two fail to undergo *wh*-movement naturally. The existence of this second grouping is inexplicable in theories with monoclausal surface structures for causatives. The VI analysis, however, gives it a natural explanation and reveals parallelisms between these facts and standard "island" phenomena in Chichewa and other languages.

Similarly, the first half of this section showed that NPs in causatives group in two different ways in Chimwiini as well. This time, transitive causees group together with standard objects with respect to case theory, but they group together with standard subjects with respect to binding theory. Again, the first grouping is readily explicable on a lexical analysis, but the second is not; the VI analysis explains both. Binding and extraction facts thus give reasonably direct support for the syntactic incorporation analysis, and the assumptions that underlie it: notably the Projection Principle, the UTAH, and the view of the interaction of morphology and syntax.

In fact, an even more general theoretical point is at issue here: these facts argue that there is no single well-defined concept of the grammatical functions such as "subject" and "object" which corresponds to the intuitive sense of the term which many syntacticians try to formalize. In particular, these notions cannot be fundamental in the way that they are taken to be in, for example, Relational Grammar or Lexical Functional Grammar. To see why, suppose we ask the question: in Chichewa, is the causee in the causative of an intransitive verb an object or not? There is no single, principled answer to this question; all one can say is "In some ways yes; in some ways no." This is unacceptable if the notion "object" is fundamental. If, however, "subject" and "object" are merely defined in terms of some canonical structural or thematic properties, this situation is harmless, indeed expected, in a modular theory. The "intransitive causee" simply has some of the structural and thematic characteristics of canonical direct objects and lacks others. From the point of view of one modular subtheory, it may be an "object" (in that it is identical to canonical objects in the relevant ways), whereas from the point of view of another subtheory it may not be. How we actually use the word "object" is then no more than an unproblematic matter of terminology. Since morphological causatives show "hybrid" GF behavior, they provide very strong support for this government-binding theory perspective on grammatical relations and on the nature of grammar more generally (cf. 2.1.4).

5 Preposition Incorporation

Up to this point, we have considered at length constructions in which a single morphologically complex verb stands for both a verb and the head noun of its direct object, and those in which it stands for both a verb and the main verb of its sentential complement. It was argued that these were instances of Noun Incorporation and Verb Incorporation respectively, where "Incorporation" is the syntactic movement of an X^0 category to adjoin to its X^0 governor. Given this, we might expect the incorporation process to generalize across categories in languages of the world. In particular, given that nouns and verbs incorporate into governing verbs, there is no reason why prepositions should not do the same. In this chapter, I will explore the hypothesis that they do, and that this is the source of the GF changing processes called "applicative" and "dative shift" in chapter 1. In this way, yet another GF changing process will be reduced to Incorporation without the need of particular GF changing rules.

5.1 Applicative Constructions as Preposition Incorporation

Consider the following paradigms from English and Chichewa:

(1) a. The zebras handed the trap to the fox.
b. I sent a sixpack of beer to the mayor.

(2) a. *Mbidzi zi-na-**perek**-a msampha **kwa** nkhandwe.*
zebras SP-PAST-**hand**-ASP trap **to** fox
'The zebras handed the trap to the fox.'
b. *Ndi-na-**tumiz**-a chipanda cha mowa **kwa** mfumu.*
1sS-PAST-**send**-ASP calabash of beer **to** chief
'I sent a calabash of beer to the chief.'

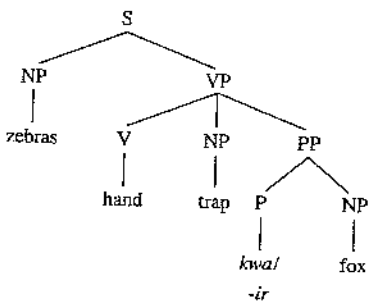
(3) a. *Mbidzi zi-na-**perek-er**-a nkhandwe msampha.*
zebras SP-PAST-**hand-to**-ASP fox trap
'The zebras handed the fox the trap.'

b. *Ndi-na-**tumiz**-**ir**-a* *mfumu chipanda cha mowa.*
1sS-PAST-**send-to**-ASP chief calabash of beer
'I sent the chief a calabash of beer.'

In the English sentences in (1), the verbs take a prepositional phrase complement as well as a noun phrase complement. The same is true of the corresponding morphologically simple Chichewa verbs in (2). The Chichewa examples in (3), however, are different. On the one hand, the verbs are morphologically complex, appearing with a suffix which is traditionally called the APPLIED or APPLICATIVE suffix; on the other hand, the sentences seem to have one less phrase, in that a (second) simple NP takes the place of a PP dominating an NP. Nevertheless, the sentences in (3) qualify as "thematic paraphrases" of those in (2) and good translations of those in (1), since corresponding elements receive the same thematic roles throughout. Thus, the morphologically complex verbs in (3) are another example of a single word doing the work of two words, but this time it is the work of a verb and a preposition that is done.[1]

This set of examples is in many ways parallel to those considered in the previous chapters, and the guiding assumptions of chapter 2 point in the same direction here. Thus, since (2a) and (3a) have the same theta role assignments, the Uniformity of Theta Assignment Hypothesis implies that these theta roles should be assigned in the same way at D-structure. Hence, (2a) and (3a) should have parallel D-structures, presumably like (4):

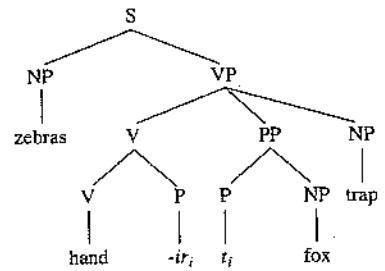
(4)



where the object and the PP can appear in either order, depending on the needs of case theory. I assume that in Chichewa, two different elements can fulfill the role of the preposition in assigning the goal thematic role to 'fox' in this structure: *kwa* and *-ir*. *Kwa* is a standard preposition; if it is inserted, nothing much need happen to the structure, and (2a) surfaces. *-Ir*, however, is an affix; hence it must move to attach to a verb root by S-structure or the Stray Affix Filter will be violated. The Projection Principle implies that thematically relevant structure must be preserved

throughout the derivation. Since *-ir* is involved in assigning 'fox' its thematic role, it must leave a trace when it moves to preserve this relation, as well as to head a PP node that the verb root subcategorizes for. Thus the S-structure of (3a) must have the form:

(5)



The preliminary conclusion is that Preposition Incorporation (PI) structures do indeed exist, parallel to Noun Incorporation and Verb Incorporation structures.

Comparing (1)–(3) with the patterns used to initially motivate NI and VI, we notice one potentially important difference. In Chichewa, there is no morphological relationship between the independent preposition of (2) and the prepositional "incorporee" of (3). This is unlike some of the cases of NI and VI cited, in which the same root was clearly recognizable in both types of structures. This issue is familiar from 3.5.2, however; it simply reflects the fact that the prepositional element is an affix with respect to morphology theory, rather than a full root. As such, in addition to the normal features of a preposition, it has a morphological subcategorization feature, expressing the fact that it must be bound to a verb. Therefore it does not have the option of staying in place as a root would have, and no direct alternation is observable. In this way, the PI in (3) is like the antipassive subcase of Noun Incorporation rather than the full compounding cases of Noun Incorporation.[2]

Hence, the minimal alternation between (2) and (3) in Chichewa is a byproduct of the fact that Chichewa happens to have two prepositional items—one an affix, the other not—which overlap in the set of theta roles they can assign. Of course, a language need not have both. If a language has only one of the two types of lexical items, then only one of the two structure types will appear in that language. Familiar European languages, including English,[3] French, and Italian, contain only independent prepositions, and thus allow no general analog of (3). On the other hand, some languages apparently have only the prepositional affix, and thus have analogs of (3) but not of (2). One such is Tzotzil, a Mayan language of Mexico, as described by Aissen (1983):

(6) a. *ʔI-Ø-h-čon li čitome.*
ASP-A3-E1-sell the pig
'I sold the pig(s).'
b. *ʔI-Ø-h-čon-be čitom li Šune.*
ASP-A3-E1-sell-**to** pig the Šun
'I sold (the) pigs to Šun.'

(6a) is an ordinary transitive structure, with the agent argument and the theme argument expressed, the latter as the direct object of the structure. In (6b), the optional dative/goal argument is expressed. It itself shows up as an unmarked object-like NP, but when it is included, the morpheme *-be* must appear on the verb. This is like Chichewa's (3), implying that the morpheme *-be* is a prepositional element that is generated along with the goal and then incorporates into the verb. *-be* is clearly an affix, and Incorporation is obligatory; indeed the goal can never appear as a PP or oblique constituent of some kind, whether with *-be* or some other morpheme. Tzotzil, then, is the case complementary to English and Italian.

What I have been calling preposition incorporation structures such as (3) and (6b) are traditionally known as "applicatives," or as sentences in the "dative" ("instrumental," "locative," . . .) voice. The generative literature on this topic can be classed as medium-sized: it has attracted more attention than noun incorporation, but less than morphological causatives. Rich information about the properties of PI structures in a variety of languages is available in the Relational Grammar literature, usually under the names of "3-to-2 Advancement" or "Oblique-to-2 Advancement,"[4] for reasons that will become clear in 4.3. This body of work is not fully satisfactory, however, in that the prepositions themselves are by and large ignored, and explicit rules of GF changing with stipulative conditions are invariably employed. The core idea that applicatives arise from a general process combining underlyingly separate verbs and prepositions in the syntax comes directly from important work on these constructions by Marantz (1982a; 1984) (cf. also Gruber (1965), who argues for Preposition "Incorporation" of a more abstract kind). My analysis differs from Marantz's in two important details, however. The first is in the principles that govern the combination of the two elements and thereby determine the properties of the result: for Marantz, a particular type of "merger" relation is involved, with morphological feature percolation (in the sense of Lieber (1980)) playing a prominent role; for me the relevant principles are those of standard GB syntax, including the Empty Category Principle, the Case Filter, and Move-Alpha. The second key difference is that I assume a narrower Projection Principle than does Marantz. This forces the prepositional affix to leave a trace, which has no counterpart in Marantz's analysis. The rest of this chapter will develop and defend a Preposition Incorporation analysis of applicative constructions in general, and the version of such an analysis that is shaped by the principles of government-binding theory as developed here in particular.

5.2 The Distribution of Preposition Incorporation

In chapters 3 and 4, we saw that the distribution of NI and VI processes is explained by the restrictions that the Empty Category Principle puts on the trace of the moved X^0. In effect, the ECP implies that an X^0 can only move to adjoin to the lexical head which governs it (the Head Movement Constraint), since otherwise it will not be in a position to antecedent-govern its trace. In this section, I give evidence that Preposition Incorporation obeys the same constraint, thereby explaining facts about the range of applicative constructions found across languages. Thus, the approach will uncover a deep and nontrivial similarity between noun incorporation, causative formation, and applicative constructions. Showing that PI obeys the Head Movement Constraint will be complicated somewhat, however, by the fact that the theta role assigning relationships in PPs remain somewhat murky in current theoretic work. Thus, we will need to find independent basis for our assumptions in some instances.

5.2.1 Basic Consequences

Perhaps the one kind of PP which is universally acknowledged as being a complement of the verb is the goal PP in "dative" constructions such as those in (7):

(7) a. Linda threw the frisbee **to Joe.**
b. I handed my exam booklet **to the teaching assistant.**
c. Jerry gave a bracelet **to his girlfriend.**

Thus, with a number of these verbs it is ungrammatical or at best elliptical to omit this PP:

(8) a. *I handed my exam booklet.
b. ??Jerry gave a bracelet.

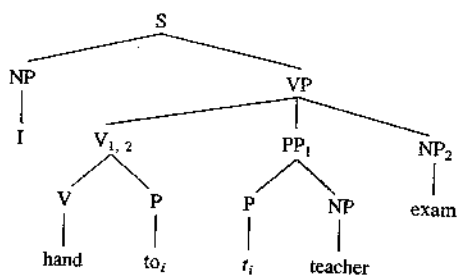
Furthermore, dative *to* phrases cannot be added freely onto any verb one may like:

(9) a. ?*Kim beat her roommate to Brent out of anger.
b. *Sophia carved a figurine to Don yesterday.

Thus, verbs must be strictly subcategorized for the presence or absence of this type of PP in the sense of Chomsky (1965). Since subcategorization

is usually assumed to presuppose theta role assignment in GB theory (Chomsky (1981)), PPs such as those in (7) are theta-marked by the verb that governs them. Assuming that this generalizes to other languages, prepositions of this type should be able to incorporate in languages whose morphological properties sanction such a movement. The derived structure would be:

(10)



Here, the moved prepositional element c-commands its trace, and the PP it is moved from is theta-coindexed with the verb, and thus not a barrier to government; therefore, government holds between the P and its trace, satisfying the ECP. Hence, PI should be possible.

Indeed, the facts agree with the theory on this point: "dative" applicative constructions are perhaps the most common and syntactically regular class across languages. The examples from Chichewa and Tzotzil in the last section are of this type (see (3) and (6)), and the same process can be illustrated in many other languages. (13)–(15) show further examples that demonstrate the existence of this construction in a variety of typologically different languages:[5]

(11) a. *Hu* ***tugi'*** *i kätta* ***pära*** *i che'lu-hu.*
1sS-**write** the letter **to** the sibling-my
'I wrote the letter to my brother.'
(Chamorro, Austronesian; Gibson (1980))

b. *Hu* ***tugi'-i*** *i che'lu-hu ni kätta.*
1sS-**write-to** the sibling-my OBL letter
'I wrote my brother the letter.'

(12) a. *Saja mem-**bawa** surat itu **kepada** Ali.*
I TRANS-**bring** letter the **to** Ali
'I brought the letter to Ali.'
(Bahasa Indonesian, Austronesian; Chung (1976))

b. *Saja mem-**bawa-kan** Ali surat itu.*
I TRANS-**bring-to** Ali letter the
'I brought Ali the letter.'

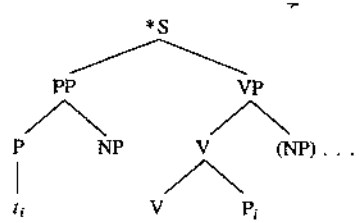
(13) a. *Wa?-t-k-nv?Θ.*
AOR-DU-**1sS/3N**-write
'I wrote it.' (Tuscarora, Iroquoian; Williams (1976, 86))

b. *Yah-wa?-t-**khe**-nv?Θ-v-?.*
TL-AOR-DU-**1sS/3F**-write-**to**-PUNC
'I wrote [it] to him.'

Similar examples exist in Huichol (Uto-Aztecan; Comrie (1982)), the other Iroquoian languages, and Bantu languages.

The ECP also determines where incorporation cannot take place. For example, N movement and V movement, although allowed within the VP, are blocked from the subject position: if they were to occur the incorporated X^0 would not c-command its trace, leaving it not properly governed. The same is predicted to be true of P movement. Hence, a structure like (14) should be impossible:

(14)



In fact, this seems true: I know of no plausible or proposed cases of PI from a subject position. This is not extremely telling in and of itself, however, since PPs are rare or impossible in subject position across languages in the first place. Thus, the base structure from which (16) would potentially be derived will in general not be generated in the first place. In this way, PPs differ from NPs and Ss, which can appear in the subject position freely. Therefore, the predictions derived from the ECP are empirically true in this case, but vacuously so.[6]

Of more interest is the prediction derived from the HMC that P Incorporation cannot take place out of embedded structures. A more or less likely candidate for what such a construction would look like is (15):

(15) a. The goats [VP ate [NP the letter [PP to Britta]]].
b. (*)The goats [VP ate-to$_i$ [NP the letter [PP t_i Britta]]].

(15b), while perfectly imaginable, is predicted to be impossible by incorporation theory. In particular, the NP will be a Minimality Condition barrier to antecedent government, since its head 'letter' is a "closer governor" that selects the PP. Hence, the structure too will be ruled out by ECP. Strictly on the basis of lexical and morphological properties, the potential

structure (15b) could be an actual structure in Chichewa. Nevertheless, the result is ungrammatical (compare (2) and (3)):

(16) a. *Mbuzi zi-na-dy-a* [*kalata* [*kwa Mavuto*]].
goats SP-PAST-eat-ASP letter to Mavuto
'The goats ate the letter to Mavuto.'

b. **Mbuzi zi-na-dy-er-a* [*kalata* [*t Mavuto*]].
goats SP-PAST-eat-to-ASP letter Mavuto
'The goats ate the letter to Mavuto.'
(OK as 'The goats ate Mavuto for the letter'!)

As far as I know, nothing similar to (15b) or (16b) has been attested. Thus, here the theory of Incorporation makes a correct and nonredundant empirical claim about the class of possible applicative constructions. Furthermore, it relates the impossibility of these examples to the impossibility of other instances of nonlocal X^0 movement, such as preposition stranding with noun incorporation (3.2), or direct verb incorporation from an embedded clause with no preliminary movement (4.3.2). Thus, Preposition Incorporation is seen to be the same as Noun Incorporation and Verb Incorporation in this way. Of course, arbitrarily more complex hypothetical incorporations involving deeper embedding could be generated, all of which will be impossible for all the incorporable categories by this same reasoning. In this way, we derive a strong constraint on all morphosyntactic "union" processes.

5.2.2 Incorporation and Theta Marking in Prepositional Phrases

The final consequence of the Head Movement Constraint is that incorporation of the head of a phrase used as an adjunct is impossible, since the adjunct phrase itself will be a barrier to government between the position of the verb and the head position inside the adjunct. Adjuncts contrast minimally with complements in this regard, incorporation being possible out of the latter. Here, however, checking predictions becomes difficult, because there is little agreement as to which PPs are adjuncts and which are actually arguments of the verb. In this subsection, I will explore these issues somewhat, arguing that the predictions of the HMC are true in this domain as well.

Empirically, the facts seem to be that applicative constructions are possible when the NP thematically related to the applied affix bears one of the following semantic roles: dative/goal, benefactive/malefactive, instrumental, or locative (of various types). This list is arranged roughly in order of decreasing commonness and syntactic regularity across languages. Dative/goal PPs have already been discussed. Benefactive/malefactive applicatives are nearly as common in languages of the world as the dative/goals, and are perhaps even more syntactically and semantically regular. Examples of these are:[7]

(17) a. *Mlimi a-ku-dul-a mitengo.*
farmer SP-PRES-cut-ASP trees
'The farmer is cutting the trees.' (Chichewa, Bantu)

b. *Mlimi a-ku-i-dul-**ir**-a mitengo nkhandwe.*
farmer SP-PRES-OP-cut-**for**-ASP trees fox
'The farmer is cutting trees for the fox.'

(18) a. *Umukoobwa a-ra-som-a igitabo.*
girl SP-PRES-read-ASP book
'The girl is reading the book.'
(Kinyarwanda, Bantu; Kimenyi (1980))

b. *Umukoobwa a-ra-som-er-a umuhuungu igitabo.*
girl SP-PRES-read-for-ASP boy book
'The girl is reading the book for the boy.'

(19) a. *ʔI-Ø-s-**komčan** hun kampana y-**u'ʔun** hč'ultottik*
ASP-A3-E3-**leave** a bell AG-**for** holy-father
San-torenso.
San Lorenzo
'They left a bell for Our Holy Father St. Lawrence.'
(Tzotzil, Mayan; Aissen (1983))

b. *Č-a-h-**mil-be**-ik čih.*
ASP-A2-E1-**kill-for**-2PL sheep
'I'll kill the sheep for you(PL).'

(20) a. *Ha **punu'** si Miguel i bäbui **pära** guahu.*
3sS-**kill** PN Miguel the pig **for** me
'Miguel killed the pig for me.'
(Chamorro, Austronesian; Gibson (1980))

b. *Ha **punu'-i** yu' si Miguel nu i bäbui.*
3sS-**kill-for** me PN Miguel OBL the pig
'Miguel killed the pig for me.'

(21) a. *Ne-θ-rihw-ahk-Ø.*
DU-2sS-word-pickup-IMPER
'Sing!' (word-pickup = sing)
(Tuscarora, Iroquoian; Williams (1976))

b. *N-**ak**-rihw-ahk-**v**-θ.*
DU-**1sO**-word-pickup-**for**-IMPER
'Sing for me!'

Instrumental applicative constructions are less widespread linguistically, most of the examples coming from Africa. Nevertheless, the con-

struction can be very regular and semantically transparent when it exists. Examples include:

(22) a. *Fisi a-na-**dul**-a chingwe **ndi** mpeni.*
hyena SP-PAST-**cut**-ASP rope **with** knife
'The hyena cut the rope with a knife.' (Chichewa, Bantu)

b. *Fisi a-na-**dul-ir**-a mpeni chingwe.*
hyena SP-PAST-**cut-with**-ASP knife rope
'The hyena cut the rope with a knife.'

(23) a. *Umwaalimu a-ra-**andik**-a ibaruwa **n'i**-ikaramu.*
teacher SP-PRES-**write**-ASP letter **with**-pen
'The teacher is writing a letter with the pen.'
(Kinyarwanda, Bantu; Kimenyi (1980))

b. *Umwaalimu a-ra-**andik-iish**-a ibaruwa ikaramu.*
teacher SP-PAST-**write-with**-ASP letter pen
'The teacher is writing a letter with the pen.'

(24) a. *Aali tay-ii lekki.*
Aali cut-PAST tree
'Aali cut the tree.'
(Fula, Niger-Congo; Sylla (1979), cited in Marantz (1984))

b. *Aali tay-**r**-ii lekki jammbere.*
Aali cut-**with**-PAST tree axe
'Aali cut the tree with an axe.'

The last category of applicative constructions consists of those with NPs that have locative interpretations. In one sense, this class is more common than instrumental applicative constructions, in that many languages have a few verbs that appear in the relevant contexts; in most, however, the alternation is limited and idiosyncratic.[8] At least one language is described as having productive and regular locative applicative constructions, however, namely Kinyarwanda as described by Kimenyi (1980). His illustrative examples include the following:[9]

(25) a. *Abaana b-**iica**-ye **ku** meeza.*
children SP-**sit**-ASP **on** table
'The children are sitting on the table.'

b. *Abaana b-**iica**-ye-**ho** ameeza.*
children SP-**sit**-ASP-**on** table
'The children are sitting on the table.'

(26) a. *Umwaana y-a-**taa**-ye igitabo **mu** maazi.*
child SP-PAST-**throw**-ASP book **in** water
'The child has thrown the book into the water.'

b. *Umwaana y-a-**taa**-ye-**mo** amaazi igitabo.*
child SP-PAST-**throw**-ASP-**in** water book
'The child has thrown the book into the water.'

(27) a. *Umugore y-**oohere**-je umubooyi **kw'**-iisoko.*
woman SP-**send**-ASP cook **to** market
'The woman sent the cook to the market.'

b. *Umugore y-**oohere**-je-**ho** isoko umubooyi.*
woman SP-**send**-ASP-**to** market cook
'The woman sent the cook to the market.'

This, however, is the only clear and productive case of locative applicative constructions I know of.[10]

The question now is, does this range of data confirm or falsify the prediction that Ps can be incorporated out of argument PPs and not out of adjunct PPs? The answer clearly depends on which PPs are taken to be arguments of the verb (perhaps "optional arguments") and which are not. Marantz (1984) assumes that benefactives and instruments are adjunct modifiers of the verb phrase, based on the fact that verbs do not seem to subcategorize for benefactive or instrumental phrases in the same way that they do for certain goal phrases (see (7)–(9) above): no verbs require them, and it is not clear that any verbs forbid them either. This poses no problem for Marantz's framework, in which it is possible to "merge" the head of an adjunct ("modifier") phrase with the head of the main predicate;[11] it would, however, mean that many of the applicatives illustrated above are counterexamples to the incorporation theory. Yet, it does not necessarily follow from the fact that benefactive and instrumental phrases are never obligatory that they are not theta-marked by the verb when they do appear. Indeed, the contrary is always assumed for the objects of verbs like *eat*, which are "optional" in some sense but are certainly complements of the verb in structures where they are present. I will offer two reasons that, while not conclusive, give reason to think that the same is true for benefactive and instrumental phrases, as well as for some locatives.

The first reason for saying that these constructions are arguments of the verb is based on semantic intuitions about what factors the exact semantic role of the NP in question depends on. It seems BOTH the prepositional element and the specific verb together play a significant role in determining the reading of the NP in this class of cases. For example, what I have been calling the "benefactive" applied affix in Chichewa certainly drastically narrows the range of interpretations its associated NP can have, giving it the element of meaning that can be characterized roughly as 'person who the actor (intends to) affect by the action.' However, the specific interpreta-

tion within this general area can be affected by the particular verb involved. Consider the following examples:

(28) a. *Mtsikana a-na-phik-ir-a ana nsima.*
girl SP-PAST-cook-APPL-ASP children cornmeal
'The girl cooked cornmeal for the children.'
b. *Kambuku a-na-b-er-a mkango njinga.*
leopard SP-PAST-steal-APPL-ASP lion bicycle
'The leopard stole the bicycle from the lion.'

(29) a. *Atsikana a-na-vin-ir-a mfumu.*
girls SP-PAST-dance-APPL-ASP chief
'The girls danced for the chief.'
b. *Ndi-na-yend-er-a kalulu.*
1sS-PAST-walk-APPL-ASP hare
'I walked for the hare.'

(28a) is the classic (and most common) benefactive interpretation: the natural reading is that the woman is cooking for the children's benefit. In addition, the 'children' are a kind of goal, in that they will receive the cornmeal when it is done. If, however, the verb has negative content, the interpretation can invert, such that the associated NP is adversely rather than positively affected by the action, as illustrated in (28b). Here also the affected NP 'lion' is the source of the bicycle rather than its goal.[12] (29a) and (29b) both correspond to benefactives in English, but they have readings that do not coincide. The normal interpretation of (29a) is that the dancing takes place so that the chief can watch and enjoy it. (29b), on the other hand, does not have this reading; instead of meaning that I walk because I think that the hare will enjoy watching me do so, it means that I walk because the hare is responsible for walking for some reason and I fulfill that responsibility for him. Thus, the exact interpretation of the "benefactive" NP is a function of both the verb and the prepositional element. Similar observations can be made about Romance PPs with the preposition *a* 'to/for'.[13]

The same kinds of dependencies of interpretation occur with instrumentals, as noticed by Marantz (1984) (citing Dick Carter). An instrumental preposition like *with* narrows the class of interpretations of its NP greatly, focusing it down to something like 'inanimate tool used by the actor in performing the action'. Nevertheless, as Marantz (1984, 246) puts it:

> The class of roles usually called instrumentals includes widely varying roles. Which member of this class a given instrumental NP will bear depends on the verb producing the predicate with which the instrumental is associated.

Two of his examples illustrating this are:

(30) a. Elmer unlocked the porcupine cage with a key.
b. Elmer examined the inscription with the magnifying glass.

A key in (30a) is an "intermediary agent" in the action, in the sense that Elmer does something to the key such that the key does something to the cage, such that the cage unlocks. In contrast, *the magnifying glass* in (30b) refers to a tool used in the action, but one which does not contact or affect the inscription in any way. Marantz calls this class "facilitating" instrumentals. Indeed, Marantz shows that these differences among instrumentals have tangible syntactic consequences: for example intermediate agent instruments can appear in subject position in English, whereas facilitating instruments cannot (cf. *A key unlocked the cage* vs. *#The magnifying glass examined the inscription*). Thus, the interpretation of instrumental NPs is also a function of both the verb and the preposition.

Finally, the same holds true for a subset of locative PPs. Consider the following paradigm:

(31) a. Carmel went in the room.
b. Carmel sat in the room.
c. Carmel ran in the room.

Here the phrase *in the room* has significantly different meanings depending on the verb that governs it. In (31a), it names a path of motion: Carmel must have actually crossed the threshold. In (31b), however, the same phrase describes not a path, but a pure location where the sitting takes place. Thus, the threshold of the room is not implicated in any way in (31b). Finally, (31c) is ambiguous between these two types of readings: it can mean either that Carmel went into the room by running (path reading), or that Carmel was running around in circles in the middle of the room (pure location reading). In each case, the actual range of readings is determined by the verb, even though the preposition *in* makes a semantic contribution that is common to all of these cases by defining a particular space relative to the object mentioned by its complement *the room*. Indeed, some verbs DO subcategorize for locative phrases. Thus, the following are elliptical or ungrammatical without some such phrase:

(32) a. The snake went ??(down his hole).
b. Joe put the tambourine *(in his backpack) before leaving.

Assuming again that subcategorization implies theta role assignment, the verb must assign a theta role to PPs like these.

In each of these cases, we have found that the ultimate semantic role of the NP depends both on lexical properties of the particular preposition and on lexical properties of the particular main verb. In fact, the semantic judgments are adequately described by saying that the P determines a certain range of interpretations that the NP can have, and the V then further limits that range. Now theta role assignment is supposedly a formal grammaticalization of compositional semantic dependencies. Therefore, it seems that these semantic facts indicate that in benefactives, instrumentals, and some locatives, the P theta-marks the NP and the V theta-marks the resulting PP.

The second argument that PPs of these types are arguments of the verb comes from the Empty Category Principle, which states that every trace must be governed either by its antecedent or by something that assigns it a theta role. This principle then can be used to test whether a given phrase is theta-marked or not if one moves the phrase far enough so that there is no possibility that the antecedent governs the trace. Then, if the structure is grammatical, the phrase must have been theta-marked; if it is ungrammatical, it must not have been theta-marked (Huang (1982), Lasnik and Saito (1984)). The following illustrates the kinds of contrasts that are expected given this:

(33) a. I didn't remember to fix [the car] [by adjusting the spark plugs].
b. Which car$_i$ do you remember how$_j$ to fix t_i t_j?
c. *How$_j$ do you remember which car$_i$ to fix t_i t_j?

In (33a), there are two elements in the lower VP which can be questioned: the theta-marked direct object and the manner adverbial, which is not theta-marked. When the direct object is moved long distance over a Comp filled by another question word as in (33b), the result is quite acceptable, with no more than a slight degradation from Subjacency. However, when the manner question word *how* is similarly moved over a filled Comp as in (33c), the result is uninterpretable with the intended reading, since the ECP is violated.

The question then is whether benefactive, instrumental, and locative PPs show the free movement behavior of theta-marked direct objects, or the restricted movement behavior of non–theta-marked adverbials. The relevant data are:

BENEFACTIVE:

(34) a. I know to bake a good cake [for my friends] [by whipping the eggwhites vigorously].
I remember to buy clothes [for my wife] [by checking the sizes].

b. ?For which of your friends do you know how to bake a cake (that they will enjoy)?
?For whom do you remember how to buy clothes (that will fit properly)?
c. *How do you know for which friends to bake a cake (that they will enjoy)?
*How do you remember who to buy clothes (that will fit) for?

INSTRUMENTAL:

(35) a. I always forget to open doors [with this key] [by flicking my wrist].
I know to seal these cans [with a hammer] [by tapping lightly on their tops].
b. (?)With which key do you always forget how to open doors?
(?)With what do you wonder how to seal paint cans?
c. *How do you always forget with which key to open doors?
*How do you wonder what to seal paint cans with?

LOCATIVE:

(36) a. I know to sit [in that chair] comfortably [by keeping my back straight].
I forgot to put the books [on the top shelf] [by using a ladder].
b. In which chair do you know how to sit comfortably?
On which shelf did you forget how to put the books?
c. *How do you know in which chair to sit comfortably?
*How did you forget which shelf to put the books on?

The situation is fairly clear: in each case the long movement of the PP in question is no more than slightly odd. In particular, there is a clear contrast between the (b) sentences and the much worse (c) sentences, which show the standard ECP effect of long-extracting an adjunct phrase. This contrast leads us to the conclusion that the (b) sentences are not ECP violations, but rather the traces of the PPs are in fact properly governed by the embedded verb. This implies that they are assigned a thematic role by the lower verb, as we have supposed.[14]

Thus, semantic selection and *wh*-movement converge on the fact that benefactive, instrumental, and certain locative phrases are indeed arguments of the nearby verb. Assuming that this conclusion is valid cross-linguistically, it follows that the PP node dominating such phrases will not be a barrier to government between the verb and the head of the PP. Thus, Preposition Incorporation will be grammatical in these cases, thereby accounting for the range of applicative constructions seen in (17)–(27). I tentatively conclude that this is evidence for a PI theory of applicative con-

structions, rather than evidence against it. Examples of these processes are repeated here, with an indication of their S-structures:

(37) a. BENEFACTIVE (Chichewa):
Mlimi [$_{VP}$*a-ku-dul-ir*$_i$*-a* [$_{PP}$*t*$_i$ [$_{NP}$*nkhandwe*]] *mitengo*]
farmer cut-for fox trees
'The farmer is cutting trees for the fox.'

b. INSTRUMENTAL (Chichewa):
Fisi [$_{VP}$*a-na-dul-ir*$_i$*-a* [$_{PP}$*t*$_i$ [$_{NP}$*mpeni*]] *chingwe*]
hyena cut-with knife rope
'The hyena cut the rope with a knife.'

c. LOCATIVE (Kinyarwanda):
Umwaana [$_{VP}$*y-a-taa-ye-mo*$_i$ [$_{PP}$*t*$_i$ [$_{NP}$*amaazi*]] *igitabo*]
child throw-in water book
'The child has thrown the book into the water.'

In all this, however, we have still not seen whether PI is possible out of a true PP adjunct or not. Here an instructive minimal contrast can be found within the class of locative PPs, only some of which are theta-marked by the verb. In fact, there is a classical linguistic distinction between "inner locatives" (the arguments) and adjunct or "outer" locatives. Hornstein and Weinberg (1981, 88) illustrate the difference between the two with the following examples:

(38) a. I slept in the bed.
b. I slept in New York.

Here it is claimed that *in the bed* is a(n optional) theta-marked complement of the verb, while *in New York* is a locative adjunct of the kind that can be added to any verb phrase in English.[15] Hornstein and Weinberg go on to point out that there are some differences in syntactic behavior between the two types of locatives. For example, Preposition stranding is possible with argument locatives, but is harder with adjunct locatives:

(39) a. I slept in my bed in New York.
b. Which bed did you sleep in in New York?
c. ?*Which city did you sleep in your bed in?

This, then, is one class of PPs which are not theta-marked by the verb. The theory of Incorporation then predicts that PI should be impossible from these "outer locatives," just as incorporating N out of NP adjuncts or V out of S′ adjuncts is impossible. The following contrast in Kinyarwanda shows this to be true (Kimenyi (1980)):

(40) a. *Abaana b-iica-ye ku meeza.*
children SP-sit-ASP on table
'The children are sitting on the table.'
b. *Abaana b-iica-ye-ho ameeza.*
children SP-sit-ASP-on table
'The children are sitting on the table.'

(41) a. *Abaana b-iica-ye ku musozi.*
children SP-sit-ASP on mountain
'The children are sitting on (the top of) the mountain.'
b. **Abaana b-iica-ye-ho umusozi.*
children SP-sit-ASP-on mountain
'The children are sitting on the mountain.'

The difference between (40a) and (41a) is parallel to the difference between (38a) and (38b), and the prepositional element can incorporate in the first case (the argument), but not in the second (the adjunct), just as predicted. Indeed, all of Kimenyi's examples of locative applicative constructions are plausibly "inner" locatives (e.g. (25)–(27) above). Other types of PPs standardly assumed to be adjuncts include most temporal phrases (e.g. 'on Monday', 'for two weeks'), manner phrases (e.g. 'in a bold way'), and "reason" phrases (e.g. 'for a cheap thrill'). In general, the head prepositions of phrases like these cannot be incorporated to form an applicative construction.[16] If this is a true generalization, then the Incorporation system improves upon Marantz's (1984) Merger account of applicatives, in that it correctly distinguishes between the possible and impossible instances of applicative formation in terms which can be independently motivated.

In conclusion, I have shown that Preposition Incorporation is governed by the Empty Category Principle and shows the usual distributional asymmetry between complements and subjects/adjuncts. In this way, the limits of crosslinguistic variation in the so-called "applicative" constructions are accounted for in an explanatory way.[17] Moreover, I have extended the generative semantics–like generalization about "predicate raising" (section 4.2) to include prepositions as well as nouns and verbs: all may, under the right circumstances, incorporate into a higher predicate. This incorporation relation has the same configurational properties in each instance.

5.3 The Objects of Applicative Constructions

So far we have discussed the range and distribution of applicative constructions and how it can be explained in terms of Preposition Incorporation. In

this section I turn to consideration of the syntactic characteristics of the applicative constructions which actually exist. We will see that these properties also are readily explicable in terms of the principles of grammar relevant to X^0 movement, as they have been developed in previous chapters. In particular, these constructions have the special property of having two bare "objects": the original D-structure direct object, which I call the BASIC object; and the NP which is stranded by the P when it incorporates, which I call the APPLIED object, since its presence is a result of the applicative construction. The discussion then focuses on how the requirements of case theory and the Principle of PF Interpretation apply to these two VP-internal NPs to determine aspects of their syntax. Moreover, the Case-assigning parameters that arose in the discussion of causatives (4.3) will also be seen to account for one type of cross-linguistic variation in applicatives as well.

It should be mentioned at the outset that there is a second type of variation in the syntax of applicatives which interacts with these issues, but which has a very different source: namely, a universal thematic role assignment asymmetry between instrumentals and benefactives. This is discussed in depth in Baker (in preparation),[18] so I will put it aside here. We will focus instead on data from the dative and benefactive applicative constructions, which are the most common and best described cross-linguistically.

5.3.1 The Applied Object

First let us consider the applied object, which is left behind by the preposition when it incorporates. In groundbreaking work on applicative constructions, Marantz (1982a; 1984) articulates a fundamental property of their syntax: whenever a verb appears with both extra morphology and an additional NP argument bearing some oblique thematic role (a pretheoretical characterization of applicatives), that additional NP argument will behave like the surface direct object of the complex verb. In fact, if the verb root itself normally takes an NP object, this new applied object will show more behavior characteristic of canonical direct objects than will the basic object itself, even if both are marked the same superficially. This generalization, although almost paradoxical, holds true over a very large number of languages and characterizes how word order, morphological case marking, verbal agreement, Passivization, and similar phenomena work in such languages. We may call this MARANTZ'S GENERALIZATION.

Marantz's Generalization can be illustrated easily in Chichewa. Direct objects are usually immediately postverbal in this language. Moreover, they may optionally trigger object agreement, they may "pro-drop," and they may become the subject of a passive verb. Illustrations of these properties are:

(42) a. *Mikango yanu i-na-thamangits-a* ***mbuzi zathu.***
lions your SP-PAST-chase-ASP **goats our**
'Your lions chased our goats.'

b. *Mikango yanu i-na-zi-thamangits-a* ***mbuzi zathu.***
lions your SP-PAST-**OP**-chase-ASP **goats our**
'Your lions chased our goats.'

c. *Mikango yanu i-na-zi-thamangits-a.*
lions your SP-PAST-**OP**-chase-ASP
'Your lions chased them (the goats).'

d. ***Mbuzi zathu*** *zi-na-thamangits-**idw**-a (ndi mikango yanu).*
goats our SP-PAST-chase-**PASS**-ASP by lions your
'Our goats were chased (by your lions).'

In a benefactive applicative construction, however, these relationships change, and the NP with the benefactive role has all these properties. Thus, the benefactive preferentially appears in the position immediately after the verb, taking priority over the basic object:[19]

(43) a. *Amayi a-ku-umb-ir-a mwana mtsuko.*
woman SP-PRES-mold-for-ASP child waterpot
'The woman is molding the waterpot for the child.'

b. ??*Amayi a-ku-umb-ir-a mtsuko mwana.*
woman SP-PRES-mold-for-ASP waterpot child
'The woman is molding the waterpot for the child.'

Furthermore, the benefactive may trigger object agreement, and, if it does, it may optionally "pro-drop," so that it is phonologically null:

(44) a. *Amayi a-ku-**mu**-umb-ir-a mtsuko* ***mwana.***
woman SP-PRES-**OP**-mold-for-ASP waterpot **child**
'The woman is molding the waterpot for the child.'

b. *Amayi a-ku-**mu**-umb-ir-a mtsuko.*
woman SP-PRES-**OP**-mold-for-ASP waterpot
'The woman is molding the waterpot for him.'

Interestingly, when a benefactive applied object is present, the basic object can no longer do these things (compare (42b,c)):

(45) a. **Amayi a-na-**u**-umb-ir-a mwana* ***mtsuko.***
woman SP-PAST-**OP**-mold-for-ASP child **waterpot**
'The woman is molding the waterpot for the child.'

b. **Amayi a-na-**u**-umb-ir-a mwana.*
woman SP-PAST-**OP**-mold-for-ASP child
'The woman is molding it for the child.'

Finally, the benefactive applied object becomes the subject of the clause when the verb is passive:

(46) a. *Kalulu a-na-gul-ir-a* ***mbidzi*** *nsapato.*
hare SP-PAST-buy-for-ASP **zebras** shoes
'The hare bought shoes for the zebras.'
b. ***Mbidzi*** *zi-na-gul-ir-idw-a* *nsapato* (*ndi kalulu*).
zebras SP-PAST-buy-for-PASS-ASP shoes by hare
'The zebras were bought shoes by the hare.'

Again, the basic object loses the ability to become the subject of a passive in the presence of a benefactive (compare (42d)):

(47) **Nsapato zi-na-gul-ir-idw-a* *mbidzi* (*ndi kalulu*).
shoes SP-PAST-buy-for-PASS-ASP zebras by hare
'Shoes were bought for the zebras by the hare.'

A similar pattern shows up in other languages with applicative constructions. Compare the Chamorro (Austronesian, Gibson (1980)) sentences in (48), where the (a) sentence is in an underived form, and the (b) sentence is its applicative counterpart:

(48) a. *Hu tugi' i kätta* ***pära i che'lu-hu.***
1sS-write the letter **to the sibling-my**
'I wrote the letter to my brother.'
b. *Hu tugi'-i i* ***che'lu-hu*** *ni kätta.*
1sS-write-**to the sibling-my** OBL letter
'I wrote my brother the letter.'

In (48b), the dative phrase 'my brother' lacks the overt preposition it occurs with in (48a) as expected, since the preposition has been incorporated into the verb, appearing as the applied affix *-i*. This is not the only surface difference between (48a) and (48b), however. The dative phrase also appears farther to the left relative to other sentential constituents in (58b), and it is in the unmarked morphological case typical of objects (and subjects) in Chamorro. In contrast, the basic object 'letter' has shifted to the right in (48b), and it is in the oblique case, having lost the unmarked case which it has in the nonapplicative (48a). Moreover, (48a) and (48b) can both be passivized, but with different effects:

(49) a. *Ma-tugi' i kätta pära i . che'lu-hu.*
PASS-write the letter to the sibling-my
'The letter was written to my brother.'
b. *Man-ma-tugi'-i i mañe'lu-hu ni kätta.*
PL-PASS-write-to the siblings-my OBL letter
'My brothers and sisters were written the letter.'

In the passive of the nonapplicative verb (49a), the basic object becomes the subject of the sentence. In the passive of the applicative verb (49b), however, the basic object may not become the subject; rather the dative applied object 'siblings' does so, as seen by the fact that it triggers the plural agreement morpheme *man-* which (roughly) only appears when there is a plural subject of an intransitive verb (Gibson (1980, 25); cf. Baker (1985a)). Again, the applied object supplants the basic object subcategorized by the verb with respect to this class of surface object properties.

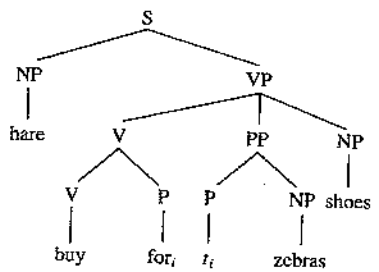
Indeed, the facts are the same in language after language: in Bahasa Indonesian (Austronesian) the applied object supplants the basic object with respect to the "object properties" of appearing in the postverbal position and of moving to subject in the passive, and it alone can be a reflexive (Chung (1976)); in Tzotzil (Mayan) it replaces the basic object for purposes of triggering (object) person agreement, number agreement, and movement to the subject of a passive (Aissen (1983)); in other Bantu languages such as Chimwiini (Kisseberth and Abasheikh (1977)) and Swahili (Vitale (1981)) it takes precedence with respect to the postverbal position, verbal agreement, and Passivization; likewise in Tuscarora (Iroquoian, Williams (1976)) for verbal agreement. And so on.

Relational grammarians have dealt with this pattern of facts by writing grammatical function changing rules that derive (or sanction) applicative constructions by taking an oblique nominal of some kind and making it into the direct object of the clause. Hence, applicatives are usually described as "Obl → 2 Advancement" in RG work ("2" = direct object). As byproducts of this rule, the basic object automatically ceases to be a direct object, and the verb is marked with the applied affix. This describes the difference in grammatical behavior of the NPs in an applicative construction as compared to a nonapplicative one. Marantz (1982a; 1984), however, observes that there is an important generalization to be explained here: applicative constructions always make the designated semantically oblique nominal into the direct object, rather than the subject or the indirect object, or some other kind of oblique phrase. The question posed by Marantz's Generalization is thus why does the NP thematically related to the applicative morpheme always have specifically direct object properties?[20]

It is an important virtue of the Preposition Incorporation analysis that Marantz's Generalization can be readily explained in terms of the principles that have already been developed. To see how this is so, consider a typical applicative construction, together with its associated S-structure:

(50) a. *Kalulu a-na-gul-ir-a* *mbidzi nsapato.*
hare SP-PAST-buy-for-ASP zebras shoes
'The hare bought shoes for the zebras.' (Chichewa)

b.



The D-structure of a sentence like (40a) is parallel to that of its English gloss; in particular, the VP contains an NP which gets the theme theta role, and a PP which represents the benefactive. Then, Move-Alpha applies before S-structure, adjoining the head of the PP to the governing V and leaving a trace. Now, focus on 'zebras', the stranded NP complement that the incorporated P has left behind. This NP is an argument; therefore by the Visibility Condition it must receive Case in order to be available for a thematic role at LF. However, once the preposition has moved, the NP cannot receive Case from it, since traces of X^0s in general neither assign Case themselves, nor transmit it from their antecedent, as we know from the study of NI and VI. (Technically, "identification" at PF fails when the head is lexically empty; see (3.4.3).) Thus, for an applicative sentence like (50a) to be grammatical, the stranded NP must get Case from some other category which governs it. Now, normally the main verb does not govern an NP embedded inside one of its PP arguments, since the P is a closer selecting head that creates a barrier. After PI, however, the V+P verb complex does govern the benefactive NP 'zebras' by the Government Transparency Corollary (2.2.4). Intuitively, the government-blocking "closer governor" has moved, so that it is no longer closer.[21] The stranded NP needs to receive Case, and the complex V is the only potential Case assigner which governs it; therefore, the derived verb may and must assign Case to this NP at S-structure. Furthermore, PF identification requires that no complex lexical category in a given language can assign more or different Case than underived items of the same category can in that language (the Case Frame Preservation Principle). Underived verbs across languages generally assign only one structural Case; therefore, syntactically derived verbs must do the same. This implies that 'buy-for' in (50) can assign 'zebras' an accusative Case inherited from 'buy', but not an oblique Case which could conceivably have been inherited from the incorporated preposition 'for'.[22] Thus, our principles taken together imply that the stranded object may and must receive accusative Case from the governing verbal complex; any other situation violates case theory.

Now, in government-binding theory, most of the traditional "direct object" properties are more precisely properties of the NP which is governed and assigned structural Case by the verb. In particular, this is true of all of the direct object properties of the "applied object" enumerated above. Thus, adjacency between the NP and V, verbal agreement, and morphological case are all PF interpretations of the structural Case assignment relation, which we now know to hold between the verb and the applied object. The ability for an argument to be "pro-dropped" is a result of being governed by the verb and being "identified" by its agreement morphology. Finally, it is the NP which normally receives structural Case from the verb that becomes the subject when the verb is passivized, since its Case has been "absorbed." Therefore, we explain why the applied object—the NP that receives its thematic role from the incorporated preposition—always has all these properties normally associated with direct objects.[23] Indeed, oblique NPs become the surface objects of applied verbs in the same way that the stranded possessors become objects of Noun Incorporating verbs and thematic lower objects become the surface objects of causative verbs: all are automatic side effects of the incorporation given the Government Transparency Corollary. In the relativized GF terminology of section 2.1.4, all these elements become "Case and Government objects." Marantz's central observation about the syntax of applicative constructions is thus accounted for in the context of a general theory of syntax.

This derivation of Marantz's Generalization is, of course, incomplete in one very important way. If the benefactive NP 'zebras' in a sentence like (50a) gets the verb's structural Case, as I have claimed it must, there arises the serious question of how the patient NP 'shoes' becomes visible for theta role assignment. In order to complete the account, two things are needed: (i) we must motivate a second type of Case indexing that will satisfy the visibility needs of the basic object, and (ii) we must show that this second type of Case indexing CANNOT apply to the benefactive applied object. If the option mentioned in (ii) were available, then the basic object could be free to receive the verb's accusative Case after all, thereby letting it behave more like a direct object than the applied object would, contrary to fact. I will put these tasks off until section 5.3.4, however; first let us discuss some important results that follow from this approach, assuming that the account can indeed be completed in the indicated ways.

5.3.2 Preposition Incorporation and Transitivity

An interesting result falls out from the derivation of Marantz's Generalization that involves the interaction of applicative formation and verb transitivity. Because of the interaction between X^0 movement and case theory,

a grammatical applicative construction can only occur when the derived verb assigns accusative Case to the NP that was stranded by the movement of the preposition. In many instances, this is exactly what happens, as we have seen. Suppose, however, that this verb has no Case to assign. This situation will in fact occur whenever the base verb root is not specified as being an accusative Case assigner in the lexicon, or whenever this lexical specification has been taken away by some other process. Thus, suppose that an applied verb was derived in the syntax by productive PI from such a non–Case assigner. The applied verb is not itself listed in the lexicon, so it cannot have inherent lexical Case-assigning features of its own. It cannot get the necessary features from the prepositional affix, because Ps are generally oblique Case assigners, a property which the complex word cannot inherit because of the Case Frame Preservation Principle, as discussed above. Finally, it cannot inherit such features from the base verb, because, by hypothesis, the base verb does not have any Case features to inherit. Thus, the applied verb has no Case to assign, but the applied object must receive Case from the applied verb, or it will violate the Case Filter. Putting these two statements together, we derive the prediction that applicative constructions should not be possible whenever the verb that hosts the P Incorporation is not a Case assigner.[24]

In fact, this prediction is confirmed rather spectacularly by the descriptions of applicative constructions in the literature. Chung (1976), for example, states that applicatives (which she calls "datives") in Bahasa Indonesian cannot be formed on verbs that do not have direct objects. Thus, she contrasts paradigms like the following:

(51) a. *Mereka mem-bawa daging itu kepada dia.*
they TRANS-bring meat the to him
'They brought the meat to him.'

b. *Mereka mem-bawa-**kan** dia daging itu.*
they TRANS-bring-**to** him meat the
'They brought him the meat.'

(52) a. *Ajah saja menj-umbang kepada rumah sakit.*
father my TRANS-donate to house sick
'My father donated to the hospital.'

b. **Ajah saja menj-umbang-kan rumah sakit.*
father my TRANS-donate-to house sick
'My father donated to the hospital.'

The verbs *bawa* 'bring' and *umbang* 'donate' both take dative/goal PPs, as shown in (51a) and (52a) respectively. However, they differ in that 'bring' appears with a direct object, while 'donate' is used intransitively, with no

direct object argument. This suggests that 'donate' does not assign Case in this use.[25] Now, the transitive verb appears in a corresponding applicative structure (51b), but the intransitive verb does not; sentences like (52b) are ungrammatical. This is exactly what we expect under the PI analysis: once the prepositional affix has incorporated into the verb, the goal NP needs Case, but the intransitively based verb, unlike the transitively based verb, has no Case to give it.

A similar situation occurs in Tzotzil (Mayan), according to the description of Aissen (1983). In this language, benefactive applicative constructions can be formed out of transitive structures quite regularly. For example:

(53) a. *Mi mu š-a-sa?-**b**-on [tal ti bu batem]*
Q NEG ASP-E2-look-**for**-A1 coming the where went
ti čihe.
the sheep
'Won't you bring the sheep for me from where they went?'

b. *?I-Ø-mil-be-ik čih.*
ASP-A3-E3-kill-**for**-3PL sheep
'They killed the sheep for him.'

However, basically intransitive verbs cannot undergo PI, such that the prepositional affix *-be* appears on the verb, and the NP thematically related to it shows up as a direct object. This is true in spite of the fact that such intransitive verbs are perfectly compatible with a benefactive nominal, if it is expressed obliquely:

(54) a. *?A li na le?e ?i-Ø-melčah ša [y-u?un li Petule].*
the house that ASP-A3-make now 3s-for the Petul
'That house was made for Petul.'

b. **?A li na le?e ?i-Ø-s-melčah-**be** li Petule.*
the house that ASP-A3-E3-make-**for** the Petul
'That house was made for Petul.'

(55) a. *?A li Petule ?i-Ø-tal y-u?un li Maruče.*
the Petul ASP-A3-come 3s-for the Maruč
'Petul came for/on account of Maruč.'

b. **?A li Petule ?i-Ø-s-tal-**be** li Maručě.*
the Petul ASP-A3-E3-come-**for** the Maruč
'Petul came on account of/for Maruč.'

Indeed the impossibility of incorporating a preposition into an intransitive verb carries over to DERIVED intransitive verbs—those which have Case features lexically but those features are absorbed—as well. Thus, it is impossible to form an applicative construction based on a passive verb:

(56) a. * *ʔI-Ø-y-ak'-**at**-**be** Šun li libroe.*
ASP-A3-E3-give-**PASS**-**to** Šun the book
'The book was given to Šun.'
b. * *ʔI-Ø-s-toh-**at**-**be** Petule li s-tohole.*
ASP-A3-E3-pay-**PASS**-**to** Petul the 3s-price
'Its price was paid to Petul.'

Nor can applicatives be formed out of antipassive structures:

(57) a. *Č-i-ʔak'-**van**.*
ASP-A1-give-**APASS**
'I am giving [someone].' (i.e. my daughter, in marriage)
b. * *Taš-Ø-k-ak'-**van**-**be** li Šune.*
ASP-A3-E1-give-**APASS**-**to** the Šun
'I am giving [someone] to Šun.' (my daughter, in marriage)

True monadic verbs, passive verbs, and antipassive verbs differ in a variety of ways, but they all share the property of being intransitive in the technical sense that they cannot assign accusative Case to an NP object (in Tzotzil; see discussion of antipassive in 3.5.3; of passive in 6.3). Not coincidentally, they also share the inability to appear in applicative constructions. Thus, this pattern of facts confirms the prediction that Case assignment to the applied object fails in such circumstances, thereby making PI impossible.

As a final test case, let us discuss the interaction of applicative formation and transitivity in Chichewa (Bantu) in some detail. Here, the same pattern emerges, but with some minor factors which obscure it slightly. We have already seen that applicatives can be formed quite productively from transitive verbs; another example of this is (58):

(58) a. *Afisi a-na-ph-a nsomba.*
hyenas SP-PAST-kill-ASP fish
'The hyenas killed the fish.'
b. *Afisi a-na-ph-er-a anyani nsomba.*
hyenas SP-PAST-kill-for-ASP baboons fish
'The hyenas killed fish for the baboons.'

Nevertheless, similar constructions are often impossible if the verb is intransitive. This is especially clear when the subject is of a nonagentive, unaccusative type:

(59) a. *Mlenje a-na-gon-a.*
hunter SP-PAST-sleep-ASP
'The hunter slept.'

b. * *Mlenje a-na-gon-er-a kalulu.*
hunter SP-PAST-sleep-for-ASP hare
'The hunter slept for the hare.'

(60) a. *Chiphadzuwa chi-a-fik-a.*
beautiful-woman SP-PERF-arrive-ASP
'The beautiful woman has arrived.'
b. * *Chiphadzuwa chi-a-fik-ir-a mfumu.*
beautiful-woman SP-PERF-arrive-for-ASP chief
'The beautiful woman has arrived for the chief.'

Essentially the same holds true if the verb is of the agentive, "unergative" type; the following (b) sentences seem to be highly marginal at best:[26]

(61) a. *Mkango u-ku-yend-a.*
lion SP-PRES-walk-ASP
'The lion walked.'
b. * *Mkango u-ku-yend-er-a anyani.*
lion SP-PRES-walk-for-ASP baboons
'The lion walked for the baboons.'

(62) a. *Kalulu a-na-sek-a.*
hare SP-PAST-laugh-ASP
'The hare laughed.'
b. * *Kalulu a-na-sek-er-a atsikana.*
hare SP-PAST-laugh-for-ASP girls
'The hare laughed for the girls.'

(63) a. *Mtolankhani a-ku-thamang-a.*
journalist SP-PRES-run-ASP
'The journalist ran.'
b. * *Mtolankhani a-ku-thamang-ir-a chiphadzuwa.*
journalist SP-PRES-run-for-ASP beautiful-woman
'The journalist ran for the beautiful woman.'

The ungrammaticality of (59b)–(63b) under the readings given is explained if we assume, as before, that primarily monadic verbs which do not need Case-assigning features do not have them. Hence, there will be no possible source of Case for the applied object once it is stranded by its governing preposition.

Some care is needed on this point, however, since it is not at all rare to see the applied affix *-ir* on verbs of these classes, forming a transitive structure out of an intransitive one. In fact, all the above except (62b) are grammatical, but under a different reading from the one given in the glosses. Thus, (59b) can mean 'The hunter lay on the hare'; (60b), something like 'The beautiful woman received the chief'; (61b), 'The lion inspected the

baboons'. Nevertheless, these readings are quite unrelated to the productive dative/benefactive readings that we expect, nor are they productively related to one another. These are thus a true example of lexical derivational morphology: *-ir* can attach to a fairly large number of intransitive verbs forming transitive verbs out of them, but the process is idiosyncratic. This idiosyncrasy shows up both in the fact that it applies to some verbs but not all (e.g. *-sek-* 'laugh'), and in the fact that the semantics of the result is unpredictable. Thus, the Uniformity of Theta Assignment Hypothesis does not imply that the verb root and the applied affix are separate constituents at D-structure in these cases, but rather the contrary: verbs like *fikira* and *yendera* assign theta roles as atomic units, and hence they should be units at D-structure. As far as the syntax is concerned, they are merely basic transitive verbs at all levels of description, in spite of their morphological complexity. Therefore, it is still correct to rule out derivations of (59b)–(63b) which result from SYNTACTIC affixation—i.e. from Incorporation—as our theory of Case does.

As in Tzotzil, what is true of basic intransitive verbs in Chichewa is true of derived intransitives as well. Two cases can be considered. First, there is a productive way of deriving intransitive stative verbs from active transitive verbs in Chichewa by adding the morpheme *-ik* to the stem. The result is similar in some of its functions to adjectival passives, or to "V-*able*" forms in English (*carvable, bendable*), but it is a full-fledged verb that can bear all verbal inflections.[27] Examples of this are:

(64) a. *Fisi a-na-sw-a mtsuko.*
hyena SP-PAST-break-ASP waterpot
'The hyena broke the waterpot.'
b. *Mtsuko u-na-sw-**ek**-a.*
waterpot SP-PAST-break-**STAT**-ASP
'The waterpot was broken.'

(65) a. *Njovu zi-na-pind-a chitsulo.*
elephants SP-PAST-bend-ASP iron-bar
'The elephants bent the iron bar.'
b. *Chitsulo chi-na-pind-**ik**-a.*
iron-bar SP-PAST-bend-**STAT**-ASP
'The iron bar got bent.'

I assume that stative verb formation of this kind; like English deverbal adjective formation, takes place in the lexicon, where arguments can be deleted without violating the Theta Criterion or the Projection Principle. In particular, the external/agent theta role becomes unavailable to the syntax when *-ik* is added. The resulting verb is presumably an unaccusative, with

the remaining patient theta role assigned internal to the VP at D-structure. Such verbs do not have Case to assign to an object (cf. Burzio's Generalization; Burzio (1981)); thus, applicatives formed from them are predicted to be ungrammatical. In fact, they are:

(66) **Mtsuko u-na-sw-**ek-er**-a mbuzi.*
waterpot SP-PAST-break-**STAT-for-**ASP goat
'The waterpot broke/was broken for the goat.'

Passive constructions are similar. I will argue in the next chapter that passives are derived syntactically rather than lexically. Nevertheless passives in Chichewa (as in English) are like statives in that a passive verb cannot assign accusative Case to its object. Instead, the object becomes the subject of the clause:

(67) a. *Kalulu a-na-(wa)-b-a mkazi wa njovu.*
hare SP-PAST-OP-steal-ASP wife of elephant
'The hare stole the elephant's wife.'
b. *Mkazi wa njovu a-na-b-**edw**-a ndi kalulu.*
wife of elephant SP-PAST-steal-**PASS**-ASP by hare
'The elephant's wife was stolen by the hare.'
c. **(A/zi)-na-wa-b-edw-a mkazi wa njovu ndi kalulu.*
SP-PAST-OP-steal-PASS-ASP wife of elephant by hare
'There was stolen the elephant's wife by the hare.'

And, applicative constructions cannot be formed out of passive verbs:

(68) a. *Nsima i-na-phik-idw-a ndi mbidzi.*
cornmush SP-PAST-cook-PASS-ASP by zebras
'The cornmush was cooked by the zebras.'
b. **Nsima i-na-phik-idw-**ir**-a kadzidzi ndi mbidzi.*
cornmush SP-PAST-cook-PASS-**for**-ASP owl by zebras
'The cornmush was cooked for the owl by the zebras.'

(69) a. *Mitondo i-na-sem-edw-a ndi makoswe.*
mortars SP-PAST-carve-PASS-ASP by rats
'The mortars were carved by the rats.'
b. **Mitondo i-na-sem-edw-**er**-a mbewa ndi makoswe.*
mortars SP-PAST-carve-PASS-**for**-ASP mice by rats
'The mortars were carved for the mice by the rats.'

Again, the correlation between verbs that do not assign accusative case to an object and verbs which cannot serve as hosts for PI holds true.[28]

There is only one class of intransitive verbs which can form the basis for productive and semantically transparent applicatives in Chichewa, and it is

an exception that confirms the generalization. The class includes verbs like 'dance' and 'sing':

(70) a. *Atsikana a-na-vin-a.*
girls SP-PAST-dance-ASP
'The girls danced.'
b. *Atsikana a-na-vin-**ir**-a mfumu.*
girls SP-PAST-dance-**for**-ASP chief
'The girls danced for the chief.'

Certainly, it is not a coincidence that verbs of this particular class can take a "cognate" object very readily:

(71) *Atsikana a-na-vin-a chiwoda.*
girls SP-PAST-dance-ASP chiwoda
'The girls danced the chiwoda (a tribal dance).'

Thus, children learning Chichewa have overt evidence that *-vin-* 'dance' can in fact assign structural Case, unlike most of the other "intransitive" verbs. The applied verb complex can then inherit this Case-assigning ability from the stem, and assign the Case to its applied object, making (70b) possible. Thus, we account for the fact that applicatives are possible with exactly this class of intransitive verbs and not others.[29]

Thus, we see that across a range of languages, the possibility of an applicative construction is directly dependent on the ability of the root verb involved to assign Case. When it does, applicatives can be formed freely and productively in the syntax; when it does not, there is no grammatical output derived by syntactic Preposition Incorporation. If there is a sentence form which appears to be an applicative of a non–Case-assigning verb, it must be derived in the lexicon, and it is generally not fully productive, and has idiosyncratic semantic interpretation.[30] This important observation about the syntax of applicative constructions is given as a rather mysterious stipulation on the relevant GF changing rule in Relational Grammar work (e.g. Chung (1976), Seiter (1979), Aissen (1983)). Indeed, since RG and other theories generally claim that there can only be one instance of a given GF such as "object" in a clause at one time (the Stratal Uniqueness Law; see also Bresnan (1982b)), one might even expect that an oblique could only become an object in a clause that LACKS an object, rather than the other way around. However, the restriction follows in an explanatory way from the interaction of case theory and the theory of X^0 movement. This gives strong support for the Preposition Incorporation analysis of applicative constructions.[31]

5.3.3 Preposition Reanalysis and English Pseudopassives

In 4.3.5, I observed that there are causatives in Italian which have all the syntactic properties of Verb Incorporation causatives, except that the lower verb does not visibly incorporate. Thus, two morphologically distinct verbs remain in these Italian causatives, but the government domain of the higher verb is still extended into the lower verb phrase, just as it is when the lower verb is incorporated. These constructions have been discussed in terms of the syntactic "reanalysis" of two words into one; I followed this intuition and gave content to the technical notion of Reanalysis by claiming that it was "Abstract Incorporation," possibly at LF. Formally, this was expressed by coindexing a lexical head with a lexical head that governs it, where this coindexing is interpreted as equivalent to the coindexing induced by X^0 movement with respect to syntactic principles such as the Government Transparency Corollary. In other words, Reanalysis is Incorporation without the incorporation.

At this stage, we have discovered enough properties of Preposition Incorporation to recognize that there also exist instances of Preposition Reanalysis, the latter having the same relation to the former as Italian causatives have to Chichewa or Malayalam causatives. Thus, consider pairs like the following from English:

(72) a. Everyone talked about Fred.
b. Fred was talked about (last night).
(73) a. The principal spoke to John (at last).
b. John was spoken to (at last).
(74) a. The contestants skied under the bridge.
b. That bridge was skied under by the contestants.
(75) a. Three Nobel laureates have lectured in this hall.
b. This hall has been lectured in by three Nobel laureates.

((72) and (73) are based on Hornstein and Weinberg (1981); (74) and (75) on Perlmutter and Postal (1984a).) In each of the (b) sentences, the NP which was the object of a preposition becomes the subject when the main verb of its clause is put into the passive. This is known as the PSEUDOPASSIVE or the PREPOSITIONAL PASSIVE construction. In most languages, such a construction is completely impossible. This is true, for example, of French (cf. Kayne (1983)):

(76) a. *Tout le monde a parlé de Fred.*
b. **Fred a été parlé de (hier soir).*
(77) **Jean a été voté contre par presque tous.*
'John was voted against by almost everybody.'

This difference between French and English has indeed been taken as following from the fact that English has a rule of Verb-Preposition Reanalysis, which French lacks (van Riemsdijk (1978), Hornstein and Weinberg (1981), Stowell (1981), Kayne (1983)).[32] Furthermore, researchers have made a conceptual link between the V-V Reanalysis involved in Romance causatives and the V-P Reanalysis seen here.

In fact, the English pseudopassive construction can be neatly attributed to Reanalysis under my theory of it as abstract Incorporation. For comparison, consider Chichewa. As in French, it is totally impossible to strand a preposition by NP movement (or *wh*-movement) in this language:

(78) a. *Msangalatsi a-ku-yend-a ndi ndodo.*
entertainer SP-PRES-walk-ASP with stick
'The entertainer is walking with a stick.'
b. **Ndodo i-ku-yend-edw-a ndi.*
stick SP-PRES-walk-PASS-ASP with
'The stick is being walked with.'

If, however, the P that governs the NP in question is incorporated into the verb to form an applicative construction, the stranded NP can become the subject of a passive naturally:

(79) a. *Msangalatsi a-ku-yend-**er**-a ndodo.*
entertainer SP-PRES-walk-**with**-ASP stick
'The entertainer is walking with a stick.'
b. *Ndodo i-ku-yend-**er**-edw-a.*
stick SP-PRES-walk-**with**-PASS-ASP
'The stick is being walked with.'

The difference in acceptability between (78b) and (79b) is explained by claiming that the verb does not govern (or assign Case to) the object of a preposition in (78), since government is blocked by the P. In (79), however, this P has been incorporated into the verb, having the automatic consequence that the verb complex governs what the P governed before it moved (the GTC). Thus NP movement is possible in the latter case, but not in the former (see 6.4 for details). Now, the English pseudopassives clearly behave not like passives of the verb-plus-independent-P constructions in (78), but rather like passives of the PI structures (79). In other words, the English constructions have the properties of Preposition Incorporation, but without the actual incorporation—which is exactly the characterization of the Reanalysis relation.[33]

If Reanalysis in my sense of the term is necessarily involved in the derivation of pseudopassives, then we can predict various detailed aspects of

their distribution. In particular, they should only be possible when they strand Ps which structurally could be incorporated in languages with (overt) PI like Chichewa and Kinyarwanda. This seems to be true. Thus, PI is possible out of theta-marked argument PPs, but not out of non–theta-marked adjunct PPs (4.2.2). The best minimal pairs to exemplify this were locatives, where a similar phrase can play either role:

(80) a. I slept in my bed last night.
b. I slept in New York last night.

As expected, the locative argument can form a pseudopassive, but the locative adjunct cannot (Hornstein and Weinberg (1981)):

(81) a. My bed was slept in last night.
b. *New York was slept in last night.

This parallels the fact that the P can overtly incorporate in Kinyarwanda in cases like (80a), but not in (81b). The illustrative examples I repeat here (from Kimenyi (1980)):

(82) a. *Abaana b-iica-ye ku meeza.*
children SP-sit-ASP on table
'The children are sitting on the table.'
b. *Abaana b-iica-ye ku musozi.*
children SP-sit-ASP on mountain
'The children are sitting on (the top of) the mountain.'

(83) a. *Abaana b-iica-ye-**ho** ameeza.*
children SP-sit-ASP-**on** table
'The children are sitting on the table.'
b. **Abaana b-iica-ye-**ho** umusozi.*
children SP-sit-ASP-**on** mountain
'The children are sitting on the mountain.'

More generally, I argued that benefactive and instrumental PPs are arguments of their verb and their heads can incorporate; whereas temporal, manner, and reason PPs are adjuncts and cannot participate in PI. Something of this same bifurcation is duplicated in English pseudopassives:

(84) a. ?The chief was danced for by every girl in the village.
b. ?That special baseball bat was hit with in 156 straight games.

(85) a. *Monday is overslept on nearly every week.
b. *The same way is walked in by everyone with bad knees.
(* if *way*='manner'; ok if *way*='path')
c. *Zest is always sung with in the shower by Linda.
(* if *zest*=enthusiasm; ? if *Zest*=a brand of soap)

The sentences in (84) are inelegant to a degree, but are quite understandable, and are found in informal speech styles. The (85) sentences, on the other hand, are strongly ungrammatical. This asymmetry is immediately accounted for by the ECP if P Reanalysis is abstract Preposition Incorporation.

The other situation in which overt PI is impossible is when there is an intervening lexical head between the base position of the P and the V into which it incorporates; the intervening head blocks government between the P and its trace. Thus, no language has an applicative construction counterpart like (86b) for a sentence like (86a):

(86) a. The goats [$_{VP}$ate [$_{NP}$letters [$_{PP}$to Britta]]]
b. *The goats [$_{VP}$ate-to$_i$ [$_{NP}$letters [$_{PP}$ t_i Britta]]]

If overt PI is impossible in such a structure, covert PI should be as well, making pseudopassives of (86a) impossible. This is, of course, correct:

(87) *Britta has been eaten letters to (by the goats).

(87) might be thought to be bad because *letters* cannot get Case, but the NP in the VP in (87) is indefinite, and these seem to be able to receive Case in situ even in passives (cf. Belletti (1985)). Indeed, the same point can be made with no questions about case theory by following up an observation due to Kyle Johnson (personal communication). English permits certain double prepositional structures, in which a P takes a PP complement rather than an NP complement. Examples of this are:

(88) a. The mouse ran to behind the grandfather clock.
b. A monster emerged from under the table.

Now, pseudopassives can be formed in which any one of these Ps is stranded:

(89) a. Late people must usually run to bus stops.
b. ?Bus stops are usually run to by late people.
(90) a. Mice hide behind grandfather clocks.
b. ?Grandfather clocks are often hidden behind (by mice).

Nevertheless, pseudopassives corresponding to the sentences in (88) in which both prepositions are stranded are completely impossible:

(91) a. *Grandfather clocks are often run to behind (by mice).
b. *The table was emerged from under by the monster.

Assuming that the structure of these examples is as in (92), the ungrammaticality of (91) is accounted for by the abstract P Incorporation analysis:

(92) Clock$_i$ was [$_{VP}$run$_j$ [$_{PP}$to [$_{PP}$under$_j$ [$_{NP}$ t_i]]]]

Here, the P *to* is a "closer governor," blocking government between the position of the V and that of the embedded P *under*. Thus, the abstract Incorporation relation is illegitimate here, and the pseudopassive is ungrammatical.[34]

In this section, I have accepted the idea put forth by many that a process of V-P Reanalysis is responsible for the existence of pseudopassives in English and have gone on to show that this Reanalysis relation has the same formal properties as the P Incorporation relation. Indeed, this hypothesis makes it possible to explain more of the distribution of pseudopassives than previous formulations of Reanalysis have. The same conclusion was reached for V-V Reanalysis and V Incorporation in 4.3.5. Thus, the Reanalysis relation generalizes across grammatical categories in the same way that Incorporation does, with the parallelism between the two being maintained throughout. The empirical scope of the ideas developed in this work thus is increased by subsuming Reanalysis under Incorporation.

5.3.4 The Basic Object

Now let us return to a typical example of an applicative construction with a dyadic transitive base verb:

(93) *Kalulu a-na-gul-ir-a mbidzi nsapato.*
hare SP-PAST-buy-for-ASP zebras shoes
'The hare bought shoes for the zebras.' (Chichewa)

So far we have focused on the properties of the "applied object" of the verb (*mbidzi* 'zebras' in (93)), arguing that, because of PI, it may and must receive accusative Case from the complex verb in order to be visible for theta role assignment at LF. This accounts for the ways that this nominal shows behavior usually associated with direct objects. In this section, the focus will turn to the "basic object" of such constructions—*nsapato* 'shoes' in (93). The critical question that arises immediately with regard to such nominals I have put off so far: given that the applied object receives Case from the verb, how can the second object pass the Case Filter?

Clearly, the answer to this must go beyond the unmarked core of case theory. The verb in applicative structures such as (93) has only one structural Case alotted to it by general principles; since this goes to the applied object, some other provision must be made for the basic object. Indeed, the situation in applicatives is very similar to that in causative constructions as discussed in section 4.3: in both cases, an X^0 movement has created a structure in which there are two NP arguments but only one potential Case assigner, posing problems for case theory. Different languages respond to this situation in somewhat different ways. In fact, we shall see that, by in large, each language uses the same resources in both causatives and ap-

plicatives. In the process, however, we shall find reason to revise the characterization of one of the language types, thereby accounting for a related group of GF changing effects.

5.3.4.1 *Case Parameters and Applicative Variation*

In chapter 4, we identified three major classes of languages which were distinguished in terms of their Case systems. One type consisted of languages with no special provisions, which were restricted to unmarked Case assignment. The consequences of a language having this property for structures like (93) are very simple: such sentences are ungrammatical. Therefore, these languages will necessarily and systematically lack applicative constructions. Note that this lack goes beyond the elementary possibility that a given language may idiosyncratically lack a prepositional affix with the right properties to enter into PI constructions in its lexicon; such a language could presumably acquire such an item with no other changes needed. Rather, the gap in the language type we are considering is more principled: even if an item that had the correct features to trigger applicative constructions were introduced, it would not be able to surface, because the structures derived by P Incorporation would always violate the Case Filter. Thus, not only would a new lexical item have to be introduced into such a language, but more fundamental aspects of Case assignment would have to change before an applicative construction could appear.[35] In this connection, I point out that French, Italian, Malayalam, Turkish, Finnish, and Berber (Guerssel (personal communication)) all fail to have productive applicative constructions, in the sense in which I have defined them here.[36] A comparison of this list with the list of languages which either have Rule I causative constructions or allow only causatives of intransitive verbs (4.3.3.3 and 4.3.3.4) shows that the two classes are almost identical.[37] On the present account, this is no coincidence; rather, the same limitation on Case marking implies that such languages will have no double object constructions, no applicative constructions, and that they will only be able to form causatives by moving the entire VP to Comp.

A second class of languages was those which could assign structural Case to more than one NP in a VP. This type of language can solve the Case-marking challenges presented by structures like (93) straightforwardly, since they have enough structural Case to satisfy the basic object as well as the applied object. This is a marked option, since its extensive use would cause the PF identification of thematic roles—the functional core underlying the Visibility Condition—to break down. Nevertheless, it is a legitimate possibility which is realized in Kinyarwanda and other Bantu languages. In these languages, the applied object and the basic object are

both governed by the complex verb and assigned structural Case by it at S-structure. Therefore, these two nominals behave identically with respect to processes which are dependent on these properties. Kimenyi (1980) demonstrates that this is the case in Kinyarwanda. Standard dative/benefactive applicative constructions are:

(94) a. *Umukoobwa a-ra-som-**er**-a umuhuungu igitabo.*
girl SP-PRES-read-**for**-ASP boy book
'The girl is reading a book for the boy.'
b. *Umuhuunga a-ra-andik-**ir**-a umukoobwa ibaruwa.*
boy SP-PRES-write-**for**-ASP girl letter
'The boy is writing the letter for the girl.'

Either the applied object or the basic object—or in fact both—can trigger object agreement on the verb, and thereby undergo "pro-drop" (data from Gary and Keenan (1977)):

(95) a. *Yohani y-oher-**er**-eje Maria ibaruwa.*
John SP-send-**to**-ASP Mary letter
'John sent Mary a letter.'
b. *Yohani y-a-**mw**-oher-er-eje ibaruwa.*
John SP-PAST-**OP**-send-to-ASP letter
'John sent her a letter.'
c. *Yohani y-a-**y**-oher-er-eje Maria.*
John SP-PAST-**OP**-send-to-ASP Mary
'John sent it to Mary.'
d. *Yohani y-a-**yi**-**mw**-oher-er-eje.*
John SP-PAST-**OP**-**OP**-send-to-ASP
'John sent it to her.'

Furthermore, either object may become the subject of the clause when the verb is passivized:

(96) a. *Ibaruwa i-ra-andik-ir-w-a umukoobwa n'umuhuungu.*
letter SP-PRES-write-for-PASS-ASP girl by-boy
'The letter is written for the girl by the boy.'
b. *Umukoobwa a-ra-andik-ir-w-a ibaruwa n'umuhuungu.*
girl SP-PRES-write-for-PASS-ASP letter by-boy
'The girl is having the letter written for her by the boy.'

Kimenyi goes on to show that the two objects show similar behavior with respect to morphological reflexive formation and certain *wh*-movement–type constructions. Thus, Kinyarwanda behaves the way we expect, given the PI analysis and the assumption that Kinyarwanda verbs can have the

property of being able to assign two structural Cases. Recall from section 4.3.3.1 that Kinyarwanda also makes use of this special Case property in morphologically underived double object constructions and in VI causative constructions. Thus, theme and dative, causee and lower object, applied object and basic object all consistently show the same Government- and Case-related "direct object properties" in the language. Again, as pointed out by Marantz (1984), this is no coincidence; rather it follows from the way the framework is set up with independent but interacting subtheories that the three types of structures should have interrelated behaviors. Evidence from Gary (1977), Hodges (1977), and Trithart (1977) shows that the Bantu languages Luyia, Mashi, Kimeru, and the B dialect of Chichewa also assign two accusative Cases per verb, and therefore behave similarly to Kinyarwanda in these respects across the three constructions.[38]

The third and final class of languages considered in 4.3.3 consisted of those which could assign an inherent Case to a theme/patient argument at D-structure, in addition to the usual structural Case. This seems to be the property of the majority of languages that have applicative constructions. One can tell that Chichewa (dialect A) verbs, for example, do not assign structural accusative Case to both of their objects, because if they did, both would show similar object properties, as in Kinyarwanda. However, as documented in 4.2.1, this is not what happens. In Chichewa, as in Kinyarwanda, the applied object can trigger object agreement on the verb, can "pro-drop," and can become the subject of a passive verb:

(97) a. *Amayi a-ku-**mu**-umb-ir-a mtsuko **mwana**.*
woman SP-PRES-**OP**-mold-for-ASP waterpot **child**
'The woman is molding the waterpot for the child.'

b. *Amayi a-ku-**mu**-umb-ir-a mtsuko.*
woman SP-PRES-**OP**-mold-for-ASP waterpot
'The woman is molding the waterpot for him.'

(98) a. *Kalulu a-na-gul-ir-a **mbidzi** nsapato.*
hare SP-PAST-buy-for-ASP **zebras** shoes
'The hare bought shoes for the zebras.'

b. ***Mbidzi** zi-na-gul-ir-idw-a nsapato (ndi kalulu).*
zebras SP-PAST-buy-for-PASS-ASP shoes by hare
'The zebras were bought shoes by the hare.'

However, unlike in Kinyarwanda, basic objects cannot be involved in these processes:

(99) a. **Amayi a-na-**u**-umb-ir-a mwana **mtsuko**.*
woman SP-PAST-**OP**-mold-for-ASP child **waterpot**
'The woman is molding the waterpot for the child.'

b. **Amayi a-na-**u**-umb-ir-a mwana.*
woman SP-PAST-**OP**-mold-for-ASP child
'The woman is molding it for the child.'

(100) **Nsapato zi-na-gul-ir-idw-a mbidzi (ndi kalulu).*
shoes SP-PAST-buy-for-PASS-ASP zebras by hare
'Shoes were bought for the zebras by the hare.'

Chichewa's behavior in this regard is duplicated in other Bantu languages, such as Swahili (Vitale (1981)) and Chimwiini (Kisseberth and Abasheikh (1977)), and it is common outside the Bantu family as well. For example, Chung (1976) describes the same pattern in detail for applicative constructions in Bahasa Indonesian. To take just one of her examples, the applied object but not the basic object can become the subject of a passive sentence:

(101) a. *Orang itu me-masak-kan perempuan itu ikan.*
man the TRANS-cook-for woman the fish
'The man cooked the woman fish.'

b. *Perempuan itu di-masak-kan ikan oleh orang itu.*
woman the PASS-cook-for fish by man the
'The woman was cooked fish by the man.'

c. **Ikan di-masak-kan perempuan itu oleh orang itu.*
fish PASS-cook-for woman the by man the
'A fish was cooked the woman by the man.'

The same is found in Chamorro (Austronesian, Gibson (1980)), Tzotzil (Mayan, Aissen (1983)), Tuscarora (Iroquoian, Williams (1976)), Huichol (Uto-Aztecan, Comrie (1982)), and other languages, with respect to whatever surface verb agreement, word order, passivization, and reflexivization effects are relevant to direct objects in the language in question. Overall, it is normal for applied objects to supplant basic objects with respect to all these "object properties."

The assumption from 4.3.3.2 that verbs in these languages can assign an inherent Case as well as the usual structural Case extends naturally from causatives and underived triadic verbs to these applicative constructions. The Case Filter can be satisfied if and only if the inherent Case is assigned to the basic object under government at D-structure, and the structural accusative is assigned to the applied object at S-structure. Crucially, Case assignment cannot be the other way around, with the applied object getting the inherent Case and the basic object getting structural Case, because the verb does not govern the applied object at D-structure, where inherent Case is assigned (cf. Chomsky (1986a)), but only after P Incorporation has occurred. It follows from this that the basic object will have almost none of the canonical, Case-dependent "direct object" properties: its word order is

different because inherent Case need not be manifested as adjacency; it does not become the subject of a passive since such Case is "theta-related" and assigned at D-structure and thus cannot be absorbed in passives; it does not trigger verbal agreement because it is rare for a verb to agree with obliques rather than with the argument to which it assigns structural Case. Thus, this analysis accounts for the basic properties of applicative constructions in terms of the differences between inherent Case and structural Case. Finally, it explains the fact that languages with applicatives also tend to have Rule 2 morphological causative constructions, since the same Case-assigning parameter makes possible both applications of the general process of X^0 movement. More generally, whether or not applicatives are possible in a given language, and how the two objects will behave if they are, is linked to a more basic typological property of the language that has a broad range of effects.

5.3.4.2 *Noun Reanalysis and Possessor Raising*

In spite of its successes, there is reason to think that this account should be refined; in particular, it is unlikely that the basic object in Chichewa applicatives does indeed get inherent Case in the conventional sense. Fortunately, there is an alternative way that such an NP can satisfy case theory that is potentially available in the system: it can undergo Noun-Verb Reanalysis. This subsection motivates the existence of this alternative, showing that it must be available to account for so-called "Possessor Raising" constructions.

The problem with the analysis as given above is that the notion of semantic/inherent "accusative" Case is not very clear or satisfying. In particular, it is suspicious that this Case never has the morphological properties of obvious instances of semantic Case. In Bantu and similar languages where structural Case has no overt morphological realization and inherent Case is realized by prepositions, the crucial "basic objects" appear in bare unmarked form. In languages which have morphologically realized case but which include a kind of "default" case that a variety of "extra" NPs appear in, the basic object appears in this case. For example, in Chamorro there is an oblique case form which is assigned to NPs that function as the *by*-phrase of passives and antipassives, as instrumentals, and as the objects of certain affective verbs. This case is also the case of the "basic objects" (Gibson (1980)). Finally, in languages where every NP must have a case ending and there is no obvious default case, the second objects appear in accusative Case, identical to that of the applied object. True semantic/inherent morphological cases tend not to be so variable.[59]

The alternative to an account in terms of inherent accusative Case is to

say that the "basic object" does not receive Case at all. This would be more natural, given the morphological forms of basic object NPs described in the previous paragraph: thus, there is no case form on the NP unless one is morphologically necessary in the language, in which circumstance a default case appears. Nevertheless, this NP must be Case-indexed to be visible for theta role assignment at LF. Recall that in 3.4.2 I argued that there is available in UG a way of being Case-indexed at LF that does not draw upon the lexical properties of the governor: the head of the NP can be incorporated into the governor. The coindexing induced between the governor and the NP then counts as a Case-indexing for case theory, just as the coindexing induced by NP movement counts as referential coindexing for binding theory. Section 3.4.1 presented a wide variety of empirical evidence establishing this result, showing in particular that the accusative Case which the object NP otherwise would have needed can be assigned by the verb to some other NP in need. Thus, another way to solve the Case-marking puzzle posed by applicative constructions would be to incorporate the "basic object" into the verb.

Now, it is simply not true that second object nominals appear morphologically incorporated into the verb in (say) Chichewa or Chamorro. There is still a possibility open, however: the head N of the NP could REANALYZE with the verb. Thus, I have argued that parallel to Verb Incorporation there is a relation of Verb Reanalysis, and that parallel to Preposition Incorporation, there is a relation of Preposition Reanalysis. The former appears in Italian causatives; the latter in English pseudopassives, accounting for the fact that they behave just like incorporation structures, except that the two key words are not actually morphologically combined. This leads us to think that in languages of the world there might be "Noun Reanalysis" constructions which are parallel to instances of overt Noun Incorporation. The paradigm would then be complete. These N Reanalysis cases would in essence be instances of Noun Incorporation, but without the morphological incorporation. Such a process could then be at work in applicative constructions in Chichewa and Chamorro.

In fact, there are strong reasons to think that such N Reanalysis constructions do exist. V Reanalysis and P Reanalysis were both identified primarily by the effects of the Government Transparency Corollary: thematic arguments of the lower verb or preposition mysteriously began to behave as if they were getting Case under government from the higher verb. Exactly the same thing happens to the thematic dependent of a noun in a construction known in the literature under the name POSSESSOR RAISING. Possessor Raising is another of the GF changing processes introduced in 1.1.2, but thus far I have said little about it. The hallmark of the construction is that

the possessor of an argument NP of a verb comes to behave like an argument of the verb itself. This can be illustrated with examples from Kinyarwanda (Kimenyi (1980)):

(102) a. *Umugore y-a-vun-nye ukuboko k'uumwaana.*
woman SP-PAST-break-ASP arm of-child
'The woman broke the arm of the child.'
b. *Umugore y-a-vun-nye umwaana ukuboko.*
woman SP-PAST-break-ASP child arm
'The woman broke the child's arm.'

(103) a. *Umujuura y-iib-ye amafaraanga y'umunyeeshuuri.*
thief SP-rob-ASP money of-student
'The thief stole the money of the student.'
b. *Umujuura y-iib-ye umunyeeshuuri amafaraanga.*
thief SP-rob-ASP student money
'The thief stole the student's money.'

(102a) and (103a) are standard structures which are directly analogous to their English glosses; the possessor of the direct object appears after the possessed head and is Case-marked with a preposition, which is the Kinyarwanda equivalent of English *of*-insertion in nominals. (102b) and (103b) are thematic paraphrases of their (a) counterparts, but they have rather different properties. This time the thematic possessor of the patient/theme appears without its usual prepositional Case assigner and must be adjacent to the main verb of the clause. These facts suggest that the possessor is no longer dependent on the head noun for its Case, but rather it is dependent on the verb itself; this would simultaneously explain why *of*-insertion is no longer necessary, and why the canonical word order between the possessor and the head is reversed, assuming that some slightly extended notion of adjacency is required for accusative Case assignment in Kinyarwanda (cf. Stowell (1981), Chomsky (1981)).[40] In fact, Kimenyi provides a variety of evidence that this is correct, that the verb does come to govern and Case-mark the possessor in these constructions. For example, the possessor may trigger object agreement on the verb and then undergo "pro-drop":[41]

(104) a. *Umuhuungu y-a-som-ye ibitabo* ***by-aa-cu.***
boy SP-PAST-read-ASP books **AGR-of-us**
'The boy read our books.'
b. *Umuhuungu y-a-**du**-som-e-ye ibitabo.*
boy SP-PAST-**1PO**-read-APPL-ASP books
'The boy read our books.'

I have assumed throughout that, in the Bantu languages, when an NP triggers object agreement on the verb, it is a sign that the verb assigns accusative

Case to that NP. Furthermore, there is evidence from binding theory that the government relations change in these structures. Normally a pronoun which is the possessor of the direct object can be coreferent with the subject of the clause in Kinyarwanda as in English. Kimenyi (1980, 102) states that the situation is different in a (102b)-type structure, however: here reflexivization must apply between the subject and the possessor of the object. Thus, there is a contrast between the following two sentences:[42]

(105) a. ***Abaana** ba-ra-shyir-a ibitabo i-ruhaande rw-aa-**bo.***
children SP-PRES-put-ASP books side AGR-of-**them**
'The children are putting the books at their side.'
b. ***Abaana** ba-r-**ii**-shyir-a ibitabo i-ruhaande.*
children SP-PRES-**REFL**-put-ASP books side
'The children are putting books at their side.'

In (105a), the possessor is apparently not governed by the verb, so its governing category is the direct object NP, and the pronoun is properly free in this category. In (105b), however, the verb (also) governs the possessor, forcing its governing category to be the entire matrix clause. Thus reflexivization must happen for the possessor to be coreferent with the subject of the matrix clause; this exactly mirrors properties of overt NI in Mohawk as described in 3.3.2. Kimenyi also states (1980, 101) that the thematic possessor of a (b)-type structure may become the subject if the verb is passivized. Because the possessor of the direct object shows all these object properties, Kimenyi and many others claim that the possessor "raises" to become the direct object of the clause; hence the name "Possessor Raising."

Examples of this so-called "Possessor Raising" are found in many languages. More or less identical to Kinyarwanda is Chichewa, which permits pairs like the following:

(106) a. *Fisi a-na-dy-a nsomba z-a kalulu.*
hyena SP-PAST-eat-ASP fish AGR-of hare
'The hyena ate the hare's fish.'
b. *Fisi a-na-dy-er-a kalulu nsomba.*
hyena SP-PAST-eat-ASP hare fish
'The hyena ate the hare's fish.'

In (106b), the Possessor Raising variant, the thematic possessor shows all the usual direct object properties we have been considering: it is immediately postverbal in canonical word order; it triggers object agreement; it may "pro-drop," reflexivize, or become the subject of a passive. This last property is illustrated in (107):

(107) a. *Nsomba z-a kalulu zi-na-dy-edw-a ndi fisi.*
fish of hare SP-PAST-eat-PASS-ASP by hyena
'The hare's fish was eaten by the hyena.'
b. *Kalulu a-na-dy-er-edw-a nsomba ndi fisi.*
hare SP-PAST-eat-APPL-PASS-ASP fish by hyena
'The hare had his fish eaten by the hyena.'

(107a) is the passive of (106a), with the whole object NP moving to the subject position as a unit, possessor and all.[43] (107b), however, is the passive of (106b); here the possessor alone moves into the subject position of the passive, suggesting that it and it alone is an NP both governed and assigned structural Case by the main verb. Similar examples exist in the Austronesian language Chamorro (Gibson (1980), Crain (1979)):

(108) a. *Ha fa'gasi si Flory i magagu-hu.*
3sS-wash PN Flory the clothes-my
'Flory washed my clothes.'
b. *Ha fa'gasi-yi* ***yu'*** *si Flory ni magagu-hu.*
3sS-wash-APPL **me** PN Flory OBL clothes-my
'Flory washed my clothes.'

In (108a), the direct object head 'clothes' agrees with its possessor 'my', which then "pro-drops" since it is identified by this agreement relation.[44] In (108b), however, the pronominal thematic possessor appears in a word order position and morphological form that show that it is Case-marked by the verb.[45] The head noun, on the other hand, now appears in the oblique case form, indicating that it does not receive Case from the verb in this construction. Related possessor raising constructions exist in the Western Muskogean languages of Choctaw and Chickasaw (Davies (1981), Munro (ms)), and others.[46] Indeed, Munro (ms) presents a particularly interesting pair of sentences from Choctaw. She observes that this language contains idioms which have the form of possessed NPs: for example, *naahollo i-tobi* 'white man's beans', which means 'green peas'. The possessor part of this idiom can then "raise," so that it is Case-marked by the verb and triggers agreement on it, rather than on the "possessed" noun:

(109) a. *Naahollo i-tobi-ya apa-li-tok.*
white.man AGR-bean-ACC eat-1sS-PAST
'I ate the white man's beans' OR 'I ate the green peas.'
b. *Naahollo-ya tobi* ***i-m****-apa-li-tok.*
white.man-**ACC** bean **3S-APPL**-eat-1sS-PAST
'I ate the white man's beans' OR 'I ate the green peas.'

The idiomatic interpretation present in the non–possessor raised (109a) is still available in the possessor raised structure (109b). This shows strongly that an NP which is necessarily a dependent of the head noun of the object with respect to semantic interpretation can be morphologically dependent on the verb at surface structure.

What are the implications of these so-called "Possessor Raising" constructions? One thing that we cannot say given the structure of the framework is that the possessor actually raises by moving out of the NP in which it is base-generated to become a full-fledged [NP, VP] direct object. Such a derivation would violate the Projection Principle, in that it would create a new, unselected complement of the verb, as correctly pointed out by Carden, Gordon, and Munro (1982) and Munro (ms) (cf. the discussion of "Subject-to-Object Raising" in Chomsky (1981)). On the other hand, if one maintains a strong Uniformity of Theta Assignment Hypothesis, it is just as bad to avoid the Projection Principle problem by claiming that the thematic possessor was an [NP, VP] direct object from the beginning; since sentences like (109a) and (109b) are "thematic paraphrases" of one another, they should have parallel D-structures. Fortunately, the weight of the evidence is not that the possessor actually becomes a structural object NP immediately dominated by VP, but merely that it becomes the NP that is governed and assigned structural Case by the verb.[47] This can be accommodated to the theory without violating the Projection Principle, if the verb can be taken to govern the NP in its D-structure NP-of-NP position. However, according to the definition of government (2.2.3), the possessed head noun will be a "closer governor" of the possessor, thereby creating a barrier to government between it and the verb. Thus, to complete the analysis of Possessor Raising structures, we must say why the head noun does not block government in these particular structures. We know that the head noun ceases blocking government when it is incorporated into the verb in overt NI, by the GTC (3.3.2). Thus, overt NI has the automatic side effect of causing the complex verb to govern and assign Case to a stranded possessor, giving rise to "Possessor Raising" effects in Southern Tiwa and the Iroquoian languages. An example was:

(110) a. * *Kuchi-n****kam****-thā-ban.*
pig-SUF **1sS/2sO/B**-find-PAST
'I found your pigs.' (Southern Tiwa; AGF)
b. ***Kam****-kuchi-thā-ban.*
1sS/2sO/B-pig-find-PAST
'I found your pigs.'

When the patient of the verb is unincorporated, the verb cannot show object agreement—a morphological reflex of Case indexing—with the possessor of that patient ((110a)); however, if that N head is incorporated into the verb, the verb may and must agree with the possessor ((110b)). Thus, the dependent of the head noun becomes a dependent of the main verb in exactly the same way in Noun Incorporation and in Possessor Raising. Now, when the syntax of Incorporation is present without the morphology of Incorporation, it is an instance of Reanalysis in the sense that I have developed. Therefore, Possessor Raising constructions must be instances of N Reanalysis ("abstract NI") between the head noun and the verb. When this occurs, the matrix verb governs the possessor of the thematic object by the Government Transparency Corollary, thereby assigning it Case and causing it to have its observed range of "object" properties.[48] Thus, I conclude that N-V Reanalysis does exist parallel to N Incorporation as an option in universal grammar.

This N Reanalysis account of Possessor Raising makes an immediate prediction about the process's distribution: since Reanalysis is in all ways syntactically Incorporation, the distribution of Possessor Raising should mirror the distribution of Noun Incorporation, both being determined by the ECP. Specifically, nouns can only incorporate into a verb if they head the direct object of a transitive verb or (in some languages) the sole argument of an unaccusative-type intransitive verb, and N Reanalysis must obey the same restriction. The result is that "Possessor Raising" should only be allowed if the raised NP is the possessor of a transitive verb's direct object, or of an unaccusative verb's surface subject. In fact, this prediction is correct across languages. Thus, Gibson (1980, 38) observes that possessor raising only takes place from direct objects in Chamorro. A grammatical example of this was (108b); an ungrammatical example where one tries to raise the possessor of an indirect object is (111b):

(111) a. *In fähan ädyu na chupa pära che'lu-**hu**.*
1P.EXS-buy that LK cigarette for sibling-**my**
'We bought those cigarettes for my brother.'
(constructed example)

b. **In fähan ädyu na chupa pära **guahu** ni che'lu-hu.*
1P.EXS-buy that LK cigarette for **me** OBL sibling-my
'We bought those cigarettes for my brother.'

The same is true in Chichewa; there too Possessor Raising can take place with the direct object, as in (106). Trying to "raise" the possessor of (say) a subject or the object of a preposition is ungrammatical, however:

OBJECT OF P:

(112) a. *Fisi a-na-tumiz-a kalata kwa **nsomba z-a kalulu**.*
hyena SP-PAST-send-ASP letter to **fish of hare**
'The hyena sent a letter to the hare's fish.'

b. **Fisi a-na-tumiz-(ir)-a kalulu kalata kwa nsomba.*
hyena SP-PAST-send-APPL-ASP hare letter to fish
'The hyena sent a letter to the hare's fish.'

c. **Fisi a-na-tumiz-(ir)-a kalata nsomba kwa kalulu.*
hyena SP-PAST-send-APPL-ASP letter fish to hare
'The hyena sent a letter to the hare's fish.'

SUBJECT:

(113) a. *Mbuzi z-a kalulu zi-na-dy-a udzu.*
goats of hare SP-PAST-eat-ASP grass
'The hare's goats ate the grass.'

b. **Mbuzi zi-na-dy-(er)-a˜ kalulu udzu.*
goats SP-PAST-eat-APPL-ASP hare grass
'The hare's goats ate the grass.'
(ok as 'The goats ate grass for the hare.')

c. **Kalulu a-na-dy-(er)-a udzu mbuzi.*
hare SP-PAST-eat-APPL-ASP grass goats
'The hare's goats ate the grass.'

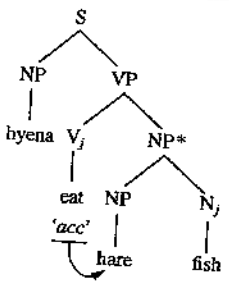
Two descriptive generalizations about Possessor Raising have not been distinguished in the examples we have seen so far: Possessor Raising could be a process that makes the possessor of any NP into the direct object of the clause; or Possessor Raising could be a process which makes the possessor of an NP take over whatever GF that NP held, while the rest of that NP moves out of the way (cf. RG's Relational Succession Law). The (b) and (c) sentences show that the process is ungrammatical under either conception unless the NP in question is the direct object. The possibilities are slightly broader but still within the predicted range in the Muskogean languages Choctaw and Chickasaw: Carden, Gordon, and Munro (1982) and Munro (ms) claim that Possessor Raising is possible both from direct objects of transitive verbs and from the "subjects" of (certain) intransitive verbs in these languages. Finally, Kimenyi (1980) reports a similar distribution for Kinyarwanda, although the matter is made somewhat obscure by independent properties of the language.[49] Thus, we see that not just any possessor can "raise" across languages; rather the process is limited to possessors of NPs whose heads are in incorporable structural positions. This is ex-

plained by saying that V-N Reanalysis (= abstract NI) is what makes it possible for the verb to govern and Case-mark an embedded possessor, giving the raising effect.

So far, we have seen that N Reanalysis has the properties expected of an incorporation process with respect to government theory (the GTC) and the theory of movement (the ECP); the same is also true of case theory. Thus, in 3.4 we discovered that if the head noun is incorporated into the verb, the NP it came from no longer needs to receive structural Case from the verb, because the chain coindexing of the incorporation itself suffices to make the NP visible for theta role assignment at LF. Thus, when NI strands a possessor, as in (110) from Southern Tiwa, the verb may assign accusative Case to the possessor only because the larger NP no longer needs it, thanks to Incorporation. As expected, N Reanalysis also has this property of satisfying case theory for the NP involved. In fact, this result is already implicit in the Possessor Raising constructions that we have seen. They have the structure of (114):

(114) a. *Fisi a-na-dy-er-a kalulu nsomba.*
hyena SP-PAST-eat-ASP hare fish
'The hyena ate the hare's fish.'

(114) b. (Chichewa)



where the Reanalysis between the main V and the head of its complement is indicated by the coindexing, and the Case assignment between the verb and the possessor by the line that links them. Just as with overt NI in Southern Tiwa, the fact that this S-structure is grammatical implies that the larger NP (NP*) does not need to be linked to the verb's Case feature, given that Chichewa verbs can only assign one structural Case. Therefore, the coindexing of Reanalysis serves as Case indexing to make the NP visible in the same way the chain coindexing of Incorporation does. The fact that the NP headed by 'fish' does not receive (structural) Case from the verb in (114a) is confirmed by the fact that it need not (indeed, may not) become the subject if the verb is passivized:

(115) a. **Nsomba zi-na-dy-er-edw-a kalulu ndi fisi.*
fish SP-PAST-eat-APPL-PASS-ASP hare by hyena
'The fish of the hare was eaten by the hyena.'

Neither can 'fish' trigger object agreement on the verb in (114a). Further evidence to this effect comes from Chamorro, in which the "default" case form of nominals is different from the simple accusative or bare form of the nominal. In a Possessor Raising structure, the NP headed by the reanalyzed patient N appears in this default oblique case, rather than in the case of direct objects:

(116) *Ha fa'gasi-yi yu' si Flory ni magagu-hu.*
3sS-wash-APPL me PN Flory **OBL** clothes-my
'Flory washed my clothes.'

The possessor, of course, does appear in the objective case. Thus, the empirical properties of N Reanalysis are established and found to accord with the theory.

5.3.4.3 *Noun Reanalysis in Applicatives*

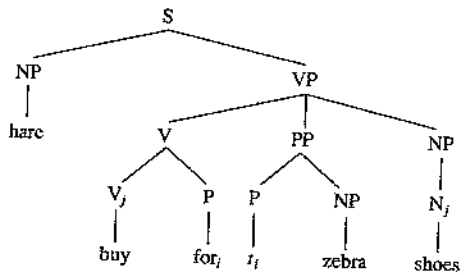
With all this in mind, let us return to applicative constructions, and in particular the status of the "basic object" in a structure like (93) from Chichewa, repeated here:

(117) *Kalulu a-na-gul-ir-a mbidzi nsapato.*
hare SP-PAST-buy-for-ASP zebras shoes
'The hare bought shoes for the zebras.'

We have seen much evidence that the applied object 'zebras' receives the verb's accusative Case in such structures, and that the basic object 'shoes' does not. I reasoned in the last subsection that the most desirable thing to say about the basic object from a morphosyntactic viewpoint is that somehow it does not need to receive Case at all. It was speculated that this would be possible if the NP abstractly incorporated into the V, a process which I have now shown to be independently motivated. Thus, I drop the assumption that languages like Chichewa can assign inherent Case to patient/themes, and claim instead that the basic object in applicatives does in fact undergo N-V Reanalysis, which is possible because it is "directly theta connected" to the verb. It is then "PF identified" by this relationship, and its accusative Case can be freely assigned elsewhere; in (117) it goes to the applied object, rather than to a possessor. Reanalyzed nouns are still morphologically independent words, and thus need to appear in some form or another; hence they appear either as unmarked stems (in Chichewa and Bahasa Indonesian) or in a default case form (in Chamorro). They do not,

however, appear in a distinctive semantic case form. The resulting S-structure will be:

(118)



Given this approach, we expect that, in a language that has overt NI but no "covert NI" of this type, the patient/basic object should be obligatorily incorporated in applicative-type constructions. Southern Tiwa appears to be just such a language. Recall from above that Southern Tiwa has no Possessor Raising apart from overt NI, making it plausible that it has no N-V Reanalysis. NI is indeed obligatory in applicative-type constructions where the goal NP becomes Case-marked by the verb, according to AGF:

(119) a. *Ti-'u'un-wia-ban i-'ay.*
1sS:A-baby-give-PAST 2s-to
'I gave the baby to you.'

b. *Ka-'u'un-wia-ban.*
1sS:2sO/A-baby-give-PAST
'I gave you the baby.'

c. **'U'u-de ka-wia-ban.*
baby-SUF 1sS:2sO/A-give-PAST
'I gave you the baby.'

In (119a), the goal appears in a postpositional phrase. In the thematically equivalent applicative-like construction (119b),[50] the postposition incorporates, and the goal gets accusative Case from the verb, as signified by the fact that the verb agrees with the goal. This means that there is no Case remaining for the theme NP 'baby', so it can only escape the Case Filter by incorporating into the verb, as in (119b). If this "basic object" does not incorporate into the verb, the structure is ungrammatical ((119c)). Thus, in Southern Tiwa one actually sees the incorporation which happens abstractly in most languages that have applicative constructions.[51]

As first mentioned in footnote 14 of chapter 3, overt Noun Incorporation obeys some additional constraint to the effect that Ns cannot move out of dative and benefactive NPs even when those NPs look like direct objects

on the surface. For example, the following is ungrammatical in Southern Tiwa:

(120) **Ta-**hliawra**-wia-ban ('u'u-de).*
1sS/A/A-**woman**-give-PAST baby-SUF
'I gave the woman him (the baby).'

In the context of this chapter, we begin to see why this heretofore unexplained constraint might hold: the N comes out of an "applied object," which is governed by the trace of an incorporated P. Thus, (120) is really an instance of nonlocal incorporation, which is generally impossible. The full explanation of this constraint will be postponed until chapter 7. If, however, it remains true that Reanalysis has the same properties as Incorporation, applied objects will not be able to reanalyze with the verb either. Hence, the new way of satisfying case theory is not open to applied objects in general, but only to the basic object. Therefore, in the revised approach it still follows without stipulation from more general principles that the applied object must be the one that receives structural Case and the basic object must be the one that reanalyzes and not the other way around. Thus, the explanation of the properties of objects in applicative constructions is preserved, and the gap left in the derivation of Marantz's Generalization in 5.3.1 is properly filled.

Finally, since I have replaced the property of assigning inherent Case to themes with the property of allowing abstract NI, we must briefly reconsider the causative construction in this class of languages. As emphasized at the beginning of this subsection, Verb Incorporation and Preposition Incorporation put similar strains on the grammar, since both create structures in which a single morphological verb is responsible for Case-marking two NPs. Predictably, languages overwhelmingly tend to use the same Case-marking resources to face the strains in both circumstances: Kinyarwanda assigns two accusative Cases in both; Berber avoids both. I now claim that languages like Chamorro and Chimwiini (abstractly) incorporate the extra NP in PI constructions, and the same should therefore be true in the VI examples. Thus, the results of 4.3.3.3 for causatives in these languages which were stated in terms of assigning inherent Case are now to be refined and recast in terms of N Reanalysis. First, the verb reanalyzes (i.e. is coindexed) with the head of its NP object, thus freeing that object from the need to get Case. The verb then may move to Infl, C, and ultimately to the matrix verb without taking the object NP along. This movement, which would violate Chomsky's (1986a) Uniformity Condition if inherent Case assignment were involved, is legitimate because the trace of the verb will continue to properly govern the reanalyzed NP, satisfying the ECP (see 7.2.2.2). Finally, the complex matrix verb assigns its single Case to the lower subject (causee). In

this way, the properties of this type of causative construction are explained within the revised assumptions. Moreover, in Southern Tiwa, where all incorporations are visible, overt Noun Incorporation of the lower object in a causative construction will be obligatory, just as it is with the basic object in applicative constructions and with the possessed noun in Possessor Raising constructions. This obligatoriness was illustrated in 4.3.3.4. Thus, Southern Tiwa confirms on the surface that it is correct to group all these constructions together, based on their common use of Noun Incorporation—overt or covert—as done in this section.

In conclusion, I have argued that the two objects in the double object constructions formed by applicatives have very different statuses: one receives Case from the verb in the usual way; the other is incorporated into the verb. In this way, the theoretical need for each NP to be PF–identified (i.e. to "get Case" in the broad sense) is satisfied without forcing the verb to have two lexical Case-assigning features. At the same time, the asymmetries in the syntactic behavior of the two NPs are accounted for. Many have previously addressed the question of how Case assignment works in "double object" constructions in more familiar languages, with varying degrees of empirical and conceptual success (e.g. Hornstein and Weinberg (1981), Kayne (1983), cf. Oerhle (1975)). Of such accounts, that of Stowell (1981) is by far the most similar to that of this work. Stowell shares the basic insight that one of the NPs in a double object construction must invisibly incorporate into the verb in order to avoid being ruled out by the Case Filter. The difference between my account and Stowell's is simply that Stowell incorporates the wrong NP: the dative, rather than the theme NP. That it is the theme NP that incorporates rather than the dative is clearly seen in languages with morphologically overt incorporation such as Southern Tiwa and Mohawk, and this fact will be explained given the disciplined account of incorporation in general developed in this work. Moreover, in the system I have developed, the possibility of accounting for double objects in terms of Incorporation is not a mysterious patchwork device; instead it falls out naturally from the combination of several notions, each of which has wide empirical support. Further empirical advantages of this approach to "double object" constructions will be seen in chapter 7, where the interactions among GF changing processes are considered.

5.3.5 Morphology and Dative Shift

Compare the following two sets of examples from Chichewa:[52]

(121) a. *Ngombe zi-na-tumiz-a mitolo ya udzu kwa mbuzi.*
cows SP-PAST-send-ASP bundles of grass to goats
'The cows sent bundles of grass to the goats.'

b. *Ngombe zi-na-tumiz-ir-a mbuzi mitolo ya udzu.*
cows SP-PAST-send-**APPL**-ASP goats bundles of grass
'The cows sent the goats bundles of grass.'

(122) a. *Joni a-na-pats-a nthochi kwa amai ake.*
John SP-PAST-give-ASP bananas to mother his
'John gave the bananas to his mother.'

b. *Joni a-na-pats-a amai ake nthochi.*
John SP-PAST-give-ASP mother his bananas
'John gave his mother bananas.' (Trithart (1977))

(121) is a standard example of an applicative pair: (121a) has a preposition (*kwa*) which its thematic paraphrase (121b) lacks, while (121b) has the applied affix on the verb, which (121a) lacks. I have argued that these two items are to be identified, such that the source of the applied affix in (121b) is a preposition which is base-generated in the same structural configuration as *kwa* in (121a) and then undergoes X^0 movement to incorporate into the verb. From this assumption, a variety of facts about the distribution of applicative constructions and their syntactic properties can be explained, as we have seen. Now, the relationship between (122a) and (122b) looks identical to the relationship between (121a) and (121b) except for one important fact: there is no extra morpheme on the verb (or anywhere else) in (122b) which is the reflex of an incorporated P. By analogy with the well-known English construction, I somewhat unsystematically distinguish examples like (122) from those like (121) by calling them DATIVE SHIFT alternations. In this section, I argue that dative shift alternations, like applicatives, are derived by Preposition Incorporation. The morphological difference between the two is explicable given the way that "morphology theory" is integrated into the framework.

Given the analysis so far, there are strong reasons to suspect that dative shifts are associated with the same syntactic structures as applicatives. First of all, NPs receive the same theta roles in the same surface configurations in both (121b) and (122b): a goal argument is immediately postverbal, and the theme argument also appears morphologically unmarked in the VP. Thus, it seems that these two sentences should be associated with the same syntax in order to capture these generalizations in a transparent way. This conviction grows with the observation that the two behave identically with respect to their interactions with other syntactic processes. Thus, we know from 5.3.1 and 5.3.4 that the goal argument in a sentence like (121b) can trigger object agreement, can "pro-drop," and can become the subject when the verb is passivized. In contrast, the theme object has none of these properties. Exactly the same characteristics hold true of the goal and theme NPs in a structure like (122b):

(123) a. *Ngombe zi-na-zi-pats-a nsima* ***mbuzi.***
cows SP-PAST-**OP**-give-ASP cornmush **goats.**
'The cows gave the goats cornmush.'

b. *Ngombe zi-na-zi-pats-a nsima.*
cows SP-PAST-**OP**-give-ASP cornmush
'The cows gave them cornmush.'

c. *Mbuzi zi-na-pats-idw-a nsima ndi ngombe.*
goats SP-PAST-give-PASS-ASP cornmush by cows
'The goats were given cornmush by the cows.'

(124) a. **Ngombe zi-na-i-pats-a mbuzi* ***nsima.***
cows SP-PAST-**OP**-give-ASP goats **cornmush**
'The cows gave the goats cornmush.'

b. **Ngombe zi-na-i-pats-a mbuzi.*
cows SP-PAST-**OP**-give-ASP goats
'The cows gave the goats it.'

c. **Nsima i-na-pats-idw-a mbuzi ndi ngombe.*
cornmush SP-PAST-give-PASS-ASP goats by cows
'Cornmush was given the goats by the cows.'

Thus, it would seem to be a theoretical failure not to capture these generalizations by assigning the same syntactic descriptions in both constructions. The case for this is incomplete,[53] but more and striking evidence will be found in its favor in later sections, where it will be seen that the two constructions behave alike with respect to *wh*-movement (5.4) and with respect to interactions with other incorporation processes (chapter 7).

This situation is not an isolated idiosyncracy of Chichewa, but rather the normal case in languages of the world. As another example, Chamorro (Austronesian, Gibson (1980)) has a productive applicative construction, in which the prepositional affix has the phonological forms *-i/-yi/-gui*, depending on the (morpho)phonological context:

(125) a. *Hu tugi' i kätta pära i che'lu-hu.*
1sS-write the letter to the sibling-my
'I wrote the letter to my brother.'

b. *Hu tugi'-i i che'lu-hu ni kätta.*
1sS-write-**APPL** the sibling-my OBL letter
'I wrote my brother the letter.'

However, there is a small class of verbs which appear in configurations identical to (125b) but which do not have the applied morpheme on the verb. In fact, they also fail to appear in a structure like (125a). Examples of this class are the verbs *na'i* 'give', *fa'nu'i* 'show', and *bendi* 'sell':

(126) a. **In nä'i i bäbui pära si tata-n-mami.*
1P.EX-give the pig to PN father-LK-our
'We gave the pig to our father.'

b. *In nä'i si tata-n-mami nu i bäbui.*
1P.EX-give PN father-LK-our OBL the pig
'We gave our father the pig.'

Again, sentences like (126b) have the same syntactic behavior as sentences like (125b) in nontrivial ways, as Gibson demonstrates, suggesting that there is a generalization to be captured.

The obvious way to capture this generalization and still maintain the explanatory value of the P Incorporation account of applicative constructions is to claim that sentences like (122b) and (126b) are derived by PI as well. Then, the only difference between the two is that with a limited set of verbs, the incorporated P is simply invisible. In fact, this is natural enough, if we keep in mind the morphological side of Incorporation, discussed in 2.2.5.

When X^0 movement applies, it creates a complex structure consisting of more than one X^0 level item. It is then the task of the morphological subcomponent of the grammar to determine what the phonological shape of the combination will be. Now, in the cases we have been focusing on, this task is fairly transparent; it has involved only affixation of productive morphemes, plus perhaps a few simple phonological rules. Nothing in the framework requires that it always be this easy, however. For example, there can be—and sometimes is—morphological selection for a particular form of a syntactically incorporated affix by the specific root, just as there can be morphological selection between roots and affixes in nonsyntactic affixation. Indeed, the relation can be morphophonologically irregular in some way, or even suppletive. Now, there is one other possibility that fits in with this range of phenomena: the morphological shape of the combination of two items can be identical to the morphological shape of one of those items on its own. With some types of morphology, all this is uncontroversial. For example, the formation of past participles in English shows this entire range of morphological realization. The most common way of forming past participles is to add the productive affix *-d* to the verb, which undergoes general phonological rules of voicing assimilation and epenthesis, thereby deriving forms such as *like/liked, advise/advised, omit/omitted.* Nevertheless, some verbs select for a special, unproductive morpheme *-en* (e.g. *give/given*); others are suppletive (e.g. *sing/sung, buy/bought*). Finally, a small class of verbs have a past participle which is morphologically identical to the stem itself: *cut/cut, split/split, hit/hit.* Yet in spite of this

morphophonological variation, all these past participles are equivalent in terms of syntactic properties and distribution.

Now, since morphology theory is a set of wellformedness principles that applies to representations but is not rooted in any special level of syntactic description, the morphological forms that are formed in the syntax by incorporation show exactly the same range of variation. Thus, the Chichewa applied affix *-ir* is morphologically similar to the English past participle affix *-d;* it is productive, relatively invariant in shape, and is subject to simple phonological rules—in this case, Vowel Harmony. The Chamorro applied affix *-i* is similar, but it can appear with an extra consonant, which is usually phonologically conditioned, but which may in some instances be morphologically conditioned as well. The Tuscarora applied marker, on the other hand, has forms that cannot be explained by phonological rules; rather the form is to some degree selected by the verb and the aspect (Williams (1976, 87)). Williams gives the following summary of forms:

(127)

ASPECT	Serial/ Perfective	Punctual/ Imperative
V-TYPE		
Class I	*-ʔθe*	*-ʔθ*
Class II	*-(a)ni*	*-ahθ*
Class III	*-ani*	*-v*

This sort of form selection/morphological conditioning is similar to the English selection for an *-en* past participle morpheme. Nevertheless, the syntax of applicatives in Tuscarora is essentially identical to that of applicatives in Chichewa. Suppletive forms also exist in certain languages. Given this context, it is not surprising that the combination of verb and applied affix is sometimes identical in form to the verb itself, just as *cut* plus the past participle is still *cut*. I claim that this is exactly what happens in "dative shift" constructions like (122b) and (126b); for the relevant small and semi-idiosyncratic set of verbs, the applied affix is syntactically present but is simply not seen morphologically.

Inasmuch as dative shift depends on a lexically determined morphological quirk, it is not surprising that its appearance is lexically governed in idiosyncratic ways in different languages. For example, in Trithart's Chichewa (Chichewa-B) the verb *-pats-* 'give' appears in both an applicative (122b) and a nonapplicative (122a) frame; hence it is the surface form for both a basic verb and a "verb + applied affix." On the other hand, in Chamorro the verb *na'i* 'give' appears only in the applicative frame (126b); hence it is only the surface form of a "verb + applied affix." There

is thus a gap in the Chamorro morphological paradigm, which assigns no morphological form to the straight verb 'give.'[54] Returning to the participle analogy, the Chichewa-B verb is directly parallel to the case of English past participles of verbs like *cut;* the Chamorro verb is parallel to the case of verbs with defective paradigms, which do not appear in all tenses in a language. Mchombo's Chichewa (Chichewa-A) is similar to Chamorro in this regard, since (122a) is ungrammatical in this dialect. Not surprisingly, this type of null morphology is tolerated only with a limited number of verbs in any given language, and they are always "canonical" applicative type verbs, in that they naturally focus on a goal or benefactive argument. Thus, even though the class of verbs that allow a "null applicative" in a given language is always idiosyncratic to a degree, there are partial regularities: the verb meaning 'to give' has a null applicative more often than not; 'to show' and 'to send' are very common members of this class; 'to hit' and 'to like' are probably never in this class. Undoubtably, this helps clue in children learning one of these languages to the existence of null syntactic affixes. As always, the theoretical justification for positing such null affixes is the need to capture significant syntactic generalizations in an appropriate way.[55]

At this point, a brief digression is in order concerning the dialectal difference between Chichewa-A and Chichewa-B. As discussed in 4.3.1, these dialects differ both in their causative constructions and in the fact that the latter but not the former has morphologically unmarked "double object" constructions. This correlation was shown to be systematic cross-linguistically and was explained by saying that in languages like Chichewa-B verbs can assign structural or inherent Case to a second NP, whereas in languages like Chichewa-A they cannot. Then, in 5.3.4, the property of assigning inherent Case was replaced by that of allowing the Reanalysis of an N. Now, this explanation covers directly every language that I know enough about—except Chichewa-A. As we have seen, Chichewa-A does in fact have N Reanalysis in its applicative constructions and in its Possessor Raising constructions. Why, then, is it not available in Chichewa-A's causative constructions as well, thereby allowing V-to-C type causatives similar to those of Chichewa-B? Taking our cue from the fact that the morphologically unmarked "dative shift" alternation in (122) is also lost in Chichewa-A, we can say that Chichewa-A has a hybrid system (perhaps in transition) that allows N-V Reanalysis, but ONLY IF THAT REANALYSIS IS REPRESENTED AT THE PF LEVEL BY THE APPLIED AFFIX (see note 14). The sole exception to this in the language is *-pats-* 'give', and even this item fails to alternate and is frozen in the (122b) frame. Then, it is impossible

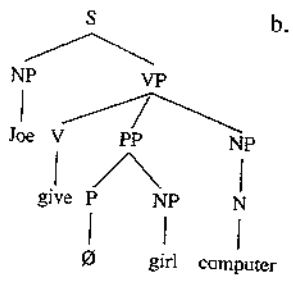
for a language with this stipulation as part of its Case-marking system to have a causative identical to that of Chichewa-B; the necessary N Reanalysis would require in addition a special insertion of *-ir*. Chichewa-A does have an idiosyncratic P insertion rule in causatives, but it happens to insert the independent preposition *kwa* rather than the prepositional affix *-ir*, as seen in 4.3.3.3. In fact, nothing about universal grammar would block inserting the applied affix instead; indeed the applied affix is obligatory in Tzotzil (Mayan) in similar circumstances (Aissen (1983)). Thus, this is simply a rather trivial instance of low-level crosslinguistic variation.

Finally, it would be consistent with our set of assumptions for a language to have 'null' as the ONLY phonological form of its prepositional affix. This would be similar to languages which have only phonologically null passive forms (cf. Lawler (1977)) or phonologically null nominalizing "affixes." Presumably, the restriction of the process to a semantically defined subclass of "canonical" applicative verbs will hold in this case as well, thereby making the process less general in such a language than in one with an overt applied morpheme. This scenario fits the famous dative shift constructions in English almost perfectly. Examples include:

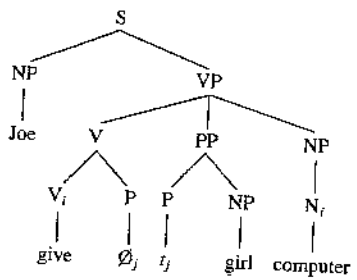
(128) a. Joe gave a computer to his girlfriend for her birthday.
b. Joe gave his girlfriend a computer for her birthday.
(129) a. I sent my resumé to this accounting firm last week.
b. I sent this accounting firm my resumé last week.
(130) a. Picasso carved that figurine on the mantle for Mary Harvey.
b. Picasso carved Mary Harvey that figurine on the mantle.

Thus, I will claim that P Incorporation and N Reanalysis occur in English as well, thereby assigning to a sentence like (128b) the following structures:

(131) a.



b.



This approach requires only a minor extension of the theory and gives an analysis with some explanatory depth to this notoriously intractable construction. First, the D-structure (131a) is parallel to the D-structure of the non–dative-shifted counterpart (128a), thereby accounting for the fact that

the two are thematic paraphrases in consonance with the Uniformity of Theta Assignment Hypothesis. Moreover, we can import our theory of Case assignment in applicatives to solve the case theory puzzles posed by these structures. For example, we immediately account for the fact that the goal/benefactive argument necessarily appears adjacent to the verb in dative-shifted structures, since this argument can only be PF-ided by receiving accusative Case from the verb, parallel to the examples discussed at length in 5.3.1 and 5.3.4:

(132) a. *I sent my resumé this accounting firm last week.
b. *Picasso carved the figurine on the mantle Mary Harvey.

Note in particular that the applied object cannot be reanalyzed with the verb since Reanalysis is blocked by the intervening trace of the empty preposition.[56] This also explains the fact that (in general)[57] the goal/benefactive argument may become the subject of the sentence when the verb is passivized, whereas the theme NP may not:

(133) a. This accounting firm was sent 100 resumés last week.
b. ?*100 resumés were sent this accounting firm last week.
(134) a. Mary Harvey was carved a figurine by Picasso.
b. *This figurine was carved Mary Harvey by Picasso.

In all these ways, the syntax of dative shift is identical to the syntax of applicatives in other languages—a crosslinguistic generalization which is captured by giving them similar structures. In section 5.4 it is shown that this hypothesis also accounts for the properties of *wh*-extraction from dative-shifted structures. Thus, the syntax of dative shift is explained.

Finally, it is well known (cf. Oerhle (1975), Stowell (1981), Czepluch (1982)) that there are lexical idiosyncrasies in dative shift, such that some verbs seem to dative-shift optionally (as seen above), some obligatorily, and some not at all, even though they are semantically plausible candidates for the shift. Examples of these last two cases are:

(135) a. Jerry donated his butterfly collection to the church.
b. *Jerry donated the church his butterfly collection.
(136) a. *The orange socks cost two dollars to/for Linda.
b. The orange socks cost Linda two dollars.

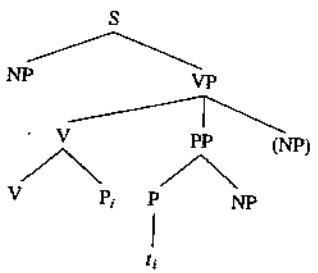
This lexical idiosyncrasy can be accounted for in the same terms as the Chamorro/Chichewa difference in the optionality of "dative shift" discussed above: by appealing to morphological idiosyncrasy. Thus, instead of abandoning a syntactic account of dative shift in the face of (135) and (136) and returning to multiple subcategorization frames, one can simply say

that *give* is the morphological form for both 'give' and 'give-to'; *donate* is the morphological form for 'donate', but there is no valid morphological form for 'donate+to'; and *cost* is the morphological form for 'cost+to' but there is no morphological form for the meaning of 'cost' that takes a benefactive argument. The combinations of lexical items that are morphologically ill-formed then act as filters, eliminating improper PIs or sentences in which PI improperly fails to occur. Thus, the explanatory syntactic account of dative shift is preserved, and the lexical idiosyncrasy is reduced to a relatively familiar (albeit abstract) type of morphological idiosyncrasy.[58] In this way dative shift constructions receive a new and more adequate explanation, and we find evidence that Preposition Incorporation and Noun Incorporation (in the form of Reanalysis) appear even in English.

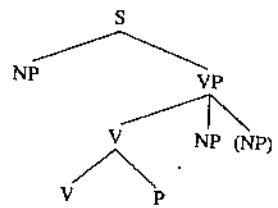
5.4 The Complex Structure of Preposition Incorporation

Applicative sentences are commonly thought to be formed by a grammatical function changing process of some kind, in which an oblique phrase comes to be the direct object of the clause it appears in. I claim, however, that there are no GF changing processes per se; rather, applicatives are the result of moving the preposition out of a PP and incorporating it into the verb that governs it. As discussed in the last section, this movement automatically changes government and Case assignment relationships, such that the NP stranded by the P behaves like a standard direct object in many ways, in particular those which are dependent on government and on case theory. In this way, the "GF changing effect" illustrated in the literature is accounted for. This is short of saying that the thematically oblique NP becomes a full direct object in every sense, however. In fact, the Projection Principle implies that it will NOT become a structural object in the X′ theory sense of being an [NP, VP], since the thematically relevant categorial structure must be preserved. Hence, the moved P must leave a trace, which continues to head a PP that contains the thematically oblique NP. In other words, the structure is (137a) and not (137b):

(137) a.



b.



The retained preposition trace and the PP node are "invisible" for many purposes, given the Government Transparency Corollary. Nevertheless, we still expect that their presence will be detectable with respect to some subtheory of the grammar, thereby causing differences between "applied objects" and standard direct objects to appear in that realm. The issue is parallel to the one discussed in 4.4, where I showed that the complex clausal structure for Verb Incorporation that is implied by the Projection Principle has predictable effects with respect to binding theory and bounding theory. In this section, I seek to establish the corresponding point for P Incorporation sentences. Unfortunately, this time there will be less evidence and it will be less well understood, for the simple reason that PPs are mentioned by fewer principles than Ss are. Nevertheless, the evidence will again empirically distinguish the syntactic Incorporation account of applicatives from alternatives which derive applicatives in the lexicon or in the syntax but in a way which does not obey a strong Projection Principle.

As with causees in VI constructions, crucial data which distinguish applied objects from standard direct objects come from *wh*-movement constructions in Chichewa. It is perfectly acceptable to extract the object of an ordinary transitive verb in this language:

(138) a. *Ndi-ku-ganiz-a kuti Mavuto a-na-on-a mfumu.*
1sS-PRES-think-ASP that Mavuto SP-PAST-see-ASP chief
'I think that Mavuto saw the chief.'

b. *Iyi ndi mfumu imene ndi-ku-ganiz-a kuti a-na-on-a.*
This is chief which 1sS-PRES-think-ASP that 3sS-PAST-see-ASP
'This is the chief that I think that she saw.'

However, the benefactive applied object cannot be extracted in this way, in spite of its surface similarities to a standard direct object:

(139) a. *A-ku-ganiz-a kuti mu-na-phik-ir-a*
3sS-PRES-think-ASP that 2sS-PAST-cook-APPL-ASP
mfumu nsima.
chief cornmush
'He thinks that you cooked cornmush for the chief.'

b. **Iyi ndi mfumu imene a-ku-ganiz-a kuti*
This is chief which 3sS-PRES-think-ASP that
mu-na-phik-ir-a nsima.
2sS-PAST-cook-APPL-ASP cornmush
'This is the chief which he thinks that you cooked the cornmush for.'

(139a) is similar to (138a), but this time the *wh*-movement in (139b) is ungrammatical. I propose to show that this contrast can only be explained

if there is indeed an extra PP node in (139) which is not present in (138) and which blocks the extraction. This then will establish the Incorporation theory, which implies that this difference in structure should exist.

5.4.1 The Basic Facts

The first step is to establish the data more firmly, focusing, as in the last section, on benefactive and dative applicative structures. Further examples showing that it is impossible to move the benefactive argument to form (say) a relative clause in Chichewa are:

(140) a. *Ndi-na-nen-a kuti Mavuto a-na-thyol-er-a*
1sS-PAST-say-ASP that Mavuto SP-PAST-break-APPL-ASP
mfumu mpando.
chief chair.
'I said that Mavuto broke the chair for the chief.'

b. **Iyi ndiyo mfumu i-mene ndi-na-nen-a kuti Mavuto*
this is chief which 1sS-PAST-say-ASP that Mavuto
a-na-thyol-er-a mpando.
SP-PAST-break-APPL-ASP chair
'This is the chief which I said that Mavuto broke the chair for.'

(141) a. *Mavuto a-na-umb-ir-a mfumu mtsuko.*
Mavuto SP-PAST-mold-APPL-ASP chief waterpot
'Mavuto molded the waterpot for the chief.'

b. **Iyi ndiyo mfumu imene ndi-ku-ganiz-a kuti Mavuto*
this is chief which 1sS-PRES-think-ASP that Mavuto
a-na-umb-ir-a mtsuko.
SP-PAST-mold-APPL-ASP waterpot
'This is the chief which I think that Mavuto molded the waterpot for.'

Interestingly, the inability to *wh*-move holds only of the applied object, and not of the basic patient object. This "second object" can move freely:

(142) *Uwu ndi mpando u-mene ndi-na-nen-a kuti Mavuto*
this is chair which 1sS-PAST-say-ASP that Mavuto
a-na-thyol-er-a mfumu.
SP-PAST-break-APPL-ASP chief
'This is the chair which I said that Mavuto broke for the chief.'

(143) *Uwu ndiwo mtsuko u-mene ndi-ku-ganiz-a kuti Mavuto*
This is waterpot which 1sS-PRES-think-ASP that Mavuto
a-na-umb-ir-a mfumu.
SP-PAST-mold-APPL-ASP chief.

'This is the waterpot that I think that Mavuto molded for the chief.'

These examples contrast minimally with the corresponding examples in (140b), (141b), showing that whatever makes *wh*-movement bad in the latter cases is a property specifically of the applied object, and not a matter of applicative clauses as a whole being frozen with respect to *wh*-movement.[59]

The same pattern is seen in dative applicative constructions. Thus, *perek* 'to hand over' is a Chichewa verb which obligatorily subcategorizes for a goal argument. This argument can appear either as an independent PP or as an applied object:

(144) a. *Atsikana a-na-perek-a chitseko kwa mfumu.*
girl SP-PAST-hand-ASP door to chief
'The girl handed the door to the chief.'

b. *Atsikana a-na-perek-er-a mfumu chitseko.*
girl SP-PAST-hand-APPL-ASP chief door
'The girl handed the chief the door.'

In the applicative form, the second object may be extracted freely, but the dative-applied object may not be extracted at all:

(145) a. **Iyi ndi mfumu imene ndi-na-nen-a kuti atsikana*
this is chief which 1sS-PAST-say-ASP that girl
a-na-perek-er-a chitseko.
SP-PAST-hand-APPL-ASP door
'This is the chief which I said that the girl handed the door to.'

b. *Ichindi chitseko chimene ndi-na-nen-a kuti atsikana*
this is door which 1sS-PAST-say-ASP that girl
a-na-perek-er-a mfumu.
SP-PAST-hand-APPL-ASP chief
'This is the door which I said that the girl handed to the chief.'

Whatever factor is in effect here has some cross-linguistic generality. Thus, a similar difference between applied objects and basic objects shows up in one of the question formation strategies of Chamorro (Austronesian; Gibson (1980), Chung (1982)). (146b) is a typical applicative construction from this language:

(146) a. *Hu tugi' i kätta pära i che'lu-hu.*
1sS-write the letter to the sibling-my
'I wrote the letter to my brother.'

b. *Hu tugi'-i i che'lu-hu ni kätta.*
1sS-write-APPL the sibling-my OBL letter
'I wrote my brother the letter.'

From the applicative structure, questioning the theme "second object" is grammatical, but questioning the goal "applied object" is not:[60]

(147) a. **Hayi t-in-igi'-i-n-ñiha ni kätta?*
who NOM-write-APPL-LK-their OBL letter
'Who did they write the letter to?'
b. *Hafa t-in-igi'-i-n-ñiha as Rosa?*
what NOM-write-APPL-LK-their OBL Rosa
'What did they write to Rosa?'

Indeed, Gibson shows that this effect carries over into "double object" structures which have the same structural configuration of NPs but where no (overt) applied affix appears on the verb. *Na'i* 'give' is a verb that appears in such configurations in Chamorro:

(148) *Ha na'i yu' si Antonio nu i floris.*
3sS-give me PN Antonio OBL the flower
'Antonio gave me the flowers.'

The possible *wh*-extractions from this structure are exactly the same as those from the overtly applicative structure (149b):

(149) a. **Hayi ni-na'i-ña si Antonio nu i floris?*
who NOM-give-his PN Antonio OBL the flower
'Who did Antonio give the flowers to?'
b. *Hafa ni-na'i-ña si Antonio nu hagu?*
what NOM-give-his PN Antonio OBL you
'What did Antonio give you?'

This identity of behavior confirms the hypothesis of 5.3.5 that "dative shift" constructions where there is no change in verbal morphology are syntactically the same as applicative constructions in which there is overt and productive verbal morphology.

This last example brings to mind another language in which the ban on extracting benefactive/dative applied objects is operative: English. It is a well-known fact that the "inner," thematically oblique NP cannot be questioned from an English dative shift construction, while the "outer," basic object NP can (data from Stowell (1981)):

(150) a. Wayne sent a telegram to Robert.
b. Wayne sent Robert a telegram.

c. *Who did Carol say that Robert sent — a telegram?
d. What did Carol say that Robert sent Wayne — ?

(151) a. Greg baked a birthday cake for his mother.
b. Greg baked his mother a birthday cake.
c. *Whose mother did Greg bake — a birthday cake?
d. What did Greg bake his mother — ?

The similarity between the English, Chamorro, and Chichewa constructions is obvious, and it would be highly desirable to have the same account cover all three.

Unfortunately, it is unclear whether this constraint against the extraction of datives and benefactives is universal or not. It would be desirable from a learnability viewpoint for the answer to be yes, since it is not clear that the data needed to learn the difference directly would be available to the child. On the other hand, the literature seems to point to the opposite; benefactives/datives are said to be extractable in Kinyarwanda (Kimenyi (1980)), Chimwiini (Kisseberth and Abasheikh (1977)), Bahasa Indonesian (Chung (1976)—but see her footnote 11!), and other Bantu languages (Hodges (1977)). There are two factors that may conceal what is going on, however. First, in Chichewa if the lower verb shows object agreement with the extracted benefactive, the sentence becomes perfect. For example:

(152) *Iyi ndiyo* ***mfumu*** *imene ndi-na-nen-a kuti Mavuto*
This is **chief** which 1sS-PAST-say-ASP that Mavuto
*a-na-**i**-umb-ir-a mtsuko.*
SP-PAST-**OP**-mold-APPL-ASP waterpot
'This is the chief which I said that Mavuto molded the waterpot for.' (compare (167), etc.)

When the agreement is present, island effects also disappear (cf. note 46 to chapter 3), so there is evidence that there is no real *wh*-movement in this construction; rather the agreement acts as a resumptive pronoun. The second interfering effect is that sentences are much improved in both Chichewa and English if the extracted benefactive phrase appears in the Comp of the clause from which it was extracted:

(153) ?*Iyi ndiyo mfumu imene Mavuto a-na-umb-ir-a mtsuko.*
This is chief which Mavuto SP-PAST-mold-APPL-ASP waterpot
'This is the chief which Mavuto molded the waterpot for.'

These sentences are still noticeably deviant, but to a much milder degree—presumably for some parsing or analogical reason (Stowell (1981), Hornstein and Weinberg (1981))—to the point that they may become essentially acceptable. These two factors together make most of literature almost

useless for deciding whether the extraction of benefactives is universally barred or not, since putative examples are invariably only "short" extractions, and often (in the Bantu literature) optional object agreement appears in them as well. Hence, they are not conclusive with respect to the issue at hand. Thus I leave open the question of whether the constraint which we are seeking should be parameterized or not.

5.4.2 The Non-Oblique Trace Filter

With this paradigms established, we turn to the task of giving them a theoretical analysis.

There is a large literature which tries to account for the extraction facts in the English dative shift constructions, and any of the solutions offered could potentially account for applicatives cross-linguistically as well. Let us very briefly survey some of the important possibilities. Consider an abstract, possibly derived, dative shift structure as schematized in (154):

(154) . . .[$_{VP}$V NP* NP† . . .]

Why should it be that NP† can be *wh*-moved from such a configuration, but NP* cannot be? One obvious idea, which recurs in different forms, is that it is simply bad to take out the first or innermost of two formally identical categories (here NP), either for perceptual reasons (Jackendoff and Culicover (1971)), or as a formal constraint on rule application (Oehrle (1975; 1983)). Two somewhat more subtle variants of this basic notion are those of Kayne (1983) and Stowell (1981), both of whom argue that the structure of (154) must be further articulated for theoretical reasons. Kayne's "unambiguous path" condition on theta role assignment (plus case theory) implies that "double object" constructions must have an embedded "small clause" structure in which an additional constituent contains only NP* and NP†. Given this assumption, NP* is on a left branch in the phrase structure tree, so its movement is ruled out by Kayne's version of the ECP. Stowell's approach is quite different. He claims that Case assignment can only take place under strict adjacency in English, and then points out that in order for NP† to get Case, it must be strictly adjacent to the verb. This, he claims, implies that NP* must be "incorporated" (in a different sense of the term from mine) into the verb; then and only then NP† will be adjacent to a verbal category. Now, NP* cannot be *wh*-moved in this construction, for the simple reason that syntactic movement rules never apply to the subparts of words (cf. my 2.2.5 (76)).

In contrast to these approaches, there are two others which focus not so much on NP*'s configurational relationship to V and NP†, but on inherent properties of NP* itself. One is that of Hornstein and Weinberg (1981),

who assume that dative shift verbs such as 'give' (somewhat exceptionally) mark the first NP (NP*) with oblique Case, and the second (NP†) with objective Case. Then, they propose a general filter which rules out oblique Case–marked traces, thereby making NP* unextractable. In this way, they intend to relate the fact under consideration to the general ban on Preposition Stranding in languages of the world. The other is Czepluch (1982), who argues that, for reasons having to do with case theory, there must be a phonologically empty preposition present that governs NP* in double object constructions (see also Kayne (1983, chapter 9)):

(155) . . .[$_{VP}$V [e_P NP*] NP† . . .]

Then, extraction of NP* is prohibited by a general constraint against configurations with embedded empty categories, such as *[e [t]].

Significantly, the extraction data from Chichewa and Chamorro help us to distinguish these different proposals empirically. Thus, the benefactive applicative construction in Chichewa differs from dative shift in English in being productive. In particular, benefactive applicatives can be formed with one particular class of intransitive base verbs (5.4.2). Our example of this was:

(156) *Mavuto a-na-vin-ir-a* *mfumu.*
Mavuto SP-PAST-dance-APPL-ASP chief
'Mavuto danced for the chief.'

Now, if one extracts the benefactive applied object 'chief' out of this construction, the result is as bad as the analogous extraction from the applicative of a transitive verb:

(157) **Iyi* *ndi mfumu imene ndi-ku-ganiz-a*
This be chief which 1sS-PRES-think-ASP
kuti a-na-vin-ir-a.
that 3sS-PAST-dance-APPL-ASP
'This is the chief which I think that she danced for.'

This fact is of great importance, because it shows that all approaches which single out the "inner object" of two objects as being unextractable are on the wrong track; exactly the same prohibition appears when the applicative object is the only object. Thus, there is no "second object" in (157) to confuse a language perceiver (cf. Jackendoff and Culicover (1971)) or to block rules from applying to the applied object (cf. Oehrle (1975)). Furthermore, there the benefactive NP cannot plausibly be taken to be on the left branch of a small clause in (157), since there is nothing to be on the implied right branch (cf. Kayne (1983));[61] neither is there any case theory

pressure which would force it to incorporate into the verb, thereby making it unmovable (cf. Stowell (1981)). Thus on any of these views (157) should be as good as extracting a standard, direct object, contrary to fact; compare (157) with the grammatical (158):

(158) *Iyi ndi mfumu imene ndi-ku-ganiz-a kuti a-na-on-a.*
This is chief which 1sS-PRES-think-ASP that 3sS-PAST-see-ASP
'This is the chief which I think that she saw.'

Similar examples occur with applicatives of intransitive verbs in Chamorro. Again, *wh*-movement of the goal direct object is as ungrammatical without a theme basic object in the structure as it is with one (Gibson (1980, 161)):

(159) a. **Hayi t-in-igi'-i-n-ñiha ni kätta?*
who NOM-write-APPL-LK-their OBL letter
'Who did they write the letter to?'
b. **Hayi t-in-igi'-i-n-ñiha?*
who NOM-write-APPL-LK-their
'Who did they write to?'

In fact, I believe that this can even be seen in English with one very particular sentence type. In general, English dative shift can only take place with transitive uses of verbs: e.g. *read a story for me, read me a story, read for me* but **read me*. There is, however, one exception to this general pattern: the verb *to write:*

(160) a. Britta wrote a letter to her mother last week.
b. Britta wrote her mother a letter last week.
c. Britta wrote to her mother last week.
d. Britta wrote her mother last week.

Thus, (160d) is plausibly a case of (invisible) P Incorporation with an intransitively used verb. When the goal is extracted from each of these sentences, the following judgments emerge, although there is some dialectal variation:[62]

(161) a. Who do you hope that Britta wrote a letter to last week?
b. ?*Who do you hope that Britta wrote a letter last week?
c. Who do you hope that Britta wrote to last week?
d. ??Who do you hope that Britta wrote last week?

Throughout, the correct generalization is not that the first NP of a double object construction cannot *wh*-move, but rather that benefactive and dative

applied objects cannot *wh*-move. Thus, we reject those accounts of the movement limitation that are based purely on the structural relation between the middle NP and the V and second NP.

Turning to the accounts of this constraint which are based directly on properties of the thematically oblique NP itself, we see that Hornstein and Weinberg's (1981) analysis fares no better with the cross-linguistic evidence. They claim that the applied object cannot extract because the verb assigns it oblique Case, rather than structural Case, an account which could easily be extended to cover the examples of the last paragraph. However, it depends in a very strong way on an assumption about Case marking which is not readily confirmed or falsified in English, because English makes no overt morphological distinction between what they call "objective" and "oblique" Case. In languages which do make an overt distinction, Hornstein and Weinberg get the situation exactly backwards: it is the applied object which gets structural, objective Case and the basic object that is oblique. This shows up clearly in Chamorro:

(162) *Hu tugi'-i [i che'lu-hu][ni kätta].*
1sS-write-APPL the sibling-my **OBL** letter
'I wrote my brother the letter.'

Thus, Hornstein and Weinberg's Oblique Trace Filter will not do for ruling out the extraction of applied objects in languages like these, and whatever else blocks such extractions in them will presumably explain the English facts as well.

Thus, the process of elimination leaves us with a Czepluch (1982)–style analysis, in which extraction is blocked from inside a phrase headed by a prepositional empty category. In fact, throughout this chapter I have given strong and principled reasons to believe that there is indeed a prepositional empty category that governs the "applied object" in all these structures, namely the trace of P movement. This time, the addition of the cross-linguistic data improves the analysis, rather than refuting it. Czepluch's (and Kayne's (1983)) original motivations for positing an empty preposition in English dative shift structures are abstract and theory-internal, having to do with particular assumptions about the theory of abstract Case; but the PI analysis of applicative constructions is relatively solid, since the process is productive and morphologically visible and has a natural place in a broader range of incorporation phenomena. Moreover, the predictions of the empty P stranding account are the only ones that have cross-linguistic validity; the only true generalization about the class of seeming direct objects that cannot be extracted is that they are the NPs which (in a plausible analy-

sis) are governed by traces of Ps. Competing generalizations, in terms of Case or configurational environment, are simply not borne out, as we have seen. Therefore, a version of Czepluch's basic idea should be adopted.

Unfortunately, Czepluch (1982) is unclear about the exact nature of the constraint against moving out of a PP headed by an empty P (cf. Oehrle (1983)), and he does not explicitly relate it to a more general context. In the current context, it is possible to go somewhat further. We know that it is ungrammatical to *wh*-move the complement of an incorporated P, but what about the complements of other incorporated categories? In fact it is also bad to *wh*-move the thematic possessor from a Possessor Raising construction. This is illustrated for Chichewa by the following paradigm:

(163) a. *Fisi a-na-dy-a nsomba za* ***kalulu.***
hyena SP-PAST-eat-ASP fish of **hare**
'The hyena ate the hare's fish.'

b. *Fisi a-na-dy-er-a* ***kalulu*** *nsomba.*
hyena SP-PAST-eat-APPL-ASP **hare** fish
'The hyena ate the hare's fish.'

c. * *Kodi ndi chiyani chimene fisi a-na-dy-er-a nsomba.*
Q is thing which hyena SP-PAST-eat-APPL-ASP fish
'Whose fish did the hyena eat?'

Gibson (1980, 230) gives similar facts from Chamorro:

(164) a. *Ha yulang-guan* ***yu'*** *si Julie ni i relos-su.*
3sS-break-APPL **me** PN Julie OBL the watch-my
'Julie broke my watch.'

b. * ***Hayi*** *y-in-ilang-guan-miyu ni i relos-ña?*
who NOM-break-APPL-your(PL) OBL the watch-his
'Whose watch did you break?'

Thus, the extraction prohibition extends to the complements of reanalyzed and incorporated nouns. Curiously, it does NOT extend to the complements of incorporated verbs, however. This also is seen in both Chichewa and Chamorro:[65]

(165) a. *Alenje a-na-bay-its-a* ***njovu*** *kwa kalulu.*
hunters SP-PAST-stab-CAUS-ASP **elephant** to hare
'The hunters made the hare stab the elephant.' (Chichewa)

b. *Iyi ndi* ***njovu*** *imene ndi-na-nen-a kuti alenje*
This is **elephant** which 1sS-PAST-say-ASP that hunters
a-na-bay-its-a kwa kalulu.
SP-PAST-stab-CAUS-ASP to hare

'This is the elephant which I said the hunters made the hare stab.'

(166) a. *Ha na'-balli* ***häm*** *i ma'estru nu i sätgi.*
3sS-CAUS-sweep **us** the teacher OBL the floor
'The teacher made us sweep the floor.'
(Chamorro; Gibson (1980, 164))

b. ***Hayi*** *i ma'estra ni-na'-ballen-ña nu i sätgi?*
who the teacher NOM-CAUS-sweep-her OBL the floor
'Who did the teacher make sweep the floor?'

Thus the ban on moving the NP governed by an empty category cannot be perfectly general, as Czepluch's discussion suggests.

The filter that seems to be motivated by all these examples is something like the following:

(167) *The Non-Oblique Trace Filter*
*$[O_i \ldots X_j \ldots [\{\text{-V}\}_j\ t_i] \ldots]$ at S-structure

where O stands for an operator, {-V} for a nonverbal category (i.e. a P or an N), and X for a lexical category (usually V) which is coindexed with the {-V} element through Reanalysis or Incorporation. Clearly, one would like to derive this filter from general principles of grammar rather than to stipulate it independently. I will not attempt to do this here, but simply observe that the various stipulations suggest that case theory must be involved. For example, this might explain why N and P are mentioned but not V: N and P are unlike V in that they typically assign oblique rather than structural Case to their arguments. Thus, PI and NI will change the type of Case marking on the variable in question in a way that VI will not. Therefore, in these constructions an empty category appears with a different type of Case than expected given its thematic role, and this may block its identification and recoverability in some way. This motivates the name of the filter: the trace is bad because it is not obliquely Case-marked, contrary to expectation. An explanation in terms of Case would also account for why *wh*-movement traces are blocked in these structures, but the NP trace left by passive is not (see 4.2.1, 4.2.4): the former must be Case-marked but the latter is not. Finally, the filter must hold only of traces that are formed by movement in the syntax, but not of traces formed at LF, given that applied objects can be questioned by *wh*-in-situ in Chichewa (Mchombo (personal communication)). This too could potentially be explained, since case theory requirements often involve the levels of S-structure and PF.

This analysis of extraction facts from applicatives can be supported in a rather surprising way in Chichewa by borrowing some data and analy-

sis from Baker (in preparation). That work discusses systematic cross-linguistic differences between benefactive phrases and instrumental phrases. Superficially, applicatives of the two types are almost identical in Chichewa:

(168) a. *Mavuto a-na-umb-a mtsuko.* (plain transitive)
Mavuto SP-PAST-mold-ASP waterpot
'Mavuto molded the waterpot.'

b. *Mavuto a-na-umb-ir-a mfumu*
Mavuto SP-PAST-mold-APPL-ASP chief
mtsuko. (benefactive applicative)
waterpot
'Mavuto molded the waterpot for the chief.'

c. *Mavuto a-na-umb-ir-a*
Mavuto SP-PAST-mold-APPL-ASP
mpeni mtsuko. (instrumental applicative)
knife waterpot
'Mavuto molded the waterpot with a knife.'

Nevertheless, Baker (in preparation) argues that there is an important thematic difference between the two: the benefactive (or dative) NP receives its theta role from the prepositional element in the way we have been assuming throughout; but the instrumental NP gets its theta role from the verb directly, the prepositional element appearing only as a spelling out of this assignment.[64] This difference shows up differently in different languages. For example, in some languages with NI either the instrument or the theme can be incorporated into a verb which has both:

(169) a. *Ne? Ø-panci-tete?ki ika kočillo.* (patient incorporated)
he 3sS-bread-cut with knife
'He cut the bread with a knife.' (Nahuatl; Merlan (1976))

b. *Ya? ki-**kočillo**-tete?ki panci.* (instrument incorporated)
he 3sS-**knife**-cut bread
'He cut the bread with a knife.'

However, in no language do benefactives and datives incorporate, as previously discussed:

(170) **Ta-**hliawra**-wia-ban ('u'u-de).*
1sS:A/A-**woman**-give-PAST baby-SUF
'I gave the woman it (the baby).' (Southern Tiwa; AGF)

I suggested that examples like (170) are bad because the applied object is governed by the trace of an incorporated P, making the NI a forbidden instance of nonlocal incorporation. If, however, the instrumental preposition

does not assign a theta role, then its presence is not forced by the Projection Principle. Hence the instrument need not be in a PP in a structure like (169b), and NI can therefore be grammatical. In fact, there is reason to believe that exactly the same difference shows up abstractly with N Reanalysis in Chichewa applicatives. Although "object" agreement is possible only with the applied object in dative and benefactive applicatives ((171)), it is possible with either the applied object or the basic object in instrumental applicatives ((172)):

(171) a. *Mavuto a-na-**wa**-umb-ir-a mtsuko **ana**.*
Mavuto SP-PAST-**OP**-mold-APPL-ASP waterpot **children**
'Mavuto molded the waterpot for the children.'

b. **Mavuto a-na-**u**-umb-ir-a ana **mtsuko**.*
Mavuto SP-PAST-**OP**-mold-APPL-ASP children **waterpot**
'Mavuto molded the waterpot for the children.'

(172) a. *Mavuto a-na-**u**-umb-ir-a **mpeni** mitsuko.*
Mavuto SP-PAST-**OP**-mold-APPL-ASP **knife** waterpots
'Mavuto molded the waterpots with a knife.'

b. *Mavuto a-na-**i**-umb-ir-a mpeni **mitsuko**.*
Mavuto SP-PAST-**OP**-mold-APPL-ASP knife **waterpots**
'Mavuto molded the waterpots for the children.'

The paradigm in (171) was accounted for in 5.3.4: the applied object cannot reanalyze with the V because of the empty preposition, so the Case Filter can only be satisfied if this NP gets the verb's structural Case, one of whose PF representations is agreement. The grammaticality of agreement with the basic object in (172b), on the other hand, implies that this time the basic object gets the verb's structural Case. Hence, the instrument must be reanalyzed with the verb, implying that it is NOT governed by an empty preposition. Under this interpretation, the difference between (172) and (171) is exactly the same as the difference between (169) and (170). Baker (in preparation) gives further arguments to the same effect.

Strikingly the *wh*-movement of an instrumental applied object is grammatical in Chichewa, unlike the *wh*-movement of a benefactive applied object. Thus contrasts like the following are found (cf. (168)):

(173) a. **Iyi ndiyo mfumu imene ndi-ku-ganiz-a kuti Mavuto*
this is chief which 1sS-PRES-think-ASP that Mavuto
a-na-umb-ir-a mtsuko.
SP-PAST-mold-APPL-ASP waterpot
'This is the chief which I think Mavuto molded the waterpot for.'

b. *Uwu ndi mpeni umene ndi-ku-ganiz-a kuti Mavuto*
this is knife which 1sS-PRES-think-ASP that Mavuto
a-na-umb-ir-a mtsuko.
SP-PAST-mold-APPL-ASP waterpot
'This is the knife which I think Mavuto molded the waterpot with.'

(174) a. **Iyi ndiyo mfumu imene ndi-na-nen-a kuti Mavuto*
this is chief which 1sS-PAST-say-ASP that Mavuto
a-na-thyol-er-a mpando.
SP-PAST-break-APPL-ASP chair
'This is the chief which I said that Mavuto broke the chair for.'

b. *Iyi ndi ndodo imene ndi-na-nen-a kuti Mavuto*
This is stick which 1sS-PAST-say-ASP that Mavuto
a-na-thyol-er-a mpando.
SP-PAST-break-APPL-ASP chair
'This is the stick which I said that Mavuto broke the chair with.'

These surprising differences[65] are explained immediately by the Non-Oblique Trace Filter, given the argument reviewed above: the traces of benefactive extractions are ruled out by the filter as before, but the instrument traces are not governed by the trace of a moved P and hence do not satisfy the filter's structural description. Thus, these minimal pairs give strong independent support for the conclusion we had already arrived at—that the presence of null preposition governors blocks certain extractions in the way described by the Non-Oblique Trace Filter, whatever the nature of this principle ultimately proves to be.

5.4.3 Implications for Syntactic Theory

Several themes of theoretical importance emerge from the analysis of *wh*-movement in applicatives in this section. First, it provides strong evidence for the syntactic nature of P Incorporation. The section is in this way parallel to section 4.4, which showed that if one looks beyond simple facts of government and case theory, there was strong evidence that causatives are syntactically derived, based on binding theory and bounding theory. Here, the same point is made for applicatives with respect to the theory of movement. Thus, in order to distinguish benefactive applied objects from instrumental applied objects—not to mention from the ordinary objects of simple transitive verbs—the trace of the incorporated P has played a central role: it blocks *wh*-extraction of the benefactive NP by causing the variable left behind to violate the Non-Oblique Trace Filter. However, in order

for the trace of the P to serve this explanatory function, it must exist. In order for this to be true, the prepositional affix must be generated separately from the verb at D-structure, in accordance with the Uniformity of Theta Assignment Hypothesis. This, then, is an argument against deriving applicative verbs by operations on the argument structure of the verb in the lexicon, as would be the case in frameworks like that of Williams and DiSciullo (to appear) and the Lexical-Functional Grammar of Bresnan (1982b). Furthermore, the P must also be required to leave a trace when it does combine with the verb, in accordance with the strong Projection Principle that I have assumed. This, then, is an argument against a framework like that of Marantz (1984) with a modified Projection Principle, where "applied objects" are not structural objects in underlying syntactic structure, but they are completely assimilated to ordinary direct objects by surface syntactic structure.

In addition, the analyses of this section provide further evidence for the hypothesis that there is no theoretical notion of the GFs like "subject" or "object" which has fundamental importance; rather, they are only cover terms for clusters of behavior that must be relativized with respect to the modular subtheories of the grammar (cf. 2.1.4). Thus, if we gather up all the postverbal NPs that we have studied in Chichewa in the last two chapters and consider only the two "surface" properties of whether they can receive accusative Case (as seen by verbal agreement) and whether they can *wh*-move, we find that every imaginable combination is systematically attested by some class of NPs. This is represented in the following chart:

(175) CHICHEWA "OBJECTS"

	may receive accusative Case	may not receive accusative Case
extracts freely	OBJ of transitive verb Instrumental applied OBJ lower OBJ of causative	Basic OBJ of benefactive applicative
extracts marginally	Causee with causative of intransitive verbs	Causee with causative of transitive verbs
may not extract	Applied OBJ of benefactive applicative	Oblique arguments of underived verbs

Chamorro "objects" present nearly as complex a paradigm. Clearly, no "structure-preserving" principle, which says that arguments of morphologically derived verbs behave like arguments of morphologically underived verbs, is at work here. Only a theory which can systematically

motivate traces of verbs and traces of prepositions in a principled way can make the distinctions necessary to account for such a pattern of facts in an explanatory way, as has been done in the last two chapters. If, however, such a theory is adopted, there is no need to stipulate these properties with explicit GF changing rules; rather, they follow from independent principles. Indeed, these examples make it clear that there is not even a single privileged notion of "object" such that some of the NPs are objects and some are not. Instead, one set acts like canonical objects with respect to case theory, another set acts like them with respect to the theory of movement, still another does so with respect to binding theory. Then, if there is no fundamental notion of the GFs in universal grammar, there cannot even in principle be explicit GF changing rules which are defined in terms of them. Thus, the observed range of facts supports a framework of grammar which includes no GF changing rules, but which does include more than one level of syntactic description, where the levels are conceived of in accordance with the Uniformity of Theta Assignment Hypothesis and the strong Projection Principle.

6 Passive Incorporation

In the preceding chapters I have shown that most of the core grammatical function changing processes introduced in section 1.1 receive an explanatory analysis in terms of syntactic X^0 movement. There is only one major GF changing process still unaccounted for, but it is the most famous of them all: the Passive. Perhaps no single construction has received more attention throughout the history of generative linguistics. Certainly, any work which has the ambition of eliminating all GF changing rules but which gives no insight into this one is incomplete. Moreover, we have already seen in examples throughout this work that Passive interacts with the incorporation types already considered in such a way that a unified account is desirable. Thus the question arises as to whether Passive has at its heart a type of X^0 movement, thereby allowing it to be a part of the incorporation pattern. I will argue that it does: in particular, passive crucially involves Incorporation of the verb into the Infl constituent, a movement which is both closer to universal than and a necessary precondition for the famous NP movement of an object into the subject position.[1]

6.1 Toward an Incorporation Account of Passives

The Uniformity of Theta Assignment Hypothesis has been taken to be a guiding principle concerning the nature of syntactic representation throughout this work. This principle gives good initial reason to think that the passive involves Incorporation as much as noun incorporation and morphological causative constructions do. Consider the following sentences in English:

(1) a. Something bit my hand.
    b. My hand was bitten (by something).