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ABSTRACT

The working papers in this volume, written by staff and advanced students of the Summer Institute of Linguistics at the University of North Dakota, include the following: "The Antigone Constraint" (David Tuggy); "Clause Types in Southeastern Tepehuan" (Thomas L. Willett); "Sentence Components in Southeastern Tepehuan" (Thomas L. Willett); "Ethical Dative and Possessor Omission Si, Possessor Ascension No!" (David Tuggy); and "Notes on African Linguistics" (Terri Scruggs). The first paper presents a class of sentences that certain syntactic rules of English would be expected to produce, but that are ungrammatical. The next two papers are beginning studies of the grammatical structure of Southeastern Tepehuan (Uto-Aztecan). The fourth paper presents syntactic and semantic arguments against possessor ascension in Spanish, and the last paper is a survey of some of the common features of African languages. (VWL)

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PREFACE

The twenty-fourth volume of the Work Papers of the Summer Institute of Linguistics at the University of North Dakota contains five working papers written by staff and advanced students. Comments are invited on these reports of work in progress inasmuch as the authors may wish to revise and publish at a later date.

In the first paper evidence is given that the English rules of S-S Raising, S-O Raising, Equi-NP Deletion, Extraposition, and Non-Subject Raising (Tough Movement) should be prohibited from applying to certain structures that meet their structural descriptions. This is accomplished by positing the globally defined Antigone Constraint, which (loosely stated) prohibits two-storey rules from applying to clauses which have been raised.

The next two papers are beginning studies of the grammatical structure of Southeastern Tepehuan (Uto-Aztecan). In the paper on clause types nine semantic and syntactic clause types are postulated and shown to be mapped onto six surface clause types. Eleven permutational types are also discussed. The companion paper on Southeastern Tepehuan is an exploration of interclausal relations of minimal locutionary and illocutionary force, plus a survey of the semantic and syntactical sentence types. Both papers contain numerous illustrative sentences.

The fourth paper presents syntactic and semantic arguments against Possessor Ascension in Spanish. It is claimed that the Spanish sentences involved and their English translations differ crucially at every linguistic level. Implications are also drawn for syntactic argumentation and analysis and for translation theory.

The final paper in the volume is a survey of some of the common features of African languages. The author has chosen representative languages or language families from around the continent and gives a brief description of their phonological features including vowel harmony and elision as well as tone, and of some grammatical features including a discussion of adjectives and multiple verb constructions.

Thanks are due to the staff members who read earlier drafts of the papers, to those who keyed and proofread the final copy, and to Steve Elliott who designed and implemented the program for formatting of the first four papers in the volume.

The Antigone Constraint

David Tuggy

0. Introduction

In this paper I will present a class of sentences that certain syntactic rules of English would be expected to produce, but which are ungrammatical. These sentences all involve the raising of a sentential NP and the subsequent application of some syntactic rule to that sentential NP. To explain the ungrammaticality of these sentences, I propose a constraint called the Antigone Constraint,[1] which prohibits two-storey rules from applying to clauses which have been raised.[2]

1. Arguments for Constraint A

1.1 The argument from SSR

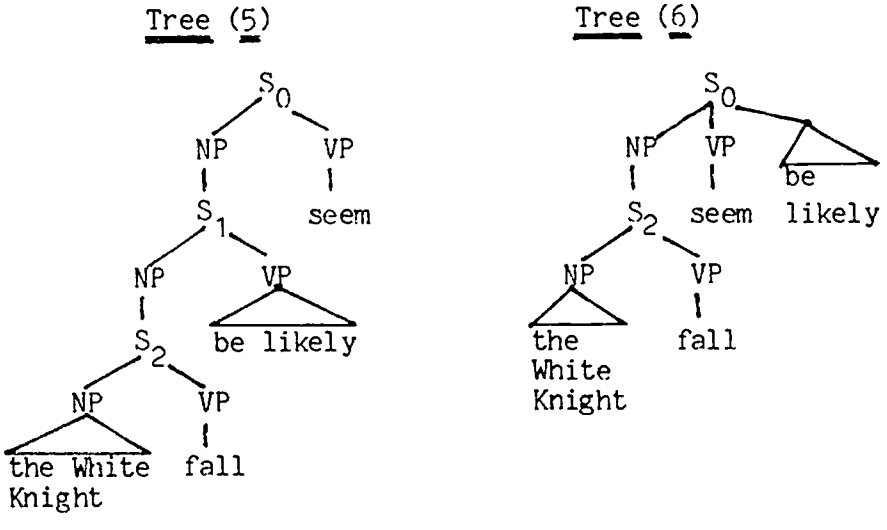
A familiar rule has been proposed for English known as Subject-to-Subject Raising (SSR) (Rosenbaum 1967, Postal 1974). The structural description of SSR requires that, if it is to apply, the sentence to which it is to apply have a sentential subject, and the main verb of that sentence be one that governs SSR. If these conditions are met, SSR can apply to raise the subject of the embedded clause to become the subject of the matrix clause. SSR applies, as governed by the verbs **be likely** and **seem**, in the derivation of sentence (2) from the structure underlying sentence (1), and in the derivation of (4) from the structure underlying (3).[3]

(1) **That the White Knight will fall is likely.**
(2) **The White Knight is likely to fall.**
(3) **(*)That poor Bill always gets into trouble seems.**[4]
(4) **Poor Bill seems to always get into trouble.**

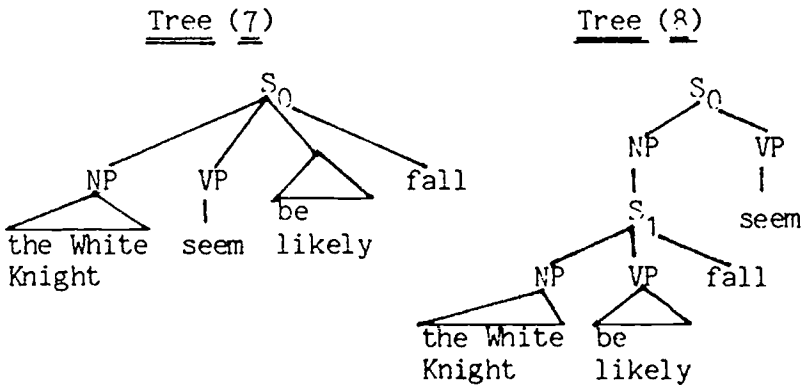
1.1.1 Two derivations

SSR-governing verbs like **seem** and **be likely** can have as their subjects sentences that themselves have sentential subjects. When SSR applies in such cases, the sentential subject of the lower verb is raised to become the subject of the higher verb. Thus SSR can apply on the S_0 cycle of tree (5), producing tree (6) and sentence (6).[5]

(6) **That the White Knight will fall seems to be likely.**
(7) **The White Knight seems to be likely to fall.**



Tree (6) apparently fulfills the structural description for SSR. The question arises as to whether SSR can indeed apply to it. If SSR is applied, tree (7) results, and the corresponding sentence (7) is certainly grammatical. However, there is another possible derivation for (7), which involves SSR applying on the S_1 cycle of tree (5), governed by **be likely,** producing tree (8). This tree will then be changed by SSR on the S_0 cycle into a tree essentially like tree (7).[6]



Thus (7) could be produced in either of two ways: either by SSR applying twice on the S_0 cycle, converting tree (5) to tree (6) and thence to (7) (Derivation I), or by SSR applying on two cycles, converting (5) to (8) and thence to (7) (Derivation II).

1.1.2 Derivation I should be prohibited

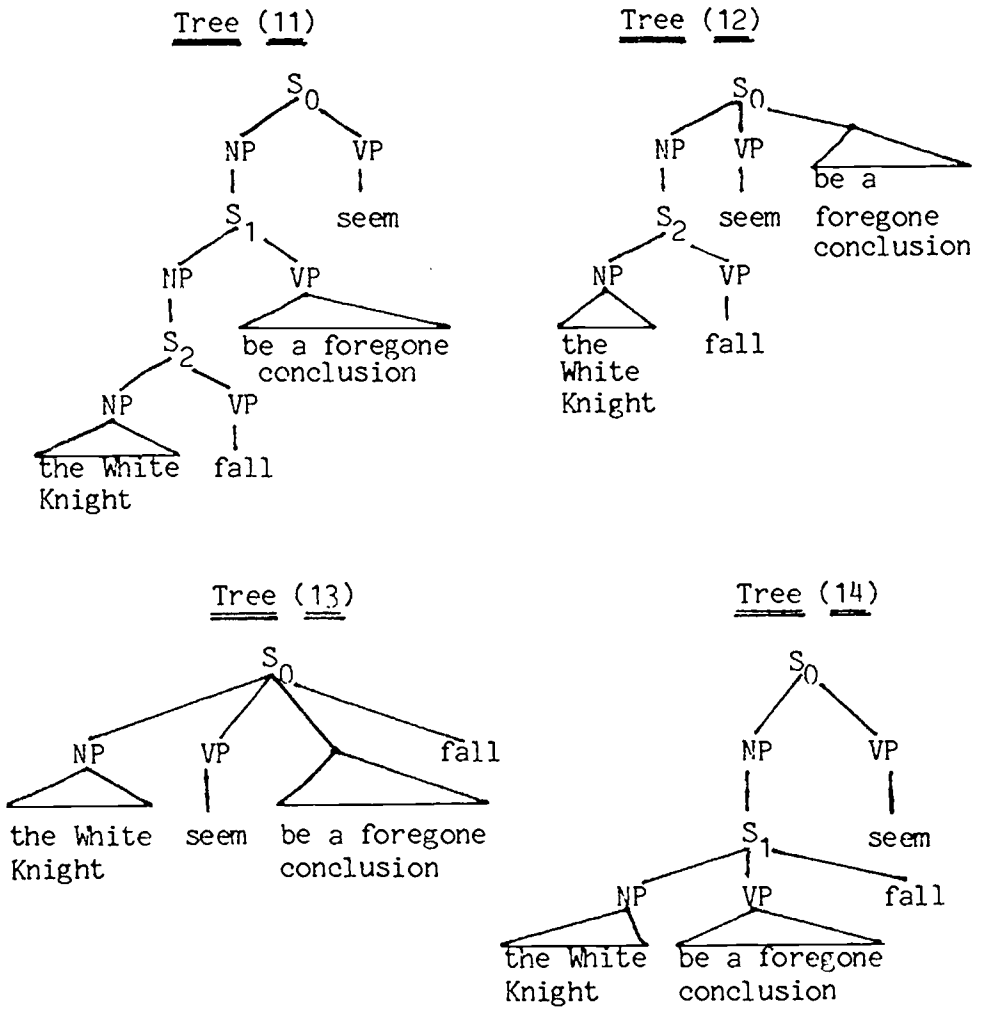
As far as I know, there is no argument against permitting Derivation II. However, I would like to argue that derivations like Derivation I, deriving (7) via (6), should be proscribed because they produce wrong sentences in certain cases and are never, to my knowledge, necessary to produce grammatical sentences. The argument is as follows:[7]

When, in a structure like tree (5), the S_1 verb is one that does not permit SSR, a derivation like Derivation II above is, of course, not possible. However, if derivations like Derivation I are permissible, one would expect that a structure corresponding to (7) would still be derivable. In fact, such structures are ungrammatical.

Be a foregone conclusion is, as (9) and (10) indicate, one of the class of verbs which do not permit SSR even though they may have a sentential subject.

(9) **That the White Knight will fall is a foregone conclusion.**
(10) ***The White Knight is a foregone conclusion to fall.**

Consider trees (11) to (13) (sentences (12) and (13)).



(12) **That the White Knight will fall seems to be a foregone conclusion.**
(13) ***The White Knight seems to be a foregone conclusion to fall.**

These structures are directly parallel to (5)-(7), but with the SSR-prohibiting verb **be a foregone conclusion** substituted for the SSR-governing verb **be likely.** (14), the parallel to (8), is underivable because in order to derive it, SSR would have to apply on the S_1 cycle of tree (11), which would violate the prohibition against SSR with **be a foregone conclusion.** Thus (13) cannot be derived by a derivation parallel to Derivation II. However, if a derivation parallel to Derivation I is available to it, we should expect (13) to be grammatical. The crucial fact is that it is not grammatical. What is more, this same pattern of behavior apparently holds for all other sentences like these: no matter what SSR-governing verbs are substituted for **be a foregone conclusion,** the sentences parallel with (6), (7) and (12) are grammatical, but those which parallel (13) are always ungrammatical.

1.1.3 Constraint A will do it

These facts must be accounted for. It seems clear that the point where things go wrong in the derivation is in the change from a structure like (12) to one like (13). So we need to block that step. One possible way to do this is to change the structural description of SSR to preclude its application to structures like tree (12), perhaps by specifying that the SSR-governing verb not be followed by an infinitive phrase.[8] However, as we will show later, similar changes would have to be made in the structural descriptions of other rules such as SOR, Equi, and Extr. This would constitute an unnecessary duplication of mechanisms, and Occam's razor[9] would force us to look for a general constraint that would accomplish the same purpose. Several such constraints seem possible; I recommend two for your consideration at this point:

Two Versions of Constraint A

The One Shot Constraint

Rules may not apply more than once per cycle.

The Antigone Constraint

Rules may not affect clauses which have been raised.

(The formulations given above are preliminary and need some adjustments and clarifications.) The choice between these two versions of the constraint will be discussed in section 3. Either version will give the right results; I know of no case in which either (as correctly defined) must be violated.[10] Meanwhile let us assume that such a constraint exists and refer to it as Constraint A.

Constraint A will star sentences like (13), claiming that the only possible derivation for them would involve SSR on the S_1 cycle, in despite of the fact that the S_1 verbs do not permit SSR. This makes the intuitively right claim that (10) and (13) are ungrammatical in the same way, and that (2) and (7) are grammatical for the same reason, namely that **be likely**, in contrast to **be a foregone conclusion**, governs SSR.

1.2 An argument from obligatoriness

Certain SSR-governing verbs require that SSR apply. **Tend** is such a verb, as (15) and (16) indicate.

(15) (*) **That beating Time angers him tends.**
(16) **Beating Time tends to anger him.**

1.2.1 Obligatoriness requirements for SSR are sometimes suspended

Consider sentences (17) and (18), which parallel (6) and (7), and (19) and (20), which parallel (12) and (13).

(17) **That the Unicorn will win tends to be likely.**
(18) **The Unicorn tends to be likely to win.**
(19) **That the Unicorn will win tends to be a foregone conclusion.**
(20) ***The Unicorn tends to be a foregone conclusion to win.**

The structure corresponding to (17) and (19) fulfill the structural description for SSR governed by **tend.** Every model that I know of for administering obligatoriness constraints like that on **tend** says in effect that an obligatory rule must apply to any tree available to it that meets its structural description.[11] This means that, if SSR is in principle allowed to apply to (17) and (19), it should be required to apply to them, just as it is required to apply to (15). We have, in other words, to explain not only the fact that (20) is ungrammatical (that was our task in the last section), but also the fact that (17) and (19) are grammatical when we would have expected them to be starred by the obligatoriness requirement on **tend**-governed SSR. And, once again, the same pattern holds when other SSR-requiring verbs are used instead of **tend.**

1.2.2 Constraint A predicts this

To account for these facts we could, of course, complicate the mechanism for administering obligatoriness requirements by introducing a constraint (unconstraint?) which would state that if an obligatory rule has applied at least once as governed by the verb in question the obligatoriness requirement is satisfied even if the structural description is still met. You might call it the One-shot-is-all-you-need Condition. However, the independently needed Constraint A, by guaranteeing that you cannot apply SSR to structures like those of (17) and (19), renders it unnecessary to state that you need not. Thus Constraint A predicts the suspension of the obligatoriness requirement in just the necessary cases.

Thus, positing Constraint A saves us from having to complicate our statement of obligatoriness. This provides another argument for the existence of Constraint A.

1.3 The argument from SOR

Another well-known syntactic rule of English is Subject-to-Object Raising (SOR) (Postal 1974)[12] whose structural description requires that the sentence to which it is to apply have a sentential object and that the main verb of the sentence be one that governs SOR. If these conditions are met, SOR can apply to raise the subject of the embedded clause to become the object of the matrix clause. SOR applies, as governed by the verb **believe,** in the derivation of (22) from (21).

(21) **Alice didn't believe that the Queen was 101.**
(22) **Alice didn't believe the Queen to be 101.**

1.3.1 SOR data like the SSR data

Be likely and **be doubtful** contrast in that **be likely** permits SSR, whereas **be doubtful** prohibits it. Sentences (23) to (26) illustrate this fact.

(23) **That the Queen was 101 was likely.**
(24) **The Queen was likely to be 101.**
(25) **That the Queen was 101 was doubtful.**
(26) ***The Queen was doubtful to be 101.**

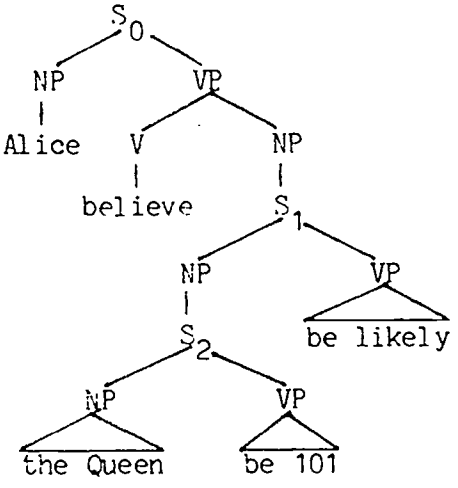
SOR-governing verbs like **believe** can have as their objects sentences that have sentential subjects. When SOR applies in such cases, the sentential subject of the lower verb is raised to become the object of the higher clause. Thus SOR can apply on the S_0 cycle of trees (27) and (31), producing trees (28) and (32) respectively.

(27) **Alice believed that that the Queen was 101 was likely.**
(28) **Alice believed that the Queen was 101 to be likely.**[13]
(29) **Alice believed the Queen to be likely to be 101.**
(30) **Alice believed that the Queen was likely to be 101.**

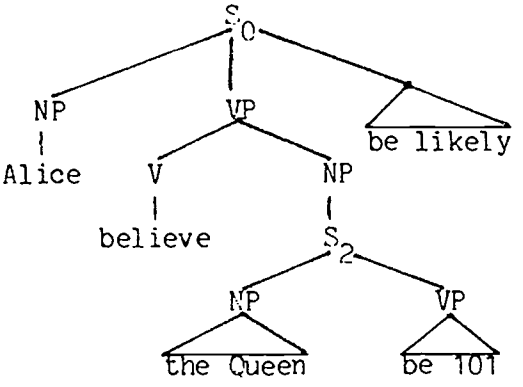
(31) **Alice believed that that the Queen was 101 was doubtful.**
(32) **Alice believed that the Queen was 101 to be doubtful.**
(33) ***Alice believed the Queen to be doubtful to be 101.**
(34) ***Alice believed that the Queen was doubtful to be 101.**

Trees (27) and (31) and their derivatives differ only in that the first group have the SSR-governing **be likely** as the S_1 verb, whereas the second group have **be doubtful,** which does not permit SSR to apply. Trees (28) and (32) fulfill the structural description for SOR. If SOR is allowed to apply, (29) and (33) result. Sentence (29) is grammatical, but it can be derived by another route, without applying SOR to tree (28). If SSR is applied on the S_1 cycle to tree (27), a tree corresponding to (30) can be derived, and application of SOR on the S_0 cycle to that tree will produce sentence (29). Thus application of SOR to structures like trees (28) and (32) is not necessary for the derivation of (29). Sentence (33), however, is ungrammatical. It has no alternate derivation available to it; (34), which parallels (30), is underivable because in order to derive it one would have to apply SSR on the S_1 cycle, as governed by **be doubtful,** which does not permit SSR. Thus, if we can block SOR from applying to structures like (28) and (32), we will permit the good sentence (29) and star the bad sentence (33).

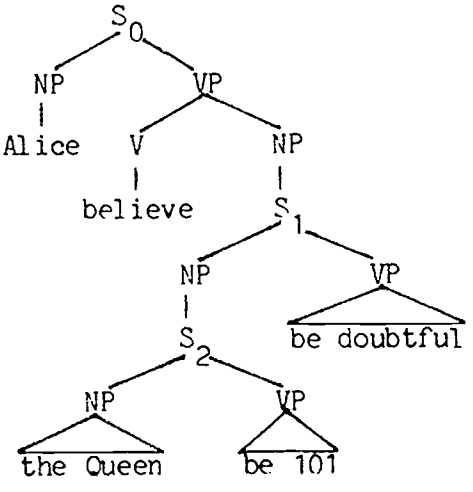
Tree (27)



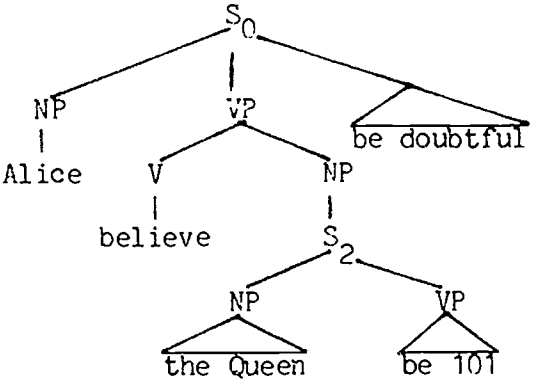
Tree (28)



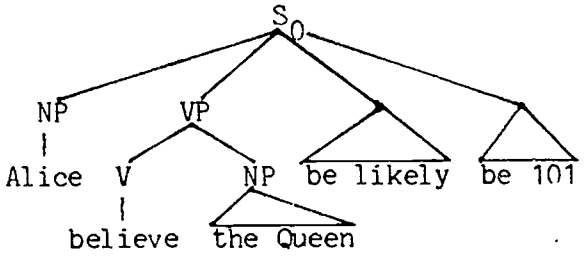
Tree (31)



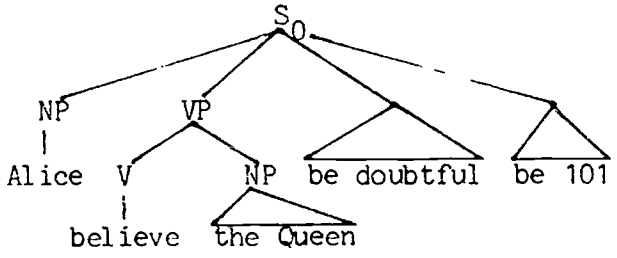
Tree (32)



Tree (29)



Tree (33)



As was the case with SSR examples, these examples do not stand alone. No matter what SOR-governing verb is substituted for **believe**, or what SSR-prohibiting verb is substituted for **be doubtful**, although sentences parallel with (28), (29) and (32) are grammatical, those which parallel (33) are ungrammatical.

1.3.2 Constraint A accounts for this

These facts must be accounted for. Again, we could change the structural description of SOR so that it would not apply to structures like tree (32), but to do so would be duplicating the mechanism needed to account for the SSR case. However, Constraint A, in either version, will do the job, without entailing any further complication of the syntactic mechanism. The One Shot version would star (33) because SOR must apply twice on the S_0 cycle in order to derive it, and the Antigone version would star it because SOR would have to apply to the raised clause S_2 in order to derive it. Either way, (33) will be starred. These data, then, constitute further evidence for the existence of Constraint A.

Constraint A will star sentences like (33), claiming that the only possible derivation for them would involve SSR on the S_1 cycle, in spite of the fact that the S_1 verbs do not permit SSR. This makes the intuitively right claim that (33) and (26) are ungrammatical in the same way, and that (29) and (24) are grammatical for the same reason, namely that **be likely**, in contrast to **be doubtful**, governs SSR.

1.4 The argument from NSR and Equi

The syntactic rule of Equi-NP Deletion (Equi) deletes an NP in an embedded clause coreferential to an NP in its mother clause (Rosenbaum 1967). It applies, as governed by the verb **be pleasant** and triggered by the nominal **the Walrus** in the upper clause, in deriving (36) from (35).

(35) (*) **For him$_i$ to eat the Oysters was pleasant for the Walrus$_i$.**
(36) **To eat the Oysters was pleasant for the Walrus.**

(35) is ungrammatical because Equi is required to apply with **be (un)pleasant.**

Be (un)pleasant governs another rule which has been called Tough Movement, Object Raising, or Non-Subject Raising (NSR) (Rosenbaum 1967:107; Postal 1971:27-28; Perlmutter and Soames 1979:240-2[illegible]). NSR applies to derive (37) from (36).

(37) **The Oysters were pleasant for the Walrus to eat.**

The structural description of NSR demands that the sentence to which it is to apply have a sentential subject. Berman (1974:271-273) claims that NSR is not a governed rule, but that any verb with the appropriate structural schema will do. In addition it has been claimed that NSR cannot apply unless the subject clause is itself subjectless, usually (if not always) because of the action of Equi, as was the case with (36) (Chomsky 1973:240: Berman 1974:264-271; Perlmutter and Soames 1979:502-511). This constraint explains why (39) cannot be derived from (38), and why in (40) the unspecified person(s) who ate and who experienced the unpleasantness must be the same.

(38) **For the Walrus to eat the Oysters was unpleasant for them.**
(39) ***The Oysters were unpleasant for them for the Walrus to eat.**
(40) **The Oysters were unpleasant to eat.**

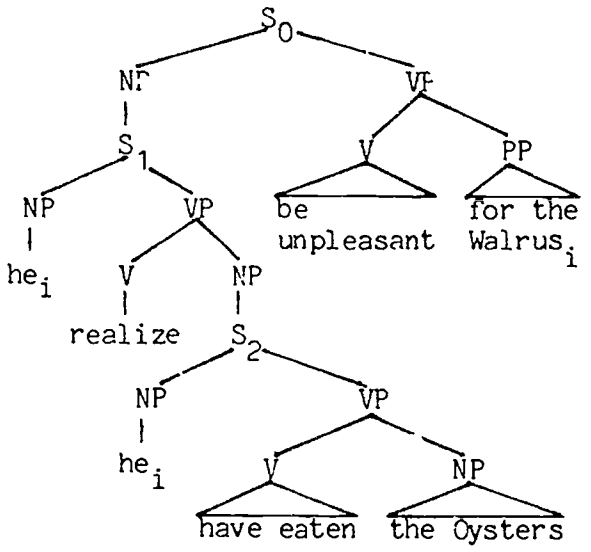
When these conditions are met, NSR raises a non-subject NP (usually an object) from within the sentential subject to become the subject of the matrix clause.

1.4.1 Equi cannot apply to some sentences derived by NSR

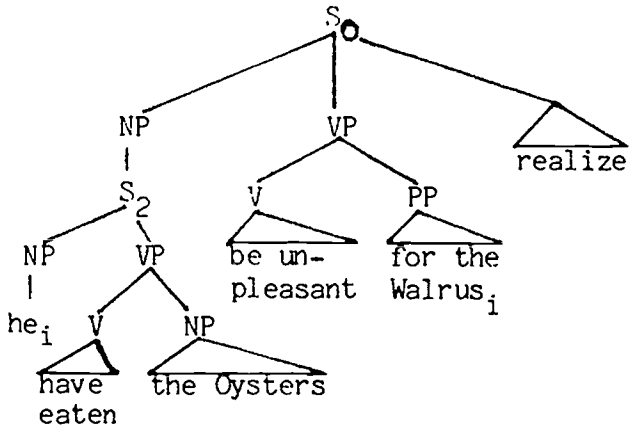
Consider the derivationally related sentences (41) to (44).

(41) ***For him$_i$ to realize that he$_i$ had eaten the Oysters was unpleasant for the Walrus$_i$.**
(42) **To realize that he$_i$ had eaten the Oysters was unpleasant for the Walrus$_i$.**
(43) **That he$_i$ had eaten the Oysters was unpleasant for the Walrus$_i$ to realize.**
(44) ***To have eaten the Oysters was unpleasant for the Walrus to realize.**

Tree (41)



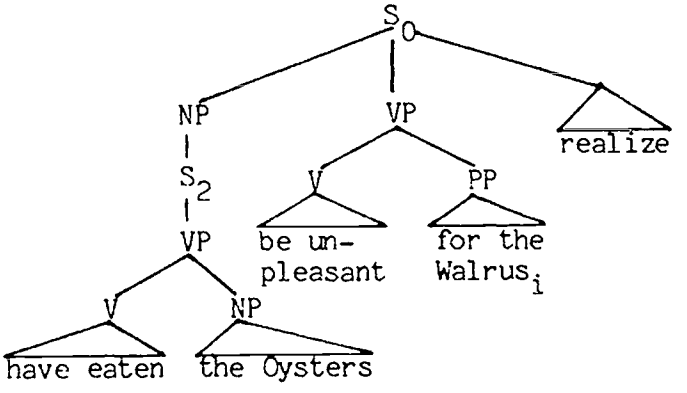
Tree (43)



Equi must apply to (41) on the S_0 cycle, converting it into (42). NSR can then apply to (42) since S_1 no longer has a subject. NSR raises S_2 from its object position to be subject of S_0, producing (43).

Tree (43) fulfills the structural description for Equi, and since Equi is obligatory with **be unpleasant** we would expect it to have to apply. However, if it does apply, the starred sentence (44) is produced.

Tree (44)



As was the case in the previous two sections, this pattern holds no matter what Equi-and-NSR-governing verb we substitute for **be unpleasant**, and what Equi-prohibiting verb we substitute for **want**.

1.4.2 Constraint A will account for this

In order to account for these facts we will want to prohibit Equi from applying to structures like tree (43). One way would be to change Equi's structural description to keep it from working when the governing verb is followed by an infinitival phrase. Since this would be duplicating the mechanisms needed by the SSR and SOR cases, we rule it out. Another possibility is that we have an ordering constraint: Under a strictly ordered model, Equi must be ordered before NSR (feeding) in order to change tree (41) into (42) so NSR can apply. This would mean that Equi could not apply again after NSR (counterfeeding). (All these applications are, of course, on the same cycle.) This would explain why Equi cannot apply to tree (43). However, unless a strictly ordered model can be independently justified, it itself is a complication to the theory which would exist only to explain this one data pattern.

In any case, it is not necessary to posit rule ordering here, because these data can be explained by Constraint A. The One Shot version of this constraint would prohibit Equi from applying to structures like tree (43) because this would be Equi's second shot on cycle S_0, and the Antigone version would do it because Equi would be applying to a clause that had been raised. Either way, (44) will be starred. Thus, unless independent motivation can be found for positing a strictly ordered model, these data provide additional evidence for Constraint A.

1.4.3 Further support for the argument from obligatoriness

These data also reinforce the argument of section 1.2. Here, too, if it were not for Constraint A, we would need a One-shot-is-all-you-need Condition on obligatoriness to explain the fact that (43) is grammatical in spite of the fact that it fulfills the structural description for Equi, and that Equi is required by **be unpleasant.**

2. A counter proposal considered—the CH

2.1 The CH can account for the data so far

There is a plausible alternative hypothesis to Constraint A which will explain the data thus far presented. We will call it the Complementizer Hypothesis (CH).[14] It has two main tenets: (a) Complementizers are chosen early in the derivation[15] on the basis of which verb commands their clauses in underlying structure, and complement clauses keep their original complementizer when raised. (b) Rules such as SSR, SOR and Equi make crucial reference to complementizers. None of these rules will apply if the downstairs clause they affect is complementized by **that**; they can only affect NP's in **for-to** clauses.

If this Hypothesis could be maintained, the following claims would be made with respect to SSR: Pairs of sentences like (1) and (2), (3) and (4), (9) and (10), and (15) and (16) would come from different underlying structures. In each case the first (unraised) one would have a **that** as complementizer on the lower clause and the other would have **for-to.** The ungrammaticality of sentences like (10) and (15) might be due not so much to obligatoriness constraints on the verbs involved[16] as to co-occurrence restrictions holding between them and the complementizers at the underlying level: **be a foregone conclusion** would not take a **for-to** complementizer, nor would **tend** take a **that** complementizer. These co-occurrence restrictions would not hold for derived structures; even though the structures corresponding to (17) and (19) would have **tend** commanding a **that** complementizer, they are not starred. But the fact that the lower clause would be complementized by **that** (and would have to be complementized by **that**, since it was originally commanded by **be a foregone conclusion**) would be enough to prevent SSR from applying to these structures. It would not be necessary to invoke Constraint A to prevent the derivation of (20) and explain the grammaticality of (17) and (19).

The case of SOR is similar. (28) and (29) would come from different trees; (28) with a **that** and (29) with a **for-to** complementizer. (33) could not be derived from (32) because the clause "**the Queen be 101**" would be complementized by **that,** as would be all clauses originally commanded by **be doubtful.** To derive (33), part (b) of the CH would have to be violated. Again, Constraint A would not be needed to block the derivation.

And, finally, Equi would not be able to apply to (43) to produce (44) because "**he have eaten the Oysters**" would have a **that** as complementizer and not a **for-to.** To apply Equi would again violate part (b) of the CH.

In sum, then, the crucially bad sentences (13), (20), (33), and (44) could be starred because their derivations would involve violations of part (b) of the

CH, which prevent SSR, SOR and Equi from applying to that-clauses. The CH would also predict the suspension of obligatoriness in the cases of (17), (19), and (43), thus accounting for their grammaticality. Constraint A would be unnecessary in each of these cases.

2.2 The CH duplicates mechanisms

One argument against the CH is this: the CH requires us to posit duplicate mechanisms for SSR, SOR, and Equi: all three rules must contain statements guaranteeing that they will apply only with **for-to** clauses, and not with **that** clauses. I have not been able to formulate a general principle to combine these statements into one. One cannot say that all rules, or all cyclic rules, or all two-storey rules require a **for-to** complementizer, because Extraposition does not, as the following sentences show.

(45) **For the Panther to eat the Owl was cruel.**
It was cruel for the Panther to eat the Owl.
(46) **That the Panther would eat the Owl was obvious.**
It was obvious that the Panther would eat the Owl.

Thus it will be hard if not impossible to find a general way to state the constraint making SSR, SOR, and Equi apply only to **that**-complementized clauses. And unless such a general statement can be made, independent statements will have to be made for each rule. Unless there is independent reason to justify this the theory with Constraint A, which has only one statement to accomplish the same things, is preferable.

2.3 Even for-to clauses obey Constraint A

Various other arguments against the CH are possible. Several of the assumptions embodied in part (a) of the CH can be severely questioned, if not falsified. For instance, as sentence (47) shows, a complement originally embedded under **be a foregone conclusion** may have a **for-to** complementizer after raising, although part (a) of the CH would demand a **that** complementizer.[17]

(47) **For the Unicorn to win would tend to be a foregone conclusion.**

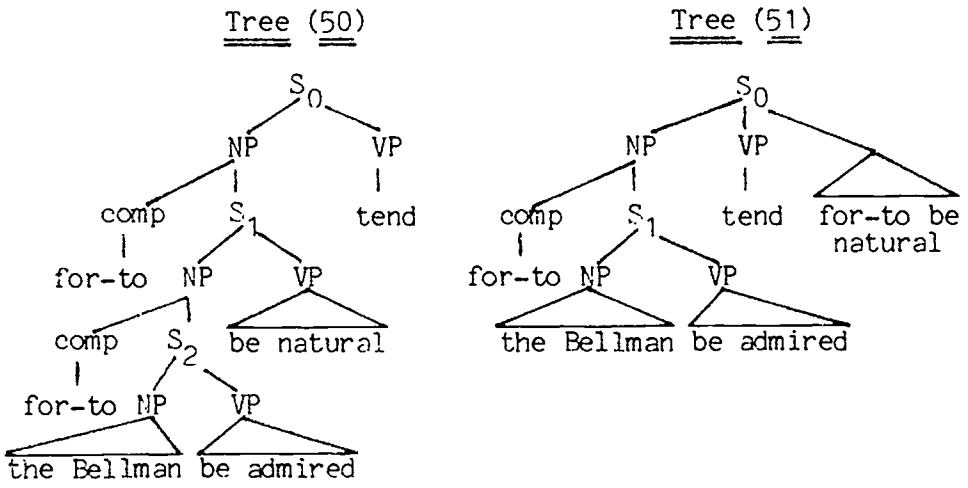
But the strongest argument for our purposes is to point out that the CH is inadequate: there exist sentences with **for-to** complementizers on all the embedded clauses which exhibit the same behavior as those we examined in section 1. The CH incorrectly predicts that SSR, SOR, and Equi should have unrestricted application in such cases, whereas Constraint A correctly predicts that they are prohibited from applying to certain sentences.

For instance, the verb **be natural** takes a **for-to** complement in such sentences as (48). **Be natural** does not permit SSR: (49) may not be derived from (48).

(48) **For the Bellman to be admired is natural.**
(49) ***The Bellman is natural to be admired.**

When the tree underlying (48), with its **for-to** complementizer, is embedded under a verb like **tend**, the same pattern emerges as in the case of (9), with its **that** complementizer.

(51) **For the Bellman to be admired tends to be natural.**
(52) ***The Bellman tends to be natural to be admired.**



SSR applies on the S_0 cycle of tree (50), producing tree (51). S_2 in both tree (50) and tree (51) is complementized by **for-to.** If the reason SSR cannot apply to tree (12) were that to do so would involve applying to a clause complementized by **that**, as the CH claims, we should expect SSR to be able to apply to tree (51), as its embedded clause is complementized by **for-to.** However, if SSR does apply, the ungrammatical (52) is produced. Constraint A, however, correctly predicts that SSR cannot apply to tree (51), either because it would be applying for the second time on the cycle of **tend,** or because it would be applying to a raised clause. Thus Constraint A is to be preferred over the CH because it makes the correct prediction.

The same pattern holds true no matter what SSR prohibiting and **for-to** using verb is substituted for **be natural,** or what SSR governing verb is substituted for **tend.** Thus the same argument can be made from SSR with **for-to** clauses as with **that** clauses.

As will be obvious, the argument from obligatory SSR can also be duplicated; Constraint A is necessary to explain why (51) is grammatical as well as why (52) is not.

Similarly the arguments from SOR and from NSR and Equi can be duplicated with sentences using only **for-to** clauses. To save space I will simply list representative sentences and leave it to the reader to verify that they will indeed support arguments parallel to those in sections 1.3 and 1.4.

For SOR:

(53) The guests expected for for Alice to be introduced to the Pudding to be pleasant for the Queen.
(54) The guests expected for Alice to be introduced to the Pudding to be pleasant for the Queen.
(55) *The guests expected Alice to be pleasant for the Queen to be introduced to the Pudding.

For NSR and Equi:

(56) (*) For him_i to suggest for him_i to eat the Oysters was pleasant for the $Carpenter_i$.
(57) To suggest for himself to eat the Oysters was pleasant for the Carpenter.
(58) For himself to eat the Oysters was pleasant for the Carpenter to suggest.
(59) *To eat the Oysters was pleasant for the Carpenter to suggest. (=(58))

In each case the same patterns hold true no matter what other verbs similar in rule governance and for-to usage are substituted for **expect**, **be pleasant**, and **suggest**.

I conclude that Constraint A is to be preferred over the CH to account for the data so far presented, both because the CH involves unnecessary duplication and because it cannot account for the ungrammaticality of sentences like (52), (55), and (59), nor for the grammaticality of sentences like (51) and (58). Constraint A accounts for the same data and more, and does it more simply.

3. Constraint A is the Antigone Constraint

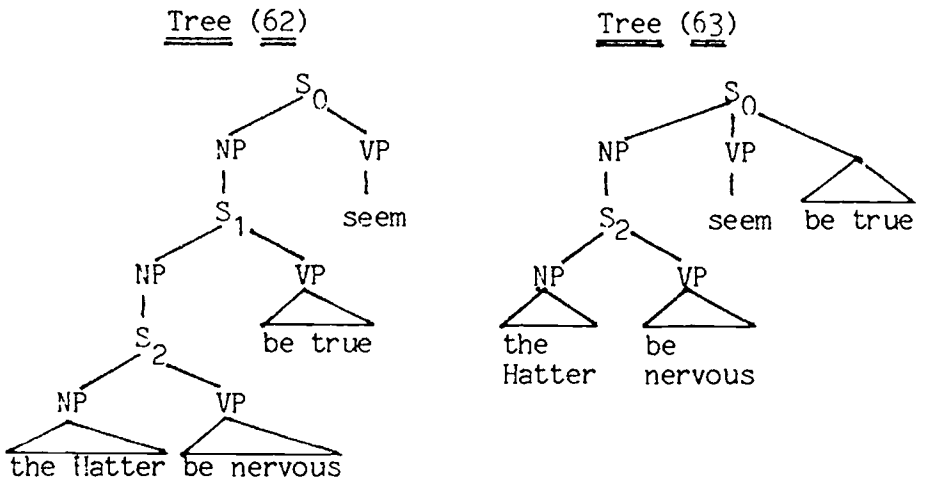
3.1 The argument from SSR and Extr

Another well-known rule of English is Extraposition (Extr) (Rosenbaum 1967). The structural description of Extr requires that the sentence to which it is to apply have a sentential subject; it has been claimed that Extr is not a governed verb (Ross 1973:549,560),[18] but it may be the case that it also requires that the main verb of the sentence be one that governs Extr. If this is so, the vast majority of verbs that permit sentential subjects do govern it. When its structural description is met, Extr can move the sentential subject to a position at the end of the main clause, leaving behind the pronoun **it**. Extr applies in the derivation of (61) from (60).

(60) (*) That the Hatter is nervous seems.
(61) It seems that the Hatter is nervous.

3.1.1 Extr can not apply to certain sentences

Many predicates, including **seem**, govern both SSR and Extr. In a structure like tree (62) involving such a predicate, SSR can apply to raise the sentential subject of the lower clause to be subject of the higher clause. Doing so produces tree (63). As we saw in section 1.1, SSR may not apply again to this tree. To do so would produce the ungrammatical sentence (64).

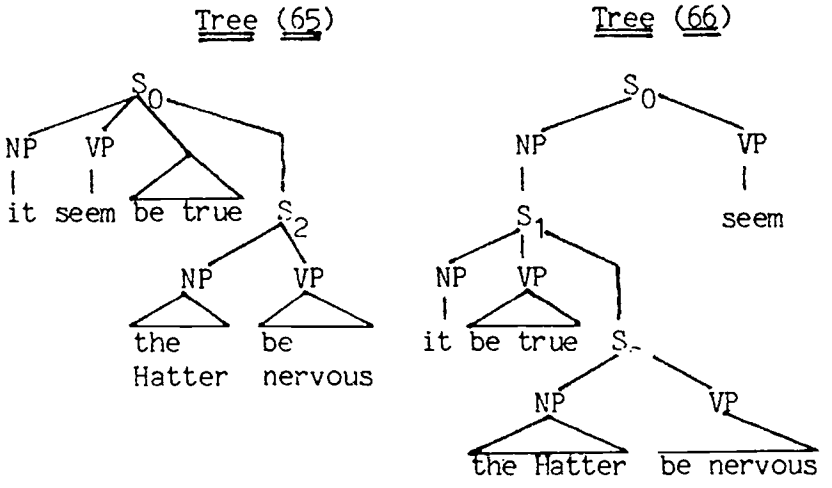


(62) (*) **That that the Hatter is nervous is true seems.**
(63) **That the Hatter is nervous seems to be true.**
(64) ***The Hatter seems to be true to be nervous.**

But the question arises as to whether Extr can apply to structures like tree (63). If we apply Extr to tree (63), the grammatical sentence (65) is produced.

(65) **It seems to be true that the Hatter is nervous.**

But this is not the only possible derivation for (65). (65) can also be derived by Extr applying to tree (62) on the S_1 cycle, producing tree (66). SSR can then apply to tree (66) on the S_0 cycle, producing a tree essentially like tree (65) and, eventually, sentence (65). We need to find a case where this second kind of derivation is blocked, and then we can see if Extr can apply to a structure like tree (63) in such a case.

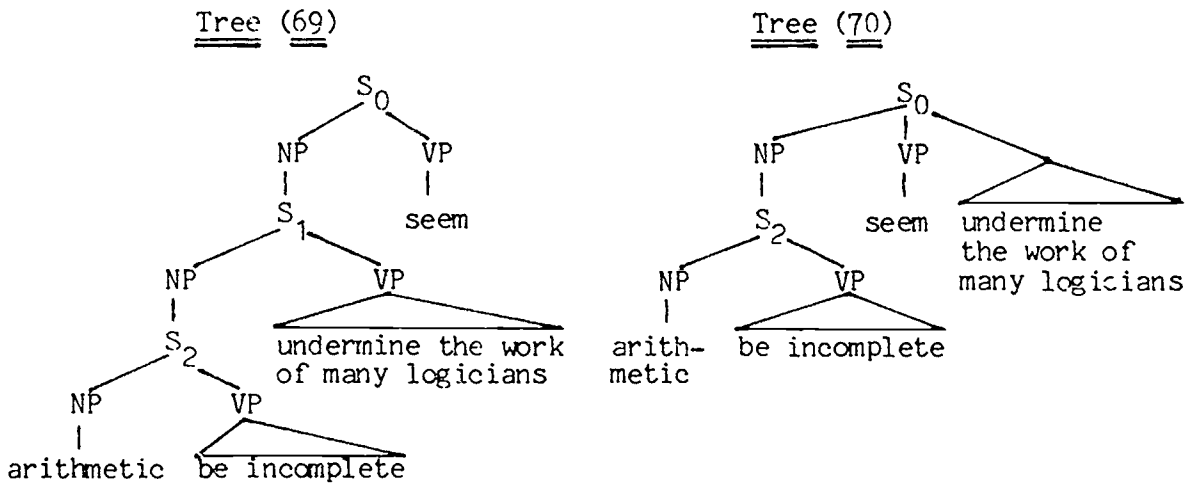


Unfortunately, such cases are hard to find. The desideratum is a predicate that has a sentential subject but that does not govern Extr, and that, unlike **tend**, does not require SSR instead. Perlmutter and Soames (1979:452 ff.) give three different sentences which for many speakers do not permit Extr. We will examine the first one: parallel arguments can be made from the others.[19]

(67) **That arithmetic is incomplete undermines the work of many logicians.**
(68) ***It undermines the work of many logicians that arithmetic is incomplete.**

Sentence (68) shows that the basic sentence, sentence (67), cannot extrapose. (Remember that this argument refers only to those dialects for which this is true.)

In tree (69), the structure underlying sentence (67) has been embedded under th predicate **seem**. We know by the ungrammaticality of sentence (68) that Extr cannot apply on the S_1 cycle. On the S_0 cycle, SSR can apply. Its application produces tree (70).



Tree (70), then, is the crucial tree, like tree (63) except that here Extr cannot apply on the lower cycle to feed SSR. Now, if Extr is applied to tree (70), (71) results. (71) is ungrammatical.

(70) That arithmetic is incomplete seems to undermine the work of many logicians.

(71) *It seems to undermine the work of many logicians that arithmetic is incomplete.

3.1.2 The One Shot Constraint can not account for this; Antigone can

The derivation of sentence (71) cannot be blocked by the One Shot version of Constraint A; no rule has applied twice on the same cycle. It can, however, be accounted for by the Antigone version of Constraint A. The Antigone Constraint says that Extr cannot apply to tree (70) because it would be applying to a raised clause, namely S_2. This then gives us some grounds for preferring the Antigone Constraint over the One Shot Constraint, because it allows us to predict the ungrammaticality of sentences like (71).

(71) could also be blocked by an ordering constraint (counterfeeding) between SSR and Extr. By ordering Extr before SSR we would guarantee that Extr could not apply to the output of SSR. Thus, on the S_0 cycle of tree (69), Extr would be tested for application before SSR could apply. After SSR applied, producing tree (70), Extr could not apply any more. Thus the derivation of tree (71) and sentence (71) would be blocked. However, there is no independent evidence that I know of for positing this ordering, so to use it would be ad hoc. Thus the Antigone Constraint, which can be motivated by the data in sections 1 and 2, is preferable to the One Shot Constraint plus an ordering constraint.

3.2 Another argument from obligatoriness?

Under certain assumptions an argument can be drawn from obligatoriness that the Antigone Constraint is superior to the One Shot Constraint. The argument depends on assumptions about the obligatoriness requirements of verbs like **seem**. **Seem** governs both SSR (as in (3) and (4)) and Extr (as in (60) and (61)), but at least one of the two rules must apply: (3) and (60) must not surface. Under different models these facts can be explained in different ways. Two possible models would involve the following assumptions: (a) Extr is obligatory with **seem**; (b) Both SSR and Extr are obligatory with **seem**. Under either of these models (6), (12), and (70) ought to be obliged to undergo Extr, and should not be permitted to surface. We need some constraint to predict for us that the obligatoriness requirements are suspended in these cases. The One Shot Constraint cannot help us; Extr has not applied on this cycle. We need the Antigone Constraint (or an ad hoc ordering constraint) to suspend the otherwise obligatory application of Extr and permit (6), (12), and (70) to surface. Thus, under either assumption (a) or assumption (b), the Antigone Constraint is superior to the One Shot Constraint because it predicts the grammaticality of (6), (12) and (70).[20]

3.3 The argument from SOR and Extr

Extr can also apply to sentential objects, moving them to the end of the sentence and leaving the pronoun it in their place.[21] Extr applies to the sentential object of **expect** in (72), producing (73).

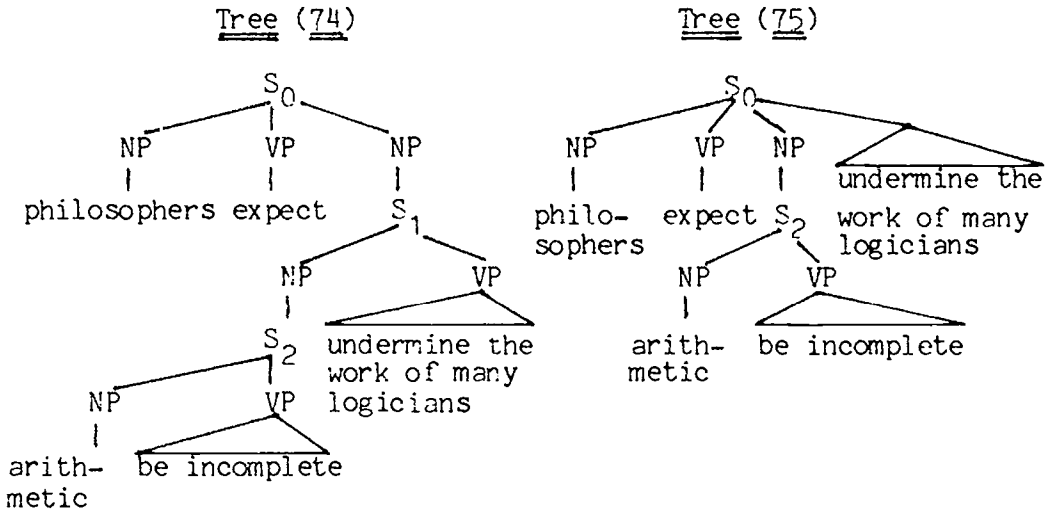
(72) **The Duchess expected that the baby would sneeze.**
(73) **The Duchess expected it that the baby would sneeze.**

3.3.1 Extr can not apply to certain sentences

When a structure that does not permit Extr, like (67), is embedded under an SOR and Extr governing verb like **expect**, the same sort of pattern emerges as in the last section. Tree (74) is such a tree.

(74) **Philosophers expect that that arithmetic is incomplete will undermine the work of many logicians.**
(75) **Philosophers expect that arithmetic is incomplete to undermine the work of many logicians.**
(76) ***Philosophers expect it to undermine the work of many logicians that arithmetic is incomplete.**

SOR can apply to tree (74), producing tree (75). This tree fulfills the structural description for Extr, so we would expect Extr to be able to apply. However, if it applies, the ungrammatical (76) is produced.



The same pattern emerges when the other Extr-prohibiting sentences mentioned in the last section are embedded under a verb like **expect**.

3.3.2 The One Shot Constraint can not account for this; Antigone can

The derivation of (76) cannot be blocked by the One Shot Constraint, because no rule has applied twice on the same cycle. However, it can be blocked by the Antigone Constraint. The Antigone Constraint says that Extr cannot apply to tree (75) because it would be applying to a raised clause, namely S_2. The Antigone Constraint is thus to be preferred over the One Shot Constraint, because it will account for the ungrammaticality of (76).

Once more we could block the derivation by an ordering constraint. We would order Extr to precede SOR (counterfeeding, again). On the S_0 cycle of tree (74), Extr would be tested for application before SOR. If it elected to apply, the grammatical (77) would result.

(77) **Philosophers expect it that that arithmetic is incomplete will undermine the work of many logicians.**

If it elected not to apply, SOR would be given a chance. Its application would produce (75). But at that point the ordering constraint would prohibit Extr from being tested again for application, and (76) would be blocked, But we would again be positing an otherwise unjustified ordering constraint. A model with the Antigone Constraint and no such ordering constraints is preferable to one with the One Shot Constraint and ordering constraints.

3.4 Further arguments involving Extr

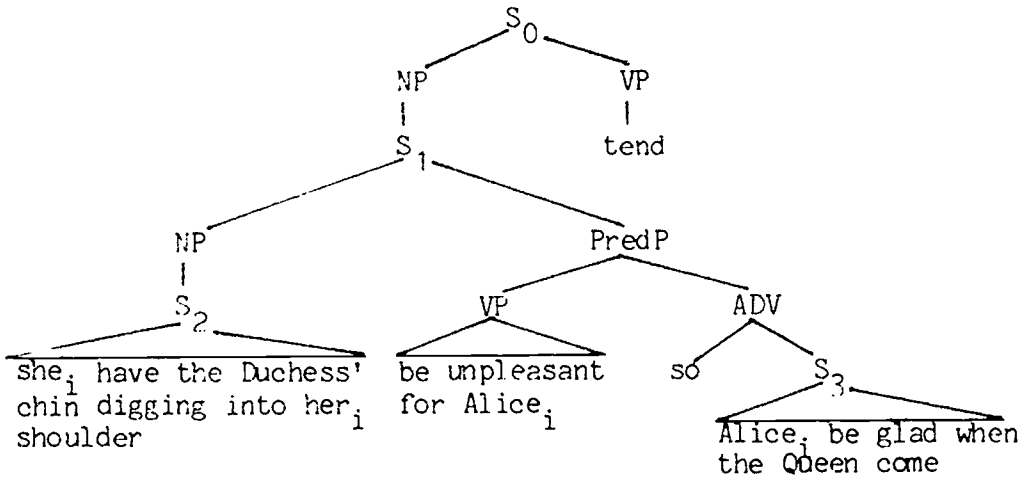
3.4.1 Tail clauses

There is a class of arguments for the Antigone Constraint over the One Shot Constraint which involve the non-application of Extr to sentences containing complement clauses which embed clauses of a class (mostly adverbial) which I will call Tail clauses. Tail clauses more or less strongly tend to appear in the last (Tail) position in their clauses. They include (**simply**) **because**-clauses, **so**-clauses, **until**-clauses, **even though** and **although**-clauses, **that**-clauses in **so**-(Modifier)-**that**-clause constructions,[22] and others. Sentences (78) and (80) show Tail clauses in Tail position, following clauses extraposed by Extr. Sentences (79) and (81) show that the extraposed clause may not follow the Tail clause.

(78) It was unpleasant to have the Duchess' chin digging into her shoulder, so Alice was glad when the Queen came.
(79) *It was unpleasant, so Alice was glad when the Queen came, to have the Duchess' chin digging into her shoulder.
(80) It didn't occur to Humpty Dumpty that Alice might want to go simply because he was eager to recite his poem.
(81) *It didn't occur to Humpty Dumpty simply because he was eager to recite his poem that Alice might want to go.

I will assume (following Rosenbaum 1967 and Langacker 1969) that S_1 in tree (82) is a good approximation of the structure underlying (78).[23]

Tree (82)



To maintain these arguments from Tail clauses, it must be assumed that (a) Tail clauses underlyingly are (or at least may be) in the clause over which they have semantic scope, and not in that clause's mother clause, and (b) Tail clauses are not moved out of the clause when they are moved to the Tail position.[24]

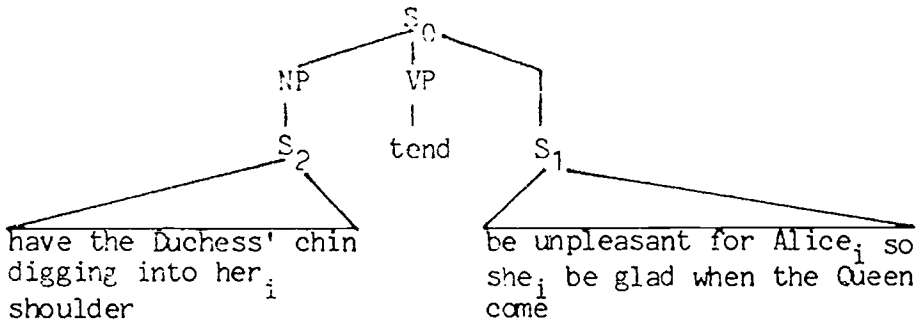
3.4.2 SSR and Extr

Consider, then, the following data:

(83) **It tended to be unpleasant to have the Duchess' chin digging into her shoulder, so Alice was glad when the Queen came.**
(84) **To have the Duchess' chin digging into her shoulder tended to be unpleasant, so Alice was glad when the Queen came.**
(85) ***It tended to be unpleasant, so Alice was glad when the Queen came, to have the Duchess' chin digging into her shoulder.**

Tree (82) consists of (78) embedded under **tend.** It can, by undergoing Extr on the S_1 cycle and (obligatorily) SSR on the S_0 cycle, result in (83). Or, by not undergoing Extr on the S_1 cycle and undergoing SSR (obligatorily) on the S_0 cycle, it can produce (84). The structural description for Extr is satisfied in tree (84).

Tree (84)



However, if it applies, the ungrammatical (85) is produced. The application of Extr to (84) could not produce (83) unless (i) Extr were complicated in some ad hoc manner to allow it to move the extraposed clause to within an embedded clause, or (ii) the rule moving the Tail clause to Tail position moves it out of its clause, in violation of assumption (b) above (3.4.1).

Thus we need some constraint to block this application of Extr. The One Shot Constraint cannot block it, as this is the first time Extr has applied on this cycle (or in this derivation, for that matter). However, the Antigone Constraint can block the derivation, because Extr would be applying to a raised clause, namely S_2.

As was the case with the argument in section 3.1, the data can also be accounted for by a constraint ordering Extr before SSR. However, the Antigone Constraint is independently needed, whereas the ordering constraint is not. Thus the Antigone Constraint is to be preferred.

A parallel argument can be made from sentences (86) to (89). Here the argument is that the ungrammaticality of (88) is predicted by a model with the Antigone Constraint, for its only possible source is tree (89), which is ungrammatical in exactly the same way. This ungrammaticality would not be predicted by a model which allowed (88) to be derived by Extr from the grammatical tree (87).

(86) It seems not to have occurred to Humpty Dumpty that Alice might want to go simply because he was eager to recite his poem.
(87) That Alice might not want to go seems not to have occurred to Humpty Dumpty simply because he was eager to recite his poem.
(88) *It seems not to have occurred to Humpty Dumpty simply because he was eager to recite his poem that Alice might want to go.
(89) (*)*That it didn't occur to Humpty Dumpty simply because he was eager to recite his poem that Alice might want to go seems.

Exactly parallel arguments can be made from other sentences with parallel structures and with differing SSR governing verbs and Tail clauses in place of those in the examples.

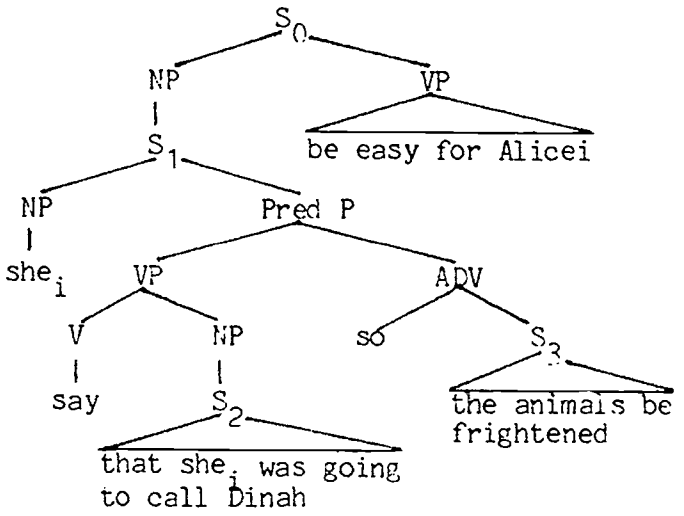
3.4.3 NSR and Extr

A parallel argument can be made from data involving NSR and Extr. (90) and (91) show Tail clause behavior. (We will be concerned with (90) only on the reading where the so-clause expresses the purpose of the verb say rather than of the verb call.)

(90) Alice said that she was going to call Dinah so that the animals would be frightened.
(91) *Alice said so that the animals would be frightened that she was going to call Dinah.

Tree (92) is formed by embedding (90) under the NSR governing predicate be easy.

Tree (92)



(93) To say that she was going to call Dinah so that the animals would be frightened was easy for Alice.

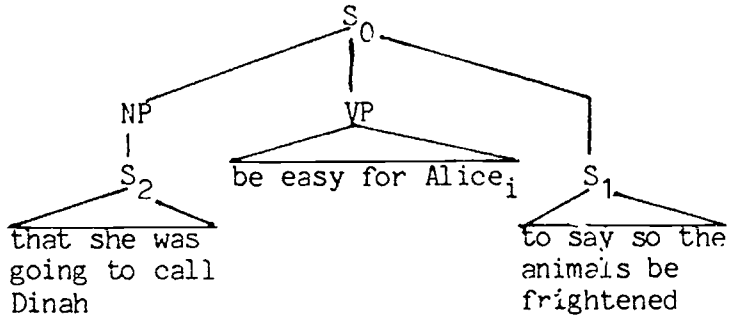
(94) It was easy for Alice to say that she was going to call Dianh so that the animals would be frightened.

(95) That she was going to call Dinah was easy for Alice to say so that the animals would be frightened.

(96) *It was easy for Alice to say so that the animals would be frightened that she was going to call Dinah.

Application of Equi to tree (92) (on the S_0 cycle) produces (93). The structure underlying (93) fulfills the structural description for Extr, which, if it applies, produces (94). It also fulfills the structural description for NSR, which, if it applies, produces (95). Tree (95) fulfills the structural description for Extr. However, if Extr applies, the ungrammatical (96) is produced. Application of Extr to tree (95) cannot produce the grammatical (94) unless (i) Extr is complicated in some ad hoc manner to allow it to move the extraposed clause to within an embedded clause, or (ii) the rule moving the Tail clause moves it out of its clause, in violation of asssumption (b) in the previous section.

Tree (95)



Thus we need to block the application of Extr to tree (95). The One Shot Constraint cannot block it, because it is the first time Extr has applied on this cycle (or in this derivation). The Antigone Constraint can block the derivation, because Extr would be applying to a raised clause, namely S_2.

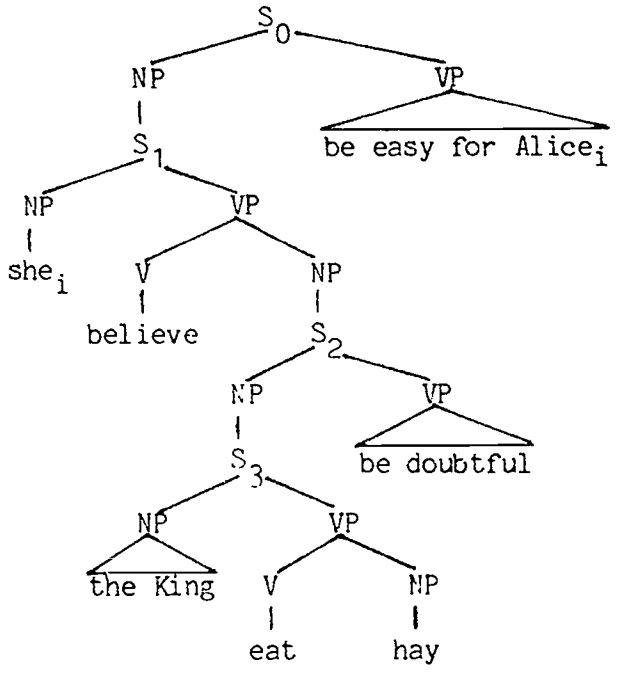
As usual, an ordering constraint could also be posited to block this derivation. Extr would have to precede NSR (counterfeeding). However, unless this ordering can be independently motivated, its usage here is ad hoc. The independently motivated Antigone Constraint is preferable.

Parallel arguments can be made with similar structures using other NSR governing verbs and other Tail clauses in place of those used above.

3.4.4 NSR and Extr again

A very similar argument can be made which is relatively free from dependence on assumptions (a) and (b) of section 3.4.1.

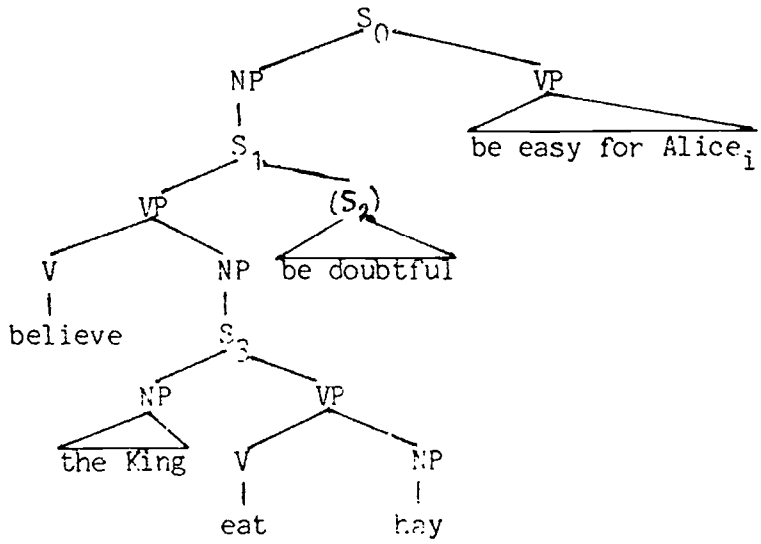
Tree (97)



In tree (97), the NSR governing verb **be easy** commands a structure like that associated with (31), in which an SOR governing verb (**believe**) has as its object a sentence with a sentential subject. On the S_1 cycle of tree (97) SOR can apply to produce (98). On the S_0 cycle of (98) Equi must apply to give tree (99).

(97) (*)For her$_i$ to believe that that the King eats hay is doubtful was easy for Alice$_i$.
(98) (*)For her$_i$ to believe that the King eats hay to be doubtful was easy for Alice$_i$.
(99) To believe that the King eats hay to be doubtful was easy for Alice.

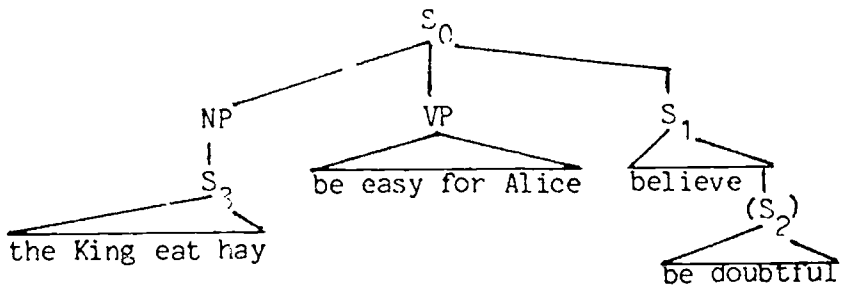
Tree (99)



Tree (99) fills the structural description for NSR to apply. NSR can apply, raising the object of **believe** to become subject of **be easy**, producing (100).[25]

(100) **That the King eats hay was easy for Alice to believe to be doubtful.**
(101) ***It was easy for Alice to believe to be doubtful that the King eats hay.**
(102) **It was easy for Alice to believe that the King eats hay to be doubtful.**

Tree (100)



Tree (100) fulfills the structural description for Extr. However, if Extr applies, the ungrammatical (101) is produced. The application of Extr to tree

(100) cannot produce the grammatical (102) unless (i) Extr is complicated in some ad hoc manner to allow it to move the extraposed clause to within an embedded clause, or (ii) we posit some otherwise unnecessary rule to move the already once moved remains of S_2. Neither approach is desirable. In any case (102) need not be derived from (100); it can be derived by the application of Extr to tree (99).

Thus we need to block the application of Extr to tree (100).[26] The One Shot Constraint cannot block it, because this is the first time Extr has applied on its cycle. The Antigone Constraint can block the derivation, because Extr would be applying to a raised clause, namely S_3.

Once again, ordering Extr before NSR would block the derivation. But such an ordering would be ad hoc, whereas the Antigone Constraint is independently motivated.

3.5 The argument from SOR and Equi

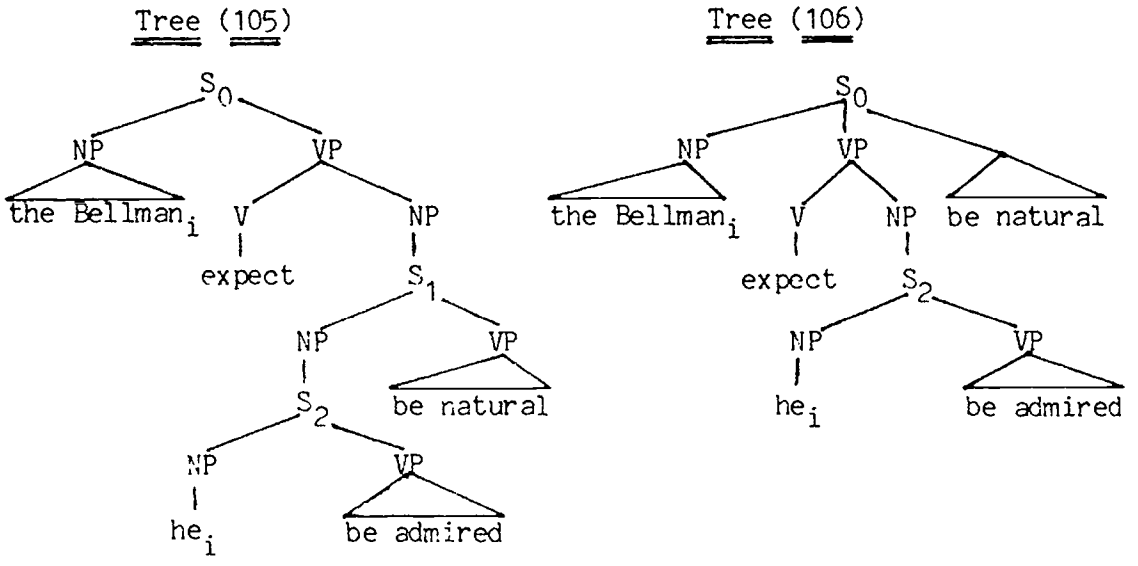
3.5.1 Equi cannot apply to certain sentences

Certain predicates, such as **expect**, govern both SOR and Equi, as the following sentences indicate.

(103) ?***The Bellman expects for himself to be admired.**
The Bellman expects to be admired.
(104) **The Bellman expects for people to admire him.**
The Bellman expects people to admire him

In a structure like tree (105) which involves such a predicate, SOR can apply, raising the sentential subject of the lower S to become the object of the higher clause. This produces tree (106).

(105) **The Bellman$_i$ expected for for him$_i$ to be admired to be natural.**
(106) **The Bellman expected for himself to be admired to be natural.**[27]



Tree (106) fulfills the structural description for Equi to apply. If Equi is applied, the ungrammatical (107) results.

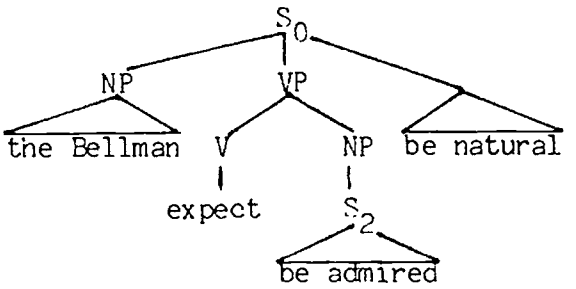
(107) ***The Bellman expected to be admired to be natural.**

Apparently all sentences like (106) with different SOR and Equi governing verbs instead of **expect** exhibit the same behavior. These facts should be explained.

3.5.2 The One Shot Constraint can not account for this; Antigone can

The derivation of sentence (107) cannot be blocked by the One Shot Constraint: no rule has applied twice on the same cycle. The derivation can, however, be blocked by the Antigone Constraint, because it requires Equi to apply to a clause that has been raised, namely S_2. Thus we have another case where the Antigone Constraint is to be preferred over the One Shot Constraint, because it will account for the grammaticality of (107).

Tree (107)



Once again, the derivation could be blocked by an ordering constraint (counterfeeding) between SOR and Equi. By ordering Equi before SOR, we would guarantee that Equi could not apply to the output of SOR. Thus, on the S_0 cycle of tree (105), Equi would be tested for application before SOR could apply. After SOR applied, producing tree (106), Equi could not apply again. Thus the derivation of (107) would be blocked. Once again, however, we would be positing an otherwise unnecessary ordering constraint. A model with the Antigone Constraint and no such ordering constraints is preferable to one with the One Shot Constraint and ordering constraints.

3.6 The argument from SOR and NSR

3.6.1 NSR can apply to raise multiply embedded objects

Apparently NSR can raise not only simple objects, but embedded objects, even deeply embedded objects, as long as the subject NP from which they are raised is itself subjectless (Berman 1974:263; contrast Postal 1971:113; Perlmutter and Soames 1979:510-511). For instance, Equi can apply to tree (41), removing the subject of S_1. This produces the tree underlying (42). NSR can apply in at least two ways to this tree. In one way it raises the object of S_1, namely S_2. This produces (43). The other way NSR can apply to (42) is to raise the embedded object **the Oysters**. This produces (108).

(108) **The Oysters were unpleasant for the Walrus$_i$ to realize that he$_i$ had eaten.**

(108) is grammatical for many speakers.[28] It cannot have been derived from tree (43) because to do so would violate the constraint against NSR raising a consitutent of a clause which has a subject. Yet that constraint must hold; if NSR could raise constituents of a clause with a subject, we would be permitting sentences like (109).

(109) ***The Oysters were unpleasant for the Walrus for the Carpenter to have eaten.**

This gives us an example where NSR applies to raise an embedded object from a subjectless clause. Examples can easily be constructed which show NSR extracting objects that are embedded several layers down. For instance:

(110) **The Oysters were pleasant for the Walrus to expect that the Carpenter would tell him to eat.**

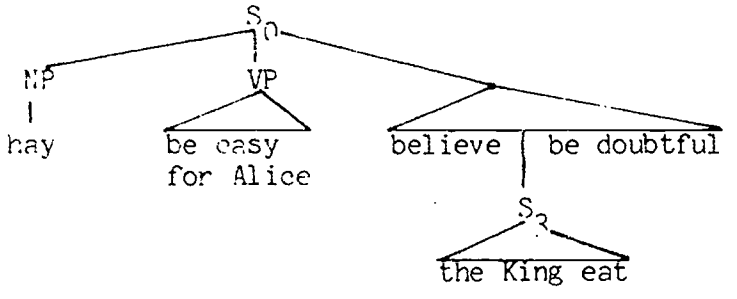
3.6.2 NSR cannot apply to certain sentences

Tree (99) fills the structural description for NSR to apply. As we have just seen, NSR can apply to raise an embedded object to make it subject of the matrix sentence. Thus we should expect NSR to be able to raise the embedded object **hay** from S_3 and make it the subject of **be easy**. However, if it does, the ungrammatical (111) is produced.[29]

(111) ***Hay was easy for Alice to believe that the King eats to be doubtful.**

Apparently all structures like (99), with different SOR and NSR governing verbs in place of **believe** and **be easy** exhibit the same behavior. These facts should be explained.

Tree (111)



3.6.2 The One Shot Constraint can not account for this; Antigone can

The derivation of sentence (111) cannot be blocked by the One Shot Constraint, because no rule has applied twice on the same cycle. The derivation can, however, be blocked by the Antigone Constraint, because to derive (111) from (99) NSR must apply to a clause which has been raised, namely S_3. Again, then, we have a case where the Antigone Constraint will account for a class of ungrammatical sentences which the One Shot Constraint cannot. Therefore the Antigone Constraint is to be preferred.

Notice that in this case there can be no question of ordering NSR to precede SOR in order to block the derivation. SOR applies on the S_1 cycle, and NSR on the S_0 cycle. Any constraint that would prevent a given rule from

applying on a given cycle if another certain rule has applied on the previous cycle would certainly be undesirable. And, in fact, it is easy to find instances where NSR does apply to raise an object created by SOR on the next cycle down. For instance, SOR raises **the Hare** in (112) to become object of **believe** in (113). Then, after the application of Equi on the next higher cycle, NSR can apply, raising **the Hare** to become the subject of **be easy** in (114).

(112) (*) **For him$_i$ to believe that the Hare was mad was easy for the Hatter$_i$.**
(113) (*) **For him$_i$ to believe the Hare to be mad was easy for the Hatter$_i$.**
(114) **The Hare was easy for the Hatter to believe to be mad.**

Thus it is clear that NSR can, in general, apply to the output of SOR's application on a lower cycle.[30] Thus we cannot use an ordering-like constraint prohibiting NSR's application to SOR's output to block the derivation of (111) from (99). This means, of course, that some other constraint will be necessary. The Antigone Constraint fills the bill.

3.7 Conclusion

In sections 3.1 to 3.5 we have seen several cases of classes of ungrammatical sentences which were automatically starred by the Antigone version of Constraint A, but which could not be explained by the One Shot Constraint. It was shown that the data could be explained by four separate constraints ordering Extr before SSR, SOR, and NSR, and Equi before SOR. But positing such constraints would be an ad hoc device, and its necessity would count against the model without the Antigone Cosntraint.[31] Perhaps another way to make the same point is to say that if there really were ordering constraints that were accounting for the data in sections 1.4 and 3.1 to 3.5, it would be a rather marvellous fact that those orderings should be predictable from the independently motivated Antigone Constraint.

Finally, in section 3.6 a class of ungrammatical sentences was presented which can be accounted for by the Antigone Constraint, but which cannot be accounted for by either the One Shot Constraint or ordering constraints.

I conclude that the Antigone Constraint is to be preferred over the One Shot Constraint as the proper version of Constraint A.

4. The definition of the Antigone Constraint

In the argumentation so far I have claimed that some constraint is necessary to account for the ungrammaticality of such sentences as (13), (20), (33), (44), (71), (76), (85), (88), (96), (101), (107), and (111), as well as for the grammaticality of sentences like (6), (12), (17), (19), (43), and (70). I have claimed that the Antigone Constraint is the proper form of that constraint. In this section I would like to define more closely exactly how the Antigone Constraint is to be formulated.

4.1 Antigonal configurations and Antigonal clauses

In every case we have examined there has been a raising rule involved, which has raised a sentential complement to be dominated directly by the S that previously dominated its mother S.[32] There is, in the last grammatical tree in the derivation of every one of the crucially bad sentences, an S directly dominating an S that used to be its granddaughter. I propose to call such a configuration an Antigonal configuration. The lower S in such a configuration I will term the Antigonal clause, and the upper S I will call the Electral clause.[1] Thus, in sentences (12), (19), (32), (43), (70), (75), (84), (87), (95), and (106) we have Antigonal configurations where the Electral clause S_0 directly dominates the Antigonal clause S_2, and in (99), (100), and (113) we have an Antigonal configuration where the Electral clause S_0 or S_1 directly dominates the Antigonal clause S_3. Similarly, the crucially grammatical (6) and (17) (as well as (12), (19), (43), and (70)) have Antigonal configurations in which the Electral S_0 directly dominates the Antigonal S_2. Prohibiting rules from applying to Antigonal configurations will block the bad sentences and explain the fact that crucially good sentences surface grammatically. Thus the first version of the Antigone Constraint might be simply:

"Rules may not apply to Antigonal configurations."

4.2. Cases of rules affecting Antigonal configurations: the Antigone Constraint refined

4.2.1 Verb Agreement and other such rules

One might question whether the formulation of the Antigone Constraint given above holds for all rules. For instance, Verb Agreement must apply after SSR in order to correctly derive (116) and not (117) from (115).

(115) That the courtiers will be beheaded is likely.
(116) The courtiers are likely to be beheaded.
(117) *The courtiers is likely to be beheaded.

Thus Verb Agreement will be applying to such structures as (12) and (17), which are produced by SSR and contain Antigonal configurations. We do not want the Antigone Constraint to block this. Notice that this application of Verb Agreement affects only the upper clause in the Antigonal configuration (the Electral clause); it does not affect the Antigonal clause. We might try another formulation of the Antigone Constraint which would say:

"Rules may not affect Antigonal clauses."

This is still too strong. Later rules like postcyclic rules (including perhaps Verb Agreement) and phonological rules will certainly apply to Antigonal clauses. All the rules which we have shown to be constrained by the Antigone Constraint (SSR, SOR, NSR, Equi, and Extr) are cyclic. Perhaps we should formulate:

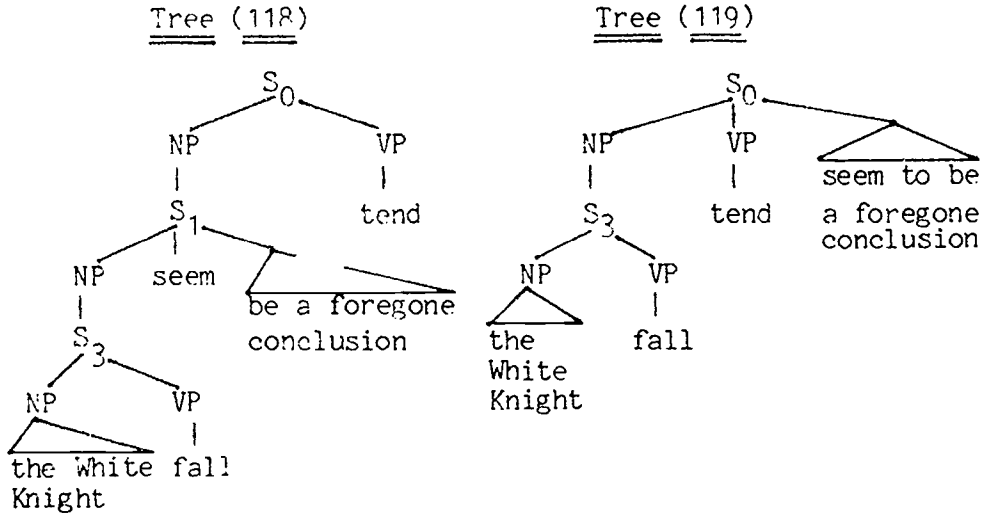
"Cyclic rules may not affect Antigonal clauses."

4.2.2 SSR and NSR

However, this formulation still goes a little bit too far. As we have seen in the derivation of (100), Antigonal clauses may be raised by NSR. S_3 in tree (99) is an Antigonal clause. The formulation of the Antigone Constraint as not permitting rules to affect Antigonal clauses would predict that NSR could not apply to raise S_3. But NSR can apply, producing (100).

(118) and (119) show that SSR also raises Antigonal clauses.

(119) **That the White Knight will fall tends to seem** to be a **foregone conclusion.**



Tree (118) is formed by embedding tree (12) under the SSR governing verb **tend.** In tree (118) the configuration of S_1 dominating S_3 is an Antigonal configuration, and S_3 is an Antigonal clause. The formulation of the Antigone Constraint as not permitting rules to affect Antigonal clauses would predict that SSR could not apply to tree (118) to raise the Antigonal clause S_3. But SSR can so apply, deriving (119).

Examples can also be constructed showing SOR raising an Antigonal clause.

So the formulation should be adjusted. We might note that in the case of SSR's application to tree (118) to produce (119) and NSR's application to tree (99) to produce (100), nothing was removed from the Antigonal clause, but rather the clause itself was moved. Perhaps the constraint declares that Antigonal clauses are a kind of Antigonal island which can be moved as a whole but which does not allow tampering with its contents.[33] We might formulate:

"Cyclic rules may not extract or delete constituents from Antigonal clauses."

The objection to this formulation is that it would not block the application of Extr to trees like (70) and (75) and the rest. For Extr does not extract or delete constituents of Antigonal clauses; it moves the whole clause, just as SSR does in the derivation of (119) and NSR does in the derivation of (100). Thus the constraint needs to distinguish between the two cases: Antigonal clauses may be raised on their grandmother or great-grandmother cycle, but may not be moved (or otherwise changed) on their mother cycle (the Electral cycle). We might, then, formulate as follows:

"Rules may not apply on the cycle of an Electral clause in such a way as to affect the Antigonal clause."

Or, if we added to our definitions the following:

"Application to an Antigonal configuration means applying on the Electral cycle in such a way as to affect the Antigonal clause."

we could keep our first formulation of the Antigone Constraint:

"Rules may not apply to Antigonal configurations."

4.2.3 Passive

There is an apparent application of a rule to Antigonal configurations which produces grammatical sentences but which the formulation given above would block. Passive,[34] if it is applied to structures like (32) which have SOR-created Antigonal configurations, will produce grammatical sentences. The application of Passive to tree (32) produces (120).

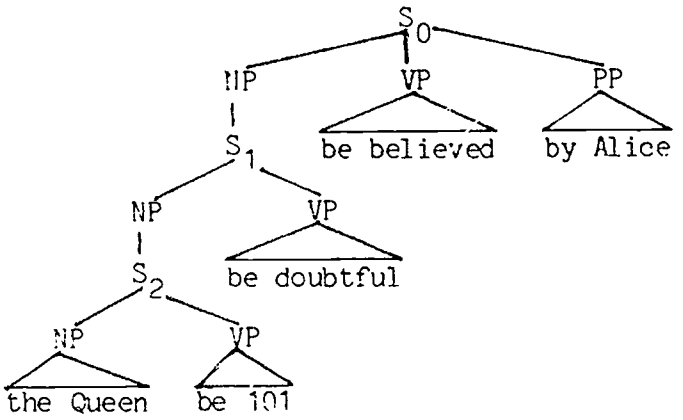
(120) **That the Queen was 101 was believed by Alice to be doubtful.**
That the Queen was 101 was believed to be doubtful by Alice.

If we claim that (120) is derived by the application of Passive to tree (32), we are claiming that Passive is applying on the cycle of the upper S of an Antigonal configuration and affecting its lower S. This violates the Antigone Constraint as given above. Two ways out of this problem seem possible. One is to derive sentences like (120) in another way. The other is to adjust the Antigone Constraint again.

There is another possible derivation for (120). One could claim that Passive applies, in its derivation, not to tree (32) but to tree (31), yielding (121).

(121) **That that the Queen was 101 was doubtful was believed by Alice.**

Tree (121)



SSR could then apply to (121) to derive (120). The Antigonal configuration of S_0 dominating S_1 would not be formed until after the application of Passive, and the formulation of the Antigone Constraint given above could stand. This solution would apparently require us to claim that all SOR-governing verbs also govern SSR—at least, every sentence like (31)-(32) that I can think of has an acceptable, and even preferable, version like (120). Yet, if SOR and SSR are really a single rule of Raising, as some claim, that would not be too surprising (but see Perlmutter and Soames 1979:204-210 and Szamosi 1973).

The other possibility is that Passive does in fact apply to (32) to derive (120), and our formulation of the Antigone Constraint should reflect that. We want to avoid any kind of listing that would say, in effect, "SSR, SOR, NSR, Equi and Extr obey the Antigone Constraint, but Passive doesn't." Under different models it might be possible to characterize the class of rules that obeys the Antigone Constraint in different ways. One likely way to do this under a traditional model would be by the concept of two-storey rules. A two-storey rule can be defined as one whose structural description makes crucial reference to a configuration in which one S dominates another (usually a mother-daughter pair). The structural descriptions of SSR, SOR, NSR, and Equi all make crucial reference to such a pair of S's: the mother S in which their governing verb is, and the embedded S from which they extract or delete an element. Extr also must make reference to such a configuration; it applies on the cycle of the mother S and moves an NP within it, but it also crucially refers to the fact that the NP which it moves is an S. Other types of nominals cannot be extraposed, as (122) and (123) indicate:

(122) **That she would get no jam today surprised Alice.**
It surprised Alice that she would get no jam today.
(123) **That fact surprised Alice.**
***It surprised Alice that fact.**

Passive, on the other hand, moves NP's, without specifying whether they are S's or not: its structural description does not require an embedded S.[35] We

might, then, want to formulate:

"Two-storey rules may not apply to Antigonal configurations."

Choosing this method of accounting for the grammaticality of (120) would not necessarily claim that (120) could not be derived by SSR from (121); it would simply claim that it could be derived by Passive from (32).

Thus there seem to be two ways of handling data like (120). Either we can claim that they are derived from sentences like (31) via sentences like (121), by Passive feeding SSR, or we can claim that they are derived via sentences like (32) by the action of Passive, which is not constrained by the Antigone Constraint because it is not a two-storey rule.

4.2.4 Another possible argument against the One Shot Constraint

Whichever way sentence (120) is derived, it is clear that the clause **the Queen be 101** in that sentence is an Antigonal clause. SSR cannot be allowed to apply to (120) to produce (124).

(124) ***The Queen was believed** by **Alice to be doubtful to be 101.**

If the only derivation possible for (120) is application of SSR to (121), either the One Shot Constraint or the Antigone Constraint would star (124) for us. The One Shot Constraint would do so because for SSR to apply to (120) would be its second application on cycle S_0, and the Antigone Constraint would do so because it would be applying to an Antigonal configuration. However, if (120) can be derived by either SSR of (121) or Passive of (32), we can construct another argument for the Antigone Constraint against the One Shot Constraint. The One Shot Constraint cannot keep SSR from applying to instances of (120) which have been derived via SOR and Passive, because this would be SSR's first application on this cycle. Under the One Shot Constraint we would have to posit another counterfeeding ordering constraint: Passive (or SOR) would have to be ordered after SSR. The Antigone Constraint, however, would successfully prevent SSR from applying to raise **the Queen** from S_2, because S_2 is an Antigonal clause. Thus, under such a model, the Antigone Constraint is to be preferred over the One Shot Constraint.

4.2.5 NSR again

We are still left with an unresolved problem: the formulation of the Antigone Constraint so far assumes that the rule which is constrained applies on the Electral cycle. However, in tree (99) the Electral clause is S_1. Yet NSR's application on the S_0 cycle should be constrained by the Antigone Constraint to prevent the derivation of (111). Notice the contrast: NSR, operating on the cycle of the S dominating an Antigonal configuration in tree (99), can apply to raise the whole Antigonal clause, producing (99), but it cannot apply to raise the object of the Antigonal clause, because that would produce (111). Apparently the Antigone Constraint constrains rule application not only on the Electral cycle, but also on at least the next higher cycle, and in these cases the distinction between moving the Antigonal clause as a whole and tampering

with its contents is relevant. Our formulation of the Antigone Constraint must reflect these facts.

I think that the concept introduced in the last section in the discussion of two-storey rules, of a rule affecting NP's without reference to whether they are S's or not, can be helpful here. We would want to make the Antigone Constraint prohibit rules from affecting Antigonal clauses in any way that depends on the fact that they are S's.[36] Thus SSR could raise the whole Antigonal clause in the derivation of (122), and NSR could raise it in the derivation of (100), and the Antigone Constraint would not stop them, because they would be raising an NP without reference to the fact that it is an S. Similarly, Passive could make the Antigonal clause into the subject, and the Antigone Constraint would not stop it, because it would be applying to it as an NP, without reference to the fact that it is an S. (This, of course, would not preclude the possibility of sentences like (120) also being derived by SSR of trees like (121)). However, NSR would not be able to raise the embedded object **hay** in tree (99) to derive (111), because to do so would be to raise a constituent of an Antigonal clause, and the ability to do that would depend crucially on the fact that that clause is an S.

So let us formulate what is its object as follows:

"Application to an Antigonal clause means applying in a way that crucially depends on the fact that it is a clause rather than a non-sentential NP."

"Two-storey rules may not apply to Antigonal clauses."[37]

4.3 The definition of Antigonal configurations refined

We have defined Antigonal configurations as those configurations in which an S directly dominates an S that used to be its granddaughter. The adequacy of this definition can be questioned. Notice that SSR cannot apply again on the S_0 cycle of tree (119), because to do so would produce the ungrammatical (125).

(125) ***The White Knight tends to seem to be a foregone conclusion to fall.**

We will want the Antigone Constraint to block this derivation. Notice that S_3 was not the grandddaughter of S_0 in the initial tree, but its great-granddaughter. The same is true of S_0 and S_3 in tree (100). Either cases where a great-granddaughter comes to be dominated by its (initial) great-grandmother clause are also to be included in the class of Antigonal configurations, or membership in that class is determined not with reference to the initial structure, but with reference to some later structure like tree (118) in which the great-granddaughter has become a granddaughter. Evidence that the first possibility is in fact necessary is provided by the following sentences.

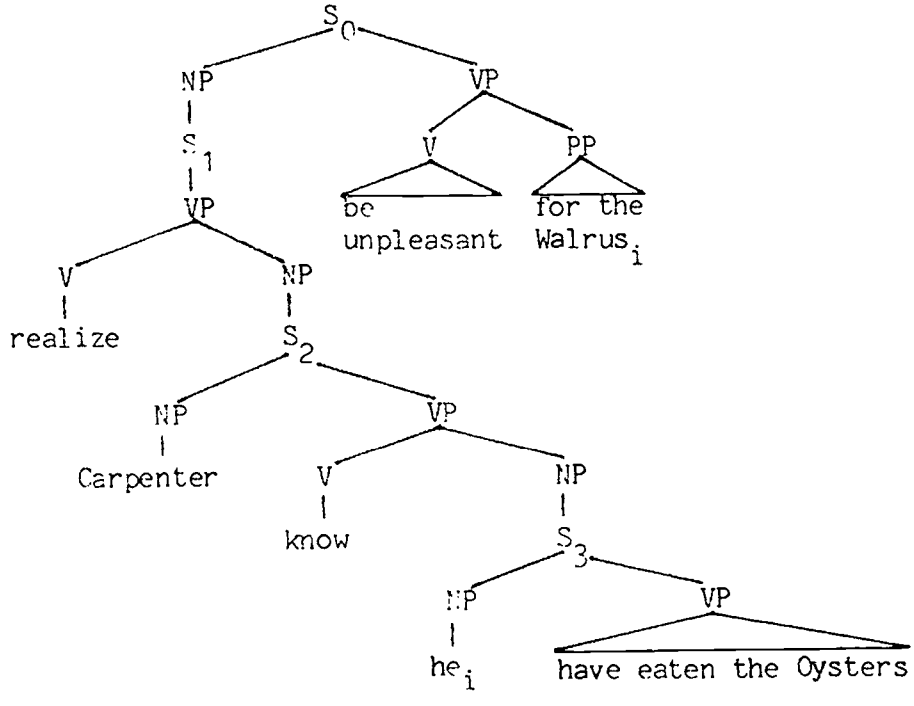
(126) (*)**For him$_i$ to realize that the Carpenter knew that he$_i$ had eaten the Oysters was unpleasant for the Walrus.**

(127) **To realize that the Carpenter knew that he$_i$ had eaten the Oysters was unpleasant for the Walrus$_i$.**

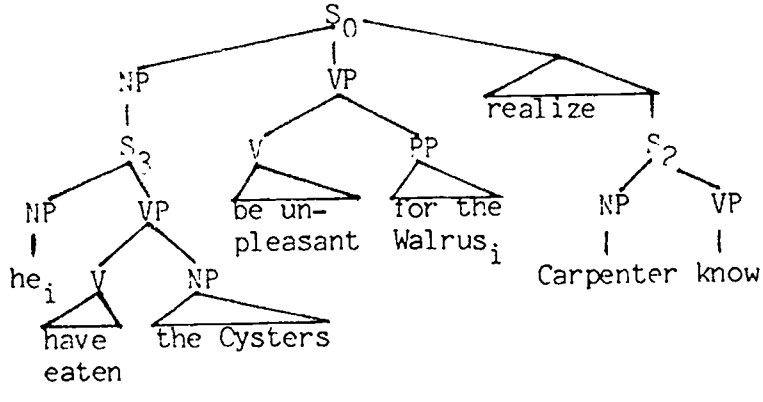
(128) That he_i had eaten the Oysters was unpleasant for the $Walrus_i$ to realize that the Carpenter knew.

(129) *To have eaten the Oysters was unpleasant for the Walrus to realize that the Carpenter knew.

Tree (127)



Tree (128)



After Equi has applied to the structure underlying (126) to make it possible for NSR to apply in tree (127), NSR raises S_3 from being the great-

granddaughter of S_0 to become its daughter in tree (128). There is no point in the derivation at which S_3 is granddaughter of S_0. Yet the Antigone Constraint must prevent Equi from applying to tree (128), because to do so would produce the ungrammatical (129). Thus Antigone configurations must include cases where great-granddaughters (and, presumably, great-greats) have become daughters of an S. Let us then define Antigonal configurations as follows:

"An Antigonal configuration is one in which a clause directly dominates a clause which it indirectly dominated at an earlier stage of the derivation."

5. Conclusion

In sum, I have argued that it is necessary in English to block the derivation of (13), (20), (33), (44), (71), (76), (85), (88), (96), (101), (107), (111), (124) and (129), and of other sentences like them, and to account for the unexpected grammaticality of (6), (12), (17), (19), (43), 70), and other sentences like them. All of this can be done by the Antigone Constraint, which involves the following statements:

A. Definitions

(a) Two-storey rules are those rules whose structural descriptions refer to a configuration in which one clause dominates another clause.

(b) A clause directly dominates another clause if it dominates it with no intervening clause nodes. It indirectly dominates it if it dominates it with at least one intervening clause node.

(c) Antigonal configurations are those in which a clause directly dominates a clause which it indirectly dominated at an earlier stage in the derivation. The lower clause in such a configuration is an Antigonal clause.

(d) Application to an Antigonal clause means applying in a way that crucially depends on the fact that it is a clause and not a non-sentential NP.

B. The Antigone Constraint

(e) Two-storey rules may not apply to Antigonal clauses.

FOOTNOTES

I would like to give special thanks to the following people: Don Frantz, who first introduced me to generative syntax; Sandra Chung, who saw some worth in the incoherent beginnings of some of the ideas in this paper and greatly helped in improving their formulation and presentation; Ed Klima and David Perlmutter, who read early drafts of the paper and commented on them; and my wife Joy, who put up cheerfully with my repeated jumping out of bed at 1 a.m. and turning on the light to write down a new piece of an argument. The usual mea culpas apply.

[1]Named after Antigone, who was the daughter of her grandmother (Electra) and presumably was raised by her.

[2]Although this paper is presented within the general framework of traditional transformational syntax, with its notions of derivation and the cycle, the proposed constraint is relatively independent of that framework, and can be usefully stated in other frameworks currently in use.

[3]I am making the important assumption that SSR (as well as SOR and Equi in later arguments) does not make reference to complementizers. (For discussion and some slight support for this assumption the case of SOR, see Perlmutter and Soames 1979:545-551.) It is for this reason that I have not included complementizers in syntactic trees, except in section 2.2. (I have also often left out such features as tense, etc., as being irrelevant.) Assuming that these rules do make reference to complementizers might seem to be the proper explanation for the data presented in the first sections of this paper. In section 2.2. I will argue that even if that is true, a separate constraint is needed to explain parallel data.

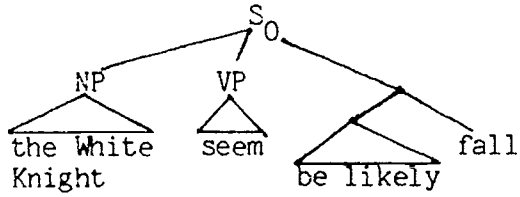
[4](3) is ungrammatical because of an obligatoriness constraint on SSR as governed by **seem**. The nature of this constraint will be discussed in section 3.2.

Sentences like (3) which represent structures posited as actually occurring in derivations and whose ungrammaticality is due to an obligatory rule's not having applied yet will be marked with a (*) instead of the customary *.

[5]Syntactic trees and the sentences most directly derived from them are numbered to correspond with each other. Thus tree (6) is that tree which, if none of the rules relevant to the discussion applies further, will produce sentence (6).

Often, especially when no tree is given in the text, I will use the common locution of referring to the structure underlying a sentence as the sentence, speaking e.g. of deriving sentence (x) from sentence (y), or applying some rule to sentence (z), meaning, in each case, the structure underlying sentence (x), (y), or (z).

[6]The tree would be tree (7') below.



It might be possible to argue directly from the differing constituent structures for either tree (7) or tree (7') over the other as the proper tree for sentence (7). Similar arguments might be given in other places, particularly in sections 1.3 and 3.1. I do not have sufficiently strong intuitions or sufficiently refined techniques for doing so.

[7]This argument, as well as that in section 3.1, was noticed independently by Perlmutter and Soames (1979:425-456). Their explanation of these phenomena as being results of a prohibition against the undefined concept of "delayed application" guided my thinking in formulating the Antigone Constraint.

[8]Although somewhat similar, this is not the same proposal as the Complementizer Hypothesis (section 2.). The argument given against it here is parallel to that given in 3.2. against the CH.

[9]The Law of Parsimony: "**Non sunt multiplicanda entia praeter necessitatem.**" I.e. "Entities (here, theoretical constructs) should not be multiplied unnecessarily."

[10]Lakoff confirms this for the One Shot Constraint: "It has been assumed that no rule can re-apply to its output on a given cycle....Historically, the reason [this important assumption] was made is that there were no clear cases where reapplication was needed. Wherever a rule had to apply more than once to a single part of the tree in the course of a derivation, the principle of applying rules once-per-cycle seemed to do the job." (Lakoff 1966:I-51-a) Lakoff evidently intended to question this position; I have not been able to find where he does so.

[11]Cf. Perlmutter and Soames' excellent discussion (1979:132-134, 174). Koutsoudas, Sanders, and Noll (1974:3) say that an obligatory rule must apply wherever its structural description is met, unless its application is precluded by some general principle. I am claiming that we have here such a case, where some general principle is needed to preclude the application of SSR to (17) and (19).

[12]Many analysts (following Rosenbaum 1967) treat SSR and SOR as being the same rule; others do not (e.g. Szamosi 1973). Whether or not they are the same rule does not affect the argument except in that it could make it into a special case of the argument in section 1.1.

[13]Sentences like (28) and (32) are not fully grammatical for some people, for

reasons which I believe irrelevant to the purpose of this paper. For almost all speakers they are improved by Passive:

(i) **That the Queen was 101 was believed** (by Alice) **to be** $\left\{\begin{matrix}\textbf{likely}\\ \textbf{doubtful}\end{matrix}\right\}$.

This, if Passivized SOR verbs do not govern SSR (see Perlmutter and Soames 1979:204-210), provides evidence that trees (28) and (32) are acceptable as intermediate, if not final, structures. In any case the argument holds for those speakers who accept (28) and (32).

[14]Parallels to such analyses as those of Rosenbaum (1967) and Bresnan (1976) and the many who have followed them will be immediately obvious.

[15]For our purposes here it does not matter whether complementizers are inserted in the underying structure (as in e.g. Bresnan's model) or by an early rule of Complementizer Insertion (as e.g. Rosenbaum). The important thing is that they be present before the application of SSR, SOR, and Equi.

[16]This is not to say that such obligatoriness constraints would not exist. **Tend** must obligatorily govern SSR even under the CH, because sentences like (i) are ungrammatical.

(i) (*) **For poor Bill to get into trouble tends.**

[17]Even if the CH posited a Complementizer Adjustment rule (which would be ad hoc and would duplicate the mechanism inserting complementizers in the first place) to change an original **that** to **for-to** in the derivation of (47), it would have to order that rule after SSR (counterfeeding) in order to block the derivation of (i).

(i) ***The unicorn would tend to be a foregone conclusion to win.**

Similar points can be made for the cases of SOR and of NSR and Equi.

[18]This would explain why virtually all verbs that take sentential subjects permit those subjects to extrapose. Yet Extr seems to be governed at least to the extent that some predicates obligatorily require its application. **Flash through one's mind** and **come to one's attention** are examples that **come to mind:**

(i) ***That Alice was a human child flashed through the Fawn's mind.**
It flashed through the Fawn's mind that Alice was a human child.
(ii) ***That Alice's head was still on came to the Queen's attention.**
It came to the Queen's attention that Alice's head was still on.

[19]The other two sentences were:

(i) **That light is a wave contradicts all of the professor's assumptions.**
(ii) **That there is no largest natural number shows that the set of natural numbers is infinite.**

This second sentence may be subject to explanation under Ross's "Same Side

Filter" (Ross 1973). (Actually, the first sentence and the sentence used in the text might be explainable by a somewhat similar constraint, which might destroy the arguments given here and in section 3.3, and possibly 3.4.)

Similar arguments can be constructed using sentences such as the following:

(iii) **That he should say such a thing really made me wonder.**
(iv) **Why she wants avocado seeds resists explanation.**

But fewer people find the extraposed versions of (iii) and (iv) ungrammatical.

[20]Other models would assume that only SSR is obligatory with **seem**, or that there is a sort of disjunctive obligatoriness in which either SSR or Extr is chosen to be obligatory for any given instance of **seem**. In all these models sentences (6), (12), and (70) are further instances in support of the argument of section 1.2; Constraint A (in either version) is necessary to suspend the obligatory application of SSR to those trees.

[21]It makes no difference to this argument whether Extr-from-Object is assumed to be the same rule as Extr-from-Subject, or whether they are assumed to be different rules.

[22]Sentences of this last type are discussed in Baltin (1975). Baltin argues that Extr must be cyclical, applying on the lower cycle before SSR, in order to correctly derive (i) rather than (ii).

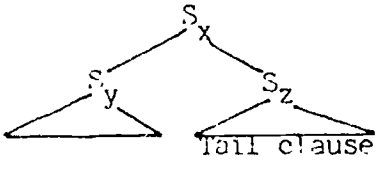
(i) **It seems to be so obvious that John is a fool that everyone agrees.**
(ii) **?*It seems to be so obvious that everyone agrees that John is a fool.**
(iii) **That John is a fool seems to be so obvious that everyone agrees.**

What Baltin does not explicitly account for is the fact that (ii) cannot be derived by extraposition on the upper cycle of the grammatical tree underlying (iii) (Baltin's Tree (81)). Any occurrences of (ii) should come from (iv), which is dubious in exactly the same way.

(iv) (*)?* **That it is so obvious that everyone agrees that John is a fool seems.**

My argument consists in showing that this fact, as well as parallel facts with other Tail clauses, can be accounted for by the Antigone Constraint.

[23]Ross (1968:158,197-198) proposes that Tail clauses occur rather in a structure such as this:



where S_y would be the clause "modified" by S_z. Ross argues for this proposal on the basis of his intuitions as to constituent structure, and the fact that it can simplify the statements of Extr (for structures like (82) and (87)) and Extr-from-NP. I reject it for various reasons, among them my intuitions as to constituent structure, and the fact that two-storey rules such as Equi and the raising rules treat clauses with Tail clauses just as they do any other clauses. Ross's formulation would require that their structural descriptions be complicated.

If Ross's formulation is adopted, the argument presented in the text is actually strengthened; there is no need to posit any rightward movement rules for Tail clauses, and thus assumption (b) is unnecessary. (Assumption (a) must also be adjusted slightly.)

[24]This, as Baltin notes, is predicted by Ross's (1968) Right Roof Constraint, and can be argued for on independent grounds in the particular cases. I will not do so here.

I am assuming that these clauses are moved to Tail position; this will avoid having to change the structural description of Extr and of Extr-from-NP, and can help explain the near grammaticality of some sentences in which an extraposed clause follows a Tail clause. If these clauses are not moved, the argument in the text is strengthened; assumption (b) is unnecessary.

[25]Notice that NSR is raising a clause that has already been raised, in apparent violation of the Antigone Constraint. This will be discussed in section 4.2.2.

[26]Actually, blocking Extr in this way is not enough to block all possible derivations of (101). (101) could also come from NSR of the **it** produced by Extr and raised by SOR in (i).

(i) **To believe it to be doubtful that the King eats hay was easy for Alice.**

That derivation is apparently blocked by another constraint which prohibits NSR of non-referential **it**: cf. the ungrammaticality of (ii).

(ii) ***It was easy for Alice to believe to be raining.**

[27]Both (105) and (106) are judged ungrammatical, or at least questionable, by many speakers, for different reasons. However, for those speakers who judge them grammatical, (107) is starred. That is the important datum for the argument.

Note that even though the object of the preposition **for** is reflexivized, it has not been raised by SOR out of the lower clause. Application of SOR to (106) produces the ungrammatical sentence (i).

(i) ***The Bellman expected himself to be natural to be admired.**

This ungrammaticality is predicted by either version of Constraint A.

[28]Berman (1974:304) and Chomsky (1973:263) talk about another dialect here. Berman states: "no noun phrase may be moved [by NSR] out of a tensed clause." Note that they have not argued that NSR is really reaching into an embedded

clause rather than applying to its own output on the higher cycle. (Apparently they were unconsciously assuming the One Shot Constraint.) Berman's sentence (iii) (p. 304, due to Postal) might be able to be used for such an argument:

(iii) Max will be hard to arrange for you to meet.

[29]Constrast (111) with (i), which, though marginal, is definitely better.

(i) ?Hay was easy for Alice to believe that it is doubtful that the King eats.

[30]Berman (1974:296) reports that for many speakers "Tough-movement may not apply to any noun phrase that has been Raised into object position" or indeed moved by any rule from its underlying position. Such speakers would presumably star (114). Berman makes it clear (pp. 292, 297) that this is a dialect-dependent generalization. Note that almost everyone would accept (100), which violates her constraint, or at least prefer it over (99).

[31]All the same, it is worth noting that all these arguments for the Antigone Constraint against the One Shot Constraint hold only under one of the following assumptions:

(a) Rules are unordered.
(b) Rules are only partially ordered, and each ordering constraint posited is counted against the model.

Under assumption (c), the One Shot Constraint would still be a live option.

(c) All rules are ordered.

If all rules are ordered, the facts presented in sections 3.1 to 3.5 could be interpreted as simply informing us what the orderings are. To argue against the One Shot Constraint with facts like these under such a model, it would be necessary to find cases where the ordering constraints necessary would be contradictory. I have not been able to find any such cases.

Even under assumptions (a) and (b), it is worth noting that all the arguments (including the one in 3.6) consist in showing that the One Shot Constraint doesn't do enough, not in showing that it must be violated. We never prove it to be wrong, but only to be inadequate and unnecessary to handle the data considered in this paper. In other words, the One Shot Constraint may well exist, but these data do not argue for it.

And, in some models at least, the One Shot Constraint could prove useful in explaining other facts. For instance, under some transformational models the One Shot Constraint could explain why passive sentences like (i) and (ii) cannot be passivized.

(i) The King was given some hay by Haigha.
***Some hay was been given by Haigha by the King.**
(ii) The Lobster's garden was passed by by Alice.
***Alice was been passed by by by the Lobster's garden.**

It could also explain why person markings are only done once per verb, and not repeated ad infinitum, and perform various other odd jobs which might otherwise require some ad hoc constraint or complication of a rule.

[32]By "dominated directly" I do not mean "dominated immediately", i.e. dominated with no intervening nodes at all, but rather "dominated with no intervening S-nodes." "Dominated indirectly" means "dominated with at least one intervening S-node." To say the same thing in a different way, given two S's S_x and S_y, S_x directly dominates S_y iff (a) S_x dominates S_y, and (b) S_y commands material in S_x. S_x indirectly dominates S_y iff (a) S_x dominates S_y, and (b) S_y does not command material in S_x.

For any S, the S that directly dominates it is its mother S, and the S that directly dominates its mother S is its grandmother S. Any S that it immediately dominates is its daughter S, and any S directly dominated by its daughter S is its granddaughter S.

[33]This would be different from Ross's (1967) Island constraints in that a different class of rules would be subject to it, and in that it would be defined not just structurally but derivationally; the global concept of Antigonal configurations is crucial to its definition.

Incidentally, Antigonal clauses apparently are Ross Islands. Those created by SSR and NSR are automatically subject to his Sentential Subject Constraint. Those created by SOR also exhibit islandish behavior. For instance, WH-Movement cannot extract constituents from them, nor can Topicalization, Exclamation Movement, etc.

(i) **Alice believed that the Queen was 101 to be doubtful.**
***Who did Alice believe (that) was 101 to be doubtful?**
***The Queen Alice believed (that) was 101 to be doubtful.**
(ii) **Humpty Dumpty thought that his cravat was beautiful to be obvious.**
***How beautiful Humpty Dumpty thought that his cravat was to be obvious.**

[34]The rule of Passive is well-enough known to forbear discussing its nature here (see Chomsky 1956, etc.). How it works is not important here; the important thing is that it is at work in the derivation of sentences like (120).

[35]It must, under some formulations, check to make sure that its subject NP is not an S. At least, (ii) must not be allowed to be derived from (122a).

(ii) ***Alice was surprised by that she would get no jam today.**

However, it might be a moot question whether that is a restriction on Passive or a restriction on by-Agent phrases.

[36]It is probably not the case that we can formulate:

> "Application to an Antigonal clause is application in which a rule's structural description makes reference to the [S S] boundaries of the Antigonal clause."

The reason this is not possible is that NSR has to be able to reach down an indefinite distance to raise embedded objects. Presumably its structural description will have to include an essential variable X (Berman 1974:263), and will not be able to specify the [S boundaries of all the clauses it reaches into.

[37]Since phonological and post-cyclic syntactic rules will apply to constituents

of Antigonal clauses, and since some such applications depend on the Antigonal clause's being an S, we must make sure that such rules are not constrained by the Antigone Constraint. Specifying "two-storey rules" accomplishes this.

An alternative formulation would specify "cyclic rules." The two proposals make empirically different predictions. I do not have data affording a choice, however, and am opting for the stronger of the two formulations, and the one which is relatively independent of assumptions about cyclicity.

REFERENCES

Baltin, M. 1975. "On the Cyclicity of Extraposition", Linguistic Inquiry 6:465-468.

Berman, A. 1974. Adjectives and Adjective Complement Constructions in English, unpublished Doctoral dissertation, Harvard University.

Bresnan, J. 1970. "On Complementizers: Toward a Syntactic Theory of Complement Types", Foundations of Language 6:297-321.

Chomsky, N. 1956. Syntactic Structures, Mouton: The Hague.

———. 1973. "Conditions on Transformations", in S. Anderson and P. Kiparsky, Eds., A Festschrift for Morris Halle, Holt, Rinehart, and Winston: New York.

Koutsoudas, A., G.A. Sanders, and C. Noll. 1974. "On the Application of Phonological Rules", Language 50:1-28.

Lakoff, G. 1966. Deep and Surface Grammar, unpublished ms., Harvard University.

Langacker, R. 1969. "Pronominalization and the Chain of Command", in D. Reibel and S. Schane, eds., Modern Studies in English, Prentice-Hall: Englewood Cliffs, N.J.

Perlmutter, D. and S. Soames. 1979 Syntactic Argumentation and the Structure of English, University of California Press: Berkeley.

Postal, P. 1971. Crossover Phenomena, Holt, Rinehart and Winston: New York.

———. 1974. On Raising, MIT Press: Cambridge, Mass.

Rosenbaum, P. 1967. The Grammar of English Predicate Complement Constructions, MIT Press: Cambridge, Mass.

Ross, J. 1967 Constraints on Variables in Syntax, MIT Doctoral dissertation, Indiana University Linguistics Club: Bloomington.

———. 1973. "The Same Side Filter", in CLS 9, Chicago Linguistic Society: Chicago.

Szamosi, M. 1973. "On the Unity of Subject Raising", in CLS 9, Chicago Linguistics Society: Chicago.

CLAUSE TYPES IN SOUTHEASTERN TEPEHUAN

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0. Introduction

The clause in Southeastern Tepehuan[1] (hereafter SE Tepehuan) consists of a predicate, its associated arguments, and other modifying elements. This paper seeks to show the various types of semantic and surface clauses and the relation between them.

The semantic clause consists of various semantic components, both nuclear and peripheral, semantic prosodies, and certain presupposed information. What these elements are for SE Tepehuan and what is the resulting division of the semantic universe is shown in section 1. Section 2 details the constituent surface structure and neutral and "marked" orders of these constituents in relation to these semantic components. Then the mappings between the various semantic and surface clause types is defined in section 3.

1. Semantic Structures

The semantic clause is seen as the minimum unit of predication composed of an action or a state plus any associated role fillers (Thomas 1975:114). Thus the speaker chooses the type of predication he wishes to express and the number and type of roles that pertain to that predication according to his particular subdivision of the semantic universe. By looking at the subsets of roles that can occur with the various types of predications we can get a view of the basis of this language specific subdivision.

The semantic components of the clause in SE Tepehuan specify the basic elements of the locution and can be grouped into two types, nuclear and peripheral. The nuclear components are the predication, its central roles (i.e., its subject and objects), and its oblique roles (e.g., instrument,

location, etc.). The peripheral elements are the modifying aspects of time and manner, and the temporal connectors that relate the clause to others in the discourse.

Semantic prosodies, or illocutionary factors, are also seen to operate on the clause level. These include voice (i.e., active or passive), mode (i.e., declarative, interrogative, imperative, and exclamatory), and polarity (i.e., positive or negative). Certain contextually, culturally, or universally known presuppositions also have semantic influence on the form of the clause in SE Tepehuan.

1.1 Nuclear Types

All possible semantic predications in SE Tepehuan can be divided into two classes: (1) those that describe a process or an action, here called dynamic; and (2) those that describe a state, here called static. The roles that can accompany these predications can also be divided into two classes: (1) central, and (2) oblique.

The three types of central roles are: (1) those that designate the underlying subject of the predication, an agent for dynamic predications and a statant for static predications; (2) those that designate the underlying direct object, a patient for dynamic predications and a predicant for static predications; and (3) those that designate the underlying indirect object or beneficiary, which applies only to dynamic predications, since no second object is inherently possible with static predications.

The oblique roles are of two kinds: (1) those that designate the underlying goal, source, or direction for dynamic predications and the location of the state for static predications, both called location; and (2) those that designate an accessory or instrument for dynamic predications, here called associate. As with beneficiary, there is a semantic constraint against the occurrence of an associate with a static predication. There is, however, no constraint that limits the number of obliques that can be in a clause. That is, the universally possible semantic combinations are apparently also possible in SE Tepehuan, such as two locations (e.g., a direction and goal or source), or two associates (e.g., an instrument and an accessory), or one or more of each.

Figure I

Semantic Clause Types

DYNAMIC	AGEN/STAT	PAT/PRED	BEN	(LOC)	(ASSOC)
Bitransitive	x	x	x	x	x
Transitive	x	x		x	x
Intransitive	x			x	x
Receptive		x		x	x
Eventive				x	x
STATIC					
Stative	x	x		x	
Descriptive	x			x	
Attributive		x		x	
Circumstantial				x	

This classification of predications and possible roles allows us to describe the set of contrastive semantic clause types for SE Tepehuan as a matrix with these two sets as parameters (Hale 1973). The result, as seen in Figure 1, is nine distinct types, each differing from the others in the unique set of predication and central roles associated with it. That is, given the semantic constraints on the co-occurrence of central roles with each predication class, the resulting semantic clause types are the nine logical possible combinations of predication plus central roles that can occur with it. Further, as Figure 1 also shows, there is no restriction as to the predications with which oblique roles can occur. This means that with each clause type, the semantic use of possible oblique roles is optional. The speaker may use them or not with any given predication, depending on the content he wishes to express.

Examples (1)-(18) illustrate these clause types. For the purpose of illustration, two examples of each type are given, the first of each pair including an oblique role, while the second does not involve any oblique role in its semantic structure. The bitransitive clause type has a dynamic predication plus an agent, a patient, and beneficiary as roles. Example (1) involves these three roles plus a location, whereas example (2) has only the three central roles associated with the predication.

(1) **mummu-ni-ñ jum-maqui-a' gu-carvax**[2]
there:REM-SPEC-1s 2s-give-FUT ART-goat
'I will give you the goat there'

(2) **ba-i'-xi-ñ-bɨi'ñ gu-ñ-vonam**
twd-SPEC-IMPER-1s-bring/take ART-PSR-hat
'(You sg) bring me my hat!'

Other bitransitive predications include **sava'da** 'buy', **ga'ra** 'sell', **taiñvui** 'lend', and **tɨtda** 'tell'. Apparently all predications used in this clause type are action-verb types (i.e., not processes).

The transitive type has a dynamic predication plus an agent and a patient, but not a beneficiary, as roles. Predications of this type include process verb types such as **mátɨ** 'learn', and action verb types such as **tɨgui** 'find' and **tɨcca**

'ask'. Examples (3) and (4) illustrate transitive clauses. The intransitive type has a dynamic predication plus an agent, but not a patient or a beneficiary, as role, as examples (5) and (6) illustrate.

(3) **va-tu-jugui-a'ich gu-junva' joidyam quis-quɨ'n**
CMPL-DUR-eat-FUT-1p ART-corn ADV cheese-ACCES
'We will then happily eat the corn with cheese'

(4) **guë' cua'-iñ gu-'on**
ADV eat-1s ART-salt
'I eat a lot of salt'

(5) **ya'-ñ'pɨx-ja'p 'oirɨ**
here-1s-DIM-RNG be(walking)
'I'm just here' (equivalent to Spanish: aquí, no más)

(6) **va-jí-Ø gu-ma'ncam**
CMPL-go:PERF-3s ART-person
'The person has left/already went'

Other intransitive predications include process verb types such as **suhlgui** 'return(pl)' and **guɨ'hli** 'grow', and action verb types such as **juana** 'work' and **cósɨ** 'sleep'.

The receptive clause type has only a patient as central role, along with a dynamic predication. Clauses of this type are chiefly process verb types for predications. Examples like (7) are few; most receptive clauses are like example (8) since few process predications include oblique roles. The eventive type has no underlying central roles, and includes both process and ambient predications, as illustrated in examples (9) and (10).

(7) **va-jú gu-cu'a' ya'-va'c-chɨr**
CMPL-run+out:PERF ART-firewood here-house-in
'The firewood here in the house has run out'

(8) **cham ca-'u'uac dyi-jóxia'**
NEG TEMP-become+clean ART-dish
'This dish will no longer get clean'

(9) **ya'-ma-jɨpdya**
here-PNCT-get+cold
'It's gotten cold here'

(10) **va-jur-ji-a**
CMPL-get+late-DCL-PLR
'It's late, isn't it?'

Other receptive predications include **jágui** 'decompose', **'omñi** 'break (non)agentive)', and **sarñi** 'tear (nonagentive)'; other eventive predications include **xiahli** 'dawn' and **dúdu** 'rain'.

There are only four clause types that have a static predication, since a static bitransitive is not possible. The stative type, illustrated by examples

(11) and (12), has both a statant and a predicant as central roles, while the descriptive type has only statants, as seen in examples (13) and (14).

(11) **ma'n via'-iñ gu'gat bai'-quícham**
one have-1s ART-bow up+there-home
'I have a bow at home'

(12) **cham tu-sa'ua-'iñ**
NEG DUR-blanket-1s
'I don't own a blanket'

(13) **mi'-ñi vɨt gu-'u'uan**
there-SPEC are(lying) ART-papers
'The books are over there'

(14) **jágui-x gu-cu'a'**
decompose-RSLT ART-firewood
'The firewood is burned up'

Other stative predications include **tɨ'ñcho** 'remember' and **'aixi** 'fit into', but apparently not too many others. Other descriptive predicates include those indicating physical position or location such as **dá** 'be (sitting sg)' and **quio** 'reside (sg)', plus predications describing the end result of a process.

The attributive clause type has only a predicant for a central role, and includes most of the adjectival predications as copula-adjective constructions. Since these tend to be more general in nature, they seldom if ever occur with a locative, necessarily restricting attributive clauses with obliques to existence verb types. The circumstantial type has no central roles, and differs from the eventive type only in the class of predication it has, the latter describing ambient actions or processes, and the former describing ambient states. Examples (15) and (16) are attributive clauses, and (17) and (18) are circumstantial.

(15) **mi'-jai'ch-dyo gu-carum**
there-exist-RSP ART-bananas
'There are surely bananas there'

(16) **jix-'abar gu-'uví**
COP-beautiful ART-woman
'The woman is beautiful'

(17) **joidyam jix-juc ya'-va'c-chɨr**
ADV COP-warm here-house-in
'It's nice and warm here in the house'

(18) **jix-chatoiñ xiv**
COP-hot ADV
'It's hot out today'

1.2 Other Semantic Elements

Besides the nucleus of the semantic clause (i.e., its predication and roles), there are other semantic components that bear a modifying relation to the nucleus, as well as specific semantic prosodies and presuppositions that combine with the nucleus to make up a complete minimal semantic unit of predication. That each of these elements is a significant part of the semantic clause is seen in the fact that the presence or absence of any one of them causes corresponding changes in the surface expression of the clause (section 2).

The peripheral semantic components are those that bear an overt adverbial relation to the predication, and those that bear a referential relation to it. Adverbs generally establish the time setting of the predication, as in example (18), or make more specific the manner in which the predication is completed, as in examples (3) and (17). The reference elements generally specify the temporal or logical connection between the clause and other clauses around it in the discourse, as in example (19) and the second clause of (20).

(19) **vɨpɨ'-ñich tɨ gu-jipopótamos**
before-1s:PERF found ART-hippos
'First I saw the hippos'

(20) **jix-vor-'iñ na-x-chatoiñ**
COP-sweaty-1s that-COP-hot
'I'm sweaty since it's hot out'

The semantic prosodies are illocutional in nature, rather than locutional as are the semantic components. They include prominence, both general and specific (i.e., focus and topicalization); voice, or whether the clause is active or passive; mode, or whether it is declarative, interrogative, imperative, exclamatory, or subjunctive; and polarity, or whether the clause is negated or not. Apparently each of these types of illocution is a disjoint set of mutually exclusive prosodies, so that no more than one from each set can be operating on a clause at any time, except that topicalization occurs in most clauses. For example, a clause could include an emphasized component, be in passive voice, be a question, and be negated all at the same time. Examples of the various combinations are given in section 2.

2. Surface Structures

The surface clause is seen as that part of an utterance that contains a predicate and any identified participants (Thomas 1975:114). Thus when the speaker seeks to express in a surface clause the semantic predication he has chosen, its expression is subject to the limitations of the constituent structure of the surface clause. The relation of the constituents of the surface clause to the semantic components can be seen by examining the surface expressions of each component and the way in which the constituent structure is altered by the operation of the various semantic prosodies.

2.1 Constituent Structure

The major constituents of the clause in SE Tepehuan are the verb word, noun phrases, postpositional phrases, adverbs, and reference particles. The verb word is the nuclear element of the clause, and as such is its only obligatory element. The verb word consists of a stem and multiple affixes chiefly of tense, aspect, and mode (Willett 1978). It expresses the predicate, specifies the person and number of the animate participants, and often also includes the locative oblique argument and occasionally an adverbial modifier. Examples (21)-(25) all illustrate clauses whose only element is the verb word.

(21) **jí-Ø**
go:PERF-3s
'He/she/it went'

(22) **cósi-t-'ap-a**
sleep-PST-2s-PLR
'Were you asleep?'

(23) **jum-'oidya-'iñ-cugui**
2s-accompany-1s-AFF
'Sure, I'll go with you!'

(24) **mi'-quio-'iñ-jigüi'**
there-live(sg)-1s-AFF
'That's where I live, all right!'

(25) **pu-i'm-titda-ñich-ji-a**
thus-SPEC-2s-told-1s-EXCL-PLR
'That's what I told you, isn't it?'

The noun phrases identify the participants when they are third person, and consist of an article, either definite or indefinite, followed by the noun with optional modifiers.[4] These are subject to the tendency for deletion of a repeated participant (section 2.7) and the apparent semantic constraint that limits the use of modifiers, probably because of a preference to express them as copula verbs instead. Example (26) shows a transitive clause where the speaker indicates the definiteness (because of its proximity) of the subject by the use of the definite article **dyi-** on that nominal, while still indicating generality of the object with the general article **gu-**.

(26) **xiv-am ya-'i'ya-' gu-cocas dyi-ja'tcam**
now-3s here-drink-FUT ART-cokes ART-people
'These people are now going to drink cokes here'

All participants in a clause are normally specified for person and number by the subject and object particles. These particles are not separate constituents, except when occurring as "free" pronouns under topicalization (section 2.4). The subject particle occurs as a phonological suffix to the first constituent of the clause, although it is not grammatically related to this constituent. The object particle occurs as a verb prefix, the one closest to the verb stem.[5] Clauses with the subject particle as suffix were illustrated in examples (1), (3)-(6), (11)-(12), etc. Examples (2) and (25) showed object

prefixes on the verb.

When the participants in the clause are first or second person, however, they are identified only by these subject and/or object particles, not by noun phrases. Since the third person singular form of both the subject and the object particles is phonologically null, this means that only in the case of a third person plural animate subject or object will there be a co-occurrence of the corresponding particle with a noun phrase. Example (26) showed this co-occurrence for a subject, and example (27) shows it for an object.

(27) **ja-nɨi'ñ-'iñ gu-ja'tcam**
3p-see-1s ART-people
'I see the people'

The <u>prepositional phrase</u> expresses the oblique role(s) of the clause by postposing particles to a noun, often without the noun phrase article[6] (for associate), or to a general location word (for locatives). Associate postpositions are: **-quɨ'n** 'with' for instrument of inanimate accessory, and **vɨncam** 'mixed with (sg/pl)' also for inanimate accessory, depending on the number of the object. Examples (28) and (29) illustrate two of these.

(28) **mi'-tɨtvia-Ø gu-'a-ahl-javɨm**
there-play-3s ART-children-PP
'He's playing there with the children'

(29) **ba-sɨxi-dya'-ich totcom'-quɨ'n gu-tur**
twd-poke-FUT+CONT-1p pole-INSTR ART-bull
'We (go along) poking the bull with a stick'

General location particles occur alone or before a noun (as prefix) to form a general location word, to which may be suffixed one of the following locative postpositions: **-cam** 'place of origin', **-ja'p** 'general area, and **-ja'c** 'general direction', **-dɨr** 'from', **-tɨr** 'in, among', and **-ta'm** 'on'. General location particles, which may themselves be made specific by the specifier suffix **-ni**, include: **ya'** 'proximate', **mi'** 'distant, low', **bai'** 'distant, high', **mumu** 'remote, low', and **bamɨ** 'remote, high'. Examples of locational phrases were seen in (1), (5), (7), (11), (13), and (17), and are further seen in (30) and (31).

(30) **'añ mi'-ñi-ja'c va-jɨ**
I there-SPEC-gen+direc CMPL-go
'I'm now going over there'

(31) **guguc-'am joidai-cha'm gu-'u'ji'**
stand(pl)-3p rock-on ART-birds
'The birds are standing on a rock'

The <u>adverbs</u> modify the predicate by supplying additional information as to the time and manner of the predication. They are generally (i.e., with the exception of verb tense and aspect affixes) separate phonological words that function syntactically independent of the verb word. Some common adverbs (underlined) are illustrated in examples (32)-(36).

(32) jotmida' ba-jim ma'n gu-'aptuvus gatuc-dir
fast twd-go one ART-bus after-from
'A bus is coming up fast behind us'

The reference particles are the conjunctions and interjections that normally introduce a clause and tie it into the system of the discourse. A common utterance introducer is illustrated in example (37), the first clause of a long folk tale.

(37) dyo 'añ ma'n jix-mat gu-sapoc
INTRO I one COP-know ART-story
'Well, I know a story'

2.2 Clause Types

If we disregard the peripheral clause elements and focus on the nuclear elements—the predicate and its participants—, we find that there are six contrastive surface clause types in SE Tepehuan, differing from one another along two parameters: (1) transitivity and (2) uniqueness of the participants. That is, four types are the four grammatical possibilities of a verb occuring or not with various participants, all of which are distinct from each other. The other two types are special types of transitive and intransitive clauses where the participants are not distinct.

Figure 2

Surface Clause Types

	VERB	SUBJECT	OBJECTS	
Bitransitive	V_1	S_1	O_1	O_2
Transitive	V_1	S_1	O_1	
Intransitive	V_1	S_1		
Ambient	V_1			
Reflexive	V_1	S_1	$O_1 = S_1$	
General	V_1	S_{gen}		

As can be seen from Figure 2, the bitransitive clause consists of a verb plus a subject and two objects, all distinct, where the participants are identified as noun phrases or subject/object particles. Similarly the transitive clause consists of a verb plus subject and one object, both distinct, the object being either direct or indirect, depending on the semantic nature of the predicate. Also, the intransitive clause consists of a verb plus a subject, but no objects, while the ambient clause has only a verb and no identified participants. Examples of each of these types of surface clauses have already been seen in section 1.1. Suffice it to point out here that the basic semantic

distinction of dynamic versus static predication is seen in the form of the verb word and is thus not reflected in the surface clause types. In the discussion here, only the dynamic labels are used for the surface types, but they include both dynamic and static semantic types of predications.

The reflexive clause is seen as a separate surface type for two reasons. First, the reflexive is by definition the clause where the subject and the object are the same participant. Thus it does not fit into any of the above patterns as evidenced by the separate set of object prefixes for reflexive or reciprocal clauses.[7] Also, the verb morphology is different from the other clause types in that only a very restricted set of verb stems (like "see" and "hit" and some idiomatic usages of other verbs) can have a reflexive or reciprocal form, and because the general clause type is similar in form to this clause type. Examples (38)-(40) illustrate one normal usage and two idiomatic usages of this form.

(38) **jum-'o'-iñ-'am guio na-m jum-co'n-tu'**
RCP-wrestle-3p and that-3p RCP-fight-EXTNT
'They are going along wrestling and fighting with each other.'

(39) ya'-ch **va-ch-chigui-a'** ja'xñi
here-1p CMPL-RCP-find-FUT later
'Here we'll see each other later (or: We'll see you later)'

(40) tu-ñ-**mamtuxi'ñ-'iñ** gu-'o'**dam-quin**
DUR-RFLX-teach-1s ART-Indian-INSTR
'I'm studying (teaching myself) Tepehuan (talk)'

The general clause is also a separate type because its verb word form indicates a general, non-specific subject. That is, the verb word in the general clause always has the form: **tu-m-V**, where **tu-** is the durative prefix, (ju)**m-** is the reflexive prefix, and **V** stands for a plural form of a verb stem. That the subject in this construction is indeed general is seen in the use of each of these syntactic markings. The durative prefix indicates a continued or habitual action, and the reflexive prefix used is the same as plural. Further, the verb stem is in its plural (which is usually reduplicated) form, indicating plurality of the participant bearing the absolutive relation to the predicate; and no subject particle is used in this construction anywhere in the clause. This clause type translates with a non-specific subject such as "one", "people", or "they" in the general sense, or with a dummy subject such as "there", as illustrated in examples (41) and (42).

(41) **mi'-tin-m-nin'**
there-DUR-RFLX-dance
'They are dancing there/There is a dance there'

(42) na-pai' **tu-m-cocsin**
that-where DUR-RFLX-sleep(pl)
'where they/one/people sleep'

2.3 Neutral Orders

A neutral constituent word order for the SE Tepehuan clause can be stated in terms of the three major groups of constituents that operate as distinct units in the clause. Stated as a formula, the neutral order would be: Reference Particles — Focus — Nucleus — Modifiers. That is, in the clearest "unmarked" cases where no semantic prosody that has the effect of changing the constituent order appears to be operating, the clause is ordered as stated in this formula. As seen in section 2.4, the chief order-changing prosody is prominence, which results in one or more of the elements of the nucleus itself being "fronted" to that position, ahead of the other nuclear elements.

No nuclear or modifier element, however, can take linear precedence over the reference particles. That is, since these particles are the conjunctions and clause introducers that relate the clause to other clauses around it in the discourse, they necessarily occur first in the surface clause. The only exception to this is when they serve as a "pivot" for sentence topicalization (section 2.4). That these reference particles are in fact valid constituents of the clause is seen in the fact that they are preferentially inflected for subject over the verb, just as are modifiers that occur before the nucleus when in focus.

As to the relative order of the constituents that form the nucleus (i.e., the verb word and noun phrases), it appears indisputable that SE Tepehuan is a verb-initial language. All evidence from natural text indicates that the only reason that any nominal can occur before the verb is for some type of prominence, and this is limited to only one nominal per clause. This observation is in keeping with the comparative evidence in the Uto-Aztecan language family (Langacker 1977:24).

The relative order among the noun phrases, however, is not so easily discernable, and in fact may not be fixed at all, at least for objects. Several factors influence this conclusion. First, in normal discourse many of the semantic subjects and objects of clauses are not identified as surface noun phrases due to contextual factors or to their representation as a subject or object particle. That is, normally it is only when the subject and/or object of a clause is different from that/those of the preceding clause that it/they will be specified in a noun phrase, and this only for third person, since first and second person animate subjects and objects are only identified as suffixes of earlier constituents (section 2.1).

Another factor that obscures the relative order of noun phrases is the effect of clause topicalization (section 2.4), since although everything else seems to indicate the correctness of this notion, clear evidence is scant due to the scarcity of transitive clauses in natural text. Further, elicited material indicates that order alone is not a sufficient indicator of what relation a nominal bears to the clause, for even when used in context, a clause like (43) is really ambiguous, evoking the inevitable question: "Who spoke?"

(43) **jup-tɨtda gu-juan gu-pegro**
also-said John Peter
'Peter said to John/John said to Peter'

In actual fact, very few ambiguities of this type ever arise because in most cases the inherent semantic nature of the predication gives the best clue as to the relations the nominals bear. Also, although SE Tepehuan has no overt case markings, the identity of the subject or object can be hinted at by several other means. For instance, if a same subject is deleted in a clause, the remaining nominal, if any, must obviously be one of the objects, usually the only one. Co-occurrence of the nominal with an animate person/number subject or object particle in the case of third person plural is also often a significant indicator. Also, some verbs reduplicate for pluralization of the nominal bearing the absolutive relation to the predicate. And a type of "passive" construction that unspecifies the subject can be used in the case of third person nominals, leaving the object as the only identified nominal in the clause (section 2.6).

Despite these facts, the weight of statistical frequency and the topicalization hypothesis suggest the need to posit a subject-final basic word order. The reasons for this are given in section 2.4. This still leaves ambiguous whether the direct or indirect object occurs first. Apparently this is a moot question, since a clause with three third person singular nominals specified as noun phrases following the verb has yet to be discovered in natural speech.

2.4 Prominence

Two types of prominence appear to be operating on the clause level, and another on the sentence level. All have the effect of changing the basic word order as defined in section 2.3. Those operating on the clause level are topicalization and focus.

Topicalization on the clause level is indicated by placing the nominal that is the topic in the last noun phrase position in the clause. This would suggest that unless otherwise specified, the subject is also the topic, since it usually occurs as the last noun phrase. This appears a plausible hypothesis for the third person situation, as shown in the following examples:

(44) **mumu na-pai' ja-via' gu-patronis gu-navat**
there that-where 3p-have ART-patrons ART-mestizo
'There where the mestizo has patrons'

(45) **na-t-va' ya'-punér-u gu-dios gu-vacua**
that-PST-then here-put-PST ART-God ART-gourd
'Then God placed a gourd here'

Example (44) shows a semantic clause functioning as a relative clause to describe where two men went looking for work in a narrative discourse. That "mestizo" is subject is indisputable, since the object prefix **ja-** agrees in number with the suspected object "patrons". Whether or not it is also the topic could only be decided after a more thorough analysis of the text. That is to say, topicalization of a nominal in the clause may not be obligatory. In example (45), however, topicalization is the only way to account for the deliberate placement of the object last in the clause. This example occurs near

the beginning of a folk tale about the creation of the human race. In the clauses preceding it, God has been the implied, although unspecified, subject. In this clause the narrator not only chooses to specify the agent but also the patient, and the latter, as new information, and important to the development of the narrative, is topicalized here at its first occurrence.

Apparently topicalization also applies to first and second person subject particles as well. Whenever they are the topic of the clause they occur in the focus position as a "free" pronoun which, although appearing to be phonologically predictable,[8] reflects a distinctly marked occurrence. Since no corresponding topicalization of objects occurs, this may be further evidence that topicalization is optional.[9]

Besides topicalization, another apparent clause-level prominence feature is that of focus, where an element from the modifier unit is fronted to the focus position before the nucleus but after the reference particles, apparently for the purpose of emphasis. That is, adverbs and prepositional phrases tend to occur clause final when not in focus, but often they occur before the verb. In each of these pre-verb occurrences it appears that the element is being emphasized more than it would normally be.

The explanation for this is apparently two-fold. First, more often than not adverbs and locative or accessories have deictic functions in the clause, and for this purpose they are often more prominent. A closely related reason would be that their inclusion often means that the speaker is choosing to highlight some aspect of his predication by their use, since their semantic occurrence is optional. Adverbs and accessories are not frequent, so their occurrence in a clause usually signals a semantic distinction of some kind. Locatives, although much more frequent, are normally indicated in a shortened form as a verb prefix when not in focus. Examples (34)-(36) showed adverbs in their "unmarked" position clause final, while examples (32)-(34) showed adverbs used to focus on a particular aspect of the predication. Example (46) is the affirmative answer to the question of whether someone is in his house at present. Here the locative, as old information, is not in focus. But the negative response to the same question, that of example (47), being a contraexpectancy, highlights the reason for his absence by detailing where he went.

(46) mi'-dyá-dyo
there-be(sitting)-RSP
'Yes, he's there/He is sitting there, all right'

Another device that affects clause constituent order is topicalization on the sentence level (and perhaps even the paragraph or discourse level as well). This is clearly distinct from clause topicalization because the noun phrase is not only fronted, but it occurs clause initial (i.e., not in the focus position, but before the reference particles). Further, if these particles do not include a subordinating conjunction, one is nearly always "inserted" to subordinate, in effect, the rest of the clause or clauses to this topic. For these reasons it apparently operates independently of the clause topic system.[10]

2.5 Subordination

Two main types of subordination seem to exist in SE Tepehuan sentences apart from the special use of subordination in sentence topicalization. That is, whenever a semantic clause is expressed as an embedded clause on the surface, it will appear as either relative clause or as complement clause(s). Other types of subordination common in other languages can be categorized as one of these general types in SE Tepehuan.

Relative clauses are introduced by a relative pronoun and always bear linear precedence to the clause, while the head of the relative clause bears linear precedence to the relative pronoun. Relative pronouns are the declarative counterparts of the content question words preceded by the subordinate clause introducer **na**: **najaroi'** 'who', **natu'** 'what', **napai'** 'where', and **napai'dyuc** 'when'. If no relative pronoun occurs, the **na** 'that' alone takes on its function, as in example (48).

(48) dyi **'uví va-x-gui'vi-m gu-gagox** na-**Ø** mi'-ca-x-ñá gu-coi'
this woman CMPL-COP-hit-DESID ART-dog that-3s
there-TEMP-COP-like+to+eat ART-food
'This woman wants to hit the dog that is taking some food there'

Demonstratives are also used in relative clauses: **güi'** 'the one, those', **mi'** 'there', or **jano'** 'that time'. These can serve two functions: (1) as appositive introducers, when they occur between the head and the relative pronoun, as in example (49); and (2) as heads of otherwise "headless" relatives, as in example (50).

(49) mi'ñi **vit gu-'u'uan güi'** na **'o'dam-quit'n mi-tu-'ua'n-ix**
there-SPEC are(lying) ART-papers those that Indian-INSTR
there-write-RSLT
'There are the books, those that are written in Tepehuan'

(50) gatuc-dir **ba-jim güi'** na **más jir-güe'-cam** que **'añ**
later-from twd-go he that more COP-big-origin than I
'After me comes he (or:the one) that is greater than I'

The complement construction is used in SE Tepehuan both to express the embedded clause in a sentence with a complex predicate, but also to express what in other languages is a nominalized, participial, or infinitive form. Any complement clause is introduced by the simple subordinate clause introducer **na**, as in examples (51) - (53).

(51) **machia na tu-quis-ta'**
requested that DUR-cheese-make
'He asked him to make cheese'

(52) **dyi 'uví na-r soi'-chu'm más mui' mi'-puner-u gu-túumñ**
this woman that-COP humble-appearing more much there-
put-PST ART-money
'This woman, being poor, has put in much more money'

(53) **jix-quł' gu-súdai' na-ch tu-'i'-ya'**
COP-good ART-water that-1p DUR-drink-FUT
'The water is good to drink'

Example (51) is a simple complement clause, functioning as object of the verb "request"; example (52), as example (20), shows a participial usage; and example (53) shows the use of an infinitive, where the unspecified subject is inflected for first person (singular or plural, depending on the generality or scope intended by the speaker).

2.6 Illocution

The illocutionary force of the clause in SE Tepehuan is the expression of the other semantic prosodies that operate on the clause besides prominence. They may be grouped into three mutually exclusive sets of syntactic markings (i.e., voice, mode, and polarity) corresponding to the same type of semantic choices available to the speaker.

Voice can be either active or passive. Clearly the "unmarked case" is active voice, from which a special type of passive voice form shows distinct markedness. This is a device to "unspecify" the subject of a clause when either it is unknown or purposely omitted by the speaker. This syntactic choice is common in narrative text dialogue to help keep the identity of the person speaking in a given clause unambiguous. The device consists of deleting the subject noun phrase and marking the verb with the subject suffix corresponding to third person plural. Thus since the hearer knows both participants of the dialogue from the context, the one identified by the noun phrase that remains must necessarily be the object. For example, to make perfectly clear in such a context that Peter spoke to John, instead of using a clause like (43), the speaker would use one like example (54).

(54) **jup-tłtda-'am gu-juan**
also-said-3p ART-John
'Peter said to John (literally: They said to John)'

Mode can be one of five types in SE Tepehuan: declarative, interrogative, exclamatory, imperative, or subjunctive. The declarative mode is clearly the "unmarked" case, although anything uttered in response to a question invariably has the suffix **-dyo** 'response particle' on the verb, as seen in example (46), and other declaratives sometimes use affirmative suffixes of varying degrees, as seen in examples (23) and (24). Interrogatives can be content-oriented, in which case they have a question word clause initial, as in example (55); or they can be polar, requiring only a yes or no answer, as in example (56).

(55) **tu'-p jaxvua**
what-2s doing
'What are you doing?'

(56) **tu-juan-'ap-a**
DUR-work-2s-PLR
'Are you working?'

Other question words are: **jaró** 'who', **pá** 'where', **paduc** 'when', **jax** 'how', and **jaxva'** 'why (literally: how then)'. Apparently the polar-interrogative suffix -a can co-occur with the affirmative suffix **-ji**, as in example (10), to form an exclamation.

Exclamation can also be signaled by a clause initial interjection, as in example (57), where a comma indicates a short pause. Imperatives can be strong or polite in form. When the imperative is strong, both a directional prefix and the imperative prefix **xi-** are used, as in example (58). If it is polite, either of these prefixes, but not both is used, as in example (59). The subjunctive mode, marked by the verb suffix **-gɨt** in coordination with the future tense, is used for a conjecture, and usually occurs in both clauses of a conditional sentence, as in example (60).

(57) **'úju, guíhlim jix-dya'ra'**
INJCT, very COP-costly
'Wow, that's very expensive!'

(58) **bai'-xi-ju'**
twd-IMPER-eat
'You eat it!'

(59) **xi-ju'**
IMPER-eat
'Please, eat some/Take one, won't you?'

(60) **mu-jimi-a'-iñ-gɨt-ji no'-ñ 'a'nda-'-gɨt**
away-go-FUT-1s-SBJNCT-AFF COND-1s want-FUT-SBJNCT
'I might go/would have gone, if I feel like it/had felt like it'

Polarity simply indicates whether the clause predicate is being negated or not. Negation is marked by the presence of the morpheme **cham** 'negative' before the verb word, as in example (61). When an adverb comes after **cham** before the verb word, the scope of **cham** is apparently limited to the scope of the adverb, as in (62).

(61) **jax-cu-pich-va' cham ba-jí tacav**
how-CONN-2s-then NEG twd-go:PERF yesterday
'Why didn't you come yesterday?'

(62) **cham 'ov jup-va' gu-tatmu'n gu-gagox**
NEG quickly come+out ART-teeth ART-dog
'The dog's teeth didn't come out right away'

2.7 Reference

Relating the various components of the clause to each other and to those of other clauses is accomplished in SE Tepeheuan by both deletions and specifications of various clause elements. Relations within the clause include deletion, especially of noun phrases, for presupposed or encyclopedic

information. For instance, the most common way to offer guests tortillas and beans is to ask if they like beans, as in example (63), since it is culturally known that no one serves beans without tortillas. Thus the post-positional phrase "with tortillas" does not occur on the surface form of (63).

(63) **jix-ñá-'ap gu-bav**
COP-like+to+eat-2s ART-beans
'Would you like some beans to eat?'

More generally, those obliques, adverbs, participant referents, aspects, etc., that are either presupposed or not being brought into focus by the speaker are usually deleted. Similarly for the external relation of repeated participant, mentioned earlier.

Conversely, some items normally not included must be specifically mentioned by the speaker in order to show their clausal or super-clausal relation to other items. For instance, within normal discourse, those noun phrases that are specified represent either new or contrastive information from the preceding clause, or in strings of clauses with the same subject, serve as an occasional reminder of the topic being discussed. The same is true of reference particles and adverbs, which often serve to link clauses in temporal sequence or in logical sequence. Within the clause, too, redundant information such as person and number specifications of the participants has already been seen. Sometimes the "copy" of a locative (i.e., its occurrence as both a postpositional phrase and a verb prefix) also marks cross-reference of location, as in example (64). And a relative clause like that in example (65) can give a cross-reference to time.

(64) **ji'c-ap ya-juruñdya-' ya'**
how+many-2s here-remain-FUT here
'How long are you going to stay here?'

(65) **jano' na-pai'dyuc jum-'ai-ya' dyi'-pui'**
that+time that-when RFLX-arrive-FUT this-thus
'In that day when these things come to pass'

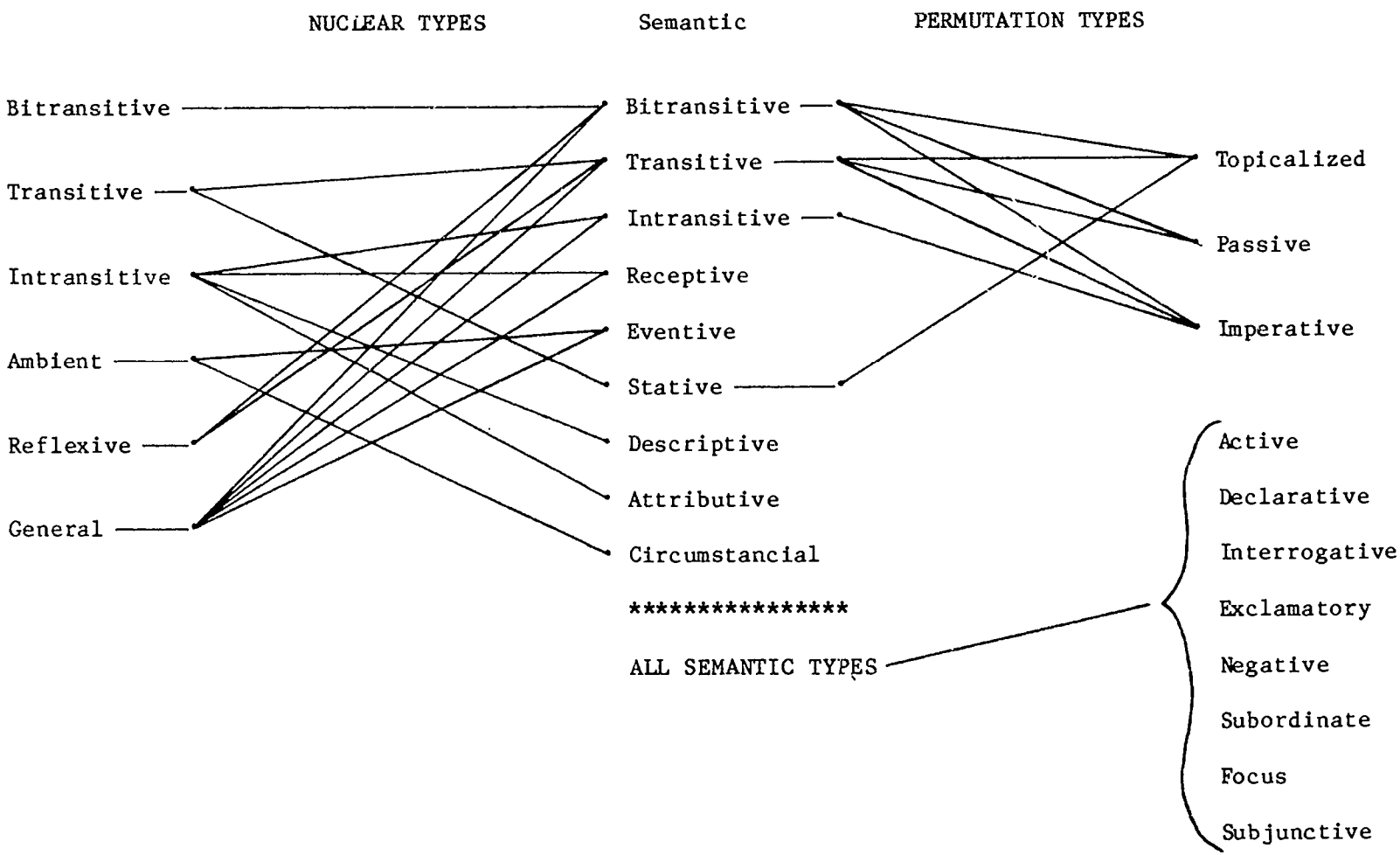
3. Semantic and surface correlation

It has been already amply illustrated that a semantic clause can be manifested as a surface clause, either independent or subordinate, or as a simple sentence (i.e., where the clause is spoken with sentence intonation and may manifest sentential prosodies such as topicalization). It remains to define more explicitly the mapping between the set of semantic clause types and the possible sets of surface clause types, and to give examples of distinctive manifestations of semantic clauses not yet seen.

3.1 Nuclear Types Mapping

Figure 3

A Mapping of Semantic to Surface Clause Types



As can be seen from Figure 3, the nine contrastive semantic clause types map onto the six nuclear surface types in a manner apparent from the inherent qualities of each. Viewing each surface type as to which semantic types it may manifest, we see that the bitransitive uniquely expresses the semantic bitransitive clause. This relationship is obvious since in both the semantic and surface bitransitive clauses, three participants are specified. Thus, for example, in the context of a polar question, example (66) is a surface bitransitive clause with the direct object not specified as a noun phrase, since it is the same as in the question.

(66) jiñ-má-Ø-dyo
1s-gave-3s-RSP
'Yes, he gave it to me'

The surface transitive clause can express either a semantic transitive clause or a semantic stative clause, since both of these involve two arguments. For example, (11) illustrated a typical stative clause in its surface form. Intransitive surface clauses are the expressions of intransitive, receptive, descriptive, or attributive semantic clauses, as already seen in examples (5), (7), (13), and (15) respectively. That the nominals in (7) and (15) are indeed the surface subjects of their clauses is seen by a comparison with example (67), where the underlying experiencer is syntactically the subject due to subject suffix "agreement". Logically, too, the ambient surface clause expresses the semantic clauses without subject or object, as seen above in examples (10) and (18).

(67) jai'-mit va-mongo
others-3p:PERF CMPL-get+tired:PERF(pl)
'Others became worn out'

The reflexive surface clause type serves to express the reflexive or reciprocal relationship for transitive dynamic predications only, since it is only in these clauses that both an agent and a patient are required and thus have the possibility to be the same participant. Apparently the reflexive expression is not limited to a restrictive set of verbs, either semantically or syntactically. Examples of reciprocal and reflexive clauses were seen in examples (38)-(40).

The general surface type serves to express any dynamic predication whose subject is non-specific. It is apparently not restricted to any particular set of verbs, but can be used with any dynamic verb stem. Examples (41) and (42) were both intransitive examples, while (68) and (69) show the general subject form for a transitive and an eventive predication respectively.

(68) va-ti-m-tfmo-a gu-'orta'm ya-ja'p
CMPL-DUR-RFLX-finish-PLR ART-harvesting here-gen+area
'Is the harvesting all done around here?'

(69) tu-m-duc-dyo mumu
DUR-RFLX-rain-RSP there:REM
'It has been raining there, all right'

3.2 Permutation Types Mapping

As can also be seen from Figure 3, the mapping of the nine semantic clause types onto the eleven permutational types of surface clauses can be divided into two sections, a restricted mapping onto three surface types, and a total mapping onto the other eight. Each of the permutational types corresponds to a significant semantic choice among the semantic prosodies discussed in sections 1.2 and 2.6.

The topicalized set of surface clauses included only those with the possibility that something other than the agent could be the topic. This is necessarily restricted then to the two transitive semantic types only. The imperative set of surface clauses can express any semantic clause with a dynamic predication and an underlying subject, since only where a subject is present can he be given an order to do something.

The mapping onto the passive clause discussed in section 2.6 is similar. That is, it is also limited to dynamic predications, but as seen earlier, the passive can only be the expression of clauses that have both agent and patient semantically, for otherwise there would be no need to disambiguate them. The remainder of the syntactic types can be used with any class of semantic predicate, corresponding to their universal semantic character. For example, the circumstantial predicate "it's hot" can be active and declarative, as in example (18) above, interrogative as in example (70), exclamatory as in (71), negative as in (72), subordinate as in (20) above, and have an element in focus as in (73), an obvious answer to (70).

(70) **jax jix-cha-toiñ xiv**
how+much COP-DUR-hot now
'How hot is it out today?'

(71) **nagu'-x-cha-toiñ-jigüi'**
because-COP-RDP-hot-EXCL
'Because it's hot out, that's why!'

(72) **nijɨ'x-cu-cham ta-toiñ xiv**
never-CONN-NEG RDP-hot now
'It's not hot out today at all'

(73) **guíhlim jix-cha-toiñ-dyo**
very COP-RDP-hot-RSP
'It's very hot out, all right'

FOOTNOTES

[1]Southeastern Tepehuan is a Uto-Aztecan language of the Tepiman family (Bascom 1965) spoken by 5000 to 8000 inhabitants of the region southeast of the city of Durango, principally in the Ejido of Santa María Ocotán, Mezquital, Durango. Fieldwork was done in the cultural and governmental center of the dialect, the village of Santa María Ocotán, under the auspices of the Summer Institute of Linguistics, from June, 1975 to June, 1979. This paper was written for a course taught at the University of North Dakota by David Thomas during the summer of 1979. I am indebted to him for the theoretical framework and many helpful suggestions.

[2]The phonological segments cited in this paper are written in the practical orthography: voiced stops **b d dy** [dž] **g**, voiceless stops **p t ch** [tš] **c** [k] **'** [ʔ], spirants **v s x** [š] **j** [h], nasals **m n ñ**, liquids **r l hl** [l^y], semi-vowel **y**, and vowels **a e i o u ɨ** (high central unrounded) **ë** (mid central unrounded). In conformance with Spanish orthography, [k] is written as **c** before **a, o, u** and as **qu** before **i, e, ɨ, ë**. Similarly [g] is written as **g** before **a, o, u** and as **gu** before **i, e, ɨ, ë**. Where [gu] occurs before **i, e, ɨ,** or **ë** it is written as **gü**. Accent falls on the first closed syllable of a stem unless the second syllable is stronger (i.e., closed or containing a dipthong or long vowel). In citing examples, long vowels are marked with acute accent in open syllables to avoid ambiguity in accent placement. Also represented separately are the syllable-final allophones of the voiced stops, which are preglottalized and nasally released. That is, **b ~ 'm, d ~ 'n, dy ~ 'ñ,** and **g ~ 'ng**. A major phonological process palatalizes alveolar consonants contiguous with /i/ or another palatal consonant.

[3]Abbreviations used for glossing morphemes are listed below. See Willett 1978 for explanation of their range of meaning:

ACCES	accessory	NEG	negative
ADV	adverb	PERF	perfective
AFF	affirmative	PL	plural
ART	article	PLR	polar
CMPL	completive	PNCT	punctiliar
CONT	continuous	PSD	possessed
COP	copula	PSR	possessor
DCL	declarative	PST	past
DESID	desirative	RDP	reduplication
DIM	diminuative	REM	remote
DUR	durative	RNG	range
EXTNT	extent	RSLT	resultative
EXCL	exclamatory	RSP	responsive
FUT	future	SBJNCT	subjunctive
IMPER	imperative	SPEC	specifier
INCEP	inceptive	TEMP	temporal
INSTR	instrument	TWD	toward

[4]Further analysis of noun phrases in SE Tepehuan is still in progress, but a few initial observations will help the interpretation of examples cited in this paper. First, quantifiers usually occur before the article (sometimes preceded

by another article), and occasionally even before the verb word. Second, noun modifier markers are essentially nominalized copula verbs, formed by placing the article immediately before the copula. Also, a noun never occurs without an article, but modifiers sometimes do, especially quantifiers.

[5]It has yet to be determined how two objects are marked for their function (i.e., direct or indirect) in a clause, since only one can be specified in the object prefix. Suffixes such as -idy 'applicative(?)' and -xi 'bitransitive (?)' may be used by the speaker for this purpose.

[6]Although this is the normal construction, sometimes a postposition occurs in a "free" form before a noun with an article between it and the noun. This too needs further study.

[7]The regular transitive verb object prefixes are: jiñ- '1s', jum- '2s', Ø '3s', jich- '1p', jam- '2p', and ja- '3p'. In this reflexive clause the reflexive/reciprocal counterparts are the same for singular and first person plural, but second and third person plural are both jum-.

[8]See Elizabeth Willett, Southeastern Tepehuan Phonology ms.

[9]The very infrequent occurrence of free pronouns clause final co-occurring with the regular subject or object particle as apparently emphasizing either the subject or the object is as yet unanalyzed.

[10]A fuller treatment of inter-clausal relations is given in Thomas Willett, Sentence Components in Southeastern Tepehuan (this volume).

REFERENCES CITED

Bascom, Burton W. 1965. Tepiman (Tepehuan-Piman). Unpublished Ph.D. thesis. Seattle: University of Washington.

Hale, Austin. 1974. "Syntactic Matrices: An Approach to Descriptive Comparability." Bologna: Soc. ed. il Mulino. Reprinted from Proceedings of the Eleventh International Congress of Linguists, Vol. I.

Langacker, Ronald W. 1977. Studies in Uto-Aztecan Grammar, Vol. I. Dallas: Summer Institute of Linguistics/University of Texas at Arlington.

Thomas, David. 1975. Notes and Queries on Language Analysis. Huntington Beach: Summer Institute of Linguistics.

Willett, Thomas, L. 1978. "The Southeastern Tepehuan Verb." Anthropological Linguistics, Vol. 20, No. 6.

SENTENCE COMPONENTS IN SOUTHEASTERN TEPEHUAN

Thomas L. Willett

0. Introduction

In a complement paper on the Southeastern Tepehuan clause structure (Willett, this volume), the semantic and surface types of basic predications were discussed. The present paper begins to explore inter-clausal relations of minimal locutionary and illocutionary force. It surveys the semantic and syntactic sentence types with primary reference to grammatical relations.

The semantic propositional structures, along with their modal parameters and other semantic prosodies are discussed in Section 1. Then the basic syntactic forms of sentences and their related grammatical elements are outlined in Section 2, along with a mapping of the set of semantic sentence types onto the set of surface sentence types.

1. Semantic Structures

The semantic sentence is seen as the minimum unit of speech with illocutionary force and a locution, where a locution may contain one or more related events or descriptions (Thomas 1975:114). That is, the essence of a semantic sentence constitutes a minimal "speech act", where the precise formulation of such speech acts in each language have much in common with each other. The specific components for the SE Tepehuan sentence can be broken down into locutional (i.e., propositional), modal and prosodical information.

1.1 Basic Propositional Types

The locutional information consists of the six basic propositional types, with possible compounding and setting. The basic propositional types are the nuclear sentence types of the language, containing its distinctly sentential relationship (Thomas 1979). These six basic types, which contain the propositional content to be communicated, are: statement, temporal sequence, covarying, conditional, purposeful, and deductive.

The statement is the structurally simple, and most common, semantic sentence type. That is, it consists of just one semantic clause with the

addition of other sentence components (discussed below). Thus, for example, the sentences in (1) and (2) are semantic statements in their basic structure.

(1) **va-jí-a gu-juan**
CMPL-went-PLR ART-John
'Did John already leave?'

(2) **e-co-ñ-mo tu-vopcon-mɨr-a'**
INJC-CONN-1s-EV DUR-wash(pl)-REM-FUT
'Well, I'll go wash now'

The temporal sequence is similar to additive compounding (Section 1.2) but with the added component of sequential time movement. That temporal sequence is distinct from additive compounding is evident in the use of linkage for closely related events, as in (4), whereas this linkage is never used for strictly additive compounding. Further, as both (3) and (4) show, the conjunction used in a temporal sequence has both the morpheme **guio** 'and' and **va'** 'then' (phonologically attached into one conjunction), whereas in additive compounding, the occurrence of the second of these morphemes is apparently not obligatory.

(3) **dɨhl bai'-ji-guɨ'hli-a' gu-mi'-dɨvɨr-ta'm-dɨr,**
vɨpɨ' gu-jága'n, guio-va' na mora'n-ta-y,
gatuc-va' gu-tɨtnip ba-va-vusñi-a'[1]
self twd-INCEP-grow+up-FUT ART-there-ground-on-from,
first ART-leaves, and-then that branch-make-FREQ,
last-then ART-ears twd-CMPL-come+out-FUT
'It grows up by itself from the ground, first the leaves, then the branches sprout, finally the ears come out'

(4) **day na-m va'iar-a', guio-va' no'-mɨt va-'iar jíca-'-am**
just that-3p CMPL-fell-FUT, and-then COND-3p CMPL-fell, cut+off-FUT-3p
'They just cut them down, and when they have cut them down, they cut off the leaves'

As expected, and illustrated in (3), temporal sequence is not limited to two events, but can extend to several successive events. This may be limited, however, both by the extent of the phonological sentence and the semantic nature of the utterance. That is, a speaker is physically restricted in the amount that can be included in any spoken string of predications.[2] Further, in most discourse the speaker elaborates, at least briefly, on some or all of the events related in a temporal sequence, so that probably not more than three or four are likely to occur together in any one sentence. For example, (5) is the beginning of a description of a Tepehuan speaker's trip from his home to Mexico City, in which he relates some sections of the trip rapidly, and others with more detail. Notice that in (5) only one additive conjunction is used; only four occur in his description of a trip that took several days, three of them accompanied with the additional sequence phrase "from there" meaning "after that". This may be because he saw the trip in distinct stages. For instance, leaving Pine Grove and staying in Durango were all the same stage because Durango is the "big city" which is the natural destination of most Indians who leave their home area.

(5) ya'-dɨr juctɨr na-chich jí,
bammɨ corian jachich juruñ goc tanohl,
guio-va' bai'-dyɨr na-chich va-jí para méjic
here-from Pine+Grove that-1p:PERF stay:PERF two days,
and-then there-from that-1p:PERF CMPL-went to Mexico+City
'We went from here in Pine Grove, stayed two days in Durango, and then we left from there for Mexico City'

The covarying sentence compares the freely varying event or state of one predication to the conditioned variable of another predication. This comparison can vary along two parameters: (1) that of being static or dynamic in nature (corresponding to the basic predication type of the clause), and (2) whether the comparison is one of simple degree, or one of quality, location, time, or person. This type of semantic sentence is not as common as the others, probably because the speaker of SE Tepehuan prefers to state the conditioned variable only (leaving implicit the free variable to which it is being compared), or to put the comparison in alternate terms. This is evident in the sparsity of native syntactic forms for making comparisons. That is, when a comparison is made, often a borrowed form is used. For example, (6) shows a typical static comparison of simple degree using a native expression for "less", where what is in parentheses is optionally added for clarification, utilizing the Spanish adverb más for "more".

(6) cham-pɨc jir-mui'-am gu-'u'ji' ya'-pue'mlo,
(day mummu 'u'xchɨr na-m más jir-mui')
NEG-DIM COP-many-3p ART-birds here-town,
(just there: REM forest that-3p more COP-many)
'There aren't as many birds here in town; only over there in the forest are there more (than here)'

Often a sentence that is semantically a comparison in many languages is viewed as a conditional in SE Tepehuan. Thus (7) recasts the dynamic comparison of quality into a conditional sentence with alternative compounding.

(7) mu'a'-ich no'-chich-pai' tɨ,
piamcugu'-r mui'-am jacóda-'-ich jɨ'c na-ch ja-tɨgui-a'
kill(sg):FUT-1p COND-1p:PERF-where find:PERF,
or+if-COP many-3p, 3p-kill(pl)-FUT-1p as+many that-1p 3p-find-FUT
'We kill it if we find one; or if there are several, we kill as many as we find'

Examples of semantically covarying sentences are seen in (8), a static covariance of location, and (9), a varying covariance of quality.

(8) mi' na-pai' tu-gá gu-chio'ñ,
jir-mi'-pui' na-m-pai' tɨ-'ɨxi-a'
there that-where DUR-cornfield ART-man,
COP-there-thus that-where DUR-plant-FUT
'There where the man has a cornfield, that's where they will plant'

(9) **pui'-ñi-ja'c na-jax ja-mandar gu-dios gu-ja'tcam,**
jir-pui'-ñi-'ɨp na-jax-ja'c guɨguɨ'r gu-'ɨxchuc
no'-pai' va-'ɨx
thus-SPEC-way that-as 3p-rule-Ø ART-God ART-people,
COP-thus-SPEC-also that-as-way grow ART-seed
COND-where CMPL-planted
'In the same way that God rules people, so also is the way that a seed grows when it is planted'

The conditional sentence consists of a condition clause and a result clause, but there is no logical connection between the clauses as in the purposeful or deductive sentences. There are three types of conditional sentences, varying according to the assurance parameter (Section 1.3), reflected in the verb tense combination of the result and the condition clause. In the certain assurance type, a dynamic predication is in the past perfective tense in the condition, and is in the future tense in the result clause, as in (10).

(10) **no'-ñich ja-'ardi, jiñ-qui'mna-'-am**
COND-1s:PERF 3p-pursue, 1s-bite-FUT-3s
'Whenever I pursue them, they bite me'

This sentence reflects the speaker's assurance that this condition is a certain fact, and thus the result is assured as a natural consequence. This is seen in the use of this same form for linkage in a temporal sequence, as in (4) above. Another form of the certain assurance type of conditional sentence uses static predications in their non-tense forms (i.e., present state of existence). This type of conditional is often used to state a generally known fact, as in (11).

(11) **gu-gagox-quɨ'n na-r pásil no'-x 'ɨ'bi-'**
ART-dog-INSTR that-COP easy COND-COP smell-ability
'It's easy (to hunt) with a dog if he knows how to follow a scent'

The uncertain assurance type expresses the condition in the present tense, with the result again in the future, with either a dynamic or a static predication. In (12), two closely linked conditional sentences in this construction are used to describe the tricky job of hunting wild pigs in the mountains. The speaker thus shows less certainty of their being found or shot. In (13), the condition is a static predication, but the result, in future dynamic tense, reflects uncertainty. This is clear from the use of negative in the second sentence, clearly spelling out a viable alternative to the first condition.

(12) **no'-m mi-pai' 'oipo, ja-códa-'-am.**
jai' ji-voi'ññohli-a'-am no'-m cham dadacma gu-cacraviñ-cam
COND-3p there-where be(walking:pl), 3p-kill(pl)-3p.
others INCEP-run+away(pl)-FUT-3p COND-3p NEG good+shot(pl)
the-rifles-ones
'If there are some there, they will kill them; others will flee if the riflers are not good shots'

(13) no'-dyo-ji cham mi-dyá gu-quiocam, mi'-dyɨr ja-'u'da-'.
paimcugu' mi-dyá, dyo-gu' bai'-ji-bɨ-ya'-dyo gu-caraviñ,
mu'a'-dyo güi'
COND-RSP-AFF NEG there-be(sitting) ART-resident, there-from
3p-eat+up(pl)-FUT.
but+if there-be, well-but twd-INCEP-grab-FUT-RSP ART-rifle,
kill:FUT-RSP him
'Now if the resident is not there (at home), then (the chicken hawk) will eat up (the chicks); but if he is there, he will certainly grab his rifle and kill him'

The third type of conditional sentence represents a conjecture on the part of the speaker. This is reflected in the use of the subjunctive mode with the future tense in both clauses, regardless of whether the speculation refers to a future or a past possibility, as in (14) and (15) respectively.

(14) no'-ñ via'-ca-'-guɨt ma'n,
vɨx chanohl tu-sav-da'-iñ-guɨt-ji
COND-1s have-STAT-FUT-SBJNCT one,
all day DUR-play-FUT+CONT-1s-SBJNCT-AFF
'If I had one (radio), I surely would play it all day long'

(15) no' 'añ mu-jimi-a'-guɨt tacav mu-mercádo,
ya'-aichdya-'-iñ-guɨt gu-carum
COND I away-go-FUT-SBJNCT yesterday there market,
here-deliver-FUT-1s-SBJNCT ART-bananas
'If I had gone to the market yesterday, I would have brought back some bananas'

The purposeful sentence is characterized by a purposeful sequence of actions: a previous state (or cause), a correcting event (or result), and an expected state (or purpose). The purpose clause is the negation or the amplification of the situation in the cause clause. For example, in (16) the result clauses (by additive compounding) are the negation of the cause clause, while in (17) the result clause is the fulfillment of the state of desire in the cause clause.

(16) va-mumcu-ji gu-ñ-mar,
maic-ap jiñ-'oidya-' na-p ba-dagui-a'
gu-ñ-'ahlí-chuc na va-dudyi-a' na cham muqui-a'
CMPL-dying-AFF ART-my-offspring,
come:IMPER-2s 1s-accompany-FUT that-2s there-touch-FUT
ART-my-child-PSD that CMPL-get+better-FUT that NEG die-FUT
'My child is dying; come and touch her so that she will get better and not die'

(17) guio-va' gu-mfmiv na-x ja-ná,
mu-vapsa-da' gu-bai-'ñ-qui'n ja-bia-da',
ja-cua'-da'va'
and-then ART-bees that-COP 3s-like+to+eat,
away-put+in(iterative)-FUT+CONT ART-tail-his-INSTR
3p-pull+out-FUT+CONT, 3p-eat-FUT+CONT-then
'Also (the opossum) likes bees; he puts in his tail (into the hive) and gets them out to eat'

Purposeful sentences can leave out the cause clause if it is part of the speaker's encyclopedia (Section 1.4). Thus in (18) the speaker assumes his hearer knows that the corn is ritually forbidden until it is taken to the sacred dancing place to be blessed.

(18) mai'-va-tu-vua-'-ich na-m vindisír-o' nii'car-tam,
na-va' cham ca-xidyú-ca' gu-junva'
out-CMPL-DUR-throw-FUT-1p that-3p bless-FUT dancing-place,
that-then NEG TEMP-ritually+forbidden-FUT ART-corn
'We take the corn to the sacred dancing place to be blessed, so that it will not be ritually forbidden (to eat)'

The deductive sentence is the hardest of the semantic sentence types to discern, since it more often than not occurs in elliptical form with the general grounds (or major premise) in the encyclopedia of the speaker, as in (19). Sometimes, however, the full form of the deductive sentence is seen: general grounds, specific grounds (or minor premise), and deduction (or conclusion), as in (20).

(19) chacuy 'oiri na ca-r-'ili'ch
not+yet walk that TEMP-COP-little
'He doesn't walk yet because he's still (too) little'
(deleted: since little children this size seldom can walk)

(20) no'-ñ mui'-va-jim, cugu'-x ji'nguiarum-'am-ji,
ji-voi'ññohli-a'-am
COND-1s away-CMPL-go, because-COP untamed-3p-AFF,
INCEP-run+away-FUT-3p
'If I go out there, they will run away because they are wild'

1.2 Compounding Within the Proposition

Compounding of the six basic propositional types of semantic sentences may occur in any or all of their constituent clauses without altering the propositional structure. Compounding is of four types: contrastive, equivalent, alternative, and additive. A further semantic element that can be added to the basic propositional information of the semantic sentence is the peripheral information of setting.

Contrastive compounding consists of contrasting both the subject and the predicate of two clauses. Thus in (21), for example, the predicate of the second clause is entirely unrelated to that of the first clause, and the

subjects are also different; in (22) the second predicate is the negation of the first, with a different subject; and in (23) the second predicate is the opposite of the first, again with a different subject. A contrasting subject in the second clause may also be simply the universe of all possible subjects except the subject of the first clause, as in (24).

(21) **va-jí pue'mlo gu-juan,**
gu'-ji nagu' gu-pegro va-gága-m gu-vac
CMPL-went town ART-John,
but-AFF that-but ART-Peter CMPL-look+for-DESID ART-cow
'John went to town, but Peter went to look for a cow'

(22) **va-jí pue'mlo gu-juan, gu'-ji na-gu' gu-pegro cham-tu' mu-jí**
...NEG-AUG away-went
'John went to town, but Peter didn't (go to town)'

(23) **va-jí pue'mlo gu-juan, gu'-ji na-gu' gu-pegro mi'-ca-ví**
...there-TEMP-stayed
'John went to town, but Peter stayed there'

(24) **va-jí pue'mlo gu-juan, gu-jai' cham-ji**
...ART-others NEG-AFF
'John went to town, but the others didn't'

Equivalent compounding may be strict or loose, varying from repetition with added information to total rephrasing. Also possible is the use of synonyms, negated antonyms, and generic-specific equivalence, among other devices not yet fully explored. Examples (25) to (29) illustrate the five ways just mentioned in that order.

(25) **guio-va' gu-bai-'ñ na-r rimédio gu-gavñi',**
no'-chich va-ch-gav na-r rimédio gu bai-'ñ
na-ch 'fqui-ji, jich-júhli-a'
and-then ART-tail-his that-COP remedy ART-sprain,
COND-1p:PERF CMPL-1p-sprain:PERF that-COP remedy ART-tail-his
that-1p cut-AFF, 1p-rub+on-FUT
'Also (the opossum's) tail is a remedy for sprains; if we sprain ourselves, his tail is a remedy—we cut it and rub it on ourselves'

(26) **jix-xijay na-ch 'oihlidya-',**
mic mu-ja'p 'u'x-chir na-m jix-joi'ñ
COP-hard that-1p get+there,
far away-gen+area trees-among that-3p COP-like
'It's hard to get there (to find the deer); they like to roam far off in the forest'

(27) **jix-chi-'fbi'ñ, jir-jiguiarum**
COP-DUR-afraid, COP-untamed
'(The mountain lion) is afraid continually (of people); he's wild'

(28) **misturabón na ja-cua' gu-carvax gu-'ɨ'lich,**
gu-guë'guër cham-tu' ja-cua', day gu-'ɨ'lich
mountain+lion that 3p-eat ART-goat ART-little(pl),
ART-big(pl) NEG-AUG 3p-eat, only ART-little(pl)
'The mountain lion eats small goats; he doesn't eat big ones,
just little ones'

(29) **jix-ca'oc-dyo na-t 'ay gu-somaigui'**
COP-sick-RSP that-PST come+down+with ART-cold
'He's sick, all right, having come down with a cold'

Alternative compounding may be either exclusive or inclusive, obligatory or optional, and either the predicate or the participants may alternate (but not both in the same sentence). That is, if P and Q are clauses, with either the predicate or the participants alternating between them, then the following kinds of alternation can occur (illustrated by the example in parentheses); P or Q (30), P or Q or neither (31), P or Q or both (32), and P or Q or both or neither (33).

(30) **jiñ-'oidya-'-ap-a, ca'-p ya'-ca-vi'-ya'**
1s-accompany-2s-PLR, or-2s here-TEMP-remain-FUT
'Are you going with me, or staying here?'

(31) **jɨ'c-ap-quɨ'n jiñ-maqui-a',**
ca' pui'-a, ca' cham ga'ra-'-ap-a
how+much-2s-INSTR 1s-give-FUT,
or thus-PLR, or NEG sell-FUT-2s-PLR
'How much will you give it to me for? or for free? or won't you
sell it?'

(32) **guio bai'-p-va-paxiar-'iñ cavuimuc,**
piam maxdyi, piamcugu' vɨx goc tanohl
and twd-also CMPL-visit-1s tomorrow,
or the+day+after+tomorrow, or all two days
'I'll come back and visit again tomorrow, or else the next day,
or else both days'

(33) **ja'xñi-añ tu-jugui-a'-dyo gu-'imay piam gu-tɨmcahl,**
piam vɨx goc no'-ñ guíhlim jix-bio',
piamcugu' cham, pu-cham jugui-a'-iñ-dyo-ji
Later-1s DUR-eat-FUT-RSP ART-squash or ART-tortilla,
or all two COND-1s very COP-hungry,
or+if NEG, thus-NEG eat-FUT-1s-RSP-AFF
'Later I will eat either the squash or the tortillas, or both if
I'm really hungry; or if I'm not, I won't eat anything at all'

All but the first of the above examples are admittedly a bit strange, for rarely would a speaker give all of these alternatives in such close context. They are, however, grammatically correct and clearly plausible, especially in an utterance where a speaker is thinking out loud. A more natural type of "P or Q or neither" is seen in (34), where the negation of the predicate in the second clause can mean that either the hearer could go with the speaker or stay where he was, or he might choose to go somewhere else instead of doing either of those

two alternatives.

(34) **jiñ-'oidya-'-ap-a, ca' cham**
1s-accompany-FUT-2s-PLR, or NEG
'Are you coming with me or not?'

Additive compounding differs from contrastive compounding in that only the subject (or object) or the predicate is different between the clauses, but not both. It also differs from alternative compounding in that the compounding is always both inclusive and obligatory. The predicates in an additive compound construction often have an inherently temporal relation, but they are not meant by the speaker to indicate a sequence of events as much as a unity of related events. Examples (35) and (36) illustrate compouund predicates, (37) a compound subject, and (38) a compound object.

(35) **va-jí-chich, mu-chich va-'ay ruis**
CMPL-went-1p:PERF, there-1p:PERF CMPL-arrived Ruiz
'We left and went to Ruiz'

(36) guio na **más va-r-güë'güër-ca-',**
day na-ch va-tu-vopni-a' guio na-ch mu-tu-jimchuda-'
and that more CMPL-COP-big(pl)-STAT-FUT,
only that-1p CMPL-DUR-weed-FUT and that-1p there-DUR-plow-FUT
'And when (the corn) is bigger, we just weed (the cornfield) and plow there'

(37) sap-va' gu-buru'x **túcav-dɨr quɨc,**
guio gu-casnir guio gu-gagox
said-then ART-donkey deep-from be(standing),
and ART-sheep and ART-dog
'So the donkey, the sheep, and the dog were deep inside (the cave)'

(38) gu-ma'n-va' **mu-tɨ-'ɨxi-a' gu-jun guio gu-bav,**
'imay, chílac
ART-one-then there-DUR-plant-FUT ART-corn and ART-beans,
yellow+squash, green+squash
'Then one person plants corn, beans, and yellow and green squash there'

The time and locational setting of a semantic sentence, although not central parts of the proposition, are important components of the meaning of the sentence. Time setting can be punctiliar (e.g., **tumincuta'm** 'on Sunday', **bán** 'in the month of', **cavuimuc** 'tomorrow', **tacav** 'yesterday', **xiv** 'today, now' **jumay chanohl** 'another day', **jano'** 'in that time'), linear (e.g., with **ca-** 'temporal prefix' meaning "meanwhile, during"), ablative (e.g., **mi'dyɨr** 'then', **gatuc** 'afterwards'), dative (e.g., **hasta** 'until (Spanish)', **vɨpɨ'** 'before'), elapsed (e.g., **vamɨquim** 'a while ago'), repetitive (e.g., **navap masa'n** 'each month', **gu-jumay oidya** 'the next year'), or general (e.g., **gammɨjɨ** 'always', **pai'jɨ** 'sometimes'). Example (39) shows a punctiliar time adverb, (40) a dative, and (41) a repetitive adverb.

(39) **guio-'p jir-piasta-ca-' bán julio na-m tu-vapoichu'n-da'**
and-also COP-fiesta-STAT-FUT in+the+month+of July that-3p
DUR-race(pl)-FUT+CONT
'In July there's going to be another fiesta when they have (horse) races'

(40) **vɨpɨ'-ñich tɨ gu-jipopótamos, gatuc gu-'alipantis**
first-1s:PERF see:PERF ART-hippos, later ART-elephants
'First I saw the hippos, and later (or afterwards) the elephants'

(41) **guio-ch-'ɨp tu-moicda-' na-ch mi-tɨ-'ɨxi-a' gu-jumay 'oidya' buiyax-quɨ'n**
and-1p-again DUR-soften-FUT that-1p there-DUR-plant-FUT
ART-another year bulls-INSTR
'We also prepare the ground again with bulls in order to (be ready to) plant there the next year'

Location setting can be either linear or punctiliar, or general (e.g., **champai'** 'nowhere', **mija'ppai'** 'around there somewhere'), internal (e.g., **-tɨr** 'inside a closed area', **-ta'm** 'inside a semi-closed area', **-ɨrav** 'in the middle of', **vɨx najɨ'x jir**(place) 'throughout, everywhere in'), external (e.g., **dɨrapdɨr** 'outside of', **ju'ñdyaram** 'on the outskirts of'), proximate (e.g., **mi'**(**napai'**) 'at the place where', **mia'n** 'near to', **vɨx**(path) 'all along'), or distant (e.g., **mɨc** 'far away', **bammɨ** 'far from here (higher elevation, out of sight')). Example (42) illustrates both the use of location setting and specific (i.e., punctiliar) locations in the same sentence.

(42) **jano'-va' gu-jesús mi'-va-'ay**
mu-pue'mlo-de-nasaret-dɨr na-r galilea-cam gu-dɨvir,
mi'-va' gu-juan va-vacua-Ø mi'-acquɨ'n jordán
in+that+time-then ART-Jesus there-CMPL-arrived
there-town-of-Nazareth-from that-COP Galilea-origin ART-land,
there-then ART-John CMPL-washed-3s there-river Jordan
'At that time Jesus came from the town of Nazareth in the region of Galilee, and John baptized him there in the River Jordan'

1.3 Modal Parameters

The modal parameters delineate the relationships between the speaker, the hearer, and the assumed real world. They are the "overlay" relations of the sentence, and as such embody the essential nature of the "speech act". Modal types for SE Tepehuan consist of three illocution types: declarative, interrogative, and imperative; at least two mood types: exclamatory and desiderative; and probably three reality types: factual, contrafactual, and hypothetical.

The illocution types are the grammatical mood of the sentence, and specify the speaker-hearer interaction. The declarative illocution can vary in assurance from uncertain to certain, and can indicate the source of the knowledge being asserted. For example, (43)-(48) are common sentences ranging from uncertain (almost a question) in (43) to absolutely positive in (48);

examples (49)-(51) illustrate general knowledge and two types of second-hand information respectively.[3]

(43) ya-dá-chi gu-x-cai', 'ap cham mat?
here-be-maybe ART-COP-governor, you NEG know
'Perhaps the governor is here; do you know?'

(44) mo-chi ya'-dá / 'añ 'ɨhli'ñ na ya'-dá
EV-maybe here-be / I think that here-be
'He probably is here / I think he is here'

(45) ya'-dyo dá, mi'-ñi 'oirɨ vɨpɨ'
here-RSP be, there-SPEC be(walking) before
'He's here, all right; he was just over there a minute ago'

(46) mo-gu'-r-'am-ji
EV-but-COP-right-AFF
'That's good (or: Isn't that good!)'

(47) jir-'am-ji-güi' / jix-bai'-cu-gui
COP-right-AFF-AUG / COP-good-CONN-AFF
'Very good! / Okay! (or: Excellent!)'

(48) jir-'am-ji-matguɨm / matguɨm-jir-'am-dyo
COP-right-AFF-AUG / AUG-COP-right-RSP
'That's absolutely right! (or: That's really great!)'

(49) 'añ mi'-ñi-dyɨr na-sac jir-juctam
I there-SPEC-from that-known COP-Pine+Town
'I (have come) from the place known as Pine Town'

(50) jotmɨda'-mɨt bai'-ji-vop gu-ja'tcam hasta mmmu
na-sap-pai' 'oirɨ gu-jesús
quickly-3p:PERF twd-INCEP-run:PERF ART-people to there:REM
that-said-where be(walking) ART-Jesus
'Quickly the people began to run to wherever it was said that Jesus was'

(51) jai' jup-cai'ch-'am na-r rimédio gu-vachichil
others also-say-3p that-COP remedy ART-herb
'Some say that the (herb) is a remedy'

The interrogative illocution can be either polar or content oriented. Polar (i.e., yes/no) questions may presume the answer in various degrees, as in (52)-(55), where (53) is the most neutral in assurance. Content questions ask for a constituent or set of constituents to be specified, as in (56)-(61).

(52) jir-'am-a?-chi
COP-right-PLR-maybe
'Perhaps it is correct?'

(53) jir-'am-a?, ca' cham
COP-right-PLR, or NEG
'Is this correct, or not?'

(54) tu-juan-'ap-a?
DUR-work-2s-PLR
'Are you working?'

(55) tu-juan-'ap-hi-a
DUR-work-2s-AFF-PLR
'So you are working, are you?'

(56) jaró mi-quio mi'-quícham
who there-live(sg) there-home
'Who lives there in that home?'

(57) tu'-p 'ua'
what-2s carry
'What are you carrying?'

(58) pá-pich va-jí
where-2s:PERF CMPL-go:PERF
'Where are you going?'

(59) pa-p-duc ja'c-va-guixi-a'
when-2s-X gen+area-CMPL-return(sg)-FUT
'When will you return?'

(60) jax-cu-pich-va' cham ba-jí tacav
how-CONN-2s:PERF then NEG twd-go:PERF yest.
'Why didn't you come yesterday?'

(61) jax-ap-ja'c cupio'ca-'
how-2s-way open-FUT
'How will you open it?'

The imperative illocution varies along three parameters: (1) the degree of compulsion, (2) the source of compulsion, and (3) the object of the compulsion. Generally, three degrees of compulsion indicate whether the obligation is a command, a request, or a suggestion. Examples (62)-(64) respectively illustrate these.

(62) ba-i'-xi-jim, mi'-xi-mac gu-chio'ñ gu-vonma-'n
twd-SPEC-IMPER-go, there-IMPER-give ART-man ART-hat-PSD
'Come here, give the man his hat!'

(63) ba-jim na-p xi-maqui-a' gu-chio'ñ gu-vonma-'n
twd-go that-2s IMPER-give-FUT
'Please come here to give the man his hat'

(64) cha-'p mu-jimi-a' /
mu-jimi-a'-ap na-p va-maqui-a' gu-chio'ñ gu-vonma-'n
NEG-2s away-go-FUT / away-go-FUT-2s that-2s CMPL-give-FUT...
'Why don't you go / I suggest that you go to give the man his hat'

The source of the compulsion of the imperative can be first person, as in (62)-(64); second person, as in (65); third person, as in (66); or general, as in (67).

(65) jix-bai' na-p ba-jimi-a' cavuimuc
COP-good that-2s twd-go-FUT tom.
'You should come tomorrow'

(66) bai'-sap-xi-jim / ba-jim-sap
twd-said-IMPER-go / twd-go-said
'He (they) said to come! / He (they) want you to come'

(67) tianique na-p ba-jimi-a' cavuimuc
tiene+que(Spanish) that-2s twd-go-FUT tomorrow
'You must (or: are obliged to) come tomorrow'

The object of the compulsion can be second person singular, as in (62)-(64). Or it can be first or third person singular or third person plural, as in (68)-(69), where it appears to be a minimalizer of the described action. When it is first or second person plural, however, it has ordinary imperative force, as in (70) and (71).

(68) 'añ ca-xi-cóxi-m
I TEMP-IMPER-sleep-DESID
'I should go and sleep now (or: I guess I'll go and sleep now)'

(69) mu-tisdi-ji jun-ta'm,
nai'-xi-chi-ntidya-t tu-cua'-da' joidyam
away-go+up-AFF corn-on,
all+around-IMPER-DUR-PST DUR-eat-FUT+CONT ADV
'(the badger) goes up there on the cornstalk and eats happily, looking all around'

(70) maic-ach va-tu-coi'-po'
IMPER:1p-1p CMPL-DUR-eat-FUT:REM(pl)
'Let's go eat now!'

(71) bai'-gor-xi-jim, cha-'pim juan-da'
twd-2p:VOC-IMPER-go, NEG-2p work-FUT+CONT
'Come here (you all); stop doing that!'

Two clear mood types can be identified for SE Tepehuan, those of exclamation and desire. Apparently surprise, pleasure, and admiration all come under the scope of exclamation, since little evidence can be found to separate between them, as examples (72) and (73) show.[4]

(72) **'á-gu' pu'-jani-hi-a!**
INJC-but thus-AFF-AFF-PLR
'Oh, really! (or: You don't say!)'

(73) **'á-va-tɨ-pich-hi-hi-a!**
INJC-CMPL-find:PERF-2s:PERF-AFF-AFF-PLR
'Oh, so you found it, did you?'

Desire in a semantic sentence is indicated by a complement construction with the copula predicate **jix-'a'** 'want' as matrix predicate, as in (74).

(74) **jix-'a'-iñ na-m va-m-paxiara-m cavuimuc**
COP-want-1s that-3p CMPL-2s-visit-DESID tomorrow
'I want them to go and visit you tomorrow'

Reality types are apparently of three kinds in SE Tepehuan. A matrix predicate can indicate the veracity or non-veracity of a sentence, as in (75) and (76) respectively, or a hypothetical situation can be set up, as in (14) and (15) above.

(75) **jir-sɨhlcam na-t va-jí**
COP-true that-PST CMPL-went
'It's true that he left'

(76) **cham jir-sɨhlcam na-ñ mu-jimi-a' cavuimuc**
NEG COP-true that-1s away-go-FUT tomorrow
'It's not true that I am going there tomorrow'

1.4 Presupposition

An adequate description of m : of the semantic prosodies that affect relations between clauses (e.g., time movement, information flow, reference and assertion structure) await further discourse analysis. In Section 2.2 a preliminary attempt at describing super-clausal topicalization is given, as well as some indications as to sentence cohesion from the syntactical viewpoint. The only other essential semantic element in the composition of the sentence is presupposition.

The presuppositional structure of a semantic sentence consists of encyclopedic information, structural constraints on sentence types, and contraexpectancies. The encyclopedia may contain universally known, culturally known, or contextually known information necessary for the understanding of the sentence, information the speaker expects the hearer to already know. Thus it is presupposed information on the part of the speaker, and usually is not explicitly stated. For example, in order to understand (77) properly, the hearer must have in his encyclopedia the following information: (i) dogs usually sleep by the side of the house and attack anyone who approaches (culturally known); (ii) domestic animals startled by a dog charging at them barking will run in the other direction (universally known); and (iii) the cow that is the subject of the second clause is the same as the cow identified in the previous sentence of the discourse that was coming toward the house to eat the beans that the resident had spread out in the sun on the ground to dry (contextually

known).

(77) gu-gagox-va' mui'-ji-torqui, gamai' ji-mí gu-vac
ART-dog-then away-INCEP-barked, farther INCEP-ran ART-cow
'Then the dog (took off) after him barking, and the cow began to run in the other direction'

Structural presuppositions are those presuppostions of time, information flow, reference and assertion structure that each semantic sentence inherently contains as part of its makeup. Contraexpectancies, then, are violations of the encyclopedic or structural presuppositions. For example, in (78), taken from a creation folk tale, the last clause is a contraexpectancy of the contextural encyclopedia, since up to that point the narrator had been relating how the first man was surprised when he went home every day after working in his field, to find a stack of hot tortillas ready for him to eat, since his only earthly companion was a dog. So he spied on him.

(78) vueno na-t-va'-gu' bai'-ji-'ai-hi-a na-t-pai'
mijidir vus, gu'-r 'uví
well that-PST-then-but twd-INCEP-arrived-AFF-PLR
that-PST-where ahead-from came+out, but-COP woman
'Well then, the man snuck up to where (he could see) when the dog came out, but it was a woman!'

2. Surface Structures

The surface sentence is seen as that part of an utterance containing at least one main clause with any dependent clauses that relate to it syntactically (cf. Thomas 1975:114). The surface sentence is thus the most common expression of the semantic sentence, although it could also be expressed as a surface clause or paragraph. In seeking to describe the sentence in SE Tepehuan, the common multi-clausal combinations were examined and several distinct types emerged, all apparently the corresponding surface structures for the various semantic sentence structures seen in section 1.

2.1 Basic Syntactic Types

The basic multi-clausal syntactical types are: simple, coordinate, two types of conditional, reason, and comparative; also alternate, contrast, and juxtaposed; and relative and complement. The first six types correspond to the six basic prepositional types discussed in Section 1.1 with no overlapping of forms (i.e., the correspondence is homomorphic). One of these six and the next three correspond to the compounding types discussed in Section 1.2. The last two are syntactic devices for subordination that correspond to specific sets of semantic types.

The formulas given for these surface forms show normal ordering of the clauses and their associated conjunctions. This order may be permuted except in the relative, alternate, and contrast forms, where, as noted below, the conjunction may not introduce the first clause of the sentence. That is, in all

other forms, the conjunctions associated with the clauses may be used at the discretion of the speaker to introduce any one of them. But, since relative clauses always follow their heads, and since no alternative or contrast can be stated without reference to a previous event or state, these forms do not allow for the option of permuting the conjunction with the first clause.

Figure 1

Corresponding Surface Forms of Semantic Sentences

SEMANTIC TYPE	SURFACE TYPE:	FORM
Statement	Simple:	K_1
Temporal Sequence	Coordinate:	K_1 + (guio(va')-K_2)^n
Conditional	If-conditional:	no'-K_1 + K_2
Deductive	Because-conditional:	K_1 + nagu'-K_2
Purposeful	Reason:	K_1 + nava'-K_2
Covarying	Comparative:	K_1 + {ja'p, pui'} na {jax, ja'c}-K_2
==========	==========	
	Relative:	K_1 + (DEM)RP-K_2
Additive	==========	
Alternative	Alternate:	K_1 + {ca', piam}-K_2
Contrastive	Contrast:	K_1 + gu'ji(nagu')-K_2
Equivalent	Juxtaposed:	K_1 + K_2^n
==========	==========	
ALL SEMANTIC TYPES	Complement:	J + na-K_1 + K_2

where:

K_i = clause,
J = a restricted set of matrix predicates,
+ indicates boundary between clauses,
- indicates the boundary between a conjunction and the clause it introduces as its initial constituent.

As can be seen from Figure 1, the simple sentence consists of only one clause, plus sentence-type prosodies discussed in Section 2.2. This is the corresponding surface form of the semantic statement, which also has only one clause as constituent. Numerous examples of this form have already been cited in Section 1.

The coordinate sentence consists of two or more clauses joined by a coodinating conjunction. This is the corresponding surface form of the temporal sequence and of additive compounding. This fact may be sufficient evidence to say that the temporal sequence is not, in fact a separate semantic type, but rather a special type of additive compounding with a definite time movement. The question is raised but not solved here; surely further research will give a more satisfactory answer to this query.

The conditional sentences are of two types: those that introduce one clause, usually the first, with the conditional particle **no'** 'if'; and those that introduce one clause, usually the last, with the conditional particle combination **nagu'** 'because'. The if-conditional sentence is the corresponding surface form of the semantic conditional sentence, while the because-conditional sentence is the corresponding form of the deductive semantic sentence.

Two uses of the if-conditional sentence form are seen in SE Tepehuan. The first is the normal usage corresponding to the basic semantic function of the sentence, as in (79), where the conditional particle introduces the first clause, and (80) where it introduces the second clause.

(79) **no'-chich-pai' mamá, tu-viñdya-' gu-vaisɨhl**
if-1p-:PERF-where ferment:PERF, DUR-suck-FUT ART-badger
'Wherever we have some (maguey) fermenting, the badger will suck on it'

(80) **jum-maqui-a'-iñ-dyo no'-p jix-joi'ñ**
2s-give-FUT-1s-RSP if-2s COP-desire
'Sure, I'll give it to you if you (really) want it'

As discussed in Section 1.1, three tense patterns can occur in the if-conditional. These are the means by which the speaker expresses the various degrees of assurance there are about the conditional proposition. As seen in examples (10)-(15), the surface forms of these tenses are: the zero morpheme for present tense, the suffix **-a'** for the future tense, truncated stems for the past perfective tense, and the subjunctive suffix **-guɨt** used in coordination with the future tense to indicate the subjunctive mode.

A second usage of the if-conditional surface sentence is for a suggestion, where **no'** 'if' is used contiguous with the contrastive conjunction **gu'** 'but'; or for a polar contrast, where it is used in coordination with the declarative alternative conjunction **piamcugu'** 'or'. These constructions are similar in that the suggestion of (81) is that the person take one of the alternatives (i.e., to take the man as opposed to not taking him), whereas in (82) the speaker gives no hint as to which of the alternatives is preferable.

(81) no'-p-gu' risivíru-' na-p jix-cuna-m
if-2s-but accept-FUT that-2s COP-husband-DESID
'Perhaps you will accept, since you want a husband'

(82) no'-chich tɨ piam-cu-gu' cham,
nagu'-x xijay na-ch 'oihlidya-' na-ch-vɔ' va-tɨgui-a'
if-1p:PERF find:PERF or-CONN-but NEG,
because-COP hard that-1p get+there that-1p-then CMPL-find-FUT
'We may find (deer) or we may not, because it's hard to get out there to find them'

The because-conditional sentence apparently most often corresponds to an elliptical form of the deductive semantic sentence. That is, in most surface expressions of the deductive sentence, the clause introduced by the because particle is the general grounds (major premise), or if deleted it introduces the specific grounds (minor premise). Then the other clause in the construction (i.e., the one not introduced by a conjunction) contains the other semantic clause not deleted, either the specific ground or the conclusion. This is true regardless of the order in which the clauses occur. The deletion of each of the three semantic clauses is equally common: (83) shows the major premise deleted, (84) the minor premise, and (85) the conclusion.

(83) nagu' cham via' gu-vac, cham mat-va' gu quis
because NEG have cows, NEG know-then ART-cheese
'Because he doesn't have any cows, he doesn't know (how to make) cheese'
(deleted: A person who does not own cows does not know how to make cheese)

(84) (same as (82))
(deleted: deer are not always to be found, since they are hard to get to)

(85) gu-pippihl-dyo-ji na ja-cua', gu-guë'guër cham-ji,
na-mgu'-x ba'mna' pui'-ɨp na gu-tobav
ART-chicks-RSP-AFF that 3p-eat, ART-big(pl) NEG-AFF,
because-3p-X-COP dangerous(pl) thus-also that ART-chicken+hawk
'The chicken hawk eats only chicks, not big (chickens), because (the big ones) are just as dangerous as he is'
(deleted: he stays out of danger (i.e., if major premise is: a chicken hawk who eats only chicks will stay out of danger))

The reason sentence is the corresponding surface form for the purposeful sentence. It is so named because it, like the because-conditional, usually deletes one of the clauses of its semantic counterpart since it is in the speaker's encyclopedia. As illustrated in (86), the cause clause is usually deleted, probably because it is easily reconstructable from the result and purpose clauses.

(86) guio-va' gu-sai'-quɨ'n na-m 'íña-' enter-dɨr, nava'
cham mu-vapqui-a' gu-dɨ́vɨr na cham dɨrvata-' gu-may
and-then ART-grass-INSTR that-3p cover-FUT whole-from, so+that
NEG away-enter(pl)-FUT ART-dirt that NEG get+dirty-FUT ART-maguey
'Then they cover the maguey over with grass so that dust will not get in to get it dirty'

One problem in the reason sentence is that the conjunction used to introduce the clause containing the purpose (i.e., nava' 'so that') is a frozen form of two useful discourse particles that can also come together as "live" particles with two separate functions, so that the phonological shape of the frozen combination and that of the two conjoined particles is the same, but their semantic functions are different. Such is the case in (87), where the second clause is introduced by na 'that' and va' 'then' in their primary usages, while the third clause is introduced by nava' 'so that' in its reason sentence usage as the introducer of the purpose clause (in coordination with future tense). That the occurrence of the third person plural subject particle in the introducer of the second clause is not a factor here is seen by comparing (87) with (88), where it occurs in the purpose clause introducer.

(87) guio-va' jɨ'c-im na-m bai'-xi-mɨm-da',
na-m-va' ja'c-va-tu-vua-' nava' va-r-viñ-ca-'
and-then how+many-times that-3p twd-IMPER-burn-FUT+CONT,
that-3p-then back-CMPL-DUR-throw-FUT so+that (CMPL-COP-wine-STAT-FUT)
'Then they make it cook (to produce vapor) several times, returning it each time (to be vaporized again), in order to make it into wine'

(88) no'-t ja'c-va-tu-vua,
mi'-va-ji-'-ai-ya'-am gu-ja'tcam namva' va-maico-'
COND-PST back-CMPL-DUR-throw,
there-CMPL-INCEP-arrive-FUT-3p ART-people so+that:3p
CMPL-get+drunk-FUT
'When it has been run through (successively), the people begin to arrive in order to get drunk'

Occasionally the purpose clause occurs first in the reason sentence, as in (89). Sometimes, too, more than one reason, or successive reasons built one upon the other, are given, as in (90). These are probably additive or equivalent compounding operating in coordination with the reason sentence. Here the phonological pause between the purpose clauses seems to indicate coordination, not subordination as in (87).

(89) namva' va-sonvi-a' mu-ja'-c pila'tɨr, va-'ui'ca-'-am
so+that:3p CMPL-cut+up-FUT there-gen+area trough-in
CMPL-take(pl)-FUT-3p
'In order to cut up (the maguey into little pieces) there at the trough, they take it there'

(90) **na-m-va' va-mim-da' mu-ja'c 'orno-tir nava' va-totpoqui-a', nava' va-mihli-a'**
that-3p-then CMPL-burn-FUT+CONT there-gen+area oven-in so+that CMPL-boil-FUT, so+that CMPL-run-FUT
'Then they cook it there in the oven so that it will boil and run (as vapor through pipes)'

The comparative sentence is the corresponding surface form for the covarying semantic sentence. Seldom, however, is the full covariance stated; usually it is only hinted at by the use of the compasison, which often leaves the ground for the comparison implicit or partially implicit (i.e., in the encyclopedia), as in (91) and (92). Fully stated covariances such as (90) are as rare as fully stated deducted or purposeful sentences.

(91) **jix-mihldya' ja'p na to'n**
COP-swift like that rabbit
'He is as swift as a rabbit'

(92) **ja'p-tu'm 'iam-pix na mistuiñ**
like-look precisely-DIM that cat
'It is just like a cat in appearance'

The remaining sentences are of two types: (1) those that are the corresponding surface forms of compounding in a semantic sentence, and (2) those that indicate a grammatical dependence of one clause to another. The alternate sentence corresponds to alternative compounding, with the conjunctions **ca'** 'or (interrogative)' and **piam(cugu')** 'or (non-interrogative)' serving to introduce the second clause of the alternation, as previously illustrated in (30)-(33) above. The contrast sentence corresponds to contrastive compounding, with the conjunction **gu'ji** 'but' serving to introduce the second (i.e., the contrastive) clause. The conjunction **nagu'** 'because' is often added to this combination in various contexts, for reasons still obscure, the two serving as one unit. (Apparently when this combination of conjunctions contains the subject particle it takes the suppletive form **cu...jigu'**, where the subject particle follows the connector **cu-**.) Examples (93)-(95) further illustrate this type of sentence, showing the conjunction in its various forms.

(93) **ji', jix-jipi'ñ-dyo gu-súdai', gu'ji nagu' 'añ dyihl cham via' lugar na-ñ tu-vopcon-a' na-ñ-gu' ya'-tu-ñ-mamtuxi'ñ gu-'o'dam-quin gu-ñi'oc**
yes, COP-cold-RSP ART-water,
but because I self NEG have time that-1s DUR-wash(pl)-FUT
because 1s-X here DUR-1s-teach ART-Indian-INSTR ART-word
'Yes, the water is cold, but I myself don't have time to wash (clothes) because I am studying Tepehuan here'

(94) **ji', palip-'ahl-añ va-tu-'a'ga, cu-ñ-jigu' más jix-máchi-m-ji**
yes, little-DIM-1s CMPL-DUR-speak,
CONN-1s-but more COP-know-DESID-AFF
'Yes, I already speak a little bit, but I want to learn much more'

(95) **jix-mátit tu-dú-'iñ-dyo, gu'ji gu-ya'-cam**
na-ñ más jix-ñá na-x 'i'ov
COP-know+how DUR-make+tortillas-1s-RSP, but ART-here-origin
that-1s more COP-like+to+eat that-COP delicious
'I know how to make tortillas, all right, but I like the ones (made) here better since they are so delicious'

The juxtaposed sentence corresponds in most cases to equivalent compounding. As with the coordinate sentence which corresponds to additive compounding, the clause can be compounded more than once, although usually not more than twice, as in (96).

(96) **sap-va' pui'-oiri-da' ya' gu-ch-ju'hl-ji-a,**
jix-'abar gu-'uví xi-p-um-dú-jiti,
na-ñ-jax-chu'm jix-joi'ñ, na-jax-chu'm jiñ-co'rar
said-then thus-be(walking)-FUT+CONT here ART-1p-look+alike-AFF-PLR,
COP-beautiful ART-woman IMPER-also-RFLX-become-FREQ,
that-1s-how-looking COP-desire, that-how-looking 1s-like
'So then our "brother" used to wander around and make himself into a beautiful woman (to tempt us), the kind one desires, the kind one likes'

The juxtaposed sentence is also a possible choice for the expression of a temporal sequence and additive and contrastive compounding. In these cases the conjunction that normally occurs is not used, and phonological pause alone marks the conjoining. An example of this usage for a temporal sequence was seen in (5), for additive compounding in (35), and for contrastive compounding in (24).

The subordinate sentence types are the surface forms that can indicate when one semantic sentence is in a dependent relation to another. The relative sentence type consists of an independent clause or an entire sentence followed by a relative clause, which apparently can only be a semantic statement in nature. That is, the relative clause of the relative sentence, introduced by a relative pronoun, must be only one clause, which is the constituent structure of the statement. This is the only type of semantic sentence that can be in a relative clause, unless (97) could be considered an elliptical temporal sequence, in which case these two clauses would both be relatives. But recalling the tenuous status of temporal sequence as a clearly distinct semantic sentence, this conclusion is probably not justified here. A surface constraint on relative clauses requires the independent clause to occur first so the head can precede the relative.

(97) **guio-va' gu-judas iscariote,**
güi' na-t gatuc tu-'intigar-u gu-jesús
and-then ART-Judas Iscariote,
he that-PST later DUR-hand+over-PST ART-Jesus
'And Judas Iscariot, he that later betrayed Jesus'

Apparently any type of semantic sentence may be the subordinate part of a restricted set of complement construction matrix predicates. This set includes the truth value predicates seen in (75) and (76), causative (expressed by the static predicate **jix'a'** 'want'), quotatives (e.g., "I heard", "he said"), and cognizants (e.g., "I think", "I know"). Matrix predicates that appear to be

restricted further to taking only statements and temporal sequences as complements are attitude predicates (e.g., "I like") and value predicates (e.g., "it's good"). Example (98) shows a cognizant predicate with a conditional sentence as complement.

(98) **'añ jix-mat na-p puder na-p jiñ'dua'ñ-dya-' no'p 'a'nda-'-guit**
I COP-know that-2s able that-2s 1s-heal-APPLIC(?)-FUT COND-2s want-FUT-SBJNCT
'I know that you can heal me if you sc wish'

2.2 Other Syntactic Phenomena

Several other factors contribute to the surface form of semantic sentences. Grammatical completeness in various types of sentences has already been discussed. Two other prosodies will be mentioned briefly: topicalization and cohesion.

As demonstrated for clauses (Willett, this volume) there is a type of low-level topicalization which uses linear order to indicate the topic of the clause. That is, the noun phrase that represents the participant being discussed occurs in the last noun-phrase position after the verb. Another type of prominence of noun phrases, however, is also seen in any cursory examination of narrative, procedural, descriptive, or folk texts which is clearly distinct from clause topicalization.

Two syntactic changes signal this type of topicalization. First, the noun phrase[5] is "fronted" to initial position in the clause in which it occurs. Also all the other constitutents of the clause, including any adverbial or other elements that may be in focus and thus also precede the verb, are themselves preceded by the subordinate clause introducer **na**. Thus, for example in (85) above, the topic of the sentence is the chicks, although the subject of the first clause is the chicken hawk, and the subject of the second clause is the bigger chickens.

One explanation of this prevalent phenomenon is that the use of the subordinator particle indicates the speaker's intention to point out the overriding topic for a series of clauses. He does this by ostensibly "subordinating" the rest of the clause in which the nominal occurs, as well as succeeding clauses in which it is also the topic, to it. Another idea (suggested by David Thomas) is that the **na** acts like a case marker for topic, both in the clause introducing the topic, and in subsequent clauses, where it behaves like a pronoun to refer back to the topic already identified. Both explanations seem plausible, and only further discourse analysis can provide the insights necessary to decide which will be more useful in the overall description of the syntax.

Evidently this type of topicalization may not be only sentence topicalization, but also paragraph or even discourse topicalization. Apparently the use of **na** is limited to the first sentence of each paragraph, however. This is clearly seen in the three sentences in (99), all of which are the initial sentences of paragraphs from a short description of the opossum. The sentences

that follow each of these in their respective paragraphs appear to still have the topic of the first sentence as topic, but they no longer rely on the marking device to indicate this relation. Example (100) illustrates the introduction of the sentence topic with na as the "pivot" for topicalization, its second indication in the following clause by na, and then the absence of na in the remaining independent clauses of the sentence. Sentences such as (99) and (100) are both common in natural text, indicating that the use of na is optional in the third and subsequent clauses of the sentence.

(99) (a) **dyo-gu' dyi jov na-x lóco', na cham bana', guio na-x ñá gu-may**
well-but this opossum that-COP crazy, that NEG dangerous, and that-COP like+to+eat ART-maguey
'Well now, the opossum is crazy, is not dangerous, and likes to eat maguey stalks'

(b) **guio-va' gu-mfmiv na-x ja-ná**
and-then ART-bees that-COP 3p-like+to+eat
'Also, he likes to eat bees'

(c) **guio-va' gu-bai'ñ na-r rimédio gu gavñi'**
and-then ART-tail-PSD that-COP remedy ART-sprains
'Also, his tail is a remedy for sprains'

(100) **mi'-dyir gu-búfalos na-ñich jup-ja-tf na-m jir-guë'guër, jix-ba'mna-guim tu'm-'am**
there-from ART-buffalos that-1s:PERF also-3p-see:PERF that-3p COP-big(pl), COP-dangerous(pl)-QUAL looking-3p
'Then I saw the buffalos, they are big and dangerous-looking'

The only indications of where surface sentence boundaries are can all be classed under the heading of cohesion. Grammatical cohesion consists of the extent to which a surface sentence completely expresses all of its corresponding semantic sentence. Phonological cohesion indicators are chiefly intonation and stress. That is, in normal speech, the end of a syntactic sentence is marked by a sentence-final intonation consisting of a marked drop in pitch and usually a breath on the part of the speaker. Also, although not yet investigated in any detail, there appear to be definite sentence-level stress patterns which work in coordination with stress in phrase groups. Thus each clause can have a primary stress, usually on the stressed syllable of the most prominent element in the clause, and secondary stress on the other phrase-stressed elements of the clause. Although the stress, intonation drop, and pause do not always coincide, especially in halting speech such as when the speaker is thinking out loud or is nervous, they nonetheless are major indicators of the naturalness of the sentence division in texts.

FOOTNOTES

[1]The comma in citations marks a phonological pause, and the period marks a pause with a substantial drop in intonation.

[2]Although the phonological structure of the sentence has not yet been fully analyzed, there have been observed clear intonational and accentual boundaries (Section 2.2) which indicate the extent of a speaker's intent to relate some units of predication as locutional units as opposed to the other sets of predications.

[3]The question mark in citation forms indicates a rise in pitch on the last syllable.

[4]The exclamation point in citation forms indicates pronounced high to low pitch drop over the syllable.

[5]This discussion concerns third person nominals only. No corresponding topicalization of first or second person (e.g., as specified pronouns) has yet been discovered.

REFERENCES CITED

Thomas, David. 1975. Notes and Queries on Language Analysis. Huntington Beach, California: Summer Institute of Linguistics

————. (1979) "Sentence Components." Course outline: Special Topics 507, SIL/UND

Willett, Thomas. (This volume) "Clause Types in Southeastern Tepehuan."

¡Ethical Dative and Possessor Omission Sí, Possessor Ascension No!

David Tuggy

0. Introduction; PA-type sentences

There is a very common type of Spanish sentence which has the following properties: (i) One of the arguments of the verb is a noun phrase which consists of an article (almost always a definite article) and a noun. (ii) There is also a dative pronoun dependent on the verb, and (iii) the dative pronoun is understood as the possessor of the definite noun. (1)-(3) are examples of this kind of sentence.

(1) **Le ensuciaron el coche.**
DAT they:dirtied the car[1]
'They got his car dirty.'

(2) **Le robaron todo el dinero.**
DAT they:robbed all the money
'They stole all his money.'

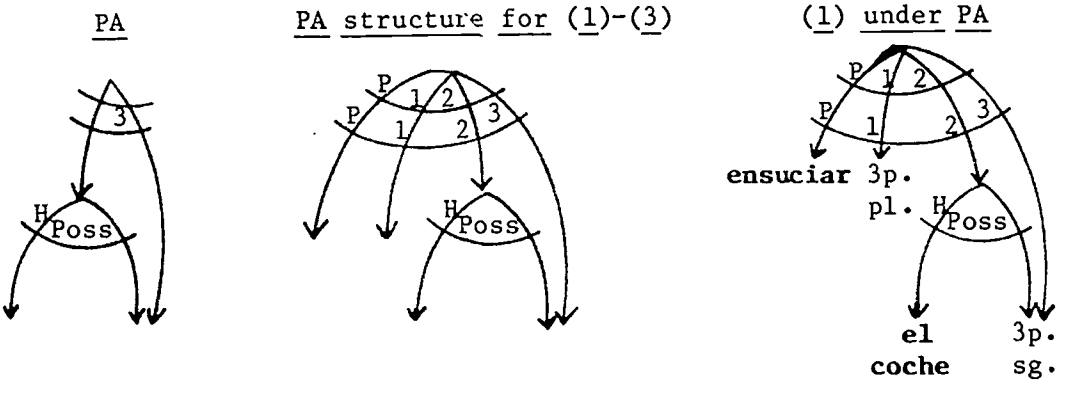
(3) **Le cortaron la mano.**
DAT they:cut the hand
'They cut his hand (off).'

I will refer to sentences of this kind as PA-type sentences.

0.1 Possessor Ascension (PA)

It has been suggested that sentences like (1)-(3) should be accounted for under the theory of Relational Grammar by a relational configuration called Possessor Ascension (PA).[2] In this structure the possessor in a possessor-head construction is a non-initial indirect object ("3") in the same clause in which the possessor-head construction bears an initial grammatical relation (GR). The relational network (RN) which defines PA is given in figure 1, along with the RN involving PA which would be used for sentences (1)-(3).

Figure 1



0.2 Arguments A and B for PA in Spanish

Two main arguments have been given to support a PA analysis for Spanish.[3] They are as follows:

Argument A: PA has already been posited, and argued for against at least some reasonable alternatives, in other languages (e.g. Chamorro, French, Georgian, Southern Tiwa, Tzotzil).[4] Thus it is independently motivated as a universally possible configuration. Using it to account for the Spanish data is therefore more parsimonious; there is no need to posit a new kind of RN.

Argument B: Positing structures with PA allows one to reflect the similarity in meaning between sentences in languages with PA (e.g. the Spanish sentences given above) and sentences in languages without PA (e.g. the English translations of those sentences), where the Possessor remains as Possessor.

I would like to argue that PA is not the best way to account for sentences (1)-(3). They are better viewed as resulting from a structure with an "ethical dative" (ED) and what we will call "Possessor Omission" (PO), both of which can be independently motivated in Spanish.

1. PA is not necessary in Spanish

1.1 In answer to argument A

Argument A is strong only if there exist no other universally available structures which will account for (1) to (3) and other such Spanish sentences. Such is not the case. Positing PA allows us to account for two facts: (i) the presence of the nominal understood as the possessor as a dative in the clause, and (ii) its absence as on overtly marked posessor. Both of these facts can be accounted for by independently needed mechanisms in Spanish. We will take them up in reverse order.

1.1.1 Possessor Omission

1.1.1.1 PO and PD

Spanish in many constructions besides the PA-type construction exemplified in (1)-(3) permits a nominal which is understood as possessed to appear with no overt possessor. Sometimes the nominal which is understood to be the posssessor will appear in the same clause with the nominal which it is understood to possess. In sentences (4) and (5) such constructions are illustrated with the understood possessor as subject ("1") and as direct object ("2"), respectively.

(4) **Levantó** la **mano.**
he:raised the hand
'He raised his hand.'

(5) **Lo pegó en la cara.**
ACC he:hit on the face.
'He hit him in the face.'

English speakers learning Spanish are likely to ask, when first confronted with sentences like (4), whose hand is being referred to. Spanish speakers know that, 99 times out of 100, it is the hand of the subject of the sentence. Sentences like (5) cause English speakers no trouble, because English has a structure similar to the Spanish one. Yet a similar question would be perfectly reasonable: whose face is being referred to? In fact a speaker of a language like Aztec where the face must be obligatorily marked as possessed in such a construction would likely be puzzled on just that point. But English and Spanish speakers both understand that it is the face of the direct object that is being referred to.

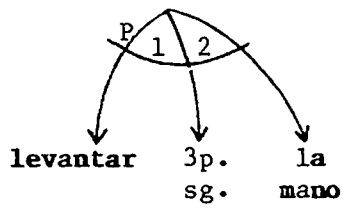
Figure 2

(broken arcs are those arcs that are erased in surface graphs [i.e. deleted])

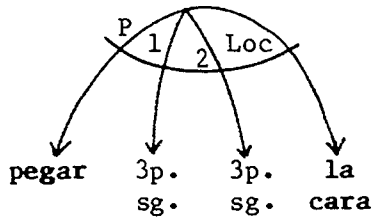
Two possibilities suggest themselves for representing sentences like (4) and (5) by means of RN's. One is, in the spirit of Argument B above, to have an initial Poss arc, with the nominal understood as Possessor multiattached, being also the head of the 1- or 2-arc of the main clause. The Poss arc will then be ignored or treated however Equi-victims are treated under the theory.[5] We can call this approach Possessor Deletion (PD). The PD proposal is represented by the RN's in figure 2. The other possibility is to omit the Poss arc entirely, leaving the nominal understood as possessor represented only as head of the 1- or 2-arc. We can call this approach Possessor Omission (PO). The PO proposal is represented by the RN's in figure 3.

Figure 3

(4) under PO



(5) under PO



The PD and PO approaches differ over whether the conception of a possessive relation is to be represented syntactically (the PD model) or only at some semantic or conceptual level (the PO model). The difference between them, while important, is not crucial to the argumentation here; however, data and argumentation relevant to deciding between them is presented in Sections 1.1.1.4, 1.2.1, and 2.3.

1.1.1.2 PA will not work

A third approach might be to try to account for sentences (4)-(5) by PA. Assuming that PA advances possessors to become non-initial 3's, as it must to account for (1)-(3), this approach would predict a 3 in the clause, and some device would be needed to syntactically delete those 3's so they would not show up as dative pronouns. This device (3-Deletion) would presumably delete 3's under coreferentiality with a 1 or a 2, but it would have to be constrained to delete only 3's which are produced by PA; other 3's would not be deleted. Up to this point this approach might seem to be on a par with PO or PD; PA may be independently motivated from (1)-(3), and it is not clear that a rule deleting 3's which have been produced by PA is any more complex or otherwise less desirable than one deleting or omitting possessors.

However, there are also cases in which a PA-type structure like those in (1)-(3) occurs, but in which the DAT is coreferential with the 1. For instance, (6):

(6) a. **Me** **corté** la **mano.**
me:DAT I:cut the hand

b.***Corté** la **mano.**
I:cut the hand
'I cut my hand.'

Thus it would not be true that all 3's produced by PA and coreferential with the subject are or even can be deleted. For cases like (6), 3-Deletion would have to be constrained somehow not to apply. On the other hand, if either PO or PD is what is going on, it does not have to be so constrained, but can be used to

explain the absence of the possessor in sentences like (6) as well as in sentences like (4) and (5). (It is true that models with PO and PD will have to give an explanation for why there is a dative in (6) but not in (4); such an explanation is given in Section 1.1.2.)

Another fact that militates against the idea of using PA to account for these sentences is that in sentences like (4) the 1 is not necessarily to be understood as the possessor. If someone in an anatomy lab were carrying around someone else's hand and raised it, (4) would be appropriate to describe the situation; it would have to be translated in that case as **He raised the hand.** PA and 3-Deletion would not be able to take care of such cases because there would be no coreferential nominal to trigger 3-Deletion. (Notice that PD would be involved in a similar problem; cf. Section 1.1.1.4.) Thus PO would be needed anyway to account for the reading of (4) where the 1 is not the Possessor. If it is needed for that case, it is more parsimonious to let it also account for the other reading of (4) and for (5) and (6), rather than to posit PA and 3-Deletion to account for them, for then 3-Deletion will not be needed. Using PO alone is simpler than the alternative, which uses PA, 3-Deletion, and PO, and it is therefore preferable.

1.1.1.3 PO or PD with a coreferential 3

Sentences (7) and (8) give examples of a similar construction in which the understood Possessor is the (final) 3 of the clause.[6]

(7) **Le mandó el hijo.**
DAT he:sent the son
'He sent his son to him.'

(8) **Me mandó el hijo.**
me:DAT he:sent the son
'He sent his son to me. / He sent my son to me.'

(7), in the English translation as well as in the Spanish, is ambiguous or vague: It is not clear whose son is being referred to, though it is almost certain that it is either the son of the 1 or the son of the 3. In the Spanish sentence it is not clear who is the possessor because there is no possessor marking; in the English sentence it is because the 3 p. sg. possessor marking could bear an anaphoric relationship to either the 1 or the 3, since both are 3 p. sg. It is also possible, though unusual, for the possessor to be understood as some other 3 p. sg. nominal (masculine in English). (8) also is ambiguous (or vague) in Spanish as to whether the son of the 1 or the son of the 3 is referred to, though in English the difference in person of the possessor disambiguates the two senses, since it is overtly marked. (Once again, the Spanish sentence or the English sentence with **his son** could be interpreted with some other 3 p. sg. nominal as the possessor.) Thus under PD (8) would result from either of the two RN's in figure 4. Under PO both versions of (8) would have the RN given in figure 5.

Figure 4

Two sources for (8) under PD

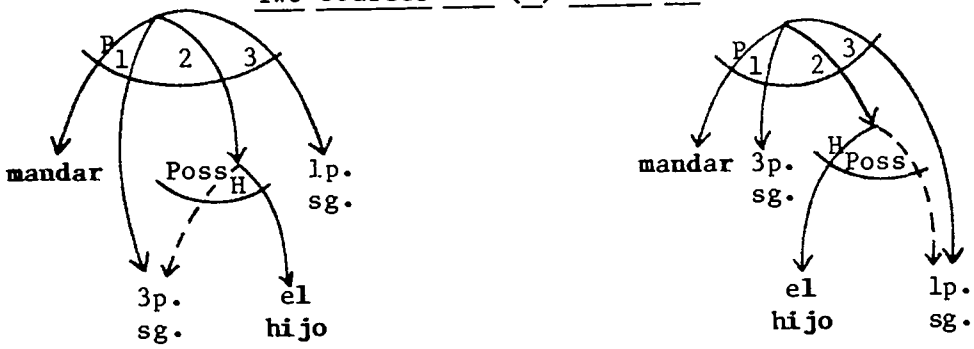
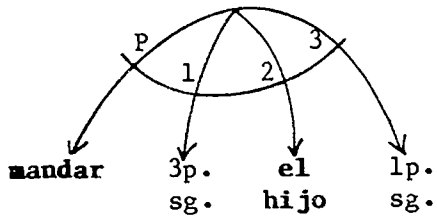


Figure 5

RN for (8) with PO



These sentences also should not be accounted for by PA. In the first place, if they were from PA there would be no explanation of the fact that the DAT is understood as goal; the sentence does not mean **He sent my son.** Also there would be no explanation of why the person referred to by the DAT need not be the possessor, but someone else may be understood as possessor (here, either the 1 or some other 3 p. sg. nominal). In other words, PA would need goal-DAT and PO anyway to account for these sentences, and once you have goal-DAT and PO you do not need PA. Crucially, then, as was the case with (4) and (5), sentences (7) and (8), on the reading in which the son is the son of the Indirect Object, will need RN's involving a device like PD or PO. Given such a device, and given an explanation for the datives in sentences like (1)-(3) (which will be offered in Section 1.1.2), the absence of an overtly marked possessor in sentences (1)-(3) can be accounted for without PA.

1.1.1.4 ¡PO sí, PD no!

While the difference between PD and PO is not crucial here, I would like to present a couple of considerations that make me think that PO is preferable to PD. The first is that one would expect the deletion rule to act like other

syntactic deletion rules such as Equi-NP Deletion in having a coreferential trigger that commands the nominal to be deleted.[7] If we assume that PD must have such a trigger to operate (and that PO need not), we can argue against PD in favor of PO. Under that assumption the readings of (4), (7), and (8) on which the possessor is not understood to be coreferential to any nominal in the main clause could not be accounted for by PD. Neither could sentences such as the following:

(9) **Dama de mucho cascabel y de más temple que el acero Toledano**
lady of much rattle and of more temper than the steel Toledan

fue doña Ana de Borjas, condesa de Lemos y virreina
she:was Lady Ana of Borjas, Countess of Lemos and Viceregent

del Perú. Por tal la tuvo S.M. doña Mariana de Austria,
of:the Peru. For such her:ACC she:had H.M. Lady Mariana of Austria,

que goberna la monarquía española durante la minoría de Carlos II;
who governed the monarchy Spanish during the minority of Carlos II;

pues al nombrar virrey del Perú al marido, lo
for upon naming viceroy of:the Peru OBJ:the husband, him:ACC

proveyó de real cédula, autorizándolo para que en el caso
she:provided of royal decree, authorizing:him for that in the case

de que el mejor servicio del reino le obligase a abandonar
of that the best service of:the kingdom DAT it:oblige to abandon

Lima, pusiese las riendas del gobierno en manos de su consorte.
Lima, he:put the reins of:the government in hands of his consort.

'Doña Ana de Borjas...was a woman of quick wits and of truer temper than Toledo steel. Her Majesty Doña Mariana of Austria...considered her to be such; for when she named her (Ana's) husband Viceroy of Peru, she gave him a royal decree, authorizing him, in case the kingdom's best interest should take him away from Lima, to place the reins of the government in the hands of his consort.'

In (9) (from Ricardo Palma) the nominal which is understood as the possessor of **marido** does not appear in the same clause as the possessed nominal at all, but only in a conjoined clause (in the pronominal shape **la**) and embedded way down in another clause which is sister to the clause in question, this time referred to as **su consorte.** In neither occurrence does that nominal command the possessed nominal. Therefore, if PD requires that the trigger command the target, it cannot account for this sentence.

(10) **Venía un burrito jalando por un mecate a un toro bravo,**
it:was:coming a little:donkey pulling by a rope ACC a bull fierce,

tapaojeado y **nariceado.** **El burrito no corría peligro**
blindfolded and nose-pierced. The donkey neg was:running danger

puesto que <u>**los**</u> <u>**cuernos**</u> **estaban tapados con un trozo de coleta.**
given that the horns were covered with a piece of gunny-sack

'A little donkey was coming, pulling a fierce bull, blindfolded and with its nose pierced, by a rope. The donkey was in no danger, since the bull's horns were covered with a piece of gunny-sack.'

There is no trigger in sentence (10) to cause the possessor of **cuernos** to be deleted. The nearest available trigger is **un toro bravo**, in the preceding sentence. Yet, although the bull is clearly understood as the possessor, it is not marked as such or even represented overtly in the sentence at all. Again, if PD requires a trigger which commands its target, or even a trigger at all in the same sentence, it cannot account for sentences like (10).

In fact, it is quite possible to find sentences in which there is no overt trigger at all in the linguistic context. For instance, sentences like (11):

(11) **Meter la pata es peligroso.**
to:insert the hoof is dangerous
'It is dangerous to stick your nose in someone else's business.'

and many sentences in which possession is clear from the non-linguistic speech situation (see the discussion of (12) and (13) ahead).

Thus, if PD depends on a trigger commanding the nominal to be deleted, it cannot account for many sentences in which possession is understood even though the possessor is not overtly marked. Something like PO would thus be needed besides. But PO can account for these S's and also those like (4)-(8) which would motivate PD in the first place. PD needs PO, but PO does not need PD. Thus a theory with only PO is simpler than a theory with both, and therefore preferable.

Notice that all these sentences are even less susceptible to analysis by PA than by PD: PA would predict a 3 in the clause with the nominal understood as possessed. Some totally weird and ad hoc mechanism would be needed to delete those 3's while leaving many other 3's produced by PA alone.

Another consideration that makes me prefer the omission concept over the deletion concept is this: There are many sentences in both English and Spanish (and probably every other language in the world) in which no possession is overtly marked but in which possession is clearly understood from the speech situation. For instance in sentence (12)

(12) Put it in the fridge.

the fridge may be understood in a given speech situation to be my fridge, your fridge, or Fred's or Harriet's or Herman's. I do not think it really proper to include a Poss arc in the initial syntactic structure of sentences like (12). In fact, I do not think such a relationship is properly represented even in the semantic structure of such a sentence, though it would be in the non-linguistic

conceptual structure.[8] Thus (12) would involve PO rather than PD. Yet I do not think that it will be possible to draw a hard and fast line between cases like this and cases of the sort discussed above. The possessive relationship will have different degrees of salience and the identity of the possessor will be identifiable to different degrees throughout a whole continuum of expressions and situations. Some English examples are given in (13).

(13) **We're going in the car. (=our car)**
Put the cat out. (=our cat)
I'll go ask the boss. (=my boss)
I got it from the old man. (=my father)
Give it to the little woman. (=your wife)
I have to take care of the kids tonight. (=my kids)
I'll have to ask the wife. (=my wife)
He took it on the nose. (=his nose)
I whomped him on the back. (=his back)

All of these sentences have a noun phrase of the form 'the Noun'. A relationship of possession is at least very probable in each of them; so probable as to be certain in the last ones, less probable in the earlier ones. Where does one draw the line? Why does one need to draw the line? Why can one not simply say that even when possession is clearly perceived to be present, one need not necessarily specify it linguistically? That the cases in which it must be specified are determined by each language and cannot be universally predicted? That in a language like Spanish, a nominal that is conceived of as possessed may simply be coded as definite (contextually unique), whereas in a language like English the parallel nominal may be required to be coded as well as conceived of as possessed?

The argument, then, is a sort of reductio ad absurdum based on the assumption that it is improper to account for the absence of a possessor in sentences like (12) by syntactic means. If sentences like (1)-(8) (including the English translation of (5)) are to be accounted for by PD (or PA) and not PO (i.e., by syntax and not by the interface between conceptualization and linguistic coding), then, unless someone can come up with a principled way to determine where to draw the line, so should sentences like those in (13) and (12). Which is absurd.

1.1.2 Ethical Datives (ED's)

In the previous section it was argued that if an accounting could be given for the datives in sentences like (1)-(3), either PO or PD would permit us to account for those sentences without recourse to PA. In this section I will attempt to account for those datives.

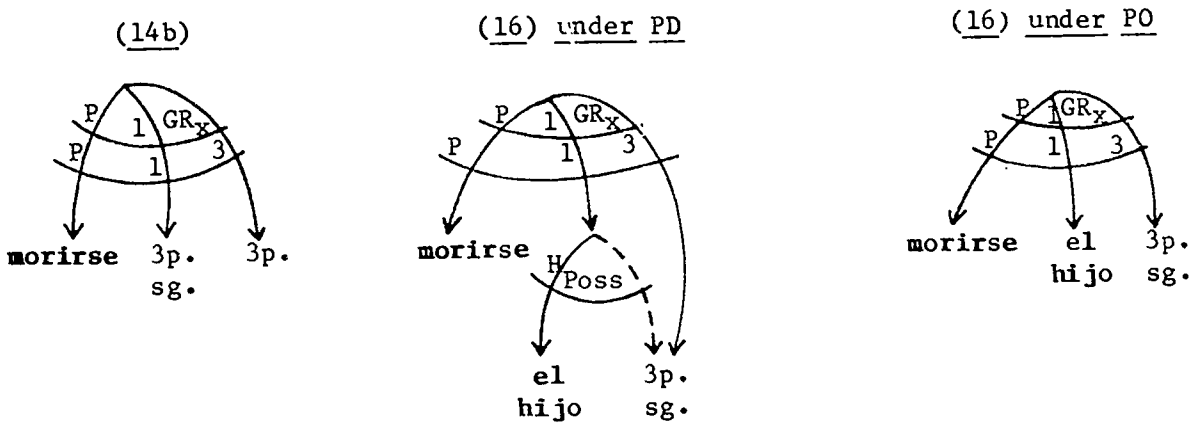
There is, in Spanish, a class of nominals marked as datives which have a meaning something like "person affected intimately (and usually adversely) by the action or state predicated."[9] Often they can be translated into English by a prepositional phrase with **on**. (14b) gives an instance of such a nominal.

(14) a. **Se murió.**
REFL he:died
'He (up and) died.'

b. **Se le murió.**
REFL DAT he:died
'He (up and) died on him.'

Let us refer to these nominals (following traditional terminology) as Ethical Datives (ED's). I will assume that they bear on the final stratum a GR of 3: that will explain the fact that they are marked with the dative case. It is probable that they would not be considered to be initial 3's under most relational analyses: they can cooccur with clear indirect objects, which, if both were initial 3's, would violate the Stratal Uniqueness Law.[10] In the absence of any clear indication as to what their initial GR would be, I will simply mark them as initially bearing GR_x. The RN for (14b) would be as in figure 6.[11]

Figure 6



The meaning of these ED's can be illustrated as follows. Sentences like (14b) are usually quite appropriate when talking about the deaths of one's close relatives. Suppose that a man's son dies; (14b) would normally be appropriate in describing the situation—men are normally affected intimately and adversely by the deaths of their offspring. However, if the father had disowned the son and was unaware of his whereabouts or of his death, then (14b) would be inappropriate. Similarly, (15a) would be totally inappropriate for me to say, but it would be appropriate for Tito's doctor, who presumably would want Tito to live and would be adversely affected psychologically and/or professionally by his death. Similarly, (15b) would be inappropriate for Americans to say, but it would be quite appropriate for the Yugoslavs, especially if they loved Tito and were therefore psychologically hurt by his death, or if they felt endangered by his death.

(15) a. **Se** **me** **murió** **el** **mariscal** **Tito.**
REFL me:DAT he:died the Marshal Tito
'Marshal Tito (up and) died on me.'

b. **Se** **nos** **murió** **el** **mariscal** **Tito.**
REFL us:DAT he:died the Marshal Tito
'Marshal Tito (up and) died on us.'

It is possible to specify that the person who died in (14b) was the son of the person affected. The resultant sentence is (16).

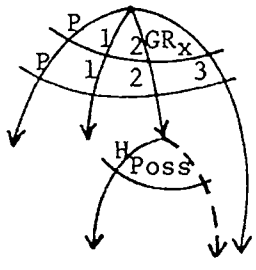
(16) **Se** **le** **murió** **el** **hijo.**
REFL DAT he:died the son
'His son (up and) died (on him).'

The absence of the possessor in (16) should be explained by PO or PD, just as it was in the case of (8). RN's for (16) under PO and PD are given in figure 6.

The final structure of (16) bears a crucial similarity to that of (1)-(3). (1)-(3) are transitive, and this is intransitive, but the important thing is that the final stratum has a noun phrase with the definite article, which is understood to be possessed by a person who is represented in the sentence by a dative pronoun. I claim that the structures of (1)-(3) and (16) are in fact exactly parallel, and that the datives in all those sentences are ED's. They would have the structure given in figure 7 under PD, and that in figure 8 under PO.

Figure 7

RN for (1)-(3) under ED-PD



(1) under ED-PD

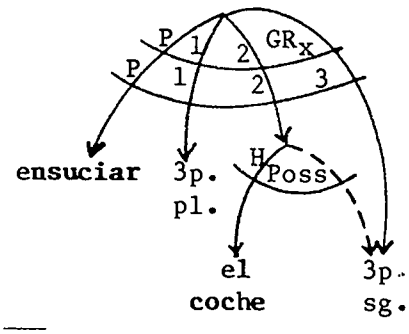
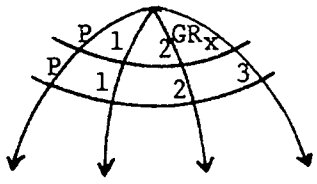
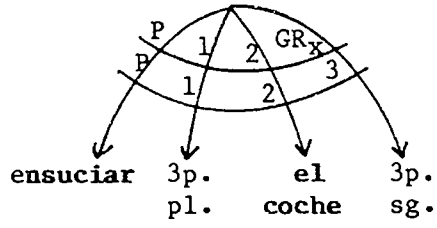


Figure 8

RN for (1)-(3) under ED-PO



(1) under ED-PO



In Section 1.1.3 it is shown that this contention is consistent with a number of facts in Spanish, and in Section 2 it is argued that the analysis which results is preferable over the PA analysis.

One final fact about (16): At least 90 percent of the time it will be understood as glossed: that the son is the son of the referent of the ED. However, the sentence may also be understood in certain contexts as referring to someone else's son. For instance if a doctor is treating a father and son for injuries from an accident, and the son dies, (16) would be appropriate in that situation with the ED referring to the doctor. Or if an anthropologist wants desperately to study certain familial interactions and the son of the only family that will do for his study dies, (16) would again be appropriate. In other words, where someone other than the parent of the son can be conceived of as affected by the death of the son qua son, the ED in (16) can be understood to refer to him. This same pattern holds true for other sentences with ED's also.

1.1.3 The data do not demand PA; ED's and PO will work

In the following sections I will present relevant data with which the ED-PO hypothesis is consistent. These same data will be used in Sections 2.2 to 2.5 to argue for this hypothesis against PA; here my purpose is merely to show it to be consistent with the facts of Spanish.

1.1.3.1 PA occurs only where the possessor can be viewed as affected

As far as I know, every sentence like (1)-(3) where PA would be posited can have the implication that the possessor is affected by the action of the predicate. This is quite apparent in the examples given. One is typically affected adversely by having one's car dirtied, one's money stolen, or one's hand cut (off). Other sentences are quite conceivable in which the possessor will not be affected; in these PA cannot occur. For instance:

(17) ***Le vi al hijo.**
DAT I:saw OBJ:the son
'I saw his son.'[12]

Also, when the person understood as possessor is just recently dead (during the period when a dead man's possessions are still considered his) sentences like (1)-(2) are quite inappropriate—versions with possessive pronouns are called for (sentences (18)-(19) below). This fits in with the fact that a dead man is not affected by what happens to his possessions. Yet PA-type constructions can be used in reference to a dead person when the physical state of the corpse is changed: the corpse is thereby affected. Thus (3) is still appropriate; the dead man is affected by having his hand cut as much as a dead man can be affected by anything.

Thus wherever PA is posited, ED's could occur, since the possessor can be viewed as affected. In any situation in which an ED could not occur, because the possessor is not affected, PA-type structures do not occur. This is entirely consistent with the theory that claims that these structures in fact have ED's in them.

1.1.3.2 PA must occur where the possessor is clearly affected; it need not occur where the possessor is not clearly affected

To the extent that the conceptual situations represented in (1)-(3) can be viewed as not connoting that the possessor is affected by what is predicated about this possession, those situations can also be represented by a non-PA-type structure with no dative and with an overt possessor marking. Thus (18)-(20), which parallel (1)-(3), are possible.

(18) **Ensuciaron su coche.**
they:dirtied his car
'They got his car dirty.'

(19) **?Robaron todo su dinero.**
they:robbed all his money
'They stole all his money.'

(20) **(?)Cortaron su mano.**
they:cut his hand
'They cut his hand.'

(18) tends to imply that the person was not affected by his car's getting dirty. It would be most appropriate if he were absent when the heinous offense was perpetrated, or especially if someone else were using the car.

(19) is of un- or questionable grammaticality. I think this is because of the semantics of **robar**; like the English **rob**, it tends to denote a crime against a person (or a property-owning entity like a bank or the corner gas station) rather than against property per se. (Contrast with **steal**.) This victim is usually coded (appropriately enough) by an ED. The victim need not be coded at all, however; it is quite possible to say **robaron tres mil pesos: 'they stole**

3000 pesos'. But if the possessor of the money is brought into the picture at all it will be as the victim of the crime (coded by an ED) rather than as the possessor of the property taken.[13] It is for this reason that (19) is anomalous.[14]

(20) will also be judged in vacuo by many Spanish speakers as ungrammatical. I believe that this is because of the difficulty in conceiving of a situation in which one is not affected by having one's hand cut. That brings us up to the issue of "inalienable possessions". This is a somewhat elastic class that at least involves as clear members body parts and clothing which is being worn. It is often assumed that PA-type constructions like those in (1)-(3) are obligatory with "inalienable possessions". If this were true, (20) would be ungrammatical as a matter of course. It seems clear to me that the "inalienability" of possessions can be translated into the probability that the possessor will be affected by whatever happens to his possessions. Consider for instance (21).

(21) a. **Le pisó los zapatos.**
DAT he:stepped:on the shoes
'He stepped on his (another's) shoes.'

b. **Pisó sus zapatos.**
he:stepped:on his shoes
'He stepped on his shoes.'

(21a) is appropriate when the possessor is wearing the shoes (in which case he is almost certain to be affected by their being stepped on) and also in any other situation in which he is viewed as affected. For instance, in recounting a list of atrocities which A has committed against B, it would be quite apropos to include (21a) even if B's shoes were in the closet when A stepped on them. (21b) is not very appropriate if the shoes are being worn; it rather implies that the possessor was not affected by their being stepped on. However, it is quite appropriate when the shoes are sitting out in the middle of the floor or in the closet and someone steps on them, because in such a situation the person can easily be viewed as not affected by what happens to his shoes. In other words, whenever the possessor can be viewed as not affected by the action of stepping on the shoes, (21b) will be appropriate.

An even more interesting case is the sort of thing that happens with the most "inalienable" possessions of all—body parts. In at least two situations what happens to a body part can be viewed as not affecting its possessor. One is unconsciousness or inattention. Thus, (22b) is quite appropriate to say in talking about the procedure followed in an operation.

(22) a. **Le abrieron el estómago.**
DAT they:opened the stomach
'They opened up his stomach.'

b. **Abrieron su estómago.**
they:opened his stomach
'They opened up his stomach.'

(22a) is appropriate, because even an unconscious person can be viewed as

affected by having his stomach cut open, but (22b) is also appropriate, because as long as he is unconscious he is not directly or clearly affected by it as he would be if he were conscious. Similar comments apply to (23a) and (23b).

(23) a. **Una bala me traspasó la mano**
one bullet me:DAT passed:through the hand

sin que me diera cuenta.
without that me:DAT I:give account

b. **Una bala traspasó mi mano**
one bullet passed:through my hand

sin que me diera cuenta.
without that me:DAT I:give account

'A bullet passed through my hand without my realizing it.'

The other case in which the possessor of a body part can be viewed as not affected by what happens to the body part is dismemberment. Thus if in an accident a person's arm was cut off and was lying in the road getting run over by the cars, he might well say (24b), but hardly (24a).

(24) a. **Los coches me aplastaron el brazo.**
the cars me:DAT they:smashed the arm

b. **Los coches aplastaron mi brazo.**
the cars smashed my arm

'The cars smashed my arm.'

(24a) and not (24b) would be appropriate if the cars smashed his arm while it was still attached to him; i.e., when he was still clearly affected by what heppens to it. A very similar case is that of teeth. While they are still in one's mouth, he is usually affected by what happens to them, but when they have been taken out, although they are still his teeth, he is not affected by what happens to them. Thus (25a) is appropriate to use when speaking to a dentist, but (25b) is much less appropriate in that situation, since the dental manner of examining teeth usually has (adverse) effects upon the patient. However, once the tooth has been extracted, and the patient is showing it to a friend, (25a) is quite inappropriate and (25b) is called for.

(25) a. **Míreme el diente.**
look:at:me:DAT the tooth

b. **Mire mi diente.**
look:at my tooth

'Look at my tooth.'

In exactly the same way, (20) will be appropriate in cases of unconsciousness or dismemberment, because the person can be viewed in those circumstances as not affected by what happens to his hand, and (3) will be inappropriate in cases of dismemberment, because the person can no longer be viewed as affected by what happens to his hand.

In sum, then, in situations where the possessor is perforce viewed as affected by what happens to his possession (including the cases usually subsumed under "inalienable possession"), the PA-type structure is required; the structure with the possessor overtly marked and with no dative is inappropriate. If the possessor can be optionally viewed as either affected or not affected, either type of structure can optionally be used. Once again, these facts are at the least entirely consistent with a theory that claims that the datives in PA-type structures are in fact ED's marking the person affected by the action or state predicated.

1.1.3.3 Ambiguous (or vague) possession

Sentences (1)-(3) were glossed with the DAT translated as a possessor. That is appropriate for most instances of those sentences. However, they may also be used in certain situations in which the DAT cannot be translated as a possessor. For example, (1) is quite appropriate when A's car is the one that is dirtied and yet the DAT refers to B, as long as B is affected. The sentence would then have to be translated in English as **They got the car dirty on him.** Similarly (2) would be quite appropriate if it was A's money but B was affected by the stealing; say he was carrying the money at the time. The sentence would be translated as **They stole all the money from him,** or **They robbed him of all the money.** In fact, (2) in the case where it is B's money could be felicitiously translated as **They stole all his money from him.** Even (3) can be construed with the hand belonging to A and the dative referring to B, as long as B is affected. If it is already known that B was carrying A's hand around, trying to protect it, (3) would be appropriate with some translation such as **They cut the hand on him.** This construal is quite odd, but that is simply because it is odd to think of B as the person affected by A's hand being cut.

Thus it is apparent that whenever a person other than the possessor can be viewed as affected by a predication relative to the possession, the dative in sentences like (1)-(3) can be interpreted as referring to the person. This parallels the case with ED's noted in the last paragraph of Section 1.1.2. Notice too the parallel with the cases noted in Section 1.1 of PO where there are no ED's. Once again, these facts are at the least consistent with the view that the datives in PA-type structures are in fact ED's and that the possessors are simply omitted rather than ascended.

1.1.3.4 Clear possession by another

It is quite possible to get sentences like (1)-(3) with the construal by which the person represented by the dative is not the possessor, but in which the real possessor is overtly marked. Thus (26)-(28), which parallel (1)-(3).

(26)	**Le**	**ensuciaron**	**tu**	**coche.**
	DAT	they:dirtied	your	car

'They got your car dirty on him.'

(27) **Le robaron todo mi dinero.**
DAT they:robbed all my money
'They stole all my money from him.'

(28) (?)**Le cortaron mi mano.**
DAT they:cut my hand
'They cut my hand on him.'

(28) is quite odd, but again that is explainable by the fact that it is very atypical for B to be the person affected when A's hand is cut.

Once again, this is not the sort of thing that one would expect from PA, but it is not at all surprising given the analysis of (1)-(3) as having ED's and PO.

1.1.3.5 Possessive pronouns on preverbal subjects

For most speakers the possessor must be omitted (or deleted) in sentences like (4), (5), (7), (8) and (16), where PO (or PD) is clearly motivated. For some speakers, however, the added proviso must be made that PO is often or even usually suppressed when the possessed nominal is a preverbal subject. (Actually, it may be that the important fact is that such a subject precedes the other occurrence of the nominal understood as possessor in the clause. I think that discourse considerations are involved here.) For these speakers, grammaticality judgments like the following hold.

(29) a. **Su/??El hijo se le murió.**
his/the son REFL DAT he:died

b. **Se le murió el/?*su hijo.** (=(16))
REFL DAT he:died the/his son

'His son up and died on him.'

(30) a. **Su/?El hijo lo mató.**
his/the son ACC he:killed

b. **Lo mató el/su hijo.**
ACC he:killed the/his son

c. **Fue matado por el/su hijo.**
he:was killed by the/his son

'His son killed him.' (active and passive)

(31) a. **Le mandaron el/?su hijo**
DAT they:sent the/his son
'They sent his son to him.'

b. **Su/?El hijo le fue mandado.**
his/the son DAT he:was sent
'His son was sent to him.'

c. **Le** fue **mandado** el/su hijo.
DAT he:was sent the/his son
'His son was sent to him.'

For these same speakers, a preverbal subject will retain its possessor in a PA-type situation as well. Thus (32)-(34), which parallel (1)-(3).

(32) **Su/?El** coche le fue **ensuciado.**
his/the car DAT it:was dirtied
'His car was gotten dirty.'

(33) **Todo su/?el** dinero le fue **robado.**
all his/the money DAT it:was stolen
'All his money was stolen (from him).'

(34) **Su/?La** mano le fue **cortada.**
his/the hand DAT it:was cut
'His hand was cut.'

These facts fit in beautifully with the claim that the absence of the possessives in both (1)-(3) and (29a), (30a), and (31a) is a result of PO. It makes sense under that theory that the possessor should be specifiable under exactly the same conditions in PA-type sentences as in other sentences. Once again, then, the facts are at the least consistent with the theory that PA-type sentences are to be accounted for by ED's together with PO.[15]

1.1.4 Summary and conclusion

In Section 1.1.1 it was shown that either PO or PD is needed to account for certain facts in Spanish, and it was argued that PO is preferable. It was claimed that PO (or PD) can account for the fact that no overt possessor shows up in the sentences for which PA would be posited. In Section 1.1.2 it was shown that ED's are needed to account for certain facts in Spanish. In Sections 1.1.3.1 to 1.1.3.3 it was argued that the behavior of the datives that would be produced by PA is consistent with an analysis which posits that they are in fact ED's. In Sections 1.1.3.3 to 1.1.3.5 data were given which showed that the behavior of the possessors in PA-type sentences is consistent with an analysis that posits that they are omitted rather than ascended.

I conclude that the independently motivated PO and the independently motivated ED's, working together, can account for the same facts as PA would. Therefore Argument A, which claimed superiority for PA on the basis that it would require no universally new types of RN's, is invalid. A theory positing ED's and PO (henceforth ED-PO) also requires no universally new types of RN's and accounts for the same facts.

1.2 In answer to Argument B

Argument B for PA was that positing it allows one to reflect the similarity in meaning between sentences like (1)-(3) and parallel sentences (like the English glosses) in languages without PA. Argument B can show that PA is

necessary only if (a) the assumptions underlying it are valid, and (b) there is no alternative analysis that appropriately reflects the similarity in meaning between sentences like (1)-(3) and their English glosses. In Section 1.2.1 I will question the assumptions underlying Argument B, and in Section 1.2.2 I will claim that an analysis with PD would do much the same thing as PA even if the assumptions are valid.

1.2.1 Argument B's assumptions are questionable if not wrong

It seems to me that at least three assumptions underlie Argument B. They are: (i) Sentences like (1) and its English gloss are in fact the same in meaning; that is, the meanings are identical with respect to the relevant aspects, in particular the relationship of possession. (ii) This identity of meaning must be reflected by an identity of structure at some linguistic level. (iii) In fact, it should be represented at the initial syntactic level. I think that all three assumptions can be questioned. Assumptions (i) and (ii) will be hard to handle separately, so I will take them together first.

1.2.1.1 What is meaning? Where is it represented?

1.2.1.1.1 Three meanings of "meaning"

It is by no means clear that sentence (1) and its English gloss mean the same thing in the ways and to the extent necessary to sustain Argument B. "Sameness of meaning" can be judged by at least three criteria.

(i) In common parlance we say two expressions "mean" the same thing if they are functionally equivalent in general. In other words, do two expressions' truth conditions coincide in most cases, or are they good translations for each other in most contexts? If so, we say they "mean" the same thing. I will call this the Functional Criterion. The distinctions this criterion makes are obviously matters of degree and may be held for one situation or purpose but not for another. For some purposes and situations **ball** and **sphere** have the same Functional "meaning", but **ball** will not do where geometric accuracy is necessary, nor will **sphere** do in sports, especially American football.

(ii) A stricter test for identity of meaning is identity of truth conditions.[16] By this criterion (the Truth-value Criterion) two expressions "mean" the same thing if and only if they have exactly the same truth values under all conditions. **Ball** differs in Truth-value "meaning" from **sphere** because there are situations in which one of them is appropriate and the other is not: it is true that an American football is a **ball**; it is not true that it is a **sphere**.

(iii) What we will call the Imagic Criterion makes more fine-grained distinctions. It has been pointed out that even when two expressions have identical truth conditions they may still differ in "meaning" in some sense. It is not the same to say **Each of the men is a sailor** as to say **All of the men are sailors**, even though the truth conditions for the two sentences are identical. To say that a bottle is half full and to say that it is half empty is to say slightly different things about the amount of liquid in the bottle, even though

the amount of liquid is the same. The two sentences "mean" something different even though the difference in "meaning" is difficult to pin down. The nature of the Imagic Criterion will be discussed in Section 1.2.1.1.3.

"Meaning", then, as judged by the Functional or Truth-value Criterions, can be (and has been) viewed as essentially a function of truth conditions: the greater the extent to which the truth conditions of two expressions coincide, the more felicitous it is to say that the expressions have the same "meaning". The Imagic Criterion, however, appeals to some notion of distinctions of "meaning" that go beyond what is revealed by truth value judgments.

I would claim that sentence (1) and its English gloss (and the rest of the PA-type sentences and their English glosses) "mean" the same thing only in the sense implied by the Functional Criterion, not in the senses implied by the Truth-value and Imagic Criterions.

1.2.1.1.2 Different meanings by the Truth-value Criterion

If "meaning the same thing" means being functionally equivalent to a rather high degree, as implied by the Functional Criterion, then it seems clear that sentences like (1) and their English equivalents "mean" the same thing. Most situations (including the most common ones) about which you could felicitously say **Le ensuciaron el coche** could also felicitously be reported by **They got his car dirty**, and vice versa. But not quite all, as we saw in Section 1.1.3. For instance, in 1.1.3.3 it was pointed out that sometimes **Le ensuciaron el coche** refers to a situation in which **They got his car dirty** is inappropriate (e.g. when it is someone else's car), and one must instead say **They got the car dirty on him.** Also, as pointed out in the case of a dead man in Section 1.1.3.1, **They got his car dirty** may be appropriate where **Le ensuciaron el coche** is not. In both cases there is a discrepancy in the truth conditions: it may be true that **Le ensuciaron el coche** where it is not true that **They got his car dirty**, and vice versa. Thus by the Truth-value Criterion the sentences do not "mean" the same thing.

This in itself is probably enough to undermine Argument B. The two sentences differ in "meaning" on the questions of whether the referent of the dative in the Spanish sentence must correspond to the possessor in the English sentence, and whether the referent of the possessive in the English sentence can always surface as a dative in Spanish. PA would predict that both of these questions would be answered affirmatively, but we see that neither of them can be.

It might be countered that PA need not be the only source for sentences like (1); i.e., that (1) is ambiguous rather than vague about who is the possessor. That is, the predictions of PA hold true, but only for a subset of instances of (1); the other instances are derived from a different source. Since the Truth-value Criterion distinguishes "meaning" only where there is a truth value discrepancy, it is possible (and even logical) to claim that in the cases where there is no discrepancy the "meaning" is the same. (Notice that this contention can not be urged against the Imagic Criterion distinctions I claim in the next section, since Imagic "meaning" distinctions hold even when

truth values coincide.) Argument B would then take the following form: We should posit PA because it allows us to reflect the similarity (=identity of the relevant aspects) of meaning between those cases in which it applies and the corresponding sentences in English (and other languages) in which it does not apply. To sustain the argument, one would also have to posit that the English glosses are also ambiguous between two kinds of possession. Thus the English gloss for (1) would have one "meaning" which would be the same as that of (1) on the reading where the possessor is coreferential with the DAT, and another which would be different. (One might suggest "affected possessor" versus "non-affected possessor".) Rather than the identity of meaning between (1) and its English gloss being at issue, it would be the identity of meaning between some instances of (1) and some instances of their English counterparts. This certainly undermines the plausibility of Argument B. Positing this double ambiguity here is ad hoc and comes perilously close to being argument in a circle: we decide that the sentences, both English and Spanish, are ambiguous, because otherwise PA will not work, and we know that PA works because the sentences are ambiguous. As a further consideration, for what it's worth, constructions with **so did** or **and ... too** have been proposed (Lakoff 1970) as a test for vagueness versus ambiguity. These constructions, it is claimed, are possible with different readings in the case of vagueness but not in the case of ambiguity.[17] Thus **My uncle is a butcher and so is John's** (or **and John's is too**) is vague rather than ambiguous as to whether maternal or paternal uncles are referred to, and therefore any reading is possible. Both uncles may be maternal, both paternal, or one of each. By contrast, in **I like my /æants/ and John likes his too, /æants/** is ambiguous between the **aunts** and the **ants** sense, and therefore only those readings are possible where both John and I like the same kind of **/æants/**. By this test both (1) and its English gloss are vague rather than ambiguous:

(35) **A mí me ensuciaron el coche, y a Juan también.**
OBJ me me:DAT they:dirtied the car, and OBJ John too
'They got my/another's car dirty (on me) and John's/another's (on John) too.'

(36) **They got my car dirty and John's too.**
(Appropriate whether either, both, or neither was affected.)

Similar results are obtained by applying the same test to (2) and (3) and other PA-type sentences. Thus it seems not to be the case that these sentences are ambiguous.[18]

It would appear, then, that sentences like (1) and the corresponding English glosses do not "mean" the same thing in the sense required to support Argument B, as judged by the Truth-value Criterion.

1.2.1.1.3 Different meanings by the Imagic Criterion

The Imagic Criterion is more sensitive than the Truth-value Criterion. By the Truth-value Criterion we can judge that sentences like (1) differ in "meaning" in those instances in which their truth values do not coincide. But I am convinced that the sentences differ in another sense of "meaning" even in those instances where their truth values do coincide. In other words, given (1)

and its English gloss both making felicitous reference to the same situation, I would claim that they are saying slightly different things about it, that in fact they "mean", in the Imagic sense, slightly different things.

It is not easy to characterize the sense in which the sentences "mean" different things by the Imagic Criterion, in part because there is no simple and generally accepted test like similarity of truth conditions which will distinguish the "meanings". Different notions of "meaning" have been appealed to; I would not be at all surprised if what I refer to as the Imagic Criterion is in fact a bag of different criteria capable of making finer distinctions than those possible under the Functional and Truth-value Criterions. Often such criteria are lumped together under a heading of "Intuition". That is to some extent enlightening; intuitive judgments are based on such distinctions in meaning, and introspective examination of one's intuitions can often give a good start on a characterization of what those distinctions are. It was my intuitions as a speaker of Spanish and English that convinced me that Argument B was false, and indirectly led me to the writing of this paper. But of what do such "intuitions" consist? Langacker (1979:88-89) speaks of differences in conceptual viewpoint being conventionally coded by different semantic units (including both unitary predicates and constructions), which represent different "images" or views of the conceived referent. Thus **The statue is on the pedestal** and **The pedestal is under the statue**, when applied to the same scene, represent two different viewpoints on or images of that scene. Perhaps this is as good a way as any to characterize the difference between the Truth-value Criterion and the Imagic Criterion. Truth-value distinctions show that different scenes are being referred to, while Imagic distinctions claim that the same scene may be being referred to, but that it is being construed differently, through a different Image, from a different conceptual, social and/or emotional perspective.[19]

I believe (and hope to illustrate, if not demonstrate, below) that the Imagic distinctions are primary over the Functional and Truth-value distinctions in that they entail, and thus can be used to explain, the Functional and Truth-value distinctions, but not vice versa.[20] When two expressions view the same scene through different images, it is often (though not necessarily always) possible to imagine a scene which one of those images fits but the other does not. To change the metaphor, you can usually find a scene on which one of the two viewpoints is possible but the other is not. This will amount to a distinction by the Truth-value Criterion. In other words, once you know what the expressions "mean" in the sense of the Imagic Criterion, you will know where and why the Truth-value distinctions will hold; but finding a Truth-value distinction does not tell you automatically why it occurs, nor which Imagic distinction is responsible for it. Truth-value distinctions are just that tip of the iceberg which truth-value judgments can make visible; they tell you little about the shape of the iceberg as a whole. If Truth-value distinctions occur often enough, they will amount to a Functional distinction: the two words will not "mean" the same thing at all except perhaps in specific specialized contexts.

I would also claim that Imagic "meaning" is primary in that it can explain similarities in Functional and Truth-value "meanings", but not vice versa. Imagic "meaning" not only can make distinctions too fine for the Truth-value Criterion to reveal, but it can also make subtler semantic connections, showing

similarities between expressions too different for the Functional Criterion to show as "meaning" the same thing. An example of this sort of thing is involved in the almost instantaneous grasping of many jokes. Most people understand **They're called wisdom teeth because they smart** the first time through. Involved in that understanding is (among other things) the ability to perceive an important semantic similarity between **wisdom** and one sense of **smart**. Yet it is improbable that everyone who gets the joke has ever heard **wise** and **smart** or **wisdom** and **smartness** used as functional substitutes. I do not remember hearing them so used myself; I would as soon class them as antonyms as as synonyms. Their truth values do not coincide except accidentally (the same person may be both **wise** and **smart**, but then the same person may be both **tall** and **cross-eyed**) and they are rarely if ever acceptable translations for each other. Thus the similarity between them is not a clear Functional similarity, and certainly not a Truth-value identity. Yet the similarity is clearly and easily perceived. Such similarities are also crucial to an understanding of metaphor. Whoever first called a narrow part in the road a **bottleneck** was clearly responding to Imagic similarities between two things clearly distinct by the Functional criterion. Indeed, whoever first called a bottleneck a **bottle neck** was making a similar response. The reason such metaphors catch on is that other speakers are already aware of the Imagic meanings of (in this case) **bottle** and **neck**, and can see the appropriateness of naming a bottleneck by those words. Or consider the words **brother** and **sister**. Clearly they have a lot in common Imagically. This common Imagic material can be coded by **sibling** in academic dialects of English; other dialects which do not have that word also perceive the similarity between **brother** and **sister**. Yet they are clearly not Functional equivalents: it is difficult to find <u>any</u> case in which both are true or appropriate. Again, we have a clear Imagic similarity which does not correspond to a Functional similarity. In many cases, however, such similarities will result in two expressions' being alternative in some environment—in other words, a Functional similarity of "meaning" will arise. There is at least one Imagic similarity to account for every Functional similarity, but not vice versa; Functional similarities are just another tip of the iceberg of Imagic meaning. If there are enough such similarities (and no egregious dissimilarities) between two expressions, a Truth-value similarity (or identity) will obtain.

Here we are more concerned with Imagic distinctions of meaning than with similarities. While such distinctions are subtle and difficult to characterize, they are very pervasive. They occur, of course, between every two expressions that differ greatly in meaning, but in those cases they are often ignored (at least by linguists) since the difference in "meaning" can be characterized by the Functional Criterion or the Truth-value Criterion. However, the need to posit them shows up more clearly in the consideration of such phenomena as language-internal synonymy and paraphrase and cross-language translation. It is very difficult to find a synonym, paraphrase, or translation that does not involve some difference in Imagic "meaning". For instance, do the verbs **gaze** and **stare** "mean" the same things? Do **be quiet** and **shut up** "mean" the same thing? Are **hors d'oeuvres** and **appetizers** the same in "meaning"? They are by the Functional Criterion and possibly by the Truth-value Criterion, but not by the Imagic Criterion. Does **John bought the dog from me** "mean" the same as **I sold the dog to John**? Or, perhaps more controversially, does **John hit me** "mean" the same as **I was hit by John**? They apparently do by the Functional and Truth-value criteria, but it is at least arguable that they differ by the Imagic Criterion.

To return to a previous example, does **half empty** "mean" the same thing as **half full**? They are clearly Functionally equivalent. They are apparently the same in meaning even by the Truth-value Criterion—I have not been able to think of any situation in which it is true that something is **half full** but not true that it is **half empty**, nor vice versa. Certain infelicities do arise. It would be rather odd to say about someone who was filling a glass with water, **He stopped when it was half empty.**[21] Yet that oddness would not amount to a clear violation of the Truth-value Criterion: it is still true that he stopped when it was half empty. However, I would claim that there is a clear Imagic difference between **half empty** and **half full**. **Half empty** locates a point by Imagic reference to a scale of emptiness, where one scans from full towards empty. **Half full** locates that same point on a scale of fullness, where one scans from empty towards full. Any point between empty and full can be specified by reference to either scale. That is why **three-fourths full** can refer to the same point as **one-quarter empty**, or **one-quarter full** to the same point as **three-quarters empty**. To get at the same Image in a slightly different way, **half full** Imagically measures the amount of liquid in the container, whereas **half empty** Imagically measures the empty space above the liquid. This accounts for the infelicity noted above; when a glass is being filled the direction of scanning most naturally goes with the movement of the liquid, from empty towards full. To say **half empty** in such a situation practically forces one to scan from both directions at once, for no good purpose, with odd or humorous sounding results.

Similarly, does the expression **four plus one** "mean" the same as the expression **five**? (Or does **seven minus two**, or **ten divided by two**?) They are functional equivalents in some sense, and it is difficult if not impossible to find a case in which one is true and the other not. Yet they differ Imagically in that **four plus one** arrives by a complicated route at a conceptual situation comparable to the one achieved directly by **five**. The same number is being referred to, but in two different Imagic ways.

Or, to take a cross-linguistic case, is the Spanish **sentarse** (seat:REFL) the same in "meaning" as the English **sit down**? Does **acostarse** (lay:REFL) "mean" the same as **lie down**? They are functionally equivalent in most situations, and thus "mean" the same by the Functional Criterion. The Truth-value Criterion differentiates between them, however, in a few instances. Consider the case of a person lying on a couch, who then assumes a seated position on the couch. Here **sentarse** is appropriate to describe the action but **sit down** is not; **sit up** is called for. Note that there is no parallel case to distinguish between **acostarse** and **lie down**; either expression is appropriate to describe a person assuming a prone position, no matter what his previous position was. Or consider the case of an action of forcing a physically resisting child into a seated or lying position. It is appropriate to say I **made him sit (or lie) down,**[22] but it is not appropriate to say **Le hice sentarse** (DAT I:made seat:REFL) or **Le hice acostarse** (DAT I:made lay:REFL). These sentences would be appropriate if psychological rather than physical pressure were used. But for cases of physically forcing the child to sit or lie down, **Lo senté** (ACC I:seated) or **Lo acosté** (ACC I:laid) are called for. Thus by the Truth-value Criterion **acostarse** and **lie down** don't "mean" the same things, nor do **sentarse** and **sit down**. **Sentarse** and **sit down** are differentiated by the Truth-value Criterion in two cases, but **acostarse** and **lie down** are differentiated in just

one of those cases. However, I would claim that by the Imagic Criterion both of these Spanish expressions differ from their English glosses in exactly the same way. There is inherent in the conception of a prototypical act of sitting or lying down a notion of departure from the canonical vertical orientation of human posture. I would claim that that notion is represented in the semantics of the English forms but not in the semantics of the Spanish forms. In other words, there is an Imagic distinction between the English and the Spanish forms at this point. This distinction is coded by the presence of the word **down** in English and the absence of any such word in Spanish.[23] This Imagic distinction happens to result in a Truth-value distinction between **sentarse** and **sit down,** because some acts of sitting result in an approximation to, rather than a departure from, the canonical vertical posture. Those acts must be coded by **sit up.** The fact that there is no similar Truth-value distinction between **acostarse** and **lie down** is explained by the "meaning" (Imagic sense) of **lie:** it is difficult if not impossible to conceive of a situation in which assuming a horizontal posture leads one to a more rather than a less close approximation to the canonical vertical posture. Thus there is no English expression **lie up** in opposition to **lie down.** (Similarly there is no **stand down** in oppostion to **stand up.**) Also inherent in the prototypical conception of sitting or lying down is a notion of reflexivity. When one sits or lies down one does something that affects the state of one's body. I would claim that that notion is not represented in the semantics of the English form but that it is in the Spanish. It is coded by the use of reflexive forms of the transitive verbs **sentar** ('seat') and **acostar** ('lay'). This Imagic distinction can lead to a Truth-value distinction in certain cases in which one's body achieves the specified state (seated or prone) without one's doing anything to cause it (e.g. the case discussed above of child being physically forced to sit or lie down). The fact that **Le hice sentarse/acostarse** can be used when psychological rather than physical pressure is employed is explained: in such circumstances the child is still seating himself (or laying himself down) even if under duress. Thus it appears that the occurrence and nature of the Truth-value distinctions can be explained by the occurrence and nature of the Imagic differences, though not vice versa.

I think that the case with (1) and its English gloss (and the other PA-type sentences and their glosses) is similar. The two are often functionally equivalent, thus "meaning" the same in terms of the Functional Criterion. As we have seen, the Truth-value Criterion distinguishes between them in certain cases. Yet even when they refer to identical conceptualizations as far as the Truth-value Criterion shows us, I would claim that they have different "meanings" in the sense of the Imagic Criterion. The semantics of the English sentence contains a reference to possession, which is coded explicitly by a possessive pronoun **his**; I would claim that the semantics of the Spanish sentence does not contain such a reference. This explains why the identity of the possessor is vague in the Spanish sentences; it is simply not specified. It also accounts for the Truth-value distinctions where **Le ensuciaron el coche** is true (appropriate) but **They got his car dirty** is not because it is not his car. The semantics of the Spanish sentence, on the other hand, contains a reference to a person's being affected by the action of the car being dirtied, whereas the semantics of the English sentence does not. This reference in the Spanish sentence is coded by the presence of an ED. Positing this Imagic distinction accounts for the fact that the English sentence is vague as to the extent to which the possessor (or anyone else) was affected by the dirtying of the car.

It also accounts for the Truth-value distinctions where **They got his car dirty** is true (appropriate) while **Le ensuciaron el coche** is not, because he was not affected by the dirtying of his car (being e.g., dead). Positing these Imagic distinctions is entirely consistent with the Functional equivalence of the sentences: they are equivalent precisely because in the prototypical or most common cases the possessor and the person affected are the same. Thus these cases can be viewed through either Image.

Thus it would appear that by the Imagic Criterion all instances of (1) and its English gloss differ in "meaning" precisely in that the English sentence specifies possession whereas the Spanish one does not, and the Spanish sentence specifies that someone is affected whereas the English one does not. Similar considerations show the same to be true of (2) and (3) and other PA-type sentences with respect to their English glosses. Thus it makes sense to claim that these meaning distinctions are properties of the constructions, not just of the individual pairs of sentences. English speakers use a construction which specifies possession but leaves affectedness vague; Spanish speakers use a construction which specifies affectedness but leaves possession vague. English speakers, of course, are aware that very often a possessor is affected by what happens to his possessions, and similarly Spanish speakers are aware that very often the person affected by what happens to a possession is its possessor. But in each case the sentences they use do not code those notions explicitly but rather leave them vague.

Thus it would appear to be clear that PA-type sentences and their English glosses do not "mean" the same thing in the sense required to support Argument B.

1.2.1.1.4 Where is identity of "meaning" represented?

Another way to get at the same problem is to inquire whether the identity of "meaning" between sentences like (1) and its English gloss is a linguistic identity at all. I do not think that it is. Linguistically the sentences are similar in various ways. There are parallel semantic entities with sometimes parallel semantic relationships, such as, for sentence (1), the agent THEY and the patient CAR which is semantically definite, both related to the action DIRTY (or CAUSE-INCHOATIVE-DIRTY, if you like) occurring in PAST time, and a 3 PERS SG entitity somehow involved. There are parallel syntactic phenomena and even parallel phonological phenomena. Yet though these parallels exist, I would claim that they do not amount to identity, but only to similarity. And I would claim that the differences include precisely those that most fit in with the ED-PO hypothesis; namely, that the semantically involved 3 PERS SG is involved as possessor in the English sentence and as affected person in the Spanish sentence, and that the nominal representing that 3 PERS SG is syntactically a (surface) possessive in English and an ED in Spanish.[24] It seems to me that the only identity that there is between the sentences is a sort of conceptual identity which is not really linguistic in nature, though the ability to perceive it is deeply involved in the use of language. We have the ability to perceive that both sentences "fit" many of the same conceptual scenes just as we have the ability to see that two different paintings may "fit" the same landscape, or that different views of a face or the back of a head may "fit" the same person, or that both G^7 and D^7 chords may, in certain contexts, "fit" the

idea of a dominant seventh. But I would claim that at every linguistic level, including semantic levels, the two sentences differ because the English one specifies possession whereas the Spanish one does not, and the Spanish one specifies that someone is affected whereas the English one does not.

1.2.1.2 Is possession in PA sentences a syntactic thing?

Even if it is wrong to claim that (1) and its English gloss are different at all linguistic levels, it is not at all clear that they are syntactically to be viewed as having identical structures with respect to possession. I know of no syntactic arguments for assigning initial Poss arcs to the DAT nominals in PA-type sentences. Such syntactic evidence is crucial; cf. the discussion in Section 3.3. Thus even if the sentences were semantically the same, that would not be sufficient to argue that they are syntactically the same with respect to possession, as we would have to posit were Argument B to have any validity.

1.2.1.3 Conclusion

I conclude that it is very doubtful (in fact it seems wrong to me to claim) that sentences like (1)-(3) and their English glosses are equivalent in meaning in the sense required for Argument B, and that even if they were, there is no clear reason why that equivalence should be represented in the syntactic structures of the languages. I thus conclude that Argument B is invalid.

1.2.2 Argument B does not exclude PD

Even if all the questions raised in the preceding section with respect to assumptions (i)-(iii) were settled in favor of what Argument B demands, Argument B would still not show that PA is necessary. It would constitute an argument for PA as against PO, or for PD as against PO, but it would not distinguish between PA and PD, since both of them represent the similarity in meaning with respect to the possessive relationship between the Spanish and the English sentences in exactly the same way.[25] So a model with PD and ED's would still be on a par with a PA model. Thus, even if the assumptions underlying it were valid, Argument B would fail to prove that PA is necessary.

1.3 Conclusion

On the basis of the material presented in Sections 1.1 and 1.2, I conclude that both Argument A and Argument B are invalid. In the absence of any further arguments for PA, I further conclude that PA is therefore not necessary in Spanish.

2. ED-PO is preferable to PA in Spanish

In this section are presented arguments to the effect that ED-PO is superior to PA in accounting for the relevant facts of Spanish. The first argument to be presented is an argument from simplicity. The second through fifth arguments derive from the data presented in Section 1.1.3. The second is an argument from the behavior of the datives in sentences like (1)-(3). The third and fourth arguments involve ways in which the superficially non-existent possessors in these sentences behave as if they are omitted rather than ascended. The fifth argument involves the fact that possessors can be overtly marked in PA-type and non-PA-type sentences under exactly the same circumstances. The final argument is the converse of Argument B: ED-PO is preferable to PA because it adequately represents the differences in meaning between sentences like (1) and its English gloss, whereas PA obscures those differences.

2.1. A theory of Spanish without PA is simpler

This argument is very simple. ED's and PO (or PD) are motivated within Spanish quite apart from sentences like (1)-(3). PA, on the other hand, is not independently motivated within Spanish. So why do we need it? A theory without it is preferable to a theory with it, by Occam's razor.

2.1.1 A digression on the universal availability of grammatical devices

Although the argument is basically simple, it appears that the terrain has been confused by claims that if a device is universally available, then it costs the grammar of a particular language nothing in terms of simplicity to utilize it. I believe that such claims are misleading, if not erroneous. The following is a summary of how I think such claims should be evaluated.

Given two devices A and B which equally well account for a range of data in language X, and given that A is independently attested in X, while B is is not, there are four logical possibilities:

(i) If both A and B are universally available, I claim that a theory which uses A to explain the data is preferable to one that has recourse to B. Thus, any theory that would explain English data in terms of some clearly attested English phenomenon such as SVO word order is to be preferred over a theory which would explain the same data in terms of say a Modalis Case marking 2-Chomeurs (which is attested in Eskimo, and therefore universally available). (This is, at least as far as this argument goes, the sort of situation we are dealing with here; both PA and ED-PO are universally available, but only ED-PO is independently attested in Spanish. However, in the next sections, I will argue that actually ED-PO also accounts for the data better than PA.)

(ii) If A is universally available while B is not, then A is obviously superior.

(iii) The opposite case, where A is not universally available while B is, never occurs. Any time a device A is really clearly attested in language X, it is by definition universally available; the test for universal availability is clear attestation in some language.

(iv) Similarly, the case where neither A nor B is universally available, never occurs. If (as is given) A is clearly attested in the language independent of the data in question, it is ipso facto universally available.

Thus, if the preceding judgments are accepted, any time there is a choice between two devices, one of which is independently attested within the language in question and the other of which is not, and both of which account equally well for the same range of data, the independently attested one is preferable, irrespective of which of them may or may not be universally available.

The question of universal availability only comes up as a factor in the following few cases, as far as I can see.

(v) A and B both cover the same language X data equally well; neither of them is independently motivated within X; A is not universally available (i.e. attested in other languages) but B is. In this case B is preferable to A. (This is the only clear case where universal availability should cast a deciding vote.)

(vi) A and B both cover the same language X data equally well; both of them are independently motivated within X; A is not attested in other languages (though it is, of course, universally available) but B is. This might provide a very weak argument for preferring B over A. Actually, in a case like this it might even be better to claim that both B and A should be appealed to to account for the data (cf. Hankamer 1977).

(vii) A covers a range of data in X better (e.g. more elegantly) than B. A is not universally available (i.e., attested in other languages) but B is. Neither A nor B is independently motivated within X. Here it seems that a judgment needs to be made, based on the degree to which and in which sense A handles the data better than B. If A very clearly handles the data better than B, then that amounts to clear attestation for A, at which point A is universally available, and clearly to be preferred over B. Its lack of attestation in other languages should be irrelevant. But if A is only very slightly or not clearly better than B, then perhaps B would be preferable. Making such a decision is tantamount to putting one's faith in the underlying unity of human language, and implying that if we understood things better, the superiority of A over B would be seen to be illusory.

2.2 The datives in PA sentences are ED's

It was claimed in Section 1.1.2 that the datives in PA sentences behave like ED's in the following ways: they may occur wherever the understood possessor (let us call him Y) may be viewed as affected by the predicated action or state; they need not occur where Y need not be viewed as affected, they must occur wherever Y must be viewed as affected and they must not occur wherever Y must not be viewed as affected. If these claims are true, it would seem clear that those datives are in fact ED's.

This can be reduced to an argument from simplicity of the following form: A theory with PA would need two extra constraints, one guaranteeing that PA will occur where the possessor is viewed as affected, and another guaranteeing that PA will not occur where the possessor is not viewed as affected. Under the theory that claims that the PA sentences have ED's in them, these facts are an automatic consequence. ED's code the notion "(person) affected", and thus an ED

will appear to represent Y whenever Y is viewed as affected, and will not appear when he is not viewed as affected. Thus ED-PO does not need the extra constraints, and it therefore is preferable.

To put the same argument in yet another form, a theory saying that a possessor is coded by a dative if and only if it is viewed as affected is simply a notational variant of one that claims that that dative "means" affectedness. Any time a morpheme or construction occurs if and only if a given semantic specification holds, we say that it "means" that specificaction. Thus PA would be claiming, in effect, that the datives it produces have the same meaning as ED's. These datives, however, are not ED's, because they come from a different source. Thus PA has two sources for datives with exactly similar meanings, whereas ED-PO has only one source for those datives. In this way ED-PO is simpler and to be preferred. Also, PA would be claiming that the semantic relation of "(person) affected" corresponds to a GR_x in some cases, but not in others, whereas ED-PO can claim that that notion always corresponds to a GR_x in Spanish. Thus ED-PO is again simpler and to be preferred.

2.3. The possessors in PA sentences are omitted, not ascended

As the data presented in Section 1.1.3.3 show, the possessors in PA-type sentences act more like they are omitted or never specified than like they are ascended. The possessor is usually the same as the person affected, but not always.[26] Imagine such a fact being true of any ascension, e.g., Subject Raising in English. If such were the case, **John seems to be tired** would be able to bear a meaning where Aloysius is the one who is tired, or **He expects John to put his foot in his mouth** could mean that George or Mehetabel or someone else is expected to put someone's foot in his mouth. I do not think that anyone would ever have proposed raising if such facts had obtained. However, where something is simply omitted and is never present linguistically, such vagueness is to be expected.[27] For instance, consider (12), where the possessor is omitted, or a sentence like **I hit him**, where it is usually assumed in vacuo that the instrument of hitting is the hand but where it could perfectly well be a stick or even a car. Or consider **I bought a Ferrari yesterday**, where the benefactee is left vague; it will be assumed in vacuo that it was bought for the speaker but it could perfectly well have been bought for someone else. It thus seems clear that what is going on in sentences like (1)-(3) is omission rather than ascension.

This can be reduced to an argument from simplicity very similar to that in Section 2.1. The PA theory is going to need two devices to account for the absence of an overt possessor in (1)-(3); PA itself for those cases where the DAT is the same person as the possessor, and some form of PO or of PD (perhaps fed by PA) for the cases where the DAT is not the same person as the possessor. ED-PO, however, needs only PO to account for all the cases. Thus ED-PO is simpler and to be preferred.

A related argument is the following: as we have just seen, PA will have to posit the PA structure for cases of (1) which have coreferentiality of the DAT and the understood possessor, and some other structure for those cases which do not have that coreferentiality. I will assume (following usual practice within RG) that those structures would differ at the initial stratum. In fact I would

expect that in one structure the referent of the DAT would be marked as initial Possessor, while in the other one it would not be so marked. I will further assume that different initial syntactic structures reflect different semantic structures, again following usual practice within RG. Under these assumptions, the fact that PA would have to use different syntactic structures would predict ambiguity rather than vagueness of possessorhood in the semantics of sentences like (1). Some instances of (1) would have one semantic structure and others would have a quite distinct one. ED-PO, however, predicts vagueness rather than ambiguity, since all instances of (1) come from one initial structure, and possession is never specified. As shown in Section 1.2.1.1.2 by sentence (35) (1) is vague rather than ambiguous by the **and so did...** test. Since the predictions of ED-PO rather than those of PA are borne out, ED-PO is preferable.

The PA theory is also going to need two devices to account for the DAT in sentences (1)-(3): PA when the possessor and the DAT's are the same, and ED's or some such thing to account for the other cases. ED-PO can account for all the cases with only ED's. Again ED-PO is simpler and to be preferred.

2.4 Possessors can appear overtly in otherwise PA-type sentences

ED-PO is also supported by the fact that the possessors need not be omitted but can in fact be specified, as the data in Section 1.1.3.4 show. If PA is posited for these sentences, we have no explanation for why the possessors remain as possessors. Again, think what it would mean to posit this for another ascension. It would mean that by Subject Raising you could get English sentences like ***John seems for Aloysius to be tired,** or ***He expects John for Mehetabel to put his foot in his mouth.** Again, I do not think that anyone would have posited Raising in English if such facts obtained. However, when an item is simply omitted, it is not at all surprising to find that it can be specified if desired. For instance, contrast (12) with **Put it in your mother's fridge,** or contrast **I hit him** with **I hit him with a noodle,** or **I bought a Ferrari yesterday** with **I bought a Ferrari for my grandmother yesterday.** Thus it appears that we are dealing with an omission rather than an ascension.

Again, this can be reduced to an argument from simplicity; for these cases a theory with PA is going to need something like ED's to account for the presence of the DAT, plus a constraint prohibiting PA from applying. ED-PO, however, need say nothing other than that it is permissible to include rather than omit the possessor when it is desirable (and non-redundant). And even this statement is exactly what we should expect; it is probably a universal of language in some sense that one is permitted to specify items left vague when it is desirable and does not contradict the norms of the language. Thus ED-PO is simpler and more preferable.

2.5 PA would be suspended exactly where PO is

As shown in (29)-(31) (Section 1.1.3.5), PO is suspendable for some speakers in preverbal subjects; the possessor, even though coreferential with a term nominal in the main clause, may be overtly specified in this position. Under either the ED-PO or the PA grammars some statement of this fact will be needed. As (32)-(34) show, the same pattern holds for sentences of the PA type:

when the possessed nominal is a preverbal subject, its possessor may be overtly specified. Under the PA grammar this is a new kind of pattern. A separate statement would be needed that PA need not occur from preverbal subject position, but that instead a coreferential dative may be put into the clause (for no particular reason). Alternatively, a new process of Copy-PA might be proposed, to occur only from preverbal subjects and after which PA could not apply. However it is done, complication is entailed. Under the ED-PO model, however, the independently needed statement accounts for the same facts without any complications. In this way ED-PO is simpler than PA and to be preferred to it.

2.6 PA obscures semantic differences

In Section 1.2.1 it was argued that the constructions represented by PA-type sentences like (1)-(3) and their English glosses differ semantically in that the English construction specifies possession but leaves affectedness vague, whereas the Spanish construction specifies affectedness but leaves possession vague. These systematic differences in the semantics are admirably represented by ED-PO, which has an ED specifying affectedness but no specification of possession in Spanish. (Both models would presumably have a Poss arc but no ED in English.) PA, on the other hand, has an initial Poss arc in the structure of the Spanish sentence with a specific nominal heading it. This corresponds to no semantic relationship at all. Its presence argues against PA. PA also has no GR coding affectedness in the initial stratum in the Spanish sentences. If, as if often tacitly if not explicitly assumed, the only articulation of semantics with syntax in RG is at the initial stratum, this lack also counts against the PA model. Thus the PA model for Spanish both implies specific possession, and does not imply, under certain assumptions, affectedness. Both of these implications obscure the semantics of the Spanish sentences.

To put the same argument in another form, under ED-PO the link-up between the semantic and syntactic structures will be simple and direct, whereas under PA extra and ad hoc machinery will need to be added in order to make the linking. Thus ED-PO is simpler and to be preferred.

2.7 Conclusion

I therefore conclude that ED-PO is clearly preferable to PA for accounting for Spanish sentences like (1)-(3).

3. Implications

If the conclusions of the preceding sections are accepted, they have important implications. First, they imply that other analyses using PA should be re-examined. Secondly, they imply that the relationship of semantics to syntax had better be re-examined and certain practices of syntactic research and argumentation severely questioned if not abandoned. Thirdly, they have implications for translation theory. These topics will be addressed briefly in the following sections.

3.1 What about PA in other languages?

If the foregoing argumentation is valid, there is in Spanish a construction which at first glance looks very much like a PA construction but which on further examination turns out not to be one. A clear practical consequence is this: there is at least one universally available close look-alike to PA. Analyses using PA should therefore be closely examined to determine whether PA is needed or whether an analysis along the lines of ED-PO is equally viable. Perhaps it is the case that all, or certain kinds of, PA analyses that have been proposed are better explained by something analogous to ED-PO. I will discuss these possibilities vaguely and briefly in sections 3.1.1 and 3.1.2.

3.1.1 PA is undesirable universally

PA is undesirable universally for at least two reasons. One is simply that it is an extra device. We could say that universal grammar would be simpler if it did not have to contain a description of PA as a universally available GR configuration. Another way to say the same thing is that if PA were non-existent we could make universal grammar stronger by being able to make the generalization that possessors do not ascend. We would be able to cross off another item from the list of ways languages differ.

Another reason why PA is undesirable universally is that it violates two proposed universals: the Relational Succession Law and the Host Limitation Law (Perlmutter and Postal, to appear (b)). The Relational Succession Law states that when an ascension takes place, the ascendee assumes the GR of its Host (the structure out of which it ascends). Thus a nominal which ascends from within a 1 will be a 1 upstairs, or a nominal which ascends from a 2 will be a 2 upstairs. This Law would be violated in Spanish by sentences like (1)-(3) if PA were posited for them, and it is violated in the analyses that have been proposed using PA in Tzeltal and Georgian and French (at least) (Aissen 1979, Harris 1976, Frantz 1979). The Host Limitation Law states that only Terms (1's, 2's, or 3's) can serve as Hosts. This Law would be violated by Spanish sentences like (37) if they were accounted for by PA.

(37) **Le cayeron tres gotas en la manga.**
DAT they:fell three drops on the sleeve
'Three drops fell on his sleeve.'

The Host Limitation Law is also violated by the analysis posited using PA in Georgian.

Both of these Laws can be modified fairly easily to apply only to ascensions from clauses (i.e., all well-known ascensions other than PA). However, it would be preferable from a universal perspective if PA could be shown to be unnecessary or if it could be shown that the only real cases of PA are those that do not violate the universals, which then could be allowed to stand in their more general form.

3.1.2. PA may be unnecessary universally

I find it hard not to feel that PA is probably not really needed in the other languages for which it has been posited. I do not know the data in any of those languages in any depth, so I speak in ignorance and am ready to be corrected. But it seems to me very probable that some model similar to the ED-PO model might handle those cases as well. I am aware that not all of those languages will have something exactly like ED's, and also that some of them do have PA-type structures in places where ED's could not occur. For instance, Perlmutter (personal communication) says that in Rumanian the parallel to (17) is grammatical, as it is in Southern Tiwa.

Yet it seems to me that those cases might be able to be handled by positing some GR_y which instead of coding "(person) affected by the action or state predicated" would code some more tenuous or less specific semantic connections, such as "(person) with reference to whom the predication occurs". This GR_y could advance to 3 for those languages with PA to 3, or to the GR of the nominal by virtue of which the person is referred to for languages with PA by the Relational Succession Law. PO (or PD) would be necessary to complete the picture.

Frantz (personal communication) says that he knows of no evidence against (or for) such a solution for Southern Tiwa. It is also interesting to note that in Chamorro (Crain 1979) sentences for which PA has been proposed apparently have a semantic relationship of "in spite of" between the clause and the putative ascendee. In this case I would posit a GR_y corresponding to that semantic relationship.

Not knowing the other languages, I do not know what evidence can be found independently in them which would support such proposals or militate against them. I also do not know how to evaluate the difference in universal terms between a model which makes a configuration like PA available and one which instead allows a new GR_y. If this approach could be made to work, however, it would make the relationship between languages like Spanish and these others clearer; they would differ only in the degree of involvement necessary conceptually for a nominal to qualify to be coded by GR_x or GR_y.

At the least I feel that pursuing the possibility of explaining PA-type structures by means of a model similar to the ED-PO model is likely to be a fruitful field for investigation.

3.2 Implications for practical syntactic analysis

It has been quite common practice since the mid 1960's for syntax to be done following a sort of rule of thumb that when two expressions are paraphrases of each other, they should be given identical deep or initial structures and the difference in their form should be explained syntactically if possible. The assumption is that the paraphrase relationship indicates that the two expressions have essentially the same meaning, and positing identical initial structures will reflect this fact, simplifying the link-up between semantics and syntax. In particular, this strategy has been common in Relational Grammar. Thus Frantz (1979:30) gives the reasoning behind a PA analysis of Stoney data as

follows: "We can account for the paraphrase relation of these two sentences, as well as their structural differences, by saying that [the second] involves ascension of the possessor..."

This study is by no means the first to deprecate such practice, nor the first to point to what I believe to be the proper alternative (see e.g. Langacker 1976, 1980). But the facts and arguments here presented do, it seems to me, show at least one case where such an analysis is clearly wrong; where even though there is a paraphrase relation between two constructions they have different semantic structures and should be given different initial syntactic structures. This means that some different way of accounting for the paraphrase relationship is necessary. I think that such a way is provided by a proper view of the complexity of Imagic meaning and of the conceptual ability of humans to view a situation through more than one Image. If, as I have suggested and strongly believe to be true, paraphrases differ Imagically more often than not, this way of accounting for paraphrase will be the ordinary one; cases with identical semantic structures will be the exception rather than the rule, and the burden of proof will be on anyone who would claim that any case of paraphrase is to be accounted for by an identity of semantic structures.

If the paraphrase relationship can and usually does exist with different semantic structures, what reason is there to suppose that it will require identical (initial) syntactic structures? I would judge that there is no reason to suppose it, and that therefore it would be more practical to assume that where there is a difference in surface form it is more likely than not to correspond to some difference in semantic and initial syntactic form.

3.3 Implications for Syntactic Argumentation

Quite apart from the practical question of which strategy is more likely to lead to insightful analyses is the question of what is necessary in argumentation to support an analysis once it has come to mind. A weakness in many RG analyses has been that initial relations have been claimed with little or no argumentation to support them. This is in part because it is quite difficult to find syntactic arguments for many proposed initial relations, and also in part because analysts rest on the assumption that similar semantic relations will link up with similar GR's cross-linguistically. Thus Frantz (1979:1) speaks of analysts having "come to expect a fairly straightforward correlation between the semantic role of a nominal and its syntactic function," and of "the claim that there are fairly straightforward principles for assigning (initial) grammatical relations on the basis of semantic notions such as agency, recipiency, affect, etc." Or Perlmutter and Postal (1977:402) speak of grammatical "relations as given cross-linguistic substance (in part) by universal connections between the relational signs 1, 2, etc., and some representation of semantic relations." Indeed, Frantz (1979:67) lists as a Principle of RG the "Universality of initial termhood: initial GR's are predictable from semantic relations." That this is necessarily the case is far from clear, however. Consider cases like **buy** vs. **sell**, which (according to Perlmutter, personal communication) are probably best viewed as encoding the same basic semantic material, but having the semantic relations linked to different initial GR's. Or consider the case of many American Indian languages which have no clear language-internal evidence of a GR of 3 (Indirect Object),

but instead apparently code the nominals which correspond to 3's in other languages as 2's (see e.g. Comrie 1979, Tuggy 1979a, 1979b). The whole problem of exactly how to link up the semantics with the (initial) GR's has not to my knowledge been worked out in any detail within RG; that is one aspect of the theory that is in dire need of development. It is true that most other theories are also deficient in this respect, but for at least some of them it is not as crucial because they are not positing such abstract initial relations and can give clear syntactic evidence for the more superficial relations they do posit.

To this problem must be added the problem presented in this paper of Imagic distinctions in meaning which are easily missed or glossed over when working in a foreign language (or even one's own!), and which cast strong doubt on whether the semantic relationships themselves are actually the same from language to language, much less the syntactic relationships which depend more or less "straightforwardly" on them. The resultant picture should make it clear that strong syntactic argumentation to establish initial GR's is quite crucial in arguing for RG analyses. If you cannot be sure that the semantic relations are the same, nor that they will always correspond to the same initial syntactic relations, you will need pretty strong evidence beyond a correlation with intuitively likely semantic roles to establish an initial structure different from the final one. Unless such evidence is available, any such analysis will be dubious.

3.4 Implications for translation theory

Another area in which the argumentation of this paper and the notion of Imagic distinctions in meaning is relevant is the theory of translation. Much has been said about translation under the assumption that it is essentially possible; that one can convey all and only the meaning of a message in a source language by a translation in a receptor language. Thus Beekman and Callow (1974:20) define the task of translation as "to communicate the meaning of the original", and they quote with approval Hollander's (1959:207) dictum that, viewed customarily and common-sensically, "to translate a sentence from one language to another is somehow to discover its meaning and then to construct a sentence in the new or target language that possesses the same meaning."[28] The idea is that the two languages will have the same meaning structures; one must exegete the source expression to arrive at the meaning and use the grammar of the receptor or target language to construct the form appropriate to that meaning in that language. Translation is possible because the two languages will have identical meaning structures.

This study would indicate that this is not always the case; rather it suggests (and my personal experience corroborates) that it is rarely if ever the case. Imagic distinctions in meaning are so pervasive and so subtle that it is virtually impossible to translate any stretch of speech longer than a few morphemes from one language to another without making some change in some facet of some Image, winding up saying slightly different things in the different languages. I am obviously not the first to notice this: compare Nida's (1959:13) comment: "No translation in a receptor language can be the exact equivalent of the model in the source language. That is to say, all types of translation involve (1) loss of information, (2) addition of information, and/or (3) skewing of information." I most heartily agree. It is almost always

impossible to capture in the receptor language all that was meant in the source language. Similarly it is almost always impossible to render in the receptor language only what was meant in the source language. The translation of sentence (1) as **They got his car dirty** loses the Image of affectedness meant by the Spanish, and specifies the Image of possession, which is not meant by the Spanish. Translations like **They got the car dirty on him** or **They got his car dirty on him** also wind up changing the Image slightly, either through specifying unpossession or through specifying possession again. There is no good way in English to say exactly what sentence (1) says. Of course, any of the three sentences may be a good translation of (1) in some particular context, but they will be saying something slightly different for all that. Part of what makes translation such an extremely complex task is the fact that a translator is constantly faced with decisions about what he will consider an important component (or omission) of meaning in the source expression. He cannot render everything in exactly the balance it had originally—and that balance itself is a part of the Imagic meaning. Often it will be very awkward to render certain Imagic notions at all. At other times it will be possible, but only at the expense of upsetting the dynamics of the passage or straining the norms of the language, as well as usually introducing extraneous Imagic material. Translation is a continual compromise between the desire to render the source message faithfully and the desire to communicate well in the target language.

This way of looking at things also has implications for the traditional debate concerning idiomatic vs. literal translation (e.g. Beekman and Callow 1974:19-32, Nida and Taber 1969:1-31). Idiomatic translations will often use a target language expression that has the same Functional meaning as the source language expression, at the expense of obscuring some Imagic difference which could have been preserved. Literal translations attempt to keep such Imagic distinctions, usually at the expense of naturalness, since the distinctions will be awkward to code in the target language. I suggest that it is this, rather than a slavish adherence to the form of the source language, that lies behind much literal translation: the literal translator is eager and willing to pay a high price to render as much of the Imagic meaning as he can. This conception helps make it clear why some people so much dislike literal translations (because the do not sound natural) and others dislike idiomatic translations (because they do change the meaning).

4. Summary

In this paper I have argued that the Spanish construction exemplified in sentences (1) to (3) is not an example of PA and does not have the same meaning as the English construction exemplified by the glosses to those sentences. I have suggested that this implies that other cases where PA has been posited are quite possibly not best analysed in that way, but as having a construction parallel to the Spanish one. I have also suggested that the notion of Imagic meaning and the fact that a paraphrase relationship can and often does coexist with differences of Imagic meaning imply that the way we do syntax should be re-examined to make sure that it is not based on a covert assumption that paraphrase implies semantic identity. And I have suggested that translation theory should allow for the fact that there is often no translation of a given expression into a given language that will convey all and only the Imagic meaning of the original expression.

FOOTNOTES

I would like to thank David Perlmutter for provoking, reading and commenting on this paper and discussing at length the ideas behind it; Sandy Chung for reading and commenting on it; and Ron Langacker for helping give the conceptual framework for it and also for reading and discussing it.

[1]The following is a list of abbreviations used in this paper, including some that are introduced in the text.

1	Subject	GR	grammatical relation
2	Direct Object	H	head
3	Indirect Object	OBJ	object marker ("personal 'a'")
1p. sg.	first person singular		
2p. pl.	second person plural	P	Predicate
(and so on)		PA	Possessor Ascension
ACC	accusative (2-marking), or 3p. sg. accusative pronoun	PD	Possessor Deletion
		PO	Possessor Omission
DAT	dative (3-marking), or 3p. sg. dative pronoun	Poss	Possessor
		RG	Relational Grammar
ED	ethical dative	RN	relational network
ED-PO	ethical datives together with Possessor Omission		

Masculine forms ("he", "him", "his") will be used to gloss 3p. sg. Spanish forms.

[2]Actually, PA in its most general form would specify only that the ascendee assumes a non-initial GR upstairs: it is presumably a fact of Spanish rather than of universal grammar that the GR is 3 here (Frantz 1979:30-32).

Throughout this paper I am assuming familiarity with the terminology and viewpoint of Relational Grammar. See Perlmutter and Postal (to appear (a)).

[3]Perlmutter, class lectures. As far as I know, a PA analysis has not been claimed in print for Spanish, though it (and other analyses parallel in important ways) has been for other Romance languages (e.g. Frantz 1979:31, Perlmutter and Postal, to appear; Langacker 1968).

[4]Crain 1979; Frantz 1979; Harris 1976, chapter 6; Allen, Frantz, Gardiner and Perlmutter, to appear; Aissen 1979.

[5]In Johnson and Postal (to appear) the downstairs arc of an Equi-victim is "erased" in the surface graph. Since most people are used to thinking of Equi as deletion rather than as erasure, however, I will refer to Possessor Deletion (PD) rather than Possessor Erasure.

[6]It is possible that this would be analyzed not as an initial 3 but as a Goal that advances to 3. This would only strengthen the parallel with the ethical datives (Section 1.1.2) which I will be claiming occur in (1)-(3) and "govern" PO or PD just as these do.

[7]This argument is not all that strong. Some syntactic rules, e.g., Gapping and

VP-Deletion, only need to have their trigger precede rather than command their target. Something very similar may be going on with PO or PD, whichever it is. Also, it seems likely that discourse considerations are involved: cf. parallels of these phenomena with Pronominalization. Also see especially Section 1.1.3.5.

[8]It would, I think, be in one sense in the semantic structure of the word **fridge** in that one of the specifications of **fridge** would be that fridges typically are personal or familial possessions. But that specification would be totally internal to the word **fridge** and would not be part of the semantics at the sentence level. In any case it would not be specific as to who is the possessor. Possession might also be involved in the semantics of the phrase **the fridge** if it is one of the things contextually utilized to provide uniqueness or "definiteness".

[9]Actually the notion of "person or thing affected" is a semantic thread common to most if not all datives in Spanish. Cf. García's (1976) analysis of dative clitics as direct objects of an abstract higher verb marked [+affect].

[10]Perlmutter and Postal (to appear (b)). It would be violated in sentences like **Tu te me lo dijiste** (you you:DAT me:DAT ACC you:said). Those sentences are difficult to translate; **You said it to me on you** is hardly acceptable English. The idea is something like **You went and said it to me (and so you'll have to accept the blame)**.

[11]The se is treated, for simplicity's sake, as part of the verb, though I expect that is ultimately wrong. Also I am ignoring such possibilities as treating **morir** as an unaccusative verb.

[12]Note that it is not the case that seeing a possession cannot be construed as affecting the possessor. For instance, in many Spanish speaking areas, it is a shame to one to have one's legs seen by members of the opposite sex. Thus it is perfectly appropriate to say **Me vieron las piernas: 'They saw my legs.'** Or a bookkeeper, especially if dishonest, could say of the company auditors, **Me vieron los libros: 'They saw my books'**.

[13]**Robaron sus tres mil pesos: 'They stole his 3000 pesos'** is grammatical, but only because the possessive is being used in a "restrictive" sense. It is implied that there was a sum of 3000 pesos belonging to the man (usually all the money he had) that the hearer was aware of before the sentence was uttered. **Le robaron sus tres mil pesos: 'They stole his 3000 pesos from him'** is thus also appropriate.

Note also, that, as mentioned in Section 1.1.3.4, the possessor may be specified as such in any case where a different person is specified as the victim of the crime (e.g. sentences (26)-(28)).

[14]Notice however that, as pointed out in the preceding section, (19) can be used felicitously of a recently dead man.

[15]Under the following assumptions some sort of argument could be made from these facts for PD as against PO: (i) Semantics is articulated with syntax only at deep structure (or initial level), and (ii) Rules like Passive and Subject Postposing (or Preposing) are optional and not keyed to the presence or absence of a possessor nor to any relevant semantic features. Under such a model PO

would have no way of getting needed information about the application or non-application of these rules, whereas PD could simply be ordered after them (i.e. they could be constrained not to apply to structures involving PD). In this as in other things the problem of accounting for the absence of possessors is very reminiscent of the problems of accounting for Pronominalization.

[16]For convenience I am including under the rubric of "truth conditions" some other members of the category which may be more appropriately called "felicity conditions". I think "truth values" are one special case (not the only one) of "felicity values" in which clear judgments are possible.

[17]Although it has been pointed out that tests of this sort (involving conjunction and/or reduction) may not necessarily test exactly for vagueness versus ambiguity and that they sometimes give equivocal results, it is clear that they at least distinguish prototypically "vague" from prototypically "ambiguous" pairs of expressions. Thus, although passing the test does not prove that the two expressions are vague, it at least damages the position that they are ambiguous. In any case, the only alternative to a test like Lakoff's seems to be fiat declaration, which I am willing enough to make. "They are vague." So be it.

[18]Notice that the vagueness of (1) as indicated by (35) can also be used to argue for PO as against PD.

[19]"Comparable conceptual situations can be construed in many different ways (i.e. different perspectives can be taken on a scene and different facets of it singled out for explicit attention) both at the conrete level and with respect to the more abstract relations symbolized by 'grammatical morphemes'. Conventional imagery of this kind is an important aspect of linguistic structure and leads to the situation where two languages code the same conceptual scene in semantic (hence grammatical) structures that differ greatly in specifics despite being functionally equivalent." (Langacker 1980:33)

[20]In another sense, the Functional and Truth-value distinctions can be viewed as primary in that they are more easily accessible, both to the linguist and to the language learner. My experience as an adult language learner (which is quite compatible with what I remember of language learning as a child) is that one usually learns the "meaning" of an expression in the Imagic sense by observing its "meaning" in the Functional and Truth-value sense: seeing regularities in the usage and non-usage of the expression (or of its parts) and inferring or deducing the "meaning" of the cases where it is not clear from the cases where it is. (Whether, and to what extent, this is influenced by inbred predispositions to certain "meanings" as opposed to others, I do not know. Also, I am ignoring the important part that observation of such things as periphrasis and antonymy or even direct explanation through periphrasis or translation may play in all this.) Similarly it often proves necessary for linguists to argue from Truth-value or Functional "meanings" to establish an Imagic "meaning", viewing it as a hypothesis justified by the fact that it elegantly accounts for the Functional and Truth-value distinctions. (Often, of course, important aspects of the Imagic "meaning" are assumed rather than argued for, and conveyed through periphrasis or translation. Many examples of this can be found in the preceding sections.) In a sense, then, the Imagic distinctions may be viewed as projections or extrapolations of Truth-value or Functional

distinctions to cases not distinguishable by the Truth-value or Functional Criterions. However, once the language learner has mastered the expression, that extrapolation or hypothesis becomes part of the semantic structure of the expression. It is, I would claim, "psychologically real"—objectively there whether it is producing Functional or Truth-value distinctions or not.

I would claim, then, that what people do when they judge whether two expressions "mean" the same thing or not is to compare the two Imagic "meanings" (which are the psychologically real ones) and judge (by an extralinguistic conceptual faculty—see Section 1.2.1.1.4) the extent to which these two "meanings" are alike. We know that two expressions "mean" the same thing in a weakened sense (like the Functional sense in that it is a matter of degree and relative to context and purpose but unlike it in that it does not depend on functional interchangeability) when we see important similarities in their Imagic "meanings".

[21]This example is from David Perlmutter.

[22]For some speakers of English it is more felicitous to say **I sat (or laid) him down**; for some the sentence in the text may actually be inappropriate. For such speakers, it would thus seem that the reflexive component of the prototypical act of sitting down is part of (at least one salient version of) the "meaning" of **sit/lie down**. Notice that this component of the semantics would not be given a separate overt coding. (For a good example of analysis showing the need to posit more than one version (subschema) of the semantics of predicates and constructions, see Lindner (1980)).

[23]I am not claiming that Imagic meanings always show up coded explicitly by some word or morpheme; see for instance the preceding footnote. However, I do believe that very often morphemes that have been treated as "meaningless" code some "meaning" in the sense of the Imagic Criterion; some change of image or shift of conceptual viewpoint, increasing the salience of some elements in the conceived scene, and decreasing that of others down to the point of not specifying them at all; i.e. leaving them vague.

[24]The last clause of this sentence is question-begging to a certain extent: crucial to the idea of PA in Spanish is the proposal that sentences like (1) do have an initial Poss arc, though admittedly not a surface one. But the point is that if there is no semantic possession in the Spanish sentence (or perhaps even if there is—see the next section) there is no reason to posit any syntactic Poss arc. Similarly, if "affectedness" is not included in the English semantics, there is no reason to posit any GR_x arc corresponding to that of the ED of Spanish.

[25]The meaning with respect to whether or not the understood possessor is affected is not represented equally by PA and PD. Under PD the Spanish has an ED whereas the English does not; under PA neither does. If it could be shown that the English and Spanish sentences do in fact have the same meaning with respect to affectedness this could perhaps be made into an argument for PA over ED-PO. In fact it can be shown (Sections 1.1.2 and 2.2) that they differ exactly as predicted by the claim that the Spanish sentences do have ED's.

[26]It might seem attractive to claim that these cases where I have talked about a different person from the possessor being the referent of the dative are

actually cases of some sort of attenuated possession. For example, for all three sentences (1)-(3), on the reading where B is affected by what heppens to A's possessions, the usage is most felicitous where B has either physical possession of or at least responsibility for A's possession. Thus (1) is most appropriate if the car is in B's possession, even if it is not his car, and (2) when B is carrying A's money, or at least responsible for it. Thus, it might be claimed, it would be appropriate to have a Poss arc attached to the nominal, and these sentences would also be examples of PA. The objection to that is that then there would be no way to distinguish between such cases of "attenuated possession" and cases of true possession. This would have the following consequences: The parallel with languages like English would be destroyed (Argument B); to be consistent we would have to posit Poss arcs in English sentences such as **They stole all the money from him**, and there would be no way to distinguish those Poss arcs (which cannot surface as possessive pronouns) from those associated with real possessives. And, in sentences like those to be discussed in the next section, there would be two Poss arcs, one somehow to be interpreted as attenuated and the other not, one able to suffer PA and the other not, both attached to the same nominal node. Thus I conclude that "attenuated possession" and real possession must be distinguished anyway, and that trying to extend PA to cases of "attenuated possession" is of no real benefit.

[27]Contrast this with cases of Equi, where an NP is not simply omitted but rather specified at some linguistic level(s) though not at the surface.

[28]Hollander is well aware of the problem I am discussing: he sees the alternatives as either "to assert the 'form-content' dichotomy against all usual better judgment", or to succumb (as I have) to "the specter of the 'organic' view", which would "probably end up by asserting that translation is impossible under any circumstances", or, apparently preferably, to avoid the whole issue of meaning and discuss "how people react to the literary works themselves" (pp. 207-208). (Cf. Nida and Taber's (1969) embracing of "dynamic equivalence" as the criterion for good translation.)

REFERENCES

Allen, Barbara, Donald Frantz, Donna Gardiner and David Perlmutter. To appear. "Possessor Ascension in Southern Tiwa"

Beekman, John, and John Callow. 1974. Translating the Word of God. Grand Rapids, Michigan: Zondervan

Brower, Reuben A., ed. 1959. On Translation. Harvard Studies in Comparative Literature No. 23. Cambridge, Mass.:Harvard University Press.

Crain, Catherine. 1979. "Advancement and Ascension to Direct Object in Chamorro", in Hubbard and Tiersma, eds.

Comrie, Bernard. 1979. "Grammatical Relations and Coreference in Huichol." Ms.

Frantz, Donald G. 1979. Grammatical Relations in Universal Grammar. Supplement to Volume XXIII of the Work Papers of the Summer Institute of Linguistics, University of North Dakota Session, Grand Forks, ND: SIL

García, Maryellen. 1976. "Spanish Preverbal Clitics", in Lantolf, Frank and Guitart, eds., Colloquium on Spanish and Luzo-Brazilian Linguistics. Washington: Georgetown University Press

Hankamer, Jorge. 1977. "Multiple Analyses", in Charles Li, ed., Mechanisms of Syntactic Change. Austin: University of Texas Press

Harris, Alice. 1976. Grammatical Relations in Modern Georgian. Unpublished doctoral dissertation Harvard University.

Hollander, John. 1959. "Versions, Interpretations, and Performances", in Brower, ed.

Hubbard, Philip and Peter Tiersma, eds. 1979. Linguistic Notes from La Jolla, Number 6. La Jolla, CA: UCSD.

Johnson, David and Paul Postal. To appear. Arc Pair Grammar.

Lakoff, George. 1970. "A Note on Vagueness and Ambiguity." Linguistic Inquiry 3:357-359.

Langacker, Ronald W. 1968. "Observations on French Possessives", in Language 44 No. 1:52-75.

_____. 1976. "Semantic Representations and the Linguistic Relativity Hypothesis", in Foundations of Language 14:307-357.

_____. 1979. "Grammar as Image", in Hubbard and Tiersma, eds.

———. 1980. "The Integration of Grammar and Grammatical Change" (presented at the Symposium on Uto-Aztecan Historical Linguistics, University of New Mexico, June 1980.)

Lindner, Sue. 1980. "Verb-Particle Constructions with OUT" Ms.

Nida, Eugene A. 1959. "Principles of Translation as Exemplified by Bible Translating", in Brower, ed.

———.and Charles Taber. 1969. The Theory and Practice of Translation. Leiden, Netherlands: E.J. Brill (for the United Bible Societies).

Perlmutter, David M. and Paul Postal. 1977. "Toward a Universal Characterization of Passive", in BLS 3. Berkeley: Department of Linguistics, U.C. Berkeley.

——— and ———. To appear (a). Relational Grammar.

——— and ———. To appear (b). "Some Proposed Laws of Basic Clause Structure", in Studies in Relational Grammar. Perlmutter, ed.

Tuggy, David. 1979a. "A Relational Grammar Analysis of Causatives in Tetelcingo Aztec" Ms.

———. 1979b. "Another Look at Indirect Object Advancement in Tzotzil", in Hubbard and Tiersma, eds.

NOTES ON AFRICAN LINGUISTICS

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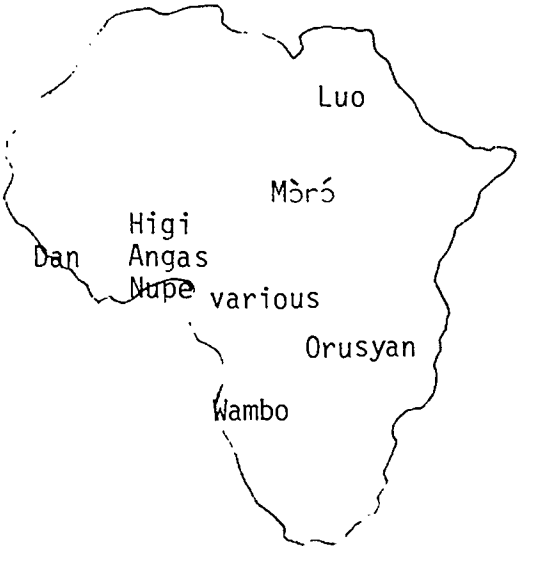
0. Introduction

This report is an overview of some of the common features of African languages.[1] It is difficult to present a concise and comprehensive summary of the features that are likely to be found in a group of languages as large and totally unrelated as are the (probably) one to two thousand found on the continent of Africa. Therefore I have chosen representative languages or language families from around the continent and will give a brief description of these. The map will show their approximate locations. Appendix 1 gives a diagram of the different language families.



1. Consonants

In African languages there are phonemes from all the basic types of consonants that can be found -- plosives, affricates, fricatives, nasals, laterals, vibrants, and semivowels. In addition, the distinctive "clicks" of South Africa are quite interesting.

Dan (Bearth and Zemp, 1967 (B&Z)) is a language of the western part of Ivory Coast spreading over the border into Liberia. Interesting aspects of the consonant-phonology include the following points: in addition to regular plosives, there are implosives ɓ and ɗ as well as labiovelars kp and gb. In situations of nasal context, the following changes occur: Nɓ → m̩ or m' (syllabic or glottalized m), Nɗ → n̩, kpṼ → kmṼ, gbṼ → gmṼ. Labiodental fricatives are formed by friction of the upper teeth on the back of the protruded lower lip. The lateral /l/ has two flapped allophones, an alveolar [ň] and an alveolar vibrant [ř]. The archiphoneme N can occur presyllabically as NCVC or as a syllable coda CVN. In neither position is it analyzed as the same as /n/ or /m/, both of which are phonemes in the language, although it may be pronounced similarly to either of these. Sequences of the form Cw and Cy occur and have both been analyzed as a modification of the consonant, rather than as consonant clusters. The sequence C_1C_2 does occur in which C_2 is /l/. In certain environments "an optional nonphonemic transition vowel with the quality of the following main vowel occurs between the onset and a prenuclear /l/..." (B&Z 1967:15)

Moving on into Nigeria, three different languages were looked at. In Higi of northeast Nigeria (Mohrlang 1972), there are three imploded consonants - ɓ, ɗ, and ɠ, and no labiovelars. Lateral fricatives exist and can be voiced or voiceless; the fricative has a plosive offglide in palatalized syllables).

(1) /^{y}ɬ́a/ [ɬ^{dy}a'] "jealousy"

Vibrants have flapped and trilled variants. Palatalization, labialization, and prenasalization all occur as well. Voiced and voiceless affricates also occur.

Angas is found in the central part of Nigeria (Burquest 1971). The plosives are aspirated or unexploded according to the position in the syllable. There is a voiced but no voiceless velar fricative. Nasals have voiceless allophones. Laterals and vibrants have voiced and voiceless variants. Labialization, palatalization, and prenasalization all occur separately and in various combinations, yielding such sequences as ^{n}ř^{w}. The three implosives ɓ, ɗ, and ɠ are manifested as well.

Nupe (Smith 1967), in contrast to the other languages cited from Nigeria, has no implosives, but there are labiovelars. There are affricates and syllabic nasals. /y/ has an allophone [ɲ] before nasal vowels. Nupe is located near Bida.

While implosives and labiovelars are common in African languages there are those which have neither, in spite of their proximity to those which have one or the other or both. One such language is Longuda (Westermann and Bryan 1952 (W&B)) found in Nigeria in the provinces of Adamawa and Bauchi.

The following summary of data from Cameroon is based on Westermann and Bryan and their linguisitc notes on class and nonclass languages and Chadic languages. Some languages have labiovelars, implosives, and imploded labiovelars. Glottal stop is often a phoneme as well (Bamileke). Syllabic nasals occur in two different positions NCV(C) and CVN. Consonant clusters of the form Cr occur but are rare. Semivowels w and y as well as ɥ occur. Palatalization, labialization, and prenasalization and various combinations of all three are manifested by the semivowels. There are some instances of syllabic w (Mbembe). The Chadic languages typically have lateral fricatives, q and G, and no labiovelars.

In southwestern Africa the Wambo group of languages are found (Baucom 1972); they are Bantu. There are no labiovelars, the affricates only have voiceless representation, and nasals may be voiced or voiceless. Prenasalization and palatalization are found but both are limited in their distribution.

The Khoisan languages of the Bushmen and Hottentots in South Africa have an unusual set of consonants - the clicks (Welmers 1973:50). Clicks may occur with four different points of articulation - bilabial, dental, palatal, and lateral. Each of these may be voiced, voiceless, or nasalized and have an aspirated, unaspirated, or glottalized release.

On the east side of A ı ca, the Orusyan language is found in eastern Uganda (Huntingford 1965). The sequence bg is noted but it is unclear if this is a normal labiovelar (gb) or merely a sequence with a syllable break in between. Other consonant clusters do occur, notably rmw, rny, and nyw. For these last it is again not clear if the cluster is all within one syllable. Prenasalization and labialization both occur; and they co-occur with /k/ and /s/. There are four nasal contrasts /m,n,ɲ,ŋ/.

Mòrɔ́, a language of the Nilo-Saharan family, is spoken in the southern part of Sudan (Cowan 1965). It has labiovelars as well as imploded ɓ and ɗ. A voiceless alveopalatal is the only affricate mentioned. Four contrastive nasals are found before vowels, /m,n,ɲ,ŋ/. Prenasalization, labialization, and a combination of the two occur. The sequence Cr also occurs.

In the northeast section of the continent, it is said that nasal-stop clusters (prenasalized stops) do not occur in Nilotic languages. This feature, which is so common to African languages as a whole has been found though in at least one language, Luo (Gregersen 1972). There are examples cited of alternations between m and mb, n and nd, ɲ and ɲj, and ŋ and ŋg. Luo also has l and nd alternations.

2. Vowels

Westermann and Ward claim that all African languages have an i sound, a u sound, and one or more a sounds and generally there is a parallelism between front and back vowels. Central and centralized vowels are generally "obscure and difficult to distinguish" and usually few in number. They further claim that back unrounded vowels had not been found. Since then, however, they have been attested; a few examples include Nsaw-Kom, Widekum, and Bamum - all of which occur within a small geographical area in the western part of Cameroon (W&B 1952:124ff). Rounded front vowels, central vowels, and back spread vowels are quite rare but they do exist. Front rounded vowels have been noted in, for example, Mambila in Nigeria (W&B 1952:143).

2.1 Inventories

According to Welmers (1973:20), the vowel systems of most Bantu languages are symmetrical, with either an even or odd number of phonemes. (In the "odd" inventories, the odd number is almost always a central vowel.) From reading articles on various non-Bantu languages as well, this seems to also be true for them.

Despite the fact that symmetry is claimed to be characteristic of Bantu, languages have been found in which there is some assymmetry. It seems that for Niger-Congo languages, there is however, "evidence of at least an underlying symmetry" (Welmers 1973:21). In languages where these exceptions appear, it seems that the assymmetrical phone only contrasts in certain situations; otherwise it is an allophone of a phoneme that fits the symmetry (for example, Efik).

For Mòŕó (Cowan 1965), symmetry of the following system is achieved by assigning the a to the "back" column. This however is not the way the language actually works phonetically, according to the analyst.

(2)

i	ə	u
e		
ɛ		ɔ
	a	

Following are some examples of types of symmetry:

smallest inventory found (5)

i		u
ɛ		ɔ
	a	

Wambo - Baucom 1972

largest inventory found (12)

i	ɨ	u	ĩ	ũ
e	ə	o		
ɛ	ə	ɔ	ɛ̃	ə̃
æ	a	ɒ	æ̃	ã

Dan - B&Z 1967

common example - odd number (7)

i		u
e		o
ɛ		ɔ
	a	

Efik - W&B 1952:134

common example - even number (6)

i		u
e		o
a		ɔ

Ewe - Welmers 1973:21

nonsymmetrical

i		u
ɩ		
e		o
ɛ		ɔ
	a	

(some class languages of N. Nigeria)
Irigwe - W&B 1952:108

(some also have ə, ʌ, and ʊ)

symmetrical

i	ə	u
e	ä	o
a		ɔ

Tiv[2] - W&B 1962:116

symmetrical

i		u	ĩ	ũ
e		o		
	aa	a	ã	

(symmetry here is in three groups- i e ĩ, u o ũ, and a aa ã)
Nupe - Smith 1967

Examples of languages with more than one central vowel include Dan, Tiv, Mòrò, Mambila, and Bamileke.

One language that has a very peculiar system is Higi of Nigeria. Mohrlang gives this summary statement:

> "The vowel system of Higi exhibits a potential 4-way contrast in word-final position and a 3-way contrast in word-medial position. (These contrasts are i, e, ɛ, a and ɨ, e, a respectively.) This already minimal number of contrasts is further reduced by (1) neutralization of contrast medially in the pause group; (2) the effect of prosodies; (3) grammatical conditioning; and (4) infrequent occurrence of one of the vowels. As a result, much of the communication load in the language is carried by a simple 2-way contrast." (p. 24)

The four word-final contrasts /i e ɛ a/ are fairly static and obviously always front vowels. Mohrlang does not attempt any explanation of this. The three word-medial contrasts are fairly changeable:

(3) /ɨ/ - [i ɩ ɨ ʊ u]
/e/ - [e o]
/a/ - [ɛ ʌ a ɔ]

depending on the presence or absence of the prosodies of labialization and palatalization. (Mohrlang uses the Firthian approach to prosodies.)

2.2 Conditioning Factors

The main factors conditioning the pronunciation of the vowel phonemes seem to be the following:

(a) placement in an open versus a closed syllable (that is, the presence or absence of a syllable-final consonant)

(b) the preceding consonants or a combination of the syllable-initial and syllable-final consonant

(4) Angas (Burquest 1971) /ɛ/ [ɛ^{ə}] / ___ velars

/ɩ/ [ɩ$^{ɩ>}$] / palatal ___ r, velars

/ai/ [ə^{ɩ}] / in open syllables

(c) by the presence of labialization or palatalization (prosodies)

(5) Higi (Mohrlang 1972) /^{y}mɨ/ [m^{y}i]

/^{w}we/ [wo]

(d) in Kpelle (Welmers 1973:23), a following vowel conditions a previous one, with certain conditions on contiguous vowel sequences, presence of certain consonants, and the features of the vowels in question.

(6) /ɔra/ [ɔara]

(e) tone rarely is a conditioning factor in vowel quality (Welmers 1973:23).

2.3 Length

Long vowels and diphthongs are another typical characteristic of African languages, the former being much more prevalent usually than the latter. Welmers says that "phonemically long vocal segments can, in every known case, be readily interpreted as double vowels" (p.24) and if long vowels occur, clusters of heterogeneous vowels also are common (p.29). Welmers basically uses tonal evidence to support this claim. Most analysts agree with this kind of analysis but in Dan, Bearth and Zemp have analyzed length as a phoneme, a feature of the syllable. Hence, in his analysis length is not written as VV or V:.

In some languages, all the short phonemes have long counterparts; in others only a few members of the inventory occur lengthened. In many cases a vowel that appears long, V_iV_i, is not basically V_i: but rather is a form derived from two different vowels assimilating one to the other.

Languages with diphthongs usually have them begin and end on a phone which is a member of the short vowel inventory and usually one of the cluster is i or u. Occasional examples of oa have been found. No examples occur in the literature of vowel clusters beginning or ending on a central vowel other than a. However, in Yamba (Cameroon) the following sequences do occur: ɯi, əe, and əa.

2.4 Nasalization

Nasalization is also a common phenomenon. Frequently it is predictable by its proximity to a nasal consonant but often it is not predictable at all. It is also often the case that only a limited number of the vowel inventory will occur nasalized.

Within vowel clusters, the distribution of nasality may be the same, that is, CVV or CṼṼ or it may be different, that is, CVṼ or CṼV. These latter types are fairly rare.

2.5 Epenthetic Vowels

Vowels, mostly due to their sonorant qualities, seem to be generated often to fill in as a transition element. From the examples seen, the vowel quality is either a duplicate of the main vowel of the stem or a mid central phone ə.

(7) Dan bɨɨ^{3} "viper" [bɨɨ^{3}] or [b^{ɨ}ɨɨ^{3}] (B&Z p.15)

Eulu CVC#CVC (where # is a word boundary) is often pronounced as CVCəCVC. There is still much discussion about the true nature of this ə. (Alexandre p.243)

2.6 Vowel Harmony

Vowel harmony is another phenomenon that occurs frequently. Niger-Congo and Nilo-Saharan languages often have it, and non-Niger-Congo languages often have a large vowel inventory which may have a partial division according to some vowel harmony rules.

Vowel harmony is frequently analyzed as a feature (prosody) of the syllable. Occasionally, however, it is predictable and therefore not phonemic.

It typically occurs within a polysyllabic word or with pronominal subjects harmonizing with the verb. It generally does not cross phrase boundaries. In Yoruba (Bambgose 1967:268), there are also other elements called "verbal items" which will harmonize with the following vowel. In Twi (Boadi 1963) the two sets of vowels are

i	u	and	ɩ	ʊ
e	o		ɛ	ɔ
a			a	

that is, a raised set and a lowered set. a is common to both sets. Within a word, the main vowel is usually the second one so the first is determined by it. In words with a as the main vowel, a factor of palatality is relevant to choosing the vowel set. If the consonant preceding the a is palatalized, the vowel of the first syllable (or prefix) automatically has the corresponding vowel from the raised set.

The languages of the Wambo groups (Baucom 1972) are an example of a system in which there is partial vowel harmony operating.

2.7 Elision

Languages which have nouns that begin with a vowel often demonstrate extensive elision. The fact of a vowel at the front of a noun usually reflects the existence of a noun class system (which may or may not be functional) and this sets the stage for elision particulary in two different kinds of constructions: verb + object, noun-noun associative phrases. Elision can be merely an optional fast speech phenomenon or it can be an obligatory process. Frequently it causes audible tone perturbations. And it frequently co-occurs with consonant elision and causes segmental changes as well as tonal ones. (The two environments mentioned are not the only ones in which elision can occur but are merely exemplary.)

2.8 Miscellaneous

Westermann and Ward note that there is often an interchange between front and back vowels within a language or between related ones. For example, i might occur in one and u in the cognate in the other, or e and o, or ɛ and ɔ. In Kpelle (Welmers 1962), there are no contrasts between /ɔ/ and /wɛ/ or between /o/ and /we/. In fact, Welmers feels that the derounding and fronting diphthongs fit the pattern of the language better if analyzed as /ɔ/ and /o/.

Breathy vowels have been noted in several Nilotic languages.

In Beembe of the Congo (Jacquot 1962), the vowel inventory is as follows:

i	u	ɨ̃	ũ	i:	u:	ɨ̃:	ũ:
e	o	ẽ	õ	e:	o:	ẽ:	õ:
a		ã		a:		ã:	

To eliminate some of the possible contrasts this can create, there are rules of neutralization between a) oral and nasal vowels (both long and short) if the vowel is high, b) oral and nasal vowels before a non-nasal consonant, the oral is the representative, and c) long and short vowels between consonants when a stem has more than four more.

3. Tone

Until the last ten to fifteen years, it seems that tone was not considered important or very relevant to the study of African languages. For example "tone has been noted in languages of Northern Nigera", a comment in Westermann and Bryan, p. 109. Those who did recognize tone as pertinent, only understood it as far as it distinguished lexical items or grammatical functions, such as singular from plural on nouns.

The majority of tones noted are level - that is, spoken on one pitch level, for example, high, mid, low, although contour tones, rising and falling, are not uncommon. Most languages though are considered to be "level" languages as opposed to "contour" languages. Within the designation of "level", languages labelled "discrete" have a fairly absolute pitch on which the different tones are uttered. "Terraced" level languages function on a basis of relative pitch, each pitch relative to the ones surrounding it.

Within both types of languages, discrete and terraced, languages have been found with two, three, or four contrastive tones. Dan (B&Z) has been analyzed as having five phonemic pitch levels, although this is very uncommon in Africa and not accepted as a possibility by some analysts. Some languages have a combination such as three level and two contour tones, contours being tones of more than one pitch on one vowel without additional length.

The terms high, mid, and low, are sometimes discarded in order that a high may be called high even when it is not on the same absolute pitch as a previous high. One phenomenon that can cause this change in absolute pitch is called downdrift. For most languages it is purely phonetic, the lowering of a nonlow by a preceding low. (This is typical of Bantu languages.) Lows stay relatively static even in terraced languages while it is the nonlows that really show the drifting or downstepping.

Downstep is another process whereby tones get lowered. This accounts for a nonlow being lower than a preceding nonlow. (This definition describes a two-contrast system but downstep can occur in languages with more contrasts than just low and nonlow.) Welmers defines downstep as "a phoneme conditioning a lowering of the pitch of a high tone; it applies to a sequence of syllables in one utterance." (p.89) A low tone can be lowered by the feature downstep as well as a high. Downstep is generally felt to be caused by a latent or lost tone between the two nonlows. Most analysts feel this tone would have been low but Welmers feels it sometimes also may have been a nonlow (p.87). The reason this tone has been lost could be due to segmental contraction or allomorphy in which certain vowels are silent or Ø. A phenomenon of tone raising in which a tone can be raised above its normal pitch due to some conditioning factor can also be a source of downstepping, the downstep showing up on the nonlow following the raised tone. An apparent downstep may be conditioned by certain consonants, but this can be explained better by phonological conditioning.

An opposite phenomenon of upstepping could be possible where a nonlow is higher than a previous nonlow which cannot be explained some other way. This has not been too well documented.

Tone does not have to be thought of as a definite pitch that is assigned to each and every vowel in a tonal language. It sometimes appears as if the tone of certain vowels extends over more than one vowel of a word or morpheme even when the vowels are not juxtaposed (as in a diphthong). Other times more than one tone can have dominion over one vowel. Spears calls this the domain of a toneme. For example, a tonal unit may be high and its domain one or more adjacent vowels. The same applies for a tonal unit which is low. This may imply that some syllables are toneless or neutral with relation to tone. If the tonal effects spread across morphemes, this is now tonal extension. The domain of the last tonal unit spreads to include the first (or only) vowel of the next morpheme. Verb reduplications also may exhibit tonal extension. Bell used the term "prosody" to label the morphemes in which a given tone covers more than one vowel. Should these morphemes be compounded, he has found that the tones of the first element of the compound are completely nullified.

There is also a phenomenon in which one tone affects the following tone according to what follows that second tone. The middle tone of the sequence is "polarized", that is, it becomes high before a low and low before a high or silence. This special effect is conditioned by the presence of a polarizing tone, which is the first in the sequence. For examples and further discussion, see Spears 1967 and 1968. A polarizing tone may come from a polarized one if the operation has repeated application in a long sequence.

As stated previously, there are two main functions of tone - grammatical and lexical. For conditioning of both these types there is a variety of factors involved:

(a) Phonological Conditions

One particular condition mentioned (Welmers 1973:94) is called depressor onset. The features of the consonant or consonant sequence beginning the syllable depress the tone and cause what looks like downstep. In Ewe, voiced stops and fricatives condition low tone on noun stems. Phonological conditioning should be the first possibility tried when formulating tone rules.

(b) Lexical Conditions

In many languages a given string of segments may have different meanings dependent entirely on tone. It is common that there will not be a complete range of all possible contrasts, however, for even one given segmental string. Minimal tone contrasts are not necessary to call a language tonal. The distribution of tones on nouns and verbs is often different within a language.

(c) Morphological Conditions

There are morphemes whose only realization is a tone, called a "floating tone". Because it does not have any segments to attach to, it is absorbed in the preceding or following tone and very often causes some tonal changes in that neighboring tone. One very common instance of this is associative noun phrases, in which there is a tone between the elements of the phrase, usually reflective of some concord between them. This tone is often very difficult to discover. There are also affixes which consist of a tone that goes with the stem consonants and vowels instead of the regular lexical tone of that stem. There are also affixes which in addition to their own segments and tonal representations, have a special tone for the stem segments.

(d) Syntactic Conditions

The grammatical relation that a word or morpheme bears in a sentence may determine its tone. Examples of this include the following constructions: certain relative clauses, imperative, negative imperative, locative phrases, verb tenses, various noun-noun constructions, or the relation a given noun bears to the verb of a clause.

Tonal contrasts in any of these contexts or affected by any conditioning factor need not be maintained in their entirety. That is, in one situation, the language may exhibit a three-way contrast but in another only a two-way contrast; two of the contrasts will have been neutralized. (The tones manifested will be two of the three original contrasts usually.)

Although early works on African linguistics make such comments as "stress may be significant" or "in most Bantu languages stress is on the penultimate syllable" (Westermann and Ward, p.114,115) or "stress is of secondary importance" (W&B p.134) Welmers maintains that "no (African) language has been reliably reported to have both tone and stress in the phonemic system" (p.113). However, he does admit to a system of intonation covering a tonal system, but only a very limited set of intonation patterns have been found to so exist (for example, in Hausa).

4. Noun Classes

4.1 Traditional System for Bantu

The expression "noun class systems" is traditionally used to describe a system of affixes which appear in a language to classify nouns into different categories or classes. All nouns in one particular construction, for example, a possessive phrase, will not have the same affix. The affix on the noun stem may be different, the affix on the possessor may be different, and they may all be different again depending on whether the noun phrase is subject or object of the sentence or whether it is singular or plural. Further differences may be phonological or morphophonemic due to underlying forms of the root or stem of the nominal. Bantu languages are typically associated with such a system and much study has gone into the reconstruction of the proto-Bantu system of noun class markers.

This system differs from the typical Indo-European system of genders in several ways: there are many more classes than the typical two or three genders, certain semantic distinctions are relevant but generally sex is not one of them, and number and gender have no correlation.

The classification into classes has nothing to do with anything inherent in the phonological shape of the stem but is entirely dependent on the affixes the stem takes. Each noun belongs to a pair of classes - the singular being one, the plural the other. Not all nouns that have, for example, class 1 affixes in the singular, take class 2 in the plural. Some may take class 10 or another class. Likewise, nouns that take, for example class 10 affixes in the plural, will not all take class 1 affixes in the singular. This system has been set up and used by scholars for many decades now and the labels (numbers 1 through 23) are coreferential between languages even though the languages may not be related at all. The numbering system is not merely a random assignment of a number to the list of prefixes, one number for each prefix.

Following is a brief summary of the classes of proto-Bantu according to semantic similarities:

1, 2a, 2b - kinship, personification, proper names, some animates, rarely inanimates
3, 4 - trees, plants, inanimates
5, 6 - miscellaneous - augmentatives
6a - liquid masses (no plural)
7, 8 - miscellaneous - diminutives
9, 10 - animals, some inanimates
(in the above 10 classes, the odd numbers are singulars, the even plurals)
11 - long, thin objects, abstracts
12, 13 - diminutives
14 - abstracts, fermented beverages from grain or seeds
15 - verb infinitives
16, 17, 18 - locatives: near, explicit; remote, general; inside (respectively)
19 - diminutives
20 - augmentatives
21 - augmentatives (pejorative)
22 - only found in one language so far, LuGanda
23 - locative
(classes 20 - 23 are all rare)
Occasionally a noun will have affixes of more than one class. The stem may take the prefix of the class to which it belongs, as well as the prefix of, for example, class 21, which adds a pejorative overtone to the meaning.

In a few languages, class 5 has morphophonemic alternations in the stem (b l j have alternants ts and c, and r g h have alternants s and sh (Welmers 1973:168)). However, more general alternation occurs in prefixes conditioned by the stem-initial vowel.

Not only are there affixes which appear on the nouns, there are also elements of "concord" which show agreement between words in a construction. For example, the concord system will relate a nominal to a demonstrative, a possessive (personal pronoun may be distinguished from nominal), an attributive, a numeral, an interrogative, a relative pronoun, as well as concord for subject or object, and other categories as well. It is sometimes the case that the noun class system is so complex that the concord system is used to define the classes. This is true for some languages in the Republic of Benin, for example. This reduces the number of classes that a language will have.

4.2 Vestigial Systems

The Bantu system as described above is quite distinctive. The rest of the Niger-Kordofanian family (see Appendix 1) with the possible exception of Mande acts somewhat differently with respect to noun classes.

Kordofanian languages mark classes with prefixes which are consonantal for the most part. They show similarities with Bantu classes 3, 4, 5, and 6a. According to Greenberg's listing[3] there are 25 classes. There is also a system of concord.

These similarities between Bantu and Kordofanian suggest that there

must have been some sort of class system in proto-Niger-Kordofanian. The other branches of Niger-Congo give some clues as to what this system may have been.

Probably because these languages are non-Bantu, most analysts look on the class systems of the following languages as embryonic; Welmers takes the view that they are vestigial.

The Kwa Branch - singular-plural distinctions are marked by a prefix which is a vowel or syllabic nasal. There are few traces of concord.

> "These languages (Yoruba, Igbo, Efik, Akan cited as examples) have no affixal pluralization of nouns, no concord, and very little else immediately reminiscent of functional noun class systems. There are significant features in the structure of these languages, however which are by all odds best explained in terms of vestigial noun class systems." (Welmers 1973:189)

Verb roots are typically monosyllabic: CV or CVC. And nouns are generally of the shape VCV or VCVC. Welmers feels that the basic difference between the shapes of these two groups of morphemes suggests that the initial vowel of the nouns is a prefix. This is supported by the fact that in related languages there often is a functioning system of prefixes on nouns. Even within a language, there are forms which suggest strongly that this is the case.

(8) Yoruba /ewé/ "leaf" /ìwé/ "paper"

The Gur Branch - there is a functional noun class system, singular and plural distinctions, some concord, but basically the system is suffixal rather than prefixal. Generally there is no attributive concord. Suppire, however, appears to have several types of concord, forms for identifiers, subject and object, possessive, remote demonstratives, demonstrative copulatives, attributive interrogatives, and independent or nominal interrogatives. Gourma, another Gur language, has both prefixes and suffixes, either identical or very similar to each other; the beginning and ending of a nominal would thus be clearly defined.

Adamawa-Eastern - according to Greenberg there are suffixes to distinguish pairs of singular/plural noun classes. He feels that there are many parallels between Bantu class prefixes in form and semantic correlates and these suffixes. There is some concord, but not with plurals.

West-Atlantic Branch (Fula) - there may be up to 25 classes, marked with suffixes. The choice of allomorphy of the suffixes is lexically conditioned. But there is also initial consonant alternation. It will be a plosive if singular and a fricative if plural in certain classes. This alternation of the initial consonants is very possibly the remnant of a set of prefixes. Also, the initial consonant of a verb may be determined by the class of a noun subject - either a fricative or a nasal. There is a full system of other concords as well.

Tiv is a non-Bantu language of the Niger-Congo branch. There are 11 classes: 1 has no affix, 5 have prefixes only, 2 have suffixes only, and 3 have both prefixes and suffixes. To identify each class, a concordial morpheme is used rather than the nominal affix.

On the basis of the evidence that suffixes seem to play an important role in noun-class systems, as well as do prefixes, Welmers comes to the conclusion that at some stage of pre-Bantu, nouns in all classes had both prefixes and suffixes. Over time, some languages have been left with only prefixes, others with only suffixes, and others with both which gradually lost some of one or the other at different times in their development. He makes this comment:

> "It appears that prefixes alone, suffixes alone, or both prefixes and suffixes are no strangers to Niger-Kordofanian noun-class systems. Although systems with prefixes only or with suffixes only are the most common, there is evidence of both prefixes and suffixes in every branch of Niger-Congo which has noun classes at all." (p.204)

4.3 Other Systems

Mandɛ has a distinction in nouns between "relational" and "free": free being those whose stem can constitute a whole noun phrase, relational being those that need an explicit possessor. A possessed free noun will have special markings. There is also a secondary distinction - personal versus nonpersonal. A distinction between singular and plural is not as relevant as one between generic/general and individual/specific. The distinction of individual nonpersonal nouns and general personal nouns is reflected in other branches of Niger-Congo as well.

Afro-Asiatic languages have another different system. They have two genders, reflected in the forms of nouns and pronouns. Masculine nouns are male persons and animals and various inanimates; feminine nouns are female persons and animals and other miscellaneous. In the Berber branch there are gender and pluralization differences. In addition, kinship terms act differently from all others.

Cushitic languages also generally have a two gender system. In Saho, masculine nouns have stress and feminine nouns are those without stress. Intersecting with these two genders there are three categories: 1 - mass nouns, 2 - generic nouns (unspecified quantity), 3 - nouns with singular and plural.

In many languages, in addition to having gender and number distinctions, for any noun there are two forms which are called the "absolute"and and "construct". The construct form is used when a noun is used in a particular grammatical construction, for example, the second noun of a noun-noun phrase, after numerals, after prepositions, or for noun subject when it follows the verb (the normal position). The absolute will be

used elsewhere. The rules governing the choice will be language-specific.

In Nilo-Saharan languages, the most complex and irregular group of nominal variations is found, particularly involving plural formations.

This part of the summary (section 4) is based mainly on chapters 6 - 8 of Welmers, African Language Structures.

5. Adjectives

5.1 Traditional Approach

In many languages it seems that the postulation of a class called "adjectives" is based on a semantic relationship that one word holds to another, comparable to a similar relationship in Indo-European languages which is traditionally called "adjectival". That is, if an utterance is translated, for example "the good boy", there must be a word within the phrase which means "good" and bears an adjectival relationship to the noun "boy". The following are given as examples of adjectival constructions. (Data from Westermann and Bryan)

(9)	Tiv	ùbó	ṁbá	ùkásév	"ugly women"	(p.118)
		ugly	genitive	female		
	Songhai	bolo bi		"black man"		(p.47)
		bolo-bi-ai		"black men"		
	Mande	pɛlɛ	kwele	"white house"		(p.45)
		pɛlɛ	kweleŋa	"white houses"		
		bɛlɛ	kwelai	"the white house"		
		bɛlɛ	kweleŋai	"the white houses"		

This then could be considered as a word class approach to the analysis of adjectives, in which the definition of an adjective is dependent on its semantic function of qualifying/modifying a noun.

5.2 Example from Xhosa

The Nguni languages of South Africa (Jordan 1967) have traditionally been analyzed this way.

(10) um-ntwana omhle "beautiful child"
class prefix-child beautiful

omhle is analyzed as a- "qualificative formative"
-um- "noun class prefix"
-hle "beautiful"

When the formative and noun prefix are juxtaposed, certain predictable vowel changes occur. a + um = om

Jordan has found however that, while this analysis appears tenable in the affirmative, in the negative there are problems. In the first place he notes that only predicates can be negated in these languages. Xhosa then should not allow that adjectives can be negated. Furthermore the negative morpheme -nge- splits the coalesced form of "formative + noun class prefix" and he feels that this nullifies that analysis of om.

(11) um-ntwana o-nge-mhle "a not-beautiful child"

Other morphemes can also be placed in this position.

(12) um-ntwana o-se-mhle "a still-beautiful child"

If then omhle is actually a predicate, because it can be negated, and not an adjective modifying a noun, because the obligatory prefixes can be split, a different analysis for the om of omhle must be found. What Jordan proposes is that omhle is actually a relative clause.

(13) um-ntwana o mhle "a child who is beautiful"

The o becomes the relative marker and m is the noun prefix. (The u of um- is omitted as Jordan regards it as a definitive article, not as part of the prefix.) Note the following examples.

(14) um-ntwana o li-layo "the child who is crying"

um-thi o khu-layo "the tree that is growing"

And note the following pair:

(15) um-ntwana o mhle "the child who is beautiful" in Xhosa
um-ntʃwana lo mhle "the child who is beautiful" in Bhaca

(lo is analyzed as a relative clause marker for Bhaca.)

(16) um-ntwana o ngemhle "the child who is not beautiful"
um-ntwana o semhle "the child who is still beautiful"

Jordan is saying that there is not a class of words called "adjectives" but rather that the concept of qualifying a noun is expressed by the use of a type of relative clause.

5.3 Welmers' Non-Criteria

For the purpose of trying to resolve the problem of how to define an adjective, Welmers tries to set up criteria on which to analyze the concept of modifiers. He devotes a chapter to the notion of "adjectives" especially as they relate to Niger-Congo languages. The following criteria are discussed as being inadequate bases for the establishment of a class called adjectives.

a) Semantics - having a qualificative or attributive meaning is not sufficient evidence in itself. A phrase, noun +adjective as attributive, may not be what it seems. Consider the following data.

(17) Suppire (p.263)	kɛ́rɛ́-gɛ́	:	kɛ́rɛ́ bó'-á	"farm	: big farm"
	kàkɔ̃-∅	:	kàkɔ̃́ bó'-á	"lizard	: big lizard"

The first noun belongs to one class and the second to a different one, as shown by the fact that they have different class markers as suffixes in isolation. However, when the concept of "big" is added to the noun, the marker of the second element of the phrase remains the same, showing that the relevance of the class of the first element has been negated or eliminated. The class marker is determined by the qualificative rather than the nominal. Welmers feels that the data suggests that the modifiers are also nominals and that they combine with the head noun to form a type of compound noun. This may partially explain why the first noun is not marked for its own class. If this analysis is correct, there is no class of "adjectives" in Suppire despite the semantics of qualification. To distinguish between noun +adjective phrases and noun +noun phrases, there would have to be significant differences especially with regard to tone.

b) Being a quantitative, numeral, or demonstrative - these categories also are rejected as adjectives as there are often distributional considerations which set them apart from other qualificatives. For example, in Igbo there is a limited set of adjectives from which numerals and words such as "some" and "any" are excluded because they function as nouns in places similar to the phrases analyzed as noun-noun for Suppire (above).

c) Verbal morphology - a situation of a verb acting as an adjective or an adjective as a verb is not acceptable analysis: a verb is a verb.

5.4 Structural Criteria

Welmers seems to indicate that the definition of an adjective must be structural, that is, based on distinctive morphological or distributional characteristics. There are several ways these changes can be marked.

a) Segmental changes - a prefix or a suffix can be added to distinguish adjectives from verbs or nouns. Verb roots may undergo a process of reduplication or affixation.

(18)	Root	Adjective		Reference[4]	
	sɛ̂ lɛŋ	sɛ̂ lɛŋ-ɔ	"hang"/"hanging"	Kpelle	W:251
	jẹ	jí-jẹ	"eat"/"eating"	Yoruba	W:257
	ga	ga-to	"illness"/"ill"	Malinka	W&B:43

b) Tonal changes - a verb stem plus a tone which is not the regular verb stem tone is another type of distinctive morphological change. Reduplicated forms also may have distinctive tone patterns which mark them as adjectives.

(19)	Root	Adjectives		Reference	
	waa	wâa	"wash"/"clean"	Kpelle	W:251
	hwa	hó-hwa	"carve"/"pointed"	Jukun	W:254
	wom	wõwom	"be dry"/"dry"	Jukun	W:254

c) Distributional restrictions - in Fante an adjective can be followed by an adverb but a nominal cannot.

d) Welmers also discusses a fourth way of expressing qualificative concepts for some languages - by using ideophones. Although (or perhaps because) the definition of "ideophone" varies considerably among linguists Welmers defines some reduplicated forms as ideophones even though some of them may have root forms with similar meanings. The reduplicated forms function attributively following nouns. Discussion of this is not extensive (see section 15.7 in Welmers 1973).

For many languages a variety of these criteria together decide whether a word can be termed an adjective or not. In Igbo there is a limited set of adjectives (with eight members) from which numerals are excluded on the basis of semantics and other (typically adjectival) words are excluded on the basis of tone changes. Of the 8 that are accepted as adjectives, tonal behavior is the criterion for 3 while the other 5 would probably be excluded on the basis of tone alone as there are no changes. These other 5 are adjectives based on semantics - an adjective makes a noun become a member of a category of things which the adjective describes, for example, "new" or "large", whereas a simple attributive would be handled by a relative clause with the nonadjectival form of the attributive in question.

(20) (p.259) ùwé ójí ˡí "dark clothing" for a particular function eg. a uniform

ùwé ˡdí ójí "dark clothing" in general

(í ˡdí is the verb "be described as")

ónyé ˡúwé ójí ˡí "person with dark clothing, eg. a policeman"

Some languages have no distinct class of qualificative adjectives at all. Others have a limited set. Igbo as mentioned previously has a clear set of 8. Swahili has a list of 50, distinguished from noun stems in that they are not restricted in class membership as are nouns and they take the concord of the noun referred to.

Bariba (Welmers 1973:268) has 3 types: invariable, class-bound, and class-inflected. The first 2 types may possibly be types of nouns as the concord of the modified noun does not affect the "adjective" but the third type is definitely adjectival as inflections and concord are directly related to the class of the noun.

In Gbeya (Samarin p.80) there are reportedly 3 types also: preposed class A, preposed class B, and postposed. The postposed class is comprised of only 2 members which both act as a kind of demonstrative which probably would not be accepted as adjectives under Welmers' conditions. The preposed class A group has only 4 members which also have restricted environments and rules of operation. These also may not be actual adjectives according to Welmers. But the preposed class B group seems to fit, as the forms have derivational affixes and do differ from noun-noun associative constructions in some respects.

Returning finally to the examples given in data (9) from Tiv, Songhai, and Mande, Songhai and Mande show that a plural marker or a definitive marker are added to the "adjective" of the noun-adjective phrase instead of to the "noun". (Hyphens in the data were given.) From the structural point of view this may indicate an analysis similar to that proposed by Welmers for Suppire (section 5.3). The nominal + adjective is actually a compound noun.

Tiv is slightly different. The "genitive marker" in the following examples is a type of concord from the noun class system. Westermann and Bryan posit that there are 3 types of adjectives: those that maintain all class affixes, those that maintain only the suffix, and those that drop all affixes. Examples of each type are given below.

(21) (a)

ù -	bó	ṁbá	ù -	kásé	- v
class 11 -	ugly	class 11	class 11 -	female	- class 11
prefix		genitive	prefix		suffix

ùbó ṁbá ùkásév "ugly women" (lit. "ugly ones of female")

(b)

kásé -	v	ṁbà	bó -	v
women -	class 11	class 11	bad -	class 11
	suffix	genitive		suffix

kásév ṁbà bóv "bad women"

(c)

kwásə	ù	bó
woman	class 1	bad
	genitive	

kwásə ù bó "bad woman"

Because both "bad/ugly" and "women" have identical shapes in their "nominal" and "adjectival" forms (including the tone) (compare the (a) and (b) examples, nominal forms always precede, adjectives follow), Welmers

would insist that they should not be distinguished and that these are all actually noun-noun constructions.

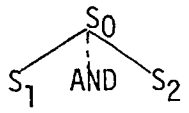
There are "real" adjectives in African languages but until this area is understood more fully the use of that term will always open the door for much debate.

6. Multiple Verb Constructions

In many West African languages, a sentence may consist of several verbs strung together. It is generally felt that these strings function differently than the classic coordinate or subordinate relationships in other languages. There are two types of structures in which these strings occur: a consecutivized structure and a serialized structure.

The key question in the analysis of these verbs is: where do they come from? What is the underlying structure? Hyman suggests that they probably come from a structure that looks like the following:

(22)



Many authors have proposed various analyses but no one has yet been able to prove his theory better than all the others.

6.1 Consecutivized Structures

According to Hyman (1971:31), a "consecutive structure" contains (at least) two verbs of a sentential conjunction, the second verb of which represents an action subsequent in time to the first verb and is done for the purpose of the first verb. Mainly with reference to Fe'Fe' (Bamileke) he lists 4 different types. The first type he calls coordinate and subordinate conjunction.

(23) (a) coordinate (i) ǎ kǎ sǎ? nzā wúzā
he PAST come &eat food
"he came and ate"

(ii) ǎ kǎ sǎ? ò zā wúzā
he PAST come you eat food
"he came and you ate"

(b) subordinate - marking purpose or intent

(i) ǎ kǎ sǎ? (á) zā wúzā
he PAST come CONJ eat food
"he came to eat"

(ii) ǎ kǎ sǎ? á ò zā wúzā
he PAST come CONJ you eat food
"he came in order for you to eat"

In (23aii) there are no overt markings while in (23ai) there is deletion of the second subject because it is coreferential with the first and also N-insertion, a marking of consecutivization on the second verb. In the subordinate relationships expressed in (23b), there are no verb markings but there is a relative clause marker inserted (optionally if the second subject is deleted).

In addition bā "to be" can be inserted between the two verbs meaning "continually or simultaneously". (bā becomes mbā becomes mā.)

(24) á kà sá? mā n zā wù zā
he PAST come &be &eat food
"he came eating"

á kà sá? (á) bā zā wú zā
he PAST come CONJ be eat food
"he came (only) in order to be eating"

The second type Hyman discusses is consecutives with the verb "to take" láh. This verb in many languages has come to mean "accompaniment", "instrument", or even "manner". Givón's article discusses verbs with similar meaning and he sets forth these questions: (a) are they synchronically verbs or prepositions? (b) if verbs, are they synchronically coordinate or subordinate structures? (c) diachronically, does serialization (or consecutivization) arise from conjunction or subordination? He does not attempt to arrive at any indisputable answers, but tries to show that for cases of serialization, what has happened is that one verb in a string of multiple verbs has become "grammaticalized". By that he means there have been three types of changes: (a) semantic - depletion of meaning from the grammaticalized form, (b) morphological - loss of ability to take verb affixes (agreement, etc.), and (c) syntactic - maintains position of verb but acts like a conjunction. These shifts occur gradually and various stages of each type of change can be seen in languages that are grammaticalizing some of their verbs.

In Hyman 1971, he presents both mā (from bā "to be") and náh (from láh "to take") as grammaticalized forms (he calls them grammatical morphemes). In their "grammatical" form they occur as the second in a consecutive series.

(25) á kà sá? mà càk
he PAST come &be pot
"he came with the pot"

á kà thí pɪ̀ɛ náh ncwēe mbàa
he PAST forge knife &take &cut meat
"he forged a knife and cut the meat with it"

"Take", the verb, can also be consecutivized with "take", the grammatical form, and another verb.

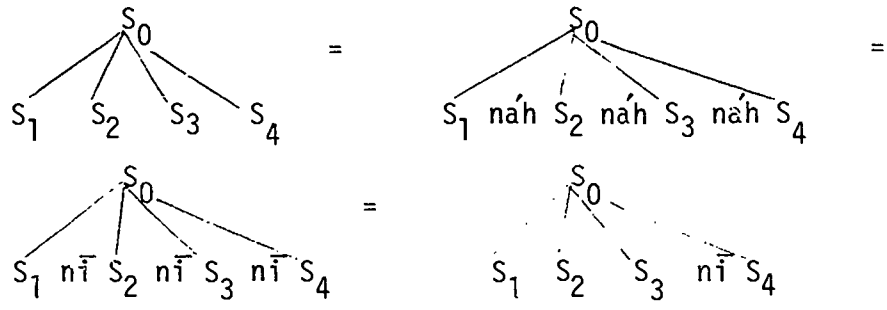
(26) á kȧ láh cȧk náh nsȧ?
he PAST take pot &take &come
"he took the pot and brought it"

á kȧ láh cȧk (ȧ́) lǎh sȧ?
he PAST take pot CONJ take come
"he took the pot in order to bring it"

Perhaps this type would better be called grammaticalized consecutives and should probably include the last data in the discussion of the first type as well.

The third type of consecutivization that Hyman discusses is multiple consecutives, when there are more than two (main) verbs . Whether or not a linker (like náh) occurs, you can have an infinite number of consecutives each subsequent to the one before. This is also true if the conjunction nī "and then" occurs between each clause or only between the last two clauses. That is, the following four diagrams are all equivalant.

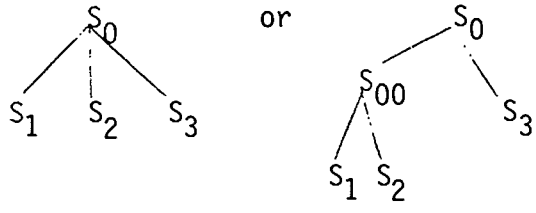
(27)



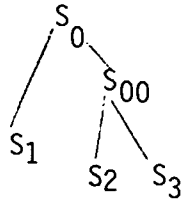
(with or without náh) (with or without náh)

However a conjunction, like nī, between any two other than the last two changes the meaning.

(28) S_1 S_2 ni S_3 can be



but S_1 ni S_2 S_3 can only be



More explicitly, the sentence below can have three structures:

"He forged a knife$_k$, carved a spoon$_s$ with it$_k$, and ate with it$_k$."

S_1, nah S_2, nah S_3.

S_1, náh S_2, nī nah S_3.

S_1, nī náh S_2, nī náh S_3.

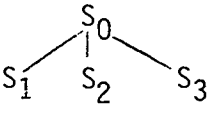
But S_1, nī náh S_2, náh S_3 can only mean one thing: "he forged a knife$_k$, carved a spoon$_s$ with it$_k$, and ate with it$_s$." The nī seems to disassociate clauses.

The sentence "he went to market, bought yams" implies that he bought yams at the market. However, "he went to market nī bought yams" does not imply either that he bought them when he went to market or that he bought them there at the market.

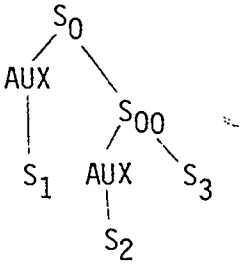
The fourth type of consecutive mentioned in Hyman is consecutives within auxiliaries. These act somewhat similarly to grammatical forms but are not well understood. Examples of such auxiliaries from Fe'Fe' include the following: yàt "to stay behind", pàt "to answer", vāh "to pass the day", tá?sì "to embrace", kwèe(nsì) "to join". One thing though is fairly certain: the following sentence is not to be taken literally.

(29)	pō	kà	pát	ntā?sī	mfá?
	they	PAST	answer	&embrace	&work

It does not have the structure



but rather it means "they worked again together again" and can be diagrammed



Welmers has a little broader definition of "consecutive". He says that the definition depends to some extent on the language. Hyman seems to say that consecutivization occurs before serialization synchronically, the latter being derived from the former, and that at a given point in time, a language will have one or the other. But Welmers says that there may be

languages in which no distinction is made at all between the two types or those for which the "consecutive" refers to the verb in a sentence, not a relationship to time, or languages which have both consecutives and serialized forms, being differentiated by syntactic structures. He sets out a definition though of a "construction used to refer to actions after the first in a sequence." (p.364).

As examples he includes the following language-specific information. In Kpelle the consecutive is used for showing purpose or for simultaneous action; two different constructions handle this. Swahili has a definite marker for a consecutive construction and both of these languages necessarily repeat the subject pronoun with each verb. In Efik, consecutives may express simultaneity but the verb semantics are not as closely linked as they are with serializations.

6.2 Serialization

Hyman defines this as "cases where two verbs occur within one sentence but do not enter into (that is, are not marked for) any of the coordinate or subordinate relationships defined elsewhere in the language" (1971:30). As mentioned above, serialization evolves from consecutivization. And in one language (Nupe) there are examples of three structures which all mean the same thing.

(30) "he brought the pot"	ū	lá	dùkǔ	ū	cī	bé'
	he	take	pot	he	and	come
	ū	lá	dùkǔ		cī	be'
	he	take	pot		and	come
(serialized form)	ū	lá	dùkǔ			bě
	he	take	pot			come

Givón's article mainly discusses the further evolution of serialization to grammaticalization and how this has affected word order in languages. He states that grammaticalization comes from a specific type of verb serialization. Hence you would have verb strings (→ consecutivized forms) → serialization → grammaticalization. This seems to contradict Hyman's view of grammaticalized verbs as a type of consecutivization and shows how much disagreement there is in this area of verb analysis. In fact Hyman feels that Givón says that serialization means that two verbs are one event or action, that is, that one verb is usually grammaticalized.

Welmers' definition of "serialization" is based largely on the fact that new information cannot be introduced in the second or "sequential" verb but the verbal semantics must be quite closely related. For example, the two ideas "he is going to market" and "he is carrying a headload" have to be associated in time and person if they are to be used in a serialized construction. In Efik it appears that both serialization and consecutivization may occur but in different situations.

As can be seen there are inconsistencies in the definitions and environments in which these two types of verbal strings occur according to the person who is analyzing the data at hand. It is fairly certain that this structure has its distinctive features, and is a good topic for more in depth research.

FOOTNOTES

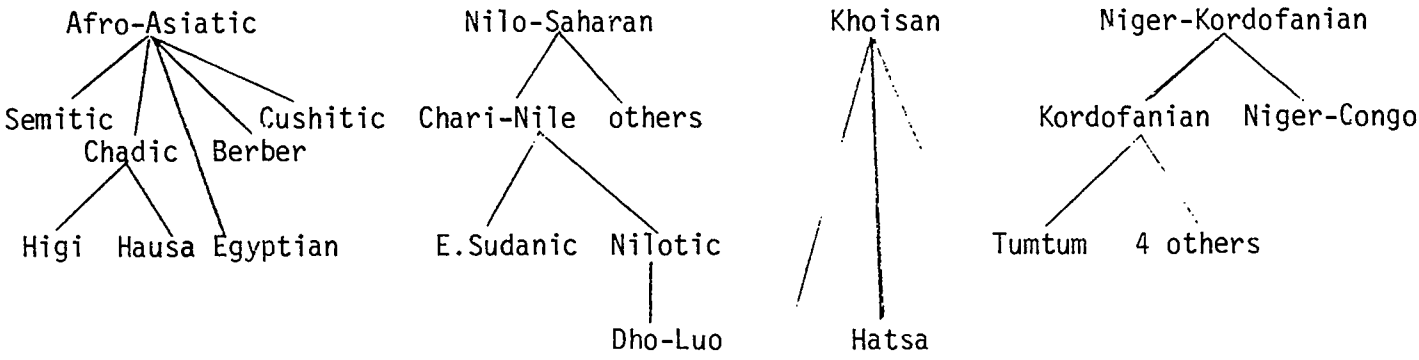
1 This report was written for a reading course in African linguistics at SIL, North Dakota, 1979, based on materials available in the SIL-UND library.

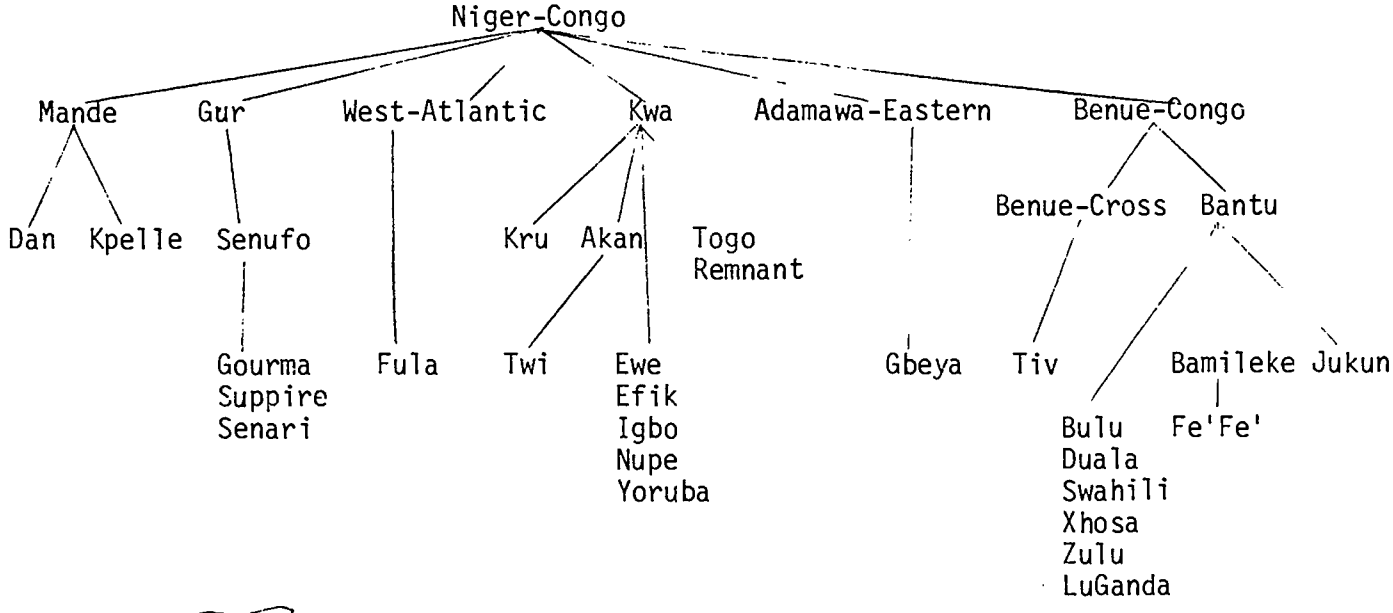
2 Welmers 1973:21 cites Tiv as having the same system as Ewe listed above. It is not known if the difference is a change of analysis or merely different dialects.

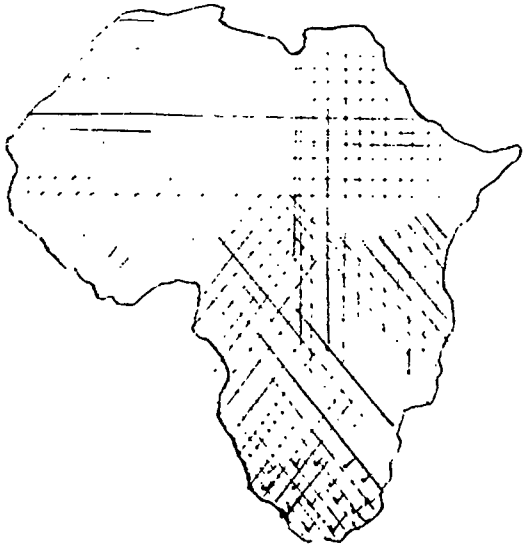
3 All references to Greenberg's work in this report come from Welmers' African Language Structures.

4 W is Welmers 1973 and W&B is Westermann and Bryan 1952.

APPENDIX 1







Approximate Locations of Certain Groups

- Afro-Asiatic
- Nilo-Saharan
- Khoisan
- Niger-Kordofanian
- Bantu

REFERENCES

Alexandre, P. 1962. "Sur la Voyelle Suffixielle du Bulu". Journal of African Languages. 1:243-252.

Baucom, K.L. 1972. "The Wambo Languages of South-West Africa and Angola". Journal of African Languages. 11:44-73.

Bearth, Thomas and Hugo Zemp. 1967. "The Phonology of Dan (Santa)". Journal of African Languages. 6:9-29.

Bell, Herman. 1968. "The Tone System of Mahas Nubian". Journal of African Languages. 7:26-32.

Boadi, L. 1963. "Palatality as a Factor in Twi Vowel Harmony". Journal of African Languages. 2:133-138.

Burquest, D.A. 1971. Studies in Nigerian Languages, No. 1, A Preliminary Study of Angas Phonology. Zaria:Institute of Linguistics and Kano, Nigeria:Centre for the Study of Nigerian Languages, Abdullahi Bayero College, Ahmadu Bello University.

Cowan, W. 1965. "A Note on the Phonemes of /Mɔ̀rɔ́/". Journal of African Languages. 4:114-117.

Dunstan, E. 1971. "Noun Class Systems in Mbam-Nkam". Journal of African Languages. 10:15-28.

Eastlack, Charles L. 1968. "The Noun Classes of Ngemba". Journal of African Languages. 7:33-40.

Givón, T. 1975. "Serial Verbs and Syntactic Change: Niger-Congo". In C. N. Li, ed. 1975. Word Order and Word Order Change. Austin:University of Texas Press.

Gregersen, E.A. 1972. "Nilotic Nasal-stop Clusters". Journal of African Languages. 11:79-81.

Heine, B. 1968a. "A Preliminary Survey of the Noun Classes of Basila". Journal of African Languages. 7:1-13.

--------- 1968b. "The Allocation of Loan-Words Within the Nominal Class System of Some Togo Remnant Languages". Journal of African Languages. 7:130-139.

Huntingford, G.W.B. 1965. "The Orusyan Language of Uganda". Journal of African Languages. 4:145-169.

Hyman, L.M. 1971. "Consecutivization in Fe'Fe'". Journal of African Languages. 10:29-43.

---------- 1975. "On the Change from SOV to SVO: Evidence from Niger-Congo". In C. N. Li, ed. 1975. Word Order and Word Order Change. Austin:University of Texas Press.

Jacquot, A. 1962. "Notes Sur la Phonologie du Beembe (Congo)". Journal of African Languages. 1:232-242.

Jordan, A.C. 1967. "The Adjectives in the Nguni Languages of Southern Africa". Journal of African Languages. 6:132-145.

Mohrlang, R. 1972. Studies in Nigerian Languages, No. 2, Higi Phonology. Zaria:Institute of Linguistics, and Kano, Nigeria:Centre for the Study of Nigerian Languages, Abdullahi Bayero College, Admadu Bello University.

Newman, R.M. 1971 "Downstep in Ga'anda". Journal of African Languages. 10:15-27.

Samarin, W.J. 1966. The Gbeya Language, Grammar, Texts, and Vocabularies. University of California Publications in Linguistics Volume 44, Berkeley and Los Angeles:University of California Press.

Smith, N.V. 1967. "The Phonology of Nupe". Journal of African Languages. 6:153-167.

Spears, R.A. 1967. "Tone in Menda". Journal of African Languages. 6:231-244.

---------- 1968. "Tonal Dissimilation in Maninka". Journal of African Languages. 7:88-100.

Vail, L. 1972. "The Noun Classes of Ndali". Journal of African Languages. 11:21-47.

Voorhoeve, J. 1971. " Tonology of the Bamileke Noun". Journal of African Languages. 10:1-12.

Welmers, W.E. 1962. "The Phonology of Kpelle". Journal of African Languages, 1:69-93.

---------- 1973. African Language Structure. Berkeley and Los Angeles:University of California Press.

Westermann, Dietrich and M.A. Bryan. 1952. Languages of West Africa, Handbook of African Languages Part II. published for the International African Institute by the Oxford University Press.

---------- and I.C. Ward. 1933. Practical Phonetics for Students of African Languages. published for the International African Institute by the Oxford University Press.