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Object Extraction and the Accessibility of Thematic Information⁰

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An assumption found in many syntactic theories is that semantic or thematic information determines, at most, the representation of arguments in an initial or deep level of syntactic (or pre-syntactic) representation (see, for example, Perlmutter and Postal (1984) in Relational Grammar (RG), and Baker (1988a) in Government-Binding (GB)). The strongest version of this hypothesis is clearly spelled out in Belletti and Rizzi (1988) and in Grimshaw (1990), who claim that, once thematic roles have fulfilled their function of establishing this initial representation (D-structure or argument-structure), they are invisible to syntax, so that no rule of syntax may make reference to them. According to this hypothesis, the "Inaccessibility Hypothesis," any syntactic asymmetry among arguments with different thematic roles should follow from the thematic difference only indirectly, thanks to the different initial representations determined by the thematic roles.

Genuine counterexamples to this hypothesis are difficult to find because they must reveal a direct effect of thematic roles on syntax, rather than an indirect effect. We claim, however, that certain Bantu languages, specifically Chicheŵa and Kichaga, provide a bona fide case of a syntactic process which must refer to the thematic content of arguments, as well as to their relative position in the argument structure, and which cannot be accounted for on purely syntactic terms. A proposal will be made to formally integrate this thematic and argument-structure restriction into the theory of grammar.

1. Extraction Asymmetries

It has been observed that certain objects cannot be extracted (that is, cannot be expressed as relative pronouns or displaced question words), and that this restriction depends on the thematic content of the object.¹ This phenomenon can be observed in applicative and causative constructions in Chicheŵa. Sentences (1) and (2) are applicative constructions based on transitive verbs introducing a beneficiary and a locative object respectively.²

- (1) Kadzĩdzi a-na-phĩk-ĩr-a njovu maũngu.
1a owl 1S-PS-cook-AP-FV 9 elephant 6 pumpkins
'The owl cooked the elephant pumpkins.'
- (2) Kadzĩdzi a-na-phĩk-ĩr-a ku chitsimé maũngu.
1a owl 1S-PS-cook-AP-FV 17 7 well 6 pumpkins
'The owl cooked pumpkins at the well.'

As shown in Alsina and Mchombo (1990, to appear), the patient object of both types of applicatives can be freely extracted as a relative pronoun, as we see in (3), but the applied objects exhibit a contrast: in active forms, the beneficiary cannot be extracted, (4a), while the locative can, (4b). (Recipient or goal objects behave like beneficiary objects in all respects, whereas instrumental applicatives pattern with locative applicatives in allowing both the applied object and the patient object to undergo extraction.)

- (3) a. Maúngú améné kadzīdzi a-na-phík-ír-a njōvu ...
 6 pumpkins 6 REL 1a owl 1 S-PS-cook-AP-FV 9 elephant ...
 ‘The pumpkins that the owl cooked for the elephant ...’
- b. Maúngú améné kadzīdzi a-na-phík-ír-a ku chitsímé ...
 6 pumpkins 6 REL 1a owl 1 S-PS-cook-AP-FV 17 7 well ...
 ‘The pumpkins which the owl cooked at the well ...’
- (4) a. *Njovu iméné kadzīdzi a-na-phík-ír-a maúngu ...
 9 elephant 9 REL 1a owl 1 S-PS-cook-AP-FV 6 pumpkins ...
 ‘The elephant that the owl cooked pumpkins for ...’
- b. Ku chitsímé kuméné kadzīdzi a-na-phík-ír-a maúngu ...
 17 7 well 17 REL 1a owl 1 S-PS-cook-AP-FV 6 pumpkins ...
 ‘At the well where the owl cooked pumpkins ...’

This restriction on extraction of beneficiaries is not only visible in double object constructions, such as (4a), but also when the beneficiary is the sole object of the verb, as noted by Baker (1988a, 1988b). A beneficiary applicative based on an intransitive verb such as *nam-a* ‘lie, tell lies,’ in (5a), does not allow its object to be extracted, (5b).

- (5) a. Chatsalira a-ku-nám-ír-á ǎna.
 1 NAME 1 S-PR-lie-AP-FV 2 children
 ‘Chatsalira is lying for the children.’
- b. *Aná améné Chatsalira a-ku-nám-ír-a ...
 2 children 2 REL 1 NAME 1 S-PR-lie-AP-FV ...
 ‘The children for whom Chatsalira is lying ...’

A similar contrast in extractability arises with the objects of causative constructions. Causatives based on transitive verbs in Chicheŵa have the causee expressed either as an object, (6a), or as an oblique introduced by the preposition *kwá* ‘to, by,’ (6b), while causatives based on intransitive verbs have the causee invariably expressed as an object, regardless of whether this argument is an agent, (7a), or a patient, (7b).

- (6) a. Nūngu i-na-phík-íts-a kadzidzi maūngu.
 9 porcupine 9S-PS-cook-CST-FV 1a owl 6 pumpkins
 'The porcupine made the owl cook the pumpkins.'
- b. Nūngu i-na-phík-íts-a maūngu kwá kádzidzi.
 9 porcupine 9S-PS-cook-CST-FV 6 pumpkins by 1a owl
 'The porcupine had the pumpkins cooked by the owl.'
- (7) a. Chatsalira a-ku-nám-íts-á mwāna.
 1 NAME 1S-PR-lie-CST-FV 1 child
 'Chatsalira is making the child lie.'
- b. Mwāna a-ku-d-éts-á zóvála.
 1 child 1S-PR-be dirty-CST-FV 8 clothes
 'The child is making the clothes dirty.'

With causatives based on transitive verbs, the base patient can be freely extracted, whether the base agent is expressed as an object, (8a), or as an oblique, (8b), but the agent object cannot be extracted, (8c).

- (8) a. Maúngú améné nūngu i-na-phík-íts-a kadzidzi ...
 6 pumpkins 6 REL 9 porcupine 9S-PS-cook-CST-FV 1a owl ...
 'The pumpkins which the porcupine made the owl cook ...'
- b. Maúngú améné nūngu i-na-phík-íts-a kwá kádzidzi ...
 6 pumpkins 6 REL 9 porc. 9S-PS-cook-CST-FV by 1a owl ...
 'The pumpkins which the porcupine had cooked by the owl ...'
- c. *Kadzidzi améné nūngu i-na-phík-íts-a maūngu ...
 1a owl 1 REL 9 porcupine 9S-PS-cook-CST-FV 6 pumpkins ...
 'The owl that the porcupine made cook the pumpkins ...'

Similarly, with causatives based on intransitive verbs, extraction fails with an agent object, (10a), but is possible with a patient object, (10b).

- (9) a. *Mwaná améné Chatsalira a-ku-nám-íts-a ...
 1 child 1 REL 1 NAME 1S-PR-lie-CST-FV ...
 'The child that Chatsalira is making lie ...'
- b. Zóvála ziméné mwāna a-ku-d-éts-a ...
 8 clothes 8 REL 1 child 1S-PR-be dirty-CST-FV ...
 'The clothes which the child is making dirty ...'

As these examples show, patient and locative, as well as instrumental, objects can be extracted as relative pronouns, but beneficiary and agent objects cannot. Interestingly, this asymmetry disappears in the passive. In passive forms, not only can an applied locative be extracted, (10a), but so can the beneficiary of applicatives based either on transitive or intransitive verbs, (10b) and (10c) respectively. Similarly, in the passive form of a causative, the contrast in extractability between an agent and a patient disappears: it is possible to extract not only the base patient, (11a), but also the base agent of causatives based either on a transitive, (11b), or an intransitive verb, (11c).

- (10) a. Ku chitsímé kuméné ku-na-phík-ír-idw-á máûngu ...
 17 7 well 17 REL 17 S-PS-cook-AP-PAS-FV 6 pumpkins ...
 ‘At the well where pumpkins were cooked ...’
- b. Njovu iméné i-na-phík-ír-idw-á máûngu ...
 9 elephant 9 REL 9 S-PS-cook-AP-PAS-FV 6 pumpkins ...
 ‘The elephant that was cooked pumpkins ...’
- c. Aná áméné a-ku-nám-ír-ïdw-a ...
 2 children 2 REL 2 S-PR-lie-AP-PAS-FV ...
 ‘The children who are lied for ...’
- (11) a. Maúngú améné a-na-phík-íts-idw-á kwá kádzĩdzi ...
 6 pumpkins 6 REL 6 S-PS-cook-CST-PAS-FV by 1a owl ...
 ‘The pumpkins which were caused to be cooked by the owl ...’
- b. Kadzidzi améné a-na-phík-íts-idw-á máûngu ...
 1a owl 1 REL 1 S-PS-cook-CST-PAS-FV 6 pumpkins ...
 ‘The owl that was made to cook the pumpkins ...’
- c. Mwaná améné a-ku-nám-íts-ïdw-a ...
 1 child 1 REL 1 S-PR-lie-CST-PAS-FV ...
 ‘The child that was made to lie ...’

These facts show an asymmetry in extractability in Chicheŵa between agent and beneficiary (and goal) objects, on the one hand, and instrumental, patient and locative objects, on the other hand, in the active form of verbs. They also show that this asymmetry disappears in the passive.

2. Phrase-Structural Account

A carefully worked out attempt to account for the extraction restriction which affects beneficiary and agent objects is found in Baker (1988a, 1988b): it is taken to follow from the complex phrase-structural representation of applicatives and causatives in that theory. On the one hand, an

applied beneficiary, unlike a basic object or an applied instrumental, is governed by a D-structure preposition which moves—incorporates—into the verb leaving a trace. Capitalizing on this phrase-structural difference among objects, Baker posits a filter, the “Nonoblique Trace Filter,” which rules out moving the object of an empty preposition to Comp. Thus, the objects of null prepositions—beneficiary objects—will be blocked from undergoing *wh*-movement by this filter, while other objects will be free to extract. On the other hand, as causative constructions are assumed to have a D-structure in which the causative affix is a verb which takes a complement clause, an agent causee appears in the subject position of this clause (the specifier of IP), while the base object is generated as an object NP. As a result of moving the embedded VP to the specifier of the CP complement of the matrix causative verb, from where the embedded verb can incorporate into the causative affix, the causee cannot move to the matrix Comp position without violating Subjacency (cf. Chomsky (1977)): since the closest Comp position is occupied by the moved VP, the causee or embedded subject can only move to the matrix Comp in one step crossing two IPs, which are bounding nodes. The base object, in contrast, having moved to the embedded Comp as a result of VP movement, can then move to the higher Comp without violating Subjacency.

The first objection one can make to this account is that two different principles are appealed to in order to account for the same phenomenon: an ad hoc filter, in applicative (or dative shift) constructions, and Subjacency, in causative constructions. One can confidently assume that it is the same phenomenon because the extraction restriction (a) yields the same degree of unacceptability in both constructions, (b) disappears in the passive in both, and (c) is found in other languages, such as Kichaga, in both constructions. Bresnan and Moshi (1990) observed that Kichaga has a restriction on extraction of beneficiaries similar to that of Chichewa.³ The beneficiary object *mana* ‘child’ of (12a) cannot be extracted to form a relative clause in (12b).

- (12) a. Mama n-a-le-kolr-i-a mana malruwu (ruko-nyi).
 1 mother FOC-1 S-PS-cook-AP-FV 1 child 6 bananas 5 kitchen-LOC
 ‘The mother cooked bananas for the child (in the kitchen).’
- b. *Mana [_S a-le-kolr-i-a malruwu] nyi icu.
 1 child 1 S-PS-cook-AP-FV 6 bananas COP 1 this
 ‘The child for whom she cooked bananas is this.’

Likewise, the agent object in a causative in Kichaga, such as (13a), also fails to undergo extraction in a relative clause, as in (13b).

- (13) a. Mama n-a-i-sanj-ilr-a mana numba (mlri-nyi).
 1 mother FOC-1 S-PR-thatch-CST-FV 1 child 9 house 3 village-LOC
 ‘The mother is causing the child to thatch the house (in the village).’

- b. *Mana [_S a-i-sanj-ilr-a numba] nyi icu.
 1 child 1 S-PR-thatch-CST-FV 9 house is this
 'The child she is causing to thatch the house is this.'

Consequently, a unified account of the restriction seems desirable.

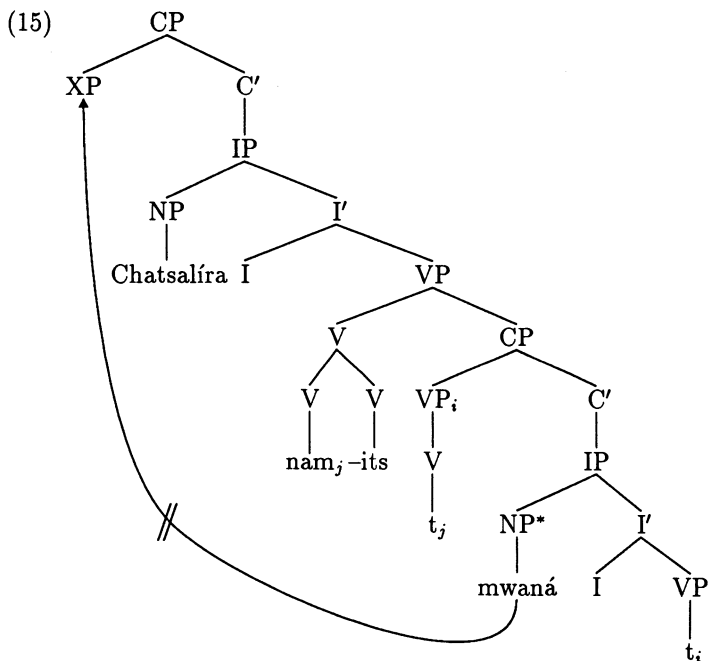
Alsina and Mchombo (1990) point out several problems with Baker's account of the extraction restriction in applicative constructions. First, it is observed that the "Nonoblique Trace Filter" does not distinguish active and passive forms and incorrectly rules out the extraction of a beneficiary NP in both structures, although it is grammatical in the passive in Chicheŵa, as shown in (10b-c). Second, it is noted (also in Bresnan and Moshi (1990)) that, since locatives would be treated as PPs in Baker's framework very much like beneficiaries are, extraction of locative objects should also be ruled out by this filter, contrary to fact, as seen in (4b). Third, this filter would incorrectly rule out certain grammatical sentences in Kichaga. Kichaga differs crucially from Chicheŵa in allowing an argument other than the beneficiary to be the subject in the passive form of a beneficiary applicative (cf. Bresnan and Moshi (1990)). Specifically, the optional locative in (12a) may be the passive subject, as in (14a), and the extraction of the beneficiary object in this construction is grammatical, as shown in (14b). As argued in Bresnan and Moshi (1990), the beneficiary must be analyzed as an object in this construction.⁴

- (14) a. Ruko-nyi ku-le-kolr-i-o mana malruwu.
 5 kitchen-LOC 17 S-PS-cook-AP-PAS 1 child 6 bananas
 'In the kitchen were cooked bananas for the child.'

- b. Mana [_S ku-le-kolr-i-o malruwu] nyi icu.
 1 child 17 S-PS-cook-AP-PAS 6 bananas COP 1 this
 'The child for whom there were cooked bananas is this.'

This example is very problematic for any attempt to account for the extraction restriction on purely phrase-structural terms: there is no configurational difference between the beneficiary object in (14b), which allows extraction, and the beneficiary object in (12b), which resists extraction. In both cases, for Baker (1988a, 1988b), it is the object of an empty preposition and has moved directly to Comp.

As for causatives, Baker's account of the extraction restriction hinges on the assumption that all causatives in Chicheŵa are derived through VP-to-Comp movement (movement of the embedded VP to the specifier of CP, from which the verb can incorporate into the matrix causative affix). If we take, for the sake of illustration, a causative based on an intransitive verb in Chicheŵa, the S-structure which Baker (1988a) proposes for it would be as shown in (15):

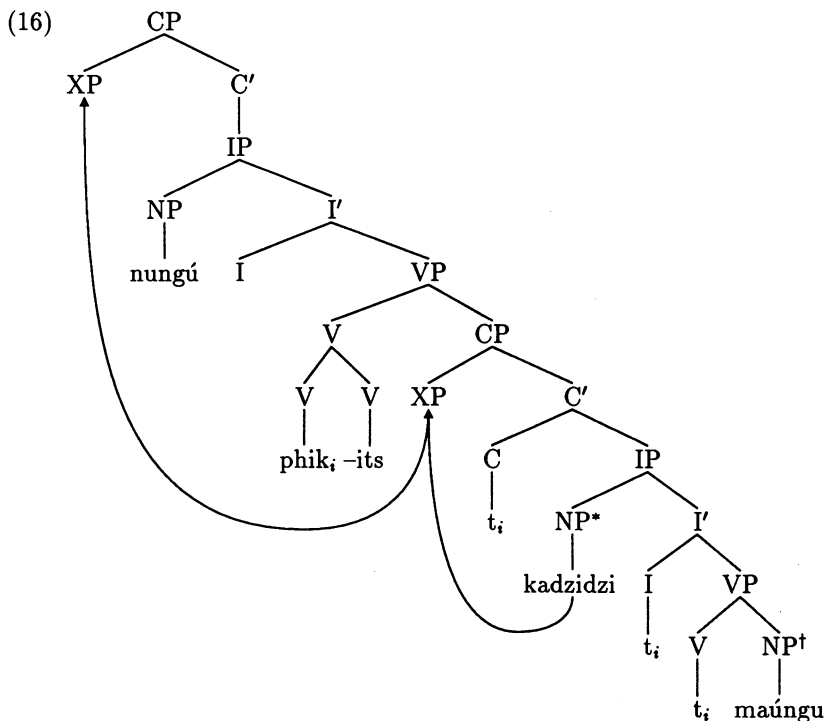


The movement of the embedded VP to the specifier of its CP leaves this position unavailable for any further movement of a maximal projection originating in the embedded IP. In this way the causee 'mwaná,' which is the subject NP* of the embedded IP cannot move to the specifier of the matrix CP as would be required for relativization: it would be crossing two bounding IP nodes in one step since the closest Comp position is not free. So, sentences such as (9a) are ruled out as Subjacency violations in Baker (1988a).

When the base verb is transitive, a derivation involving VP-to-Comp movement is designed to produce causatives whose causees are expressed as oblique phrases, of the type illustrated in (6b). However, the existence of causatives based on transitive verbs whose causees are expressed as objects, exemplified in (6a), although not considered in Baker (1988a), would require V-to-C movement. This is necessary in Baker's framework in order for the causee NP to receive structural Case enabling it to behave as the primary object of the causative structure, while the basic object is assigned possibly inherent Case. Consider in (16) the S-structure of a causative construction based on a transitive verb derived through V-to-C movement in Baker (1988a).

In this structure, the embedded verb, being a lexical category, moves to the head of CP (via Inf), rather than to the XP position in CP. From there it incorporates into the causative verb. As the specifier of CP is not filled by the incorporating V, unlike what happens with VP-to-Comp movement, it is

free to be occupied by a maximal projection. This will allow either the causee NP*, as indicated by the arrows in (16), or the basic object NP^t to move to the specifier of the embedded CP and, from there, to the higher Comp position as is required in relative constructions. In neither case is Subjacency violated, since at most one bounding IP node is crossed at each step. In this way, Baker's theory, when extended to account for double-object causatives such as (6a), fails to predict the contrast in extractability between the causee object and the basic (patient) object of causatives illustrated in (8).



In fact, when we submit Baker's theory to a close scrutiny, we find that even the explanation that it is supposed to provide for the contrast in extractability among objects of single-object causatives does not hold. Baker's explanation for why the agent causees of causatives based on intransitive verbs fail to undergo extraction crucially relies on the assumption that such causatives in Chicheŵa are always formed through VP-to-Comp (rather than V-to-C) movement in the embedded CP. There is, however, no reason why the V-to-C alternative should be excluded in the formation of causatives based on intransitive verbs. Baker (1988a, 199) himself notes: "Since the [intransitive] verb has no object that needs Case, there is no reason it must take

the VP along.” So, if these causatives can be formed through the movement of the embedded verb to the head of CP, the specifier of CP will be left free as a landing site for any maximal projection within the CP, just as in (16). Consequently, the agent causee will be able to move to the matrix Comp via the embedded Comp, without violating Subjacency, in the same way that the basic object of a transitive verb or the single argument of an unaccusative are. So, Baker’s theory does not predict the contrast shown between (9a), on the one hand, and (8b) and (9b), on the other. In conclusion, the bi-clausal phrase-structural representation that in Baker’s theory is attributed to causatives does not provide any explanation for the contrast in extractability observed among the objects of causative constructions in Chicheŵa.

There have been other theories which attempt to account for the extraction restriction, specifically in the English “dative shift” construction, on the basis of the particular phrase-structural configuration of the beneficiary (and goal) object. All of them (Jackendoff and Culicover (1971), Oehrle (1975), Stowell (1981), and Kayne (1984)) attribute the unextractability of this object to the fact that it is the first in a sequence of two NP objects in English. Whatever the merits of these proposals, they cannot account for the facts of Chicheŵa and Kichaga. We have shown that the extraction of beneficiary and causee objects in Chicheŵa is not only ungrammatical when there is another object in the clause, but also when it is the sole object of the verb, as in (5b) and (9a), and that the first in a sequence of two object NPs can be extracted in Kichaga, (14b). (In this example, for a theory like GB, the extracted beneficiary is moved from the first of two NP positions in the VP, because the beneficiary NP linearly precedes the patient NP, when both are expressed in the VP, as in (14a)—the reverse order is ungrammatical. The same point can be made for the causee with example (ib), fn. 4.)

Given the inadequacy of accounts of the extraction restriction based purely on phrase structure, we shall now consider an alternative approach.

3. A Thematic Hierarchy Account

Our claim is that the right way of expressing this restriction must take into account the position of arguments within the argument-structure and (at least some aspect of) their thematic content. We assume that arguments in individual argument-structures are ordered by their thematic role according to the Universal Hierarchy of Thematic Roles (17),⁵ so that more prominent roles appear to the left of less prominent roles.

$$(17) \quad ag > ben > go > ins > pt > loc$$

This allows us to define the “logical subject” of a predicate as the highest thematic role. It is generally the unmarked subject of an active verb, and it is also the argument which is suppressed in the passive construction. A

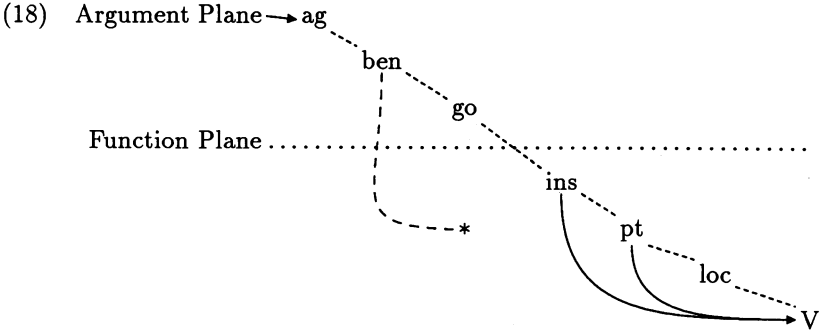
suppressed argument cannot be expressed (as an argument), but, in certain cases, may license the use of an adjunct thematically bound to it, such as the passive *by*-phrase (cf. Bresnan and Kanerva (1989), Grimshaw (1990), etc.).

The extraction restriction brings into play a major split in the thematic hierarchy: the roles which are subject to a limitation on extraction are those in the upper half, i.e., agent, beneficiary and goal. The same split is visible in noun incorporation in languages which allow it: only arguments equal to or lower than instrumental can be incorporated (cf. Allen, Gardiner and Frantz (1984), Baker (1987, 1988a), Mithun (1984)). Finally, the existence of objects which cannot acquire the subject function in passives (inherently Case-marked in Baker (1988b) and Machobane (1989), or restricted objects in Alsina and Mchombo (to appear) and Bresnan and Moshi (1990)) points to the same split in the hierarchy: at least in some languages, these objects can only be roles in the lower half of the hierarchy (instrumental, patient, locative). These facts suggest that the split in the thematic hierarchy has to be part of the design of universal grammar. In what follows, we shall explore a possible representation of this hierarchical split which will provide an understanding of the extraction restriction.

There is a certain conception of grammar which assumes that different types of linguistic information are factored out into different levels of representation which are related to each other (Bresnan and Kanerva (1989), Bresnan (1990), T. Mohanan (1990), etc.). Within this conception, we propose that semantic arguments and syntactic functions are represented on different planes or tiers, and that the two tiers are related to each other in very much the same way that the tiers of autosegmental phonology are: each argument is mapped onto a syntactic function, and this mapping is indicated by means of an association line. As in autosegmental phonology, we shall assume that lines cannot cross. However, unlike autosegmental phonology, in which the different tiers are assumed to be parallel, we shall assume that arguments and functions are represented on intersecting planes. A crucial aspect of this representation is the point of intersection: the function plane intersects the argument plane exactly between goal and instrumental. So we shall assume that the thematic hierarchy imposes an ordering on arguments descending the oblique line in (18), and that the higher roles (agent, beneficiary and goal) are placed above the function plane, while the lower roles (instrumental, patient and locative) appear below it.

This representation provides an immediate explanation for the split in the thematic hierarchy with respect to noun incorporation. We place the verb or predicate at the bottom of the hierarchical sequence of arguments, closest to the lowest of its arguments, consistent with the interpretation that lower roles are semantically composed with the predicate earlier than roles higher in the hierarchy (Kiparsky (1988), Bresnan and Kanerva (1989)). A noun

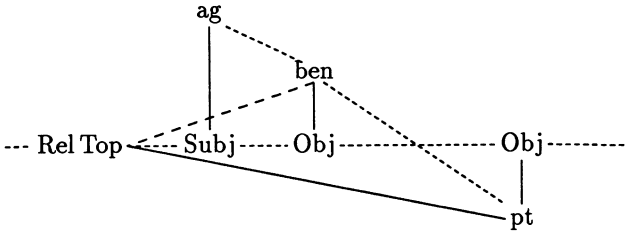
whose thematic role is instrumental or patient can incorporate into the verb, as shown in (17), because the connecting lines do not cross any lines. But noun incorporation is not possible for a role above the function plane, such as beneficiary, because the line connecting it to the verb would have to cross the function plane, and there would be a crossing of lines.



Basic for understanding the extraction phenomenon is the idea that arguments are not only mapped onto grammatical functions such as subject and object, but can also be mapped onto grammaticized discourse functions such as topic. According to standard assumptions in Lexical Functional Grammar, a relativized constituent bears the syntactic function of topic (Bresnan and Mchombo (1987)), which we shall refer to as the Rel(ative) Top(ic). Just as thematic roles decrease in prominence in a left-to-right ordering, we also expect to find this arrangement by prominence to hold of syntactic functions. As discourse functions such as Rel Top (and Focus) are more prominent than non-discourse functions, we shall assume that the former are placed to the left of the latter. There is no fixed ordering imposed on non-discourse functions such as subject and object, since their position is determined by the mapping principles proposed in work by Bresnan and Moshi (1990) and others.

We can now see how our proposal captures the extraction restriction. Let us consider the contrast observed in (3a) and (4a), which shows that, in an active form, it is possible to extract a patient, but not a beneficiary, object in Chicheŵa. In (19) we see the three arguments of the beneficiary applicative *phik-ir-a* 'cook for' ordered along the oblique argument plane, with lines connecting to their syntactic functions on the horizontal function plane. Since this is the active form, the agent is mapped onto the subject function and the beneficiary and the patient are mapped onto objects. The additional link of an argument to the discourse function of Rel Top is subject to the prohibition on crossing of association lines. Notice that the patient can be associated with this function without crossing lines, whereas the beneficiary cannot be associated with it because it would produce a line crossing violation. The agent subject can also link to the Rel Top without crossing lines.

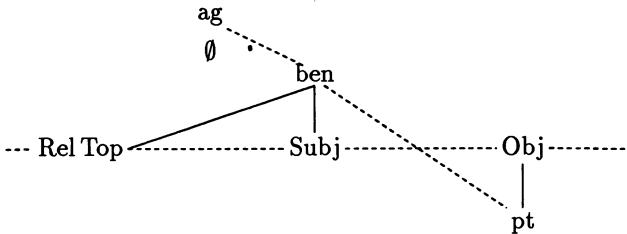
(19)



In this way we account for the fact that beneficiary (and goal) objects in active forms fail to undergo extraction in both Chicheŵa (see examples (4a) and (5b)) and Kichaga (example (12b)). The same explanation applies to causee objects in causatives. Since an agent causee is hierarchically lower than the causer, it appears in the same position as the beneficiary in (19) and is subject to the same inability to link to the Rel Top. Thus, we also explain the extraction restriction of agent causees in active forms in both Chicheŵa (examples (8c) and (9a)) and Kichaga (example (13b)). In contrast with these cases, arguments which are placed below the function plane (instrumental, patient, locative) are not subject to the extraction constraint because they can link to the Rel Top without crossing lines (see (3), (4b), (8a-b), and (9b)).

Our proposal also explains why the extraction constraint disappears in passive forms. If we take the passive form of the beneficiary applicative *phik-ir-a*, the mapping of arguments to functions will be as in (20):

(20)



Since the logical subject is suppressed in a passive form, it has no mapping onto the function plane. Therefore, the agent in (20) has no association line with any syntactic function. As a result of this lack of link of the agent, the beneficiary can map onto the Rel Top without crossing any line. Thus, we explain the puzzling fact that the extraction constraint disappears in passive forms. This is the case in Chicheŵa both with beneficiaries and agent causees (examples (10b-c) and (11b-c)). It is also the case in Kichaga, but this language, unlike Chicheŵa, can have a beneficiary expressed as an object in a passive form (example (14a)). Interestingly, even with this assignment of syntactic function, the beneficiary can be relativized, as in (14b). This

follows from our proposal: in a representation like (20), the beneficiary would map onto an object in the function plane, and some other, lower, role would map onto the subject; provided the highest role has no link to the function plane, the beneficiary is free to map onto the Rel Top.

In conclusion, we have presented a problem for the hypothesis that thematic information is not accessible to rules or principles of syntax, and we have shown the difficulties that certain syntactic approaches have in solving that problem in a way that is consistent with the Inaccessibility Hypothesis. Our proposal has been to integrate the relevant thematic information (whether a role is hierarchically lower than goal or not according to (17)) into the architecture of linguistic theory. Thus, we explain an otherwise mysterious restriction on extraction of objects.

Footnotes

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¹This was noted by Baker (1988a, 1988b) for Chicheŵa, and similar facts have also been pointed out for other languages, such as Chamorro and English (see Baker (1988a, 292-99)).

²Tones and vowel length are marked in the Chicheŵa sentences as follows: long vowels may be low $\bar{}$, high $\acute{}$, rising $\tilde{}$, and falling $\hat{}$, and short vowels are either high $\acute{}$, or low, unmarked. Each Bantu noun belongs to one of eighteen noun classes, denoted in the glosses by Arabic numerals. The following abbreviations are used:

S: subject	REL: relative	CST: causative
FOC: focus	LOC: locative	PAS: passive
PS: past	COP: copula	AP: applicative
PR: present		FV: final vowel

³More work needs to be done on Kichaga before final conclusions can be drawn for this language. Although Kichaga does exhibit an extraction restriction, it seems to differ from Chicheŵa in generally allowing the extraction of a beneficiary or causee when it is the sole internal argument of the verb. Nevertheless, the similarities with the Chicheŵa facts are sufficient to justify taking the Kichaga facts into account.

⁴The extraction restriction in causatives also disappears in the passive. Paralleling the beneficiary example (14), we can have a passive form of (13a) in which the locative is the subject, (ia). On the basis of such a form, the causee object can be extracted, as in (ib):

- (i) a. Mlri-nyi ku-i-sanj-ilr-o mana numba.
 3 village-LOC 17S-PR-thatch-CST-PAS 1 child 9 house
 'In the village the child is caused to thatch the house.'
- b. Mana [_S ku-i-sanj-ilr-o numba] nyi icu.
 1 child 17S-PR-thatch-CST-PAS 9 house COP 1 this
 'The child who is caused to thatch the house is this.'

The contrast between (13b) and (ib) shows that passive morphology is crucial for allowing the extraction of the agent causee. Although the grammatical examples of extraction of a beneficiary and a causee in Kichaga given in this paper, (14b) and (ib) respectively, only show that it is possible to extract these arguments when they are expressed as objects, extraction is also possible, as in Chicheŵa, when they are expressed as the passive subjects.

⁵This is the hierarchy proposed in Kiparsky (1988) and in Bresnan and Kanerva (1989, in press). See also references cited in these works.

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