thematic argument to be the derived subject of the passive or to replace the expletive at LF, as the case may be (Chomsky 1986a). Thus, whether or not an intransitive verb can passivize depends on its ability to provide a non-thematic argument that can occupy the [Spec, NomP] at the relevant level. Those that can generate such an argument are discussed in section 2 under the heading of 'unergative verbs' and those that cannot are examined in section 3 under the heading of 'unacusative verbs'.

¹⁸As discussed in chapter 4, the English equivalent of the structure in (39b) is found in the agentless readings of *The problem was solved* or *The building was destroyed*, where the problem is solved simply by the way events play out, and the building decays naturally with time, without the involvement of any agent. Contrasting with these are the verbs that have a single VP layer, such as *steal* or *dig* in *My wallet was stolen* and *The hole was dug*, both of which necessarily imply the involvement of some arbitrary agent.

2 Unergative Verbs

Traditionally, unergative verbs are defined as verbs whose surface subjects originate as deep subjects (Perlmutter 1978, Burzio 1986). A modern version of this characterization is that the subjects of unergatives are generated as the specifiers of their VPs, which leaves their complement position available for other constituents. Hale and Keyser (1991, 1993) capitalize on this fact when they propose to derive these verbs by head incorporating their cognate objects into a null verb at a lexical level preceding the syntax, e.g., deriving *laugh* from *do (a) laugh*. It was argued in chapter 4 that this class is not as monolithic as the traditional dichotomy would suggest, and that it must be partitioned into two distinct verb classes: the single-layered thematic specifier verbs that allow null causatives, like *run* and *walk*, and the causative-layered verbs that do not, such as *laugh* and *sing*. For ease of reference, the term 'unergative verbs' will be used to cover both classes in this chapter.

The derivation of unergative passives is outlined in (40) below, where the causative layer of the *laugh* type is omitted in order to simplify the VP architecture.



As usual, the *by*-phrase moves to the specifier of ByP for structural licensing. In an active clause, the DP inside the XP complement in (40) would move to the accusative licenser [Spec, AccP], but in passives, it continues to the subject position, the [Spec, NomP]. The DPs relevant in this respect are mostly the Non-Thematic Complements (NTCs) discussed in chapter 4, i.e., Bare Measure Phrases (BMPs), cognate objects, and the specifiers of

resultative phrases.¹⁹ Unergative verbs are not very different from transitive verbs in terms of allowing some phrase to move to the [Spec, NomP], except for the thematic status of the derived subject. The availability of nonthematic subjects is very clear even in English, which is normally quite restrictive with respect to the passives of intransitives.

- (41) a. Five miles were run by the athletes
 b. The distance was walked by most participants of the walkathon
 c. Bill was laughed out of the room by his friends
 d. A cheerful song was sung by the family members to mark the occasion

The derived subject is a BMP in (41a), a quasi-measure phrase in (41b), the specifier of a resultative phrase in (41c), cf. *His friends laughed Bill out of the room*, and a cognate object in (41d).

Because expletives have a very limited distribution in English, unergative verbs can be passivized only in the presence of some constituent that can move to the [Spec, NomP] at S-structure, i.e., an NTC or its DP specifier.²⁰ Languages that are more permissive with expletives can passivize unergative verbs more freely. By allowing an expletive in the subject position at S-structure, they can produce passives without the help of any NTC in the clause. A classic example for such languages is Dutch (Perlmutter 1978).

- (42) a. Er wordt hier door de jonge lui veel gedanst
 there is here by the young people much danced
 'There is danced here a lot by young people'
 b. Er wordt in deze kamer vaak geslapen
 there is in this room often slept
 'There is often danced in this room'

Welsh is very similar to Dutch in this respect, the difference being that it allows a null expletive (Perlmutter and Postal 1984).

- (43) a. Dannswyd gan y plant
 danced by the children
 'There was danced by the children'

¹⁹The resultative phrase itself is the NTC, i.e., the XP in (40), and the DP that moves to the accusative position is the specifier of the resultative. For example, in *pound the metal flat*, the constituent *the metal flat* is AP complement of *pound*, hence the NTC, and *the metal* is the specifier of the AP that moves to the [Spec, AccP].

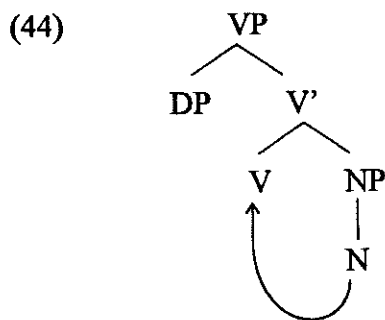
²⁰Whatever accounts for the absence of *there*-insertion in the unergative passives, as in **There were walked five miles (by Bill)* or **There was sung a song (by the neighbors)*, it is likely to be the reason that the passives of transitive verbs also block *there*-insertion: **There were read many books (by Sue)*. *There*-insertion is also restricted in the active forms of these verbs as well, e.g., **There sang a song* and **There read someone three books*, both of which are possible in languages like Dutch.

- b. Siaradwyd gan yr ysgrifenydd Cymraeg
 spoken by the secretary Welsh
 'There was spoken by the Welsh secretary'

In both languages, the subject position is occupied by an expletive at S-structure, which is overt in Dutch, but null in Welsh. By contrast, English does not license an expletive at the subject position with unergative verbs, which means these verbs can be passivized only when the structure contains an NTC-type phrase that can move to the [Spec, NomP].

An issue that does not arise in English is the fate of the expletive subjects of the unergative passives at LF in languages like Dutch and Welsh. Chomsky (1986a) proposes the procedure of expletive replacement, where the postverbal 'subject' in sentences like *There arrived three men* moves to the subject position to replace *there* at LF. This is motivated by the Principle of Full Interpretation (PFI), which requires that all elements that are maintained at the interface levels LF and PF be interpretable at their respective levels. An expletive is not a legitimate object at LF because it has no interpretive consequence, so it must be removed and replaced by an element with semantic content.

As a general principle, the PFI should also hold for the unergative passives of Dutch and Welsh, but it seems to be violated in (42) and (43), since there is no overt constituent in these examples that could possibly replace the expletives at LF. Hale and Keyser's (1991, 1993) theory of unergative verbs provide insight as to what kind of constituent could be replacing the expletive subjects in these examples. As mentioned above, their theory derives unergative verbs like *dance* and *laugh* by incorporating their cognate objects into a light verb that is equivalent to *do* at some pre-syntactic, lexical level. For example, they derive *dance* from *do (a) dance* by incorporating *dance* into *do*.



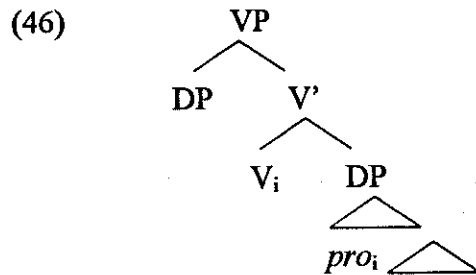
Regardless of whether the N-incorporation takes place in the lexicon or in the syntax, the effect of (44) is that an unergative verb binds a trace in its complement position in the syntax. As they acknowledge, this predicts that the complement position should not be occupied by any overt category at S-structure, even though, as discussed in chapter 4, unergative (inchoative- and causative-layered) verbs allow a variety of NTCs other than cognate objects, including BMPs, resultative phrases, and related objects, i.e., phrases that are not cognate objects themselves, but are taxonomically related to them.

- (45) a. Bill and Mary danced a waltz
 b. Sue sang a lullaby

c. John spoke wise words

These objects are categorically, functionally, and semantically close enough to the cognate objects *dance*, *song*, and *speech* to warrant a derivation similar to (44), but they are phonologically dissimilar enough to make it unlikely that the verbs *dance*, *sing*, and *speak* could be derived by incorporating *waltz*, *lullaby*, and *words* into a light verb like *do*.

It was argued in chapter 4 that the presence of cognate and related objects in the syntax would be compatible with a modified version of Hale and Keyser's theory, in which the verb binds (or controls) a pronominal category inside its complement rather than the trace of an incorporated N. This pronoun would have to be present in all types of NTCs.



In this view, the related objects in (47) would have roughly the following structure.

- (47) a. Bill and Mary dance_i [*pro*_i [a waltz]]
 b. Sue sing_i [*pro*_i [a lullaby]]
 c. John speak_i [*pro*_i [wise words]]

In instances where there is no overt cognate or related object, or any other NTC, the complement position would be occupied by the *pro* that is bound by the verb.

- (48) a. Bill and Mary dance_i [*pro*_i]
 b. Sue sing_i [*pro*_i]
 c. John speak_i [*pro*_i]

In these structures, this 'cognate' *pro*, which starts out as the complement of the verb, would be able to replace the expletive subject at LF.

In sum, the VP architecture of unergative verbs allows passivization without any major complications. The only restriction on the range of possible unergative passives is the ability of the language to license expletive subjects at the surface. Once a language allows expletive subjects, it can replace it at LF with either an overt or a covert NTC, including the cognate *pro*, as is the case in Dutch and Welsh. The replacement issue does not arise in languages like English that do not allow expletive subjects. Unergative verbs can be passivized only with the aid of an overt NTC in these languages.

3 Unaccusative Verbs

In the traditional view established by Perlmutter (1978) and Burzio (1986), the defining characteristic of unaccusative verbs is that their surface subjects start out as deep objects. As was the case with unergative verbs, it was argued in chapter 4 that unaccusative verbs also form two distinct verb classes rather than a single homogenous one, differentiated by

whether or not they participate in the null causative alternation. Null-specifier verbs such as *arrive* and *appear* cannot be transitivized with a null CAUSE, but the inchoative-layered verbs such as *sink* and *break* can be.

Despite the differences between the types of VP architecture they project, these two classes share their inability to license any constituent that could occupy an argument position, NTC or otherwise. Null-specifier verbs have the VP structure of traditional unaccusative verbs, so they cannot generate any constituent other than the thematic argument. Inchoative-layered verbs do license certain types of NTCs, but as argued in chapter 4, they license only a predicative complement, which rules out cognate and related objects. Presumably a result of the same property, their resultative complements do not have any DP specifiers, as in *The vase broke into pieces*, but **The vase broke its top into pieces*, and crucially, no argumental or referential BMPs, e.g., *The ship sank 500 feet*, but **These are the 500 feet that the ship sank*, see chapter 4.

Since they do not provide any overt or covert NTC to replace the expletive at LF, unaccusative verbs resist passivization even in languages that have a relatively more liberal distribution of expletive subjects, such as Dutch, Welsh, Ukrainian, and Icelandic.

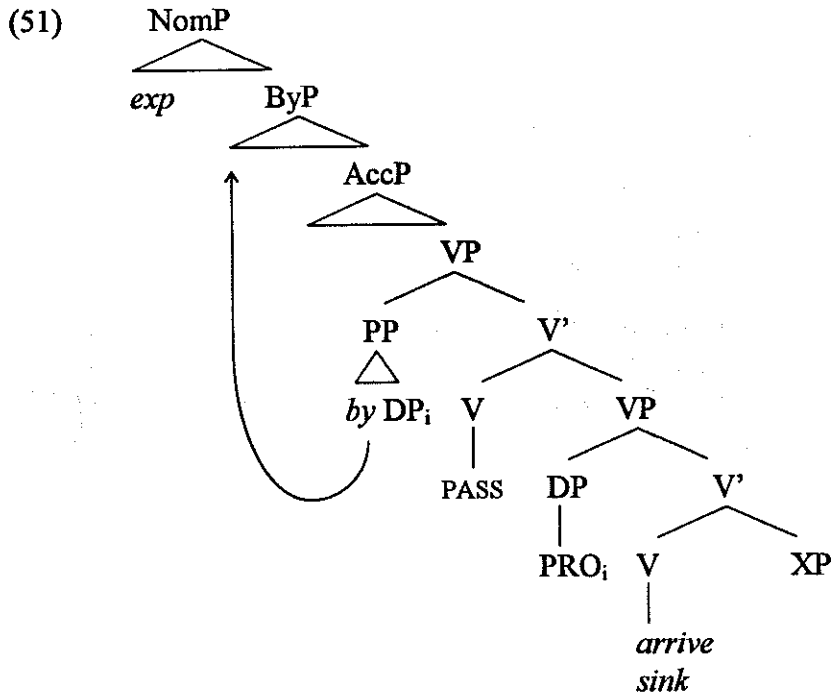
(49) Dutch (Perlmutter 1978):

- a. *In dit weeshuis wordt er (door de kinderen) erg snel gegroeid
in this orphanage is there (by the children) very fast grown
‘In this orphanage, there is grown very fast (by the children)’
- b. *In dit ziekenhuis wordt er (door de patienten) diswijls gestorven
in this hospital is there (by the patients) often died
‘In this hospital, there is died often (by the patients)’

(50) Welsh (Perlmutter and Postal 1984):

- a. *Tywyd gan y plant yn sydyn
grown by the children suddenly
‘There was grown by the children suddenly’
- b. *Marwyd gan y person yn yr ysbyty
died by the person in the hospital
‘There was died by the person in the hospital’

The passives of unaccusatives have the schematic layout in (51). The complement position of the lower VP is glossed over in order to provide a diagram that would unify the two distinct verb classes discussed in detail in chapter 4 (*exp* is the expletive subject).



It can be seen in (51) that the only nonoblique argument that can replace the expletive in the subject position is the controlled PRO. However, PRO cannot be raised to the [Spec, NomP] in this configuration because it would end up c-commanding its controller inside the *by*-phrase and trigger a Condition C violation.

In fact, moving the PRO to the subject position is precisely the strategy that is used in languages like Polish, Turkish, and German to passivize unaccusative verbs. The key factor that allows them to raise the PRO above the *by*-phrase is their ability to obliterate the control relation that holds between the two.²¹ Some relevant examples are as follows.

(52) Polish (Maling 1993):

- a. Dawniej umeriano mlodo
 before died-PASS young
 'There was died young in the old days'
- b. Znikano nam często z oczu
 disappeared-PASS we-DAT often from eyes
 'There was often disappeared from sight on us'

²¹Lithuanian also licenses unaccusative passives, but it does so by moving the *by*-phrase into the [Spec, NomP] position. Arguments in support of this claim will be presented in the next section in the context of double passives.

(53) Turkish (Knecht 1985)

- a. Bu yetimhanede çabuk büyü-n-ür
this orphanage-LOC fast grow-PASS-PAST-3SG
'There is grown quickly in this orphanage'
- b. Şu ormanda sık sık kaybol-un-ur
that forest-LOC often disappear-PASS-PAST-3SG
'There is often disappeared in that forest'

The raising of the (uncontrolled) PRO to the subject position triggers the arbitrary pro (pro-*arb*) interpretation, which accounts for the restriction on the types of unaccusative verbs that can passivize in these languages. Maling (1993) notes that the 'covert subject' of an unaccusative passive must be a human with an arbitrary reference, which was also reported for Turkish independently by Knecht (1985) and Özkaragöz (1986).²²

(54) Polish (Maling 1993):

- *Zwiednięto
wilted-PASS
'There was wilted'

(55) Turkish:

- a. Eskiden erken öl-ün-ür-dü
old.times early die-PASS-AOR-PAST-3SG
'There used to be died early in the old days'
- b. *Eskiden erken sol-un-ur-du/çürü-n-ür-dü
old.times early wilt-PASS-AOR-PAST-3SG/rot-PASS-AOR-PAST-3SG
'There used to be wilted/rotted early in the old days'

The verb *öl* 'die' can be passivized in Turkish, as in (55a), but only in reference to humans, as opposed to cattles. Likewise, the verbs *sol* 'wither' and *çürü* 'rot' in (55b) are not good as passives since they can only relate to things like flowers and tomatoes, but not to humans. It can be seen below that an uncontrolled PRO subject is capable of producing the same type of interpretation associated with a pro-*arb*.

- (56) a. It would be unpleasant [PRO to die in this place]
b. *It would be unpleasant [PRO to wilt/rot in this place]

The uncontrolled PRO in (56) must have a human referent, so it is not compatible with the verbs *wilt* and *rot* (apart from a person rotting in jail). Thus, the pro-*arb* readings with the verbs *sol* 'wilt' and *çürü* 'rot' above can be obtained by raising the passive PRO to the subject position.²³

²²Maling (1993) treats these passives not as passives, but rather, as an active impersonal construction where the subject is syntactically present in the structure as a pro-*arb*.

²³Quite possibly, an uncontrolled PRO is the same thing as a pro-*arb*, because PRO itself

PRO can be raised to the [Spec, NomP] position without violating the Condition C in (51) only if the control relation between PRO and the *by*-phrase is eliminated. In addition to the arbitrary PRO (or pro-*arb*) subject, the unaccusative passives of Polish, Turkish, and German also receive a generic event/state interpretation (see Sezer 1991 for Turkish).²⁴ The examples from Turkish and German below show such passives cannot describe specific events.

(57) Turkish:

- a. Bu hastalıktan çabuk öl-ün-üyor
 this disease-ABL quick die-PASS-PRES-3SG
 'There is died quickly of this disease'
- b. *Dünkü kazada hemen öl-ün-dü
 yesterday-REL accident-LOC immediately die-PASS-PAST-3SG
 'There was died immediately in yesterday's accident'

(58) German (Maling 1993):

- a. In diesem Büro wird jeden Tag pünktlich um 9 Uhr angekommen
 in this office is every day punctually at o'clock arrived
 'There is arrived punctually at 9 o'clock in this office'
- b. *Um 3 Uhr wurde (von meinem Onkel) (mit dem Zug) angekommen
 at o'clock was (by my uncle) (with the train) arrived
 'There was arrived at 3 o'clock by my uncle by train'

Passives of unaccusatives are good only in describing situations that are generic in nature, as are the sentences (57a) and (58a), which is why they are incompatible with adverbials that anchor the event in specific time, as in (57b) and (58b).²⁵

The obligatory pro-*arb* 'covert subjects' and the generic event/state interpretation are logically independent of one another. Specific subjects are compatible with generic event/states, as in *Bill eats his pizza with pineapples*, and the pro-*arb* interpretation is possible with specific event/states, as in *They voted republican during the last election in this town*, or as covert *by*-phrases in *The Challenger explosion was watched live all across the nation*. Therefore, there is no obvious reason why these two properties should cooccur in this particular construction, except for the possibility that one of them is an incidental by-product of the other. Specifically, assuming that the generic event/state

is the same thing as a pro, minus the capacity to trigger agreement or have independent reference.

²⁴Sezer (1991) claims that unaccusative passives are acceptable only with the aorist tense in Turkish. Although his observation is basically correct, dialects that allow the present tense to have a habitual interpretation tolerate the present with these passives.

²⁵The only instance where passives of unaccusative can describe a specific event in Turkish is as official reports to a superior, and it has a strong flavor of military jargon.

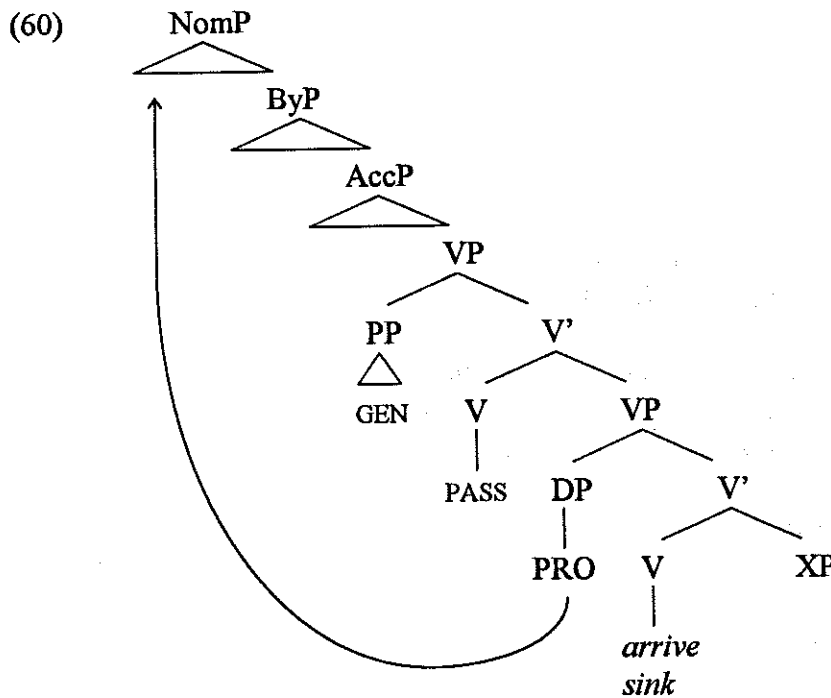
interpretation is contributed by the generic operator GEN, it would be plausible to suggest that the control relation between the PRO and the *by*-phrase specifier of PASS is disrupted when GEN is generated in the clause. It will suffice for the purposes of this work to presume that this interference is derived by generating GEN at the same position as the passive *by*-phrase.²⁶

(59) The Generic Passive Conjecture:

Languages where PASS optionally takes the generic event operator GEN as its specifier allow unaccusative passives.

When PASS takes a GEN specifier instead of a *by*-phrase, the PRO specifier of the lower VP is not controlled by any constituent, and it is free to move to the [Spec, NomP] in order to provide a subject for the clause.

The derivation of the unaccusative passives is illustrated below. The evidence that the generic operator GEN remains in situ in (60), and that PRO moves directly to the [Spec, NomP] without stopping over at the [Spec, AccP] will be presented in the next section in the context of the double passives of Turkish.



In essence, the ability of Polish, Turkish, and German to license the generic operator GEN

²⁶The actual relationship between GEN and the *by*-phrase is somewhat more complicated than what is claimed in (59). Evidence from Lithuanian suggests that the relation between unaccusative passives and GEN is much more complicated. The unaccusative passives of Lithuanian are just as generic as in Turkish, etc., but they do not raise the PRO to the subject position (*by*-phrases are possible in Lithuanian unaccusative passives).

as the specifier of PASS is what allows them to eliminate the control relation in the clause, thus enabling the movement of PRO to the [Spec, NomP] either at S-structure or at LF. Most languages do not have the option of introducing GEN through PASS in the first place, so whether or not they allow for an expletive subject, verbs of this class do not provide any constituent that could occupy the [Spec, NomP] position at S-structure or LF.

4 Double Passives

It appears more uncommon for languages to be able to passivize a clause that has already been passivized. Turkish allows up to two successive passive morphemes. The use of these double passives is quite regular and common, as noted by Özkaragöz (1986). A standard example for this construction is as in (61).²⁷

- (61) Bu odada döv-ül-ün-ür
 this room-LOC beat-PASS-PASS-AOR-3SG
 'There is been beaten in this room'

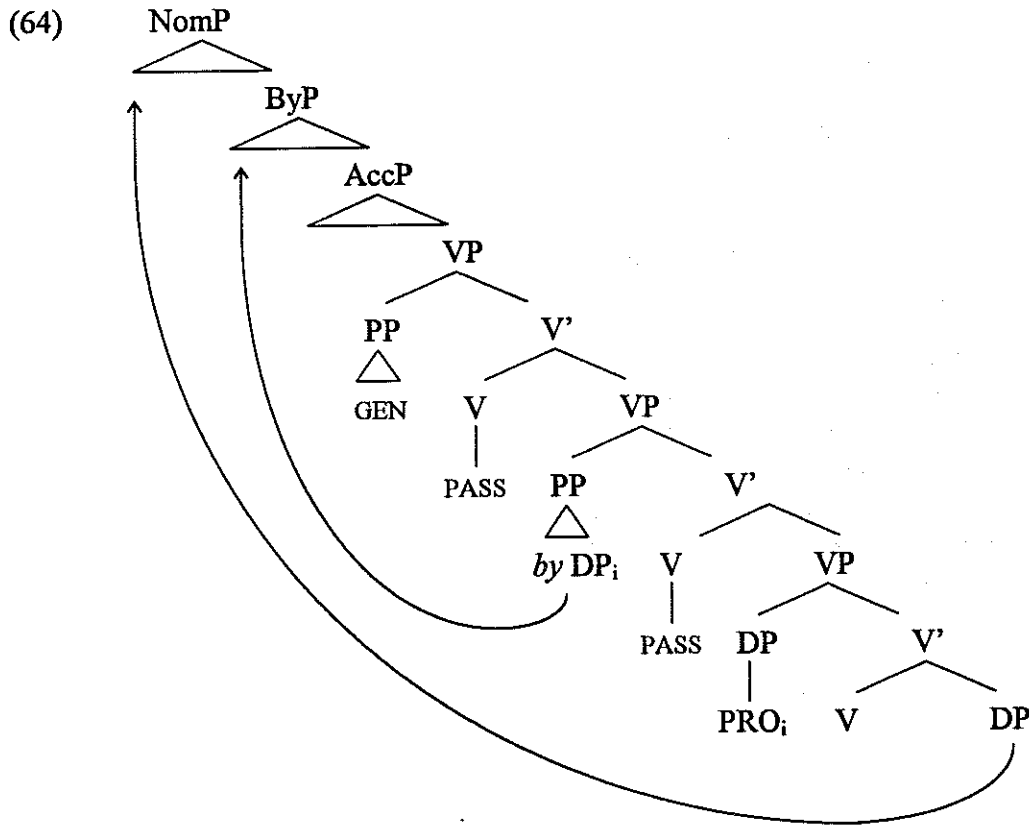
The properties of each passive morpheme is very different in this construction. The inner morpheme, i.e., the first PASS, is a regular passive with an overt *by*-phrase that allows the movement of the lower argument to the subject position, the [Spec, NomP]. The outer morpheme, i.e., the second PASS, does not further rearrange the alignment of arguments. Instead, it provides the generic event/state interpretation familiar from the unaccusative passives. However, unlike the unaccusative passives, double passives do not force the derived subject to be a pro-*arb*. This is because the second PASS preserves the changes made in the argument alignment by the first PASS, including the movement of a lower argument to the [Spec, NomP] position. The following examples contrast the single (regular) passives with the double passives in (62) and (63) respectively.

- (62) a. Bu odada (tutuklular tarafından) mektup yaz-ıl-ır
 this room-LOC (inmates by) letter write-PASS-AOR-3SG
 'Letters are written in this room (by the inmates)'
 b. Dün saat beşte burada mektup yaz-ıl-ıy-or-du
 yesterday clock five-LOC here-LOC letter write-PASS-PRES-PAST-3SG
 'Letters were being written here at five o'clock yesterday'
- (63) a. Bu odada (tutuklular tarafından) mektup yaz-ıl-ın-ır
 this room-LOC (inmates by) letter write-PASS-PASS-AOR-3SG
 'Letters are been written in this room (by the inmates)'
 b. *Dün saat beşte burada mektup yaz-ıl-ın-ıy-or-du
 yesterday clock five-LOC here-LOC letter write-PASS-PASS-PRES-PAST-3SG
 'Letters were been being written here at five o'clock yesterday'

²⁷There are two phonologically conditioned allomorphs of the passive morpheme in Turkish: *-(I)n-* after vowels and */I/*, and *-II-* elsewhere.

Leaving aside the status of the lower argument *mektup* for the moment, the important point is that the passives in both (62a) and (63a) are compatible with a *by*-phrase, which is introduced by the first (or only) PASS. The second PASS in (63b) is responsible for the generic interpretation, which makes the temporal modification ungrammatical.

The configuration that yields double passives in Turkish is as follows.



The higher PASS in (64) licenses the generic operator GEN, as in the case of unaccusative passives. The lower PASS is a regular passive that introduces a *by*-phrase specifier that controls the PRO in the specifier of its complement VP. Crucially, the movement of the lower argument to the [Spec, NomP] cannot proceed through the [Spec, AccP] in this construction, which is suggested by an interesting paradox observed in Turkish double passives. Recall from section 1.2.3 that derived subjects must move to the [Spec, NomP] through the [Spec, AccP]. In double passives, however, the only phrases that are allowed as derived subjects are the ones that correspond to the nonspecific objects of Enç (1991), which cannot be Case marked for the accusative. An object of the active clause that must bear the accusative Case cannot be the derived subject of a double passive.²⁸

²⁸There is no comparable restriction in the regular passives with a single PASS.

- (65) a. Bu bölümde çalışanlar başbakan-a demeçler(*i) yaz-ar
 this department-LOC workers P.M.-DAT statements-ACC write-AOR-3SG
 'People who work in this department write statements for the prime minister'
- b. Bu bölümde çalışanlar başbakan-ın demeçleri*(ni) yaz-ar
 this department-LOC workers P.M.-GEN statements-3SG-ACC write-AOR-3SG
 'People who work in this department write the prime minister's statements'

In (65a), the object *demeçler* 'statements' is a non-specific phrase, so it cannot bear the accusative marking.²⁹ Although the object *başbakanın demeçleri* 'the prime minister's statements' (65b) is semantically just as nonspecific as the object *demeçler* 'statements' in (65a), it is treated as a specific phrase because of its possessive morphology. It is precisely this specific form that cannot become the derived subject in double passives.

- (66) a. Bu bölümde başbakan-a demeçler yaz-ıl-ın-ır
 this department-LOC P.M.-DAT statements write-PASS-PASS-AOR-3SG
 'Statements are been written for the prime minister in this department'
- b. *Bu bölümde başbakan-ın demeçleri yaz-ıl-ın-ır
 this department-LOC P.M.-GEN statements-3SG write-PASS-PASS-AOR-3SG
 'The Prime minister's statements are been written in this department'

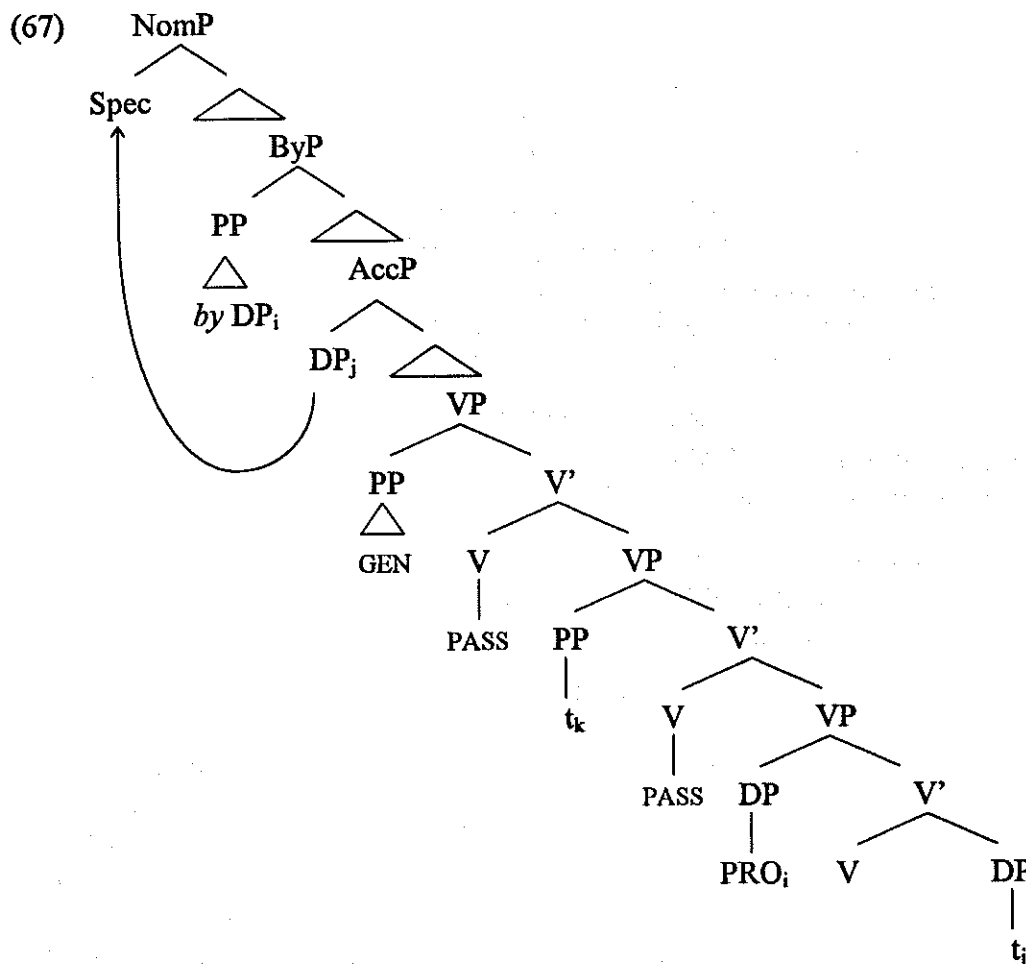
Both event/states described in (66) are equally generic, and both derived subjects are equally nonspecific. However, the only one that can be passivized is the one that cannot bear the overt accusative in the active clause in (65a). The possessive form in (66b), which must bear the accusative Case in the active clause in (65b) cannot be passivized.

The reason that a phrase that has moved to the [Spec, AccP] position cannot move further to the [Spec, NomP] is that it freezes there because of the presence of GEN in (64) above. Recall that the movement between the [Spec, AccP] and the [Spec, NomP] is a response to two independent requirements. (a) The mandate of the EPP (Chomsky 1982) that every clause have a subject, which neither PRO nor the *by*-phrase can satisfy, and (b) the well-defined pattern of movement to the structural licensing positions shown in chapter 3, where the lowest argument inside the VP moves to the lowest licensor, and the next argument moves to the next licensor, and so on (argument shift and other anomalies notwithstanding). In ordinary passives, the [Spec, NomP] remains unoccupied after all arguments move to their respective licensing positions, and the EPP forces one of these arguments to move further up to fill it. The argument that ends up in the [Spec, NomP] comes from some licensing position, but without having any non-nominative Case licensed in that position. The lowest unlicensed argument at this stage is the one at the [Spec, AccP], which is why it is raised to the subject position, [Spec, NomP].³⁰

²⁹The plural suffix feels somewhat awkward in (65a), but it is kept here to preserve the parallelism with the object of (65b), which is far more natural with the plural.

³⁰This argument is coherent only if it is assumed that these 'cycles' are defined in the

The freezing effect is observed in (67), which is an intermediate stage in the derivation of (64), where the 'specific' derived subject has landed at the [Spec, AccP].



The DP_j in the [Spec, AccP] position is not the lowest argument at this stage since the generic operator GEN is below the AccP.³¹ Assuming that GEN does not move at all, or moves no higher than the AccP level, no phrase that lands at the [Spec, AccP] would qualify as the lowest phrase and be moved to the [Spec, NomP]. It would simply freeze at the [Spec, AccP]. No such problem arises in regular passives, because without any GEN, the phrase at the [Spec, AccP] remains the lowest argument after the first 'cycle'.

totality of all the movement that takes place in the clause, presumably as an output condition on LF. Otherwise, a phrase that is licensed at LF, e.g., a dative or a *for*-phrase in Turkish, would be the lowest argument in the clause after S-structure, and would be expected to move to the subject position over the 'accusative' argument, which is licensed at S-structure. An output condition of this kind is compatible with the representational view of the syntax adopted in this work.

³¹PRO is excluded in this discussion because it is never licensed as an XP.

Crucially, the nonspecific objects in (64) and (65) avoid the problems associated with (67) because they do not move to the [Spec, AccP] in the first place. They certainly do not at S-structure, and apparently, not at LF either.³² Because they remain in situ, they can move directly to the [Spec, NomP] and replace the (null) expletive at LF.

The same procedure that licenses the double passives of transitive verbs also yields the double passives of unergative verbs (unergatives as defined in section 2).

- (68) Bu oyunda sürekli gül-ün-ül-ür/bağır-ıl-ın-ır
 this play-LOC constantly laugh-PASS-PASS-AOR-3SG/yell- PASS-PASS-AOR-3SG
 'There is been laughed/yelled constantly in this play'

The laughing and yelling are presented as generic events in (68) that take place in a play context. The inner passive morpheme, the first PASS, produces the regular passive version of the clause along the lines of the unergative passives discussed in section 2. The outer passive morpheme, the second PASS, introduces the generic operator GEN, much like the way it does in the unaccusative passives and double passives. By contrast, unaccusatives, i.e., inchoative-layered and null-specifier verbs, are not compatible with double passives.

- (69) *Bu oyunda sürekli aynı yere düş-ül-ün-ür
 this play-LOC constantly same place-DAT fall-PASS-PASS-AOR-3SG
 /var-ıl-ın-ır
 /arrive-PASS-PASS-AOR-3SG
 'There is been fallen/arrived on/at the same place constantly in this play'

The play context fails to license the second passive with these verbs because the generic operator is already introduced by the first PASS, see section 3. The second GEN provided by the second PASS creates a configuration of vacuous quantification, since the event/state in the lower VP has already made generic by the first GEN.

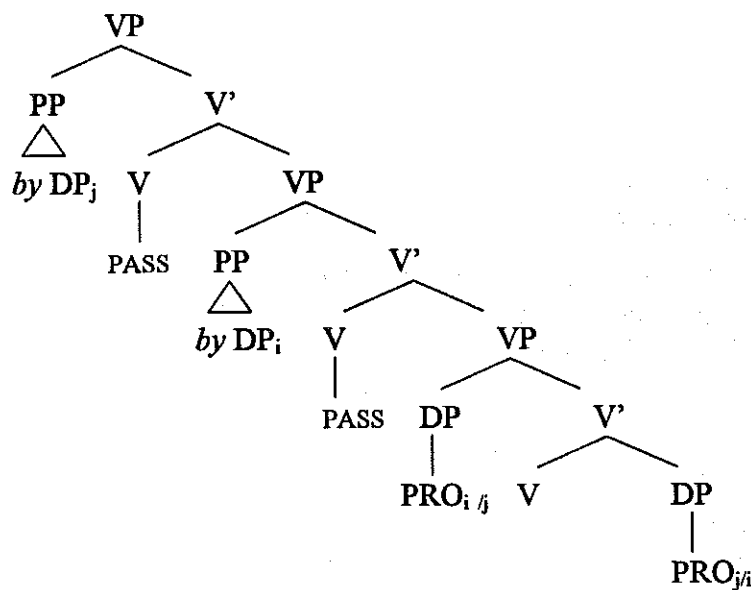
An outstanding problem that remains to be addressed in this section is why the second PASS cannot be a regular PASS that introduces a *by*-phrase in Turkish. There are essentially two possible control patterns that would emerge if the higher PASS were allowed to be a control predicate with a *by*-phrase specifier. It will be shown below that each option is ruled out for independent reasons.

4.1 Parallel Control

Consider first the case of 'parallel control', where both *by*-phrases attempt to control a different argument inside the core VP complex. This is schematized in (70) below.

³²There are arguments presented in Kural (1992) showing that the nonspecific objects remain in situ and do not get incorporated into the verb at S-structure. The ability of nonspecific objects to maintain the measuring-out function may be a scopal phenomenon.

(70)



There are two possible sets of pairings between the *by*-phrases and PROs: Either (a) the higher *by*-phrase controls the higher PRO, while the lower *by*-phrase controls the lower PRO, or (b) the higher *by*-phrase controls the lower PRO, while the lower *by*-phrase controls the higher PRO. The effect of either pairing, if successful, would be seen most clearly with three-place verbs such as *ver* 'give' in Turkish. The *by*-phrases would control both the agent and the goal arguments of the giving, while the theme argument would become the derived subject. However, this is not the case, as seen below.

- (71) a. Ahmet Ayşe'ye o kitabı ver-di
 A.-NOM A.-DAT that book-ACC give-PAST-3SG
 'Ahmet gave that book to Ayşe'
- b. *O kitap (Ahmet tarafından) Ayşe tarafından ver-il-in-di
 that book (A. by) A. by give-PASS-PASS-PAST-3SG
 'That book was been given (by Ahmet) by Ayşe'

Since Turkish allows only one *by*-phrase per clause, the agentive *by*-phrase is optionally dropped in (71). The crucial point here is the unacceptability of generating a goal as a *by*-phrase. If (70) were a viable structure for Turkish, the goal argument would be acceptable as a *by*-phrase, but it is not.³³

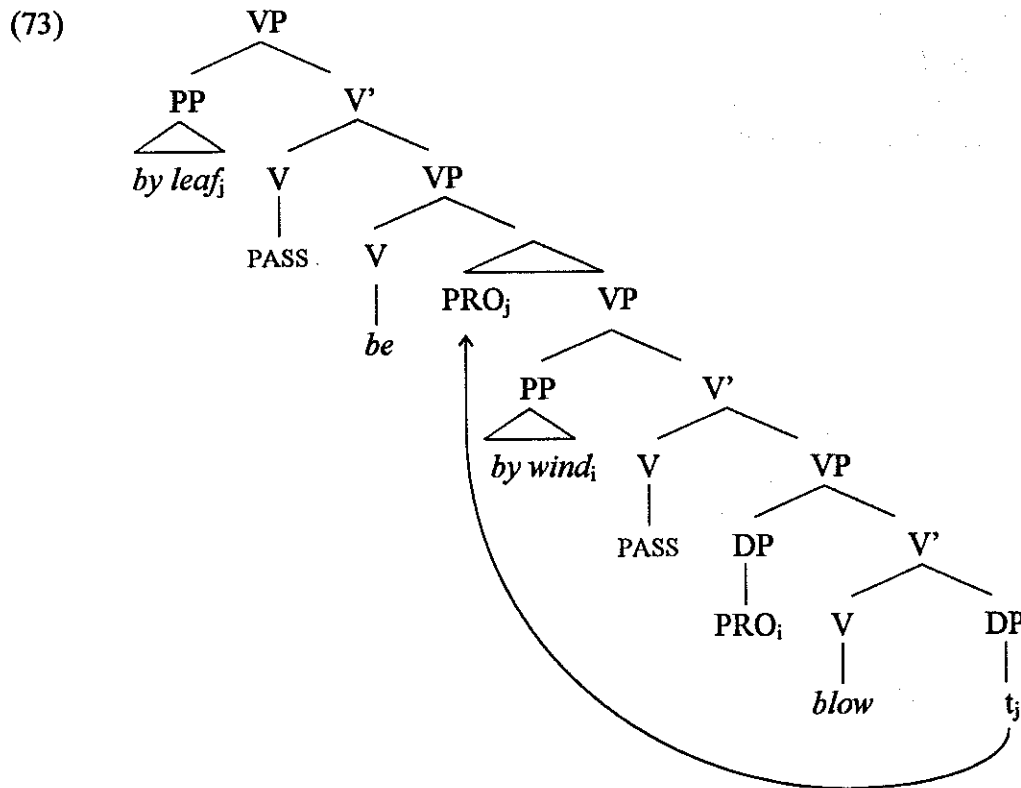
The configuration in (70) is not possible in Turkish because one of the *by*-phrase-PRO pairs would have to form a control relation across the other *by*-phrase-PRO pair, which clearly violates the locality requirements on control. One way to overcome this

³³Turkish regularly drops objects, so opting for a null version of the goal *by*-phrase *Ayşe tarafından* 'by Ayşe' in the double passive in (71b) would cause an ambiguity where it is interpreted as a covert dative pro-*arb*, which is irrelevant in this discussion.

problem would be to partially raise one of the PROs above the first passive VP to a position between the two *by*-phrases. In fact, this is an option that is available in Lithuanian. The following example is taken from Timberlake (1982).

- (72) To lapelio bu2ta ve%jo nupu2sto
 that leaf-GEN be/PASS wind-GEN blow/PASS
 'By that leaf there was been blown by the wind'

The second passivization that produces (72) is essentially a regular passive. It takes the single passive equivalent of *That leaf was blown by the wind*, and passivizes it so that the derived subject now appears as a *by*-phrase, i.e., the equivalent of *There was been blown by that leaf by the wind*. Two distinct *by*-phrases indicate two distinct control relations, which is possible if the PRO that is controlled by the higher *by*-phrase is raised past the lower *by*-phrase and establishes its control relation at this derived position. This procedure is schematically represented as in (73).



Once the lower PRO is moved to some intermediate position marked with a triangle in (73), it can be controlled by the *by*-phrase *to lapelio* 'that leaf-GEN' without breaking the control relation between the higher PRO and *ve %jo* 'the wind-GEN'.³⁴

³⁴This procedure is analogous to the control of a passivized clause.

- (i) Bill_i tried [PRO_i to be appreciated t_i]

Lithuanian allows for such regular double passives because it has auxiliary verbs that are morphologically independent, as opposed to the morphologically dependent auxiliaries of Turkish.³⁵ Perhaps more to the point, Lithuanian auxiliaries seem to take a well-articulated clausal component that provides a landing site for the lower PRO. In this sense, Lithuanian auxiliaries behave more like raising verbs than tense-like projections. As observed by Keenan and Timberlake (1985), raising verbs can also passivize in Lithuanian.

- (74) Jo pasirodyta esant didvyrio
 he-GEN seem/PASS-N/SG being hero
 'By him it was seemed to be a hero'

There is no apparent reason to assume that the passives of the raising verbs in Lithuanian would have a configuration that is different from the double passives with auxiliary verbs. That is, it should be possible to replace *buta* 'be-PASS' in the double passive (73) with *pasirodyta* 'seem-PASS'. In both structures, the availability of an intermediate position plays a key role in producing double passives that behave like regular passives.³⁶

4.2 Serial Control

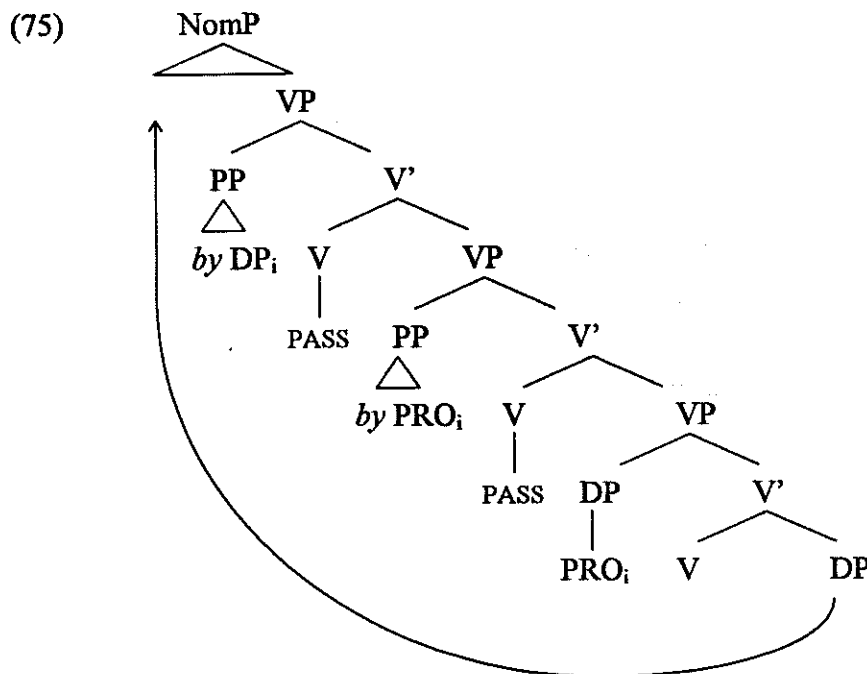
In the 'serial control' construction, the higher *by*-phrase controls the lower *by*-phrase, as illustrated schematically in (75) below.

³⁵My consultant points out that the second passive is possible only in the tenses that use auxiliary verbs. Without the auxiliary, the passive would not have a legitimate host.

³⁶These passives in Lithuanian are not ordinary though. Preliminary results suggest that the *by*-phrase raises to the subject position in Lithuanian. Note below that although the active form of the verb for *seem* can raise a lower argument to the matrix [Spec, NomP], (i), it cannot do so when it is passivized and when there is a *by*-phrase in the structure, (ii).

- (i) jis atrodo esamas herojum
 he-NOM seem be hero
 'He seems to be a hero'
- (ii) *zuvis jo pasirodyta valgytos
 fish-NOM he-GEN seem-PASS eat-PASS-PART
 'The fish was seemed by him to be eaten'

The unacceptability of *zuvis* 'fish-NOM' in (ii) suggests that the [Spec, NomP] is occupied, presumably by the *by*-phrase *jo* 'he-GEN'. *Zuvis* 'fish-NOM' is possible only if it agrees with the lower verb, *valgyta* 'eat-PASS', which may be a case of scrambling.



In this configuration, the *by*-phrase of the higher PASS controls the specifier of the lower PASS, which in turn, controls the specifier of its own VP complement.

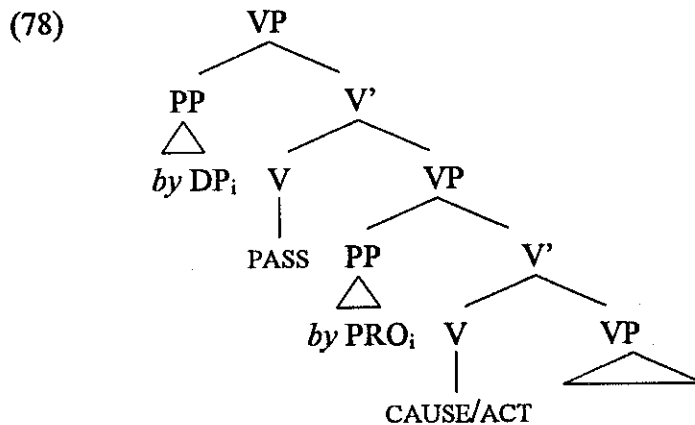
The *by* PRO that is generated as the specifier of the lower PASS in (75) in itself is not a problem. Controlled *by* PRO's are well tolerated in cases where PASS takes a VP complement headed by CAUSE or ACT, both of which introduce *by*-phrase specifiers, see chapter 4. An example for a causative VP embedded under PASS is given below.

- (76) a. Ahmet Ayşe'ye camı kır-dır-t-tı
 A.-NOM A.-DAT glass-ACC break-CAUSE-CAUSE-PAST-3SG
 'Ahmet made Ayşe break the window'
- b. Cam Ahmet tarafından Ayşe'ye kır-dır-t-ıl-dı
 glass A. by A.-DAT break-CAUSE-CAUSE-PASS-PAST-3SG
 'The window was made to be broken by Ayşe by Ahmet'

The relevant point in (76) is that the highest causer of the active clause in (76a) is *Ahmet*, which is generated as a *by*-phrase, and moved to the subject position after BY is incorporated from the specifier of CONT, see chapters 3 and 4. Embedded under PASS in (76b), this causer is now generated as a PRO that is controlled by the specifier of PASS, *Ahmet tarafından* 'by Ahmet', and yet, it is a perfect Turkish sentence. Likewise, a VP headed by ACT can also be passivized, as seen in (77b) below. The example in (77a) shows that without ACT, the verb *açıkla* 'explain' normally takes a Neutral subject.

- (77) a. Ahmet'in ortadan kayboluşu durumu açıkladı
 A.-GEN middle-ABL disappear-GER-3SG situation-ACC explain-PAST-3SG
 'Ahmet's disappearance without a trace explained the situation'
- b. Durum Ayşe tarafından açıkla-n-dı
 situation-NOM A. by explain-PASS-PAST-3SG
 'The situation was explained by Ayşe'

In both (76b) and 77b), the predicates CAUSE and ACT introduce *by*-phrases that are controlled by the *by*-phrase specifiers of PASS, i.e., *Ahmet tarafından* 'by Ahmet'. Both structures present very similar configurations, which are merged and schematized below.



The difference between the grammatical configuration of the passive of CAUSE and ACT in (78) and the ungrammatical passive of PASS in (75) is that PASS has the fundamental property of not allowing P-incorporation out of its specifier. This means that the problem with the serial controlled double passives (75) is not that the PRO argument of the lower PASS is generated as a *by*-phrase specifier, but that this lower PASS cannot eliminate the pre-/postposition of its specifier, whereas CAUSE and VOL can. Arguably, PRO cannot remain as the complement of an overt pre-/postposition, which forces the P to vacate its original position. Once the P is incorporated into the verb, the PRO can continue to be the specifier controlled by the *by*-phrase of the higher PASS, as is the case with the passivized CAUSE and ACT in (78). Without the P-incorporation, PRO would remain the complement of an overt *by*, and violate the principles that determine the distribution of PRO.

The effect of ruling out serial control in double passives is that it also explains why the passive morphology cannot be iterated more than twice in Turkish. In the first two instances of PASS, the structure contains a regular passive that generates the *by*-phrase and a generic passive that produces the GEN operator, in that order. An additional PASS in this situation would either present a *by*-phrase that attempts to control another *by*-phrase, which would cause problems with the unincorporated BY, or another GEN operator that creates vacuous quantification effects.

5 Conclusion

The theory of passives presented in this chapter uses the machinery that has already been put together in the previous chapters mostly for the causative construction. It keeps the grammar simplified because it does not use any novel procedures like role suppression or Case absorption. It also provides a more integrated view of passives where superficially unrelated constructions can be treated as distinct members of the same family of predicate-argument configuration that comprises of compatible components. By the same token, it would not be surprising to see this particular analysis of passives extended to a variety of impersonal constructions, such as the Romance impersonal reflexives, Finnish impersonal passives, or the Irish autonomous form. It is also very likely that the generic passives found in the unaccusative passives and the double passives in Turkish would be instrumental in accounting for the middle construction in English and other languages.

The theory presented in this body of work has argued for simple and straightforward structures that are crucially transparent in their semantic interpretation, and conforms to all the initial assumptions and goals discussed in chapter 1. The conclusions reached throughout the chapters constitute a coherent view, that is also empirically justified by facts in various languages.

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