THE SYNTAX OF ARGUMENT-STRUCTURE-CHANGING MORPHOLOGY

by

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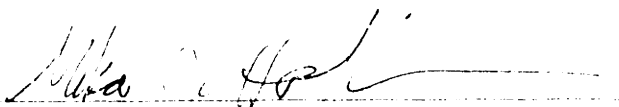Doctor of Philosophy in Linguistics

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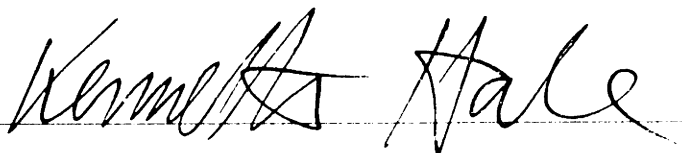September, 1991

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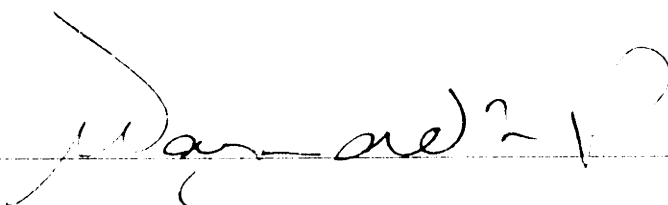Department of Linguistics and Philosophy
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ABSTRACT

The study of the causative and applicative constructions in Bantu languages gives us an insight into some complex applications of theories of argument structure and Case theory. This thesis develops a theory of lexical complementation which gives a unified account of causative and applicative constructions and double object constructions of all types: all these multiple object constructions are examples of predicate-predicate complementation. Causatives are examples of VP-VP complementation, while applicatives, locative alternation verbs, and dative double object verbs are examples of VP-PP complementation. Complementation involving PP is examined in some detail, as a theory of Preposition Inversion is developed and shown to be responsible for applicative asymmetries. In addition, a theory of licensing involving movement to functional heads accounts for a number of object properties in Bantu.

Chapter 1 gives the theoretical background for the thesis, which includes a syntactic theory of argument structure in which the argument structure of a predicate takes the form of syntactic trees, and head-to-head movement may take place at a level of representation known as lexical syntax.

Chapter 2 develops an account of licensing (Case-marking) in which NPs may be licensed in one of three ways: through Spec-Head agreement with a functional projection LP (Licensing Phrase), to which NP moves at LF; through sisterhood with a predicate head; and through Spec-Head agreement with a specially licensing lexical predicate. This chapter also shows how.this analysis explains the symmetrical object/asymmetrical object division among Bantu languages.

Chapter 3 focuses on applicative constructions in Chicheŵa, Kinyarwanda, and Sesotho, and dative, benefactive, and locative alternation verbs in English. It develops the basic notion that prepositions express relations between two grammatical items into a theory of Preposition Inversion, whereby a preposition can express the relation it denotes in either of two directions. If a P combines with an NP1 into a P' and is predicated of an NP2, the relation between NP2 and NP1 via P' may also be expressed by NP2 combining with P and being predicated of NP1. In addition, prepositions may relate either two entities (NPs) or an entity and an event (an NP and a VP); entity-entity prepositions are responsible for lexical variations such as locative and dative alternations, while entity-event prepositions are used in productive applicative constructions. Word order and object property differences among different types of applicatives in Bantu languages are accounted for using P Inversion to construct different hierarchical relations within a single type of structure involving a VP and a PP.

Chapter 4 examines causative constructions in a variety of languages (Turkish, Japanese, Chi-Mwi:ni, Chicheŵa, Kinyarwanda, Sesotho, Chamorro, and Quechua) and uses the theory of licensing developed in Chapter 2 to characterize the differences among them. Chapter 5 examines some residual issues, such as the co-occurrence of causative and applicative morphemes and WH-movement and NP-movement asymmetries in multiple object constructions.

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CHAPTER 1: INTRODUCTION

Multiple object constructions have a variety of manifestations across languages: included in this category are morphological causatives in languages like Turkish, Japanese, and the Bantu languages; dative and benefactive double object constructions in English; and applicative constructions in the Bantu languages. I define "multiple object construction" to mean any sentence with a single INFL which contains more than one nonsubject argument, regardless of whether any of the nonsubject arguments are marked by oblique case morphology or prepositions or postpositions. This loose definition covers not only the constructions mentioned above, but also locative alternation verbs in English, and perhaps serial verbs as well. The interest this type of construction has for the grammar is twofold: first, multiple object constructions raise questions concerning the assignment of Case to the object NPs when neither nonsubject argument is marked with an oblique morphological case or is the object of a preposition or postposition. Second, there needs to be a mechanism by which more than one object NP can be projected into D-structure; this connects the phenomenon with the question of how argument structure is projected and manipulated.

This thesis is a study of the consequences for the grammar of the existence of multiple object constructions. I claim that all multiple object constructions are examples of the complementation of lexical predicates, and explore the different ways this complementation can work in the lexicon and in the syntax to produce multiple object constructions. I also explore what multiple object constructions have to tell us about Case theory and the various ways in which NPs can be licensed. I focus on the Bantu languages, because many of them have at least three types of multiple object constructions, the first two of which are syntactically very productive: morphological causatives, applicative constructions, and lexical double object verbs. I also consider locative, dative, and benefactive alternations in English, as well as touching on causative constructions in Japanese, Turkish, and a few other languages.

The data I use come from the following sources, unless otherwise noted:

Chamorro: Baker (1988a) (originally from Gibson (1980).
Chichewa: Alsina and Mchombo (forthcoming).[1]
Chi-Mwi:ni: Kisseberth and Abasheikh (1977).
Imbabura Quechua: Cole (1982).
Japanese: Farmer (1984).   Sesotho: Machobane (1989).
KiMeru: Hodges (1977).   SiSwati: De Guzman (1987).[2]
Kinyarwanda: Kimenyi (1980).[3]   Turkish: Aissen (1974).

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[1]Following Alsina and Mchombo (forthcoming), the following tone markings are used in Chichewa examples: ´= high, ^= falling, ˇ= rising, ¯= long low, "=long high; short low tone is unmarked.

[2]Following De Guzman (1987), the following tone markings are used in SiSwati examples: ´=high, `= low, ' = lowered high tone, and ^= rising-falling tone.

[3]Following Kimenyi (1980), the following tone markings are used in Kinyarwanda examples: ´= high, ^= falling; low tone is unmarked.

The organization of the chapter is as follows: Section 1.1 gives a brief summary of the major points of this work; Section 1.2 is an overview of the theory of argument structure and projection I will be assuming. Section 1.3 outlines the theory of licensing to be presented in Chapter 2; finally, Section 1.4 discusses direct object properties and object symmetry and how they will be used here.

1.1   Overview of the thesis

The languages in the Bantu family can give us insight into the variety of multiple object structures, due to the richness of their systems of valency-increasing affixes. English, which has virtually no morphological case-marking and strict basic word order, has a few lexically conditioned constructions (dative double object constructions, benefactive constructions, and also certain small clauses, which I will not discuss) in which we find a postverbal noun not adjacent either to the verb or to a preposition, as in (1); but the Bantu languages, which are like English in having no morphological case-marking and strict basic word order, have constructions like this on a broader scale, mediated by affixes on the verb, as in the Sesotho examples in (2).

(1)   a. Robin sent Pat a present.
       b. Chris knit Lee a sweater.

(2) a. Banana ba-pheh-el-a 'me nama.
     girls subj-cook-appl-fv mother meat
     "The girls are cooking meat for my mother."
  b. Banna ba-pheh-el-a nama khotla
     men subj-cook-appl-fv meat courtyard
     "Men cook meat in the courtyard"
  c. Ntate o-bal-is-a bana libuka.
     father subj-read-caus-fv children books
     "My father makes/helps the children read a book."

Thus, while in English one could make the argument that double object constructions are due to specific lexical items having two internal θ-roles and that sometimes both internal θ-roles can be expressed without benefit of a preposition, such an argument for the multiple object constructions in the Bantu languages would miss the generalization that they are productive syntactically and are always associated with extra morphology on the verb. An analysis of English double object constructions along the lines of Larson (1988a), which involves multiple lexical heads, shows more promise of being able to unify the syntactic multiple object constructions in Bantu and the lexical double object constructions in English. I show that in fact all multiple object constructions cross-linguistically have multiple lexical predicate heads, involve head-to-head movement, and are subject to general conditions on licensing (which must, of course, be stated so as to cover both normal cases of adjacency and these double object cases).

As we saw in (2), there are two types of morphology-mediated double object constructions in Bantu languages: the causative and the applicative. Both constructions involve a morpheme (-el- in (a-b), -is- in (c)) attached to the verb which is correlated with an increase in the valency of the

predicate, so that an ordinary transitive verb now may be followed by two objects. One of the objects is the original object of the base verb; in a causative, as in (2c), the other object is the causee, while in applicatives the other object is the location (as in (2b)), instrument, or beneficiary (shown in (2a)) of the action of the verb. While many languages have affixal causative constructions, affixal applicative constructions are rare, and the fact that the Bantu languages have both gives us an opportunity to contrast two constructions that have many things in common. The family resemblance among the various Bantu languages also enables us to narrow down some aspects of the construction by comparing and contrasting the same constructions across languages.

My claim is that the sentences in (1) and (2) all involve essentially the same structure, given in (3), where X and Y are instances of either or the predicate categories V or P; the difference is that the causative and applicative constructions are formed in the syntax, while the dative and benefactive double object constructions in English are restricted to certain types of lexical items must therefore be formed in the lexicon.

(3)

```
              XP
            /    \
         NP1      X'
                /    \
              X       YP
                    /    \
                   /      Y'
                         /  \
                        Y    NP2
```
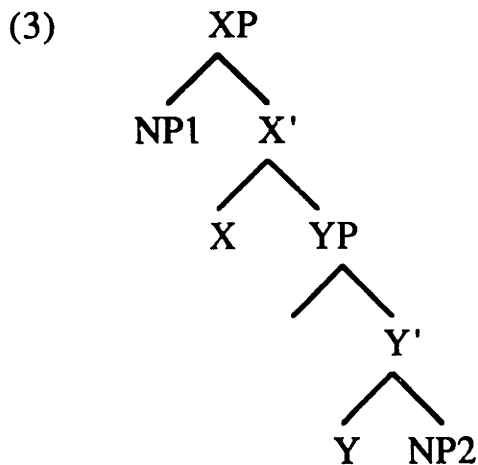
I will motivate the notion of predicate heads and the structure in (3) in Chapter 3, and discuss how they account for a variety of applicative constructions; in Chapter 2 I will discuss the theory of Case assignment (licensing) that is needed in order for the structure in (3) to account for the variations among different types of structures cross-linguistically. Chapter 4 shows how the analysis of multiple object constructions applies to causative constructions, and Chapter 5 surveys some other applications of and challenges for the theories presented in the previous chapters.

The analysis of multiple object structures I develop here rests on several assumptions: I assume that in order for syntactic relations to be uniquely determined, syntactic trees must be strictly binary branching (see Kayne 1981 and Larson 1988a for discussion), which means that verbs subcategorizing for two objects, such as English *give*, cannot have both objects sister to V. This is a fairly standard assumption in most current work, so I shall not discuss it further. The second assumption I make use of, following Marantz (1984), is that subjects are projected external to VP; I will discuss particulars of this later. Finally, I assume a model of

argument structure based on the work of Hale and Keyser; this is the topic of the next section.

1.2 Argument structure

1.2.1 Representation, categories, and movement operations

Argument structure has been the focus of much important recent work; while a good deal can be accomplished in syntax without inquiring closely into how D-structure is obtained, an explanation for the phenomena investigated here must take into consideration some aspects of the argument structure of predicates. I will therefore outline the model of argument structure to be used here; it is based on work in progress by Ken Hale and Jay Keyser, although there are differences in detail between their work and what I assume here.

The basic premise of the model is that what are normally known in the literature as "θ-roles" do not exist as independent units; insofar as they are relevant to the syntax, they can be reduced to specific structural and featural relations at the level of representation at which argument structure is represented. This level is known as lexical syntax (l-syntax), and can be seen as a structured component of the lexicon. The lexicon is thus made up of the standard lists of words plus trees representing argument structure for those lexical items that have argument structure; Move α can apply to these structures, resulting in two levels of syntactic representation in the lexicon itself. The standard model of grammar is thus extended to include syntactic structure in the lexicon, as shown in (4).

(4)

```
┌─────────────────────────────────────────────┐
│                   Lexicon                     │
├─────────────────────────────────────────────┤
│      list of words + argument structure trees │
│                      ↓                        │
│            1-syntactic d-structure            │
│                      ↓                        │
│            1-syntactic s-structure            │
└─────────────────────────────────────────────┘
                      │
                      ↓
        ┌─────────────────────────┐
        │   s-syntactic D-structure│
        └─────────────────────────┘
                      │
                      ↓
  ┌────┐      ┌─────────────────────────┐        ┌────┐
  │ PF │ ←─── │  s-syntactic S-structure │ ───→   │ LF │
  └────┘      └─────────────────────────┘        └────┘
```
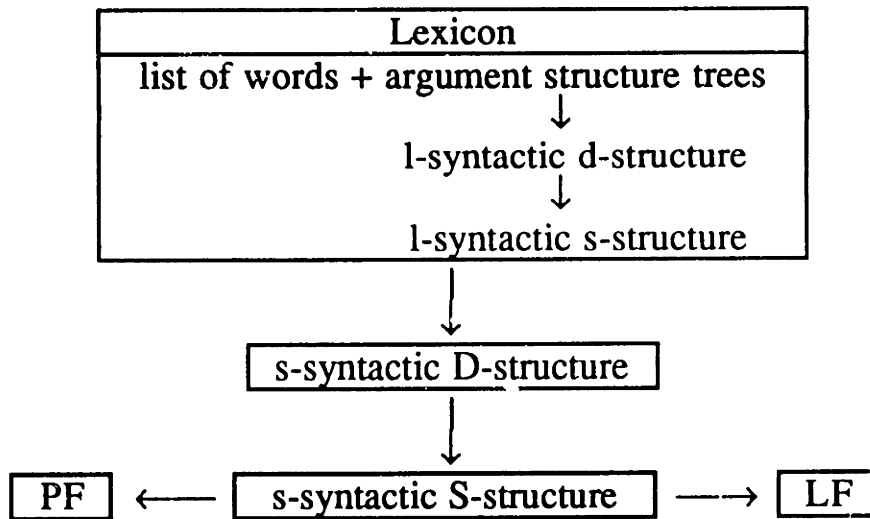
Argument structures look very much like trees in the surface syntax (s-syntax; that is, D-structure and S-structure), but they will be formed in the lexicon. The fact that syntactic movement rules can apply to these structures, forming the final lexical item that is inserted into the s-syntax (at D-structure), is what makes this model of argument structure syntactic; however, in this it is not radically different from any model which involves manipulations of argument structure. Consider an ordinary simple transitive verb such as *read*. It will have essentially the 1-syntactic representation of argument structure given in (5), where *read* is shorthand fo: he combination of phonological and semantic material that occupies the head of the argument structure; its s-syntactic D-structure representation will be virtually identical.[4]

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[4]I leave aside the question of the representation of external arguments until Section 1.2.2.3.

(5)   VP

    V'

    V   N⁵
    read
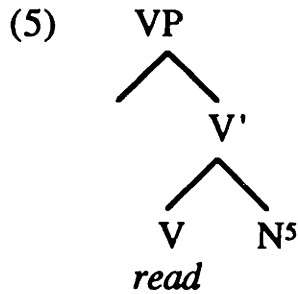
Unergative verbs such as *laugh* will have a structure similar to (5), but the phonological and semantic material will be based under N, which will generally incorporate into the V, leaving an intransitive verb.[6] Some verbs will have more complex l-syntactic structures, representing different semantic and thematic aspects of the predicate. For example, *cut* might have a structure such as the one in (6), where we can think of the structure intuitively as corresponding to a semantics along the lines of "cause N to become not-whole"; here the phonological and semantic material is associated with the head of the lower projection and incorporates into the V.[7]

---

[5]I have labeled this node "N" rather than "NP" because at this level only predicates project maximal projections. While it is not crucial whether the complement of V actually *is* N rather than NF, I label it as such as a reminder that the structure is an l-syntactic one.

[6]In some languages unergatives have this V + N structure on the surface; in Basque, for example, *laugh* is *barre egin*, where *barre* is the noun "laugh" in absolutive case and *egin* is the verb "do", and bears all the inflectional marking for this complex verb (Itziar Laka, class notes).

[7]This structure has the apparently simple verb *cut* taking a structure more complex than it surface syntactic form might suggest. See Pesetsky (work in progress) for arguments that phonologically null causative morphemes (higher verbal projections at l-syntax, in Hale and Keyser's model) actually exist in places where there is no causative/inchoative alternation.

(6)   VP

```
         VP
        /  \
           V'
          /  \
         V    AP
             /  \
            N    A'
                 |
                 A
                cut
```
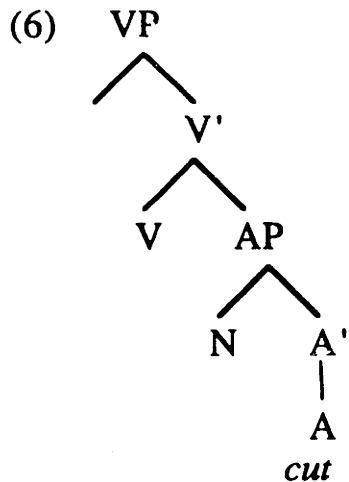
Verbs which participate in certain alternations, such as the causative/inchoative alternation, will have two different l-syntactic structures containing the same phonological and semantic material: for example, *break* will have a structure like that in (6) in its causative variant, but the inchoative will lack the upper V predicate, which is what gives the causative variant its "causativity". Taken literally, this implies that inchoative *break* is actually an A, not a V, but in this model the categories V and A (and also P, as we will see later) can all be thought of as subtypes of a single supercategory Predicate; roughly, V is the predicate designating actions or events, A is the predicate designating states, and P is the predicate designating semantic relations. An equivalent way of representing V, A, and P in the l-syntax would be to break down the category V into $V_{action/event}$, $V_{stative}$, and $V_{relational}$ respectively; I choose to use the category labels V, A, and P because they are typographically simpler and because at the level of l-syntax they have different attributes, even though they may all eventually correspond to the category V at s-

syntax.[8] Thus, both inchoative *break* and causative *break* will be members of the category V at s-syntax; the phonological and semantic material at l-syntax will be inserted under an A (stative predicate) at l-syntax for both cases, but the causative variant has a V (action predicate) added on top of the basic AP containing the phonological and semantic material at l-syntax. The ability of certain classes of predicates to appear either alone or as the complement of another predicate at l-syntax is semantically conditioned, and I will not provide an analysis here of why the alternation is allowed or of what the precise semantic condition is that distinguishes predicates that can alternate in this respect and predicates which cannot. See Pinker (1989) for a discussion of semantic classes which are relevant to argument structure alternations.

Like *cut* and causative *break*, zero-derived denominal verbs are are formed from structures in which the phonological and semantic material does not originate under the uppermost head of the l-syntactic structure, but in this case the material is placed in a complement position of a lower predicate rather than under the lower predicate head itself; this nominal

---

[8] I do not attempt to justify this position in detail here; briefly, one reason Ps may show up as Vs in the s-syntax is that they have no characteristic morphological form, and thus may adapt themselves to the form of a V. This may also be the case with adjectives, although the issue is confused by the fact that there are derivational morphemes which are characteristically adjectival . It may be that the A in (6) is in fact not a member of the same category as "true" adjectives, but is in fact a V with stative features on it. Since I do not discuss the causative/inchoative alternation here, nor any other l-syntactic operation involving A, I will not pursue the question further, but will take the A in (6) to be some predicate category semantically distinct from (action/event) V. A and P will also be able to surface as A and P in the s-syntax, of course, depending on the language and the particular lexical item.

head then moves through the lower head to the verbal head position, as shown in (7) for *shelve*.[9]

(7)

```
        VP
       /  \
          V'
         /  \
        V    PP
            /  \
          N1    P'
               /  \
              P    N2
           ["on"]  shelf
```
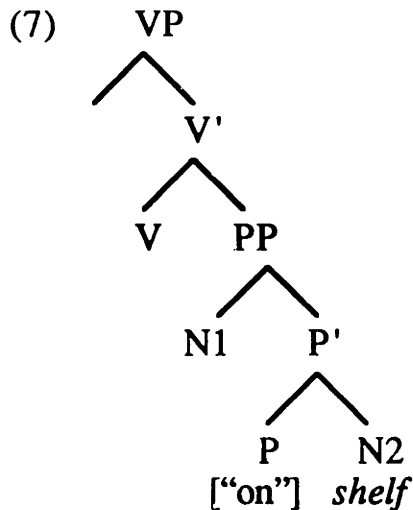
The head-to-head movement shown in (5), (6), and (7) results in a tree containing traces at l-syntactic s-structure; it is this structure that forms the input for lexical insertion into D-structure of the s-syntax. The traces of movement are not visible to s-syntax, nor are projections of heads which have moved; what the s-syntax "sees" is the familiar simple head-complement structure, as shown in (8) for *shelve* (*cut* and causative *break* will likewise have simple structures like (8) in the s-syntax).

---

[9]The "on" in brackets in this structure is meant to indicate features on the prepositional node. It is my contention that prepositions are represented in the lexicon by sets of features which determine the semantic roles of the preposition's arguments in the predicate. These features may or may not be associated with phonological material. See Section 1.2.2.1 and Chapter 3 for further discussion.

(8)　　VP

　　　　/\
　　　　　V'
　　　　　/\
　　　　V　　NP
　　　shelve
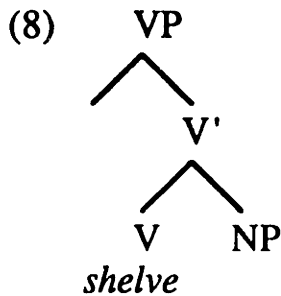
The structures given in (6) and (7) can be seen as the result of operations on argument structure. As discussed above, (6) is limited to certain semantic classes of predicates; however, given that denominal verb formation is very productive, it is probably not the case that we internalize a list of structures like (7) with different nouns in different places. Rather, the grammar allows us to take projections of lexical predicates (Vs, As, and Ps) and combine them; it is then possible to insert phonological and semantic material under one of the nodes in the structure. The structure in (7) is the result of a V taking a PP complement, and the phonological and semantic portion of the lexical item is inserted under a nominal head. There are, of course, constraints on this type of l-syntactic operation: the uppermost head is what determines the final lexical item to be inserted into the s-syntax, so by the end of the derivation it must be filled with phonological and semantic material--in other words, (7) is not a possible l-syntactic s-structure.[10] The general constraints on movement and the proper government of traces that apply in the s-syntax, such as the ECP and the Minimality principle (Chomsky 1986a) hold in the l-syntax as well,

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[10]Just as phonological and semantic material may choose to be entered under a lower head or a complement, there are cases in which this material is entered under the upper head in a structure like (7); the locative alternation and dative alternation verbs are examples of this, and they will be discussed in Chapter 3. Of course, in this case there will be no movement in the l-syntax, since the upper head is already legitimately filled with its phonological and semantic material.

with the result that certain types of predicate formation are illicit, specifically those involving incorporation from specifier position (see Hale and Keyser, work in progress, for details). The important point for my purposes is that the lexicon contains complex predicate structures and allows incorporation of one head into another, mirroring processes available in the s-syntax in many languages.

Although the degree of parallelism between the s-syntax and in the l-syntax with respect to syntactic structure and movement makes this model somewhat different from other models of argument structure, what sets it apart most is the claim that θ-roles are structurally determined. I now turn to this aspect of the theory.

1.2.2 Thematic relations, projection, and the UTAH

The traditional function of θ-roles has two parts: a θ-role is a label for the semantic type of argument a predicate may take and as such distinguishes among classes of predicates, and it is also a form of licensing in that a sentence is not grammatical unless each (non-expletive) noun is assigned a role. In Hale and Keyser's model there is no need for θ-roles, as their functions can be taken over by l-syntactic structural relations: the label aspect is captured by positing that different classes of predicates have l-syntactic structures that differ in certain definable ways, while the licensing aspect falls out if we assume that all nodes an l-syntactic structure projects to the s-syntax must be filled and that at the D-structure of the s-syntax every noun must be in a position projected by an l-syntactic structure. Three major questions arise from these assumptions: whether l-

syntactic structure alone can capture the differences among different θ-role labels, how this model satisfies the UTAH, and how external arguments are projected. For a more thorough discussion of these questions, see Hale and Keyser (in progress); I address them briefly in the following sections.

1.2.2.1 L-syntactic structure as thematic relations

One of the goals of Hale and Keyser's theory of l-syntax is to do away with the notion of θ-roles as independent labels. Given that there are only a limited number of specific θ-roles, it is natural to inquire whether there is a way they can be represented structurally. The claim of this theory is that in fact the semantics of a given predicate in conjunction with the relations its l-syntactic structure expresses should suffice to determine any (s)-syntactically relevant thematic properties. This is not a claim that there is a one-to-one correspondence between every θ-role mentioned in the literature and a structural relation (say, "specifier of lower V") at l-syntax. A structural position in a certain relation to a given head will generally be compatible with a number of θ-roles, and which specific θ-role the position corresponds to will depend on the semantics of the head. For example, consider the l-syntactic structure in (9), which is compatible with any of the verbs in (10): the N2 position (the position of the italicized NPs in (10)) is compatible with Locative, Goal, or Source θ-roles, and perhaps more. A Locative may be distinguished from a Goal or a Source not by the position of the relevant N with respect to a V and a P node, but by going beyond simple categorial labels in allowing a distinction among different types of prepositions.

(9)　VP

```
        VP
       /\
         V'
        /\
       V   PP
          /\
        N1   P'
            /\
           P   N2
```
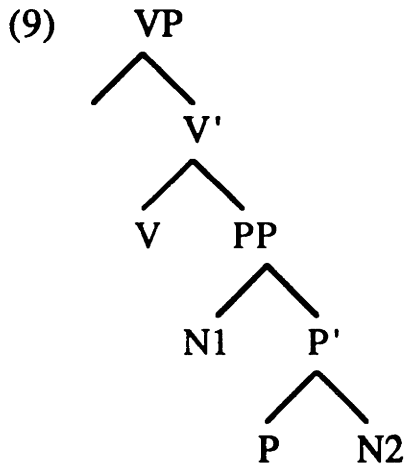
(10)　a. Pat put the book into *the box*.
　　　b. Lee took the dish from *the cupboard*.
　　　c. Chris sat on *the chair*.

The distinction among different types of prepositions is made by means of a set of semantic features under the P node. I assume that in addition to the phonological and semantic material associated with the V node in (9), a P in a predicate's l-syntactic structure may have a limited set of semantic features associated with it. Since P is a closed category (at l-syntax as well as at s-syntax), there are only a few semantic features needed to distinguish all existing prepositions, and we can restrict this further by allowing only one or two of these features to be thematically relevant; there is no need to allow full semantic representations of prepositions for the purposes of argument structure representation. I develop this notion further in Chapter 3; for now, the important claim is that the semantic content of a secondary head (that is, a head that is not the locus of the primary phonological and semantic material of the lexical item whose structure the tree represents) is relevant in distinguishing thematic relations in the l-syntax.

At this point, a digression on allowable semantic information in l-syntactic trees is necessary. An l-syntactic tree is not a "mini-sentence"; it is not intended to contain all the information available on the surface. Rather, it is a sort of detailed lexical entry for the predicate, giving full information about its meaning and phonological form, as well as its argument structure; but the fact that the nodes in the argument structure will correspond to specific lexical items after lexical insertion at s-syntax should not be taken to indicate that that same lexical specificity is present at l-syntax. In fact, only one head in an l-syntactic tree may be fully specified for phonological, morphological, and semantic features; this will be the head that ends up being the lexical item of which the tree is the argument structure, though, as we have seen, this item need not be generated under the uppermost head position, but may move there in the l-syntax. Lexical items other than the principal head are not inserted into l-syntactic trees, but are stored in the lexicon and inserted at the D-structure of the s-syntax. When a predicate, *put* for example, takes a PP complement, the specific P does not form a part of the predicate's argument structure, but some basic features indicating the type of preposition permitted with the verb are present (11a). Each preposition, *on* for example, has its own argument structure (11b), and when lexical insertion takes place ⊦ s-syntax, the argument structure for a preposition is superimposed on the argument structure of the verb in the appropriate place and with the specific item, if the features match up correctly. A preposition such as *for* would not be able to attach to the argument structure of *put* because it does not have the locative feature to match the one in the verb's argument structure.

(11) a.

```
            VP
           /  \
              V'
             /  \
            V    PP
            |   /  \
           put N    P'
                   /  \
                  P    N
                [loc]
```

b.

```
            PP
           /  \
          N    P'
              /  \
             P    N
             on
            [loc]
```
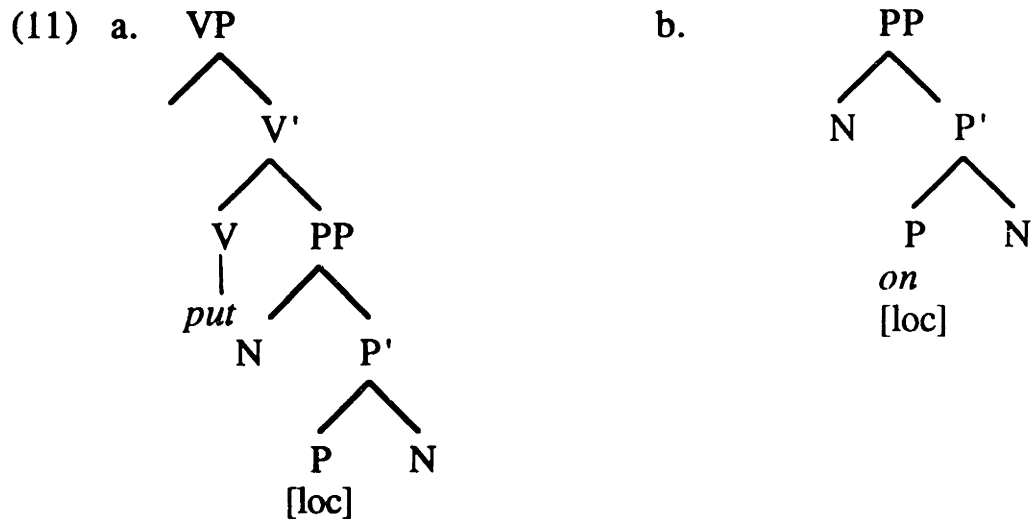
Thus, while it is important to have some basic semantic features present on secondary heads in the l-syntax, these may not be specific full lexical items: the argument structure of *put* does not have a different variant for *on*, *into*, *around*, etc., but rather selects a PP complement whose head bears features compatible with all the lexical prepositions *put* may take. What is important here is that predicates at l-syntax may carry semantic features even when they are not the one head fully specified for phonological and semantic form.

1.2.2.2 Projection to s-syntax and the UTAH

Let us now address the question of the Universal Theta-Alignment Hypothesis (UTAH), which states, "Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure" (Baker 1988a, p. 46). I mention it here because it and the Thematic Hierarchy (Carrier-Duncan 1985, Larson 1988a, Grimshaw 1990, etc.) have been influential in most theories of argument structure and the projection of argument structure to syntax.

Since Hale and Keyser's theory of l-syntax has no θ-roles and thematic relationships are actually determined structurally, then the UTAH is trivially satisfied if we substitute "l-syntax" for "D-structure". If l-syntax is then projected into s-syntax so as to preserve relationships between arguments and heads, the effect of the UTAH will be achieved.

The projection of l-syntax to s-syntax takes place according to the following principles: 1) Project predicate heads; 2) Project maximal projections from the heads in accordance with X' Theory; 3) Project arguments of the heads, preserving sisterhood relations. Preservation of sisterhood relations here means something looser than strict sisterhood: it means that if a projection headed by X and a projection headed by Y are sisters at l-syntax, the same must hold at s-syntax. Thus, if a V takes an N sister at l-syntax, that relation can be satisfied at s-syntax if either V takes NP as a sister or V' is sister to NP, as shown in (12): in other words, sisterhood at l-syntax may correspond to m-command at s-syntax without damaging thematic relations.[11]

---

[11]The other logical possibility, N sister to VP, will be ruled out for one of two reasons: First, s-syntactic relations must be "as close as possible" to their l-syntactic counterparts, entailing that an argument will not be projected outside the maximal projection of the head it is related to unless it is forced to (we will see an example of this in applicative constructions in Chapter 3). Second, if N were sister to VP, V would be unable to reach INFL to receive its inflection, since the only way it could do so would be by incorporating into N and thus becoming a noun.

(12) a. l-syntax   b.   s-syntax   c.   s-syntax

```
      VP                    VP                    VP
     /  \                  /  \                  /  \
         V'                    V'              NP    V'
        /  \                  /  \                  /  \
       V    N                V    NP               V    XP
```
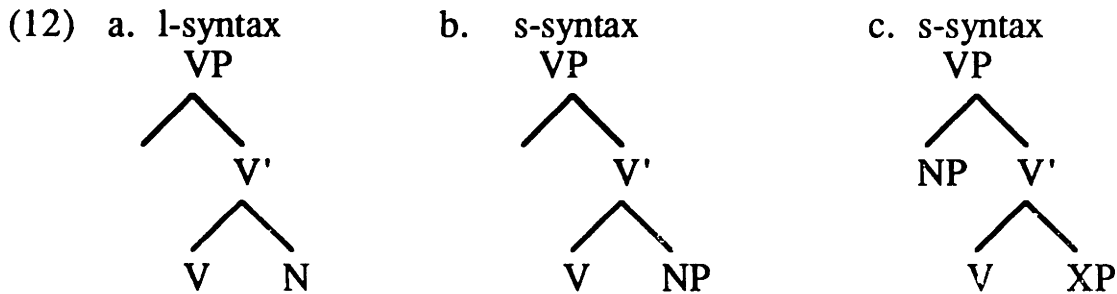
An object of V may thus appear in the complement of V in the normal case, or in the specifier of VP, if another predicate phrase must appear in the complement of V. In Chapter 3 we will see examples of this, and also examples of a case where a sisterhood relation between VP and P' at l-syntax is projected into a sisterhood relation between V and PP at s-syntax. In general, then, sisterhood at l-syntax may correspond to m-command at s-syntax, and it is this principle of preservation of relations that allows the language learner to determine lexical relations from D-structure relations.

1.2.2.3 External arguments

So far I have only considered the projection of arguments which are within the predicate at l-syntax. Following Marantz (1984), I assume that a predicate's external argument is projected external to the predicate: that is, subjects will normally be projected into Spec,IP[12] rather than within VP. This does not mean that Spec,IP is "subject position": it is the first available position outside of VP into which an NP of which the VP is predicated can go. Consider the structure in (13): when there are two VPs in a sentence, as in synthetic causative constructions, the external argument of the lower

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[12]Given the theory of licensing I adopt in Chapter 2, the position into which subjects are projected is actually Spec,AGRP, as INFL is broken down into several component parts. I continue to refer to Spec,IP as subject position for now, however, since IP and AGRP share the essential property of being functional projections above VP.

VP may be projected into the specifier of the higher VP (this is following Marantz 1989, 1990), since that position will be the first available position outside of the lower VP. The external argument of VP1 will be projected into Spec,IP; thus, there is a sense in which a causative has two "subjects" since it has two arguments projected external to the maximal projections that select them.

(13)   VP1
        /   \
      NP1   V'
             / \
            V   VP2
                /   \
                     V'
                    / \
                   V   NP2
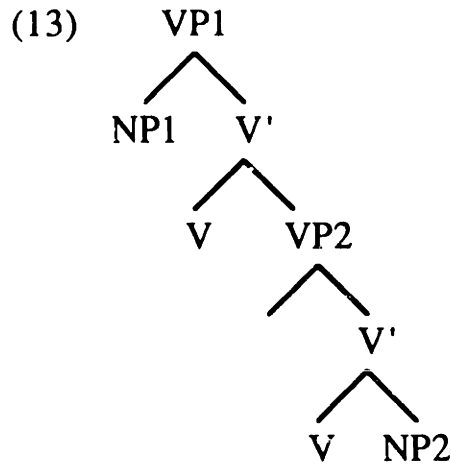
A refinement on the notion that subjects must be projected external to their predicate's maximal projection will become necessary in the discussion of applicatives and prepositions in general in Chapter 3: I claim that the notion "predicate" is not necessarily always equivalent to "maximal projection". Specifically, I claim that an essential difference between Vs and Ps in the s-syntax is that while a predicate headed by V is VP, P' is a complete predicate in itself. This means that while an external argument of V will always be outside VP in order to be external to V's predicate, the thing of which P' is predicated may appear in Spec,PP, in fact, I claim, must appear there if it can.

External arguments do not actually appear in the l-syntax, since l-syntax does not include projections beyond the maximal projection of the predicate whose argument structure is represented in a given tree. Instead, there must be some mechanism for determining whether or not a predicate will project an external argument at s-syntax. It may be possible to appeal to Burzio's Generalization and claim that Vs which are [+L] (roughly, transitive: see Section 1.3 and Chapter 2) project an external argument, while those that are not [+L] do not. Another possibility might be for verbs to be lexically marked for taking an external argument or not; there are a number of ways the grammar can ensure that all and only verbs which require external arguments get them. I will not consider this question further here, since for my purposes it is enough that external arguments do not appear at l-syntax and are projected externally to the predicate at s-syntax.

1.2.3   Lexical complementation in the syntax

So far we have considered cases in which structures may have multiple predicate heads at l-syntax , as in (7), but are reduced to single heads at s-syntax, as in (8). There are cases, however, in which multiple-headedness carries over into the s-syntax; causative and applicative constructions in the Bantu languages, as well as double object structures generally across languages, have multiple argument-taking heads under a single INFL at s-syntax (cf. Larson 1988a, Rosen 1989, Li 1990a,b). This is not an unconstrained option; since verbs must carry inflectional features obtained through government by or association with an IP, V-VP complementation in the s-syntax will be permitted only if somehow both Vs can share a single IP. This is generally done through syntactic incorporation; as we

will see in the Bantu causative constructions, the verbal complex includes both the causative morpheme and the verbal head with a single set of inflectional and aspect morphemes. When one predicate is a P at s-syntax, as with applicative, dative double object constructions, or verbs which take a prepositional argument, there is no such requirement for incorporation, since Ps do not need inflection. Thus, when a verb such as *put* requires the presence of a PP in its argument structure, the PP argument may appear on the surface without its head needing to incorporate into the V. Since English does not allow incorporation in the s-syntax generally, there are no V-VP constructions in the s-syntax in English.

This completes a brief account of the theory of argument structure I assume here. The major points that are relevant to my analysis are that prepositions have semantic features that are relevant for argument structure; that Vs and Ps may take other Vs or Ps as complements, both at l-syntax and at s-syntax (given certain constraints); that projection from l-syntax to s-syntax preserves sisterhood of (projections of) heads; and that external arguments are truly external. Many details remain to be ironed out, of course; some of them will be dealt with in the discussion of causative and applicative constructions in Chapters 3 and 4.

1.3 Licensing (Case Theory)

Ea:ly accounts of Case theory in GB theory (Chomsky 1980, 1981) had structural Case being assigned by a V or P directly to the NP it governs. More recently (Larson 1988a, Chomsky class notes 1990), more complex analyses of the nature of the assignment of structural Case have

been advanced, prompted by the problem of inherent Case in double object constructions, among other considerations. I will adopt what is essentially the analysis of Chomsky (class notes 1990) here, with a number of extensions to account for multiple object constructions and some changes in terminology. I outline the basic idea behind the analysis in this section; I discuss licensing more fully in Chapter 2.

The simplest notion of licensing is that all that is needed for the assignment of structural accusative Case for NP is a governing V. I will not dwell on this type of approach, but here is a brief example of how it must be complicated somewhat to account for the facts: Baker (1988a) notes that languages differ as to whether all nonsubject arguments of multiple-object constructions such as causatives and applicatives behave like true objects, according to the criteria to be set forth in Section 1.4, or only one of these arguments does. Kinyarwanda, for example, allows all objects to become subjects of a passive and trigger object agreement on the verb, while in Chicheŵa only the uppermost object may do so. A basic structure for a causative construction is given in (14), where NP1 is the causee, NP2 is the original object of the verb, and V2 incorporates into V1.[13]

_____

[13]This is also the basic structure for applicative verbs, except that one of the predicates is a P, not a V. I restrict myself to causatives here for simplicity; as Chapter 2 will show, this analysis extends naturally to applicatives as well.

```
(14)  VP1
      /\
   NP1   V'
        /\
      V1   VP2
      |    /\
    CAUS     V'
            /\
          V2   NP2
```
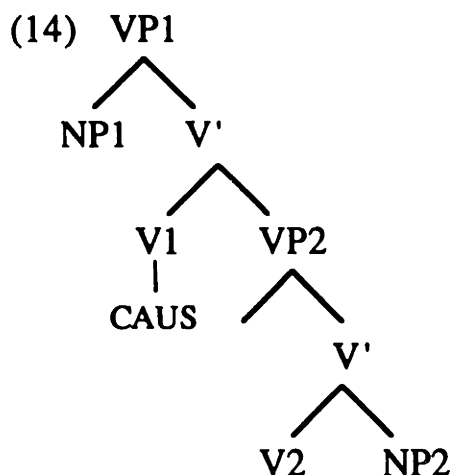
Suppose both objects in such constructions always get structural Case through government by V1 or V2: then Chicheŵa differs from Kinyarwanda in how far NP2 may move, or some such parameter--this would presumably be a property of the language as a whole. The problem is that this does not allow for a language behaving like Chicheŵa in one construction and like Kinyarwanda in another, yet this is exactly the situation in Sesotho. Sesotho causative constructions allow only the object in NP1 position (the causee) to behave like an object, while applicative constructions allow both the applied object and the lower object to have object properties. A language-wide parameter distinguishing Chicheŵa from Kinyarwanda would not allow Sesotho to vary as it does. Now suppose that the parameter of variation is how many Cases a complex V derived by incorporation can assign (this is essentially the parameter Baker (1988a) uses): this would be a property either of the languag· (verbs assign as many Cases as there are NPs in their government domains, for example), or of the particular verb (V1 may be a Case-assigner or not; this is the parameter Li (1990a,b) uses). Although this second option can

account for the variation in Sesotho, I believe there are advantages to considering options for Case-marking that involve more than just V.

Larson (1988a) and Chomsky (class notes, 1990) propose systems of functionally determined structural Case assignment: Larson (in a footnote) sketches an approach whereby INFL assigns Nominative and Accusative structural Case, while V assigns inherent Objective Case, and the trace of V assigns inherent Dative Case. An NP complement of V, for him, will be doubly Case-marked by V and INFL, INFL's Case being assigned through V. Chomsky (class notes) outlines a theory in which structural Case is a specifier-head relation at the level of Logical Form between NP and a functional head, AGR$_S$ for Nominative Case, AGR$_O$ for Accusative Case. Chomsky's theory also involves the participation of V for Accusative Case, as AGR$_O$ is only capable of assigning it if the V to which it is a sister is [+C], a Case-assigner. All NPs move to the relevant specifier position in order to stand in the appropriate relation to the Case-marking head. These two approaches are quite similar in that they require a relation between functional heads and V for structural Case assignment, but they differ in how precisely Case comes to be associated with an NP: for Larson, the NP need not move, but can simply be governed in situ by a V which in turn is governed by INFL. For Chomsky, an NP must move to get Case.

Now consider how such an approach can account for multiple object constructions. The tree in (15) shows a preliminary structure for a causative construction in Kinyarwanda, in which both objects have

canonical object properties. The question to be considered is how both NP2 and NP3 may be licensed.

(15) Umugabo áríubakiisha abáantu inzu. (Kinyarwanda)
"The man (NP1) is making the people (NP2) build the house (NP3)."

```
AGRPs
├── NP1
└── AGRs'
    ├── AGRs
    └── TP
        └── T'
            ├── T
            └── AGRPo
                └── AGRo'
                    ├── AGRo
                    └── VP1
                        ├── NP2
                        └── V'
                            ├── V1
                            │   │
                            │   [+C]
                            └── VP2
                                └── V'
                                    ├── V2
                                    │   [+C]
                                    └── NP3
```
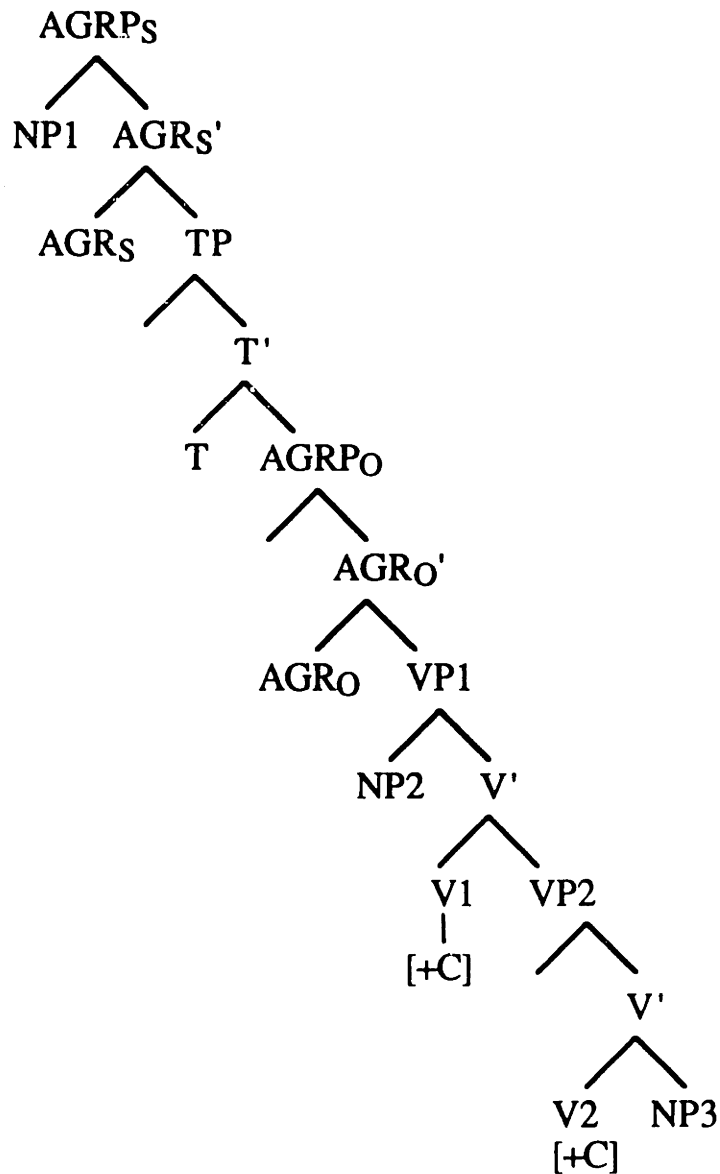
This approach has the advantage of having different licensing heads for different NPs (AGR-S for subject, LP for object); given this, we can say that in fact the structure in (15) should have two AGROs, one for each

[+C] verb and thus one for each object NP. Having a projection for transmitting Accusative Case distinct from the projection transmitting Nominative Case opens up the possibility that every instance of structural Case has such a functional head associated with it.

I will adopt Chomsky's idea that the NP moves to be in a Spec-Head relation with a licensing category, but I will refer to AGR_O as LP (Licensing Phrase) for typographical reasons and because I do not wish to imply that licensing (Case-marking) and morphological agreement are necessarily the same thing (this is not Chomsky's intention, as far as I know, but the labeling lends itself to that connection). I have also renamed the feature verbs must have to activate licensing on LP: I mark verbs which can participate with LP in licensing with the feature [+L]; a verb which is not [+L] will not be able to activate an LP for licensing. The structure in (15) should then actually be as in (16).

(16) AGRP_S

```
         AGRPS
        /\
      NP1  AGRS'
          /\
       AGRS  TP
            /\
              T'
             /\
            T   LP1
               /\
                 L'
                /\
              L1   LP2
                  /\
                    L'
                   /\
                 L2   VP1
                     /\
                   NP1   V'
                        /\
                      V1    VP2
                     [+L]  /\
                             V'
                            /\
                          V2   NP2
                         [+L]
```
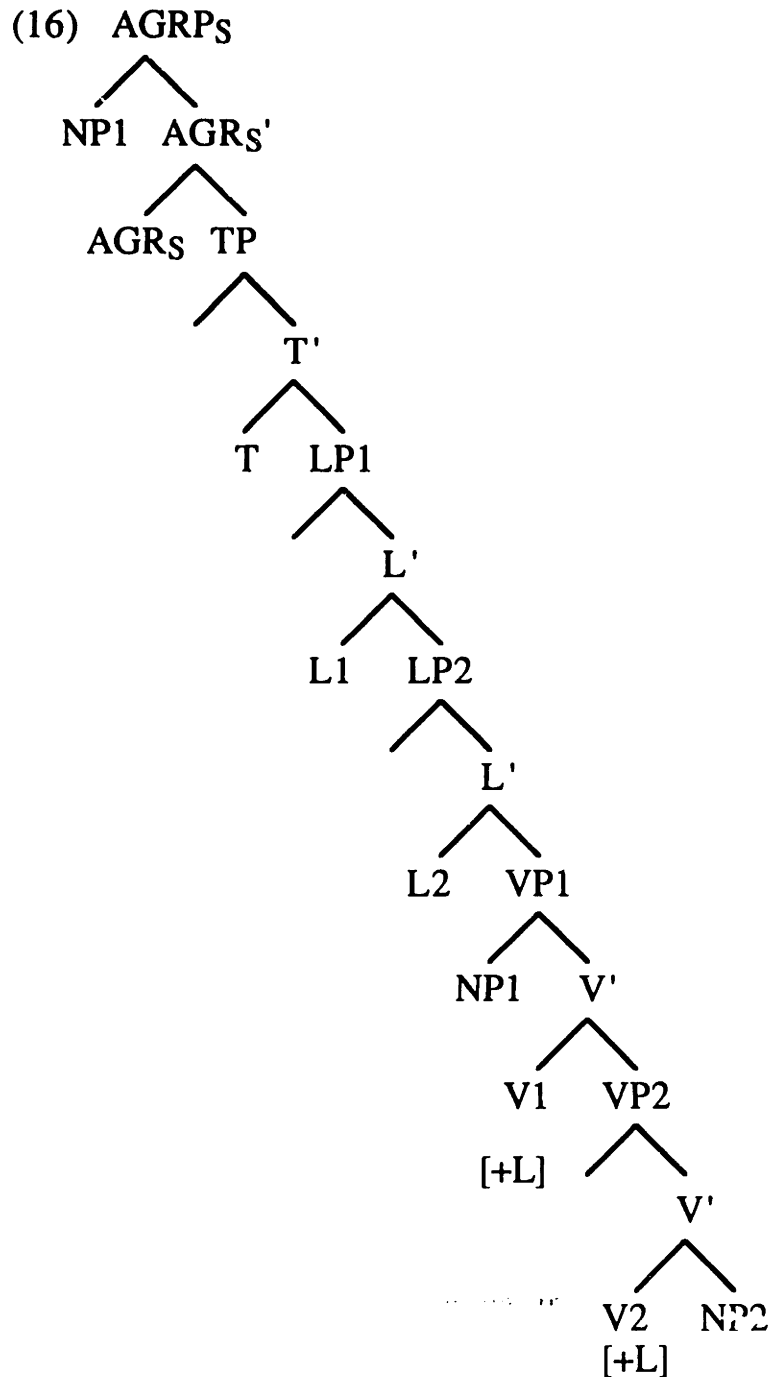
The difference between Kinyarwanda and Chicheŵa will be that Chicheŵa, like many languages (including English), allows only one instance of [+L] per sentence; in the structure corresponding to (16), V1 will suppress [+L] on V2, and there will be only one LP to go with the single [+L] verb. Kinyarwanda, as (16) illustrates, allows multiple [+L]

verbs. Finally, Sesotho allows multiple [+L] verbs, and has them in the applicative, but the causative verb has the lexical property of suppressing [+L] on the verb it governs, so the result will be the same as in Chicheŵa. In Sesotho and Chicheŵa, NP3 will be licensed through being the sister of a lexical verb; this is essentially the equivalent of inherent Case in traditional theories, but I make some modifications to that notion which I discuss in Chapter 2.

There are many more aspects of the theory of licensing to be specified, which will wait until the next chapter; for now, I simply note without discussion that "object properties" are associated with L-licensing (structural Case) and are not associated with sister-licensing (inherent Case). I will show how and why this is so in the next chapter; the next section shows what canonical object properties are and why they are relevant to the study at hand.

1.4 Object properties and object symmetry

The causative and applicative constructions in the Bantu languages often result in more than one postverbal NP without any morphology distinguishing one NP from the other, yet in many of the languages the postverbal NPs do not show the same syntactic properties. Many studies of the Bantu languages (Kimenyi 1980, Hyman and Duranti 1982, Kisseberth and Abasheikh 1977, Gary and Keenan 1977, Bresnan and Moshi 1990, to name a few) have demonstrated particular syntactic processes which only "true direct objects" may undergo. The ability to participate in these processes is called a "primary object property" by Bresnan and Moshi

(1990); I will refer to the property as "canonical object property" or simply as "object property". Constructions in which all nonsubject bare NPs have object properties, such as Kinyarwanda causatives or (most) applicatives, are "symmetrical object constructions", and languages which allow them are "symmetrical object languages", while constructions in which some nonsubject bare NPs have object properties and others do not are "asymmetrical object constructions"; languages which have no symmetrical object constructions are "asymmetrical object languages" (terminology from Bresnan and Moshi 1990). A familiar example of an asymmetrical object construction is the two postverbal NPs in the English double object construction, where the recipient object may become the subject of the passivized double object verb but the other object may not, as shown in (17).[14]

(17) a. Robin sent Pat a card.
      b. Pat was sent a card (by Robin).
      c. *A card was sent Pat (by Robin).

The contrast in (17) tells us that the two postverbal NPs in (17a) do not share the same properties with respect to A-movement; *Pat* has a property that *a card* lacks, and is thus considered to be a true object in a sense that *a card* is not. In the Bantu languages, there are typically clusters of properties shared by canonical objects; these are used as tests for objecthood. Passive and object marking provide the most consistent and

---

[14]This is not necessarily as strong a contrast as I have depicted. Larson (1988a) notes that when the indirect object is a pronoun, sentences like (17c) improve, so that *A card was sent me* is approaching acceptability (and in fact is completely acceptable in some dialects).

easiest to use tests, and these two are what I will use throughout; I present them here, along with a review of other tests for objecthood used in the literature.

1.4.1 Passive

As we saw in (17) for English, the ability to become the subject of a passive is not a property necessarily held by all nonsubject NPs. In particular, objects of prepositions in the Bantu languages cannot generally become the subjects of passives,[15] as shown in (18) for Kinyarwanda, while bare NP objects can.

(18) a. Umugabo a-ra-andik-a íbárúwa n'ííkárámu .
man subj-pres-write-asp letter with pen
"The man is writing a letter with the pen."

b. *Íkárámu i-ra-andik-w-a íbárúwa (na) n'ûmugabo.
pen subj-pres-write-pass-asp letter (with) by man
"The pen is being written (with) by the man."

c. Umugabo y-a boon-ye umugóre.
man subj-pst-see-asp woman
"The man saw the woman."

d. Umugóre y-a boon-y-w-e n'ûmugabo.
woman subj-pst see-asp-pass-asp by man
"The woman was seen by the man."

In Kinyarwanda, unlike English, either object of a double object verb may become the subject of a passive, and if the sentence in (18a) is expressed as an applicative construction, without the preposition *na*, the

---

[15]Locatives can become subjects of passives, if the locative preposition moves along with the NP, as shown in (i).

(i)   Kw'íípósita h-ooherej-w-e íbárúwa n'ûmugabo.
        to post office subj-send-pass-asp letter by man
        "To the post office was sent a letter by the man."

This is possible in other Bantu languages as well (see Bresnan and Kanerva 1989).

instrumental object may become the subject of a passive, as may the original object of the verb.

(19) a. Umugabo y-a-haa-ye umugóre igitabo.
     man subj-pst-give-asp woman book
     "The man gave the woman the book."

   b. Igitabo cy-a-haa-w-e umugóre n'ûmugabo.
     book subj-pst-give-pass-asp woman by man
     "The book was given to the woman by the man."

   c. Umugóre y-a-haa-w-e igitabo n'ûmugabo.
     woman subj-pst-give-pass-asp book by man
     "The woman was given the book by the man."

   d. Íkaramu i-ra-andik-iish-w-a n'ûmugabo.
     pen subj-pres-write-appl-pass-asp by man
     "The pen is used to write a letter by the man."

   e. Íbárúwá i-ra-andik-iish-w-a íkárámu n'ûmugabo.
     letter subj-pres-write-appl-pass-asp pen by man
     "The letter was written with a pen by the man."

In Chi-Mwi:ni, it is not the case that any bare nonsubject NP may become the subject of a passive, as shown for the dative construction in (20); like English, only the NP adjacent to the verb in the active sentence may become the subject of the corresponding passive.

(20) a. Ni-pele Ja:ma kujá.
     subj-give Jama food
     "I gave Jama food."

   b. Ja:ma Ø-pel-a: kuja na: mi.
     Jama subj-give-pass food by me
     "Jama was given food by me."

   c. *Kuja i-pel-a Ja:ma na: mi.
     food subj-give-pass Jama by me
     "Food was given Jama by me."

Likewise, in the applicative construction only the applied verb can become the subject of a passive, even though the object of the basic verb can become the subject of a passive when the verb is not applicativized.

(21) a. Hamadi Ø-pikil-il-e wa:na cha:kuja.
Hamadi subj-cook-appl-fv children food
"Hamadi cooked food for the children."
b. Wa:na wa-pik-il-il-a cha:kuja na Hamadi.
children subj-cook-pass-appl-fv food by Hamadi
"The children were cooked food by Hamadi."
c. *Cha:kuja sh-pik-il-il-a wa:na na Hamadi.
food subj-cook-pass-appl-fv children by Hamadi
"Food was cooked for the children by Hamadi."
d. Cha:kuja sh-pish-il-a na Hamadi.
food subj-cook-pass-fv by Hamadi
"The food was cooked by Hamadi."

In short, the Chi-Mwi:ni constructions are asymmetrical object constructions, since only one object has the ability to become the subject of a passive, while the Kinyarwanda constructions are symmetrical object constructions.

1.4.2 Object marking

The second major test for canonical objecthood is the ability to trigger object marking on the verb. In general, Bantu languages allow morphemes on the verbal complex which are coindexed with or which replace object NPs. I will discuss the nature of these object markers in Chapter 2; for now, suffice it to say that the presence of these morphemes on the verb is dependent on the NP they represent being a true object in some sense. As shown in (22) for Kinyarwanda, objects of prepositions cannot trigger

object marking, though bare objects and applied objects can. Note that in (22f) there are three object markers on the verb at the same time.

(22) a. *Úmwáalímu a-ra-y-aandik-a íbárúwa na.
teacher subj-pres-obj-write-asp letter with
"The teacher is writing a letter with it."
b. Úmwáalímu a-ra-y-aandik-iish-a íbárúwa.
teacher subj-pres-obj-write-appl-asp letter
"The teacher is writing a letter with it."
c. Umugabo a-ra-y-aandik-iish-a íkárámu.
man subj-pres-obj-write-appl-asp pen
"The man is writing it with a pen."
d. Umugóre y-a-mu-haa-ye igitabo.
woman subj-pst-obj-give-asp book
"The woman gave him a book."
e. Umugóre a-rá-bi-he-er-a umugabo ímbwa.
woman subj-pres-obj-give-appl-asp man dog
"The woman is giving it to the dog for the man."
f. Umugóre a-rá-bi-yí-mu-her-er-a.
woman subj-pres-obj-obj-obj-give-appl-asp
"The woman is giving it to it for him."

Chi-Mwi:ni allows only the object adjacent to the verb in a multiple object construction to trigger object marking on the verb, as shown in (23), where items in boldface are coindexed.[16]

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[16]Unlike the Kinyarwanda examples, the Chi-Mwi:ni examples have an overt NP present along with its object marker. Kisseberth and Abasheikh (1977) note that the presence of the overt NP is not obligatory, so sentences like the Kinyarwanda ones should also be grammatical.

(23) a. Ni-m-pele **Ja:ma** kujá.
   subj-obj-give Jama food
   "I gave Jama food."

   b. *Ni-'i-pele Ja:ma **kujá**.
   subj-obj-give Jama food
   "I gave food to Jama."

   c. Hamadi Ø-**wa**-pikil-il-e **wa:na** cha:kuja.
   Hamadi subj-obj-cook-appl-fv children food
   "Hamadi cooked food for the children."

   d. *Hamadi Ø-**sh**-pikil-il-e wa:na **cha:kuja**.
   Hamadi subj-obj-cook-appl-fv children food
   Hamadi cooked food for the children."

   e. Hamadi Ø-**sh**-pishel-e **cha:kuja**.
   Hamadi subj-obj-cook-fv food
   "Hamadi cooked food."

Here again, Chi-Mwi:ni and Kinyarwanda differ in which objects can trigger object agreement on the verb, and note that the NPs that trigger object agreement are exactly those that can become the subject of a passive. I will therefore take these two properties, the ability to become the subject of a passive and the ability to trigger object marking on the verb, as diagnostics of a certain status that some, but not necessarily all, nonsubject NPs may have. "Objecthood" is as convenient a name for this status as any other: in Chapter 2 I will show that these object properties are due to L-licensing.

1.4.3   Other object properties

Passive and object agreement are the only two object properties discussed with enough consistency in the literature to be useful in a cross-linguistic study such as this. Kimenyi (1980) mentions the ability to appear on the verb as a reflexive morpheme coindexed with the subject as a property of direct objects, and cites different types of A'-movement

(relativization, clefting, pseudo-clefting, and WH-movement) as properties that hold of objects and subjects but not obliques. Bresnan and Moshi (1990) discuss the ability to appear on the verb as a reciprocal morpheme coindexed with the subject and the ability of an unspecified object to delete as additional object properties. I will not discuss them here; I simply mention them to indicate that there is generally a robust set of properties that can distinguish among different nonsubject NPs, and that object symmetry is a syntactically real phenomenon.

1.5 Summary of Chapter 1

This has been a brief look at some of the issues that will be important in the rest of the work and the theoretical background I assume. The l-syntactic theory of argument structure and the lexicon discussed in Section 1.2 proposed that argument structures are syntactic in nature and may involve multiple predicate heads; this will enable me to develop a unified theory of applicatives, dative double object constructions, and locative alternation verbs; the theory of licensing by functional heads outlined in Section 1.3 allows multiple objects to be independently licensed by separate functional heads and allows verbs to vary as to whether they may activate a functional licensing head or not. This theory allows me to account for object symmetries and asymmetries such as those mentioned in Section 1.4; I now turn to a fuller motivation and discussion of licensing in Chapter 2.

CHAPTER 2:   LICENSING

In Chapter 1 I gave a brief outline of a theory of licensing in which structural Case is assigned to object NPs via functional projections rather than directly from the governing V. This chapter expands the discussion of licensing and motivates the account sketched in Chapter 1. In Section 2.1 I present an overview of some previous accounts of Case assignment in double object constructions and the problems Bantu valency-increasing operations have for them. Section 2.2 develops a theory of licensing involving the functional projection LP; Section 2.3 demonstrates how the theory accounts for variations in multiple-object constructions, and Section 2.4 summarizes the main points of the theory.

2.1 Previous accounts of and uses for Structural Case

Since "On Binding", Case Theory has been used to account for a variety of phenomena, notably Passive and Raising, as well as the characteristics of unaccusative verbs. In most cases, it is the notion of structural Case that is relevant; however, inherent Case has recently been postulated to account for aspects of double object constructions (Larson 1988a) and object properties in the Bantu languages (Machobane 1989). These analyses raise questions about the nature of inherent Case and the licensing of NPs that do not receive structural Case.

The original idea behind inherent Case seems to have been the need to explain the presence of postverbal NPs that are not immediately adjacent to the verb and are not marked by a preposition in languages that do not have morphological Case-marking. The classic example of this is the English dative double object structure, as in (1a).

(1) a. Lee gave Chris a book.
     b. Lee gave a book to Chris.

Since *a book* is not in a position to receive structural Case from *give*, and yet the sentence is grammatical, it is assumed it gets inherent Case at D-structure by virtue of being θ-marked by a verb that has the property of assigning inherent Case. Of course, *give* need not necessarily assign inherent case, since the prepositional variant of (1a), shown in (1b), is also possible; here *a book* gets structural Case from the verb and *Chris* gets structural Case from the preposition. This raises the question, addressed in Larson (1988a), whether NPs can be Case-marked twice, once with inherent Case and once with structural Case. Either way, something needs to be said: if *give* assigns inherent case to *a book* both in (1a) and in (1b), why is structural Case assigned in (1b)? If *give* does not assign inherent Case in (1b), what is it that determines whether a verb that is allowed to assign inherent Case actually does so or not? In other words, if one instance of Case (structural or inherent) is sufficient to license an NP, is it a violation of the principle of Economy to allow an NP with two Cases?

Another problem for the nature of Case assignment is raised in Machobane (1989). It is a characteristic of several Bantu languages that some constructions allow multiple unmarked postverbal NPs, as shown in (2) for Kinyarwanda.

(2) Umugabo y-a-haa-ye umugóre ibitabo.
     man subj-pst-give-asp woman book
     "The man gave the woman the book."

At first glance, one might be tempted to treat (2) in the same way as the English double object constructions in (1), with *umugóre* receiving structural Case and *igitabo* receiving inherent Case. However, another characteristic of some Bantu languages is that there is no single postverbal NP that acts more like a direct object than the others, as we saw in Chapter 1. In English, the NP that putatively receives inherent Case in (1a), *a book*, cannot become the subject of a passive, as shown in (3); Larson (1988a), for one, attributes this to the fact that *a book* can receive inherent Case even if the verb is passivized, but, assuming that Passive removes structural Case, *Chris* will fail to be Case-marked in a passive unless it moves to subject position.

(3) *A book was given Chris.

In Kinyarwanda, however, either of the postverbal NPs in (2) can become the subject of a passive sentence:[1]

---

[1] Larson (1988a) gives Norwegian as an example of an Indo-European language with this property.

(4)   a. Igitabo cy-a-haa-w-e umugóre n'ûmugabo.
          books subj-pst-give-pass-asp woman by man
          "The book was given to the woman by the man."
       b. Umugóre y-a-haa-w-e ibitabo n'ûmugabo.
          woman subj-pst-give-pass-asp books by man
          "The woman was given the books by the man."

If, following Larson, we explain these data by claiming that Passive suppresses structural Case and that the NPs not undergoing movement receive only the inherent Case assigned them by the verb at D-structure, the two postverbal NPs in (2) must each be able to receive inherent Case when structural Case is suppressed and the other of them becomes the subject of a passive, unlike the structurally Case-marked NP in (3), which can never receive inherent Case. This runs counter to the notion that inherent Case is associated with a specific lexical relationship, and also raises the question whether structural Case is needed at all in Kinyarwanda, since no NP seems to need it. The other logical proposal would be that somehow more than one structural Case can be assigned in these constructions; this is the approach taken in Baker (1988a). In order for this type of approach to work, it is necessary to determine how structural Case can be assigned to more than one NP, and what role, if any, inherent Case plays in languages which allow multiple structural Cases. With this in mind, I survey some recent proposals for the assignment of Case in double object constructions to see how they might account for Kinyarwanda.

2.1.1   Larson (1988a)

Consider the structure Larson gives for prepositional datives:

(5)　Lee gave a book to Chris

```
                VP1
               /  \
                   V'
                  /  \
               V1     VP2
               |     /   \
               e   NP1     V'
                   |      /  \
                a book  V2    PP
                        |    /  \
                       give P    NP2
                            |     |
                            to   Chris
```
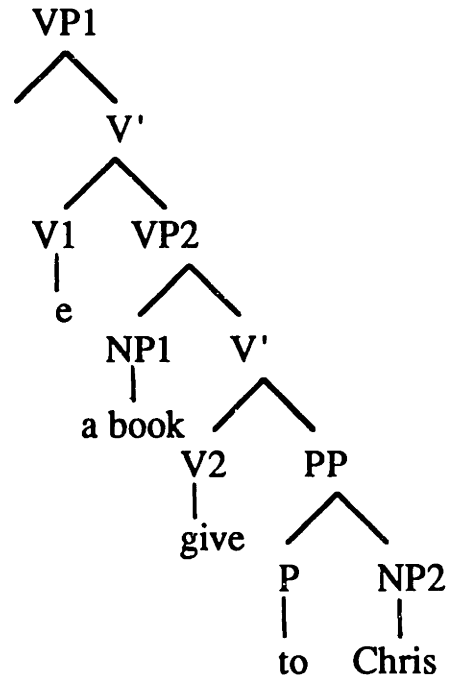
Larson then derives double object structures from (5) by applying "Passive" to V2, resulting in a V2 that cannot assign (Dative) Case to its (indirect) object, and an NP1 whose θ-role is demoted to adjunct status, as in (6).

(6)

```
              VP1
             /   \
                  V'
                 /  \
               V1   VP2
               |   /   \
               e  NP1   V'
                  |    /  \
                  e   V'   NP1
                     / \   |
                   V2  NP2 a book
                   |    |
                 give  Chris
```
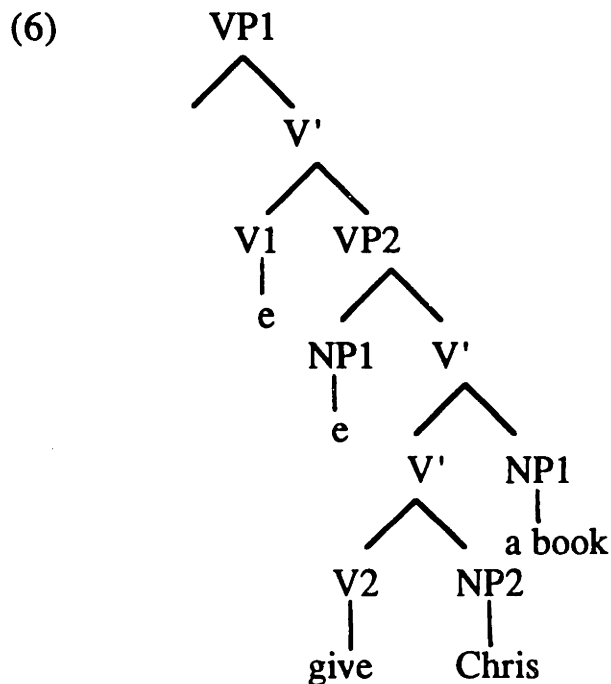
Since NP2 can no longer receive Case, it moves to the Spec, VP2 position, where it can get structural case from INFL through the moved V. As for NP1, it gets inherent Case from its V' sister, which is reanalyzed as a V.

It is also possible to form "real" passives on the structure in (5), resulting in the sentence in (7a), with the S-structure positions given in (8).

(7)   a. Chris was given a book
       b. *A book was given Chris

(8)

```
              IP
            /    \
         NP_i     I'
          |      /  \
       Chris_i  I    VP1
                      / \
                       V'
                      /  \
                   V1_j   VP2
                    |     /  \
                 give_j  NP1   V'
                         |    /  \
                      a book V2   NP2
                             |     |
                             t_j   t_i
```
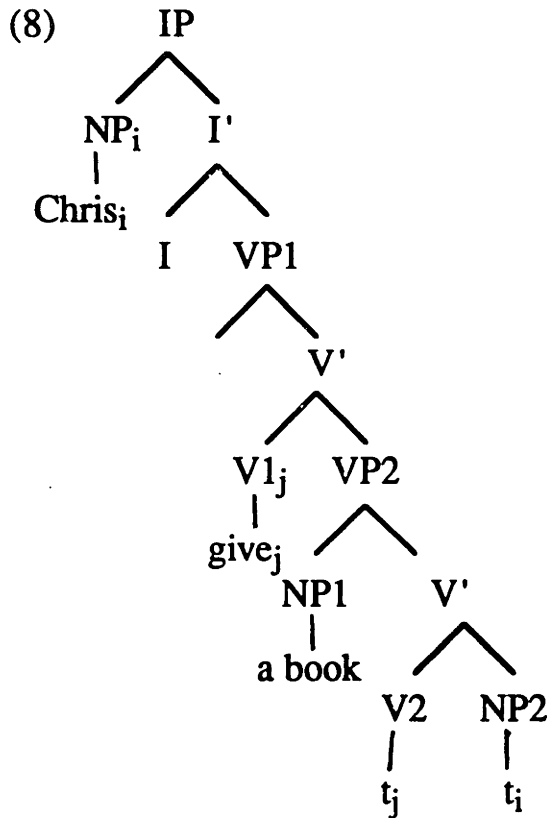
In this case, it is the θ-role of the subject of the sentence (Spec, IP), rather than the θ-role of NP1, which is demoted to adjunct status when V2 loses its Case-marking ability. Thus, for NP2 to get Case, it moves all the way to Spec, IP, where it receives structural Nominative Case from INFL, and NP1, which remains in its base position, is assigned inherent Case by the moved V2. The sentence in (7b), which would be derived from the movement of NP1 rather than NP2 to Spec, IP position, is ruled out because NP1 is not forced to move (it receives inherent Case from the moved V2 in its base position) and because NP2 cannot get Case (it cannot move to the position vacated by NP1 because it would obliterate the trace of NP1, and it cannot receive Case in its base position due to Passive).

Larson makes a number of assumptions that are important here. First, he assumes that Objective structural Case is assigned by INFL through a "host" V under government by V (Nominative is assigned directly by INFL). Objective inherent Case is assigned directly by V to its highest internal argument, also under government. Thus, the normal situation for a transitive verb is that the object will receive two Cases, on structural and one inherent. Double object constructions have the peculiarity that each object gets only one Case: the Goal receives structural Case and the Theme receives inherent Case. The Goal is unable to receive inherent Case along with its structural Case because, crucially for Larson, there is only one θ-assigning verb in the structure: V1 is not a θ-assigner because it is not a lexical verb.

A second important assumption is that a verb can select an indirect object, but cannot assign Case to it directly. This necessitates the presence of a preposition in English, which must be compatible with the verb in its θ-role assignment. Given that the (reanalyzed) V in (6) can assign its inherent Case to NP1, it must be the case that the Case assigned by the preposition in (5) is independent of the verb's inherent Case, and under "dative shift" it is the Case assigned by the preposition and not that assigned by the verb that gets suppressed. The assumption also implies that the verb has an inherent Case in (5); it is either not discharged, or it is discharged through the upper V. If the latter, one might ask whether NP2 in (6) also gets this inherent Case through the upper V; if NP1 gets inherent Case through the (reanalyzed and empty) lower V in (6), either each V has one inherent Case to assign, or something must determine when the base V

assigns its inherent Case from its trace and when it assigns it in its S-structure position. If each V can assign one inherent Case, then the lower V in (5) simply never discharges its Case.

A third assumption is that Dative Shift suppresses inherent Case, while Passive suppresses structural and inherent Case. Since Larson assumes that NP1 in (8) gets inherent Case from the verb, it must be the case that Dative Shift suppresses only the Case assigned by the preposition; that is, its domain is strictly the lower VP. If, on the other hand, one were to passivize (5) by removing only V1's ability to assign Case, yielding (9a), the lower VP would not be affected, as this Passive involves only the upper V and I.

(9) a. A book was given to Chris
     b. *To Chris was given a book
     c. *Chris was given a book to

Here V1 would lose its ability to assign inherent Case, and I would lose its ability to assign structural Case (this is necessary to account for passives of ordinary transitive verbs), forcing NP1 to move to Spec, IP. This implies that Passive is itself not an operation suppressing inherent Case, but rather always occurs in conjunction with such an operation: in (8), the inherent Case suppressed is on the lower verb, while in (9a) it is the upper verb that loses its ability to assign inherent Case. One wonders why it is necessary for Passive to require some V in its domain to give up its inherent Case, and whether there are cases in which Passive applies while allowing an object of the verb to retain its inherent Case.

Now consider the Kinyarwanda dative double object sentences in (2) and (4). Since there is no prepositional variant, the process deriving (6) from (5) must be obligatory in this language. As in English, NP2 (*umugóre*) would move to the specifier of VP1 position from its base position as the complement of V2; it would be given structural Case through government by V1 in conjunction with government of V1 by the inflectional complex. NP1 (*igitabo*) would get only inherent Case, since its governing V will not be governed directly by the inflectional complex. This is problematic here, since NP1 has identical behavior to NP2, as we saw in (4); in the passive in (4a), NP2 should not be able to get Case, since the structural Case it received in (2) is withdrawn by Passive.

To solve this, suppose we allow the inflectional complex to "send" Case down to more than one V in some languages; here there is a problem with Sesotho, which is a symmetrical object language with respect to its applicative construction, as we will see in Chapter 3, but an asymmetrical object language with respect to its causative construction, as we will see in Chapter 4. In other words, double object constructions with applicative morphology look like Kinyarwanda, while double object constructions with causative morphology look like English. It is thus not the inflection, but the particular V1, which determines whether NP2 will have full object properties or not. Larson's approach is also problematic for languages like Turkish, in which it is NP2 that has object properties: if INFL is responsible for structural Case, it must "skip" V1 to transmit that Case to V2 in Turkish.

Thus, Larson's account is problematic for languages which allow passives like (7b), such as Norwegian, Kinyarwanda, and Sesotho. Although Larson offers a suggestion for how to account for these cases, the account essentially assumes that NPs which are already (inherently) Case-marked may passivize and that Dative Shift does not necessarily involve suppression of inherent Case, thus undermining some of his major claims.

If we take away the parts of Larson's analysis dealing with V' Reanalysis and the structure and derivation of the English double object construction, we are left with the notion that Case is of two types, depending on the head which assigns it: INFL assigns one type of Case, while V assigns another. Despite the problems Larson's particular analysis has for the Bantu languages, this notion of licensing and the idea that Passive can operate on different levels are useful to an analysis of the problems considered here.

2.1.2   Aoun and Li (1989)

This analysis is similar to Larson's in its assumptions about structural and inherent Case, but there are a few differences that are worth considering. Aoun and Li give the following as the basic structure for double object constructions[2]:

---

[2]I have replaced Aoun and Li's small clause with a VP; as far as I can tell, nothing hinges on this distinction.

(10)

```
           VP1
          /    \
               V'
              /  \
            V1    VP2
            |    /   \
          give  NP1    V'
                 |    /  \
               Chris  V2  NP2
                      |    |
                      e   a book
```
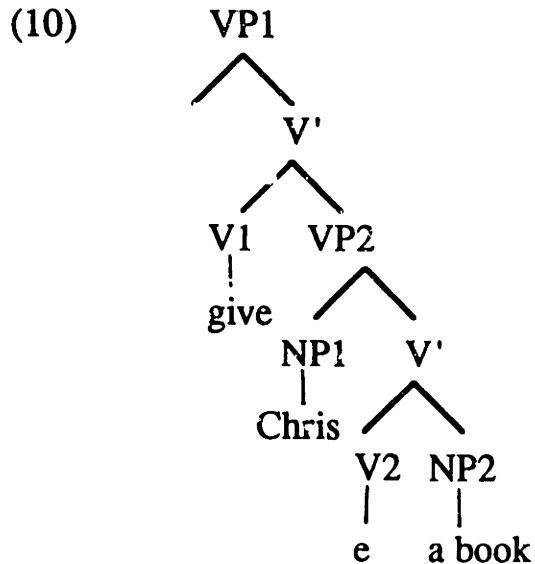
As in Larson's account, double object structures and prepositional datives are related transformationally, but while for Larson it is the prepositional dative that is basic, Aoun and Li derive it from the double obj ct structure. According to them, a passive-like operation applies to the VP2 in (10), preventing Case from being assigned to *a book* and demoting the θ-role of *Chris*, the subject of VP2. The result is the structure shown in (11).

(11)   VP1

```
           VP1
          /  \
            V'
           /  \
         V1    VP2
         |    /  \
        give NP   V'
             |   /  \
             e  V'   NP1
               / \   |
              V2  NP2 to Chris
              |   |
              e   a book
```
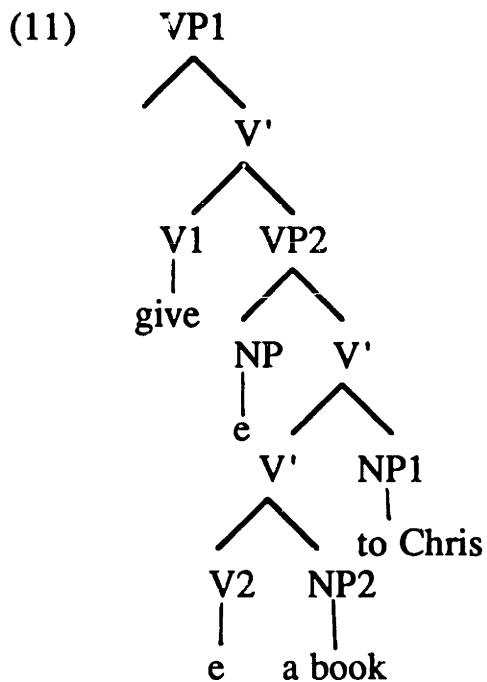
Since NP2 cannot get Case in situ, it raises to the empty NP node in the Spec, VP2 position, and *Chris* is assigned Case by a preposition inserted for the purpose, as in the case of *by* for Passive.

Crucially for Aoun and Li, the structures in (10) and (11) involve two verbs, not one verb that moves. When Passive applies to V1 , V2 remains unaffected and can assign its Case normally. Thus, to derive (7a), Aoun and Li assume that V1 loses its ability to assign Case to NP1; NP1 must therefore move to Spec,IP to receive Case. V2 and its object NP2 remain unaffected. (7b) cannot be derived because NP1 would remain without Case. When V2 has already been passivized, as in (11), applying Passive to VP1 results in V1's inability to assign Case to the moved NP2, so NP2 must continue to move up to Spec,IP in order to get Case. (9b-c) cannot be derived because NP2 would not get Case.

Now let us consider the data in (4): how can Aoun and Li's structures account for the fact that sentences like (7b) are acceptable in some languages? One possibility would be to say that some languages allow Passive to remove the Case-marking properties of V2 while demoting the θ-role of the IP subject, rather than the Spec of VP2. This would allow NP1 to stay in position as NP2 moved to Spec,IP to get Case, essentially the same operation that Larson uses to derive (7a). Since Aoun and Li have two potential structural Case-assigners rather than just one, they can remove structural Case from either one, thus getting the asymmetry without a great strain on their theory. While I do not adopt Aoun and Li's structure or derivations for double object constructions, the notion that there can be multiple lexical heads in a structure, each of which may participate in structural Case, marking, is a useful one.

2.1.3   Chomsky (class notes, 1990)

While this account is not designed with double object structures in mind, it is worth mentioning in a bit more detail than it received in Chapter 1, since it is the basis for the theory of licensing I adopt. This theory of Case assignment elaborates on Larson's idea that INFL is responsible for structural Case by describing Case as a specifier-head relation at Logical Form between AGR and the NP to be licensed. Thus, a standard transitive sentence would end up having the LF structure in (12), with the NPs under functional projections and the V moved up into AGR$_S$.[3]

---

[3]The structure in (12) assumes V raising to INFL rather than INFL lowering to V. Chomsky (1991) claims English is actually an INFL-lowering language, so the structure in (12) will not be quite accurate for English. However, the Bantu languages are V-raising languages, so (12) will be the right structure for them; I have put English words in simply

(12)   Pat ate cake.

```
                    AGRPS
                    /    \
                  NP1    AGR'
                   |     /   \
                  Pat  AGRSj   TP
                      /    \   /   \
                  AGR_Sj  T_k      T'
                         /   \    /   \
                       T_k  AGR_Om  T   AGRP_O
                           /    \  /  \  /    \
                       AGR_Om  V_n T AGR_Om NP2  AGR'
                               |   |  /   \   |   /  \
                             eat_n t_k        cake_i      VP
                                  AGR_Om V_n   AGR_O
                                    |     |   /    \
                                   t_m   t_n AGR_Om  V_n     V'
                                              |       |      /  \
                                             t_m     t_n    V   NP2
                                                            |    |
                                                           t_n  t_i
```
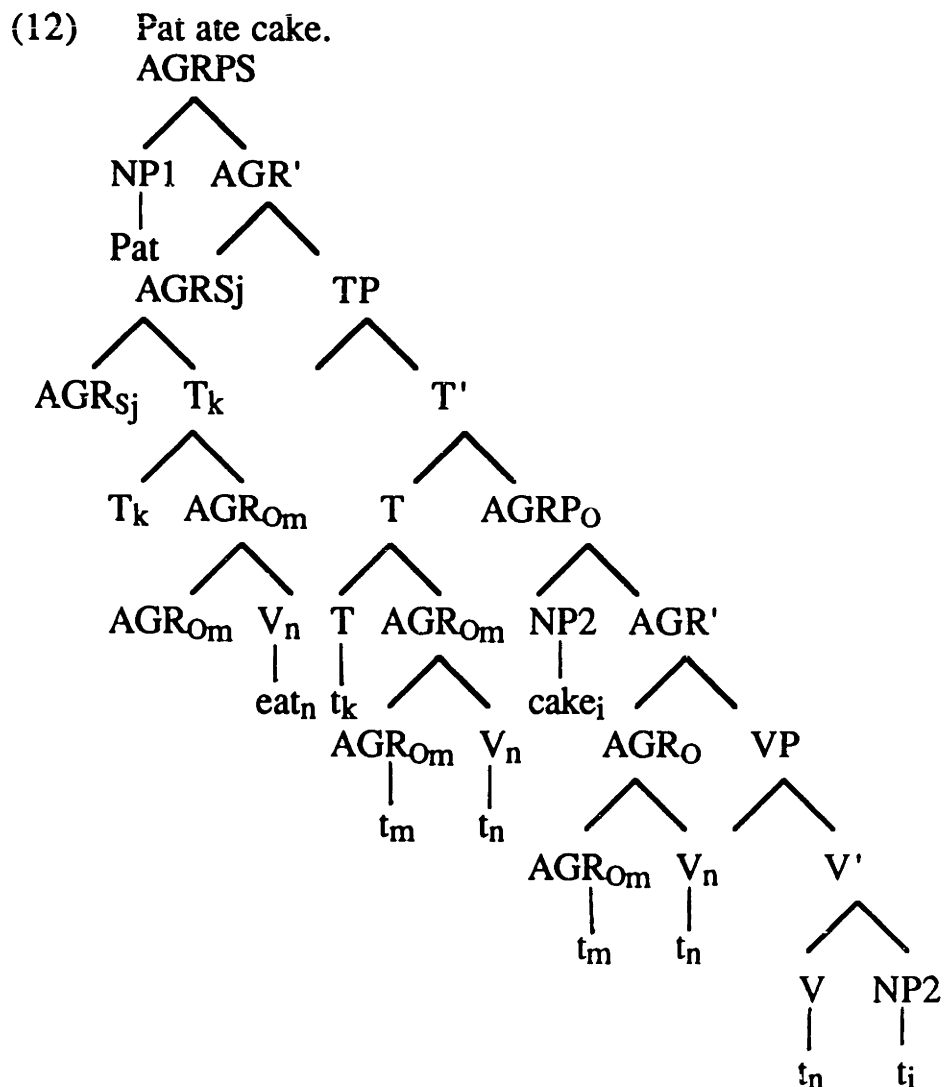
The crucial part of this analysis is that NP2, *cake*, gets licensed by virtue of being in a Spec-Head relation to AGR_O, which itself is a sister of V due to V's head-to-head movement to AGR_O. NP1 gets similarly licensed by AGR_S in conjunction with T. As mentioned in the overview in Chapter 1, this sort of analysis would seem to lend itself well to double-

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predicate structures, because each licenser is independent (in contrast to, say, Larson's analysis, in which one INFL licenses both subject and object). We could then have a structure with two AGRO phrases, one for each object, for a symmetrical object language like Kinyarwanda. Such a structure (before movement) for (2) is given in (13).[4]

---

[4]Notice that unlike Larson's and Aoun and Li's structures, I represent the dative as a V with a PP complement. I will motivate this structure in Chapter 3; as far as licensing possibilities are concerned, P and V are equivalent in Kinyarwanda, so the structure in (13) would be no different with respect to Case assignment if the lower lexical predicate were a V.

(13) Umugabo yahaaye umugóre ibitabo.
      "The man (NP1) gave the woman (NP2) the book (NP3)."

$AGRP_S$
NP1 AGR'
|
man AGR_S TP
           T'
         T $AGRP_O1$
              AGR'
          AGR_O1 $AGRP_O2$
                   AGR'
               AGR_O2 VP
                        V'
                     V   PP
                     |
                    give NP2 P'
                          |
                        woman P NP3
                                  |
                                 book
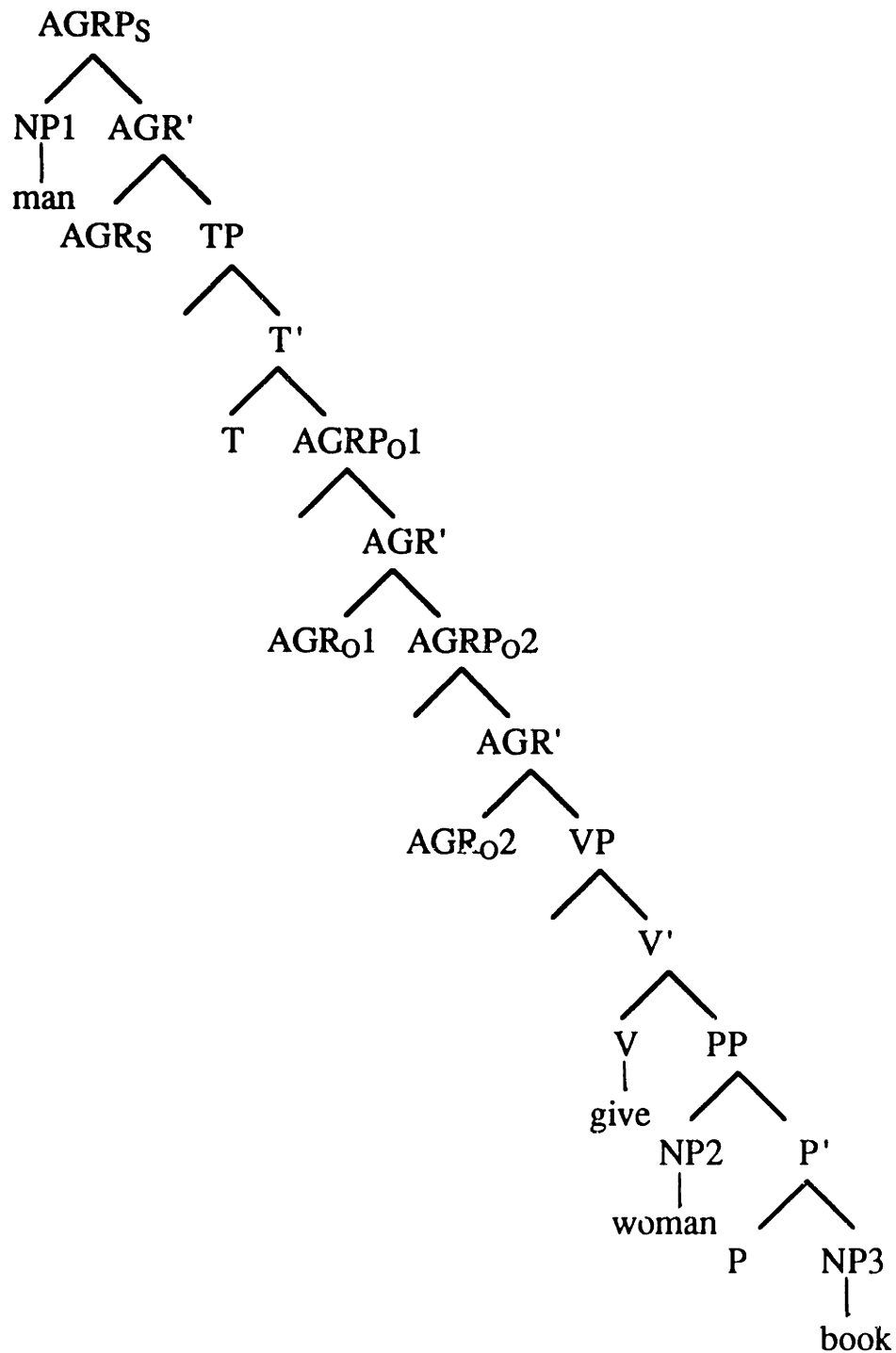
The problem facing this structure is determining which AGRP goes
with which NP, and how movement of both NP2 and NP3 can be

legitimate. Clearly, NP3 will have to cross over the position of the trace of NP2 in order to move to either of the AGRPOs, which should result in an ill-formed chain; however, by invoking Pesetsky's (1982) Path Containment Condition, we can solve this problem by having NP2 move to the lower AGRO and NP3 move to the upper one, so that the paths of their movement are nested. This general approach, in teasing apart the licensing properties of INFL from the rest of the functional projections, has some promise for double-predicate structures, and I will adopt it in its essence. The next section develops a more complete picture of a system of licensing and introduces some changes in terminology.

2.2 A proposal for a system of licensing

Each of the three theories of Case assignment summarized above has points to recommend it, and the account I develop here owes much to each of them, though it rests mainly on Chomsky's proposal. The principal facts a system of licensing must cover are 1) the general data on multiple object constructions, including datives, causatives, and applicatives; 2) the phenomenon of symmetrical object languages, in which more than one object in a multiple object construction has canonical object properties; and 3) the fact that object symmetry, while generally a language-wide characteristic, can also be construction-particular, as in Sesotho. A note on terminology is appropriate here: I use the terms "licensing", "L-licensing", and "sister-licensing" rather than the more familiar "Case", "structural Case", and "inherent Case" because I do not wish to confuse licensing, all of which is structural in some sense, with morphological Case. However, despite the change in vocabulary, the account presented here represents

more an extension of Chomsky's work on licensing than a radical departure from it.

Object NPs are licensed by functional projections, called LP (Licensing Phrase), whose sole function is the licensing of NPs through appropriate predicates.[5] Following the ideas in Chomsky's theory, I propose that licensing takes place at LF and consists of Spec-Head agreement between L (the head of LP) and an NP which has moved to the specifier of LP. Licensing can only take place if the L is associated with an appropriate predicate, roughly, one which is transitive: this is to prevent arguments of unaccusative verbs from being licensed by LP alone when the verb is not a Case-assigner in the traditional sense, and rules out sentences such as *It arrived Robin. The relation of L to an appropriate predicate must be sisterhood (though I will make a refinement in this definition later); this is achieved by the lexical head head-to-head-moving to L, with the resulting structure given in (14); this is equivalent to the bottom half of the structure in (12) above.

---

[5]I use the term "predicate" here to mean "VP or PP": if, as I will show in the next chapter, applicative constructions involve a PP and a VP, the applicative P is also an appropriate lexical licenser, by virtue of its incorporation into V. Ps which are not incorporated into Vs, such as overt Ps in English are not appropriate lexical licensers and thus cannot interact with LP to L-license an NP.

(14)　LP

```
        LP
       /  \
          L'
         /  \
        L    VP
       / \   / \
      L  Vᵢ     V'
              /  \
             V    XP
             tᵢ
```
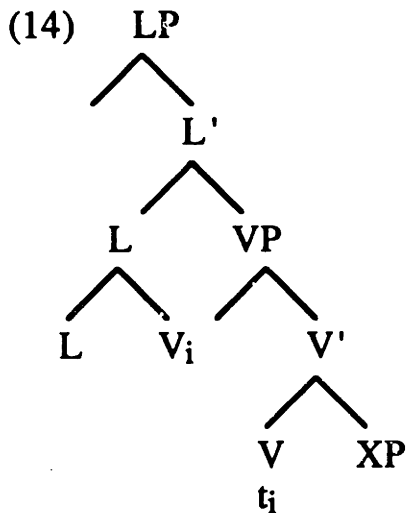
In most of the languages studied here, this movement takes place in the syntax; syntactic incorporation is clearly visible in Bantu, and the verb must move up to INFL to get inflection anyway, so having it pass through an LP on the way does not greatly complicate matters. In fact, I will claim below that object marking on the verb in Bantu is a morpheme which is generated in L and attaches to the verb as the verb moves through L, so that LP's presence is sometimes morphologically visible.

An L is activated for licensing, then, if a) it is the sister of a lexical predicate head and b) the lexical predicate head is of the right type. I use the feature [+L] to indicate a V (or P) that may activate an L for licensing; generally all transitive Vs and Ps[6] carry this feature. For each [+L] predicate in a sentence, an L node may be activated with an instance of

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[6]Whether or not Ps can carry the feature [+L] may be a language-particular trait. In the Bantu languages they certainly may carry this feature, but they cannot activate L for licensing unless they are in a sisterhood relation to L, that is, if they have head-to-head-moved to L. In languages like English, it may be that there are no [+L] Ps, but even if there are, overt prepositions will not trigger L-licensing, since they cannot head-to-head move in English.

[+L]; that is, in moving to L a V or P discharges its [+L] feature, and that instance of the feature cannot be used again to activate another L node. This prevents multiple LPs in sentences where there is only one [+L] predicate. I will further discuss how multiple instances of [+L] are discharged in Section 2.3.3 below.

While L-licensing (licensing of an NP through association with an LP) is the canonical method of object licensing, it is not the only way an object NP can be licensed. A lexical predicate may sister-license an NP of which it is a sister--this is roughly equivalent to the notion of inherent Case, and picks up on Larson's idea that objects can receive two different types of licensing at the same time. A sister-licensed NP will not be required to move to LP at LF in order to be licensed (although this is not universal: see the discussion of Turkish in Section 2.3.2); but since I claim that all [+L] LPs must discharge their licensing feature by LF, a sister-licensed NP must move to LP in order to satisfy this requirement if there are unused LPs. Crucially, however, if there is no L-licensing site left empty the sister-licensed NP will be legitimate in situ.

A third type of object licensing is Spec-Head agreement with a lexical predicate head rather than with LP; this is another type of "inherent Case", meaning that, like sister-licensed NPs, NPs with this type of licensing do not generally show all object properties associated with the traditional notion of structural Case. Lexical head-licensing takes the form of morphological oblique case-marking, as in Turkish (see Section 2.3.2), although not all instances of oblique morphological case-marking are

necessarily instances of lexical head-licensing.[7] This is also the type of licensing involved in English genitive *'s* marking, as in *the city's destruction*; here *the city* receives morphologically marked genitive Case by being in a Spec-Head relation to *destruction*. The licensing in *the destruction of the city* will be sister-licensing of *the city* by *of*, so in both cases we can say that the Case on *the city* is inherent, which is the desired result (see Chomsky 1986b for discussion).

The licensing of subjects, again following Chomsky, takes essentially the same form as the licensing of objects: an NP is in a Spec-Head relation to a functional head which is in a sisterhood relation to an appropriate "activator"; in this case the functional head is AGR, as in (12) above, and the activator is a T node that is marked [+T]. Also as in object L-licensing, the subject licenser in AGR must discharge its licensing feature, in this case [+T] from its sister T node. I claim that for subjects this relation must be satisfied at S-structure, rather than at LF: this forces the existence of an NP in subject position at S-structure through which AGR can discharge its subject licensing and in essence derives the Extended Projection Principle of Chomsky (1982), which states that all clauses must have subjects. I will not consider subject licensing in more detail here; the main point to be taken from subject licensing is that it works the same way as object L-

---

[7]Since my main focus here is on the Bantu languages, which do not make use of this type of licensing, I do not have much to say about how morphological case is assigned in, say, Icelandic. It may be that some morphological cases are assigned through sister-licensing while others are assigned through lexical head-licensing; my only position here is that lexical head-licensing is an option and that Turkish in particular makes use of that option.

licensing does and that the mandatory discharge of subject licensing features forces all clauses to have subjects.

Given that there are three types of object licensing and that L-licensing depends on a [+L] feature on a predicate, there is a fair amount of room for variation within and across languages as to how multiple objects are licensed. In languages such as English, Chicheŵa, and Turkish, only one [+L] verb at a time is allowed; that is, in multiple predicate constructions only one NP may be L-licensed. In traditional terms, these languages allow only one structural Accusative Case per sentence, the other objects receiving licensing though sister-licensing by a V or P or by lexical head-licensing. These are what are termed "asymmetrical object languages" by Bresnan and Moshi (1989). Languages like Kinyarwanda and Japanese are "symmetrical object languages": they allow multiple LPs and multiple [+L] Vs to go with them, although not all multiple predicate constructions in these languages necessarily have as many [+L] Vs as there are objects, as in Sesotho, where some constructions allow for multiple structural Case marking and others do not. So one parameter across languages is whether more than one NP can be allowed to receive L-licensing.

A second parameter applies within single-[+L] languages and determines which object receives L-licensing; this forms the basis of the contrast between, for example, Turkish causatives, where only the original object of the base verb may become the subject of a passive, and Chi-Mwi:ni or Sesotho causatives, where only the causee has this property. This parameter is based on whether or not V can sister-license and on the

alternative licensing methods available in the language. Section 2.3 discusses these various types of licensing combinations across languages and provides some concrete examples of the theory of licensing in action. Further examples with respect to causatives particularly are given in Chapter 4.

2.3 L-licensing and object symmetry

I begin the discussion of variation in licensing with asymmetrical object (single-[+L]) constructions: Section 2.3.1 deals with constructions in which the upper object receives L-licensing, while Section 2.3.2 discusses constructions in which the lower object receives L-licensing. Section 2.3.3 I turn to symmetrical object (multiple-[+L]) constructions.

2.3.1 Asymmetrical object constructions with upper object L-licensing

2.3.1.1 Licensing structure

Consider a multiple-predicate construction in a language such as English or Chicheŵa which permits only one predicate to bear the feature [+L], or in a language such as Sesotho in which some constructions have only one [+L] predicate. Examples of such constructions are given in (15); (15a) is an English dative double object construction, (15b) a Chicheŵa benefactive applicative construction, and (15c) a Sesotho double object construction.

(15) a. Pat gave Robin a book.
   b. Chitsîru chi-na-gúl-ír-a atsíkáña mphâtso.
      fool subj-pst-buy-appl-fv girls gift
      "The fool bought a gift for the girls."
   c. Banana ba-qel-a ntate cheḷete.
      girls subj-ask-fv father money
      "The girls are asking for money from my father."

These sentences all have a structure along the lines of (16) below.[8] When both predicates are inherently [+L], one of them must lose its [+L] feature; in Chicheŵa and Sesotho, a predicate loses [+L] when it is governed by another predicate. (English Ps are probably not [+L] at all; see footnote 6.) When P incorporates into V on its way up to receive inflectional properties, the resulting complex V takes on a single instance of [+L], which it transmits to the LP.[9] A language permitting only one L-licensed NP per sentence is now faced with a dilemma: given a preverbal LP, and two NPs within predicate projections, how does it tell which NP the LP licenses?

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[8]I motivate the specific structures for these sentences in the next chapters. See note 5 and 6.

[9][+L] is actually better thought of as an attribute than as a feature: that is, if, as in (16), one V is [+L] and one is [-L], there is no feature clash or indeterminacy in what feature to transmit to LP. Rather, [+L] is an attribute that a V has to discharge; a complex V will have as many of these attributes as there are [+L] Vs in the chain, as we will see in Section 2.3.3.

(16) LP

```
         LP
        /  \
        L'
       /  \
      L    VP
          /  \
        NP1   V'
             /  \
            V    PP
            |   /  \
          [+L]
                 '
                /  \
               P    NP2
              [-L]
```
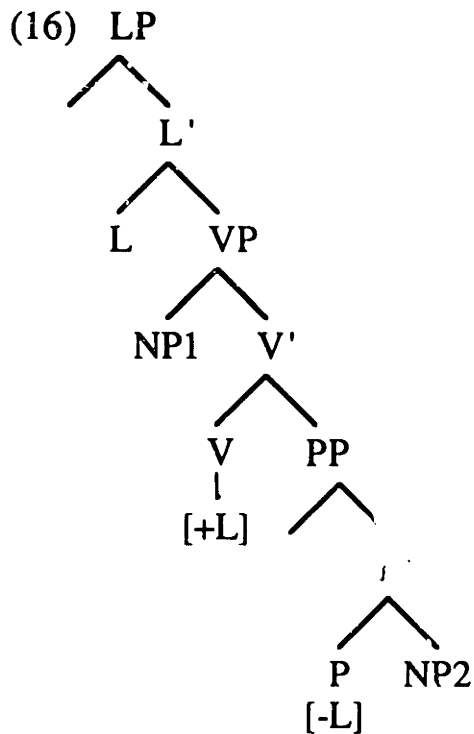
I claim that the unmarked option in single-[+L] languages is ior L to license NP1, while NP2 must be licensed in some other manner. The licensing mechanism for NP2 in the sentences in (15) is sister-licensing by the trace of P; in other constructions with multiple objects, such as English prepositional datives, the structure is the same as that in (16), but NP2 is sister-licensed by an overt P rather than by a trace.

If L were to L-license NP2 rather than NP1, there would be a problem in licensing NP1. Unlike NP2, it is not the sister of a lexical head, and thus cannot be sister-licensed; since in these languages sister-licensing by a lexical head and L-licensing by a [+L] LP are the only options for licensing, NP1 will fail to be licensed in this case. Therefore, NP1 must be L-licensed, and NP2 must be sister-licensed. The next subsections show

how the object properties of NP1 and the lack of object properties for NP2 are accounted for under the structure in (15).

2.3.1.2 Passive

In asymmetrical object languages, only one NP in a multiple object construction, the L-licensed one, can become the subject of the corresponding passive. This is exemplified in (17), where each pair corresponds to the active sentences in (15).

(17) a. Robin was given a book (by Pat),
      a'. *A book was given Robin (by Pat).
      b. Atsíkāna a-na-gúl-ír-idw-a mphâtso (ndí chitsîru).
          girls subj-pst-buy-appl-pass-fv gift (by fool)
          "The girls were bought a gift (by the fool)."
      b'. *Mphâtso i-na-gúl-ír-idw-a atsíkāna (ndí chitsîru).
          gift subj-pst-buy-appl-pass-fv girls (by fool)
          "The gift was bought the girls (by the fool)."
      c. Ntate o-qel-o-a chelete ke-banana.
          father subj-ask-pass-fv by-girls
          "My father is being asked for money by the girls."
      c'. *Chelete e-qel-o-a ntate ke-banana.
          money subj-ask-pass-fv father girls
          "Money is being asked for from my father by the girls."

Following in the spirit of Baker, Johnson, and Roberts (1989), I propose that the passive morpheme is base-generated under L in (16), and wipes out or nullifies the [+L] feature brought to L by the [+L] predicate. This means that L will no longer be of the appropriate form to L-license an NP, since its predicate sister will not be [+L]. The effect produced is of the removal of the feature [+L] from the upper predicate, and the subject

argument is demoted as well.[10] As I argued above, AGR, which licenses subjects, must discharge its licensing feature [+T], just as L must discharge [+L]; when the subject is demoted in a passive something else must move to fill Spec,AGRP so that [+T] can be discharged. This forces one of the object NPs to move to in the syntax rather than waiting until LF to find out if it will be L-licensed. Further, since there is now no predicate marked [+L] (P is [-L],being governed by another predicate, and V has had its [+L] marking nullified by Passive), NP1 will not be able to receive licensing from LP. This forces NP1 to raise to Spec,AGRP in the syntax to become the subject of the passive. NP2, meanwhile, is undisturbed by the changes in V; it continues to be sister-licensed, just as before. It cannot become the subject of the passive, since if it did it would leave NP1 unlicensed.

2.3.1.3   Object marking

In asymmetrical object languages, only one NP may trigger object marking, as shown in (18), where the (a) sentences are the Chicheŵa applicatives and the (b) sentences are Sesotho (I leave out English here because English has no verbal object marking).

---

[10]"Demotion" here means that the subject argument is not projected into Spec,IP at D-structure, so that the position is empty. If, again following Baker, Johnson, and Roberts (1989), the passive morpheme is actually an argument of some sort, it may be that this argument satisfies the VP's projection of an external argument, so that no further projection to Spec,IP is done; this view runs into problems in Japanese, however. I will not attempt to account for subject demotion here, as it is not crucial to the present analysis what forces it; what is important is that Spec,AGRP is empty.

(18) a. Chitsîru chi-na-wá-gúl-ir-á mphâtso (atsíkāna).
         fool subj-pst-obj-buy-appl-fv gift (girls)
         "The fool bought a gift for them (the girls)."
      a'. *Chitsîru chi-na-í-gúl-ir-á atsíkāna (mphâtso).
         fool subj-pst-obj-buy-appl-fv girls (gift)
         "The fool bought it for the girls (a gift)."
      b. Banana ba-mo-qel-a chelete.
         girls subj-obj-ask-fv money
         "The girls are asking for money from him."
      b'. *Banana ba-e-qel-a ntate.
         girls subj-obj-ask-fv father
         "The girls are asking for it from my father."

I propose that object marking in Bantu is Spec-Head agreement between agreement markers in L with pros which are base-generated in object position and which move to Spec,LP in the syntax; I am following the spirit of Bresnan and Mchombo (1987) and Kimenyi (1980), who argue that object marking is pronominal in nature. Object marking is distinguished from ordinary L-licensing because it takes place in the syntax, rather than at LF; following Chomsky (class notes), I propose that phonologically null NPs must get L-licensing in the syntax, rather than waiting until LF to move. The construction also involves phonological material in L, which attaches to the verb as the verb incorporates into L on its way up to INFL; this is in contrast to ordinary L-licensing, where L has no phonological content. Note that I am not following Bresnan and Mchombo or Kimenyi in claiming that object agreement is pronoun incorporation: for them, object agreement involves arguments in object position incorporating into V before V moves to INFL, while I crucially need to involve LP in object marking. The structure for the sentences in (18) is given in (19), where OM stands for an object marker.

(19) LP
```
           LP
          /  \
            L'
           /  \
          L    VP
          |   /  \
        OMᵢ  NP1   V'
              |   /  \
            proᵢ  V    PP
                  |   /  \
                [+L]    P'
                       /  \
                      P   NP2ⱼ
                     [-L]
```
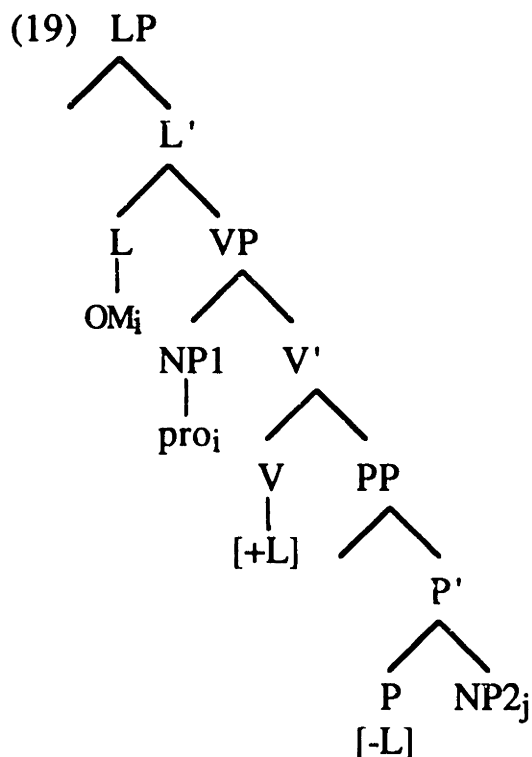
If L-licensing is Spec-Head agreement between L and its specifier, and a specifier and a head must not bear different referential indices, only an NP that may move to LP for L-licensing may trigger object agreement; if the structure in (19) contained an object marker under L coindexed with NP2, NP1 would not be able to move to LP, since its referential index would not match the index on the head of LP. And, again, NP2 cannot move to LP without leaving NP1 unlicensed. Therefore, only NP1 will be able to trigger object marking on the verb.

2.3.2   Asymmetrical object constructions with lower object L-licensing

2.3.2.1   Licensing structure

A major characteristic of the multiple object constructions studied in the last section is that only one V can be [+L]. We now turn to constructions in which this same characteristic results in the lower object,

rather than the upper object, receiving L-licensing. Recall that in the structures in (16) and (19) there was no legitimate way for NP1 to get licensed at all if it could not be L-licensed: this prevented NP2 from being L-licensed itself. Constructions in which NP2 is L-licensed, then, must have alternative means of licensing NP1. There are, in fact, at least two ways this can be accomplished: by oblique morphological case-marking, as in Turkish, as shown in (20), and also by sister-licensing within an adjunct PP, as in Chicheŵa Type 2 causatives, which I will not discuss in this section; see Chapter 4 for an account of how they work. Turkish data in this section are from my own work with native speakers.

(20)   Mehmet Hasan-a kitap-ı ver-di.
       Mehmet Hasan-dat book-acc give-pst
       "Mehmet gave Hasan a book."

The sentence in (20) has the structure in (21), where the upper object shows up with morphological dative case-marking, while the lower NP is marked with accusative case. While morphological accusative case-marking is not necessarily inherently associated with L-licensing, I propose that in Turkish in fact the lower object is L-licensed, as the data from Passive below will show.

(21)　　　LP

```
              LP
             /\
            /  \
           /    L'
          /    /\
         /    /  \
        VP        L
       /\
      /  \
    NP1    V'
          /\
         /  \
        PP    V
       /\     |
      /  \   [+L]
     /    \
    P'
   /\
  /  \
 NP2    P
       [-L]
```
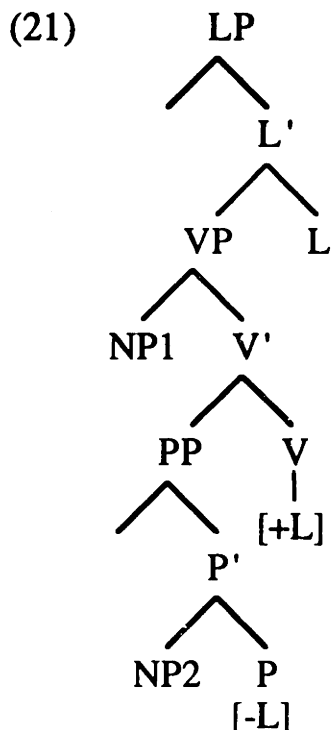
I claim that in Turkish sister-licensing by V is not a valid form of licensing (sister-licensing by P must be possible, as Turkish allows NPs with no morphological Case to be objects of postpositions). Therefore, NP2 must be licensed in some other way. The only other possibility will be L-licensing, but if NP2 raises to LP in order to get L-licensing,[11] we are left with a problem: since there is only one [+L] head, NP1 will not be L-licensed and must be licensed in some other way. This is done through morphological case-marking: Turkish allows NPs to be licensed through Spec-Head agreement with a lexical head of the appropriate type. In this case, the upper predicate of "give" has the lexical property that it can assign dative case-marking to its specifier, and does so. Thus, NP1 and NP2 are both licensed through Spec-Head agreement, NP1 receiving

---

[11]Since morphological case is involved, I propose that NP2 actually raises to LP in the syntax; the accusative morphology is associated with L, and must be discharged onto an NP in a Spec-Head relation with L in the syntax, since it contains phonological material.

morphological licensing (inherent Case) in the form of dative case-marking from V1, and NP2 receiving L-licensing (structural Case) and morphological accusative case from L.

2.3.2.2   Passive

While the morphological accusative marking on the lower object and the morphological dative marking on the upper object in (20) suggested that the lower object was the sole NP with object properties, morphology alone is not a reliable indicator of object properties, as we saw in Imbabura Quechua and will see again in Japanese in Chapter 4. The data in (22), however, show that in Turkish morphological accusative is actually correlated with L-licensing.

(22) a. Kitap (Mehmet tarafından) Hasan-a ver-il-di.
          book (Mehmet by) Hasan-dat give-pass-pst
          "The book was given to Hasan (by Mehmet)."
      b. *Hasan (Mehmet tarafından) kitap-ı ver-il-di.
          Hasan (Mehmet by) book-acc gives-pass-past
          Hasan was given a book (by Mehmet)."

The passive of multiple object constructions such as (20) in which the lower object is L-licensed works in much the same way as passives of other single-[+L] languages: the passive morpheme in L nullifies the [+L] on the upper predicate, resulting in a lack of any [+L] feature to permit LP to L-license an object. NP1 is unaffected: it may continue to be licensed just as it was in the active sentence, since the ability of the verb to assign dative morphological case is not dependent on its [L] value.[12] This results in the

---

[12]In fact, V (and its trace) may still be [+L] in the V position, since it is not until it incorporates into L that its [+L] feature is erased.

grammatical passive in (22a). If the dative NP1 were to move to AGRP in a passive, the lower object would be completely unlicensed, since sister-licensing is not an option in Turkish, and L-licensing has been suppressed by the passive; this results in the ungrammatical (22b).

2.3.2.3 Object marking

Since Turkish does not have object marking, I cannot discuss it here. In Chicheŵa Type 2 causatives, which I will discuss in Chapter 4, only the lower object can trigger object marking, as expected.

We have seen that asymmetrical object constructions share the property of only allowing one [+L] predicate per sentence; when there is more than one predicate in the sentence, the lower verb loses its [+L] marking, resulting in a single L-licensing LP. This results in one NP being L-licensed and the other left to be licensed by independent devices. Since Passive and object marking affect [+L] and the LP, only the object that relies on [+L] and LP for its licensing will be affected; the other object will continue to be licensed in its original fashion. Asymmetrical object constructions are of two types. The first type occurs in languages where sister-licensing is sufficient to license an NP; the lower NP, which is the sister of a lexical head, will be sister-licensed, allowing the upper NP to take L-licensing. In the second type of asymmetrical object construction, the lower NP will be L-licensed, either because something has demoted the upper NP, freeing LP for the lower NP, as in Chicheŵa (to be discussed in Chapter 4), or because sister-licensing is not sufficient and alternative methods exist for licensing the upper NP, as in Turkish. We now turn to symmetrical object constructions, in which both NPs may be L-licensed.

2.3.3   Symmetrical object constructions

2.3.3.1   Licensing structure

In symmetrical object languages such as Sesotho, Japanese[13] and Kinyarwanda, there may be multiple [+L] predicates in a single sentence,[14] and multiple LPs as well. As mentioned above, I am assuming that the feature [+L] is like a discrete entity, so that a complex V composed of two [+L] Vs will have two [+L] features to discharge; this assures that each [+L] feature can be associated with an LP, and thus that there may be multiple L-licensed NPs. Examples of multiple object constructions are given in (23); (23a) is the Kinyarwanda double object construction we saw in (2) above and (23b) is a Sesotho double object construction.

(23) a. Umugabo y-a-haa-ye umugóre ibitabo.
          man subj-pst-give-asp woman book
          "The man gave the woman the book."
      b. Ntate o-rut-a bashanyana litsomo.
          father subj-teach-fv boys folktales
          "My father teaches the boys folktales."

The mechanism for L-licensing is more complex here than in single-[+L] languages; consider the structure in (24).

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[13]I postpone discussion of Japanese until Chapter 4, as there are some aspects of licensing that are different from the Bantu cases discussed here.

[14]There need not always be multiple [+L] predicates when there are multiple predicates: Sesotho permits multiple [+L] predicates, as we will see, but, as shown in Section 2.2.1, it also has multiple predicate constructions with only one [+L] predicate. The object asymmetry in these constructions is due not to a restriction on the number of [+L] predicates, but to an idiosyncratic property of the upper predicate which removes [+L] from the predicate it governs. I will discuss this further in Chapter 4.

(24)   LP1

```
(24)     LP1
         /\
         L'
        /\
      L1  LP2
          /\
          L'
         /\
        L2  VP
           /\
         NP1  V'
             /\
            V   PP
            |   /\
          [+L]  P'
                /\
               P  NP2
              [+L]
```
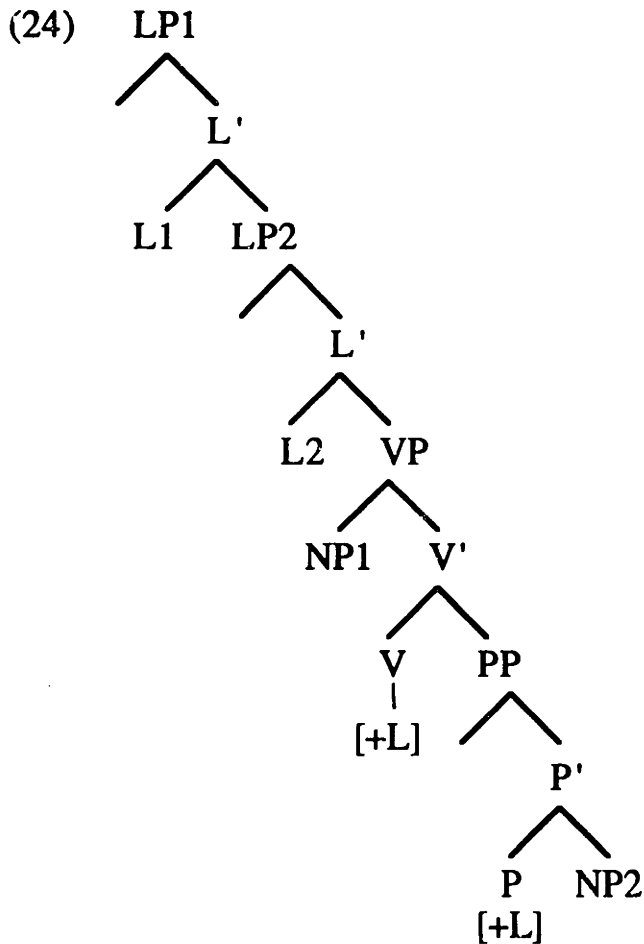
Here both NP1 and NP2 may move to an LP, since there are two LPs available. As suggested in the discussion of Chomsky's theory above, Pesetsky's (1982) Path Containment Condition will force NP2 to move to LP1 and NP1 to move to LP2, so that their paths of movement will be nested. Something more needs to be said, however, about how precisely [+L] associates with L to activate L-licensing; in single-[+L] languages, L will be the sister of the [+L] predicate after incorporation, but here only one L, L2, will be the sister of a [+L] predicate, since by the time the verbal complex reaches L1, L2 will be the head; the structure of (24) after incorporation is shown in (25) (NPs are left in their base positions, since this is the structure before the LF-movement of the NPs to LP).

(25)

```
LP1
 |\
 | L'
 |  |\
 | L1  LP2
 |  |\   |\
 L1 L2k  |  L'
     |\  |  |\
   L2k Vi L2k VP
    |\  |  |\  |\
   Vi Pj tk ti NP1 V'
                  |\
                 Vi  PP
                 |\   |\
                ti tj  P'
                       |\
                       P  NP2
                       tj
```
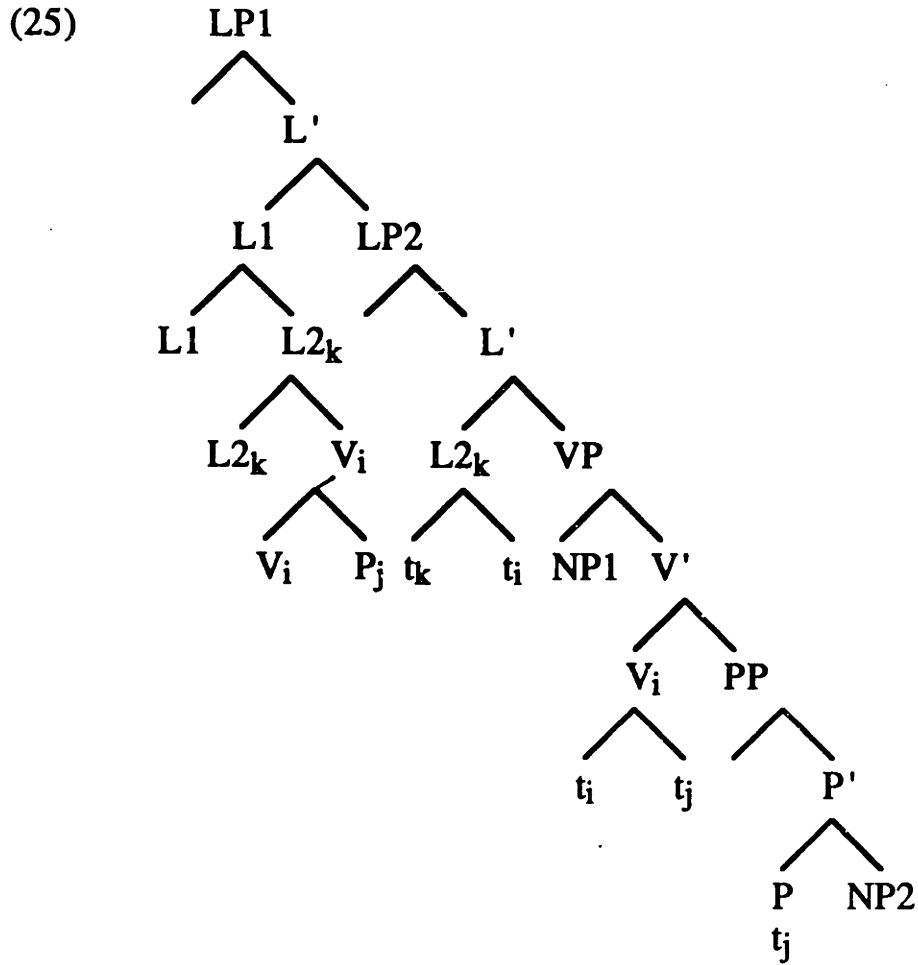
Here L2, as we see, has V incorporated into it, and since V is [+L] L2 will be the sister of a [+L] predicate and will be able to L-license. L1, on the other hand, has L2 incorporated into it, and does not have a [+L] predicate as its sister. I suggest that the requirement for L-licensing be merely that L c-command a [+L] predicate within its maximal projection; while "c-command within a maximal projection" usually means "is sister to", by defining the requirement for the relation between L and the [+L] predicate in terms of c-command we can allow LP1 to "see" [+L], which is the desired result.

2.3.3.2 Passive

In symmetrical object constructions, as in asymmetrical object constructions, the passive morpheme in L[15] removes [+L] from one predicate and demotes the subject of the sentence. However, the other predicate's [+L] marking remains unaffected, so there will still be one LP available to license an object. This means that no matter which of the objects moves to Spec,AGRP to fulfill the subject requirement, the other object will be able to be licensed, either simply through sister-iicensing or through L-licensing.[16] As the data in (26) show, either NP1 or NP2 can become the subject of a passive ((a-b) = (4) above).

(26) a. Igitabo cy-a-haa-w-e umugóre n'ûmugabo.
books subj-pst-give-pass-asp woman by man
"The book was given to the woman by the man."

     a'. Umugóre y-a-haa-w-e ibitabo n'ûmugabo.
woman subj-pst-give-pass-asp books by man
"The woman was given the books by the man."

     b. Bashanayana ba-rut-o-a litsomo (ke-ntate).
boys subj-teach-pass-fv folktales (by-father)
"The boys are taught folktales (by my father)."

     b'. Litsomo li-rut-o-a bashanyana (ke-ntate).
folktales subj-teach-pass-fv boys (by-father)
"The folktales are taught to the boys (by my father)."

This analysis of Passive predicts that the object which does not become the subject of the passive should be able to show object properties such as

---

[15]In these languages it does not actually matter which L hosts the passive morpheme, since in either case the effect will be of one [+L] LP and one [-L] LP. See the discussion of Japanese in Chapter 4 for a case in which the structural position of the passive does make a difference.

[16]If NP1 becomes the subject of a passive and NP2 moves to LP for L-licensing, their paths of movement will not be nested, but since they move at different levels of representation, this should not be a problem.

object marking on the verb, since Passive does not suppress the only [+L] licenser in the sentence. This is true in at least one Kinyarwanda-type language, SiSwati, as shown in (27), where NP2 triggers object agreement while NP1 is the subject of a passive.[17]

(27) Tòzí ú-lí-gèz-is-w-è ngù mákè (libhòdò).
      Tozi subj-obj-wash-caus-pass-tns mother (pot)
      "Tozi was made to wash it (the pot) by mother."

2.3.3.3   Object marking

Symmetrical object Bantu languages may allow either object in a multiple object structure to show up as object marking on the verb, sometimes not merely choosing one or the other, but marking both at the same time, as in (28c). This is because each object may move to LP without interfering in any way with the licensing of the other object. Examples are given in (28) for Kinyarwanda (data from Baker 1988a) and (29) for Sesotho(c-d being examples of an applicative).

(28) a. Umugabo y-a-ki-haa-ye umugore
          man subj-pst-obj-give-asp woman
          "The man gave it to the woman"
      b. Umugabo y-a-ba-haa-ye igitabo
          man subj-pst-obj-give-asp book
          "The man gave them the book"
      c. Umugabo y-a-ki-ba-haa-ye
          man subj-pst-obj-obj-give-asp
          "The man gave it to them"

---

[17]The reverse case, where NP1 would trigger object marking with NP2 the subject of a passive, is not possible. I discuss this phenomenon in Chapter 5

(29) a. Ntate o-ba-rut-a litsomo.
          father subj-obj-teach-fv folktales
          "My father teaches them folktales."
    b. Ntate o-li-rut-a bashanyana.
          father subj-obj-teach-fv boys
          "My father teaches them to the boys."
    c. Banana o-pheh-ets-e 'me nama.
          girls subj-cook-appl-fv mother meat
          "The girls cooked meat for my mother."
    d. Banana ba-e-mo-pheh-el-a.[18]
          girls subj-obj$_{DO}$-obj$_{Ben}$-cook-appl-fv
          "The girls cooked it for her."

Note that in (28c), where both objects are expressed as object markers, the order of object markers is NP2-NP1; this further supports the claim I made above that the paths of movement of NP1 and NP2 are nested. If NP2 ends up in LP1 and NP1 ends up in LP2, their order will be the reverse of their D-structure order. Since the full NPs do not move to LP until LF, we do not see this reversal; however, as I argued earlier in this chapter, object markers are coindexed with pros, which must move to LP in the syntax in order to be licensed. The order of the object markers shows that indeed NP1 must be in LP2 and NP2 must be in LP1, just as predicted.

2.2.4   Summary of licensing variations

We have seen that languages vary as to whether they allow sister-licensing by a predicate to be sufficient to license an NP and whether an NP

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[18]Machobane gives no examples of double object marking; I offer this example merely for an indication of the probable facts, as the source of the sentence is a native speaker of Xhosa who learned Sesotho in school. I have not been able to check it with a native speaker. I should also point out that this speaker for d the opposite order of object markers grammatical and synonymous with (29d).

may be licensed by Spec-Head agreement with an appropriate lexical head. Languages also vary as to whether they allow one or many [+L] heads in a single sentence and, if only one, which object NP will be L-licensed. If a language allows multiple [+L] heads, constructions may vary as to whether there will be one or many [+L] heads, as we saw in Sesotho, where upper predicate of the verb *qel*, "ask", suppresses [+L] on the predicate it governs. The variation of licensing in types of multiple object constructions discussed in this chapter is summarized in the table in (30).

(30)

Construction	# of [+L] heads/ which NP L-lic.	Sister-lic. allowed?	Lex. head-lic. allowed?
Chicheŵa causative[19]	one/lower	yes	no
Chicheŵa applicative	one/upper	yes	no
Sesotho *qel*	one/upper	yes	no
Sesotho *rut*	many	yes	no
Kinyarwanda	many	yes	no
Turkish	one/lower	no	yes
English	one/upper	yes	no

2.4 Summary of the theory of licensing

All NPs must be licensed at least by LF in order to be legitimate. Licensing can be of three types:

1) <u>L-licensing</u>: at LF, an NP moves to the specifier of the functional projection LP; if LP c-commands a [+L] predicate within its

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[19] I refer here to the "Type 2" causative in Chicheŵa, where the causee is the object of a preposition, which is not discussed in this chapter, but is mentioned in Section 2.3.2. There is another type of causative, mentioned by Alsina and Mchombo (1989), which looks like the applicative in licensing the upper NP.

maximal projection (i.e., if a [+L] V has incorporated into L), then it will L-license NP via Spec-Head agreement.

2) Sister-licensing: at D-structure, an NP may be sister-licensed if it is the sister of a V or P head. This type of licensing is not always available; Turkish does not recognize NPs which are sisters of Vs as being licensed (although sisters of Ps are sister-licensed in this language).

3) Lexical head (morphological) licensing: some languages permit licensing via Spec-Head agreement in lexical projections as well as LP. This type of licensing is restricted to [+L] lexical heads which have a morphological case to assign.

Object properties such as the ability to become the subject of a passive and to trigger object marking on the verb are a consequence of L-licensing only; languages and constructions vary according to whether they allow one or many NPs to be L-licensed. This variation arises from a parameter determining whether there may be one or many [+L] predicates in a single sentence; if a language allows only one, only the uppermost predicate in a construction will be [+L]; other predicates will lose their [+L] marking under government by the uppermost predicate, and there will thus never be more than one L-licensed object. If a language allows many [+L] predicates in a sentence, then in theory all objects can be L-licensed. In practice, however, a given predicate may remove [+L] on a predicate it governs as a lexical property: this is the case for certain Sesotho double object verbs (and also causative verbs in this language). This simple parameter of one or many [+L] features, plus the three possibilities for licensing, is sufficient to determine the wide range of object behaviors demonstrated in this chapter. The next chapters offer more applications of the theory of licensing.

CHAPTER 3:   APPLICATIVES

The term "applicative" is generally used to designate a construction, prevalent in the Bantu languages, in which the presence of a morpheme on the verb is correlated with the presence of an extra argument in the sentence. There are different types of applicatives--benefactives, locatives, and instrumentals being the most common--but they have in common the fact that they can be translated into English by a V + PP construction, the English P varying according to the type of applicative. Admittedly, this commonality is itself of little theoretical value; however, I show in this chapter that in fact both applicative constructions and English prepositions have at their root the notion "relation", which is expressed in the l-syntax as a preposition. Differences among different types of applicatives are due to differences in how this relation is expressed. Section 3.1 develops a theory of preposition inversion in the English dative-double object alternation and locative alternation verbs. Section 3.2 presents examples of applicative constructions and outlines their characteristics; Section 3.3 shows how the preposition inversion analysis developed in Section 3.1 extends to applicatives. Section 3.4 reviews previous analyses of applicatives, presents data that are problematic for these accounts, and shows how the present analysis accounts for these data. Finally, Section 3.5 summarizes the major claims of this chapter.

3.1   Preposition inversion

In order to explain applicative constructions using inversion operations on prepositions, I must first discuss the nature of prepositions and their inversion properties. I begin by discussing the English dative-double object alternation for, as Baker (1988a) observes, there are many similarities between datives and applicatives. Intuitively, both applicative constructions and dative double object constructions can be paraphrased (in English) by V-PP constructions, and when they are so paraphrased, the order of the two postverbal NPs is the reverse of what we find in the V-NP-NP benefactive or double object construction (leaving aside non-benefactives for the moment). This similarity is maintained not only in the V-NP-NP surface sequence, but also in the behaviors of the two NPs: typically, the first, the applied object or dative object, is able to become the subject of the corresponding passive and trigger object agreement on the verb, among other properties typically reserved for canonical objects. I will argue that double object constructions and applied verb constructions are in fact instances of the same phenomenon of P inversion. The section is organized as follows: Section 3.1.1 examines recent analyses cf double object constructions and shows why they are inadequate to account for applicative constructions. In Section 3.1.2 I present a theory of preposition inversion which is responsible for locative alternations as well as double object constructions. Finally, Section 3.1.3 shows how this view of prepositions can account for applicatives as well.

3.1.1 Double object constructions

My intent here is not to provide an in-depth analysis of all important approaches to double object constructions. Rather, I outline the basic ingredients of the major theories and evaluate them with an eye to explaining applicative constructions as well. There are three types of theories of the dative double object alternation: those that derive the double object construction from the prepositional dative (Larson 1988a, Baker 1988a), those that derive the prepositional dative from the double object construction (Aoun and Li 1989), and those that treat the two as separate constructions (Marantz 1990, Pesetsky 1990). I will consider each type briefly in turn.

3.1.1.1 Prepositional dative --> double object

The best known theory of this type is that of Larson (1988a). Larson proposes the structure in (1) for the prepositional variant of *give Pat a book*, and derives the double object construction from it.

(1)

```
              VP1
             /  \
               V'
              /  \
            V1   VP2
            |    / \
            e  NP1   V'
               |    / \
            a book  V2   PP
                    |   / \
                  give P   NP2
                       |    |
                      to   Pat
```
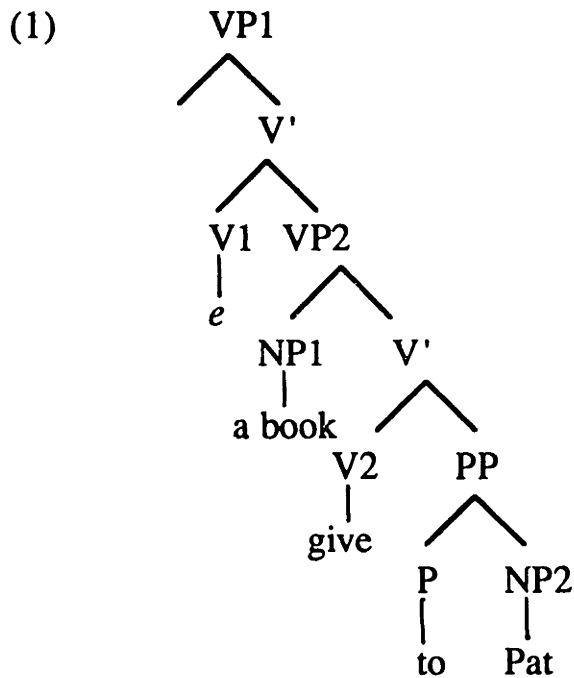
To derive the double object construction, Larson proposes that V2 undergo Passive, resulting in the disappearance of the Case-marking P and the dethematization of the specifier of V2, *a book*. This NP may resurfɑ ᵓ adjoined to the V', on analogy with Passive *by-* phrases, while the Caseless NP2, *Pat*, moves to the NP1 position to receive Case. This switches the word order and puts *Pat* in a canonical object position, as shown in (2).

(2)

```
            VP1
           /    \
             V'
           /    \
         V1   VP2
          |   /    \
          e  NP2    V'
              |    /    \
             Pat  V'    NP1
                 /   \   |
                V'    NP1 a book
               /  \
              V   NP2
              |    |
            give   t
```
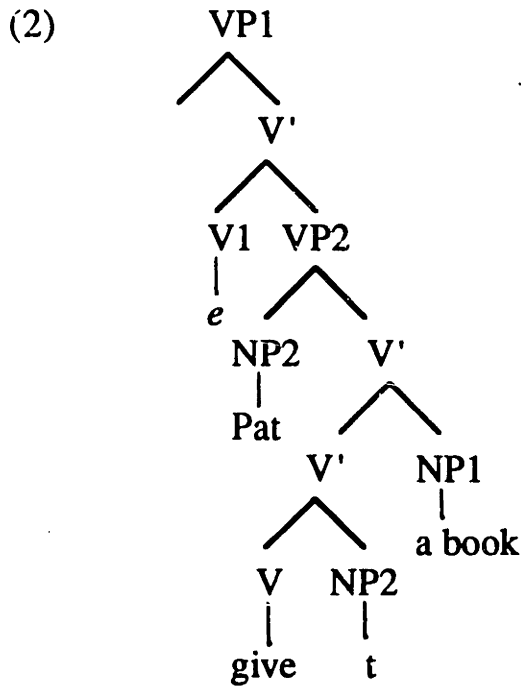
If this analysis is extended to applicative constructions, a number of problems arise. First, since the original direct object *(a book)* is expressed as an adjunct in (2), there is no way for it to exhibit canonical object properties, as it does in languages like Sesotho and Kinyarwanda.[1] Second, the optionality of the word order in non-benefactive applicatives is hard to explain: if the instrumental or locative preposition which alternates with the applicative construction is a Case-marker that gets deleted or absorbed into the verb in the applicative, then the instrumental or locative applied object should not be able to get Case if it is not in immediate postverbal position. Third, since dative verbs and benefactive applicatives appear only in double object form and do not alternate with a prepositional form in most Bantu languages, there must be obligatory passivization of the verb in

---

[1]As we saw in Chapter 2, even nonapplicative double object constructions in Sesotho and Kinyarwanda may have both objects showing object properties, so Larson's analysis does not work in these languages even in the domain for which it was designed.

dative structures or whenever the preposition is benefactive--not impossible, perhaps, but certainly odd.

I have glossed over many details of Larson's analysis and do not pretend to have done justice to it. By this cursory glance, however, we can see that deriving an applicative from a prepositional construction in this sort of way is awkward, to say the least.

3.1.1.2   Double object -->prepositional dative

Aoun and Li (1989) propose the following structure for the double object construction *give a book to Pat*:

(3)

```
        VP1
       /   \
     V1     sc
      |     / \
    give  NP1  VP2
           |   /  \
          Pat V2   NP2
               |    |
               e   a. book
```
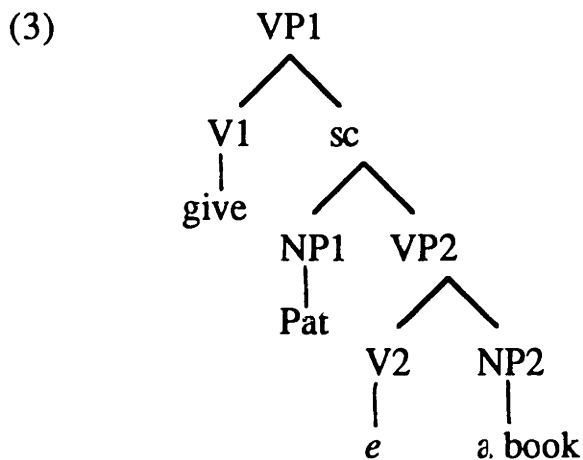
The prepositional dative *give a book to Pat* is derived by passivization of the small clause, resulting in the dethematization of NP1 and the removal of Case from NP2. NP2 moves up to the specifier of the small clause, and *Pat* is adjoined to VP2 and is assigned Case by *to* (again on the analogy of the *by*-phrase). The resulting structure is given in (4).

(4)

```
              VP1
             /  \
              V'
             /  \
          V1    sc
          |    /  \
          e  NP2   VP2
             |     /  \
          a book VP2   NP1
                /  \    |
              VP2  NP1 to Pat
             /  \   |
            V   NP2 to Pat
           /     |
          e      t
```
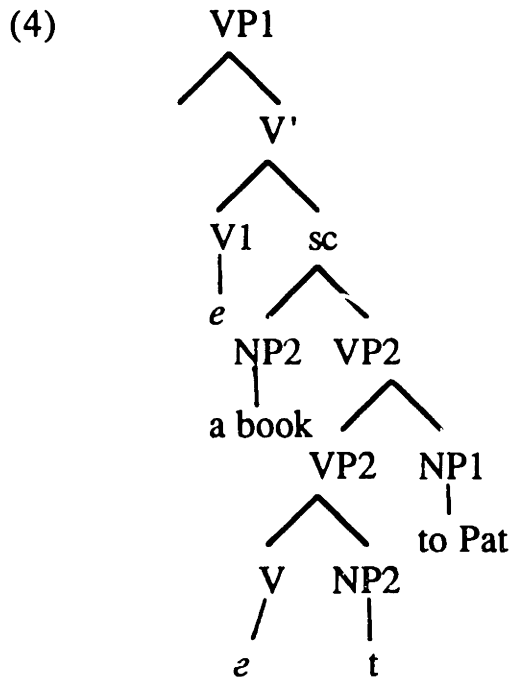
While this version avoids the problem of forcing passivization for all applicative constructions, it still has the first two problems that deriving double object constructions from prepositional datives has: it cannot account for the fact that in symmetrical object languages the NP adjoined to VP2 not only does not have a preposition, but behaves like an object; and it cannot explain why the order of the two NPs can vary without any change in morphology in non-benefactive applicatives. These two approaches have the flaw of forcing one argument to show up as an adjunct, which, although it works for English datives, does not work for applicative constructions.

3.1.1.3   Separate structures

The third logical possibility is to claim that prepositional datives and double object constructions are not derivationally related in the syntax (though they may be related or identified at the level of argument structure, lexical-conceptual structure, or some other level). This point of

view simply says that prepositional datives and double object constructions enter the syntax with different structures. Marantz (1990), for example, gives double object verbs the same structure as applicatives, with a V taking a VP complement, and distinguishes them from prepositional datives, which have a single VP with a PP complement, and Pinker (1989) gives separate structures for the two types of datives at the level of thematic structure. It would be desirable to capture the relationship between the prepositional dative and the double object dative in some way, since the verb in both structures has a single phonological form and the two variants are almost identical in meaning, but the previous subsections have shown that syntactic derivation of one from the other is problematic when applied to a broader range of structures. The separate-structures approach holds that the similarity between the two structures is semantic (or thematic), not structural; while it is certainly true that there may be a semantic level at which double object and prepositional datives are related, I will argue that it is not necessary to give up on their being related structurally as well. In the next section I advocate deriving the two variants not one from the other, but both from a single source.

3.1.2 Locative alternation verbs and inversion

In order to develop an account of the dative alternation it will be useful to turn first to locative alternation verbs such as those described in Levin and Rappaport (1986). In earlier work (Hoffman 1991) I proposed that English locative alternation verbs are the result of a choice in how prepositions are represented phonologically; I argued that prepositions appear in the argument structures of verbs simply as bundles of features,

and that certain verbs can take a variety of different prepositional features on P nodes in their argument structures. Thus, a verb such as *stuff* has an l-syntactic structure like that in (5), where the features under P might be such as to be compatible with the lexical preposition *with*, as in *Robin stuffed the pillow with feathers*, or they might be those compatible with a *into*, as in *Robin stuffed feathers into the pillow*.

(5)

```
        VP
       /  \
          V'
         /  \
        V    PP
        |   /  \
      stuff N1   P'
              /  \
             P    N2
             |
       [abstract features]
```
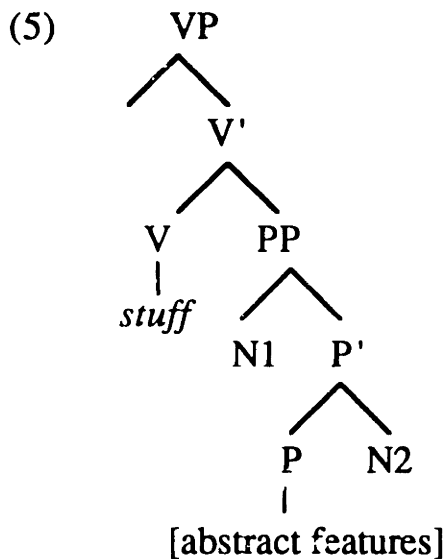
Allowing features within *stuff* 's argument structure to change will result in the same phonological and semantic material being associated with different l-syntactic forms: does this mean that *stuff* is actually two verbs? Although in a larger sense the two variants of *stuff* are different verbs, since their argument structure trees are not featurally identical, I define two predicates as the same if they have identical phonological and semantic material under the head V node and categorially identical arguments in their l-syntactic trees. This captures the intuition that the two variants of *stuff* "mean" the same thing, in a non-theoretical sense, and allows some manipulation of l-syntactic trees without creating a new verb every time.

I would like to claim here that the locative alternation is due not to allowing a verb to choose among a range of features in a preposition it selects, but to the potential for prepositions to be bidirectional: *with* and *into* are thus inverse ways of expressing essentially the same relation between N1 and N2.

The role of prepositions in the grammar is to represent relations between two grammatical objects; the rough paraphrase of the structure of *stuff* in (5), for example, is something like "bring it about in a stuffing manner that N1 is in a relation P to N2". The relation is expressed through predication: P and its complement form a predicate, P', which is predicated of an N governing it in Spec,PP position. Now if N1 stands in some relation to N2, N2 must also be related to N1, since relations necessarily require at least two participants. The relationship N2 has to N1 is the inverse of the relation N1 has to N2; for example, if N1 is "in" N2, N2 is "around" N1. We see this sort of alternation all the time: if I say that a book is on a box, this could be equally well expressed by saying that the box is under the book. Of course, "the book is on the box" and "the box is under the book" do not mean the same thing, because the focus is different, but the truth-values for the two sentences are the same. Using the familial terminology often associated with syntactic tree structures, we can make intuitive sense of this notion of bidirectional relation by saying that if N1 is the aunt of N2, N2 must be the niece of N1; this single relation has two names, depending on the direction in which it is expressed.

Returning to the structure in (5), then, we can say that the relation between N1 and N2 has certain constant properties--location and surrounding, perhaps--and that this relation can be expressed in either direction. By "direction" I mean that, given N1=*feathers* and N2=*pillow*, for example, either P' (P,N2) can be predicated of N1 (the feathers are in a relation P with the pillow), or P' (P,N1) can be predicated of N2 (the pillow is in a relation P with the feathers). In the first case, *feathers* will be in the position labeled "N1" in (5), while in the second case, *pillow* will occupy this position (see (6) below). I claim that the directionality of prepositions is expressed through a single feature, just as the aunt/niece relation is a single relation (involving the child of a sibling) which varies depending on whether it goes up or down a generation from the individual it is predicated of. Borrowing terminology from Hale (1985), I use the feature [central] to change directionality, where *with* is the [+central] overt variant of the abstract preposition (the pillow is centrally coincident with the feathers, that is, they occupy the same space) and *into* is the [-central] overt variant (the feathers undergo a change of which the endpoint is the pillow).[2] The two variants of *stuff* will thus have the structures in (6), with (6a) being the [+central] variant and (6b) the [-central] variant. The nouns in parentheses are inserted for concreteness only.

---

[2]For the purposes of the theory of the directionality of prepositions, it is actually irrelevant what precise semantics the feature [central] has: I use it as a feature that changes which argument of a preposition is internal to F', and could just as easily call the feature [direction] or some such. As it happens, however, the two manifestations of the Ps in alternating verbs turn out to vary in the feature [central], and I believe it is in fact this feature that triggers the directionality change. If this particular feature turns out after future research not to be involved in *all* directionality switches, then what is lost is the neatness of the theory in accounting for directionality with a feature that is needed anyway; we do not lose the essence of the analysis, which is that there exists a feature that governs directionality.

(6) a.

```
        VP
       /  \
          V'
         / \
        V   PP
        |   / \
      stuff /   \
           N1    P'
           |    / \
        (pillow) /   \
                P    N2
               /    /
        [+central] (feathers)
          [αF]
          [βG]
          etc.
```

b.

```
        VP
       /  \
          V'
         / \
        V   PP
        /  / \
     stuff /   \
          N1    P'
          |    / \
       (feathers) /   \
                 P    N2
                /     |
         [-central] (pillow)
           [αF]
           [βG]
           etc.
```
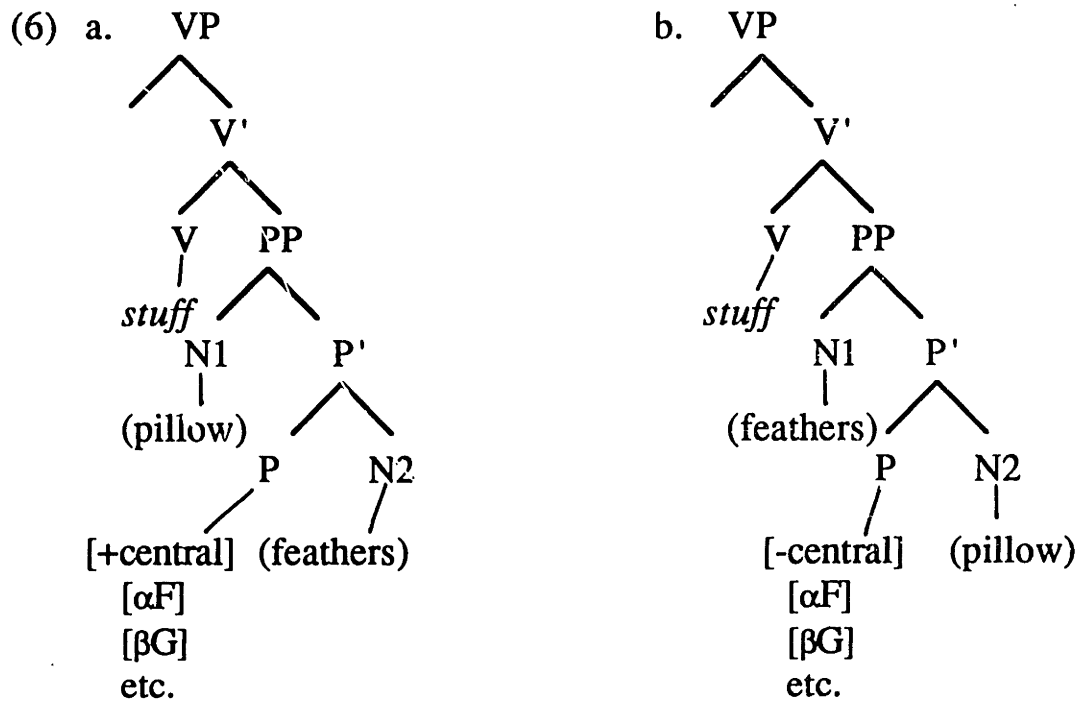
Concomitant with the invertibility of the P is the fact that either object in a locative alternation verb can end up being the "affected" object (the object that undergoes a change of state, roughly) in the sense of Tenny (1987). At l-syntax, the specifier of the predicate complement of a verb is the canonical affected object position; a rough paraphrase of the relations captured by l-syntax would be that the upper verb acts on the argument it most closely governs to bring about a change of state, location, etc (see Hale and Keyser, work in progress, for discussion). Whichever argument is in the specifier of the lower predicate at l-syntax will thus be the affected argument; since P can invert, either argument may end up in this position, "pillow" in (6a) and "feathers" in (6b). Inverting the semantic relation expressed by P thus has the result that the structural relation between V and the two Ns changes as well, which in turn results in a semantic change in affectedness.

Affectedness has a bearing on whether a given verb will allow a P in its argument structure to invert. In general, verbs vary as to whether they allow a P in their l-syntactic structure to have only one value of [central] or both; in contrast to *stuff*, which allows both values, *fill*, for example, allows only the [+central] value, while *pour* allows only the [-central] one, as shown in (7)-(8).

(7)   a. Sal filled the hole with cement.
      b. *Sal filled cement into the hole.

(8)   a. Pat poured cement into the hole.
      b. *Pat poured the hole with cement.

Since allowing either value of [central] for P results in having either NP be the affected object, the semantics of a verb taking both values must be compatible with either object being affected. Since the semantics of *fill* require that the container argument (*hole*) always be the affected object, the [-central] P, which would force *cement* to be the affected object, is not allowed with this verb. Likewise *pour*, which requires the material being poured always to be affected and does not specify affectedness for the container, cannot take a P which would put the container in affected argument position. Thus, among verbs which express the bringing about of a relation between two objects, the semantics of the verb with respect to the affectedness of its objects will determine whether or not the relation can be expressed in either direction.[3] Of course, there are also many verbs

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[3]See Pinker (1989) for a more thorough discussion of the semantics of locative alternation verbs and a possible motivation for determining the affectedness of the object;

that do not take prepositions at all, except as adjuncts; these are verbs without Ps in their l-syntactic structure, verbs which do not express the bringing about of a relation between objects as part of their inherent meaning.

I should point out that the discussion of the invertibility of prepositional features refers to the representation of prepositions *in the argument structure of verbs*. Each lexical item has its own entry, and included in that entry are a phonological shape, semantic features and an argument structure, if applicable. Due to a general constraint (in English) against having more than one fully specified lexical item in an l-syntactic tree, only the head of the argument structure may have its full range of semantic features and phonological instructions; other heads in the tree may be represented only by semantic features selected by the verb (that is, the argument structure of *stuff* does not contain the independent lexical item *into*, but selects features under the P node in its argument structure that in turn are compatible with *into*). Nouns bear the familiar features relevant for selection restriction--[animate], [mass], etc.--while prepositions bear relational features, including [central]. As an example, consider more closely the argument structure of one variant of *stuff*, repeated in (9); I am leaving out the semantic features on the nouns, which are irrelevant to the present discussion.

---

while I do not adopt his analysis of argument structure, much of his theory of lexical semantics is useful here.

(9)

```
          VP
         /  \
           V'
          /  \
         V    PP
         |   /  \
       stuff
           N1    P'
                /  \
               P    N2
               |
           [-central]
           [+locational]
              etc.
```
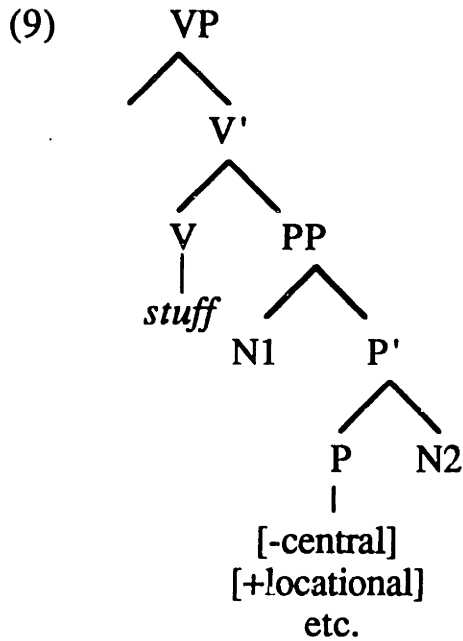
Here the P is specified as [-central]; this will give us the *stuff the feathers into the pillow* variant. Other features required by the verb are also present. There are usually several prepositions compatible with a given set of features: for example, *put* seems to require only that the P node in its l-syntactic tree bear a directional locative feature, and many lexical prepositions fit this description. In the case of *stuff*, fewer options are available, but there is still a choice between *into* and *through*, for example. A rough lexical entry for *into* is given in (10); at lexical insertion, *into* can be inserted under the P node, since its features are compatible with the features selected by *stuff*. The s-syntactic D-structure is given in (11).

(10)

```
        PP
       /  \
      N    P'
          /  \
         P    N
       /Intu/
      [-central]
      [+locational]
        etc.
```

(11)

```
        VP
       /  \
          V'
         /  \
        V    PP
        |   /  \
      stuff
          NP    P'
          |    /  \
      feathers
              P    NP
              |    |
            into  pillow
```

When prepositions are independent lexical items, the features they have are associated with a specific phonological shape and argument structure, as in (10), and show up at lexical insertion as a specific preposition: the features themselves are not directly visible to the s-syntax. Thus, when verbs such as *die* or *eat*, which do not have a P node in their argument structures, appear on the surface with a PP, as in *Sal died in England* or *Robin ate the cake in the kitchen*, the P has no chance of alternating with respect to [central] or any other feature because the features are not visible at that level and cannot be manipulated. These verbs certainly require prepositions that appear with them to have certain

semantic characteristics, as seen by the ungrammaticality of *eat the cake onto the table* or *die toward Rome*, but this is due to the semantics of these verbs being compatible with some prepositions and incompatible with others, rather than the more precise mechanism of selection of certain features by the verb which operates at l-syntax for verbs with P complements at that level.

In English, most cases of alternating verbs are verbs that alternate between taking two different phonologically overt prepositions, as the locative alternation verbs do. However, there are cases of English verbs that alternate between an overt preposition and a phonologically null one: these are the prepositional dative/double object verbs. The structures for these look just like (5) in the l-syntax, but it just so happens that the [+central] variant of the preposition in these cases is phonologically null:[4] as an illustration, the two variants of *give* are shown in (12). Again, the specific Ns in the structures are there merely for concreteness.

---

[4]The basis for this idea can be traced to Kayne (1984); Hale and Keyser (in progress) and, independently, Pesetsky (1990) have recently proposed analyses of double object structures involving a lexical preposition alternating with a phonologically null one in the same structural configuration.

(12) a. VP

      V'

    V   PP

  give

      N1   P'

    (book)

        P   N2

      [-central] (Pat)
      [+directional]
      etc.

b. VP

      V'

    V   PP

  give

      N1   P'

    (Pat)

        P   N2

      [+central] (book)
      [+directional]
      etc.
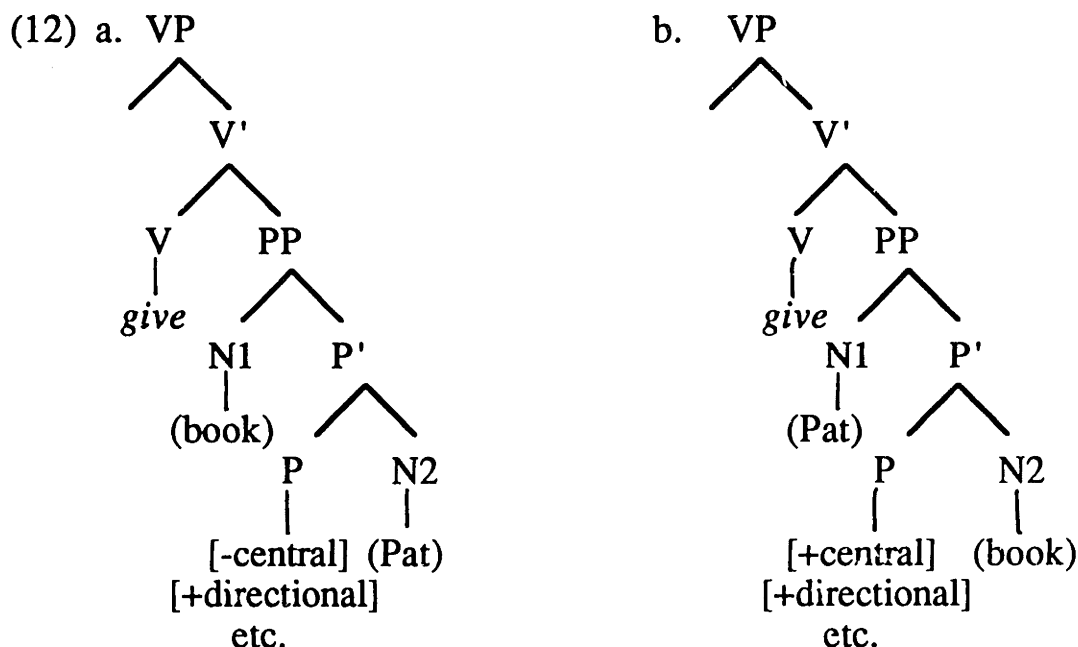
Here (12a) is compatible with the preposition which matches the features under its P and which is written *to*, while (12b) is compatible with the preposition which matches the features under its P and which has no phonological content. The linear surface order of the objects in the dative double object alternation depends on which of the structures in (12) is used, that is, which object is the specifier and which the complement of the preposition, as the P expresses its relation in one direction or another. Double object verbs are thus no different from locative alternation verbs;[5] they simply take advantage of the fact that semantic features at l-syntax need not necessarily be associated with phonological features on the surface.[6]

---

[5]Alec Marantz has pointed out to me that datives and locatives are not quite identical in behavior: while the specifier of a locative P or dative *to* can WH-extract, the specifier of the null dative P cannot; I discuss this asymmetry in Chapter 5.

[6]Further support for the existence of a phonologically null preposition comes from Yoruba, in which the verb corresponding to *give* alternates between two different overt prepositions (Peter Ihionu, p.c.).

3.1.3 The lexical benefactive alternation

3.1.3.1 English benefactives

At first glance the English benefactive alternation seems to be exactly like the prepositional dative-double object alternation: there is an alternation between a verb taking an overt preposition and the same verb taking two objects with their order reversed. However, there is a slight difference in meaning which will turn out to be important. While dative verbs can sometimes appear without an object, as in (13), the missing object is "understood" or inferred; it is an integral part of the argument structure of the verb. With benefactives, on the other hand, a verb which participates in the benefactive alternation carries no presupposition of benefaction when no benefactive is present, as shown in (14).

(13) a. ?Chris sent a book yesterday. (anomalous without context)
b. At the Red Cross blood drive, I gave my 30th pint. (to the Red Cross)

(14) a. Robin baked a cake yesterday.
b. At the Red Cross blood drive, I found $100. (no implication of "for the Red Cross")

The reason for this is that the verbs in (14) are not inherently benefactive in their argument structures, while the verbs in (13) simply have parts of their argument structures phonologically null, but still present at l-syntax. In other words, dative verbs that have the option of taking a single object still have the same l-syntactic structure, but one object may be an "understood" rather than an overt object.[7] Verbs that

---

[7]This may be accomplished by the object incorporating into the verb at l-syntax, although there may be problems implementing that possibility. For the purposes of the example at hand, it does not matter how an object in l-syntax fails to appear on the surface;

may take benefactives, on the other hand, have two separate argument structures, one with a P and one without. As has been pointed out frequently in the literature, verbs with double-object benefactives are not synonymous with the same verbs plus a *for* benefactive, as illustrated in (15)-(16).

> (15) a. Chris baked a cake for Robin.
> b. Chris baked Robin a cake.
> c. Chris baked for Robin.
> d. Chris baked Robin. (* on benefactive reading)

> (16) a. Sal sang a song for Pat.
> b. Sal sang Pat a song.
> c. Sal sang for Pat.
> d. *Sal sang Pat.

In the (a) and (c) sentences, there is a relation between the action described by the verb and the beneficiary which is independent of the object (if any) of the verb. That is, (15a) may mean that Chris's baking the cake benefited Robin by being Robin's birthday present or by being a job Robin was supposed to do; Robin need not even be aware of being benefited, as (15a) is perfectly good describing Chris's baking of a cake in Robin's memory on the anniversary of Robin's death. In the (c) sentences, the relation is even clearer: it is the action of baking or singing that benefits Robin or Pat, not necessarily the products of the action. In the (b) sentences, however, there must be a relation between the two objects of the verb: (16b) cannot mean, for example, that Pat was supposed to sing, but

---

the crucial point is that the understood object is always present in the argument structure of the verb.

got laryngitis, so Sai sang instead. The song and Pat, or the cake and Robin, must be related: Robin must come to possess or benefit from the cake (not necessarily its baking), and Pat must hear or otherwise respond to the song. The (d) sentences, where there is no object to which the beneficiary may be related, are just plain impossible with a benefactive reading.

3.1.3.2   Event-entity Ps

I propose that the benefactive differs from the locative and dative alternation verbs in the type of preposition in is: while the prepositions we have seen so far have related two entities (nouns), the benefactive P expresses a relation between an event (described by the verb) and an entity (the beneficiary). The reason for the difference in behavior between verbs with *for* and verbs with the phonologically null benefactive preposition is due not to the fact that the null preposition is the inverse of *for*, although that is true; the difference is that the lexical benefactive preposition *for* relates an entity (the beneficiary) to an event in the s-syntax, while in the double object benefactive the entity-event relation holds in the l-syntax. Consider first the difference between the two types of prepositions: the l-syntactic representations of entity-entity Ps and event-entity Ps are given in (17).

(17) a. entity-entity P   b. event-entity P

```
        PP                        PP
       /  \                      /  \
      N1    P'                  N     P'
           /  \                      /  \
          P    N2                   P    <e>
```
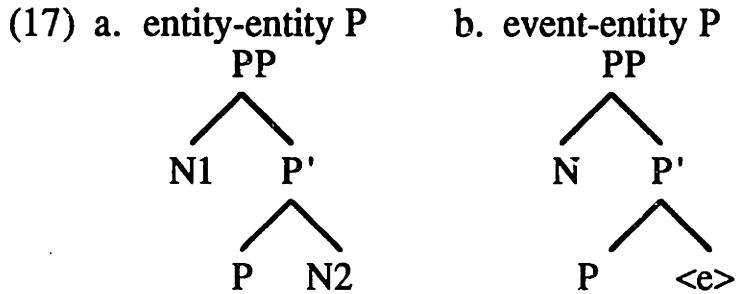
The entity-entity P in (17a) is the by now familiar P of argument structure representations, where P and N2 form a predicate, P', which must be predicated of N1 through sisterhood of P' and N1. The structure in (17b) has a P' predicate formed from the P plus an event, represented by <e>;[8] this event will be represented by a VP, the canonical category for events. The English phonologically null benefactive preposition is of this type, where N is the beneficiary of the event. A certain semantic class of verbs in English, among which are *bake* and *sing*, as we saw above, may appear with this type of P at l-syntax: the basic argument structure of these verbs may appear as the complement of the P in (17b), yielding the structure in (18), where N1 is the beneficiary and N2 is the object of the verb.

---

[8]This is intended to suggest the event position of Higginbotham (1985), but is not intended to make any claims about its nature. It is a convenient notational device only.

(18)

```
        PP
       /\
      N1  P'
         /\
        P  VP
          /\
            V'
           /\
          V  N2
```
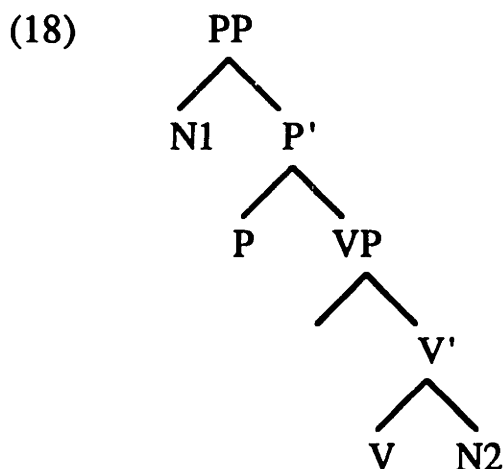
Even though the P is the uppermost head of this structure, this is still an argument structure for the V rather than for P; that is, it is the phonological and semantic specification for the verb which will appear here, under the V node. In this the structure in (18) is like the situation for *break*, discused in Chapter 1: a certain semantic class of predicate may have two argument structures associated with it, one in which its phonological and semantic material is inserted under the uppermost head of the construction, and one in which another predicate appears above the head containing the phonological and semantic information. Again, I will not discuss precisely what semantic characteristics enable a predicate to take part in this alternation; my claim is that the structure in (18) is legitimate, given the right V.

The s-syntactic form of benefactive *bake* or *sing* is derived as follows: the phonological and semantic material of the verb will be inserted under V, as usual; V will then raise to P, still in the l-syntax, in order to satisfy the requirement that the uppermost head of an l-syntactic projection contain the phonologically and semantically specified material of the

predicate by the time the lexical item is inserted into the s-syntax at D-structure. Just as in the examples in Chapter 1, traces of movement at l-syntax will not be visible at s-syntax, so that (18) will produce a single VP[9] at s-syntax, as shown in (18)', where NP1 is the beneficiary and NP2 is the original object of the verb.[10]

(18)'

```
        VP
       /  \
     NP1   V'
          /  \
         V   NP2
```
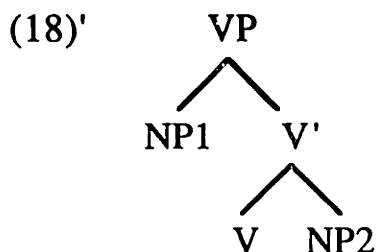
Now consider the *for* benefactive: *for* is an event-entity preposition, as the null benefactive preposition is, but its structure is the inverse of (17b), with the <e> in the specifier of PP, as shown in (19).

(19)

```
        PP
       /  \
     <e>   P'
          /  \
         P    N
```

---
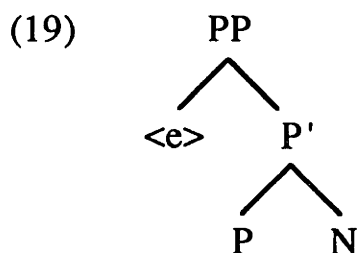
[9]Since the phonological material under P at the end of the l-syntactic derivation will be verbal, the relational predicate represented by the l-syntactic category label P will surface as the s-syntactic category V. See Chapter 1 for discussion of different predicate categories at l-syntax surfacing as the canonical s-syntactic predicate category, V.

[10]The fact that at s-syntax one object appears in the specifier and the other in the complement might seem to cause a problem for word order, since the verb should precede both NPs; however, if the verb must raise to a functional projection for inflection in the (s-)syntax, it will end up above both NPs at S-structure, and therefore precede them both at PF. This type of structure was first (as far as I know) proposed by Marantz (1989, 1990). Note that in this case something more needs to be said about the preservation of l-syntactic relations in the mapping to s-syntax: while V appropriately m-commands both of its arguments in (18)', it is necessary to specify that hierarchical relations among the arguments themselves also need to be preserved.

This structure presents a problem: while in entity-entity Ps, inversion produces an alternation between two trees which are categorially identical in all their nodes, a complex structure containing (19) will be significantly different from a complex structure such as (18), which contains (17b). If the phonological and semantic information associated with a given verb, say *bake*, were inserted under the head of a VP in the specifier of the PP in (19), as shown in (19)', the result would violate the requirement that the head of the upper projection (in this case, P) be the node containing this information. Unlike in (18), the V cannot move to P here, because it would have to lower to do so, and its trace would fail to be properly governed (see Hale and Keyser, work in progress, for discussion).

(19)' PP
```
         PP
        /  \
      VP     P'
     /  \   /  \
        V' P    N2
       /  \
      V    N1
```
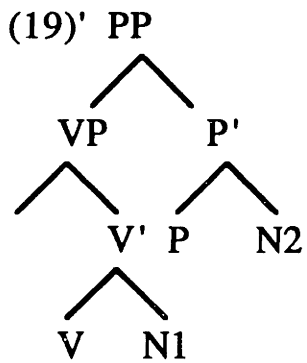
The variant of event-entity Ps in (19), then, will be unable to be realized in the l-syntax. However, it can appear in the s-syntax, and this is in fact the source for the *for* benefactive construction; the s-syntactic representation of *bake a cake for Robin* will be as in (20).

(20) VP

```
        VP
       /\
         V'
        /\
       V   PP
       |  /\
      bake NP1  P'
            |  /\
           cake P  NP2
                |   |
               for Robin
```
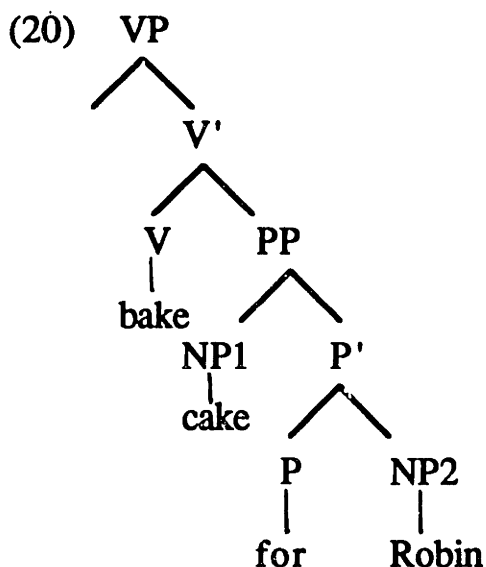
In general, a VP cannot appear in specifier position in the s-syntax any more than it can in the l-syntax, because V must move to INFL in order to receive inflection, and head-to-head movement out of a maximal projection in a specifier would result in a violation of the ECP (via the Head Movement Constraint: see, for example, Baker (1988a) and Li (1990a,b) for discussion). Therefore, just as at l-syntax, at s-syntax the P' in (19) will not be able to satisfy its predication of <e> (VP) through strict sisterhood of P' and VP. However, recall that according to the theory of projection presented in Chapter 1, the relation that must be preserved in the mapping from l-syntax to s-syntax is not sisterhood of identical items, but sisterhood of projections of heads of those items. In other words, at s-syntax the relation that must hold is not sisterhood between VP and P', as in the l-syntax, but sisterhood between a projection of V and a projection of P. The structure in (20) satisfies that relation, since V is the sister of

PP. Therefore, we see that due to the nature of projection, a structure that would be illegitimate at l-syntax can be legitimate at s-syntax.[11]

The differences between the *for* benefactives and the double object benefactives in (15) and (16) can now be accounted for: the closer relation between the two objects in the double object benefactive is attributed to the fact that they are related to each other at l-syntax through incorporation of V into P in (18); in the *for* benefactive, there is no l-syntactic relation between the two objects at all, since their respective maximal projections are not put together until s-syntax. The transitivity requirement for the double object benefactive is due to the fact that in English Ps are generally not [+L]; this means that in order for the s-syntactic V in (18)' to be [+L], the V head in (18) must be [+L] (it will, of course, transmit this attribute to P when it incorporates into it). If P took a [-L] (intransitive) V as a complement at l-syntax, the result would be a V with a single object (the beneficiary) and no way to license it.[12] The *for* benefactive has no such transitivity requirement, because *for* will sister-license its object regardless of the [L] value of the verb in (19)'.

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[11]Note that there is nothing wrong with (19) as the argument structure for P itself, which is what it is: the problem at l-syntax only arises if an attempt is made to insert phonologically and semantically specified material inside the VP representing <e>.

[12]The beneficiary would not be able to move to subject position for licensing, as in unaccusative verbs, because if the [-L] complement of P in (18) were itself unaccusative, there would be two unlicensed objects competing for the slot, and if the [-L] V were unergative, it would project an external argument to subject position, so that again there would be two NPs competing for the licensing position. Note that this assumes that the beneficiary cannot be licensed through sister-licensing; this implies that it must be projected in the specifier of V, even when the complement is vacant.

Summarizing the account of the benefactive alternation, then, we see that it differs from the dative and locative alternations in that the benefactive preposition is an entity-event preposition, not an entity-entity preposition. When an entity-event preposition inverts, the two variants show quite different syntactic properties, due to the constraint against VPs in specifier position and the requirement that the head of the upper projection at l-syntax contain the phonological and semantic material of the lexical item whose argument structure is represented there. Most "adjunct" prepositions, that is, prepositions that are not part of a predicate's argument structure, are, like *for*, entity-event Ps in which the P' is predicated of an event. A few semantic classes of predicates can take the inverse type of entity-event P, where the predicate is the complement of the P at l-syntax.

The foregoing outline of a theory of English benefactives leaves some questions unanswered, such as what it is about certain semantic classes of verbs that allows them to take the null benefactive P; however, my purpose in discussing them was not to provide a detailed account of that particular phenomenon, but to serve as an introduction to event-entity prepositions, which are crucial to my analysis of productive applicatives in Bantu. The semantic similarity between English double object benefactives and Bantu applicatives is due to the fact that they involve the same preposition, that is, a preposition with benefactive semantics and the structure in (17b) above. The differences between English benefactives and Bantu benefactive applicatives arise from the existence of syntactic incorporation at s-syntax in Bantu and its nonexistence in English. Now that we have established

some characteristics of and constraints on event-entity prepositions, it is time to turn to the applicative constructions for which they are responsible.

3.2   Characteristics of applicative constructions

Applicative constructions occur throughout the Bantu languages, and although languages differ in some aspects of the construction, I have found that there are some basic characteristics that remain constant across the language family.[13] These basic characteristics are:

1)   The benefactive applicative results in the word order V-Applied Object-Direct Object, and this word order is invariant.[14]

2)   Other types of applicatives can have the word order V-Direct Object-Applied Object, and several languages allow the order of the postverbal NPs to vary.

3)The benefactive applied object always takes on all the characteristics of a direct object (ability to become the subject of a passive or to trigger object agreement on the verb); in asymmetrical object languages such as Chicheŵa, the original direct object of the verb loses its object properties, while in symmetrical object languages such as Kinyarwanda, both objects usually have object properties.

4)Other types of applicatives vary as to whether the applied object gains object properties (in asymmetrical object languages); when the order

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[13]The first two characteristics have been frequently studied: see Baker (1988b, 1989), Machobane (1989), Marantz (1990), and Alsina and Mchombo (1990). Characteristics (3) and (4) are mentioned in Kimenyi (1980), Marantz (1984), Baker (1988a), and Alsina and Mchombo (forthcoming). See also Hyman and Duranti (1982) for a discussion of the applicative and object properties across the Bantu languages.

[14]I exclude cases in which the applied object may A'-move to the beginning or the end of the sentence, as in cleft constructions. "Invariant" here refers to the word order before any syntactic movement of the objects.

of the postverbal NPs varies, whichever NP is closest to the verb has object properties.

While I will point out differences across languages, the analysis I present here works for applicatives in general, with basic parameters accounting for the differences.

3.2.1 Benefactive applicatives

The benefactive applicative is the most basic of the applicative constructions in that all languages with applicative constructions have it. In most, if not all, of these languages, the applicative is the only way to express the benefactive relation; unlike English, which has a lexically limited benefactive alternation (*Pat baked a cake for Chris/ Pat baked Chris a cake*), the Bantu languages have no prepositional variant. Examples of basic benefactive applicatives are given in (21)-(23).

(21) Chichewa
   a. Chitsîru chi-na-gúl-á mphátso.
      fool subj-pst-buy-fv gift
      "The fool bought a gift."
   b. Chitsîru chi-na-gúl-ír-a atsíkána mphâtso.
      fool subj-pst-buy-appl-fv girls gift
      "The fool bought a gift for the girls."
   c. *Chitsîru chi-na-gúl-ír-a mphátsó atsíkāna.
      fool subj-pst-buy-appl-fv gift girls
      "The fool bought a gift for the girls."

(22) Kinyarwanda
    a. Umukoôbwa a-ra-som-er-a umuhuûngu igitabo.
       girl subj-pres-read-appl-asp boy book
       "The girl is reading a book for the boy."
    b. Umugabo y-a-haa-ye umugóre igitabo.
       man subj-pst-give-asp woman book
       "The man gave the woman a book."
    c. Umugóre a-rá-hé-er-a umugabo ímbwa ibíryo.
       woman subj-pres-give-appl-asp man dog food
       "The woman is giving food to the dog for the man."

(23) Sesotho
    a. Banana ba-pheh-el-a 'me nama.
       girls subj-cook-appl-fv mother meat
       "The girls are cooking meat for my mother."
    b. *Banana ba-pheh-el-a nama 'me.
       girls subj-cook-appl-fv meat mother
       "The girls are cooking meat for my mother."
    c. *Ntate o-f-el-a morena bana lijo.
       father subj-give-appl-fv chief children food
       "My father gives the children food for the chief."

Note that the applied object is always adjacent to the verb; the reverse order of postverbal NPs is impossible, as shown in (21c) and (23b) (I have no specific data for Kinyarwanda, but the text of Kimenyi (1980) makes it clear that no other order is possible). When the verb itself takes two objects, the applied object precedes both of them if the language allows three postverbal NPs, as Kinyarwanda does (22c); (23c) is bad because Sesotho has a general constraint against more than two bare postverbal NPs (see Machobane 1989 for discussion), and there are no examples of applicatives of ditransitives in Chichewa.[15]

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[15]There is a difference on this point between two dialects of Chichewa: in the dialect studied by Baker (1988), that spoken by Sam Mchombo, there are no double object constructions unmediated by the applicative morpheme, with the exception of a single verb, -pats-, "give"; however, Trithart (1977) studied a dialect that differs from Mchombo's

Examples (24)-(26) show that the benefactive applied object has canonical object properties, as discussed in Chapter 1: the ability to become the subject of a passive and the ability to trigger object marking on the verb. While there are other object properties (see Bresnan and Moshi 1990), these two suffice for our purposes to show that benefactive applied objects behave like objects of basic monotransitive verbs. In Chicheŵa, an asymmetrical object language, the direct object loses its object properties; (24b) and (24d) would be fine in a non-applicative construction.

(24) <u>Chicheŵa</u>
    a. Chitsîru chi-na-wá-gúl-ir-á mphâtso (atsîkāna).
       fool subj-pst-obj-buy-appl-fv gift (girls)
       "The fool bought a gift for them (the girls)."
    b. *Chitsîru chi-na-í-gúl-ir-á atsîkāna (mphâtso).
       fool subj-pst-obj-buy-appl-fv girls (gift)
       "The fool bought it for the girls (a gift)."
    c. Atsîkāna a-na-gúl-ír-idw-a mphâtso (ndí chitsîru).
       girls subj-pst-buy-appl-pass-fv gift (by fool)
       "The girls were bought a gift (by the fool)."
    d. *Mphâtso i-na-gúl-ír-idw-a atsîkāna (ndí chitsîru).
       gift subj-pst-buy-appl-pass-fv girls (by fool)
       "The gift was bought the girls (by the fool)."

In Kinyarwanda and Sesotho, which are symmetrical object languages, the original object of the verb retains its object properties. The Kinyarwanda data show an applicative of a ditransitive verb (cf. (22c));

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dialect significantly; this dialect allows double object constructions and seems to be a symmetrical object language as well, at least for some constructions. So as not to confuse the issue, I will not consider this dialect in detail here; with respect to the relevant phenomena, it seems to behave much ıs Kinyarwanda does.

applicatives of monotransitives behave similarly. Example (25d) shows that Kinyarwanda allows all the objects to trigger object marking simultaneously; that is, rather than merely allowing any one of the postverbal NPs to be a true object at any given time, all the postverbal NPs are objects all the time. Note, however, that the order of the object markers in sentences such as (25d) is invariant.

(25) Kinyarwanda
  a. Umugóre a-rá-bi-he-er-a umugabo ímbwa.
     woman subj-pres-obj-give-appl-asp man dog
     "The woman is giving it to the dog for the man."
  b. Umugóre a-rá-yí-he-er-a umugabo ibíryo.
     woman subj-pres-obj-give-appl-asp man food
     "The woman is giving food to it for the man."
  c. Umugóre a-rá-mu-he-er-a ímbwa ibíryo.
     woman subj-pres-obj-give-appl-asp dog food
     "The woman is giving the dog food for him."
  d. Umugóre a-ra-bi-yí-mu-he-er-a.
     woman subj-pres-obj$_{DO}$-obj$_{IO}$-obj$_{Ben}$-give-appl-asp
     "The woman is giving it to it for him."
  e. Ibíryo bi-rá-hé-er-w-a umugabo ímbwa n'ûmugóre.
     food subj-pres-give-appl-pass-asp man dog by woman
     "The food is given to the dog for the man by the woman."
  f. Ímbwa i-rá-hé-er-w-a umugabo ibíryo n'ûmugóre.
     dog subj-pres-give-appl-pass-asp man food by woman
     "The dog is given food for the man by the woman."
  g. Umugabo a-rá-hé-er-w-a ímbwa ibíryo n'ûmugóre.
     man subj-pres-give-appl-pass-asp dog food by woman
     "The man is benefiting from the woman's giving food to
        the dog for him."

Data for Sesotho are given in (26); note that the applicative of a ditransitive becomes grammatical if one object shows up only as an object marker on the verb (compare (26d) to (23c)).

(26) Sesotho

    a. Banana ba-mo-pheh-el-a nama.
       girls subj-obj-cook-appl-fv meat
       "The girls are cooking meat for her."

    b. Banana ba-e-pheh-el-a 'me.
       girls subj-obj-cook-appl-fv mother
       "The girls are cooking it for my mother."

    c. Nama e-pheh-ets-o-e 'me.
       meat subj-cook-appl-pass-fv mother
       "The meat has been cooked for my mother."

    d. Ntate o-mo-f-el-a bana lijo.
       father subj-obj-give-appl-fv children food
       "My father gives the children food for him."

The significance of these data is that although the original direct object of the verb loses its object properties in the presence of a benefactive applicative in languages like Chicheŵa and keeps them in languages like Kinyarwanda and Sesotho, the benefactive applied object always acts like an object. It is also significant that the word order in these constructions is fixed (V-applied object-(indirect object)-direct object) in all languages. It is these characteristics that distinguish the benefactive applicative construction from other types of applicatives, as we see in the next section.

3.2.2 Other types of applicatives

While the variation in benefactive applicative constructions across languages can be attributed almost entirely to general characteristics of the language (symmetrical object vs. asymmetrical object, for example), other types of applicatives show much less consistency. I will present data on locative and instrumental applicatives in Chicheŵa and Kinyarwanda to illustrate the range of applicative constructions across and within the Bantu languages; I am not attempting to give an exhaustive classification of

applicatives. First consider Chichewa, where instrumentals and locatives show very similar behavior: examples of basic locative and instrumental applicatives are given in (27) and (28).[16]

(27) <u>Locative</u>
    a. Alēnje a-ku-lúk-ír-a pa-mchēnga mikêka.
       hunters subj-pres-weave-appl-fv loc-sand mats
       "The hunters are weaving mats on the beach."
    b. Alēnje a-ku-lúk-ír-a mikêka pa-mchēnga.
       hunters subj-pres-weave-appl-fv mats loc-sand
       "The hunters are weaving mats on the beach."

(28) <u>Instrumental</u>   (a and b from Baker 1988a)
    a. Msangalatsi a-ku-yend-a ndi ndodo.
       entertainer subj-pres-walk-fv with stick
       "The entertainer is walking with a stick."
    b. Msangalatsi a-ku-yend-er-a ndodo.
       entertainer subj-pres-walk-appl-fv stick
       "The entertainer is walking with a stick."
    c. Anyăni a-ku-phwány-ír-a mwăla dēngu.
       baboons subj-pres-break-appl-fv stone basket
       "The baboons are breaking the basket with a stone."
    d. Anyăni a-ku-phwány-ír-a dēngu mwăla.
       baboons subj-pres-break-appl-fv basket stone
       "The baboons are breaking the basket with a stone."

Note that unlike benefactives, both locatives and instrumentals allow either order of the two postverbal NPs. It might be tempting to account for this variation in word order by supposing that in these cases the applied

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[16]A note on the locative data: the locative applied objects shown here have a locative marker *pa-* in addition to the usual class marker, and thus cannot be considered to be bare NPs like the instrumental or benefactive applicatives. Trithart (1977) claims that sentences such as these are not true locatives, but rather goals, and gives examples of other types of locative operations involving no applicative morphology. Since she deals with a dialect different from the one under consideration here, I will have nothing to say about these possible alternatives; the important fact to bear in mind here is that the applicative morpheme is present; the locative marking on the NPs is a class marker distinct from the preposition *pa*, which is, I believe, an independent word.

object is has the status of an adjunct, like an adverb, perhaps, which could adjoin either above or below the basic object. As shown in (29)-(30), however, either NP can trigger object marking on the verb, indicating that both NPs are arguments.

(29) <u>Locative</u>
   a. Alēnje a-ku-pá-lúk-ir-á míkêka (pa-mchēnga).
      hunters subj-pres-obj-weave-appl-fv mats (loc-sand)
      "The hunters are weaving mats on it (the beach)."
   b. Alēnje a-ku-í-lúk-ir-á pá-mchēnga (mikêka).
      hunters subj-pres-weave-appl-fv loc-sand (mats)
      "The hunters are weaving them on the beach (mats)."

(30) <u>Instrumental</u>
   a. Anyǎni a-ku-ú-phwány-ir-á dēngu (mwǎla).
      baboons subj-pres-obj-break-appl-fv basket (stone)
      "The baboons are breaking the basket with it (the stone)."
   b. Anyǎni a-ku-lí-phwány-ir-á mwǎla (dēngu).
      baboons subj-pres-obj-break-appl-fv stone (basket)
      "The baboons are breaking it with a stone (the basket)."

With respect to the other canonical object property considered here, the ability to become the subject of a passive, the two constructions differ: the locative allows either postverbal NP to become the subject of the passive, while the instrumental allows only the applied object to do so.[17] Incidentally, note that the instrumental nonapplicative variant (32a) (compare to (28a)) does not allow the instrumental object to become the subject of the passive, while the locative NP may become the subject of a passive even without the applicative morpheme(31c).

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[17]As far as I know no one has yet explained this difference between instrumentals and locatives; beyond the fact that the locative is marked with a locative prefix whether or not it is an applied object, I have nothing new to offer in this matter.

(31) <u>Locative</u>   (c from Bresnan and Kanerva 1989)
    a. Pa-mchēnga pa-ku-lúk-ír-idw-á míkêka.
       loc-sand subj-pres-weave-appl-pass-fv mats
       "The beach is being woven mats on."
    b. Mikêka i-ku-lúk-ír-idw-á pá-mchēnga.
       mats subj-pres-weave-appl-pass-fv loc-sand
       "The mats are being woven on the beach."
    c. Ku-dâmbo ku-na-peez-édw-á mwána.
       loc-swamp subj-pst-find-pass-indic. child
       "In the swamp was found the child."

(32) <u>Instrumental</u>   (a from Baker 1988a)
    a. *Ndodo i-du-yend-edw-a ndi.
       stick subj-pres-walk-pass-fv with
       "The stick is being walked with."
    b. Ndōdo i-na-yénd-ér-ĕdw-a (ndí anyăni).
       stick subj-past-walk-appl-pass-fv (by baboons)
       "The stick was walked with (by the baboons)."
    c. Mwăla u-ku-phwány-ír-idw-a dēngu (ndí anyăni).
       stone subj-pres-break-appl-pass-fv basket (by baboons)
       "The stone is being used to break the basket (by the
          baboons)."
    d. *Dēngu li-ku-phwány-ír-idw-á mwăla (ndí anyăni).
       basket subj-pres-break-appl-pass-fv stone (by baboons)
       "The basket is being broken with a stone (by the baboons)."

Chicheŵa, then, has a three-way split in its applicatives: the instrumental and the locative differ from the benefactive in allowing either order for the postverbal NPs and in allowing either object to trigger object marking on the verb (and also in having prepositional variants); the locative differs from the benefactive and instrumental in allowing the original object of the verb to become the subject of a passive. Kinyarwanda has a more complex system of applicatives, including a possessor applicative and a goal applicative as well as instrumental, locative, and benefactive; (33)-(35) illustrate the word order, object marking, and passivization properties of the instrumental construction.

Locatives have different morphology and will be discussed further in Chapter 5; the other types of applicatives tend to pattern with instrumentals and will not be discussed.

(33) Word order
  a. Úmwáalímu a-ra-andik-a íbárúwa n'ííkárámu.
     teacher subj-pres-write-asp letter with pen
     "The teacher is writing a letter with the pen."
  b. Úmwáalímu a-ra-andik-iish-a íbárúwa íkárámu.
     teacher subj-pres-write-appl-asp letter pen
     "The teacher is writing a letter with the pen."
  c. Umugóre y-a-ha-aye úmwáana amáta n'înkoongooro.
     woman subj-pst-give-asp child milk with wooden cup
     "The woman gave the child milk in the wooden cup."
  d. Umugóre y-a-he-eesh-eje úmwáana amáta inkoongooro.
     woman subj-pst-give-aapl-asp child milk wooden cup
     "The woman gave the child milk in the wooden cup."

(34) Object marking
  a. *Úmwáalímu a-ra-y-andik-a íbárúwa na.
     teacher subj-pres-obj-write-asp letter with
     "The teacher is writing a letter with it."
  b. Úmwáalímu a-ra-y-andik-iish-a íbárúwa.
     teacher subj-pres-obj-write-appl-asp letter
     "The teacher is writing a letter with it."
  c. Úmwáalímu a-ra-y-andik-iish-a íkárámu.
     teacher subj-pres-obj-write-appl-asp pen
     "The teacher is writing it with a pen."

(35) Passivization
  a. *Íkárámu i-ra-andik-w-a íbárúwa n'ûmugabo.
     pen subj-pres-write-pass-asp letter by man
     "The pen is used to write a letter by the man."
  b. Íkárámu i-ra-andik-iish-w-a íbárúwa n'ûmugabo.
     pen subj-pres-write-appl-pass-asp letter by man
     "The pen is used to write a letter by the man."
  c. Íbárúwa i-ra-andik-iish-w-a íkárámu n'ûmugabo.
     letter subj-pres-write-appl-pass-asp pen by man
     "The letter is being written with a pen by the man."

Like the benefactive, the instrumental in Kinyarwanda allows all postverbal NPs to retain object properties; the difference is that the applicative morpheme is -iish- instead of -ir-, and the order of the postverbal NPs has the applied object last instead of immediately following the verb.[18]

The differences among languages regarding how many NPs may exhibit object properties are, as I showed in Chapter 2, due to factors independent of the applicative construction. Let us ignore that aspect of the foregoing data for the moment, then, and examine the applicative constructions with respect to word order and the object properties of the applied object.

3.3   Applicative alternations as P inversion

We saw in Section 3.1 that prepositions are of two types, entity-entity prepositions and entity-event prepositions, and that both types can vary with respect to [central], inverting the positions of their arguments. In this section I argue that Bantu applicative morphemes are entity-event prepositions, and show how the structures required by each variant account for the differences among the different types of applicatives. The l-syntactic structures for the two types of entity-event Ps is repeated in (36), where (36a) is the type responsible for the English *for* benefactive (among many other nonargument prepositions in the language), and (36b)

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[18]Note that I do not have any ungrammatical examples of other word orders. Kimenyi (1980) does not provide any, although he states explicitly that the word order in benefactives is fixed. He has no comments on the word order in instrumentals, so it is possible that the order instrumental-direct object is possible.

corresponds to the English null benefactive preposition responsible for the double object benefactive.

(36) a. PP

        <e>   P'

             P   N

b. PP

      N   P'

          P   <e>
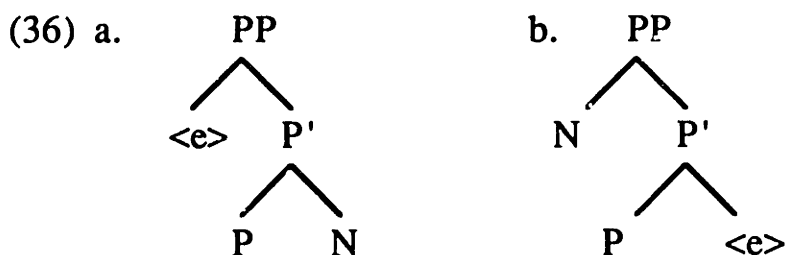
We have already seen that in (36a) the <e> position cannot be filled with a lexically specified V at l-syntax , due to the fact that VPs cannot appear in specifier positions; the only possible realization for the structure is thus the s-syntactic structure in (37a), where sisterhood between a projection headed by V and a projection headed by P at l-syntax is preserved by sisterhood between V and PP. In (36b), however, the VP could fit into the complement position at s-syntax without any general problem: VPs are in complement position all the time. If the P in (36b) were inserted into the s-syntax as a specified lexical item, then, rather than taking the VP complement at l-syntax, as in English, the resulting s-syntactic structure would be (37b).

(37) a. VP

    NP1   V'

          V   PP

               P'

             P   NP2

b. PP

    NP1   P'

          P   VP

               V'

             V   NP2
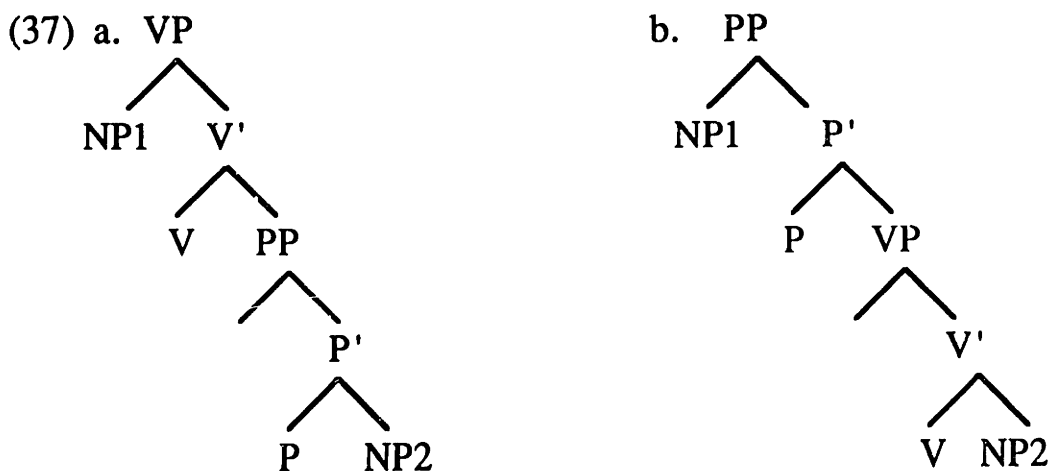
The structure in (37b) presents a problem: VP will not be the uppermost head in the structure. Given that verbs need to be in a close relation to INFL in order to receive inflectional properties, this structure will be ruled out if V is so far away. In fact, English has no structures of this type: an example might be *Chris the saw with cut the wood*, which is complete gibberish. I claim, however, that this is exactly the structure for all benefactive applicatives in Bantu, as well as for the variant of the non-benefactives in which the applied object precedes the base object. This is possible because Bantu, unlike English, allows incorporation in the s-syntax: since the applicative preposition in Bantu is an affix, the verb in (37b) moves up to the P, and the P+V complex then moves to INFL, resulting in the word order (V+P)-(applied object)-(direct object).[19] A concrete example from Chicheŵa is given in (38).[20]

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[19]A note on affix order: I follow Marantz (1988) and assume that affixes can specify whether they must precede or follow a head that incorporates into them; if the applicative morpheme is always a suffix with respect to the verb, it will always show up after the verb regardless of whether it incorporates into V or V incorporates into it.

[20]Notice that the subject of the sentence is the external argument of VP, even though VP is below PP(Vp). This is because, as I argued in Chapter 1, VP must project its external argument to the first available specifier position outside VP, while P' must be in a sisterhood relation to its subject, since this subject is projected into Spec,PP in the l-syntactic argument structure for PP. Thus, Spec,PP will be occupied, so the external argument of VP must look higher up for a suitable site. This captures the fact that the applied object appears between the subject and object arguments of the basic verb. Notice also that NP2, the object of V, is in Spec,VP rather than in Spec,PP, where it might be expected to be if objects generally follow verbs. I have no evidence to prove that NP2 is in Spec,VP rather than Spec,PP; I have represented it this way because only in Spec,VP will NP2 be in a sisterhood relation with a projection of V, as required for projection to s-syntax from l-syntax. However, it actually makes no difference to the general account presented here which of these two positions NP2 occupies; I assume the structure in (38) mainly for convenience.

(38) Chitsîru chi-na-gúl-ír-a atsíkána mphâtso.
      fool subj-pst-buy-appl-fv girls gift
      "The fool bought a gift for the girls."

```
              IP²¹
             /  \
          NP1    I'
           |    /  \
       chitsiru V+Vp+I  VpP
               |       /  \
          chinagúlíra NP2  Vp'
                      /   /  \
                atsíkána Vp   VP
                        |    /  \
                        t   V'   (indented)
                           / \
                          V   NP3
                          |    |
                          t   mphâtso
```
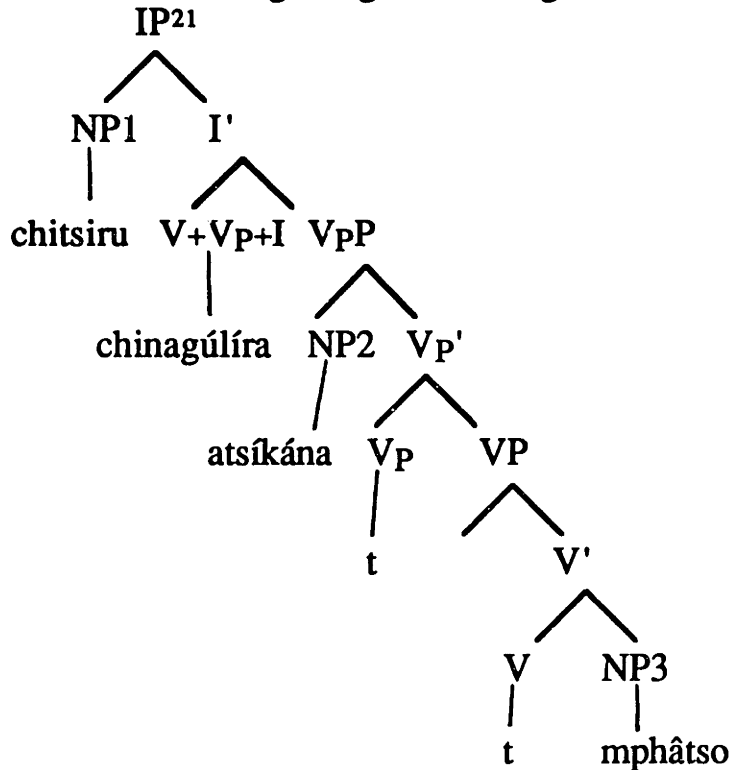
In (38) V has access to I through incorporation into Vp; following Marantz (1990) and the discussion in Chapter 1, I assume that the predicate which was a P at l-syntax need not necessarily be considered a P in s-syntax, since Ps do not have any category-specific morphology; their distinctiveness is semantic, not syntactic or morphological. The node labeled Vp in (38), then, is actually considered a V by the syntax in this construction, meaning that the lower V incorporates into a head of the same syntactic category. I have left the label P in the label simply for ease of reference with respect to (37b). Again, the important property this

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[21]Although this will actually be the complex of inflectional and licensing functional nodes discussed in Chapter 2, I use IP here as a shorthand notation when the actual content of the functional nodes is irrelevant to the discussion.

structure has is syntactic incorporation: unless V incorporates into V_P, it will be unable to raise to INFL. Iin order for a structure such as (37b) to be allowed in the s-syntax, then, the language in question must permit incorporation, which means in addition that V_P must be able to affix to the main verb. For this reason, the version of the event-entity P in (36b) is only available at s-syntax in languages that can do incorporation at that level, while (36a) is available generally without incorporation, since the V will be the upper head of the construction and therefore able to receive inflection as usual.

This analysis leads to a solution for the problem of the varying word order in non-benefactive applicatives: they are simply examples of a single event-entity P which can take either value for [central] and thus can show up with the structure of either (37a) or (37b). The s-syntactic structures for such an alternating applicative are given in (39a) and (39b).

(39) a. Alēnje a-ku-lúk-ír-a mikêka pa-mchēnga.
hunters subj-pres-weave-appl-fv mats loc-sand
"The hunters are weaving mats on the beach."

```
                       IP
                     /    \
                  NP1      I'
                   |      /  \
                alēnje  V+P+I   VP
                         |      /  \
                    akulúkíra NP2    V'
                               |    /  \
                            mikêka  V    PP
                                    |   /  \
                                    t  P'
                                      /  \
                                     P    NP3
                                     |     |
                                     t   pa-mchēnga
```

b. Alēnje a-ku-lúk-ír-a pa-mchēnga mikêka.
hunters subj-pres-weave-appl-fv loc-sand mats
"The hunters are weaving mats on the beach."

```
                        IP
                       /  \
                    NP1    I'
                     |    /  \
                  alēnje V+Vp+I  VpP
                         |      /  \
                    akulúkíra NP2   Vp'
                              |    /  \
                       pa-mchēnga Vp   VP
                                 /    /  \
                                t    Vp    V'
                                         /  \
                                        V   NP3
                                        |    |
                                        t   mikêka
```
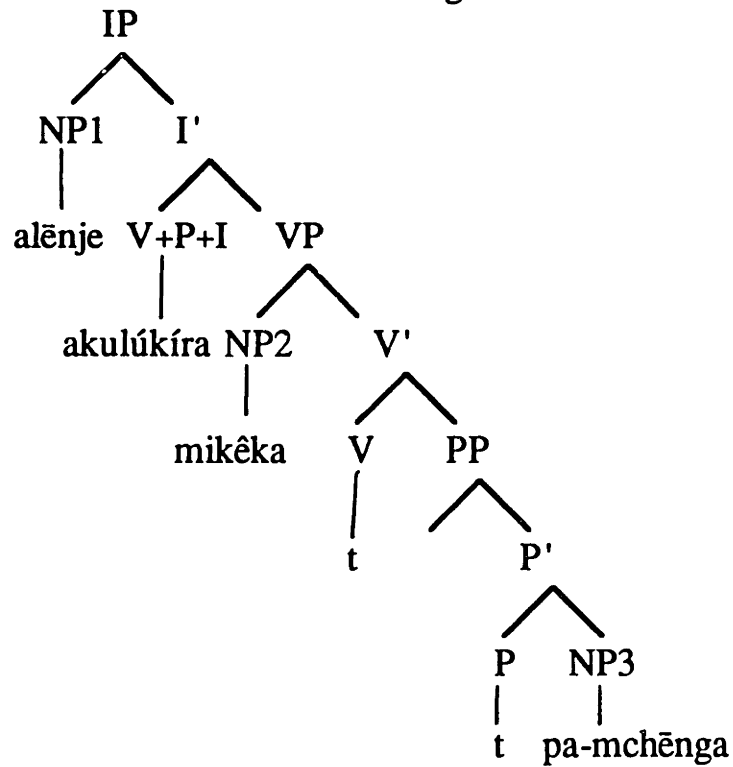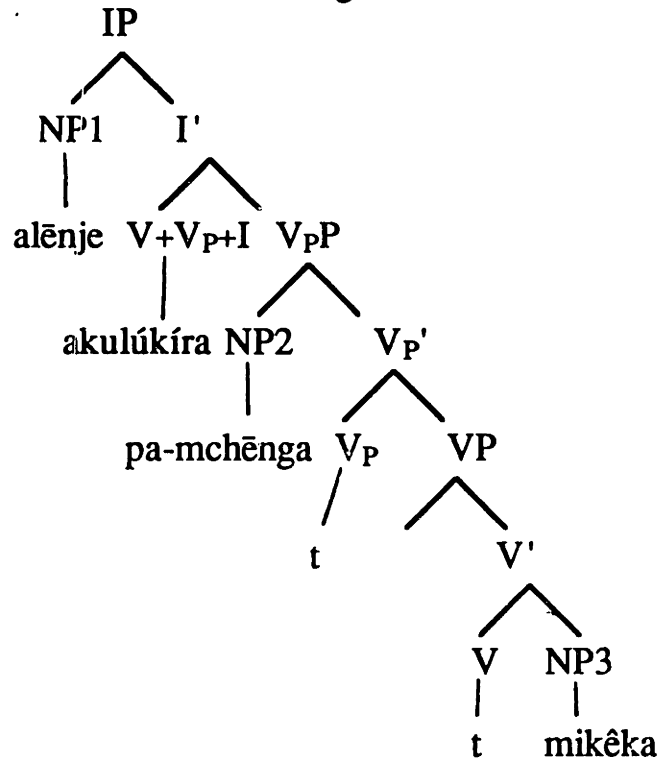
There is nothing special about this alternation: it is simply the result of a general ability of Ps of all types to invert the order of their arguments according to the commutativity of relations. One difference between this particular alternation and the alternations of entity-entity prepositions we considered earlier is that the two alternants have the same phonological form. This is true across the Bantu languages; the alternation in word order is never accompanied by a phonological change in the applicative morpheme. I have no definitive answer to this problem; however, it should be noted that in some of the Bantu languages, such as Chicheŵa and Sesotho, there is a single phonological form for all the applicative affixes, so that it is not a matter of two variants of a preposition having the same phonological shape, but of several semantically different prepositions

having the same phonological shape. Even in languages such as Kinyarwanda, where the instrumental, locative, and benefactive applicative morphemes are phonologically different, there are several semantically different applicatives which share a phonological shape (in Kinyarwanda, the goal, benefactive, and possessor applicatives all share the form *-ir-/-er-*, which, incidentally, is the basic phonological shape of applicatives across the language group). While these facts do not explain the fact that the two variants of the locative and instrumental applicatives have the same phonological form, they show that the real question goes beyond variations within a single preposition.

Another important question is why the benefactive applicative does not alternate between structures such as (37a) and (37b). First of all, claiming that inversion is generally available is not the same as claiming that all Ps surface with both alternants; it can be a lexical property of certain Ps that they simply only have one structure. If the non-alternation of the benefactive were due simply to a lexical idiosyncrasy, however, we would expect that some language would allow both alternants. That no language allows benefactive applicatives to alternate suggests that something about the nature of benefactives in general must be responsible. Marantz (1990), for example, suggests that the non-alternation of benefactives is due to event structure: he argues that affected benefactive arguments must appear outside the event affecting a theme/patient argument, while affected instrumentals and place locatives may appear either within or outside the principal event. This forces benefactives to appear above VP, as in (38),

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and rules out structures like (37a) where the benefactive PP would be below the VP (see Marantz 1990 for details of the argument).[22]

It may well be that something like this is right, that event structure affects what types of syntactic representations are possible; I certainly do not assume that all aspects of a predicate's semantics can be reduced to l-syntactic structures and relations. More research needs to be done on the specific relationship between l-syntax and other modules of the semantics in order to determine how they are connected; for now, I simply assume that something outside the l-syntax about the semantics of the benefactive restricts the configurations in which it can appear on the surface. The case of benefactives and non-benefactives sharing one structure but not another is analogous to the case of *cut* and *break*, discussed in Chapter 1: something other than general legitimacy of l-syntactic structures must be responsible for why *break* has a causative/inchoative alternation and *cut* appears only in the causative structure. I take no position here on any of these questions about what parts of the meaning of a predicate are relevant for l-syntactic representation, restricting myself to a study of l-syntactic representations themselves and their corresponding structures in the s-syntax.

Summarizing the account of applicatives, then, all applicatives are event-entity prepositions that relate an event described by the basic verb to a beneficiary of the event, an instrument of the event, or a location of the

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[22]The English benefactive *for* shows up in a structure like (39a), of course, but since Marantz restricts the claim about benefactives to affected benefactive arguments, and the object of *for* is not affected in the relevant sense, the restriction will not apply to *for*.

event. These prepositions may in theory alternate between the argument structures in (36a) and (36b) according to the principle of preposition inversion proposed in Section 3.1, with the resulting s-syntactic structures in (37a-b). Non-benefactive applicatives generally take advantage of both structures, though specific applicative morphemes vary from language to language as to whether they actually appear in both variants (Kinyarwanda, for example, seems to have only (37a) for instrumentals, only (37b) for locatives). This accounts for the word order variation in non-benefactive applicatives, and also for the fact that either object can have object properties, since object properties are linked to particular structural positions (see Chapter 2). Benefactive applicatives allow only the structure in (37b), for reasons which have to do with aspects of the semantics of benefactives which are outside the domain of l-syntax; since they allow only one structure, word order and the object properties of the applied object and basic object will be invariant.

3.4   Previous analyses

I do not intend to provide a full account of all other analyses of applicative constructions, as such a task could fill volumes. I will not even cover all GB work; my intent in this section is merely to discuss some important hypotheses within the GB framework and to use them to raise some additional problems an account of applicatives must account for.

3.4.1 Marantz (1984, 1990)

Marantz (1984) uses the mechanism of Morphological Merger to combine the θ-marking properties of the verb with those of the applied

affix. In this way, he constructs a new predicate with an argument structure equaling the sum of the argument structures of the verb plus the affix. The representations for applicative structures given in Marantz (1990) are shown in (40) and (41) for benefactive and instrumental applicatives.

(40)
```
            VP1
           /   \
         ben    V'
               /  \
             V1    VP2
             |    /   \
           APPL theme  V'
                      /  \
                    V2    X
                 verb stem
```

(41)
```
            VP1
           /   \
        theme   V'
               /  \
             V1    VP2
             |    /   \
           APPL instr  V'
                      /  \
                    V2    X
                 verb stem
```
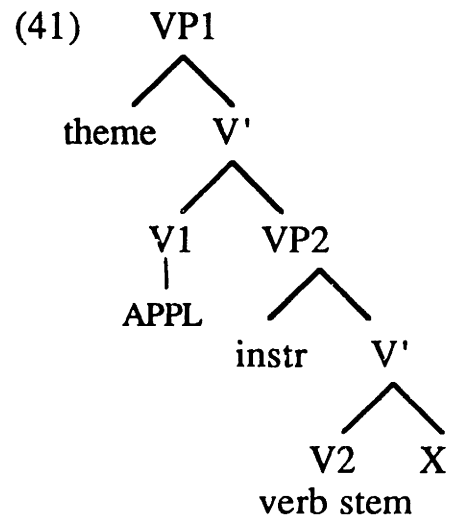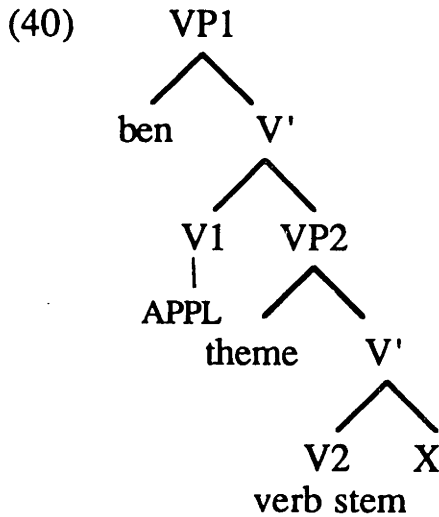
As mentioned above, Marantz accounts for the difference between instrumental and benefactive applicatives by arguing that the benefactive must be realized outside the event structure of the predicate, while the instrumental can be realized inside or outside (instrumentals can thus have the instrument in the higher specifier and the theme in the lower one in (41)). In addition, Marantz attributes the differences between asymmetrical object languages like Chicheŵa and symmetrical object languages like Kinyarwanda to whether Morphological Merger takes place at D-structure (Chicheŵa) or S-structure (Kinyarwanda). Briefly, when Merger takes place at D-structure, the result is a single D-structure VP with a specifier and a complement; this has different Case-marking and barrier properties from a D-structure identical to the structures in (40) and

(41), where there are two VPs. While the Merger analysis accounts for the data, and the structures in (40) and (41) have a good deal in common with the present analysis, it does not seem necessary to invent this new syntactic process when head-to-head movement of affixes works just as well, given my assumptions about P inversion, which I have shown to be independently needed to account for dative and locative alternating verbs, for example.

A strength of this approach is that it proposes different structures for the two alternants of locatives and instrumentals and appeals to event structure to explain why benefactives should not take both structures; however, the particular structures Marantz proposes are not consistent with my assumptions about the syntactic nature of argument structure; rather than having an alternation between which predicate is above the other, he has the same hierarchical relation of the predicates themselves and varies the position of the arguments. In (41), the original internal argument of V2, the theme, appears outside VP2, while the internal argument of V1 appears inside VP2; granted, Marantz is assuming a projection of arguments into hierarchical positions independent of where the original predicate is, but if we assume that applicativization is the combination of two independent l-syntactic structures, it will be impossible to get the applied morpheme's argument structure and the basic verb's internal argument structure intertwined like this, since the theme, which is an argument of V2, is not a sister to any projection of V2. Since l-syntactic sisterhood relations are not preserved at s-syntax, the structure in (41) will be ruled out under my analysis. This is not an argument against Marantz's analysis; given his assumptions about the nature of argument structure and projection it is consistent and makes sense. However, I see the alternation

in instrumental and locative applicatives as an alternating *relation*, not just a choice in where to put arguments.

3.4.2 Baker (1988a,b)

I consider Baker's approach because it makes use of the general notion of head-to-head movement and incorporation, which seems to be the right way to look at morphological applicative constructions. His analysis is seriously flawed, however, by his assumption of triply branching structures, which, as demonstrated by Kayne (1984) and Larson (1988a), among others, do not sufficiently determine argument relations. Baker also relies on a specific mechanism of θ-marking which is, of course, incompatible with the notion that such a notion does not exist. Baker's (1988b) structures for benefactive and instrumental applicatives are given in (42) and (43).
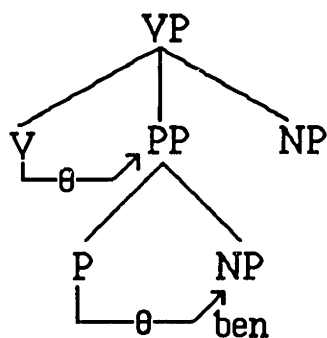
(42)   (43)
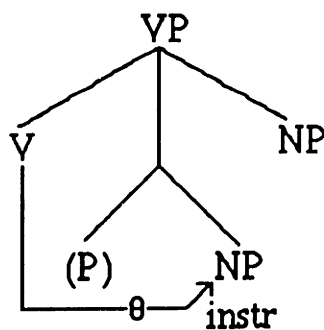
The applied affix in both cases is a P which incorporates into the V following general principles of incorporation theory developed by Baker (1988a). Baker draws a distinction between these two structures by using the notion of structural vs. inherent Case: in (42), once the P incorporates

into the V it can no longer Case-mark the benefactive NP, and since the benefactive NP is not directly θ-marked by the verb, it cannot receive inherent Case. Thus, it gets structural Case from the V+P, and the original object of V, the rightmost NP, gets inherent Case (it is θ-marked by the V, although this is not shown in the diagram). Since canonical object properties depend on structural Case, only the benefactive NP can have these object properties; furthermore, since adjacency is required for structural Case assignment, the word order in benefactives must be fixed. A problem with this, of course, is that one needs to use linear adjacency to get structural Case for the benefactive when the V+P and the NP are not adjacent in the tree. As for instrumentals, because the V directly θ-marks the instrumental applied object as well as the original object, it can inherently Case-mark either; it can structurally Case-mark either, as well, because in a triply-branching structure sisterhood (and thus c-command) can hold with either linear order of the two NPs. Thus either order of the objects is possible in instrumentals.

Baker's theory, besides having the problems with triply-branching structures I mentioned above, has a problem explaining some of the data. The data I have presented thus far have been of applicatives of transitive verbs (with the exception of one instrumental applicative of an intransitive in (28b) and (32b)); when we turn to intransitive verbs, we find another difference between benefactives and other types of applicatives, one which it is not easy to characterize but which may shed some light on these constructions. I turn to these data now as a means of pointing out some

problems an analysis of applicative constructions must face; after pointing out the problems in Section 3.4.3.1, I outline a solution in Section 3.4.3.2.

3.4.3 Intransitive verbs and applicatives

It has often been pointed out in the literature (Baker 1988a,b, Machobane 1989, Alsina and Mchombo 1990, forthcoming) that certain types of intransitive verbs cannot take benefactive applicatives, although these are fine with other types of applicatives. The type of intransitive verb mentioned varies: Baker (1988b) claims that the only intransitives that take benefactives in Chicheŵa are cognate object verbs; Alsina and Mchombo (forthcoming) claim that the only intransitives that *cannot* take benefactives in Chicheŵa are optional object deletion verbs. Machobane (1989) claims that Sesotho benefactive applicatives may attach to any type of verb except unaccusatives. While more exhaustive research needs to be done to determine the exact nature of these transitivity phenomena, the available data are sufficient to illustrate that benefactives may differ from other types of applicatives with respect to the transitivity of the verbs they attach to. I restrict myself here to a discussion of Chicheŵa; I discuss Sesotho briefly in Chapter 5.

3.4.3.1   Chicheŵa optional object verbs

The clearest case of a difference between benefactives and other applicatives with respect to transitivity comes from Chicheŵa, which has a class of verbs that take an object only optionally, as in (44a). Benefactive applicatives can be formed on these verbs only when the object is present (44b), while instrumentals can be formed on either form of the verb(44c).

(44) a. Mlēnje a-ku-lémb-á (chimangirīzo).
hunter subj-pres-write-fv (essay)
"The hunter is writing (an essay)."
b. Mlēnje a-ku-lémb-ér-á mfúmú *(chimangirīzo).
hunter subj-pres-write-appl-fv chief (essay)
"The hunter is writing (an essay) for the chief."
c. Mlēnje a-ku-lémb-ér-á nthēnga (chimangirīzo).
hunter subj-pres-write-appl-fv feather (essay)
"The hunter is writing (an essay) with a feather."

Baker (1988b) explains the difference between benefactives and instrumentals by suggesting that when optional object verbs do not take an overt object, they in fact take a phonologically null object that must be given structural Case. Since the benefactive NP in applicative constructions must receive structural Case, there is competition for the one structural Case position and the sentences are ungrammatical. Instrumentals are fine because the instrumental applied object can receive inherent Case. Given this, one would expect that the instrumental applied object would not have its usual object properties when the optional object is (phonologically) absent; this turns out to be true, as shown in (45).

(45) a. Mlēnje a-ku-í-lémb-ér-á *(chímangirīzo) (nthēnga).
hunter subj-pres-obj-write-appl-fv (essay) (feather)
"The hunter is writing it (an essay)with a feather."
b. Nthēnga i-ku-lémb-ér-edw-á *(chímangirīzo).
feather subj-pres-write-appl-pass-fv (essay)
"The feather is being used to write (an essay)."

However, this is not the extent of the data. If we assume that verbs that are intransitive all the time cannot assign structural Case, as Baker does, then we would expect that benefactives would not be able to appear with these verbs, but instrumentals should be fine, since, again, the

instrumental applied object can get inherent Case. This prediction falters on two counts. First, it appears that some intransitive verbs *can* appear with benefactive applicatives, as shown in (46) (although, as shown in (47), there are also intransitives that cannot take benefactive applicatives).

(46) <u>Grammatical benefactives</u> (a-e from Baker 1988a)
  a. Atsikana a-na-vin-a.
    girls subj-past-dance-asp
    "The girls danced."
  b. Atsikana a-na-vin-a chiwoda.
    girls subj-past-dance-asp chiwoda (a tribal dance)
    "The girls danced the chiwoda."
  c. Atsikana a-na-vin-ir-a mfumu.
    girls subj-past-dance-appl-asp chief
    "The girls danced for the chief."
  d. Mkango u-ku-yend-er-a anyani.
    lion subj-pres-walk-appl-fv baboons
    "The lion is walking for the baboons."
  e. Kalulu a-na-sek-er-a atsikana.
    hare subj-past-laugh-appl-asp girls
    "The hare laughed for the girls."
  f. Yêsu a-ná-f-ér-a anthu ônse.
    Jesus subj-past-die-appl-fv people all
    "Jesus died for all the people."
  g. Mtolankhâni a-na-thámáng-ir-á chíphadzûwa.
    journalist subj-past-run-appl-fv beauty queen
    "The journalist ran for the beauty queen."

(47) <u>Ungrammatical benefactives</u> (from Baker 1988a)
  a. *Chiphadzuwa chi-a-fik-ir-a mfumu.
    beautiful woman subj-perf-arrive-appl-asp chief
    "The beautiful woman has arrived for the chief."
  b. *Mlenje a-na-gon-er-a kalulu.
    hunter subj-past-sleep-appl-asp hare
    "The hunter slept for the hare."

Note that (46a-c) shows a grammatical benefactive of a "cognate object" verb, which Baker claims may be able to assign structural Case

even in its intransitive form (and note that this must be crucially different from optional object verbs: it must have no object at all, rather than a null object that requires structural Case). The other examples of grammatical benefactives with intransitives are controversial; Baker (1988a,b) claims that they are grammatical, but do not have the usual range of interpretations associated with benefactives, and suggests (1988b) that they may be associated with "reason applicatives"; Alsina and Mchombo (forthcoming) show that these sentences do not behave like reason applicatives syntactically and argue that they are in fact true benefactives. I will not belabor the point here, but it is clear that something must account for the data in (46), since the sentences are in fact grammatical with something perilously close to a benefactive reading.

The second point on which Baker's predictions falter has to do with instrumentals. If, as Baker argues, instrumental applied objects of intransitives can get only inherent Case, they should not have the object properties associated with structural Case. Unlike instrumental applied objects of optional object verbs, however, instrumental applied objects of normal intransitives *do* retain object properties, as shown in (48).

(48) Instrumentals (a from Baker 1988b)
    a. Mbalame zi-ma-uluk-ir-a mapiko.
       birds subj-hab-fly-appl-asp wings
       "Birds fly with wings."
    b. Anyăni a-í-yénd-ér-a ndōdo.
       baboons subj-past-walk-appl-fv stick
       "The baboons walked with a stick."
    c. Ndōdo i-na-yénd-ér-ĕdw-a (ndí anyăni). (=12b)
       stick subj-past-walk-appl-pass-fv (by baboons)
       "The stick was walked with (by the baboons)."
    d. Anyăni a-na-í-yénd-˘er-a (ndŏdo).
       baboons subj-pst-obj-walk-appl-fv (stick)
       "The baboons walked with it (the stick)."

As Alsina and Mchombo (forthcoming) point out, the data in (48c-d) effectively show that the instrumental applied object must be getting licensed the same way in intransitives as it is in transitives, and differently from how it is licensed in optional object verbs. It is tempting to suppose that there is an unaccusative-unergative distinction at work here; if we assume that unergative verbs are in principle capable of assigning structural Case, then both benefactives and instrumentals should be fine attaching to them. Unaccusatives, on the other hand, should be like optional object verbs in allowing instrumental applied objects, but without canonical object properties, and benefactives would not be allowed with them at all. In order for this to work under Baker's system, we would need to stipulate that the sole argument of an unaccusative must receive structural Case, not inherent Case; otherwise, the benefactive could move to subject position to get Case while the unaccusative's argument would remain in postverbal position with inherent Case.

Without a more extensive exploration of intransitive verbs in Chicheŵa, it is impossible to offer a conclusive analysis of the interaction of applicative processes with transitivity. From the facts that are clear, however, it appears that Baker's analysis has some problems explaining data in addition to its conceptual and structural problems.

3.4.3.2 A solution[23]

If we adopt the theory of licensing proposed in Chapter 2, we can account for Chicheŵa optional object verbs in the following manner: following the spirit of Baker (1988b), I assume that optional object verbs in Chicheŵa may take pro objects which, as phonologically null NPs, must be fully L-licensed. Specifically, I follow Chomsky (class notes) in assuming that while full NPs move to LP at LF to be licensed, pros must move in the syntax. Since Chicheŵa is a single-[+L] language, the only position from which pro can move to LP will be the higher object position, since the other object in the construction must be licensed through sister-licensing, there being no other [+L] LP to license it (again, see Chapter 2 for discussion). This means that although the applicative of an optional object verb may have either the structure in (49) or the structure in (50)

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[23]I should point out that optional object verbs are not a problem for Marantz's analysis; in Baker's structures, the structural Case assigner is the verb itself, while in Marantz's structures it is the applicative morpheme that has the upper position and the potential to assign structural Case. Therefore, the transitivity of the verb should have no effect on the attachment of applicatives. The ungrammaticality of optional object verbs with benefactives could be attributed to the same basic cause as Baker has: the requirement that the absent objects be null pronouns requiring structural Case. Since in Marantz's view there is only one structural Case assigner in D-langauges such as Chicheŵa, the result will be a conflict between the structural Case requirement for the null objects, which forces a structure such as that in (41) above with the theme in the upper Spec,VP, and the requirement that the benefactive be expressed outside the event affecting the theme, which forces the structure in (40).

when the object is present (and thus able to be sister-licensed, if it happens to be the lower object, as in (49)), when the object is a pro only the structure in (50) is possible; in (49), the pro would use up the L-licensing, leaving NP1 unlicensed.

(49) Mlēnje a-ku-lémb-ér-á nthēnga (*chimangirīzo).
      hunter subj-pres-write-appl-fv feather (essay)
      "The hunter is writing (an essay) with a feather."

```
                    PP
                   /  \
                NP1    P'
                 |    /  \
            nthēnga  P    VP
                     |   /  \
                    -ér- V    V'
                             /  \
                            V    NP2
                            |     |
                         -lémb-  chimangirīzo/*pro
```

(50) Mlēnje a-ku-lémb-ér-á nthēnga (chimangirīzo).
      hunter subj-pres-write-appl-fv feather(essay)
      "The hunter is writing (an essay) with a feather."

```
              VP
             /  \
          NP1    V'
           |    /  \
          pro/ V    PP
     chimangirīzo|  /  \
              -lémb-    P'
                       /  \
                      P    NP2
                      |     |
                    -ér-  nthēnga
```
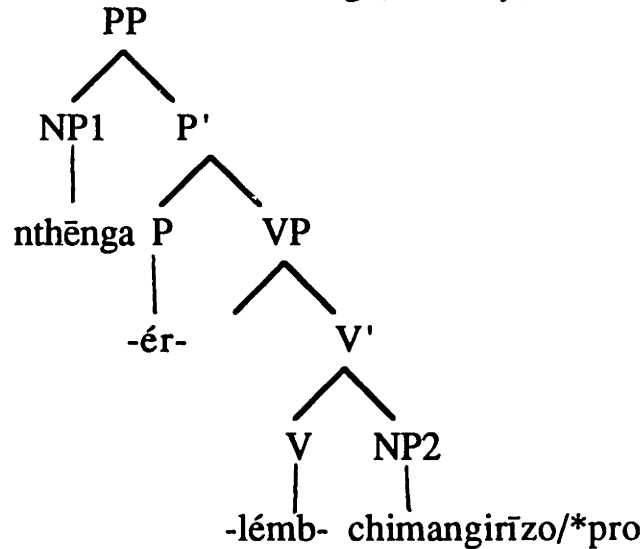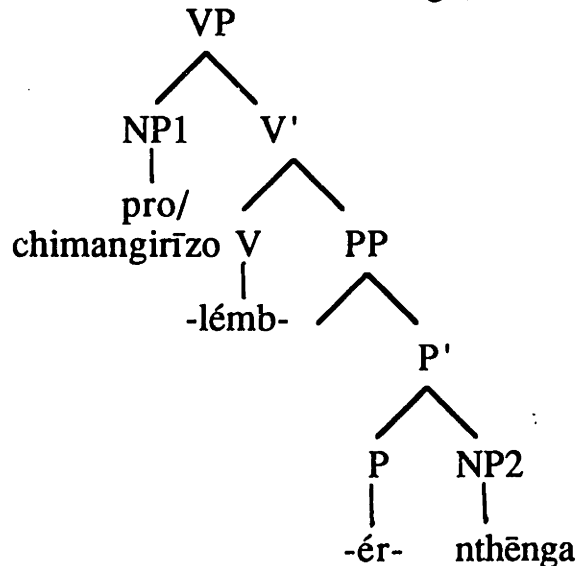
This account rules out benefactives of optional object verbs without the overt object because there is a conflict between the requirement that the benefactive applied object be the higher object, which forces the structure in (49), and the requirement that the pro object be the higher object, which forces the structure in (50). This approach avoids Baker's problem of needing to assign only inherent Case to instrumental applied objects: since the instrumental applicative P can alternate, instrumental applied objects will sometimes get sister-licensed and sometimes get L-licensed, depending on which configuration is used. Whether a given NP gets structural or inherent Case in this model is solely a function of the phonological form of the NP, not of its semantics or its thematic relation to the predicate.

Ordinary intransitive verbs allow the variant in (49) (only without the lower object, of course), where the applied object is L-licensed; this is evidenced by the data in (48). Optional object verbs require the structure in (50) when their objects are phonologically absent, but since this is a legitimate structure for instrumentals, there is no problem. However, the instrumental applied object will not be in a position to become the subject of a passive or to trigger object marking, so it should not have object properties, just as the data in (45) show. Allowing two different structures for instrumentals, but only one for benefactives, is crucial in accounting for this set of data. Also crucial is a notion of licensing that depends on structural position.

This section has shown that Baker's (1988a,b) analysis of applicative constructions is inadequate both in theory and in accounting for some of

the relevant data. Marantz (1984,1990) is successful in accounting for the data, but comes from a different framework which is difficult to reconcile with some aspects of the model of argument structure and projection adopted here. The account of licensing developed in Chapter 2, combined with the account of applicative constructions set forth in this chapter, can easily account for the behavior of optional object verbs with different types of applicatives in Chicheŵa.

3.5   Summary and conclusions

This chapter has developed a notion of P inversion and shown how it is responsible for locative alternation verbs and the dative double object alternation in English, as well as applicative constructions in the Bantu languages. The essential core of this theory is that prepositions can express relations between two entities or between an entity and an event, and they can express this relation in either direction without changing the basic meaning of the relation. English dative double object and locative alternation verbs contain an entity-entity P in their argument structures which can have either a positive or a negative value for [central], a feature on P that determines the direction in which it will express its relation. English double object benefactive verbs have an l-syntactic structure containing an entity-event P, while constraints against the realization of VPs in specifier position force the inverse of that P, which is realized as *for*, to be predicated of the V at s-syntax. Bantu applicative constructions involve entity-event Ps that are predicated of events or take events as complements in the s-syntax. Applicatives are of two basic types: benefactive and instrumental/locative. These two types have in common a

structure based on an entity-event P, but differ in that instrumental/locative applicatives allow P inversion and the benefactive allows only one variant of P. While there are some details of the theory that have yet to be fully worked out, this account unifies a variety of different double object constructions in different languages by appealing to the common element P, and accounts for cross-linguistic diversity by positing a limited number of different types and manifestations of P, in conjunction with the theory of licensing in Chapter 2.

CHAPTER 4: CAUSATIVES

Causative constructions present a wide variety of problems of linguistic interest, and I do not intend to undertake a full treatment of them here; this chapter is limited to those aspects of the causative that bear directly on the central claims of this study. I do not examine, for example, the differences in directness of causation between synthetic and analytic causatives in a given language, and in fact I restrict myself almost entirely to the study of morphological synthetic causatives, since these are what relate most closely to the other multiple object constructions under consideration. I also do not address the question of whether morphological synthetic causatives act monoclausal or biclausal within a given language, though presumably this will have something to do with whether the causative verb in a language is a barrier for government. My primary goal is not to develop a new analysis of causative constructions, but to show how the theory of licensing and lexical complementation applies to some problems in causative constructions. I present a summary of the morphological types of causative constructions in Section 4.1; in Section 4.2 I consider the syntactic structure of the synthetic causative, with a view to making the analysis consistent with constraints imposed by the account of applicative constructions in Chapter 3. Section 4.3 is a brief discussion of the causee's place in the structure of the synthetic causative, and Section 4.4

considers the split between accusative causee languages and oblique causee languages and gives a brief outline of how the model of licensing adopted here accounts for the difference.

4.1   Types of causative constructions

From a morphological standpoint, there are three types of causatives: those expressed by zero morphology (lexical causatives), by overt morphology (synthetic causatives), or by a full biclausal structure (analytic causatives).[1] Languages can choose more than one of the three ways to express causatives: English, for example, has lexical causatives, as in (1), and analytic causatives, as in (2).

(1)   a. Chris melted the chocolate.
       b. The chocolate melted.

(2)   a. Robin made the books fall.
       b. The books fell.
       c. Robin made Pat wash the dishes.
       d. Pat washed the dishes.

Note also that the rough descriptions of the different types of causatives are not completely clear-cut. For example, "analytic causative" is usually taken to mean causatives with an independent causative verb, as in English or Romance. However, there are clear differences between English and Romance causatives; in general, English causatives are truly biclausal, but Romance causatives actually have more in common syntactically with some synthetic causative constructions, the difference

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[1] I follow the terminology of Shibatani (1976a).

being that Romance has a free rather than a bound causative morpheme[2]. The distinction, among types of causatives, then, can be drawn differently depending on whether one wishes to consider morphology or syntactic behavior.

Some clarification is needed regarding the definition of "synthetic causative" as well; here again the brief definition given above does not quite capture the aspects of the phenomenon under investigation here. One could argue that English , for example, has synthetic causatives: by adding the suffixes -ify, -en, or -ize, or the prefix en-, English can create verbs from roots, adjectives, or nouns that have a causative meaning, as shown in (3)-(6).

(3) a. Robin's political views enraged Chris.
     b. Robin's political views caused Chris to feel rage.

(4) a. The top hat dignified Pat's appearance.
     b. The top hat caused Pat's appearance to have dignity.

(5) a. The vaccine immunizes children to polio.
     b. The vaccine causes children to become immune to polio.

(6) a. The explosion deafened me for a moment.
     b. The explosion caused me to become deaf for a moment.

While these morphological constructions certainly have something in common with synthetic causatives in agglutinating languages such as Turkish and the Bantu languages, I do not consider the English constructions in detail here; the examples in (3)-(6) clearly involve

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2See Comrie (1985) for a similar point of view, also Rosen (1989).

category changing as well as causative formation, and I would argue that they are formed in the l-syntax via a verbal head taking an adjectival complement. The synthetic constructions investigated here involve s-syntactic V-VP complementation where the causative affix takes as its complement a fully fledged lexical verb, and the verbal nature of the complement is what makes the constructions relevant.

Finally, a word on lexical causatives: these are causative verbs which have phonologically identical non-causative counterparts, such as causative and inchoative *break* or *melt* in English, and are characterized by a V taking a VP complement at l-syntax, where the VP complement is itself the complete argument structure for the inchoative variant. It may also be the case that there are verbs with a causative meaning which have no non-causative counterpart (cf. Pesetsky 1990, who argues that *annoy* is an example of such a verb); these should have the same form as lexical causatives such as *break*, but for some reason the non-causative variants are not allowed to appear on the surface. English lexical causatives thus have the same basic structure as synthetic causatives in Turkish and Bantu, but they are formed in the l-sytnax rather than in the s-syntax. In general, English lexical causatives are not double object constructions (with the exception of a few verbs, such as *feed* and perhaps *teach*), so I will not consider them in detail here; see Hale and Keyser (work in progress) for a discussion of lexical causatives and constraints on their formation.

The purpose of this brief discussion of the different morphological types of causatives has been to show that although they have in common a

V taking an argument-taking complement, they differ in the nature of the complement and the level of representation at which complementation takes place. In particular, since lexical causatives and the English category-changing synthetic causatives generally involve a causative V taking a single-argument predicate, the resulting causative verb will be a single-object verb; the syntactically productive synthetic causatives, on the other hand, may take two-argument (transitive) predicates, resulting in a three-argument predicate, or double object construction. It is this characteristic that sets them apart from the other types of causatives and makes them relevant to the present study; the next section examines their structure in more detail.

4.2   The structure of the synthetic causative

The structure of synthetic and lexical causatives is generally V-VP complementation. Rosen (1989), working within the framework of Grimshaw (1990), proposes an operation of argument structure merger that can take place on argument structures themselves, then be mapped onto syntax. In the present model, this can be accomplished through a causative verb taking the base verb as a complement, at l-syntax for lexical causatives and at s-syntax for synthetic causatives; this is essentially following Li (1990a,b). The relevant structure is given in (7).[3]

3This structure has also been proposed for serial verb constructions (see Campbell 1990).

(7)   VP1

```
        VP1
       /  \
     NP1   V1'
          /  \
        V1   VP2
         |   /  \
       caus    V2'
              /  \
             V2   XP
```
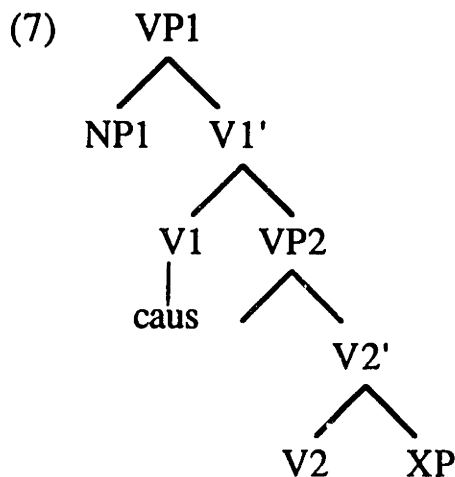
Here V1 is the causative verb or affix, while V2 is the basic verb, XP being its complement (possibly null). (NP1 is the causee, the external argument of VP2; I will discuss its position in the next section.) When V1 is zero and the complementation occurs at l-syntax, the result is lexical causatives such as English *break*. When V1 is a bound morpheme, V2 raises to V1 and morphological causatives such as those in Turkish, the Bantu languages, and Japanese result. When V1 is an independent verb, we get "serializing" causatives, as in Miskitu (see Hale 1989b), or, if V2 raises to V1, "compounding" causatives, as in Romance (see Rosen 1989). This structure contrasts with the structure of analytic causatives in that the latter have a full causative verb which takes an IP complement.[4]

Let us consider more closely the status of NP1, the causee argument. An example of a typical synthetic causative construction is given in the Kinyarwanda example in (8), with the structure as in (9).

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[4]In this I follow Comrie (1976) and Baker (1988a), though I differ from Baker in not treating all causatives as V-IP constructions. Nothing in the present work has any bearing on whether analytic causatives are V-IP or V-VP; I shall assume the former for convenience. Again, I use "IP" here as a shorthand notation for the complex of functional projections argued for in Chapter 2 (see Chapter 3, Note 21).

(8)   Umugabo á-r-úubak-iish-a abaantu inzu.
      Man subj-pres.build-caus-asp people house
      "The man is making the people build the house."

(9)   VP1

```
(9)        VP1
          /   \
       NP1     V1'
        |     /   \
     abaantu V1    VP2
            |     /   \
          -iish- V2'
                /   \
              V2     NP2
               |      |
            -uubak-  inzu
```
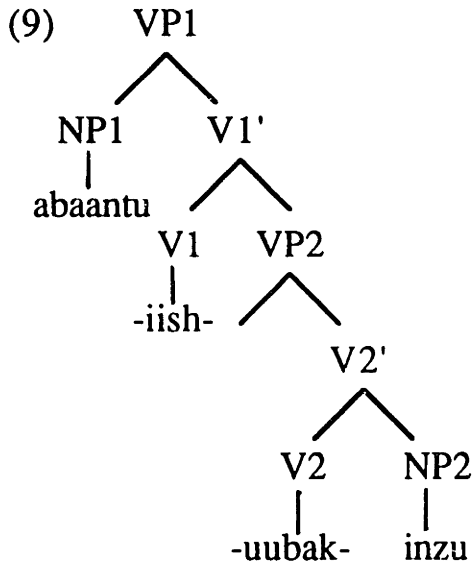
This is, I claim, the basic structure for all synthetic causative constructions; the differences between accusative causee and oblique causee languages is a difference not in basic structure but in licensing, as we will see below. The basic verb incorporates into the causative verbal affix, forming a complex causative verb; the complex verb then raises to INFL to receive inflectional morphology, and the final word order is V+caus NP1 NP2, as in (8). This type of configuration is argued for by Li (1990a,b) and Rosen (1989) and although these two analyses are different from each other and from my own, they make convincing cases that V-VP complementation is permitted, and even necessary, in the syntax, and I will not argue for that here. I claim that such complementation takes place when and only when the argument structure of a predicate includes another predicate; in Li's terms this is when a V selects a VP complement, while in

Rosen's terms it is when one complete argument structure merges with a second by taking the place of one of the variables in the second argument structure. Given the l-syntactic structure in (10) below for a causative verb or affix, both conceptions are captured: V selects VP by taking it as its complement at this level, and one could say that the argument structures of the two verbs are merged in a certain sense, since the causative verb takes as an argument a predicate which will bring its own argument structure into the projection governed by the causative verb.

(10)   VP
       ╱╲
         V'
        ╱╲
       V   VP
       CAUS
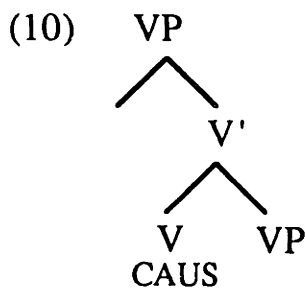
The causative affix, then, like the applicative, is distinguished by having a predicate head in its l-syntactic structure; this accounts for the multiple object structure of causatives and applicatives. That the predicate head is a V for the causative and a P for the applicative has few, if any, consequences for the s-syntax, since, as I argued in the last chapter, the applicative P is non-distinct from a V at that level.

4.3   The position of the causee

The structure in (7) above differs from Li's and Rosen's accounts in that I have the causee argument in the specifier of the upper, rather than the lower, VP; this difference is due to the fact that Li and Rosen both assume that subjects of VPs are generated internal to the VP, while I

assume that they are external (see Chapter 1). The obvious question that arises is how the causee gets projected into the NP1 position: if *-uubak-* normally projects its external argument (*abaantu*) into the specifier of AGRP, how is it that this argument can appear in the specifier of VP instead? Following Marantz (1984, 1985), I define "external to VP" as "external to the projection headed by the V selecting the argument", as opposed to "in AGRP". In particular, I propose that the external argument of a VP must be projected into the first available specifier position outside the VP.[5] This means that when a V takes an external argument, but is itself embedded under a V, its external argument will show up in the specifier of the VP above it, just as in (7). The causative VP in (7) also projects an external argument, of course, which appears in Spec, AGRP.

4.4   The licensing of the causee

The structure in (7) shows what I claim is the archetypal structure for all synthetic causatives; however, all synthetic causatives do not act like the Kinyarwanda example given in (8). One way to characterize the differences among causatives across languages is to divide them between "accusative causee" languages, in which the causee is marked as a normal direct object and the object of the base verb may be either oblique or also accusative, and "oblique causee" languages, in which the object of the base verb retains its direct object marking and the causee is expressed obliquely.

---

[5]This may need to be refined somewhat: extra conditions may need to be imposed on the type of maximal projection whose specifier an external argument can occupy, in order to prevent the external argument of an upper V from projecting into LP or TP rather than IP. Subject licensing will eventually require it to end up in Spec,IP, however, so my concern is not so much for the uppermost external argument as for the "internal external argument" under discussion here.

Examples of accusative causee languages according to this definition are most of the Bantu languages, specifically Kinyarwanda, Chi-Mwi:ni, and Sesotho, as well as Chamorro and some dialects of Quechua. Oblique causee languages include Turkish, Hindi, Romance, Malayalam, and Japanese. The Bantu languages Setswana and Chicheŵa seem to have an alternation between the two types. However, while this division accurately reflects the morphological differences among causatives, the syntactic differences do not break down along the same lines; Japanese, for example, behaves like Sesotho rather than like Turkish, as we will see. Therefore, I will divide the causative constructions into two types: Type 1 causatives are those in which the causee is L-licensed (Kinyarwanda, Sesotho, and Japanese, for example); this category includes both asymmetrical object causatives, in which only the causee is L-licensed, and symmetrical object causatives, in which both the causee and the lower object are L-licensed. Type 2 causatives are those where only the lower object is L-licensed (this includes Chicheŵa prepositional causatives, Turkish, and Romance, as well as Malayalam).

As we saw in Chapter 2, multiple object constructions differ as to whether there can be one [+L] predicate or many, and, if there is only one [+L] predicate, which of the nonsubject NPs receives L-licensing. My basic claim is that there are two parameters along which synthetic causatives divide: whether the causative verb suppresses [+L] on the verb it governs and, if it does, how Licensing is accomplished in the language. The remainder of the chapter discusses some examples of different types of synthetic causative constructions, as an illustration of how Licensing can

work in different ways. Section 4.4.1 examines Type 1 causatives, and Section 4.4.2 considers Type 2 causatives.

4.4.1   Type 1 causatives (causee is L-licensed)

The sentence in (8) above was one example of a Type 1 causative. As we saw in Chapters 2 and 3, Kinyarwanda is a multiple-[+L] language, so that all objects in a multiple object construction are generally L-licensed; causatives behave the same way, with not only the causee but the lower object being L-licensed. Imbabura Quechua, Sesotho, Chi-Mwi:ni, and Chicheŵa accusative causees, like Kinyarwanda, have identical morphology for both causee and base object (accusative case marking in Quechua, zero in the Bantu languages), but the base object does not have all the object properties of the causee. Chamorro has accusative marking on the causee and oblique marking on the base object, while Japanese has oblique marking on the causee and accusative marking on the base object. What all these languages have in common is that the causee has full object properties, so I claim that it is the causee that is licensed by LP in all these cases. The differences arise in how the base object is licensed, as I will now show.

4.4.1.1   Kinyarwanda

As mentioned above, in Kinyarwanda both objects of a causative have the same properties, except that the causee precedes the object of the lower verb in this relatively strict-word-order language.

(11) Umugabo á-r-úubak-iish-a abákozi inzu.
Man subj-pres.build-caus-asp workers house
The man is making the workers build the house."

(12) Umugóre a-ryaam-iish-ije ábáana.
woman subj-sleep-caus-asp children
"The woman is putting the children to sleep."

That both the causee and the base object have object properties is illustrated in (13)-(14), where (13) shows that either the causee or the base object may become the subject of a passive, and (14) shows that either, or both, may trigger object marking on the verb.

(13) a. Abákozi bá-r-úubak-iish-w-a inzu n'ûmugabo.
Workers subj-pres-build-caus-pass-asp house by-man
"The workers are made to build the house by the man.
b. Inzu í-r-úubak-iish-w-a abákozi n'ûmugabo.
House subj-pres-build-caus-pass-asp workers by-man
"The house is being made by the man to be built by the workers."

(14) a. Umugabo a-rá-b-úubak-iish-a inzu.
Man subj-pres.-obj-build-caus-asp house
"The man is making them build the house."
b. Umugabo a-rá-y-úubak-iish-a abákozi.
Man subj-pres.-obj-build-caus-asp workers
"The man is making the workers build it."
c. Umugabo a-rá-yi-b-uubak-iish-a .
Man subj-pres.- obj-obj-build-caus-asp
"The man is making them build it."

The reason why both the causee and the base object can behave like true objects in this language is that, like the applicative, the causative predicate is [+L] and does not suppress [+L] on the basic verb, so that there are as many [+L] predicates as there are predicates and the object of each

predicate may be L-licensed.[6] The basic picture of Kinyarwanda causatives, then, is that they result in two symmetrical objects, just like (most) applicative constructions in the language; this is a language where the multiple-[+L] option is exercised in virtually every construction (with an exception to be discussed in Chapter 5).

4.4.1.2   Chi-Mwi:ni

Chi-Mwi:ni causatives look just like Kinyarwanda causatives in their basic word order and lack of any oblique marking on either object, as shown in (15). The data are from Marantz (1984) (taken originally from Abasheikh 1979).

(15)   Mwa:limu Ø-wa-ándik-ish-ize wa:na xati
       Teacher subj-obj-write-caus-asp children letter
       "The teacher made the children write a letter"

However, if we consider the object properties of the objects we see that Chi-Mwi:ni is an asymmetrical object language, as shown in Chapter 1 for its dative and applicative double object constructions; only the causee has object properties. As shown in (16), only the causee can become the subject of a passive. Unfortunately I do not have data showing whether the base object can trigger object agreement or not; that the causee can do so is clear from (15).

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[6]I should point out that although applicatives in this language can attach to double object verbs (see Chapter 5), Kimenyi (1980) claims that causatives cannot (though he does not give specific examples); he claims that the problem involves verbs with agent subjects and animate objects and has to do with volitional control over the event.

(16) a. Wa:na wa-ándik-ish-iz-a: xaṭi na mwa:limu.
 Children subj-write-caus-asp/pass letter by teacher
 "The children were made to write a letter by the teacher."
 b. *Xaṭi a-andik-ish-iz-a wa:na na mwa:limu.
 Letter subj-write-caus-asp/pass children by teacher
 "The children were made to write a letter by the teacher."

Since it is only the first of the two objects that has canonical object properties in Chi-Mwi:ni, I propose that the causative verb suppresses [+L] on the predicate it governs, resulting in a single [+L] predicate for two objects. The upper NP, which, recall from the structure in (7), is in a specifier position, receives full licensing from LP, while the lower NP, which is the sister to the verb, gets sister-licensed and thus may appear in situ without any special marking, but may not be moved. Chi-Mwi:ni causatives are typical of asymmetrical object Bantu constructions; since applicatives and dative double object verbs behave the same way in this languages (see Chapter 1), I propose that the suppression of [+L] in the causative is due to a language-wide constraint against having more than one [+L] predicate in a single sentence.

4.4.1.3   Sesotho

Although its causative constructions have the same superficial form as causative constructions in Kinyarwanda and Chi-Mwi:ni, Sesotho differs from both languages in that the causative does not have the same object symmetry as the applicative. As shown in Chapter 3, in applicative constructions both applied object and base object have typical object properties. With respect to causatives, however, Sesotho behaves like an asymmetrical object language such as Chi-Mwi:ni, allowing only the causee

to have object properties. As in Kinyarwanda and Chi-Mwi:ni, Sesotho causees appear immediately postverbally, followed by the unmarked object of the lower verb. That this order is strict is shown by the ungrammaticality of (20b). Data are from Machobane (1989).

(17) Nkhono o-hol-is-a lintja.
grandmother subj-grow-caus-fv dogs
"My grandmother makes dogs grow/ raises dogs."

(18) Banna ba-hobel-is-a bashanyana.
men subj-dance-caus-fv boys
"The men make the boys dance."

(19) 'Me o-pheh-is-a bana nama.
mother subj-cook-caus-fv children meat
"My mother makes/helps the children cook meat."

(20) a. Ntate o-bal-is-a bana libuka.
father subj-read-caus-fv children books
"My father makes/helps the children read a book."
b. *Ntate o-bal-is-a libuka bana.
father subj-read-caus-fv books children
"My father makes/helps the children read a book."

Although both objects are morphologically unmarked, only the causee shows the typical object properties, as shown in (21) for object marking and (22) for passive.

(21) a. Ntate o-ba-bal-is-a buka.
father subj-obj-read-caus-fv book
"My father makes them read the book."
b. *Ntate o-e-bal-is-a bana.
father subj-obj-read-caus-fv children
"My father makes the children read it."

(22) a. Bana ba-bal-is-o-a buka ke-ntate.
          children subj-read-caus-pass-fv book by-father
          "The children are made to read the book by my father."
      b. *Buka e-bal-is-o-a bana ke-ntate.
          book subj-read-caus-pass-fv children by-father
          "The book is made to be read by the children by my
              father."

While in most cases object symmetry is a property of a language, in Sesotho it is a property of individual constructions. We cannot claim, as in Chi-Mwi:ni, that the language allows only one [+L] predicate per sentence, since both objects in applicative constructions have object properties; I propose that Sesotho generally allows multiple [+L] predicates, but that it is a lexical property of individual predicates whether they suppress [+L] on the predicate they govern or not. The causative predicate suppresses [+L] on the predicate it governs as a lexical property, while the applicative predicate does not; in fact, as we saw in Chapter 2, individual double object verbs in this language may also differ in whether they have one [+L] predicate or two.

This analysis is in some sense the inverse of Li's (1990a,b) view of causative variation; he distinguishes causatives in different languages according to whether the causative verb is [+C] (a Case-marker), [-C] (a non-Case-marker), or [C] (unmarked for Case-marking), whereas I claim they are all "Case-markers" (=[+L]), but vary as to whether they suppress the ability of the basic verb to be [+L]. Sesotho would have a [C] causative under Li's analysis, since only one object has the object properties associated with structural Case; the sole structural Case for him is assigned

by the [+C] base verb. With this in mind, consider the data in (23) (cf. (17)).

(23) a. Nkhono o-li-hol-is-a kapele.
grandmother subj-obj-grow-cause-fv fast
"My grandmother makes the dogs grow fast."
b. Lintja li-hol-is-o-a ke-nkhono.
dogs subj-grow-caus-pass-fv by-grandmother
"The dogs are brought up by my grandmother."

These data show that causatives of intransitives are not only possible (cf. (17) and (18)), but allow the sole object to have object properties associated with structural Case; Li therefore assumes that intransitive verbs (both unaccusatives and unergatives) are [+C] to account for the structural Case properties of the object in (23). Under the present analysis, (17), (18), and (23) are grammatical because there is a [+L] predicate, the causative, which can allow them to be L-licensed, and in fact the [L] feature of the base verb will be correctly predicted to be irrelevant, since it is suppressed; it is not necessary to assume that all verbs are [+L] in order for the analysis to work.

4.4.1.4   Imbabura Quechua and Chamorro

We turn next to Imbabura Quechua and Chamorro, which differ from the Bantu languages in having morphological case marking. Chamorro has oblique marking on the base object, while Imbabura marks both NPs with accusative case.

(24) <u>Imbabura</u>
Juzi-ka Juan-ta ruwana-ta awa-chi-rka.
José-top Juan-acc poncho-acc weave-caus-pst3
"José had Juan weave a poncho."

(25) <u>Chamorro</u>
Ha-na'-taitai häm i ma'estru ni esti na lebblu.
3sgsubj-caus-read us the teacher OBL this LINK. book
"The teacher made us read this book."

As far as I can tell from the small amount of data at hand, both languages treat only the causee as a true object, as shown in (26) for Imbabura and (27) for Chamorro. Baker (1988a) claims that the base object in Chamorro does not have the properties attributed to true objects in that language; the non-ambiguity of the examples in (26) shows that only the causee can become the subject of a passive or trigger object marking.

(26) a. Marya-ka Juzi Juan-ta riku-chi-shka-mi ka-rka.
María-top José Juan-acc see-caus-pst prt-validator be-past3
"María was caused by José to see Juan."
≠ Juan was caused by José to see Maria
≠ José caused Maria to be seen by Juan
b. Juzi-mi Juan-ta-ka maka-chi-wa-rka.
José-val Juan-acc-top hit-caus-1obj-past3
"José made me hit Juan."
≠José made Juan hit me

(27) Ma-na'-fa'gasi si Henry ni kareta nu i famagu'un.
pass-caus-wash PN Henry obl car obl the children
"Henry was made to wash the car by the children."

These two languages behave just like Chi-Mwi:ni in terms of L-licensing: in both cases the causative suppresses [+L] on the lower verb and only the causee is L-licensed. Imbabura is morphologically like Chi-Mwi:ni in having identical marking on both objects, while in Chamorro,

NPs which are only sister-licensed are marked with oblique morphological case to distinguish them from L-licensed NPs. Note that Imbabura has different morphological case marking available in the language, but does not differentiate the causee and the base object by having them marked differently; it may be that the oblique morphological cases in the language are linked to lexical head-licensing, rather than to sister-licensing. More work needs to be done to determine the relationship between structural position and morphological case in this language; I leave that question for future research.

4.4.1.5 Japanese

On the surface, Japanese causatives do not look like the other causatives described in this section: while causatives of intransitives may have accusative case marking on the causee, more or less like the other Type 1 causatives, causatives of transitives have accusative case marking on the base object and dative on the causee, so that at first glance one might suppose this to be a Type 2 causative, with the lower object receiving L-licensing. Examples of causatives of transitives and intransitives are given in (28).

(28) a. Taroo ga Hanako o hatarak-ase-ta.
          Taroo nom Hanako acc work-caus-past
          "Taroo made Hanako work."
      b. Taroo ga Hanako ni hatarak-ase-ta.
          Taroo nom Hanako dat work-caus-past
          "Taroo let Hanako work."
      c. Taroo wa Hanako ni/*o sono hon o kaw-ase-ta.
          Taroo top Hanako dat/acc that book acc buy-caus-past
          "Taroo made/let Hanako buy that book."

First note that either dative or accusative morphological case may appear when the base verb is intransitive, as shown in (28a-b). The morphological case expresses a difference between coercive (accusative) and permissive (dative) causatives, and I will not discuss the semantic differences here; I simply propose that the morphological case-marking indicates a semantic difference only, not a structural difference between the position of the causee in (28a) and (28b). Japanese has non-causative constructions in which the object of a monotra... ive verb idiosyncratically gets dative case marking, so that claiming that morphological dative case can be associated with an L-licensed object has some foundation in the language. A further indication that morphological dative case marking is compatible with L-licensing is that the dative-marked causee is the argument that can become the subject of the passive, as shown in (29a). Note that the morphological accusative argument cannot become the subject of the passive (29b).[7]

(29) a. Hanako wa Taroo ni sono hon o kaw-asase-rare-ta.
Hanako top Taro by that book acc buy-caus-pass-past
"Hanako was made by Taro to buy that book."
b. *Sono hon wa Taroo ni Hanako ni kaw-asase-rare-ta.
That book top Taro by Hanako dat buy-caus-pass-past
"That book was caused by Taro to be bought by Hanako."

This suggests that in fact the causee is receiving L-licensing in (28), despite the dative case-marking; following Shibatani (1976a), I assume the dative marking is due to a surface constraint in Japanese against having two

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[7]In addition to the ordinary passive sentences I show here, Japanese also has an "adversity passive", which differs from the "direct" passives discussed here in several respects, including the ability to attach to intransitive verbs. I do not consider them here; the data are from direct passives only.

NPs in the same clause marked with accusative *o* (the "Double-*o* constraint"). In other words, syntactically the Japanese causative is like the Bantu causatives we have seen so far, the sole difference being that Japanese requires morphological case-marking on its NPs and has constraints on how that morphological cas-marking may be realized. Thus, I propose that the Japanese causative suppresses [+L] on the lower verb, that the causee receives L-licensing, and that the lower object is licensed by sister-licensing.

Matters are not quite as simple as that, however. One fact about Japanese that sets it apart from the other languages in this section is the fact that the lower object of a causative can in fact be moved in a passive, although it does not become the subject of the entire sentence, as shown in (30) (from Marantz 1984).

(30) Ziroo ga Taroo o/ni Hanako ni but-are-sase-ta.
Jiro nom Taro acc/dat Hanako dat hit-pass-caus-past
"Jiro made/let Taro be hit by Hanako."

Notice that the passive morpheme *(r)are* occurs just after the lower of the two verbs in the complex verbal structure, as compared to (29), where *rare* shows up just after the causative verb. Notice also that *Taroo* in (30) can take either accusative or dative morphological case-marking, just as if it were the subject of an intransitive causativized verb. I propose that rather than generating the passive morpheme under L, as I argued in Chapter 2 for Kinyarwanda, Japanese attaches it directly to a verbal head. Here it has the effect of suppressing [+L] on the verb it attaches to and of demoting the external argument of that verb; in allowing Passive to apply

in different domains, this analysis is reminiscent of Larson (1988a). The structures for (29a) and (30) are given in (31).

(31) a. VP1
```
              VP1
             /    \
           NP1     V'
                  /  \
               VP2    V1
              /  \     |
                   \  sase-rare
                 V'  [-L]
                /  \
             NP2    V2
                     |
                    kaw
                    [-L]
```

b. VP1
```
              VP1
             /    \
          (NP1)    V'
                  /  \
               VP2    V1
              /  \     |
                   \  sase
                 V'  [+L]
                /  \
             NP2    V
                     |
                  but-are
                   [-L]
```
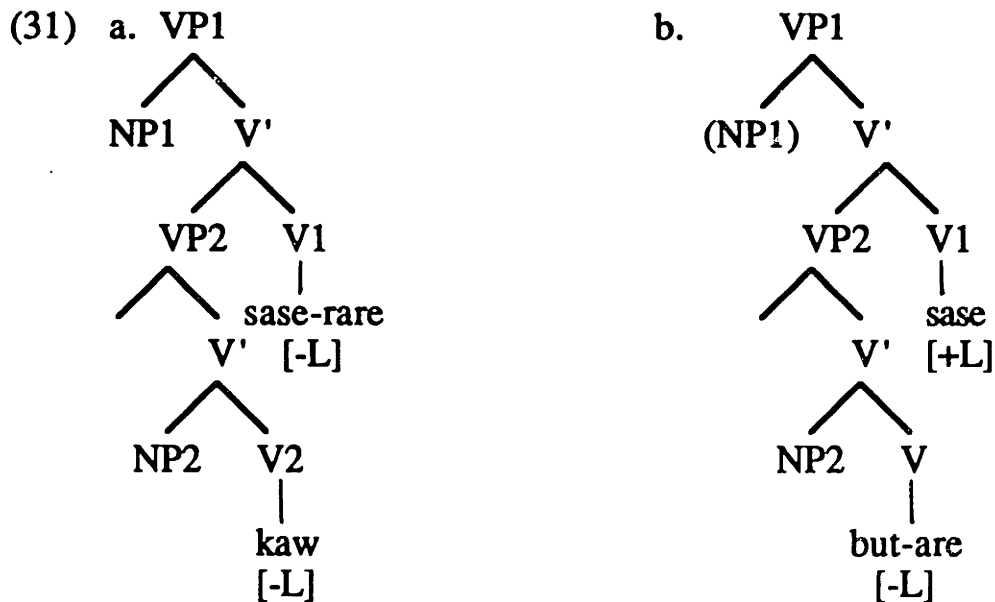
In (31a), which is the structure for (29a), the passive morpheme has attached to the causative verb, with the result that there will be no [+L] predicate in the sentence (since V2's [+L] marking was suppressed by the causative). Furthermore, the external argument of *sase* will be demoted, so that there will be no NP in Spec,AGRP.[8] This forces NP1, *Hanako*, to move to Spec,AGRP: it will not receive L-licensing in situ, and something must occupy Spec,AGRP at S-structure so that AGR can discharge its subject licensing, as I argued in Chapter 2. NP2 cannot move to AGRP, because if it does, NP1 will remain unlicensed; so far, the situation is very much like passives of causatives in Sesotho or Chi-Mwi:ni. Now consider

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[8]The means of demoting the external argument may have to be different in Japanese from the way it works in the Bantu languages (see Chapter 2, footnote 10), but I will not attempt an explanation here.

(31b), the structure for (30). Here the passive morpheme attaches to the lower verb; although this verb is already [-L] because it is governed by the causative, the passive morpheme does have the effect of demoting its subject, *Hanako* (hence the NP1 in parentheses). The [+L] marking of *sase*, however, will remain unaffected, as will the projection of its external argument in Spec,AGRP. Since NP1 has been demoted, it will appear as an adjunct (marked with dative morphological case here), and will thus not move to LP at LF to receive L-licensing. NP2, *Taroo*, is then free to be L-licensed. The fact that it can appear with either dative or accusative morphological case-marking is due to the fact that there is no other accusative case-marked NP in the sentence, so the Double-*o* Constraint does not apply. It is not clear whether *Taroo* actually moves in the syntax or at LF: since the discharge of [+L] is an LF requirement, it may be that *Taroo* stays in the complement of VP2 at S-structure (since word order in Japanese is fairly free, the fact that *Taroo* is not adjacent to the verb in (30) is not necessarily an indication that it has A-moved). Alternatively, it may be that Japanese requires [+L] to be discharged at S-structure; this is a possibility envisioned in Chomsky's theory. I will not debate the question here; what is crucial is that NP1 is demoted and that NP2 can be L-licensed at the appropriate level.

Finally, consider dative double object constructions in Japanese: they appear to have symmetrical object properties, as shown in (32) (data from Kuno (1980).

(32) a. Yoshida-syusyoo ga Tanaka-tuusandaizin ni kunsyoo o atae-
ta.
Y.-prime minister nom T.-minister dat medal acc award-
past
"Prime Minister Yoshida awarded a medal to Minister
Tanaka."

b. Tanaka-tuusandaizin ga Yoshida-syusyoo ni kunsyoo o atae-
rare-ta.
T.-minister nom Y.-prime minister dat medal acc award-
pass-past
"Minister Tanaka was awarded a medal by Prime Minister
Yoshida."

c. Kunsyoo ga Yoshida-syusyoo ni Tanaka-tuusandaizin ni
atae-rare-ta.
medal nom Y.-prime minister dat T.-minister dat award-
pass-past
"The medal was awarded to Minister Tanaka by Prime
Minister Yoshida."

The fact that both objects in (32) may become the subject of a passive suggests that Japanese is like Sesotho and unlike Chi-Mwi:ni in allowing more than one [+L] predicate in a sentence. While the causative verb suppresses [+L] on the lower verb, the upper predicate in a basic double object verb allows the lower predicate, a null P, to be [+L]. The structure for (32a) is given in (33).

(33)　VP

```
        VP
       /  \
          V'
         /  \
       PP    V
      /  \   |
    NP1  P'  atae
        [+L]
       /  \
     NP2   P
           Ø
          [+L]
```
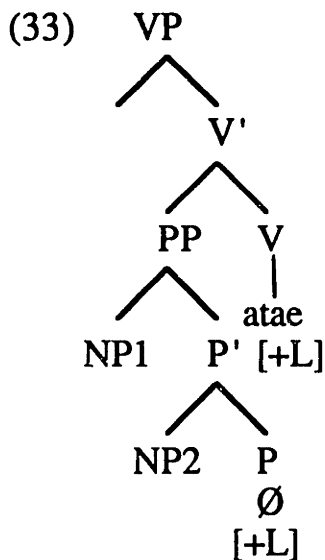
When the passive morpheme attaches to V, the subject in Spec,AGRP will be demoted, and NP1 may move to fill it, as in the causative; in this case, though, NP2 may move to fill it instead, since there will still be a [+L] head left to L-license NP1. This is not the same as the passive in (30), since in (30) the original subject remains in Spec,AGRP; in both (32b) and (32c) it is the original subject, not the "lower subject", which is demoted. It might be possible in theory to have the passive morpheme attach to P, but since P is phonologically null and has no true external argument, the resulting sentence would have exactly the same form as (32b), only it would mean "Minister Tanaka had a medal awarded to Prime Minister Yoshida"; that is, Tanaka would be the awarder rather than the awardee, as he is in (32b). Thus, if (32b) is ambiguous, then the passive morpheme can attach to the P as well as the V; if (32b) is unambiguous, as the literature leads one to believe, then it may be because the passive can only attach to phonologically overt heads, or to heads with external arguments, ruling out the attachment of the passive morpheme to P.

In sum, then, Japanese is a language which is like Sesotho in having Type 1 causatives where there is only one [+L] head and the L-licensing goes to the causee; it is also like Sesotho in allowing multiple [+L] heads in other constructions. A modification in the way Passive works is necessary to account for the fact that a single-[+L] construction allows A-movement of either object when Passive applies, but otherwise Japanese causatives behave much like any other asymmetrical Type 1 causative construction, despite the misleading morphological dative case-marking on the L-licensed causee. This is by no means a full account of Japanese causatives or passives, and many studies exist which go into much more detail (Shibatani (1976a), Farmer (1984), Miyagawa (1980), and Rosen (1989), to name a few); my purpose here, again, is simply to illustrate that the theories presented here can at least begin to account for this major body of evidence.

4.4.1.6   Summary of Section 4.4.1

These are a few examples of different types of Type 1 causatives, which L-license the causee. They are of two basic subtypes: symmetrical object and asymmetrical object. Kinyarwanda, a symmetrical object language all around, allows two [+L] heads in causative sentences, and both causee and base object receive L-licensing and the object properties that go with it. The other causative constructions in this section are asymmetrical: only the causee is L-licensed. There are some differences within this class: Sesotho and Japanese allow multiple [+L] heads, but the causative affix happens to have the lexical property of suppressing [+L] on the lower verb, so there is only a single [+L] head in causative sentences. Chi-Mwi:ni,

Imbabura Quechua, and Chamorro all only allow one [+L] head per sentence in general, with the result that only the upper object, the causee, is L-licensed. The Bantu languages allow the base object to be licensed simply by virtue of sisterhood with a verbal head, and do not require morphological case-marking of any type; in Imbabura Quechua, both NPs receive morphological accusative case, while Chamorro requires oblique morphological case marking on sister-licensed NPs, and Japanese requires morphological dative case on the causee when the only instance of morphological accusative case allowed is taken by the lower object. What all these languages have in common is that the LP licenses the uppermost object, the causee. We now turn to Type 2 causative constructions, where the causee is not necessarily L-licensed.

4.4.2   Type 2 causatives (only lower object is L-licensed)

These constructions are characterized by lower objects which have canonical object properties and causees which bear oblique morphological case or are the objects of prepositions and do not have canonical object properties.[9] One characteristic Type 2 causatives have in common is the distinction between causatives of transitives and causatives of intransitives; in Type 1 causatives, transitivity usually makes no difference to the surface form of the causee,[10] while in Type 2 causatives the causee in the causative

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[9]I will not discuss Romance causatives here, although they have essentially the same structure and properties as the Type 2 causatives in this section. There are other complicating factors in Romance, such as clitic climbing, which it would take me too far afield to do justice to. See Rosen (1989) for extensive discussion of Romance causatives.

[10]Japanese is an exception, as I have shown; however, this is a difference in surface morphological form only, not in object properties, as in Type 2 causatives.

of an intransitive verb has the same properties and appearance as the lower object in the causative of a transitive verb.

4.4.2.1 Turkish

Turkish is in some sense the converse of Chamorro with respect to causatives of transitive verbs: the causee is obliquely morphologically case-marked, while the lower object has accusative case marking, and only the lower object has the object property of being able to become the subject of a passive. Intransitive verbs differ in that the causee is able to become the subject of a passive and has accusative case marking in the active. Examples of causatives of intransitive verbs are given in (34), transitives in (35), along with their corresponding passives.

(34) a. Mehmet Hasan-ı ağla-t-tı.
          Mehmet Hasan-acc cry-caus-past
          "Mehmet made Hasan cry."
      b. Hasan (Mehmet tarafından) ağla-t-ıl-tı.
          Hasan (Mehmet by) cry-caus-pass-past
          "Hasan was made to cry by Mehmet."

(35) a. Mehmet Hasan-a bavul-u aç-tır-dı.
          Mehmet Hasan-dat suitcase-acc open-caus-past
          "Mehmet had Hasan open the suitcase."
      b. Bavul (Mehmet tarafından) Hasan-a aç-tır-ıl-dı.
          Suitcase (Mehmet by) Hasan-dat open-caus-pass-past
          "The suitcase was caused (by Mehmet) to be opened by
              Hasan."
      c. *Hasan (Mehmet tarafından) bavul-u aç-tır-ıl-dı.
          Hasan (Mehmet by) suitcase-acc open-caus-pass-past
          Hasan was made (by Mehmet) to open the suitcase."

These examples are typical, though there are many subtleties I am overlooking here. The reader is referred to Knecht (1986b) for a more

thorough discussion of Turkish causatives. For my purposes, the examples above, as well as the double object constructions discussed in Chapter 2, suggest that Turkish, like Chi-Mwi:ni, allows only one [+L] predicate per sentence. The sentences in (34) are unproblematic: the causative verb is [+L] and will allow the sole object, the causee, to be L-licensed; it thus appears with morphological accusative case and may become the subject of a passive, since it will not deprive any other NPs of licensing by doing so. The sentences in (35) require some explanation, however. The difference between Turkish and Chi-Mwi:ni is that in Turkish, as I argued in Chapter 2, sister-licensing is not recognized as a licensing strategy, but lexical head-licensing is. The result of this is that the sister of the lower V in (35a), *bavulu*, receives L-licensing, since it cannot be licensed otherwise, and the causee may be lexically head-licensed by the causative verb in situ; the resulting structure is given in (36).

(36)

```
        VP1
       /    \
     NP1     V'
      |     /  \
  Hasan-a  VP2   V1
          /  \    |
         /    \  -tı-
        V'
       /  \
     NP2    V2
      |      |
   bavul-u  aç-
```
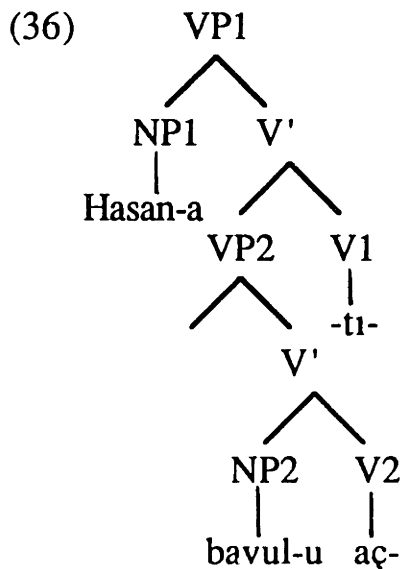
In the passive sentences, the [+L] feature of V1 is erased in L and the subject is demoted; in order to receive licensing and fulfill the subject

condition, NP2 moves to AGRP. If NP1 were to move to AGRP, NP2 would be left without licensing, since sister-licensing is not recognized in Turkish.

4.4.2.2 Chicheŵa[11]

Chicheŵa is similar to Turkish in terms of object behavior, but in this language morphological case is not marked, so licensing of the causee takes place differently. The causee in causatives of intransitive verbs shows up unmarked, while the causee in causatives of transitives is the object of a P, the base object being unmarked. Chicheŵa causatives are illustrated in (37); the data in this section are from Baker (1988a).

(37) a. Buluzi a-na-sek-ets-a ana.
　　　 lizard subj-past-laugh-caus-asp children
　　　 "The lizard made the children laugh."
　　 b. Anyani a-na-meny-ets-a ana kwa buluzi.
　　　 baboons subj-pst-hit-caus-asp children to lizard
　　　 "The baboons made the lizard hit the children."

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[11]Alsina and Mchombo (1991) give the pair in (i) and (ii) to show that Chicheŵa has Type 1 causatives of the Sesotho or Chi-Mwi:ni type as well as the Type 2 causatives discussed here.

(i)　　Nüngu i-na-phík-íts-a kadzidzi maûngu.　　　　(Type 1)
　　　 porcupine subj-pst-cook-caus-fv owl pumpkins
　　　 "The porcupine made the owl cook the pumpkins."
(ii)　 Nüngu i-na-phík-íts-a maûngu kwá kádzîdzi .　　(Type 2)
　　　 porcupine subj-pst-cook-caus-fv pumpkins by owl
　　　 "The porcupine had the pumpkins cooked by the owl."

Cooper (1976) cites a similar alternation between the two types of causatives in Setswana and Xhosa. As the English translations of (i) and (ii) are different, it may be that the choice of one form or the other is not entirely free; it appears that somehow either the causee or the lower object may be L-licensed, but a more thorough study needs to be done to determine the precise nature of the alternation. In this section I limit myself to discussion of the Type 2 causative in Chicheŵa; the Type 1 causative can be accounted for in the same way as the Chi-Mwi:ni causative. See Chapter 5 for further discussion of the Chicheŵa Type 1 causative.

As in Turkish, the causative of the intransitive in (37a) poses no special problem; since there is one [+L] predicate and one nonsubject argument, the causee will naturally end up being L-licensed. The puzzling case is (37b); its basic structure is given in (38).

(38) LP
```
         LP
        /  \
            L'
           /  \
          L    VP1
              /   \
            NP1    V'
             |    /  \
          buluzi V1   VP2
                 |    /  \
               -ets-      V'
               [+L]      /  \
                        V2   NP2
                        |     |
                     -meny-  ana
                      [-L]
```
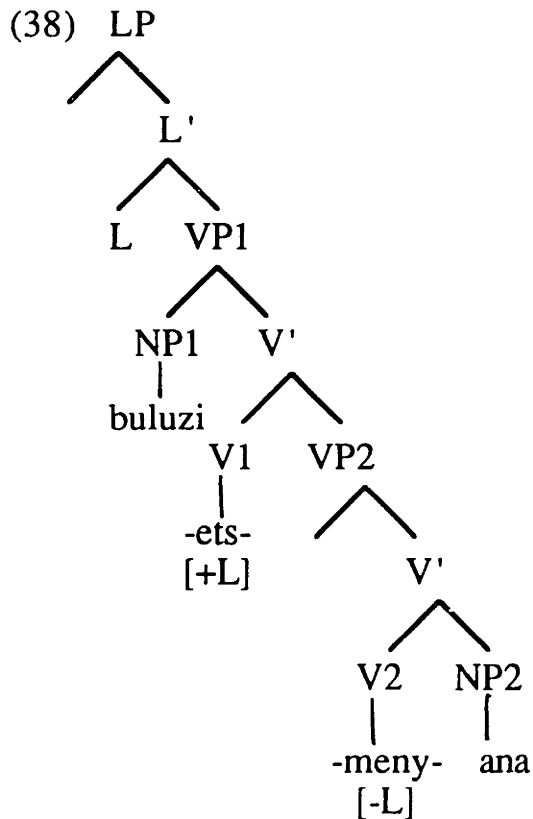
As we have seen in Chapters 2 and 3, Chicheŵa allows only one [+L] predicate per sentence; the causative suppresses [+L] on the base verb. Thus, only one NP can be L-licensed, and here that NP is NP2. Unlike the situation where NP1 is L-licensed, as in Chicheŵa applicatives, we cannot rely on sister-licensing for the non-L-licensed NP, since NP1 is in specifier position and thus not sister to a head. This construction allows it to be sister-licensed by adjoining a PP to the structure and allowing NP1 to show up as the complement of the P. This case can be seen as parallel to Aoun

and Li's derivation of prepositional dative structures in English: it may be that in causatives V1 may not only suppress [+L] on V2, but for some reason makes its specifier unavailable for the projection of the external argument of V2, in which case we might say that a passive-like operation reduces NP1 to the status of an adjunct. NP2 is then free to move to LP, since LP's L-licensing is not used up by NP1, and may thus acquire object properties.

Not surprisingly, since the causee is expressed as an adjunct, only the base object may become the subject of a passive, and further, only the base object may trigger object marking on the verb. Examples of passives are shown in (39), object marking in (40).

(39) a. Ana a-na-sek-ets-edw-a (ndi buluzi).
children subj-pst-laugh-caus-pass-asp (by lizard)
"The children were made to laugh by the lizard."

b. Ana a-na-meny-ets-edw-a kwa buluzi (ndi anyani).
children subj-pst-hit-caus-pass-asp to lizard (by baboons)
"The children were made to be hit by the lizard (by the
baboons)."

c. *Buluzi a-na-meny-ets-edw-a ana (ndi anyani).
lizard subj-pst-hit-caus-pass-asp children (by baboons)
"The lizard was made to hit the children (by the baboons)."

(40) a. Buluzi a-na-wa-sek-ets-a ana.
lizard subj-past-obj-laugh-caus-asp children
"The lizard made the children laugh."

b. Anyani a-na-wa-meny-ets-a ana kwa buluzi.
baboons subj-pst-obj-hit-caus-asp children to lizard
"The baboons made the lizard hit the children."

c. *Anyani a-na-zi-meny-ets-a ana kwa buluzi.
baboons subj-pst-obj-hit-caus-asp children to lizard
"The baboons made the lizard hit the children."

As the passive and object marking data show, Chicheŵa causatives behave just like Turkish causatives, with the difference that Chicheŵa does not allow lexical head-licensing and therefore requires PPs to license otherwise unlicensed NPs. Once demoted, the causee cannot move out of its adjunct PP to LP for object marking or to AGRP to become the subject of a passive; only the lower object can fulfill L's need to discharge its [+L] or, in a passive, AGR's need to discharge its [+T]. Of course, the fact that unlicensed NPs can be salvaged by appearing in an adjunct phrase is dependent on some aspect of the causative being hospitable to such a last resort, since applicatives do not allow the applied object to surface as the object of an adjunct preposition. Because this causative construction alternates with a Type 1 causative, I suspect that there may be more to this construction than mere causation; the two types of causatives would be characterized by whether the causative demotes the external argument of V2 or not. It may be that this variant of the causative has a passive sense to it, somewhat like the English *I had Chris arrested by the police.* I will therefore not attempt to put too fine a point on the analysis; more research into the subtleties of the alternation is needed before a definitive account can be arrived at.

4.4.2.3   Summary of Section 4.4.2

Type 2 causatives are characterized by allowing only the lower object to receive L-licensing. As with accusative causee languages, there are differences within this group according to how the other NP is licensed, whether by lexical head licensing, as in Turkish, or by sisterhood with an adjunct preposition, as in Chicheŵa. Also in this category are the Romance

languages, but they present particular problems which are beyond the scope
of this work.

4.4.3   Summary of the types of causatives

I have divided causative constructions into two types, those in which
the causee argument is L-licensed (Type 1), and those in which only the
lower argument is L-licensed (Type 2).   This classification is somewhat
arbitrary, as there are other differences that divide the types of causative
constructions   differently.   First,   there   is   the   symmetrical
object/asymmetrical object distinction which divides the Type 1 causatives;
these causatives vary according to whether they L-license both the causee
and the lower object, as Kinyarwanda and Japanese do, or whether only the
causee can be L-licensed, as in Chi-Mwi:ni, Sesotho, Chamorro, and
Imbabura Quechua.   Given that L-licensing is achieved through an LP
associated with a [+L] predicate head, this distinction in symmetry can be
accounted for by having the causative suppress the [+L] feature on the
lower verb in Chi-Mwi:ni and not suppress it in Kinyarwanda. Second, a
distinction cutting across the Type 1-Type 2 distinction is the relatively
shallow difference of whether and how morphological case is expressed.
The Bantu languages have no morphological case, and the Type 1
causatives in this group have no extra marking to distinguish L-licensed
from sister-licensed NPs, while the Type 2 causatives use prepositions to
license NPs which are neither L-licensed nor sister-licensed; Japanese,
Turkish, Quechua, and Chamorro have different morphological case
markings available in the language, but Imbabura Quechua does not use
morphology to distinguish sister-licensed from L-licensed NPs in the

causative, while Japanese has different morphology on NPs which are both L-licensed, and Turkish and Chamorro use morphological case to mark a distinction in type of licensing. This particular area of variation in morphology is interesting, but not necessarily directly related to the study of licensing itself. Of course, much work still remains to be done to iron out problems I have neglected to address in this brief overview, but I have shown that the major syntactic types of causatives can be determined by using aspects of licensing as parameters of variation .

4.5   Conclusion

I have chosen to address causative constructions because they are relevant to the study of licensing, projection, and lexical complementation undertaken here. Most analyses of the causative depend either on having VP-internal subjects (Marantz 1984, 1985, 1990 being an exception) or on V-IP complementation for causative constructions, and as I argue for subjects external to VP and V-VP complementation, it behooves me to address how an analysis of causative constructions can work under these assumptions. I have shown in this chapter that it is possible to give at least a preliminary account for causative constructions within the framework presented in this work; Chapter 5 will explore how causatives and applicatives interact and other residual issues.

CHAPTER 5:   RESIDUAL ISSUES

So far we have examined causative and applicative constructions in a variety of languages and seen how they illustrate principles of licensing and P inversion. This chapter looks at some issues that have not been addressed so far, either because they involve the interaction of causatives and applicatives or because they represent problems without neat solutions in terms of the analysis presented in the previous chapters. Section 5.1 is a quick review of data on what happens when more than one valency-increasing affix appears in a single sentence; Section 5.2 looks at Kinyarwanda locative applicatives, which are significantly different from other applicatives in that language. Section 5.3 presents a short review of the unsolved problem of benefactive applicatives of unaccusatives; Section 5.4 discusses asymmetrical object marking possibilities in symmetrical object languages, and Section 5.5 examines object properties with respect to WH-movement.

5.1 Causatives and applicatives together

Chapters 3 and 4 have addressed issues concerning applicative and causative constructions, respectively; so far we have not seen examples of causativization and applicativization applying at the same time, or of applicativization applying twice, or of a causative or applicative of a

ditransitive verb, all of which can produce a triple-object structure and raise questions about affix ordering.

5.1.1 Affix ordering

Consider first intransitive verbs: since each affix adds an object to the sentence, when both affixes apply the result will only be a double object structure, as shown in (1), and the sentences are perfectly grammatical.

(1) a. <u>KiMeru</u>[1]
Muntu nia-in-ith-ag-ir-i-a muka kaana.
person subj-dance-caus-tns/asp-App-caus-fv woman child
"The person makes the child dance for the woman."

b. <u>Sesotho</u>
Ntate o-hobel-is-ets-a morena bashanyana.
father subj-dance-caus-appl-fv chief boys
"My father makes the boys dance for the chief."

Matters are not quite so simple, however; if we reverse the order of the affixes in (1b), the result is ungrammatical, as shown in (1c).

(1) c. *Ntate o-hobel-l2-is-a bashanyana morena.
father subj-dance-appl-caus-fv boys chief
"My father makes the boys dance for the chief."

Since the applicative and causative morphemes are both suffixes, and suffix to the head which incorporates into them, the outermost suffix will be the uppermost head in the construction. Consider first the structure for

---

[1]Note that the causative morpheme in KiMeru is discontinuous (-*ith*- -*i*-), according to Hodges (1977).

[2]Notice that the applicative morpheme has two morphological forms, -*(e)l*- and -*ets*-, depending on the number of syllables in the verb it attaches to.

the grammatical (1b), given in (2), with English glosses for ease of reference (minus the LP projections and the subject).

(2) VpP
```
        VpP
       /    \
     NP1    VP'
      |     /  \
    chief  VP   VP1
           |    /  \
         appl  NP2   V'
         [+L]   |   /  \
              boys V1  VP2
                   |   /  \
                 caus     V'
                 [+L]     |
                          V2
                        dance
                         [-L]
```
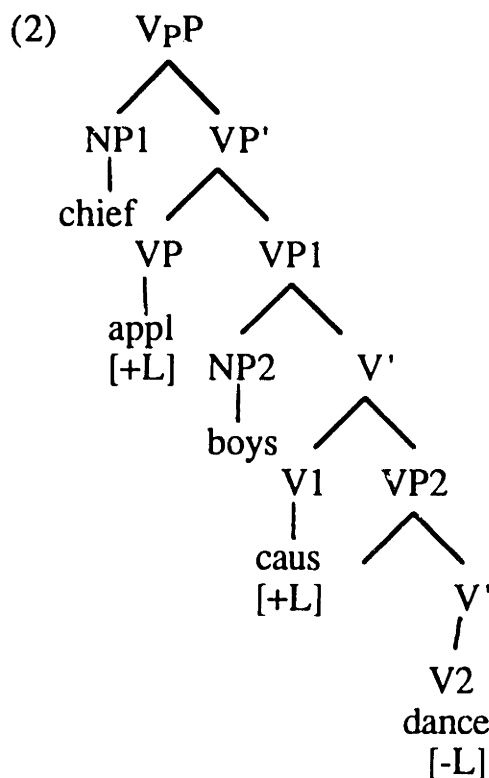
Here the applicative VpP is uppermost, with the Vp' in a sisterhood relation with NP1, as required, and an event (VP) complement for Vp, also as required. The causative V has the external argument of VP2 in its specifier, and projects its own external argument into AGRP, since, as in any benefactive applicative construction, AGRP is the first available subject position outside the maximal projection of the predicate governed by Vp. As for licensing, NP1 and NP2, both in specifier position, may be L-licensed, since both the applicative and the causative predicates are [+L]. V2 will not be [+L], since it is intransitive and, furthermore, governed by the causative (which, remember, suppresses [+L] on the V it governs), but

since there are only two NPs that need L-licensing, that is not a problem. Now consider the ungrammatical (1c) and its structure, given in (3).

(3)   VP1
```
            VP1
           /  \
        NP1    V'
         |    /  \
       boys  /    \
            V1     VpP
            |     /  \
          caus  NP2   Vp'
          [+L]   |   /  \
               chief /    \
                   Vp     VP2
                    |    /  \
                  appl      V'
                  [-L]      |
                           V2
                          dance
                          [-L]
```
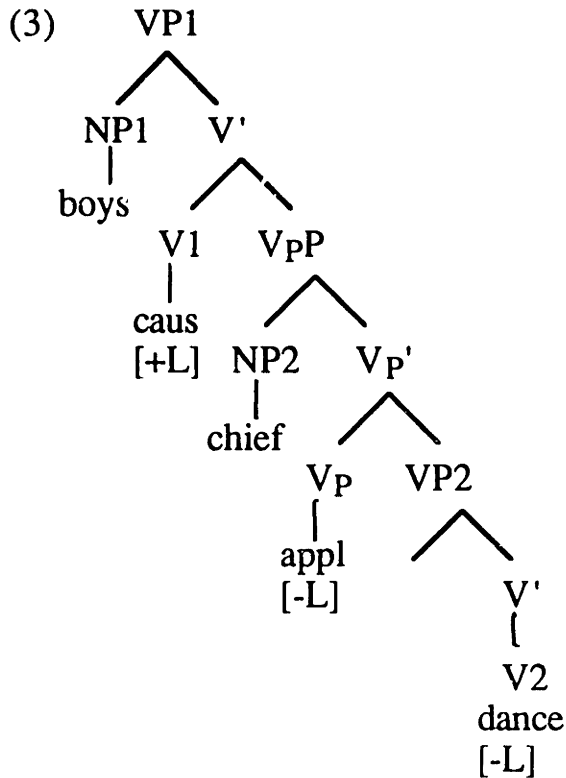
The problem here is that since the causative is aoove the applicative, it removes [+L] from it, and since V2 is intransitive, there will be only one [+L] predicate in the structure, and two NPs in specifier position that need L-licensing. The sentence will be ungrammatical because one of the NPs will fail to be licensed.[3]

_____

[3]Two problems with this account deserve mention here: one is that affix order is fixed when both causative and applicative attach to transitive verbs as well; here, if the structure were as in (3), V2 would be [+L], escaping the dilemma. This problem can be solved if we assume that the causative removes [+L] from *all* predicates it governs (assuming the applicative projection is not a barrier); this will make it impossible for the causative ever to govern more than one predicate. The second problem is more puzzling: the affix ordering restriction holds even for sentences with locative applicatives, even though the order of the postverbal NPs is causee-applied object (as opposed to applied object-causee in (1)). This is shown in (i) and (ii).

5.1.2　Triple object structures

When both causative and applicative attach to a transitive base verb, or when a causative or applicative attaches to a ditransitive verb, the result will be a verbal complex with three objects. Here languages vary in how they accept these structures. Some languages have a general constraint against more than two postverbal NPs appearing on the surface (Machobane 1989 proposes an "Internal Argument Principle" stating just that, and shows that this constraint is not reducible to other factors such as Case marking), but may still allow a causative and an applicative to attach to a transitive verb if one postverbal NP remains unexpressed. In Sesotho, as shown in (4a), three postverbal NPs are not allowed, but if one of the objects is expressed as object agreement the sentence becomes acceptable.[4]

(4) Sesotho
  a. *Ntate o-ngol-is-ets-a 'me bana lengolo.
     father subj-write-caus-appl-fv mother children letter
     "My father makes the children write a letter for my
      mother."
  b. Ntate o-mo-ngol-is-ets-a bana lengolo.
     father subj-obj-write-caus-appl children letter
     "My father makes the children write a letter for her."

---

i. Nkhono o-hol-is-ets-a lintja serobeng.
    grandmother subj-grow-caus-appl-fv dogs barn-loc
    "My grandmother brings up dogs in the barn."
ii. *Nkhono o-hol-el-is-a lintja serobeng.
    grandmother subj-grow-appl-caus-fv dogs barn-loc
    "My grandmother brings up dogs in the barn."
I have no explanation for these facts at present.

[4]In this case it is the applied object which is expressed as object marking; Machobane implies that any of the objects may be so expressed, but gives no examples.

KiMeru likewise prohibits three postverbal NPs, as seen in (5a); it is the causee specifically that must be suppressed, as shown by the unambiguity of (5b). (5c) shows that unlike Sesotho, KiMeru does not even allow the causee to show up as object marking on the verb.

(5) KiMeru
  a. *Nia-tum-įth-ag-ir-į-a muka baruga ni muntu.
      subj-send-caus-tns/agr-appl-caus-fv woman letter by person
      "He causes the person to send the woman the letter."/ "He
          causes the letter to be sent to the woman by the person."
  b. Muntu nia-gur-įth-ag-ir-į-a muka yŭkŭ.
      person subj-buy-caus-tns/agr-appl-caus-fv woman book
      "The person makes (someone) buy the book for the
          woman."
  ≠ "The person makes the woman buy the book for someone."
  c. *Muntu ni-a-mu-tum-įth-ag ir-į-a muka baruga.
      person subj-obj-send-caus-tns-appl-caus-fv woman letter
      "The person causes him to send the letter for the woman."

Kinyarwanda is unlike both KiMeru and Sesotho in allowing three postverbal NPs. Note that the example is of applicatives of ditransitives rather than an applicative and causative of a monotransitive; Kinyarwanda does not allow causatives and applicatives to appear together.[5]

(6) Kinyarwanda
  a. Umugóre a-ra-hé-er-a umugabo ímbwa ibíryo.
      woman subj-pres-give-Appl-asp man dog food
      "The woman is giving food to the dog for the man."
  b. Umugóre y-a-he-eesh-eje umwáana amáta inkoongooro.
      woman subj-past-give-appl-fv child milk wooden cup
      "The woman gave the child milk in a wooden cup."

---

[5]The reason for this restriction is not clear, although Kimenyi discusses a number of co-occurrence restrictions among different types of applicatives. My guess is that whatever motivates those co-occurrence restrictions may be at work here. This is a problem for future research.

How can we account for these differences? Consider the structure for these sentences, given in (7).

(7)

```
LP1
 /\
    L'
   /\
  L1  LP2
       /\
         L'
        /\
       L2 LP3
           /\
             L'
            /\
          L3   VₚP
                /\
             NP1  Vₚ'
                  /\
                Vₚ  VP1
                |   /\
              appl NP2  V'
                       /\
                      V1  VP2
                      |   /\
                    caus    V'
                           /\
                          V  NP3
```
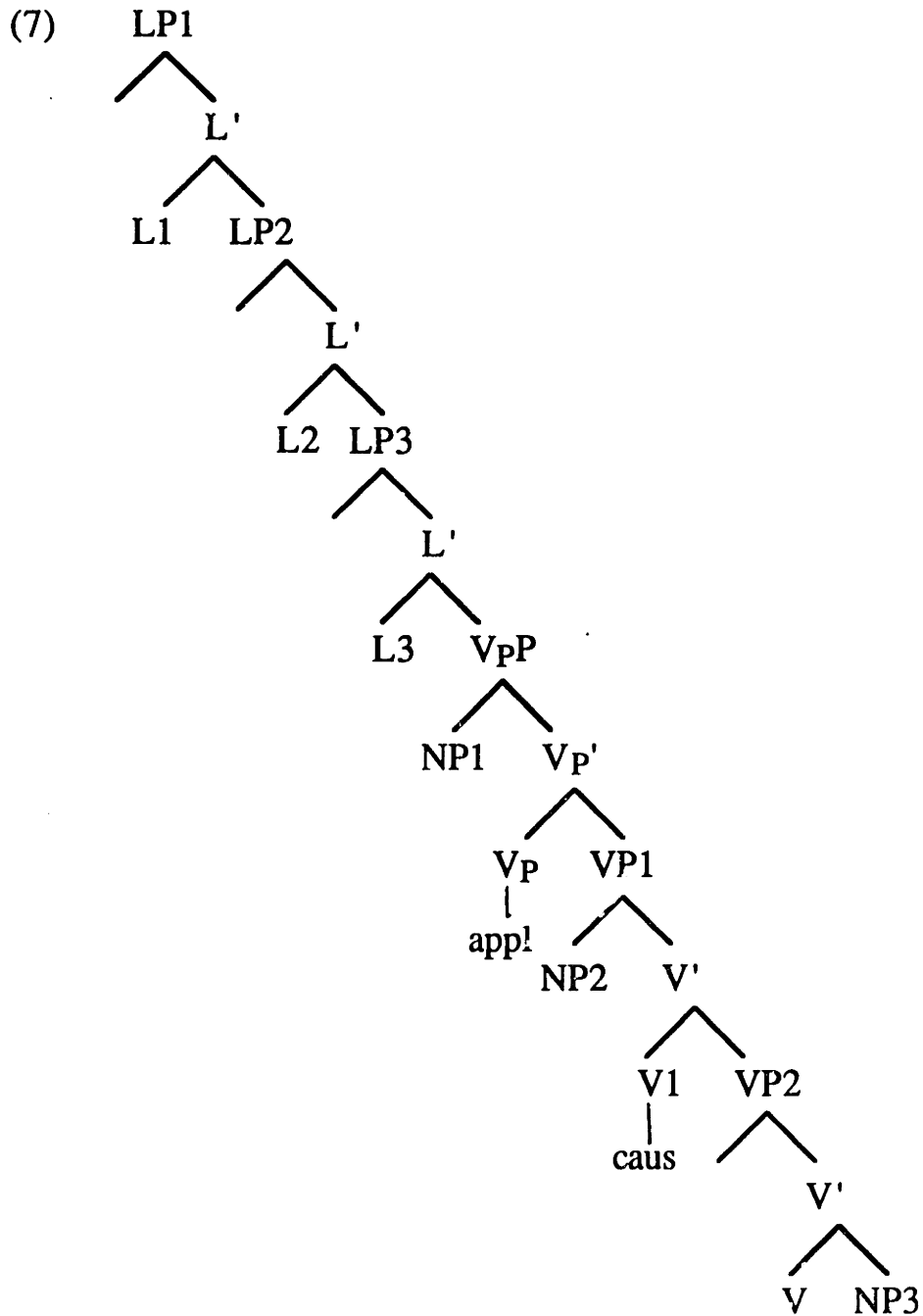
One thing to notice right away about the structure in (7) is that two of the NPs are in specifier positions, as is only to be expected, since only the bottom V takes an NP rather than a VP complement. This means that, given that the only licensing devices in Bantu are sister-licensing and L-licensing, any language with triple object constructions at all must be a multiple-[+L] language, otherwise one of the NPs in a specifier position would be unable to get licensing (since the other one would take the single L-licensing slot). Kinyarwanda simply allows all three NPs to be licensed normally, NP1 and NP2 by L-licensing and NP3 by sister-licensing (or L-licensing, if it needs it, as when it is an object marker). Further evidence for this comes from (8), where all three objects from (6a) surface as object marking:

(8) Umugóre a-ra-bi-yí-mu-he-er-a.
     woman subj-pres-obj$_{DO}$-obj$_{IO}$-obj$_{Ben}$-give-Appl-asp
     "The woman is giving it to it for him."

Following Machobane (1989), I assume that nothing is structurally wrong with the ungrammatical examples in (4) and (5) rather, there is some separate constraint against triple object structures. Both Sesotho and KiMeru have ways of legitimizing triple object structures: KiMeru allows NP1, the causee, to be an "understood" argument, leaving the applied object and base object to surface; the causee can never appear as a specified NP of any kind. Sesotho, on the other hand, merely has a constraint against three full NP objects: it allows two full NP objects plus a third surfacing as an object marker, as we saw. This fact shows that lack of

licensing is not the reason for the constraint against triple object structures, since (5b) has all three objects being licensed one way or another.

Recall that Sesotho, although a multiple-[+L] language, has only one [+L] in causative constructions, since the causative verb suppresses [+L] on the verb it governs. The sentences in (5), then, will actually have a structure with only two LPs, since there will be only two [+L] verbs in the structure: the causative and the lower verb. Still, the two [+L] verbs will suffice, since NP3 can get sister-licensed by the lower verb. This means that in fact the causative-applicative structure in Sesotho will be an asymmetrical object construction: NP3 should not show object properties. While I have no data corresponding to (5) to prove this, the difference between causatives and applicatives in Sesotho is illustrated in (9), where there are two instances of the causative or applicative morpheme. In (9a), there are two [+L] verbs (the applicative Vps--the lower verb, being intransitive, is not [+L]), but in (9b) there is only one, the first causative. Since the two NPs are both in specifier position (in the positions of NP1 and NP2 in (7) above), and only one can be L-licensed, the sentence is ungrammatical.

(9) a. Bashanyana ba-il'o hobel-l-el-a morena khotla.
         boys subj-go dance-appl-appl--fv chief courtyard
         "The boys are going to dance for the chief in the
            courtyard."
     b. *Nkhono o-tl-is-is-itse rakhali bana.
         grandmother subj-ccme-caus-caus-fv aunt children
         "My grandmother has made my aunt make the children
            come (bring the children)."

This concludes the survey of causative and applicative interactions; while the survey was somewhat cursory, we have seen that in general the data uphold the theories of licensing and applicative and causative structure set forth in the previous chapters.

5.2 Double Object Verbs and an Oddity in Kinyarwanda

So far I have not explicitly discussed licensing in double object verbs, although I have assumed that, like any predicate, the V and P of lexical double object verbs such as *give* may be [+L] or not, depending on whether the language allows more than one [+L] predicate per sentence. Kinyarwanda double object verbs are reminiscent of Sesotho causatives: although Kinyarwanda is generally a symmetrical-object language, some double object verbs seem to have only one [+L] head. Another construction in Kinyarwanda that does not have multiple [+L] heads is the locative applicative; this section examines these two constructions and their interactions, as well as the interaction of locative and benefactive applicatives.

5.2.1 Locative applicatives

Unlike the other applicative constructions in Kinyarwanda, which have symmetrical object properties, the locative applicative looks like applicative or causative constructions in asymmetrical-object languages such as Chicheŵa in that only the applied object retains object properties such as the ability to trigger object agreement or become the subject of a passive.[6]

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[6]Another difference between the locative applicatives and all other types is the position of the affix: notice that it is the final morpheme in the verbal complex, after the aspect marker, rather than being attached directly to the verb stem. While this suggests that
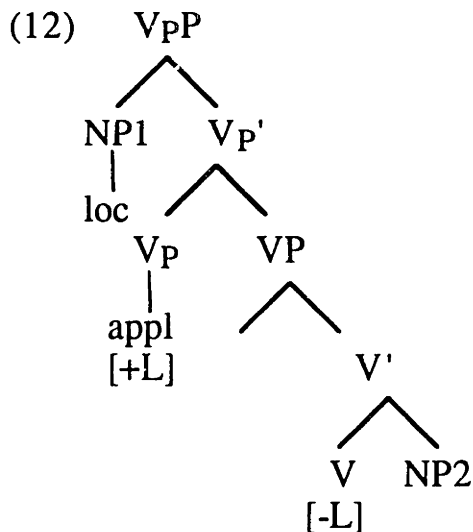
Examples are given in (10)-(11), where the (a) sentences are the basic active applicative structure, the (b) and (c) sentences are the grammatical and ungrammatical passive versions, and (11d-e) show the grammatical and ungrammatical object marking.[7]

(10) a. Yohani y-Ø-iish-e-mo ishyamba impyisi.
John subj-pst-kili-asp-loc forest-loc hyena
"John killed a hyena in the forest."

b. Ishyamba ry-Ø-iish-w-e-mo impyisi (na Yohani)
forest subj-pst-kill-pass-asp-loc hyena (by John)
"The forest was killed-in a hyena (by John)"

c. *Impyisi y-Ø-iish-w-e-mo ishyamba (na Yohani)
hyena subj-pst-kill-pass-asp-loc forest (by John)
"The hyena was killed in the forest (by John)"

(11) a. Úmwáalímu y-oohere-jé-ho ishuûri igitabo.
teacher subj-send-asp-loc school book
"The teacher sent the book to the school."

b. Ishuûri ry-oohere-j-w-é-ho igitabo n-úmwáalímu
school subj-send-asp-pass-asp-to book by teacher
"The school was sent the book to by the teacher"

c. *Igitabo cy-oohere-j-w-é-ho ishuûri n-úmwáalímu
book subj-send-asp-pass-asp-to school by teacher
"The book was sent to the school by the teacher"

d. Umwáalímu y-a-ry-oohere-jé-ho igitabo
school subj-pst-obj-send-asp-to book
"The teacher sent the book to it"

e. *Umwáalímu y-a-cy-oohere-jé-ho ishuûri
teacher subj-pst-obj-send-asp-to school
"The teacher sent it to the school"

---

the structure of these applicatives may be different from the structure of other applicatives, I do not see any other possibility at this point than a structure like that of the benefactive, where the applicative P takes the base VP as a complement.

[7]The examples in (10) are from Gary and Keenan (1977).

These data can be explained if we claim that the locative applicative has the same structure as the benefactive, with the applied object in the specifier of the applicative VpP which takes the basic VP as its complement. Further, unlike most applicative heads in Kinyarwanda and like the causative in Sesotho, the locative applicative suppresses the [+L] feature on the verb it governs. The resulting structure will be as in (12).

(12)   VpP
        / \
     NP1   Vp'
      | / \
     loc   Vp   VP
           | / \
          appl   V'
          [+L]   / \
                 V   NP2
                [-L]

Since there is only one instance of [+L] in this structure, NP2 will have to be sister-licensed to allow NP1 to be L-licensed; this results in NP2's not being able to trigger object marking or become the subject of a passive, since either of these moves would leave NP1 unlicensed, for by now familiar reasons.

This hypothesis receives some further support from the fact that locatives cannot incorporate into optional object verbs when the object is not present, as shown in (13).

(13) a.Umuhuûngu á-r-íig-ir-a-ho ishuûri *(imibáre).
boy subj-pres-study-appl-asp-at school (math)
"The boy is studying (math) at school."
b. Ábáana ba-rá-rí-ir-á-ho áméeza *(ibíryo).
children subj-pres-eat-appl-asp-on table (food)
"The children are eating (food) on the table."

In Chapter 3 I argued, following Baker (1988b), that Chichewa optional objects are pro when they are not phonologically overt, and that pro requires L-licensing. If the same is true in Kinyarwanda, and there is only one [+L] predicate in (13), then the phonologically null object will have to take the sole L-licensing slot, again leaving the applied object unlicensed.

5.2.2 Locatives with double object verbs

Now consider what happens when the locative applicative takes a double object verb as a complement. If double object verbs have a VP-PP structure in which both predicates can potentially be [+L], as I have claimed, we would predict that locative applicatives of double object verbs should be fine, since there will still be two instances of [+L] after the locative affix, itself [+L], suppresses [+L] on the V. The example in (14) fulfills this prediction.[8]

(14) Umugabo y-eerets-é-mo iíshuûri umukoóbwa ibíryo.
man subj-show-asp-in school girl food
"The man showed food to the girl in the school."

Furthermore, we expect that the lowest object, which is sister-licensed, will not show object properties, since there is one fewer instance of [+L]

---

[8]Examples (14)-(16) are from Dryer (1983).

than there are objects; the L-licensed NPs should, of course, show object properties. This, too, is true, as shown in (15) for passivization and (16) for object marking.

(15) a. Ishuûri ry-eerets-w-é-mo umukoôbwa ibíryo n-úmugabo.
          school subj-show-pass-asp-in girl food by-man
          "The school was shown-in food to the girl by the man."
      b. Umukoôbwa y-eerets-w-é-mo ishuûri ibíryo n-úmugàbo.
          girl subj-show-pass-asp-in school food by-man
          "The girl was shown food in the school by the man."
      c. *Ibíryo by-eerets-w-é-mo ishuûri umukoôbwa n-úmugabo.
          food subj-show-pass-asp-in school girl by-man
          "The food was shown to the girl in the school by the man."

(16) a. Umugabo y-a-ry-eerets-é-mo umukoôbwa ibíryo.
          man subj-pst-obj-show-asp-in girl food
          "The man showed food to the girl in it."
      b. Umugabo y-a-mw-eerets-é-mo ishuûri ibíryo.
          man subj-pst-obj-show-asp-in girl food
          "The man showed food to her in the school."
      c. *Umugabo y-a-by-eerets-é-mo ishuûri umukoôbwa.
          man subj-pst-obj-show-asp-in school girl
          "The man showed it to the girl in the school."

So far the results are just what we would expect from a language in which almost all predicates are [+L]. However, consider (17a); this looks just like (14), except that there is the unexpected appearance of the benefactive applicative morpheme -ir- without a second applied object. This morpheme is not normally part of the morphological structure of the base verb, as shown in (17b), so its presence must be triggered by something in the locative construction.[9]

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[9]A note on the data: all the examples ultimately reflect the judgments of Alexandre Kimenyi. The majority come from his 1980 dissertation, but examples (14)-(16) are from Dryer (1983), as I noted; he cites Kimenyi's dissertation and personal communications
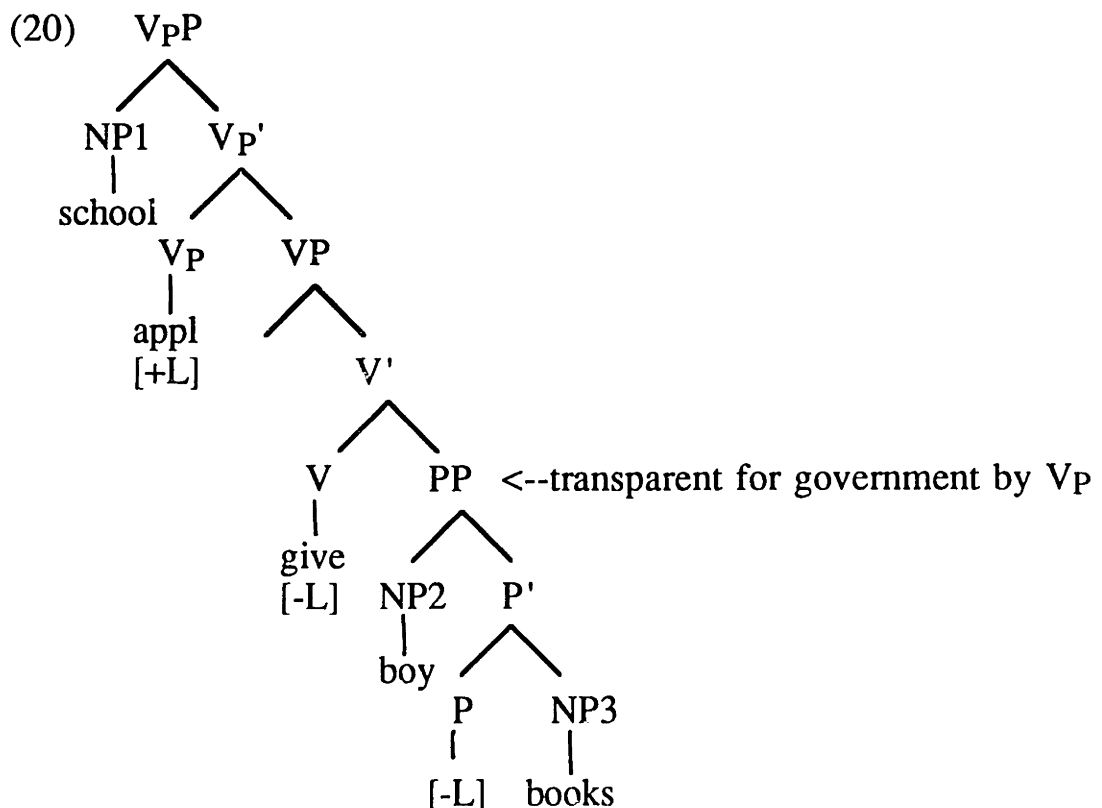
(17) a. Umugóre a-rá-he-er-á-mo ishuûri umuhuûngu ibitabo.
    woman subj-pres-give-appl-asp-in school boy books
    "The woman is giving the books to the boy in the school."
 b. Umugabo y-a-haa-ye umugóre igitabo.
    man subj-pst-give-asp woman book
    "The man gave the woman a book."

An additional puzzle is that in (17a), unlike (14), the indirect object does not acquire typical object properties, but is demoted along with the direct object, as shown in (18)-(19).

(18) a. *Ibitabo bi-rá-he-er-w-á-mo ishuûri umuhuûngu
    n'umugóre.
    books subj-pres-give-appl-pass-asp-in school boy by woman
    "The books are given to the boy in the school by the woman."
 b. *Umuhuûngu a-rá-he-er-w-á-mo ishuûri ibitabo
    n'umugóre.
    boy subj-pres-give-appl-pass-asp-in school books by woman
    "The boy is being given books in the school by the woman."

(19) a. *Umugóre a-rá-bi-he-er-á-mo ishuûri umuhuûngu.
    woman subj-pres-obj-give-appl-asp-in school boy
    "The woman is giving them to the boy in the school."
 b. *Umugóre a-rá-mu-he-er-á-mo ishuûri ibitabo.
    woman subj-pres-obj-give-appl-asp-in school books
    "The woman is giving him the books in the school."

---

with Kimenyi as his only sources. It should also be noted that nowhere does Kimenyi himself discuss the fact that some verbs take a dummy -ir- morpheme with the locative applicative while others do not; he also does not discuss examples such as (14)-(16), and makes the claim, based solely on examples (17)-(19), that indirect objects are generally demoted along with direct objects. Since his examples are not systematic, I have no idea whether there is a systematic distinction between verbs that take dummy -ir- and those which do not.
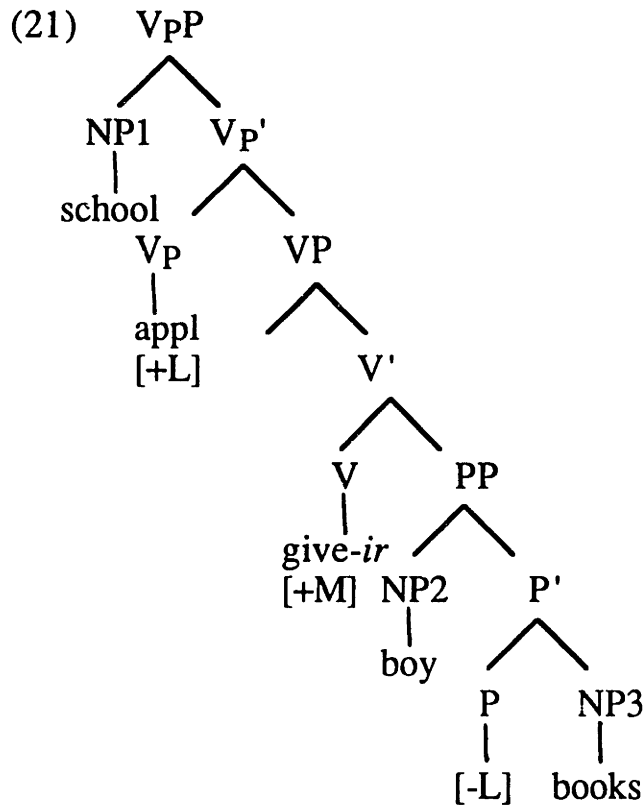
What I conclude from this is that the locative affix suppresses *both* instances of [+L] in this case, leaving only the [+L] supplied by the locative applicative affix itself, which is used to license the applied object. Recall that I claimed the locative applied affix suppressed [+L] on the predicate it governs. If we assume that the PP in the double object construction in (14) is a barrier for government by the locative in some sense, the [+L] feature on the P will not be suppressed, but if the PP in (17a) is *not* a barrier, the locative affix will be able to "see" into it to suppress its [+L] as well as that of the V. This results in the structure in (20).

(20)   V$_P$P

NP1   V$_P$'
|
school

V$_P$ VP
|
appl
[+L]

V'

V   PP <--transparent for government by V$_P$
|
give
[-L]   NP2   P'
|
boy

P   NP3
| |
[-L]   books

Now we can explain the presence of *-ir* on the verb; there is only one [+L] feature, but there are two NPs in specifier position that cannot be

sister-licensed. The applicative morpheme enters the picture as a morphological licenser for NP2, like morphological dative case in Turkish. It is a sort of morphological case-marking on the verb that enables the verb to license an NP in its specifier. It is not the "real" applicative morpheme: the presence of this morpheme certainly does not result in the usual applicative configuration, where an argument is added to the verb's argument structure and this new argument has canonical object properties. Thus, the structure of (17a) will be as in (21), where [+M] is the feature permitting V + -ir to morphologically license the NP in Spec,PP.[10]

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[10]The picture is complicated by the fact that some monotransitive verbs seem to require this dummy applicative morpheme with locative incorporation (see the examples in (13)), even though their sole basic objects could presumably be sister-licensed. I do not at present have enough data to draw a conclusion; suffice it to say that Kinyarwanda seems to have a special device for licensing indirect objects of V-PP double object verbs under locative incorporation.

(21)   VpP

NP1   Vp'
  |
school   Vp   VP
          |
        appl   V'
        [+L]
              V   PP
              |
           give-*ir*   NP2   P'
           [+M] |
                  boy   P   NP3
                         | |
                       [-L]   books

Neither NP3, which is only sister-licensed, nor NP2, which is morphologically licensed, will be able to take on the object properties associated with L-licensing: once again, there is only one [+L] feature, and it is used by NP1.

The overall picture seems to be as follows: Kinyarwanda has two types of double object verbs, those in which the PP can be a barrier for government by a [+L]-suppressing affix, and those in which the PP cannot be such a barrier. I propose that in order to license the NP in the specifier position of the double object verb's PP in the latter case, Kinyarwanda resorts to this dummy applicative morpheme to license the NP through Spec-Head agreement with a morphologically marked lexical head. When

the PP is a barrier, of course, there will be two instances of [+L] and the NP in Spec,PP will be fully licensed by that.

5.2.3   Benefactives and locatives

Given the analysis of locative applicatives just presented, we expect one object in every locative applicative construction not to be L-licensed, assuming that the locative applicative is always the highest predicate in the structure (an assumption warranted by the fact that the locative applied object must always immediately follow the verb). There will always be (at least) one less [+L] feature than there are potentially [+L] lexical heads. It is surprising, then, that when locative incorporation applies to a verb that has a benefactive applicative, both benefactive and locative applied objects have full object properties, as shown in (22)-(24).

(22)   Umwáana y-iicar-i-yé-ho intebe umugabo
       child subj-sit-Appl-asp-on chair man
       "The child is sitting on the chair for the man"

(23)   a. Intebe y-iicar-i-w-é-ho umugabo n'uúmwáana
           chair subj-sit-Appl-pass-asp-on man by-child
           "The chair is sat on for the man by the child"
       b. Umugabo y-iicar-i-w-é-ho íntebe n'uúmwáana
           man subj-sit-Appl-pass-asp-on chair by-child
           "The man is sat on the chair for by the child"

(24)   a. Umwáana a-mw-iicar-i-yé-ho intebe
           child subj-obj-sit-Appl-asp-on chair
           "The child is sitting on the chair for him"
       b. Umwáana a-y-iicar-i-yé-ho umugabo
           child subj-obj-sit-Appl-asp-on man
           "The child is sitting on it for the man"

We would expect both applied objects to have object properties when the base verb is transitive, since the base verb would provide another [+L], but an intransitive verb presumably is not [+L], since it has no object to license. This leaves us with a single instance of [+L] in (22)-(24), yet two licensed objects. Given the explanation just provided for the behavior of different types of double object verbs with locative applicatives, however, we can account for the facts in (22)-(24) in the same way: the benefactive applicative affix is a barrier for suppression of [+L], so that the locative will fail to affect it. Since the locative seems generally to be able to suppress [+L] on almost any predicate, it would be interesting to find out what, if anything, characterizes those predicates (all Ps in the lexicon, incidentally) which are immune to [+L] suppression. That, however, is beyond the scope of this discussion, so I will leave the analysis of the Kinyarwanda locative with the observation that not all predicates are identically affected by this affix.

5.3 Sesotho intransitive verbs

Another question that concerns transitivity is the problem of benefactives of certain types of intransitive verbs. Recall that Chapter 3, Section 3.4.3, presented a discussion of the differences between benefactives and other types of applicatives with respect to intransitive verbs in Chicheŵa. While Baker (1988a,b) claims that benefactives of unaccusatives are ungrammatical, Alsina and Mchombo (1990, forthcoming) argue that in fact they are possible, with perhaps some restrictions in the readings. The facts in Chicheŵa are so murky that it would be useless to attempt an account without a thorough survey of the

acceptability and range of meanings of benefactives of a wide variety of intransitive verbs in Chicheŵa. The facts in Sesotho are not much more clear, but since the question of benefactives of unaccusatives is an important one in the literature, I give a brief overview of the problem here.

Recall that both objects in a Sesotho benefactive applicative can trigger object marking and become the subject of a passive, typical properties of a multiple-[+L] language. Given this, we would expect that, since the benefactive affix is [+L], the transitivity of the lower verb should not affect the acceptability of the applicative. However, while Sesotho does allow benefactives of optional object deletion verbs and other types of intransitives, as shown in (25), it does not allow benefactives of unaccusatives, though locatives of these same verbs are fine, as shown in (26). Note also that (26c-f) are cognate object verbs, as is (25b); these verbs thus do not form a special subclass with respect to benefactives, as Baker (1988a,b) claims they do for Chicheŵa.

(25)   Grammatical benefactives (c-d from Baker 1989b)
     a. Banana ba-tso-el-a nkhono selibeng.
       girls subj-come-appl-fv grandmother well-loc
       "The girls come from the well for my grandmother."
     b. Bashanyana ba-hobel-l-a morena.
       boys subj-dance-appl-fv chief
       "The boys are dancing for the chief."
     c. Motsoantsisi o-tseh-el-a babohi.
       actor subj-laugh-appl-fv spectators
       "The actor laughed for the spectators."
     d. Me o-bop-el-a mofumahali.
       mother subj-mold-appl-fv chieftainess
   "My mother molds (pots) for the chieftainess."

(26)   Ungrammatical benefactives with grammatical locatives
    a.   *Baeti ba-fihl-ets-ile morena.
       visitors subj-arrive-appl-fv chief
       "The visitors arrived for the chief."
    b.   Baeti ba-fihl-ets-e moreneng.
       visitors subj-arrive-appl-fv chief-loc
       "The visitors arrived at the chief's place."
    c.   *Ntate o-kul-el-a 'me
       father subj-be ill-appl-fv mother
       "My father is ill adversely affecting my mother."
    d.   Ntate o-kul-el-a sepetlele.
       father subj-be ill-appl-fv hospital
       "My father is ill in the hospital."
    e.   Lintja li-hol-el-a serobeng.
       dogs subj-grow-appl-fv barn-loc
       "The dogs grow up in the barn."
    f.   *Lintja li-hol-el-a nkhono.
       dogs subj-grow-appl-fv grandmother
       "The dogs grow up for my grandmother."

Since passives in which the lower object of an applicative becomes the subject are grammatical, as we saw in Chapter 3, we know that A-movement can take place from the position of the object of the lower verb in a benefactive applicative. Since this is presumably also the position of the argument of an unaccusative, as in (27), there is no apparent reason why this argument cannot move out of the double VP to subject position for licensing in (26a,c,f).

(27)

```
        PP
       /  \
          P'
         /  \
        P    VP
        |   /  \
      appl NP1  V'
              /  \
             V   NP2
```
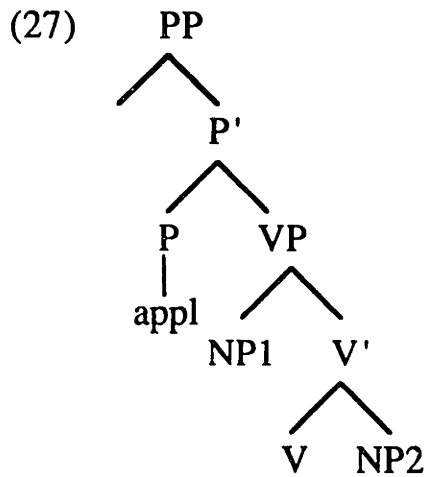
The grammatical sentences in (26b,d,e) are presumably formed on structures such as that in (28) below, with the instrumental object lower down and the unaccusative argument in the specifier of the higher VP, so whatever is problematic about the benefactives may be solved in the locatives by the difference in structure.

(28)

```
       VP
      /  \
    NP1   V'
         /  \
        V    PP
            /  \
                P'
               /  \
              P   NP2
```
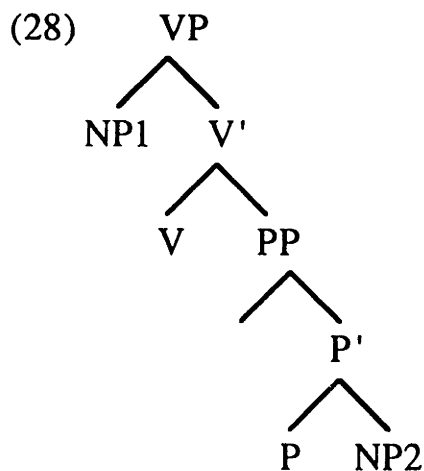
There is a possibility that in fact structure is not responsible for the difference between the verbs in (25) and the verbs in (26); notice that the benefactive of the unaccusative in (26a) becomes acceptable when the applied object becomes the subject of the corresponding passive and the

unaccusative argument appears in an agent *ke-* ("by") phrase, as shown in (29).

(29) Morena o-fihl-ets-o-e ke-baeti.
chief subj-arrive-appl-pass-fv by-visitors
"The chief was arrived for by the visitors."

That an unaccusative argument should be able to appear in a position usually reserved for demoted agents is curious. Peter Ihionu (p.c.) informs me that in Igbo, a non-Bantu language with an applicative construction, benefactive applicatives of unaccusatives are acceptable only if the verb somehow acquires an agentive reading. This suggests that the problem in (26) may be a problem in interpretation rather than a problem in the syntax of movement; in (26a) there is conflict between needing to interpret the argument in subject position as agentive, due to some constraint on the semantics of benefactives, perhaps, and needing to interpret that argument as being a non-agentive argument which was not projected into subject position, but has moved there from the lower predicate. When an agentive reading is forced by the *ke*-phrase, it may then somehow be possible to interpret the sentence accordingly. What is needed here, again, is a thorough study of the precise semantics and degrees of acceptability of benefactives of unaccusatives, something I am unable to undertake here.

5.4 Object marking asymmetries in symmetrical object languages

Another knotty problem arises in SiSwati. SiSwati appears to be a multiple-[+L] language which generally allows any object of a multiple

object construction to show object properties. This is demonstrated in (30)-(32).
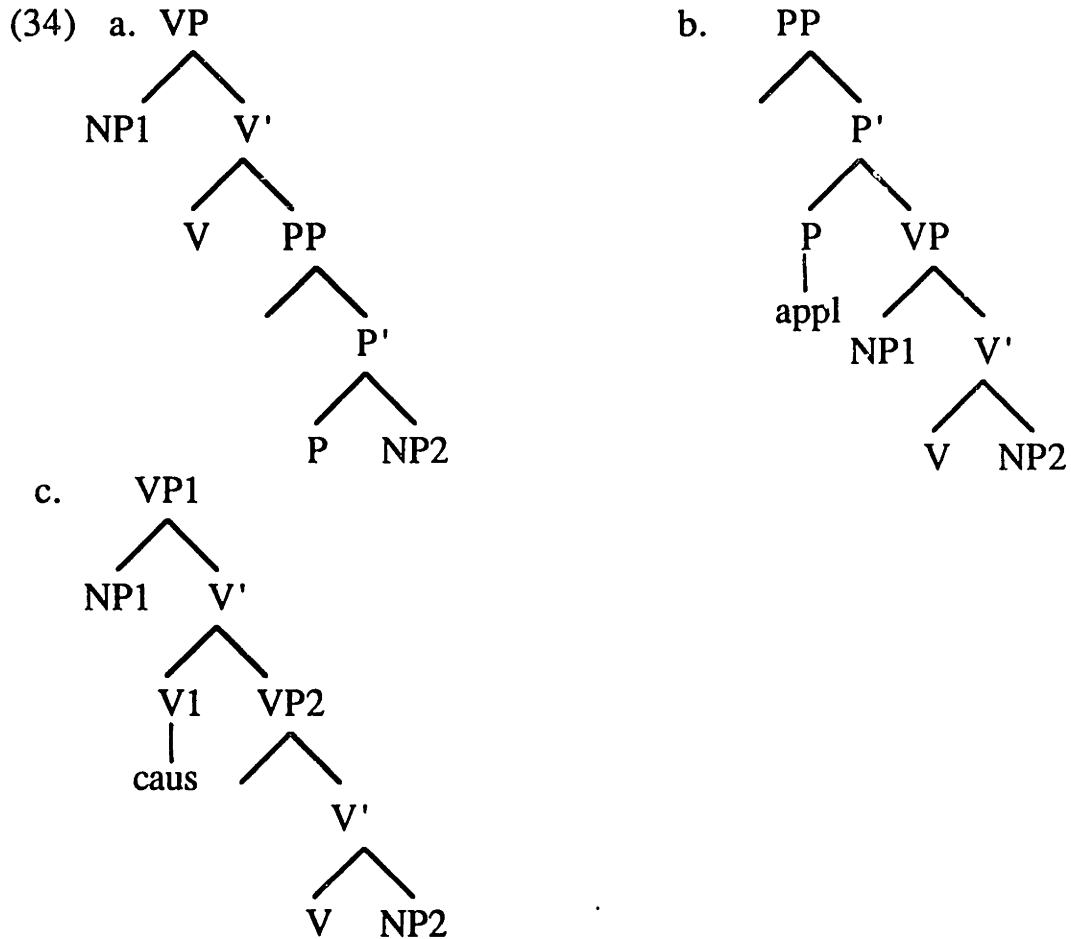
(30) a. Jôhn ú-nìk-è sìnìnì bànáná.
       John subj-give-tns friend banana
       "John gave a friend a banana."
    b. Índvùnà ì-kh-él-è bántfù ìhhòlà.
       chief subj-build-ben-tns people hall
       "The chief built a hall for the people."
    c. Mákè ú-gèz-ìs-è Tòzí lìbhòdò.
       mother subj-wash-caus-tns Tozi pot
       "Mother made Tozi wash the pot."

(31) a. Bànáná ú-nìk-w-è sìnìnìngù Jôhn.
       banana subj-give-pass-tns friend by John
       "The banana was given to a friend by John."
    b. Sìnìnìsí-nìk-w-è bànáná ngū Jôhn.
       friend subj-give-pass-tns banana by John
       "The friend was given a banana by John."
    c. Bántfù bá-kh-él-w-è yì-ìndvùnà ìhhòlà.
       people subj-build-ben-pass-tns by-chief hall
       "The people were built a hall by the chief."
    d. Íhhòlà í-kh-él-w-è yì-índvùnà bántfù.
       hall subj-build-ben-pass-tns by-chief people
       "The hall was built for the people by the chief."
    e. Tòzí ú-gèz-ìs-w-è lìbhòdò ngù mákè.
       Tozi subj-wash-caus-pass-tns pot mother
       "Tozi was made to wash the pot by mother."
    f. Lìbhòdò lí-gèz-ìs-w-è Tòzí ngù mákè.
       pot subj-wash-caus-pass-tns T. by mother
       "The pot was caused to be washed by T. by mother."

(32) a. Jôhn ú-wù-nìk-è sìnìnì(bànánà).
        John subj-obj-give-tns friend (banana)
        "John gave it (banana) to a friend."

   b. Jôhn ú-sì-nìk-è bànánà (sìnìnì).
        John subj-obj-give-tns banana (friend)
        "John gave him (friend) a banana."

   c. Índvùnà í-yà-kh-él-è bántfù (ìhhòlà).
        chief subj-obj-build-ben-tns people (hall)
        "The chief built it (a hall) for the people."

   d. Índvùnà í-bà-kh-él-è ìhhòlà (bántfù).
        chief subj-obj-build-ben-tns hall (people)
        "The chief built them (the people) a hall."

   e. Mákè ú-lì-gèz-ìs-è Tòzí (lìbhòdò).
        mother subj-obj-wash-caus-tns Tozi (pot)
        "Mother made Tozi wash it (the pot)."

   f. Mákè ú-m-gèz-ìs-è lìbhòdò (Tòzí).
        mother subj-obj-wash-caus-tns pot (Tozi)
        "Mother made her (Tozi) wash the pot."

So far these data conform to what we would expect for a multiple-[+L] language. However, a problem arises when both passivization and object marking co-occur. Given that there is one [+L] for each object, it should be possible for one object to become the subject of a passive when one [+L] is removed while the remaining [+L] is used to license the other object as an object marker. This is true, but only when the NP that becomes the subject of a passive is the upper object and the NP showing up as an object marker is the lower object. This is shown in (33).

(33) a. Sìnmìsí-wù-nìk-w-è ngù Jôhn (bànánà).
          friend subj-obj-give-pass-tns by John (banana)
          "The friend was given it (a banana) by John."

      b. *Bànánà ú-sì-nìk-w-è ngù Jôhn (sìnmì).
          banana subj-obj-give-pass-tns by John (friend)
          "The banana was given to him (a friend) by John."

      c. Bántfù bá-yà-kh-él-w-è yì-ìndvùnà (ìhhòlà).
          people subj-obj-build-ben-pass-tns by-chief (hall)
          "The people were built it (hall) by the chief."

      d. *Íhhòlà í-bà-kh-él-w-è yì-ìndvùnà (bántfù).
          hall subj-obj-build-ben-pass-tns by-chief (people)
          "The hall was built for them (the people) by the chief."

      e. Tòzí ú-lì-gèz-ìs-w-è ngù mákè (lìbhòdò).
          Tozi subj-obj-wash-caus-pass-tns mother (pot)
          "Tozi was made to wash it (the pot) by mother."

      f. *Lìbhòdò lì-m-gèz-ìs-w-è ngù mákè (Tòzí).
          pot subj-obj-wash-caus-pass-tns by mother (Tozi)
          "The pot was caused to be washed by her (Tozi) by
              mother."

If we consider that all these sentences have the basic structures in (34)
((a) being the dative structure, (b) the applicative, and (c) the causative),
the generalization is that NP2 may not become the subject of a passive if
NP1 is pro (i.e., will move to LP in the syntax to be coindexed with an
object marker), though NP1 may become the subject of a passive if NP2 is
pro.

(34) a. VP

```
         VP
        /  \
      NP1   V'
           /  \
          V    PP
               /  \
              P'
             /  \
            P    NP2
```

b. PP

```
         PP
        /  \
            P'
           /  \
          P    VP
          |   /  \
         appl NP1  V'
                  /  \
                 V    NP2
```

c. VP1

```
         VP1
        /  \
      NP1   V'
           /  \
          V1   VP2
          |   /  \
        caus    V'
               /  \
              V    NP2
```

The fact that all these structures behave alike suggests that the solution to the problem lies in the licensing of non-L-licensed NPs. More research into SiSwati is required for a really workable account of the data in (33), but the following is an outline of some ways in which the principles argued for in earlier chapters can be applied somewhat differently to the familiar structures.

Suppose that SiSwati is not in fact a multiple-[+L] language, but a single-[+L] language which allows lexical head-licensing as well as sister-licensing. In most single-[+L] languages, NP2 in a structure like those in (34) can never NP-move, since if it does NP1 will be unable to be sister-

licensed or L-licensed. SiSwati is different: like Turkish, it allows lexical head-licensing as well, so that in a sentence like (31d) above, "the people", in NP1 position, may be licensed by Spec-Head agreement with the applicative head, which is marked to allow this special kind of licensing. Unlike Turkish, SiSwati allows sister-licensing as well, so the passive sentence in (31c) will be allowed in the usual way it usually is in the Bantu languages: NP2 is sister-licensed by V in the absence of [+L]. Support for this comes from the fact that only one object marker is allowed on the verb at a time,[11] unlike Kinyarwanda, where, as we have seen, three or four object markers may show up at once. In a multiple-[+L] language, there is nothing to prevent each LP from hosting an object marker, but in a single-[+L] language, there will be no place to put more than one, since each marker must be associated with a separate LP.

Now suppose further that SiSwati allows object marking on the verb to take place in two different ways. In addition to having the object marker which is base-generated in L coindexed with a pro that moves to LP in the syntax, NP2, in the form of a pronoun, may incorporate into V as a prefix; this will result in the same configuration in the VP after movement as pro movement to LP (the trace of V governing the trace of NP2), so the relation of the object marker to the verb will still be recoverable. It is still necessary to allow the other type of object marking as well, of course: NP1 is not in a position from which it can head-to-head move (see discussion in Chapter 3), so it will not be able to incorporate directly into

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[11]Unfortunately, De Guzman (1987), my source for the data, makes this claim without giving any ungrammatical examples of verbs with two object markers.

V, but it will be able to move to Spec,LP for coindexing with an object marker. Note that allowing NP1 and NP2 to appear as object markers by separate mechanisms will still not permit both of them to become object markers at the same time; if there is an L (that is, if the sentence is active), it must carry the referential index of the object marker, whether coindexation be the result of Spec-Head agreement between a moved pro in Spec,LP and L, or the result of percolation to L through the V which the pronoun incorporates into. Since there is only one L, there is room for only one referential index; if NP2 were to incorporate into V at the same time NP1 raised to Spec,LP, the index brought to L by V through NP2 would be distinct from the index in L's specifier, so the structure would be ruled out.

Given these assumptions, consider again the data in (33). When Passive applies, there is no [+L] marker and thus no LP. Either one of the NPs may become the subject of a passive, as discussed above; however, without an L, the only way an object marker can appear is if it is a pronoun incorporated into V, since the ordinary method of object-marking depends on the existence of an LP for Spec-Head agreement between the moved pro and the object marker in L. In sentences like (33c) above, "hall" (= NP2) can incorporate into V and have its object marking status licensed that way, since LP is unavailable. However, in (33d) "people" (= NP1) cannot take advantage of this alternative to LP since it is in a specifier position and therefore not able to undergo head-to-head movement to incorporate into V. Therefore, the sentence is ungrammatical. What rules out sentences in which NP2 becomes the

subject of a passive while NP1 is an object marker, then, is the fact that NP1 requires the presence of an LP for object marking, and since SiSwati is single-[+L], passive sentences have no LP. Due to its alternative method of producing object marking on the verb, SiSwati will allow sentences in which NP2 becomes an object marker in a passive, because it can incorporate into V without relying on the presence of an LP.

Admittedly, this solution involves some assumptions about SiSwati that I do not have sufficient data to prove for sure. However, each of the assumptions rests on options potentially available to any language: L-licensing, sister-licensing, lexical head-licensing, head-to-head movement, and Spec-Head agreement after NP movement. It may be in fact, that other languages in the Bantu family share SiSwati's richness in licensing options. Sesotho, for example, is like SiSwati in allowing either object in a double object construction to show object properties, but not both at once: only one object marker is allowed on a verb at a time. More information on constructions such as those in (33) in other Bantu languages is needed to determine whether languages that look like multiple-[+L] languages but do not allow simultaneous object properties are in fact like SiSwati in being poor in L-licensing but rich in other types of licensing. The theories presented here may not produce the final solution to this asymmetry in double object properties, but they can at least provide the possibility of a structural explanation and a direction for future research.

5.5 Object properties and WH-movement

So far I have attempted to account for "object properties" defined in terms of A-movement as the ability of a postverbal NP to become the subject of a passive or to trigger object agreement on the verb. When we expand our view to include WH-movement, new asymmetries emerge. As Marantz (1990) notes for applicative constructions, in symmetrical object languages such as Kinyarwanda the ability of a basic object to A-move is correlated with its ability to WH-move, while in asymmetrical object languages such as Chichewa the possibilities for A-movement and A'-movement are unrelated. The examples in (35a-b) show that in Kinyarwanda the object that may not NP-move may not WH-move either; compare them to (11) above, where "school", but not "book", can trigger object marking and become the subject of a passive. The examples in (35c-f) show that in an instrumental applicative, where all objects have object properties, any of the objects may extract.

(35) a. Umugabo y-a-tw-eerets-e ishuûri úmwáalímu y-oóhere-jé-ho igitabo.
man subj-pst-obj-show-asp school teacher subj-rel[12]-send-asp-to book
"The man showed us the school to which the teacher sent the book."

b. *Umugabo y-a-tw-eerets-e igitabo úmwáalímu y-oóhere-jé-ho ishuûri.
man subj-pst-obj-show-asp book teacher subj-rel-send-asp-to school
"The man showed us the book which the teacher sent to the school"

c. Úmwáana y-a-sab-iish-ije umugóre ibíryo intoki.
child subj-pst-ask-instr-asp woman food hands
"The child asked the woman for food with his hands."

d. Dore umugóre úmwáana y-a-sáb-iish-ije ibíryo intoki.
look woman child subj-pst-rel-ask-instr-asp food hands
"This is the woman who the child asked for food with his hands."

e. Dore ibíryo úmwáana y-a-sáb-iish-ije umugóre intoki.
look food child subj-pst-rel-ask-instr-asp woman hands
"This is the food the child asked the woman for with his hands."

f. Dore intoki úmwáana y-a-sáb-iish-ije umugóre ibíryo .
look hands child subj-pst-rel-ask-instr-asp woman food
"These are the hands the child asked the woman for food with."

This case can accounted for if we assume that in Kinyarwanda only L-licensed NPs may WH-move; it may be the case that WH-movement takes place from LP itself. That is, a [+WH] complementizer will force movement of some NP into CP, and in order for the trace of such movement to be antecedent-governed, the NP must stop in LP on the way up. The trace of an NP moving directly to CP all the way from the

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[12]Relativization is marked by a high tone on the verb rather than by a separate morpheme. (Kimenyi cites Kimenyi (1976) for more details.)

complement of a lower VP will fail to be antecedent-governed in this language, so sentences like (35b) will be ruled out.

Now consider Chicheŵa: as (36) and (37) show, the benefactive applied object, which can NP-move (37), cannot WH-move (36), while the lower object cannot NP-move, but can WH-move. The examples in (36) are from Alsina and Mchombo (1990); (37) (=(24) from Chapter 3) is from Alsina and Mchombo (forthcoming).
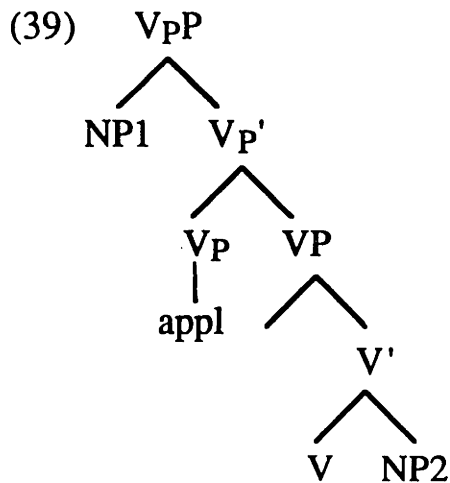
(36) a. Chitsîru chi-na-gúl-ír-a atsíkána mphâtso.
         fool subj-pst-buy-appl-fv girls gift
         "The fool bought a gift for the girls."
      b. Īyi ndi mphátso iméné chítsîru chí-ná-gúl-ír-a atsíkāna.
         this be gift rel fool subj-pst-buy-appl-fv girls
         "This is the gift that the fool bought for the girls."
      c. *Āwa ndi atsíkána améné chítsîru chí-ná-gúl-ír-a mphâtso.
         these be girls rel fool subj-pst-buy-appl-fv gift
         "These are the girls that the fool bought the gift."

(37) a. Chitsîru chi-na-wá-gúl-ir-á mphâtso (atsíkāna).
         fool subj-pst-obj-buy-appl-fv gift (girls)
         "The fool bought a gift for them (the girls)."
      b. *Chitsîru chi-na-í-gúl-ir-á atsíkāna (mphâtso).
         fool subj-pst-obj-buy-appl-fv girls (gift)
         "The fool bought it for the girls (a gift)."
      c. Atsíkāna a-na-gúl-ír-idw-a mphâtso (ndí chitsîru).
         girls subj-pst-buy-appl-pass-fv gift (by fool)
         "The girls were bought a gift (by the fool)."
      d. *Mphâtso i-na-gúl-ír-idw-a atsíkāna (ndí chitsîru).
         gift subj-pst-buy-appl-pass-fv girls (by fool)
         "The gift was bought the girls (by the fool)."

Bresnan and Moshi (1990) and Marantz (1990) raise the possibility that sentences such as (37b,d) may be ruled out due to a general constraint against extracting recipients or beneficiaries (unless they are the object of a

P, as in *Who did you give a book to?*). This type of semantic or thematic constraint has some validity: Bresnan and Moshi (1990) show that in Kichaga, which is a symmetrical object Bantu language that permits sentences like (37b,d), sentences like (36c) are nevertheless ruled out (see Bresnan and Moshi for data and discussion). Furthermore, if, as I claimed in Chapter 3, English locative alternation verbs and dative alternation verbs have identical structures, the ability to extract from the upper object in Spec,PP position in each variant should be the same across the two semantic types, yet, as shown in (38), the recipient cannot WH-extract from a double object dative, unlike the rest of the arguments in the paradigm.

(38) a. What did you stuff [$_{PP}$t [$_{P'}$with feathers]]?
      b. What did you stuff [$_{PP}$t [$_{P'}$into the pillow]]?
      c. What did you give [$_{PP}$t [$_{P'}$to Chris]]?
      d. *Who did you give [$_{PP}$t [$_{P'}$Ø a book]]?

If it is simply some aspect of the semantics or the thematic nature of the beneficiary that prevents its extraction, then we would expect other constructions in Chicheŵa with the same structure as the benefactive, given in (39), to allow extraction from the NP1 position if the thematic relations are different.

(39) VpP
```
          VpP
         /   \
      NP1    Vp'
            /   \
          Vp     VP
          |     /  \
        appl         V'
                   /   \
                  V    NP2
```

This expectation is not fulfilled: as shown in (40c,)), the causee of a causative construction may not extract in Chicheŵa. These facts are based on the double object causative; recall that Chicheŵa has two types of causatives, one in which the causee is expressed as the object of a preposition, as discussed in Chapter 4, and a causative more like causatives in the other Bantu languages in having the bare causee immediately following the verb, as in (40a). This causative will be like causatives in Sesotho in having the structure in (39) (with the upper predicate being a "real" V), where NP1 is the causee and NP2 is the lower object. Thus, the extraction facts for the causative are identical to the extraction facts for the benefactive, contrary to expectation if semantics provide the key constraint. The data are from Alsina and Mchombo (1991).

(40) a. Nŭngu i-na-phík-íts-a kadzidzi maûngu.
          porcupine subj-pst-cook-caus-fv owl pumpkins
          "The porcupine made the owl cook the pumpkins."
      b. Maúngú améné nŭngu i-na-phík-íts-a kádzīdzi...
          pumpkins rel porcupine subj-pst-cook-caus-fv owl
          "The pumpkins which the porcupine made the owl cook..."
      c. *Kadzidzi améné nŭngu i-na-phík-íts-a maûngu...
          owl rel porcupine subj-pst-cook-caus-fv pumpkins
          "The owl that the porcupine made cook pumpkins..."

The data in (40) suggest that the constraint against extraction of beneficiaries may have to do with the structural position NP1 in (39), rather than with the character of the beneficiary. Further support for this is given in (41), where we see a contrast between causatives of two types of intransitive verbs (data from Alsina and Mchombo 1991).

(41) a. Mwăna a-ku-d-éts-á zóvâla.
          child subj-pres-be dirty-caus-fv clothes
          "The child is making the clothes dirty."
      b. Zóvála ziméné mwăna a-ku-d-ëts-a...
          clothes rel child subj-pres-be dirty-caus-fv
          "The clothes which the child is making dirty..."
      c. Chatsalĭra a-ku-nám-íts-á mwăna.
          Chatsalira (name) subj-pres-lie-caus-fv child
          "Chatsalira is making the child lie." (tell lies)
      d. *Mwaná áméné Chatsalĭra a-ku-nám-ïts-a...
          child rel Chatsalira subj-pres-lie-caus-fv
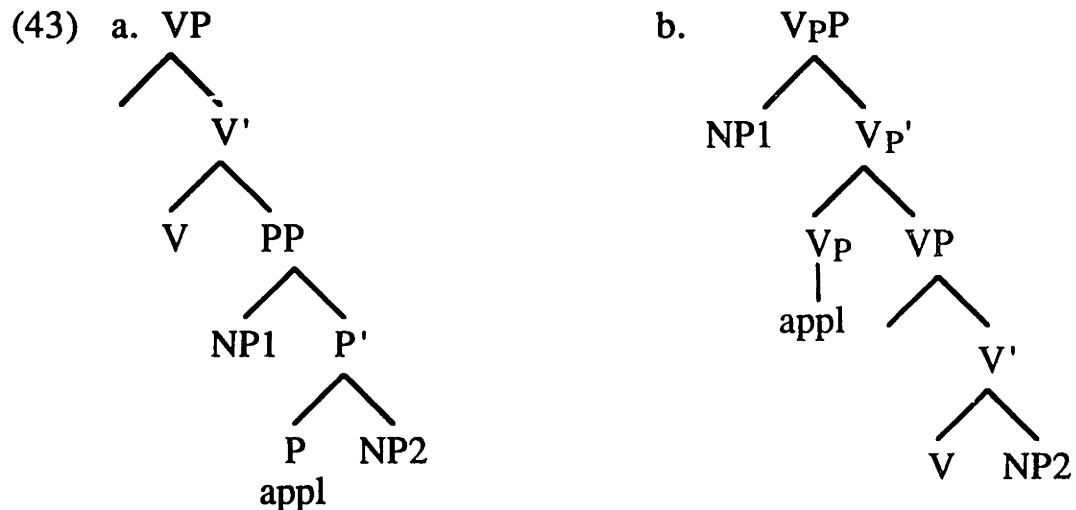   "The child that Chatsalira is making lie..."

In (41a-b), the base verb is an unaccusative, so that its sole argument will be projected internal to the lower VP projection in NP2 position. In (41c-d), the base verb is unergative, so it projects an external argument to the specifier of the upper predicate, that is, the NP1 position. Thus, in all these cases of ungrammatical WH-extraction, the NP that cannot be extracted is in the NP1 position.

Now consider locative and instrumental applicatives, which also participate in the structure in (39). Here either object may WH-extract, as shown in (42) ((b,c,e) from Alsina and Mchombo 1990, (a,d) from Alsina and Mchombo forthcoming, (f) from Sam Mchombo p.c.).

(42) a. Anyăni a-ku-phwány-ír-a mwăla dēngu/dēngu mwăla.
 baboons subj-pres-break-appl-fv stone basket/basket stone
 "The baboons are breaking the basket with a stone."

 b. Ili ndi dengu liméné ányăni á-kú-phwány-ír-a mwăla.
 this be basket rel baboons subj-pres-break-appl-fv stone
 "This is the basket that the baboons are breaking with a stone."

 c. Ūwu ndi mwalá úméné ányăni á-kú-phwány-ír-a dēngu.
 this be stone rel baboons subj-pres-break-appl-fv basket
 "This is the stone that the baboons are breaking the basket with."

 d. Alēnje a-ku-lúk-ír-a pa-mchēnga mikêka/mikêka pa-mchēnga.
 hunters subj-pres-weave-appl-fv loc-sand mats/mats sand
 "The hunters are weaving mats on the beach."

 e. Āpa ndi mikêka miméné alēnje á-ná-lúk-ír-a pa-mchēnga.
 this be mats rel hunters subj-past-weave-appl-fv sand
 "These are the mats which the hunters wove on the beach."

 f. Āpa ndi pa-mchenga paméné alēnje á-na-lúk-ír-a mikêka.
 this be cl-sand rel hunters subj-past-weave-appl-fv mats
 "This is the beach which the hunters wove mats on."

Unlike the benefactive applicative and the (double object) causative,
the locative and instrumental applicatives participate in two structures, as
argued in Chapter 3. If the only legitimate position from which an object
can WH-extract in double object structures is the lower object (NP2)
position, the grammaticality of all the sentences in (42) can be accounted
for by claiming that (c) and (f) have the structure in (43a) (=(39)), where
the applied object originates in NP2 position, while (b) and (e) have

the structure in (43b), where the original object of the verb is in NP2 position.[13]

(43) a. VP

```
        VP
       /  \
           V'
          /  \
        V    PP
            /  \
         NP1    P'
               /  \
              P    NP2
             appl
```

b. VpP

```
        VpP
       /   \
     NP1    Vp'
           /   \
         Vp     VP
          |    /  \
        appl      V'
                 /  \
                V    NP2
```

The foregoing examples have suggested that the extractability of objects in Chicheŵa depends on structural position rather than on the

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[13]If indeed WH-extraction is possible only out of the lower object position, the object in NP1 position should be able to show object properties while NP2 is WH-moved, since L-licensing is apparently not involved in WH-extraction. This prediction is fulfilled for locatives with the structure in (43a), as in (i) and (ii); however, locatives with the structure in (43b) do not allow NP1 to show object properties while NP2 is WH-moved, as shown in (iii) and (iv). Data are from Sam Mchombo (p.c.).

    i. Ápa ndi pa-mchenga paméné alēnje á-ná-í-lúk-ír-a.
        this be cl-sand rel hunters subj-past-obj-weave-appl-fv
        "This is the beach which the hunters wove them on."

    ii. Ápa ndi pa-mchenga paméné mikêka í-ná-lúk-ír-ıdw-á.
        this be cl-sand rel mats subj-past-weave-appl-pass-fv
        "This is the beach which the mats were woven on."

    iii. *Ápa ndi mikêka miméné alēnje á-ná-pá-lúk-ír-a.
        this be mats rel hunters subj-past-obj-weave-appl-fv
        "These are the mats which the hunters wove on it."

    iv. *Ápa ndi mikêka miméné pa-mchēnga pá-ná-lúk-ír-idw-á.
        this be mats rel cl-sand subj-past-weave-appl-pass-fv
        "These are the mats which the beach had woven on it."

I have no explanation why extraction of NP2 with NP1 being an object marker should be possible in one structure but not the other.

particular meaning or thematic relations of a benefactive, but I have not explained what it is about the upper object position that prevents WH-extraction from it. I present two possibilities below, neither of which is completely successful in accounting for all the cross-linguistic data.

The first way we might try to account for the difference between Chicheŵa and Kinyarwanda with respect to WH-extraction facts would be to say that in Chicheŵa, but not in Kinyarwanda, the trace of WH-movement must be sister-licensed (head-governed by a c-commanding, not just m-commanding, head), while the trace of NP-movement need only be head-governed by an m-commanding head. Further, WH-movement in Chicheŵa, unlike Kinyarwanda, is not required to pass through LP for antecedent-government; this is because sister-licensing will suffice to mark the trace [+γ], in the sense of Lasnik and Saito (1984). This account relies on a cross-linguistic parameter of variation according to whether traces of A' movement must be licensed by sister-licensing or by L-licensing. English would have to differ from both Chicheŵa and Kinyarwanda in allowing traces of WH-movement to be either sister-licensed or L-licensed, since alongside (38a), for example, we have the grammatical (38a') below, where the trace of movement is the sister of P.

(38)   a'.   What did you stuff [PP the pillow [P' with t]]?

The ungrammatical (38d) above would still have no explanation under this theory; appealing to the lack of phonological content for the preposition will not help, since the L-licensing of the indirect object should

not be affected by the content of the lower lexical head, and we know that the upper predicate must be [+L] because (38c) is acceptable; therefore, nothing under the licensing theory of variation in WH-extraction possibilities will suffice to account for the English facts.

A second approach would be to appeal to processing constraints, as in Jackendoff and Culicover (1971) or Woolford (1986). The essence of these approaches is that phonologically null nodes must appear at the margins of domains, where "domain" is defined as a maximal projection or a type of maximal projection (Woolford defines "mapping domain" to be any maximal projection except VP). That is, following Woolford, phonological material must be mapped to syntactic structure strictly from left to right or right to left, and must not skip any nodes within a given mapping domain. If both objects in a Chicheŵa applicative or causative construction are in the same mapping domain, and if there is only phonological material enough for one NP node, as when one object is represented by a trace, then the phonological material must be associated with the first available position within the domain. This means that NP1 in (43) above will always have to have phonological material associated with it; if NP1 extracts, that node will have to be skipped when mapping takes place, violating the mapping condition.

Woolford's approach can be extended to the English data if we stipulate that in English a P', rather than a full PP, can constitute a complete domain if its head is lexical, but not if its head is phonologically null. This means that in (38a-c), the two NPs will be in different mapping

domains, so skipping the upper one will not result in a violation of mapping, since the node is at the rightmost edge of its domain (the domain immediately above P'). In (38d), the entire PP will be a mapping domain, since its head is phonologically null, so only the rightmost node, the lower object, can fail to be associated with phonological material.

The Kinyarwanda data in (35) pose a serious problem for mapping, since it is *only* the NP in the upper position that may extract; Woolford proposes, however, that mapping conditions can be overridden if a language attaches relevance to animacy features, for example; that is, a node can be skipped if its relevant features do not match those of the phonological item to be inserted. Other data in Kinyarwanda suggest that this way out of the problem will not work; for example, when a causative affixes to a verb with an agential subject and an animate object, the causee obligatorily deletes, as shown in (44).

(44)　a.　*Umugabo y-a-kubit-iish-ije umugóre ábáana.
　　　　 man subj-pst-beat-caus-asp woman children
　　　　 "The man made the woman beat the children."
　　　b.　Umugabo y-a-kubis-e ábáana.
　　　　 man subj-pst-beat-caus-asp children
　　　　 "The man made someone beat the children."
　　　　 ≠ "The man made the children beat someone."

Here the upper object not only may be skipped, but must be skipped, and since animacy features match, there does not seem to be any way to account for this according to mapping principles. Kinyarwanda also poses a number of other problems for the theory of mapping in general,

especially with respect to object deletion (see Kimenyi (1980) for a discussion of object deletion in Kinyarwanda).

A full account of this type of analysis would go far beyond the scope of this work, but this brief sketch has shown that although mapping can account for Chicheŵa, and can perhaps be stretched to account for English, Kinyarwanda presents major difficulties.

We have seen that the approaches outlined above all fail to explain the crosslinguistic WH-extraction facts completely: the parameter in licensing for WH-traces cannot account for the English data in (38), while the mapping analysis has problems with the Kinyarwanda data in (35) and (44). An account explaining the English facts on the basis of the thematic or semantic characteristics of the dative and benefactive cannot explain why Chicheŵa causatives show just the same extraction possibilities as benefactive applicatives. The one generalization that emerges from all this is that given the theory of licensing I adopt and the structures I proposed for causatives in Chapter 4 and applicatives and alternating verbs in Chapter 3, all the examples of ungrammatical WH extraction in Chicheŵa involve extraction from the upper object position (NP1 in (43) above), and extraction in Kinyarwanda is permitted from exactly those positions that may receive L-licensing. Thus, although as yet there is no solution for all the variations, the analysis proposed in this study at least allows us to state the problem and find partial solutions.

5.6   Conclusion

The aim of this chapter has been to raise questions relating to multiple object constructions and their asymmetries within and across languages; it has not been an attempt to solve all hitherto unsolved problems.   With respect to Kinyarwanda locative applicatives and the rigid affix ordering of co-occurring causatives and applicatives in Sesotho, the theory developed in Chapters 2,3, and 4 was successful in accounting for the phenomena. Although the discussions of WH-extraction in English, Chicheŵa, and Kinyarwanda, Passive with object agreement in SiSwati, and benefactives of unaccusatives in Sesotho were less conclusive, the theories presented in earlier chapters do not fare worse than previous attempts at explanation for these phenomena, and they provide some promising directions for future research.   The ideas on licensing and multiple object structures developed here have far-reaching consequences for several aspects of the grammar, and I hope that I have at least addressed some of them in this chapter.

CHAPTER 6:   CONCLUSIONS

At the heart of this study is the idea that lexical relations and syntactic relations are of the same type and that they obey many of the same constraints. Rather than having linking rules between the syntax and a level of argument structure that is structured, but not in the same way as the syntax, I adopt the view that argument structures are subject to X' Theory, and therefore can be projected into the syntax directly, without extra linking rules, as long as sisterhood relations between projections of heads are preserved. This view of argument relations has the further consequence that operations can take place on lexical structure in accordance with general syntactic principles of movement and government, again without appealing to special rules or principles which apply to the level of lexical structure alone.

While lexical syntactic and surface syntactic relations are of the same type, the information available about the content of heads is different at the two levels. In the s-syntax, heads are filled with specific lexical items, though the semantic and phonological content of those items is largely irrelevant to s-syntactic operations; only a few lexical attributes, such as [+L] or status as pro, are relevant to this level. An l-syntactic tree, on the other hand, may contain only one fully specified head, but a number of

semantic features, such as [central] or [locational], are visible and relevant on other heads.

An especially important difference between l-syntax and s-syntax is the ability of relational predicates at l-syntax (the predicates that usually surface as P in English) to allow a feature to alternate between its positive and negative values, thus changing the direction in which a relation is expressed. This captures the fact that prepositions which surface as different lexical items in the s-syntax, such as *onto* and *under*, in fact share most of the same semantic relational features at l-syntax, varying only in the direction in which they express their relation. Some prepositions, *with*, for example, are unspecified for a number of features, and are thus compatible with several different relations: this is why *with* is the [+central] variant in alternations with *into, on, onto*, and *to*. Relational predicates often appear as subparts of the argument structure of event predicates (verbs); when the semantics of the event predicate are compatible with the affectedness consequences of both variants of the relational predicate, the relational predicate may alternate with respect to the feature [central], thus producing a single phonological form (*give* or *stuff*, for example) with two different realizations of the semantic relations encoded in it.

Another crucial aspect of the view of argument structure presented here is that relations can be semantically coherent and still not be able to be expressed at l-syntax; we saw this with entity-event prepositions in which the P' is predicated of the event. Requirements of head specification and

constraints on movement disallow a structure in which an event predicate is in specifier position at l-syntax, but due to the nature of projection from l-syntax to s-syntax, this direction of the relation can be expressed at s-syntax. Thus, l-syntax is not a level of representation where any and all thematic and semantic relations can be expressed; it allows a wider variety of semantic information to be structurally relevant than s-syntax does, but it has tighter constraints on how semantic relationships can be structurally represented.

While l-syntactic principles and constraints are relatively constant across languages (one possible area of variation being whether more than one phonologically specified head can appear in a single l-syntactic tree), s-syntactic structures are, of course, subject to a number of parameters according to which languages may differ. Thus, while it is common for languages to allow event-entity relations to be expressed with the relation being predicated of the event, only languages which allow incorporation in the s-syntax will have event-entity relations in which the relation including the event is predicated of the entity. The benefactive applicative construction is the prime example of this type of structure, and it differs from the English benefactive precisely in involving s-syntactic, rather than l-syntactic, incorporation.

A second parameter which has been important here is what kind of licensing a language allows; given three types of licensing in principle, L-licensing, sister-licensing, and lexical head-licensing, all languages seem to have L-licensing (though there may conceivably exist some that do not),

most have sister-licensing, and a few have lexical head-licensing. This last type may be responsible for the ability of a language to assign morphological case, although more research needs to be done to investigate this question. Further, languages differ in how free L-licensing is; languages such as Kinyarwanda allow multiple heads to have [+L], thus permitting licensing through the functional projection LP to apply to multiple objects, while languages such as Turkish and Chicheŵa allow only a single [+L] head, forcing one of the objects to be licensed in some other way. This parameter is responsible for the symmetrical object/asymmetrical object distinction across languages and, since heads vary lexically in their [L] attributes and in how they affect [+L] on heads they govern, it allows object symmetry to differ in different constructions within a single language.

We have seen that principles of argument structure representation and licensing, combined with parameters relating to s-syntactic incorporation, number of [+L] heads, and types of licensing allowed, can account for a wide variety of phenomena within and across languages: the alternations in non-benefactive applicatives, accusative causee-oblique causee differences, locative, dative, and benefactive alternation verbs, and why the ability to become the subject of a passive and to trigger object marking on the verb in Bantu are properties only certain types of objects can have. The analysis presented here has produced a unified account of a number of seemingly loosely related phenomena across languages, showing that synthetic causatives, applicatives, double object constructions, and locative alternation verbs are in fact all manifestations of a single construction, the

multiple lexical predicate construction, and differ only in the level of representation at which predication occurs and in the type of predicates involved. While this study has been limited to this one type of construction, the principles and parameters developed here should have far-reaching applications to other aspects of the grammar.

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