Syntax & Semantics At Santa Cruz

Edited by
Geoffrey K. Pullum
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VOLUME II

SYNTAX

at

SANTA CRUZ

Volume 2

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and
Eric Potsdam
1993

Distributed by

Linguistics Research Center
University of California
Santa Cruz, California 95064

Contents

Introduction

This volume brings together five recent and previously unpublished papers by linguists working on syntax at the University of California, Santa Cruz. They are syntactic in a fairly broad sense, embracing, for example, thematic relations, word order, phrase structure, morphosyntax, and the phonology-syntax interface. Two of the papers (McCloskey's and Swingle's) are on English. The others are on non-Indo-European languages from three very different families: Zapotecan, Northwest Caucasian, and Uto-Aztecan.

Cheryl A. Black's contribution, 'Negative concord with obligatory fronting in Zapotec', deals with some intriguing facts about the way negation is expressed in two languages of the small Zapotecan family (held by some historical linguists to belong to a phylum called Oto-Manguean). Zapotecan languages (or some of them, anyway) are negative concord languages — that is, they are like the dialects of English that have *Nobody ain't done nothin' about nothin'* rather than *Nobody has done anything about anything*. But in addition, Zapotecan negative words *must* be fronted — even when this introduces an apparently deleterious ambiguity, like making the translations of *John saw nobody* and *Nobody saw John* take exactly the same phonological form. Black makes some explicit structural proposals and explores the implications of Quiegolani Zapotec and Mitla Zapotec negative concord for some of the recent theoretical work on negative concord by such linguists as Raffaella Zanuttini and UCSC's Bill Ladusaw.

James McCloskey's brief note offers 'A crude test for unaccusativity in English'. The unaccusative predicates are those intransitive predicates that are claimed to have a direct object (not a subject) as their only underlying argument. There are too few tests for unaccusativity in most languages (promises of detailed works offering a battery of diagnostic tests were made some fifteen years ago in papers by Perlmutter and Postal, but the works in question never materialized). Even a crude test might be useful; but McCloskey's actually seems quite sensitive and subtle to us. The only crudeness is the data, which involves the British English idiom family exemplified by *fuck all*, meaning 'nothing'. The editors make no apology for printing such filth; the progress of linguistic science is at stake. After all, it is a crucial — and quite fascinating — fact that if *fuck all* is replaced by *nothing* in McCloskey's data, all the crucial grammaticality judgments are different. A beautiful set of data to use when engaged in that most difficult of tasks, explaining to students in their first week of studying syntax (or skeptical members of the ordinary nonlinguistic public) that it is *not* just "the meaning" that is the explanation of all the syntactic distibution facts. Those who turn away in revulsion from such coarsely vernacular data should turn over pages 21 to 24 with their eyes tight shut to find the next paper.

Brian O'Herin's 'Wh-agreement in Abaza' is based on fieldwork on one of the least-studied languages of the Northwest Caucasian language family. Northwest Caucasian has five members: Abkhaz, Adyghe, Kabardian, and Ubykh. The last of these is on the

point of extinction, with only one aged speaker left alive, in Turkey. Some of the others are not too hard for a linguist to gain access to, having substantial numbers of speakers in Russia, in Georgia, in Turkey, in other countries of the Middle East, or in the USA (for example, there are as many as 2,000 speakers of Kabardian in New Jersey alone). Abaza is less accessible than some of the others for American linguists, having few or perhaps no speakers in the USA. It has been known to linguists, at least by name, since W. Sidney Allen's remarkable paper 'Structure and system in the Abaza verbal complex' nearly four decades ago (Allen 1956 in O'Herin's bibliography), but relatively few Western linguists have ever met a speaker or heard the language spoken, and very few have studied its syntax. O'Herin was able to gain access to speakers in Berlin, where there are Abaza-speaking Turkish citizens present in Germany as guest workers.

Abaza has a fairly spectacular phonology and phonetics (the Northwest Caucasian languages are peculiar in the richness of their consonant inventories and their minimalist vowel systems), and also a very complex verb morphology, a strongly verb-final syntax with (apparently) rightward head-to-head movement, and a rich agreement system, and an ergative case system. O'Herin observes an unusual situation in Abaza: the feature that marks *wh*-phrases is one of the agreement-relevant features like number, person, and gender. His paper here describes the situation in detail and draws some theoretical conclusions.

Peter Svenonius' paper, 'Agreement in Nahuat', is about one of the closely related languages (with variant names like Nahua, Nahuat, and Nahuatl) spoken by some of the modern descendants of the Aztecs. His focus is on the morphosyntax of the verbal agreement system, with special attention to the ditransitive verbs where an agreement hierarchy is operative. His argument is that Lapointe's Strong Lexicalist Hypothesis, which admits of no syntactic tampering with the structure of inflected word forms, provides the best basis for treating Nahuat's complex agreement prefix system with its portmanteau morphs, multiple realization of agreement with single arguments, and so on. He suggests that there is support from Nahuat for the kind of approach adopted by Pollard and Sag, under which agreement rules are operations on the SUBCAT feature that encodes the subcategorization information about lexical heads.

Kari Swingle, in 'The role of prosody in Right Node Raising', offers a remarkable study in English syntax and prosodic phonology, unifying many facts about Right Node Raising, more specifically, about the condition that the raised final constituent has to meet. Her paper presents a novel idea, one that can be summarized accurately and revealingly in a few words (though her demonstration and illustration of the validity of the idea is quite extended). Basically, what she claims is that the condition that must be met by the right-shifted material in a Right Node Raising construction (like the boldfaced string in *I conjecture, but don't assert, **that your theory is correct***) is not syntactic but prosodic: the right-shifted string must be licitly phrasable as an independent intonational phrase in its own right in the context it would be in were it not for the Right Node Raising. That is, in the example just given, a crucially necessary condition for its well-formedness is that *I conjecture that your theory is correct* can be phrased *|I conjecture |that your theory is*

correct| (where '|' marks the boundaries of the separate intonational phrases). What is very interesting about this from a general theoretical viewpoint is that it is not at all clear how one could capture Swingle's generalization in terms that are compatible with both the Principle of Superficial Constraints in Phonology (phonology only looks at surface syntactic structure, if that) and the Principle of Phonology-Free Syntax (syntax never looks at phonology). A problem for future research that is set by Swingle's paper is to determine whether we are in fact forced to relinquish one or both of these well-confirmed principles.

As of June 1993, all the authors have electronic mail addresses through which readers of this volume may get in touch with them; they are:

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(The editors also have addresses at the same machine, fully predictable from the rules that the data above exemplify; predicting them is left as an easy morphology problem for the reader.)

The editors are grateful to Sandra Chung, Director of the Linguistics Research Center, for advice and guidance in the preparation of this volume, and also wish to thank H. Andrew Black, whose expertise in TEX and LATEX assisted two or three of the authors, and whom the editors hereby congratulate on the successful defense of his dissertation, *Constraint Ranked Derivation: A Serial Approach to Optimization*, which happened to take place on the day this volume went to press.

Geoffrey K. Pullum
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Editors

Santa Cruz, June 11, 1993

Negative Concord with Obligatory Fronting in Zapotec*

Cheryl A. Black

1 Introduction

All languages have the ability to express negation. There is great variation in how negation is expressed, however. A major division exists between Multi-Negation languages, like standard English, where the effect of each negation is cumulative, and Negative Concord languages, in which a single negation reading results from multiple markings of negation. This paper focuses on Negative Concord languages.

Zanuttini (1991) and Ladusaw (1992, 1993) have noted that it is a deep property of Negative Concord languages that negation must be expressed on or above the head of the clause. This means that a negative pronoun in a complement position alone is not grammatical; a higher negation which either c-commands or is part of Infl is also required, as shown in (1a–b) for Italian. In contrast, if the negative pronoun is in subject position, as shown in (1c), it can express negation by itself, without the separate negative word.[1]

(1) a. *Mario non ha visto nessuno.*
Mario NEG has seen nobody
"Mario has seen no one."

b. **Mario ha visto nessuno.*
Mario has seen nobody
(Mario has seen no one.)

c. *Nessuno ha visto Mario.*
nobody has seen Mario
"Nobody has seen Mario."

The Zapotecan languages discussed in this paper follow not only this general restriction that negation must be expressed above the head of the clause, but also require fronting of all negative words. Thus, in a sentence meaning roughly the same as (1a), Quiegolani Zapotec requires the order shown in (2a), where the negative

*This work was supported in part by the National Science Foundation, Grant No. BNS-9021398 to the University of California, Santa Cruz, William Ladusaw and James McCloskey Principal Investigators. I am grateful for input from Bill Ladusaw on the issues discussed in this paper.

[1]The separate negative word, *non* is not allowed to be present in this case in Italian. As noted by Ladusaw (1993), Negative Concord languages vary in whether the "Infl"-negation can be overt if there is a negative word higher in the clause: Italian does not allow it, Catalan allows it optionally, and Rumanian requires it to always be overt. This fact is thus simply a parameterization of an independent constraint.

pronominal object has fronted before the verb which carries the negative marker, and the subject follows the verb in its usual position (since it is a VSO language). The order given in (2b), which has a parallel structure to (1a) with the negative object pronoun in situ, is not allowed. Further, even when the negative pronoun is the subject, it must be fronted with negation still marked on the verb, yielding exactly the same surface form in (2c) as in (2a). The ambiguity arises from the obligatory fronting coupled with the normal VSO order and the lack of case marking in the language. The meaning of a particular utterance would need to be sorted out from the context.

(2) a. *Rut*$_i$ *wii-t* *Mario* t_i .
nobody saw-NEG Mario
"Mario saw nobody."

b. **Wii-t* *Mario rut.*
saw-NEG Mario nobody
(Mario saw nobody.)

c. *Rut*$_i$ *wii-t* t_i *Mario.*
nobody saw-NEG Mario
"Nobody saw Mario."

This obligatory fronting of negative words is analyzed here as the requirement that the Negative Criterion, fashioned after the *Wh*-Criterion (May 1985, Rizzi 1991), holds at S-structure (see also Haegeman & Zanuttini 1990 and Zanuttini 1991 on West Flemish and Aissen 1992 for Tzotzil). This means that all negative words or phrases will have to move to the NegP projection (first proposed by Pollock (1989)) by S-structure and that there will be Specifier-Head agreement of the negative feature within NegP. The fact that there is only a single reading of negation in these Negative Concord languages can then be accounted for either by this Specifier-Head agreement with a single negative feature (Zanuttini 1991) or by claiming that it is the NegP projection itself, rather than any of the individual negative words, that expresses the negation of the clause (Ladusaw 1992, 1993).

A second issue which has received quite a bit of attention is the question of the position of the NegP projection with respect to the other functional projections (Pollock 1989, Chomsky 1989, Laka 1990, Zanuttini 1991, among others). Zapotecan languages only inflect for aspect marking; there is no agreement marking nor separate tense marking, so Infl need not be further divided into functional projections. It is clear, however, that NegP must be above IP both to account for surface word orders and to account for the interaction between negation and aspect marking. This position for NegP above all Infl projections corresponds to its universal semantic interpretation as having scope over tense, etc.

Finally, the data presented here shed light on the issue of whether constituent negation is the same as clausal negation. I argue that for Negative Concord languages the correct interpretation is that constituent negation is clausal negation, in the sense

of Ladusaw (1992, 1993), since both require the presence of a NegP in the clause structure. The crucial difference between the two types lies not in the scope of the negation but instead in the fact that there is an empty restriction for the negation operator in the case of 'normal' clausal negation, whereas the restriction is filled by the constituent being negated in the case of constituent negation.

The analysis is presented in two parts. In section 2, we look at the very limited or impoverished system of marking negation available in Quiegolani Zapotec, a member of the sparsely studied Southern group of Zapotecan languages, spoken mainly in Western Yautepec in the state of Oaxaca, Mexico. The basic clause structure including NegP and the obligatory fronting of negative pronouns, resulting in compliance with the Negative Criterion at S-structure, is developed for this simpler system. An account for the prohibition against Future aspect marking cooccurring with negation is given in terms of Future aspect being an Affirmative Polarity Item. Section 3 then examines the more complex negation system available in Mitla Zapotec, which is part of the Central group of Zapotecan languages, spoken in and around the city of Mitla in Oaxaca, Mexico. Mitla Zapotec has free negative words and negative quantifiers in addition to the negative pronouns. The basic analysis is shown to extend to these other negative words also, giving an account for the cooccurrence restrictions. Discussion of the interpretation of constituent negation as clausal negation for Negative Concord languages is included in section 3.3.

2 The Limited Negation System of Quiegolani Zapotec

Most Zapotecan languages have at least one free negative word as well as having a negative marker which cliticizes to the verb, negative indefinite pronouns, and negative quantifiers (Marlett 1990). Quiegolani Zapotec (hereafter QZ) is more limited in its negative markers. The normal way to express negation in QZ is via the verbal clitic *-t*, as shown in (3).[2, 3]

[2]The QZ data are taken primarily from Regnier (1989a, 1989b). Additional data were obtained during my own field work with QZ speaker Martín Hernandez Antonio.

[3]The following abbreviations are used in glossing the examples:

Aspects			Pronouns			Other Markers		
C	=	completive	1ex	=	1st exclusive	FM	=	focus
F	=	future	1i	=	1st inclusive	LM	=	loan
H	=	habitual	2	=	2nd person	NEG	=	negation
P	=	potential	3rd	=	3rd person	Q	=	question
PR	=	progressive	3a	=	3rd animate	PRT	=	participle
S	=	stative	3h	=	3rd human	POS	=	possessive
U	=	unreal	3i	=	3rd inanimate			(for alienably
			3d	=	3rd deity/baby			possessed nouns)
			3m	=	3rd masculine			
			3r	=	3rd respectful			

(3) *R-ool-t noo liber.*
H-read-NEG 1ex book
"I am not reading a book."

In addition to this negative clitic, QZ can express negation in three other ways:

a. Through use of the negative indefinite pronouns, *bet* "nothing", *rut* "nobody", *bat* "nowhere", and *nunk* "never", in combination with either a verb followed by the negative clitic or the negative existential verb *yët*,
b. By using the negative existential verb alone, or
c. By using the negative adverbial *gart* "still no", which can be combined with the negative indefinite pronouns but not with the negative verbal clitic nor with the negative existential verb.

Each of these uses is exemplified below.

The negative indefinite pronouns are always fronted, just as *wh*-words are.[4] These negative indefinite pronouns are frequently used in responses to questions, as shown in (4)–(5).[5]

(4) a. *Pa go r-laa de.*
what thing H-do 2
"What thing are you doing?"

b. *Bet r-laa-t noo.*
nothing H-do-NEG 1ex
"I am not doing anything."

(5) a. *Pa ts-a de.*
where P-go 2
"Where are you going?"

b. *Bat ts-a-t noo.*
nowhere P-go-NEG 1ex
"I am not going anywhere."

(6) gives an example of the negative indefinite pronoun *rut* "nobody" with the negative existential *yët* and (7) shows the negative existential verb used alone.

(6) *Rut yët ts-a-ron gyët g-u men.*
nobody not.be P-go-leave tortilla P-eat 3rd
"There isn't anybody to take the food for them to eat."

[4]This is similar to the use of *wh*-words as indefinite pronouns in Tzotzil. Aissen (1992) reports that they must be fronted in either usage.

[5]Note also that the negative pronoun by itself cannot be used to answer a question; the full sentence is required. See section 2.2 for more discussion of responses to questions.

(7) *Per yët dziin.*
but not.be work
"But there wasn't any work."

(8) shows the usage of the adverb by itself and (9) demonstrates that it can be combined with the negative indefinite pronoun *nunk* "never", which was borrowed from Spanish but is used according to the syntactic rules of QZ.

(8) *Por fabor gu-cheree x-kwiich noo g-an*
for favor IMP-return POS-paper 1ex P-know
"Please answer my letter so I can know
pa gos r-zak de ne gart chiid de.
what thing H-happen 2 that still.no P-come 2
what happened to you that you still haven't come."

(9) *Jacint nunk gart ts-a Jacint Pwert.*
Jacinto never still.no P-go Jacinto Salina.Cruz
"As for Jacinto, he had never gone to Salina Cruz."

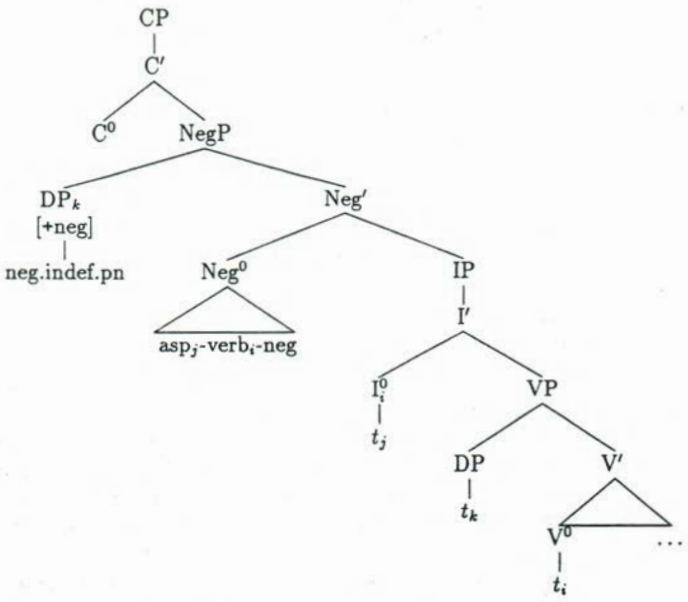
So far we have seen that QZ negation is expressed as a clitic on the verb (or as an inherently negative verb or as the negative adverb *gart*) and that negative indefinite pronouns may also express negation. These negative indefinite pronouns must be fronted and they must cooccur with verbal negation or the negative adverb *gart*. Since only one negation reading results, QZ is a Negative Concord language.

2.1 Clause Structure Analysis: NegP and the Negative Criterion

Both the required word order and the single reading of negation can be accounted for via Specifier-Head agreement, if the negative indefinite pronouns are seen as occupying the specifier of NegP at S-structure. The verbal clitic *-t*, the negative existential verb *yët*, and the negative adverb *gart* are mutually exclusive heads which must occupy Neg^0 at S-structure. This means that the basic clause structure for a QZ negative clause is as shown in (10), where the verb moves to I^0 and then to Neg^0 to carry both the Aspect marking and negation, and a negative indefinite pronoun moves to the specifier of NegP.[6]

[6]I assume here that the subject begins in the specifier of VP position, following the Internal Subject Hypothesis argued for by Kitagawa (1986), Kuroda (1988), Diesing (1990), Koopman & Sportiche (1991), McNally (1992), Burton & Grimshaw (1992), and others. In a VSO language, this leaves the specifier of IP position available as an A-Bar position.

(10) S-structure



The movements posited in (10) will clearly obtain the surface word order of a sentence like (2c) and can be straightforwardly extended to also obtain (2a), where the object has fronted. We still need an account of why (2b), where the negative indefinite pronoun has remained in situ, is ungrammatical. Rizzi (1991) claims that this can be explained by the same basic mechanism which assures that *wh*-phrases must move to the front. Rizzi expresses this generalization of the *Wh*-Criterion informally as, "Affective operators must be in a spec-head configuration with a head marked with the relevant affective feature at the appropriate level of representation." Haegeman & Zanuttini (1990) restate this specifically for negation cases as, "Each negative phrase must be in a Spec-head relation with a negative head" and note that the appropriate level of representation for the constraint is S-structure for West Flemish, though LF is the generally required level. Aissen (1992) argues that fronting of *wh*-words is also required by S-structure in Tzotzil, whether they are used as *wh*-pronouns or as negative indefinite pronouns.[7] This is the case for most Zapotecan languages as well; both *wh*-phrases and negative indefinite pronouns must front at S-structure. We can

[7]Tzotzil differs from QZ in allowing more than one negative indefinite pronoun to front, however. Interrogative pronouns are limited to one in Tzotzil as well as in QZ. West Flemish allows multiple fronting in both cases.

therefore formalize the Negative Criterion for QZ as:[8]

(11) The Negative Criterion for Zapotec

a. A negative operator must be in a Specifier-Head configuration with an $X^0_{[+neg]}$ at S-structure.
b. An $X^0_{[+neg]}$ must occupy Neg^0 at S-structure.

Further, there can be only one *wh*-word or one negative indefinite pronoun per clause.[9] The QZ equivalents of "Who saw what?" and "Nobody saw nothing." are ungrammatical, with or without fronting of the second negative or *wh*-operator, as shown in (12a–b) and (13a–b). (12c) and (13c) show how such statements might instead be expressed.

(12) a. **Chu pa gos wii.*
who what thing C-see
(Who saw what thing?)

b. **Chu wii pa gos.*
who C-see what thing
(Who saw what thing?)

c. *Pa gos wii men.*
what thing C-see 3rd
"What thing did they see?"

(13) a. **Rut bet wii-t.*
nobody nothing C-see-NEG
(Nobody saw nothing.)

b. **Rut wii-t bet.*
nobody C-see-NEG nothing
(Nobody saw nothing.)

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[8]Clause B of the Negative Criterion proposed here for Zapotec is not entirely parallel to the *Wh*-Criterion which was proposed by May (1985) and updated by Rizzi (1991) to be compatible with the theory of Comp in Chomsky (1986). This change eliminates the need to posit a null negative operator in the specifier of NegP position for cases where the negation is simply marked by the head Neg^0. A parallel refinement to clause B of the *Wh*-Criterion is also necessary for Zapotec.

I use the term 'negative operator' here to mean all XPs that are [+*neg*], extending the definition of operator given in Chomsky (1981:102) whereby all *wh*-phrases and bare quantifiers are operators, as well as null NPs in the specifier of CP. Rizzi (1991) assumes that only **moved** *wh*-phrases or negative phrases are operators, thus allowing a second phrase to remain in argument position at S-structure in English, Italian and other languages that allow it. This is the case in Isthmus Zapotec (see section 3 footnote 14.)

[9]I have no data yet to confirm the grammaticality status of *wh*-questions which also contain a negative indefinite pronoun, such as "Who saw nothing?". This analysis would allow such sentences, since the *wh*-pronoun would be in the specifier of $CP_{[+wh]}$ while the negative indefinite pronoun would be in the specifier of NegP.

c. *Bet* *wii-t* *men.*
nothing C-see-NEG 3rd
"They saw nothing."

The required relation of Specifier-Head agreement holding at S-structure (clause A of the Negative Criterion), coupled with a prohibition against adjunction of these phrases to meet this requirement, will account for the limitation to a single negative or *wh*-phrase as well as for the obligatory fronting.

The analysis of *bat* "nowhere" and *nunk* "never" (=no when) can be accounted for by a straightforward extension of the analysis given for the negative indefinite pronoun in subject position in (10). In this case, the pronoun is in a non-argument position at D-structure, most likely adjoined to VP, and moves to the specifier of NegP by S-structure. Thus, the analysis for both *bat* and *nunk* also follows from the clause structure and the Negative Criterion.

Analyses for the negative existential verb *yët* and the negative adverb *gart* remain to be given. The morphological makeup of the negative existential verb is unclear. It could conceivably be made up of three separate morphemes *y-ë-t* "P-exist-NEG", with the Potential aspect marking on the verb root, and the negative marker cliticizing to this. This account does not require any change in the analysis given above, since it would fit right into the configuration in (10). However, the 'root' *ë* is not used to indicate existence on its own (i.e. without negation; instead copular verbs *uu* "be" or *ak* "become" are used). Further, only Potential aspect marking ever occurs. A second possibility is that *yë* is an existential verb which does not take aspect marking but must cooccur with negation. Head movement of the verb to Neg^0 would account for the surface realization as *yët*. The final possibility is to say that *yët* is simply an inherently negative verb that does not take aspect marking. The basic clause structure would be the same, except that there would either be no NegP projection at all at D-structure or it would be empty. The negative verb would be forced to move to Neg^0 by clause B of the Negative Criterion, where it could then be in a Specifier-Head relation with a negative phrase, if present (as in (6)). See section 3.2 for further discussion of negative existential verbs with respect to Mitla Zapotec.

For the negative adverb *gart* "still no", I simply assume that it is base generated as Neg^0. This accounts for the fact that it cannot cooccur with either the verbal clitic *-t* or the negative existential verb, while it may cooccur with a negative indefinite pronoun. The fact that the negative indefinite pronoun precedes *gart*, as in (9), further verifies that *gart* occupies the Neg^0 position in the clause structure shown in (10).[10]

[10]Only V-to-I movement is assumed in this case.

2.2 Future Aspect as an Affirmative Polarity Item

In addition to lacking free negative words simply meaning "no", QZ also lacks negative quantifiers which could be used to negate a nominal phrase.[11] There are not any words meaning "yes" or "no" either. Positive and negative responses to Yes/No questions are formed by repeating the question, without the Question marker, with or without the negative clitic on the verb as appropriate. This is shown in (14).

(14) a. *Pe s-oo de nis.*
Q F-drink 2 water
"Will you drink water?"

b. *S-oo noo nis.*
F-drink 1ex water
"I will drink water."

c. *G-oo-t noo nis.*
P-drink-NEG 1ex water
"I will not drink water."

Note that the aspect marking on the negative response in (14c) is the Potential aspect, while the question and positive response carry Future aspect. This is a requirement; in Yes/No questions about events yet to occur and in statements about possible events (such as "perhaps..."), the Potential aspect is used with negation, whereas the Future aspect is used in positive contexts.

Potential aspect can be used in other positive contexts and other aspects can be used with negation in other negative contexts, so the clear restriction seems to be that Future aspect may never cooccur with negation. This fact could be accounted for by saying that Neg^0 selects IPs having any aspect except Future aspect. Alternatively, Future aspect could be viewed as a type of Affirmative Polarity Item, which resists being in the same clause c-command domain of negation. Either view requires that NegP be above IP in the clause structure.

3 The More Complete Negation System of Mitla Zapotec

The analysis for the negation system of Mitla Zapotec follows directly from the basic analysis given for QZ. Mitla Zapotec (hereafter simply Mitla) also has a negative post-clitic *-di* which normally attaches to the verb. In addition, Mitla has the negative indefinite pronouns *rut* "nobody" and *xhet* "nothing". As in QZ, these pronouns

[11] I found two examples in the texts (Regnier 1989a) in which the negative quantifier from Spanish *ni* "not even" is used. In each case the DP containing *ni* is fronted and cooccurs either with the verbal clitic *-t* or with *gart*. We can therefore assume that the $\text{DP}_{[+neg]}$ has fronted to the specifier of NegP, just like the negative indefinite pronouns must. So, like *nunk*, this Spanish loan word is being incorporated into QZ syntax.

must be fronted and must cooccur with the negative clitic, as shown in (15).[12]

(15) a. *Rut bi-ääd-di lo guejdx.*
nobody C-come-NEG to village
"Nobody came to the village."

b. *Xhet r-lajz-di-ni g-un-ni.*
nothing H-want-NEG-3rd P-do-3rd
"They don't want to do anything."

The analysis of the negative indefinite pronouns can be exactly the same for Mitla as that proposed for QZ.

3.1 Free Negative Words and the Negative Criterion

As noted in section 2, most Zapotecan languages have at least one free negative word. Mitla is especially blessed in this regard, having three such words. *Di* "no" is the most common. It always appears first, generally with the subject immediately following it (occupying the specifier of IP), as shown in (16a). The negative post-clitic *-di* is optional with the free negative words and is usually not used in single clause constructions. (16b) shows its use with the free negative *di* in an auxiliary construction.

(16) a. *Di Juan ch-ää Lua.*
no Juan P-go Oaxaca
"Juan will not go to Oaxaca."

b. *Di g-ac-di g-un Juan-ni.*
no P-can-NEG P-do Juan-3rd
"Juan cannot do it."

This same pattern is seen with the second free negative word *gajd* or *gad* "still not", as shown in (17).

(17) a. *Gajd-ni g-un dzuunga.*
still.not-3rd P-do work
"He still has not done the work."

b. *Gad g-ac-di ch-a'a.*
still.not P-can-NEG P-go(1ex)
"I still cannot go."

The third free negative word in Mitla is *na'c* "no". It is used mostly in negative imperatives, as shown in (18). In addition, *na'c* can be used by itself as a negative response to a question, suggestion, or command.

[12]The description and data from Mitla Zapotec are taken from Stubblefield & Hollenbach (1991).

(18) *Na'c ch-ää-lu.*
no P-go-2
"Don't go!"

None of these three free negative words can cooccur with the negative pronouns, either fronted or in situ.[13] If we say that the three free negative words must also meet the requirement of the Negative Criterion at S-structure, we have an explanation for this fact. Since all five negative words may only be licensed at S-structure if they are in the specifier of NegP, and since there is only one specifier for that projection, only one of the five words may occur in a given clause.[14]

[13]Bill Ladusaw pointed out that this is reminiscent of the incompatibility between the French negative *pas*, which seems parallel to the free negative words, and the French indefinites *personne* and *rien*.

[14]This cooccurrence restriction does not hold in all Zapotecan languages. Data from Isthmus Zapotec, one of the Eastern Zapotecan languages, provided by Steve Marlett (p.c.) from Isthmus Zapotec speakers Victor de la Cruz and Maria Villalobos, show this. Isthmus Zapotec (hereafter simply Isthmus) has the negative pronouns *giruti'* "nobody" and *gasti* "nothing". It also has a negative clitic *-di'* which normally cliticizes to the verb, though in Isthmus this negative clitic is optional and is seen as emphasizing the negation when it is used. When the negative pronouns occur alone in a sentence or with the negative clitic only, they must be fronted as shown in (i). This much follows the same analysis given for QZ and Mitla.

(i) a. *Giruti' ñeeda(-di').*
nobody U-come(-NEG)
"Nobody came."

b. **Ñeeda(-di') giruti'.*
U-come(-NEG) nobody
(Nobody came.)

Isthmus also has a free negative word *ke* "not" which also may or may not cooccur with the negative clitic *-di'*. The difference between Isthmus and Mitla comes in the fact the the negative pronouns may cooccur with *ke*. Further, when they do cooccur with *ke*, the pronouns act as any non-negative argument would; they are not required to be fronted but remain in situ (as shown in (ii)(a)) unless they are topicalized or focused (above NegP), as shown in (ii)(b). Note that (ii)(c) verifies the impossibility of placing the negative pronoun into a specifier of NegP position as well as having *ke* occupy that position.

(ii) a. *Ke ñeeda(-di') giruti'.*
not U-come(-NEG) nobody
"Nobody came."

b. *Giruti' ke ñeeda(-di').*
nobody not U-come(-NEG)
"Nobody came."

c. **Ke giruti' ñeeda(-di').*
not nobody U-come(-NEG)
(Nobody came.)

Apparently when *ke* is present the negative pronouns are not needed to express negation, so Isthmus allows them to simply be indefinite pronouns. In this respect, Isthmus is quite similar to Italian. If Isthmus only requires one negative phrase (rather than all negative phrases) to occupy the specifier

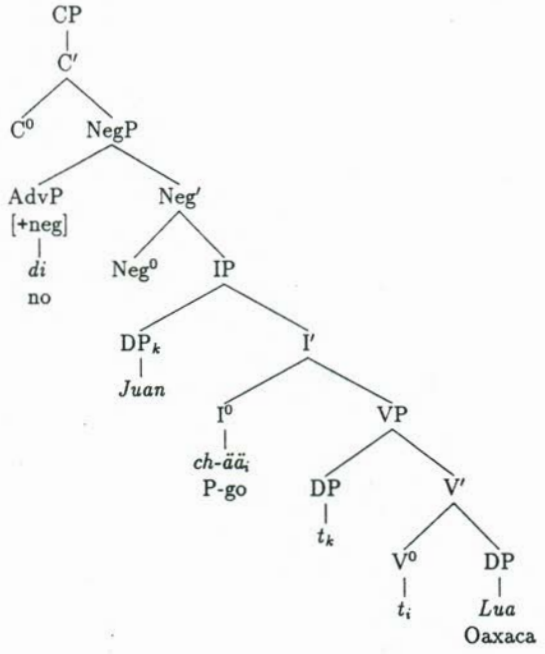
The fact that the negative clitic *-di*, which corresponds to the head Neg^0 in the analysis given for QZ, is not required with the three free negative words can be accounted for by saying that the three free negative words (but not the negative pronouns) can license a null Neg^0, following Ladusaw (1993). These negative words could be base generated in the specifier of NegP position. Further, the three negative words and the null Neg^0 only cooccur with clauses inflected for either Potential or Unreal aspects. This can be seen as selection by Neg^0 of specific types of IP (see also Zanuttini 1991), again showing that NegP must be positioned above IP.

The S-structure trees for the examples in (16) are given here to clarify the proposed analysis. In (16a), the free negative word *di* is base generated in the specifier of NegP position, licensing a null Neg^0 and thus meeting the Negative Criterion. The subject DP *Juan* has fronted to the specifier of IP position immediately following the Neg^0. This movement of the subject to the specifier of IP is always possible as a type of focus, since the position is available as an A-Bar position in a VSO language; what is unclear is what causes the subject to move up generally following *di* and *ga(j)d*. I have no explanation for this generalization except to suggest that they somehow attract the subject into a minimal government relationship, causing raising. (19) shows the S-structure for (16a).[15]

of NegP at S-structure, and if *ke* is base generated in the specifier of NegP position, it follows that no movement of the negative pronouns is required when *ke* is present.

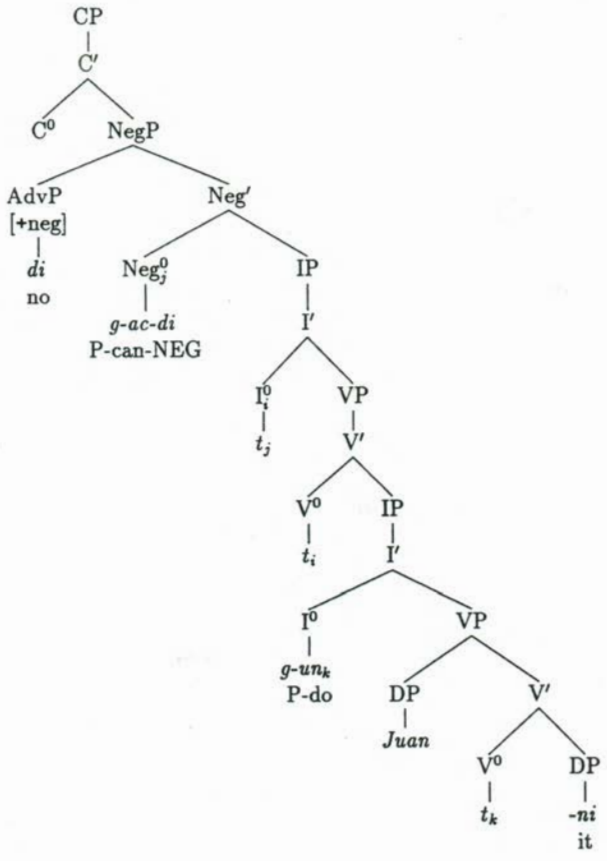
[15]I assume that only V-to-I movement takes place when I-to-Neg movement is not necessary to provide a host for the negative clitic in Neg^0.

(19) S-structure



Similarly, (20) shows the S-structure for (16b). Note that in this case the auxiliary verb has moved into Neg^0 to carry the negative clitic. Further, no movement of the subject has taken place since there is no subject in the upper clause to raise to the position immediately after the negation.

(20) S-structure



3.2 Negative Quantifiers and the Negative Criterion

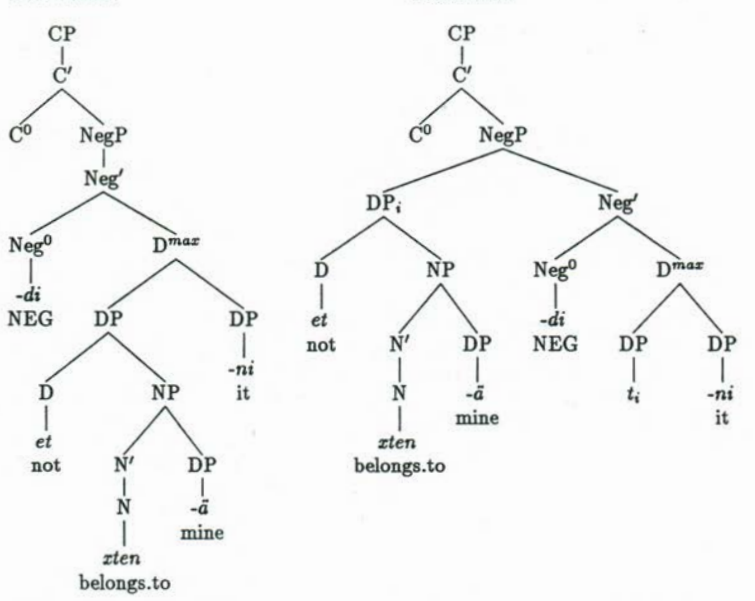
Mitla also has two types of negative quantifiers which can be used to negate a nominal phrase or an adverbial. The first of these is *et* "not". The entire phrase negated by *et* appears at the front of the clause, and the negative clitic *-di* cliticizes to the end of the fronted phrase, as shown in (21a). This fronted constituent may also be the head of a small clause itself with a copular reading. In this case the subject clitic attaches to the fronted phrase as well, after the negative marker, as (21b) shows.

(21) a. *Et ro'c-di s-ää-ni.*
not there-NEG C-go-3rd
"It wasn't there that he went."

b. *Et zten-ã-di-ni.*
not belongs.to-1ex-NEG-3rd
"It isn't mine."

These sentences can also be seen as following from the clause structure and Negative Criterion analysis given above, where *-di* is in Neg^0 at D-structure and the negative phrase must move to the specifier of NegP by S-structure to meet the Negative Criterion. The structures for (21b) are given in (22) where I assume the X^{max} over XP clause structure argued for by Koopman & Sportiche (1991).[16]

(22)



[16]Note that due to the movement required by the Negative Criterion of the portion *et zten-ã*, which does not include the subject clitic, the more usual assumption that the subject of the small clause DP is simply the specifier of DP cannot be used. In that case, *et zten-ã* would be a D' which can neither move nor occupy a specifier position.

I show the subject as a right-specifier of D^{max} in (22) since other evidence indicates that NP and DP (or D^{max}) have their specifiers on the right, whereas all other categories have their specifiers on the left.

An empty IP projection could also be assumed to be present, though not shown in (22).

The second type of negative quantifier likewise follows the pattern shown by *et*. The negative indefinite pronouns *rut* and *xhet* can also be used as negative quantifiers meaning "none" or "not one" which agree in animacy or humanness with the nominal they are quantifying. The examples in (23) show that the negated phrase is again fronted and the negative clitic has attached to the end of the nominal phrase.

(23) a. *Rut gunaa-di huij.*
none woman-NEG C-come
"No women came."

b. *Xhet bisia-yas-di bi-dxäjl.*
none bean-black-NEG C-be.found
"No black beans were found."

Also, like the case of *et* used as a copular clause without a verb, *ruti* which may be *rut+di* is used as a negative existential with human subjects and *xheti* (probably *xhet+di*) is used as a negative existential with inanimate subjects. Examples are given in (24) showing the negative existential fronted in its only allowed position.

(24) a. *Ruti bejn lo nezyuj.*
not.exist people face street
"There aren't any people on the street."

b. *Xheti guii rolizä.*
not.exist flowers house
"There aren't any flowers in the house."

Assuming that *rut* and *xhet* have the category D^0 allows a comprehensive account of their use as negative indefinite pronouns, negative quantifiers, and negative existentials. In the case of the negative pronouns, they are simply determiners which do not take a complement (see Postal 1969). As negative quantifiers they also fill the head of DP position, as do all other quantifiers in Zapotec, taking an NP complement. The requirement that the quantifier and NP must agree in humanness is accounted for by the head selecting the appropriate complement. For the case where they are used as negative existentials, we can assume a derivation parallel to (22) where the negative head D does not take a complement but does have a subject. In this case the movement could either be $D^0_{[+neg]}$ to Neg^0 via head movement or movement of the $DP_{[+neg]}$ to the specifier of NegP. The required agreement in humanness between the head D and its subject is accounted for through Specifier-Head agreement.[17]

[17]Mitla also has a negative existential verb, *yu'-di*, which is very similar to the QZ form *yët*. In the Mitla case it is clear that the *-di* is the negative clitic because the *yu'* is found alone when the negative clitic has attached to the constituent in the specifier of NegP. (See example (26c) in the next section.) Further, *yu'* can be used as an existential in non-negative contexts, as shown in (iii).

(iii) *Yu' xob nen rojb.*
exist corn in container
"There is corn in the container."

3.3 The Interpretation of Constituent Negation as Clausal Negation

The final point to consider is how the instances of constituent negation are interpreted, especially where a negative quantifier takes an NP complement. If the arguments in Ladusaw (1992, 1993) and the analysis presented here are correct, then all the clauses in Mitla and QZ which have any negative word at all count as clausal negation. Since there is a NegP projection, clausal negation is expressed.

What, then, is the difference in interpretation between clauses with negation only expressed on the head Neg^0 or negation expressed by a free negative word versus the cases where there is a negative indefinite pronoun or a full negative DP in the specifier of NegP? As Ladusaw (1993) suggests, the difference is simply that in the case where a negative DP occupies the specifier of NegP position, that DP forms the restriction for the negative operator, whereas with only negative words or heads there is no restriction on the negative operator (at least none that is codified by the sentence structure). To illustrate this, the interpretation for an example of each type of sentence (repeated from earlier) is shown in (25).

(25) a. *Rut bi-ääd-di lo guejdx.* (=15a)
nobody C-come-NEG to village
"Nobody came to the village."
Interpretation: $(\forall x{:}body'(x)) \neg [came.to.village'(x)]$

b. *Di Juan ch-ää Lua.* (=16a)
no Juan P-go Oaxaca
"Juan will not go to Oaxaca."
Interpretation: $\neg$ [*go.to.Oazaca'(Juan)*]

We could still question whether the fact that the negative marker *-di* attaches to the fronted constituent rather than to the verb indicates a difference in the scope of the negation.[18] Some relevant examples are given in (26) showing that we do get a sense of negation of the fronted constituent only, since negation is not marked on the verb.

[18]Relevant to the issue of the scope of negation is the fact that Isthmus Zapotec also has a negative marker ***kadi*** that is used to negate a constituent. It is described as narrow scope negation in Marlett (1990). *Kadi* does not cooccur with *ke*, and both *kadi* and the constituent it is negating must be fronted to the specifier of NegP, as shown in (iv).

(iv) *Kadi n-ga b-išni-be.*
not it-Dem C-do-3h
"It wasn't **that** that s/he did." or "S/he didn't do **that**."

Kadi is also used to signify narrow scope in contrastive situations, either where the contrast is included in the sentence or known by context.

(v) *Kadi yannaçi b-eda-be sinuke nege.*
not today C-come-3h but.rather yesterday
"S/he didn't come today, but rather yesterday."

The interpretation given should fit these examples, too.

(26) a. *Et ro'c-di s-ää-ni.* (=21a)
not there-NEG C-go-3rd
"It wasn't there that he went."

b. *Xhet bisia-yas-di bi-dxäjl.* (=23b)
none bean-black-NEG C-be.found
"No black beans were found."

c. *Xhet-lii-di yu' roguidoo.*
nothing-absolutely-NEG exist plaza
"There is absolutely nothing in the plaza."

However, the same interpretation strategy seems to give the correct readings for these sentences. (26a) would mean: restricting yourself to considering 'there', it is not the case that he went 'there'. Similarly, in (26b & c) the fact that the clitic *-di* is attached to the fronted constituent rather than to the verb does not change the interpretation; (26b) still means:

$$(\forall x{:}bean'(x) \wedge black'(x)) \neg [be.found'(x)]$$

The fact that the negative clitic attaches to the fronted constituent rather than to the verb can be seen instead as a prosodic phenomenon. The negative clitic may be a combination of clitic types: it normally attaches to the raised verbal head unless the constituent in its specifier position contains a branching structure. In this case, it attaches to the end of the second constituent.

4 Conclusion

We have seen that the Zapotecan languages are Negative Concord languages, expressing only a single instance of negation within a clause. This is accounted for by positing a NegP projection in the clause structure above IP but below CP. The negative clitic is analyzed as the head Neg^0. The negative indefinite pronouns are required to move to the specifier of NegP by S-structure by the Negative Criterion, fashioned after the *Wh*-Criterion (May 1985, Rizzi 1991). This analysis was shown to account for the limited negation system available in QZ.

The more complete negation system of Mitla was shown to also be accounted for by the basic analysis given for QZ. The free negative words occupy the specifier of NegP at D-structure, licensing a null Neg^0 if necessary and preventing movement of a negative indefinite pronoun or a DP with a negative quantifier to the specifier of NegP. The assumption that there is only a single specifier position available, and no adjunction allowed, predicts that only one negative phrase can be fronted. The requirement that the Negative Criterion hold at S-structure for all negative phrases predicts that none may remain in situ, thus accounting for the cooccurrence restrictions attested.

Finally, we saw that constituent negation is equivalent to clausal negation in these languages where fronting to the specifier of NegP is required. The interpretation

suggested in Ladusaw (1993), that negation is a semantic operator with the familiar tripartite structure, where the XP in the specifier of NegP fills the restriction of the operator and the complement of Neg^0 is the nuclear scope, was shown to account for the various configurations in Mitla.

Thus, both the fact that there is a NegP projection which expresses negation (Ladusaw 1992, 1993) and that the negative elements are in a Specifier-Head relationship and share only a single negative feature (Zanuttini 1991) can be argued to account for the Negative Concord reading in QZ and Mitla.[19]

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[19]The Isthmus data seem to push the scale toward Ladusaw's account, however, since a single negation is expressed even when there are negative indefinite pronouns remaining in situ. These negative indefinite pronouns are not sharing a single feature in a Specifier-Head relation because the specifier of NegP position is already full. I assume Zanuttini would argue that these negative indefinite pronouns move into a Specifier-Head relation with Neg^0 at LF, though it is then unclear why this option is not available in QZ or Mitla, and why a multi-negation reading is not also possible in Isthmus.

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A crude test for unaccusativity in English

James McCloskey

In the varieties of English spoken in the British Isles* the expressions *fuck all*, *bugger all*, *sod all* (the latter two common only in Britain, I think) function as emphatic negative quantifiers:

(1) a. They wrote fuck all this year.
b. They've done bugger all about this.
c. I know sod all about connectionism.

The examples in (1) are equivalent to the more formal:

(2) a. I've written absolutely nothing this year.
b. They've done absolutely nothing about this.
c. I know absolutely nothing about connectionism.

The first of these items may take *sweet* as a further intensifier:

(3) I've written (absolutely) sweet fuck all this year.

The phrases in question are probably best regarded as QP's, since they may also appear in pre-head position in nominal phrases:

(4) There's fuck all rice left.

These expressions are Positive Polarity Items, in the sense that they may not occur in the immediate scope of negation:[1]

(5) a. *I've not written fuck all this year.
b. *Nobody has done bugger all this year.
c. *I've never known sod all about connectionism.

* Thanks to Cathal Doherty, Michael Johnson, Geoff Pullum, Peter Sells, Steve Harlow, Ian Roberts, Moira Yip, Susan Rothstein, Alison Henry and Jane Grimshaw for their help and expert advice. Tim Stowell informs me that facts similar to those reported here also hold for varieties of Canadian English. This work was supported in part by the National Science Foundation, Grant No. BNS-9021398.

[1] As Alison Henry points out, they are Positive Polarity Items in the strong sense that even in Negative Concord dialects, which allow, for instance *Nobody did nothing* as synonymous with *Nobody did anything*, the examples in (5) remain ungrammatical.

But they are also subject to another restriction, which will be the principal focus of interest here—these QP's may not in general occur in subject position:

(6) a. *Fuck all would make us turn back now.
b. *Fuck all surrounds this house.
c. *Fuck all could destroy these walls.
d. *Fuck all would control this mob.
e. *Fuck all will ever increase my wealth.
f. *Fuck all could ever make me trust this government.
g. *Fuck all would refute this hypothesis.
h. *Fuck all around here reminds me of home.
i. *Fuck all supports this roof but a couple of planks.
j. *Fuck all could refute that argument.

Quite often, the ungrammatical examples above[2] will have near paraphrases as existentials which are fully grammatical:

(7) a. There's fuck all (that) would make us turn back now.
b. There's fuck all (that) could destroy these walls.
c. There's fuck all (that) could control this mob.
d. There's fuck all (that) supports this roof but a couple of planks.

The QP's in question occur freely in the derived subject-position of passives, however:

(8) a. Fuck all has been done about this problem.
b. Absolutely sweet fuck all was achieved by this action.
c. Fuck all has been said about unemployment in the campaign so far.
d. Fuck all was conceded during that strike.
e. Bugger all has been written about this so far.

This indicates that the restriction just discussed (that the items in question not occur in subject position), whatever its ultimate explanation, can be met "under reconstruction"—that is, as long as the QP is in an A-Chain, whose lowest element occupies a VP-internal position.[3]

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[2] Not all speakers find these examples fully ungrammatical (although a clear majority do). All speakers consulted, however, report a clear contrast in acceptability between the examples in (6) and those in (1), (9), (10) and (13). Susan Rothstein points out that a counterfactive modality combined with contrastive stress elsewhere in the sentence considerably improves examples such as those in (6):
(i) Fuck all could have controlled THAT mob.

[3] If the indefinite NP of an existential occupies the internal subject position, then the restriction will not make reference to *complement*-position, but rather to *VP-internal position*:

If this is right, then we have a diagnostic for distinguishing derived from base-generated subjects in (this variety of) English. If the position in question allows an emphatic QP of the type we are considering, then we have some reason for believing that it is a derived subject position (although the usefulness of the test is limited by the fact that it can only be applied in the case of predicates which take inanimate arguments, since the expressions in question are inherently inanimate).

It is interesting, then, that many verbs which have been identified as unaccusative[4] behave as if their subjects were derived subjects by this test:

(9) a. Fuck all ever happens around here.
b. Fuck all else grows in my garden but dandelions.
c. Fuck all emerged from those discussions that would make a body optimistic.
d. Fuck all ever changes around here.
e. Fuck all lasts around here.
f. Fuck all else came my way, so I took the job as a lavatory cleaner.
g. Fuck all ever starts on time around here.

The double argument unaccusatives considered, for instance, in Pesetsky (1990:33; 1992: 46) also behave as if their subjects were derived:

(10) a. Fuck all escapes his attention.
b. Fuck all eludes her eagle eye.
c. Fuck all matters to me anymore except staying warm and dry.

Similarly many of the unaccusative adjectives discussed by Cinque (1989, 1990) permit these expressions in their subject positions:

(11) a. Fuck all is certain anymore about funding.
b. Bugger all is clear anymore about the budget.
c. Fuck all is sure in this life.

But clearly bad are the following which are, by Cinque's criteria, unergative adjectives:

(12) a. *Fuck all is good anymore.
b. *Fuck all is relevant to this question.
c. *Fuck all is dangerous here.

(i) There's bugger all food in the fridge.

Similar remarks apply in the case of ECM constructions:

(ii) I expect bugger all to be achieved by this action.

and in other small clause contexts:

(iii) I heard fuck all music being played while I was there.

[4] See, for instance, the categorization presented in Perlmutter and Postal (1984). I assume here that unaccusative predicates are those which select only internal arguments and which as a consequence determine non-thematic subject-positions. Burzio (1976), Cinque (1989, 1990) use the term "ergative" for this class of predicates.

In this context, it is interesting to note the grammaticality of the following:

(13) a. Fuck all worries me anymore.
b. Fuck all interests him anymore.
c. Fuck all frightens them.
d. Fuck all bothers them.
e. Fuck all annoys her.
f. Fuck all amuses her.
g. Fuck all surprises her.
h. Fuck all embarasses her.

These verbs are psych-predicates which correspond to the *preoccupare* class in the typology of such predicates developed in Belletti and Rizzi (1988). Belletti and Rizzi take these predicates to be unaccusatives—verbs with two internal arguments (roughly an EXPERIENCER and THEME) and no external argument. This analysis has been challenged by David Pesetsky (Pesetsky 1990, 1992)), who argues with some force and in some detail, that the predicates in question are not unaccusative but are in fact covert causatives whose lexical semantics and thematic structure are quite different from the other unaccusative class established by Belletti and Rizzi—the *piacere* class.

If the distributional constraint discussed here is right, then there is some reason to believe that Belletti and Rizzi were in fact correct in assigning an unaccusative-like analysis to the class of predicates exemplified in (13) (though it does not of course follow that the *preoccupare* class and the *piacere* class are identical in thematic structure).

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Wh-Agreement in Abaza*

Brian O'Herin

1 Introduction

Chomsky (1981) suggests the possibility that the feature [+wh] is a ϕ-feature.[1] This paper supports and develops this idea, utilizing evidence from overt wh-agreement in Abaza.

Abaza is a Northwest Caucasian language spoken primarily in the Karachay-Cherkessk Autonomous Region (Oblast') on the north slope of the Caucasus range in Russia. Abaza is strongly head-final, with respect to both specifiers and complements, leading to a basic SOV word order. Abaza exhibits a strong pattern of overt agreement with nominal (and sentential) arguments which surfaces on all three of the basic lexical categories in the language—noun, verb and postposition. This agreement is taken to be indicative of case assignment under government. Included in each of the agreement paradigms is a marker indicating that the phrase agreed with is [+wh], a feature which overrides other features of person, gender and number. This wh-agreement is the topic of this paper.

Wh-agreement is used in four constructions in Abaza: (i) content (wh-) questions, (ii) relative clauses, (iii) shared through binding, and (iv) through specifier-head agreement within the C projection. The last case is a distinct kind of agreement, differing from other agreement in certain crucial ways.

The feature [+wh] in Abaza exhibits some unusual behavior in a number of respects. First, it patterns with regular agreement. Second, a wh-phrase may pro-drop. Finally, a maximal projection which is coindexed with a [+wh] maximal projection can, under the right circumstances, trigger wh-agreement on its own licensing head. These facts are used to argue that [+wh] is a ϕ-feature in Abaza.

*Thanks to Jim McCloskey and Judith Aissen for numerous valuable comments and suggestions at various stages in the development of this paper. Much of the research for this paper was carried out under the auspices of the Summer Institute of Linguistics in West Berlin from December 1986 to March 1990. Thanks to the Abaza speakers in Berlin for their patient help, especially S. Ferit and U. Zafer, both of whom speak an Anatolian dialect descended from Tapanta. Thanks also to H. Adjibekov and B. Hasaroqua for their generous assistance in Cherkessk, Russia in June 1992. This research was supported in part by grants from the Graduate Student Research and Travel Fund, Division of Humanities, University of California at Santa Cruz and from the Summer Institute of Linguistics.

[1] Everett (to appear) defines ϕ-features as those features which can be both inherent features (those which are inserted from the lexicon) and configurational features (those inserted into a specific morphological or syntactic configuration).

Section 2 gives background information on the basic structures of the language. This includes an analysis of the phrase structure, followed by a presentation of the agreement patterns and how these interact with the licensing of arguments. The licensing of non-arguments is also discussed briefly.

The topic of section 3 is the feature [+wh] in Abaza. In section 3.1, the basic patterns of wh-agreement are shown within a discussion of wh-questions and relative clauses. Section 3.2 proposes that the feature [+wh] is a ϕ-feature in Abaza. Certain other behaviors of the feature are shown to follow from this analysis in the remaining sections. Section 3.3 demonstrates that a wh-pronoun may pro-drop. Section 3.4 shows how the feature [+wh] may be shared between two coindexed DPs.

2 Background

Section 2.1 discusses the phrase structure of Abaza, dealing with the basic syntactic structure of noun, postposition and verb phrases. Noun phrases are licensed in Abaza in one of two ways.[2] Arguments are licensed through case assignment by a lexical head (noun, postposition or verb), a relation which is indicated by an agreement marker on the licensing lexical head. Non-arguments are licensed by an adverbial suffix (or clitic), usually **-la**, directly on the licensed XP itself. Agreement of arguments with their licensing heads is discussed in sections 2.2. The licensing of non-arguments is discussed in section 2.3.

2.1 Phrase Structure

The phrase structure of Abaza is strongly head-final, with heads of all categories following both specifiers and complements.

2.1.1 Nominal Phrase Structure

Possessors of nouns precede their heads, as seen in (1). Relative clauses likewise precede their heads, as in (2). When both possessor and relative clause are present, the possessor precedes the relative clause, as in (3).[3]

(1) a. **Ahmet y-tdzı**
A. 3sm-house
Ahmet's house

b. **a-s'iys a-ğuara**
the-bird 3si-nest
the bird's nest

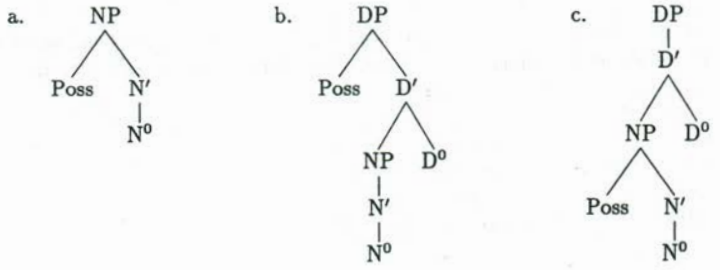
(2) **x-wasa-k'** **(y)-z-šı-z** **a-la**
three-sheep-INDEF 3p-EWH-kill-PST the-dog
the dog that killed three sheep

[2]There are a few systematic exceptions to this which are not relevant to the topic of this paper.
[3]See the appendix for a list of abbreviations.

(3) **Ahmet yı-m-tsa-wa yı-wandır**
A. AHW-NEG-go-PTC 3sm-car
Ahmet's car that doesn't work

What is of primary interest here is the syntactic position occupied by the possessor. There are two principal analyses available in current theory—the NP analysis (eg. Chomsky 1981) and the DP analysis (cf. Abney 1987). In both of these analyses, the possessor occupies a specifier position, either of N^0, as in (4a) or (4c), or of D^0, as in (4b). It is not crucial for the current discussion which of these is correct. Because of certain factors involved in case assignment, I will adopt the DP structure as in (4c).

(4)



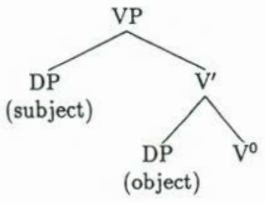
2.1.2 Postpositional Phrase Structure

Complements of P always precede the head in Abaza. For reasons not crucial to the topic of this paper, I assume the object of the postposition is a (left) sister of P^0.

2.1.3 Verbal Phrase Structure

Both subjects and objects typically precede the verb, resulting in a basic SOV word order. One structure that accounts for this order is as in (5). This makes the assumption that the subject originates within the VP (Kitagawa 1986, Kuroda 1988, see also Koopman and Sportiche 1991).

(5)



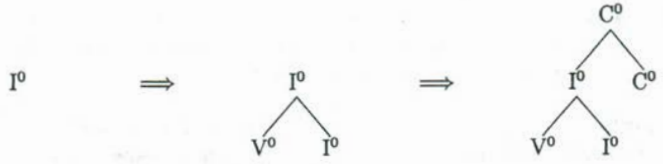
In addition to the verb root, the verbal complex in Abaza generally includes tense and aspectual material usually associated with INFL. I assume that both tense and aspect are included in a single category I, for two reasons. First, tense and aspect are sometimes combined in a single affix. Secondly, there are no forms of the verbal complex which utilize tense but exclude aspect, or vice versa. That is, if a form can bear tense marking, it can also bear aspectual marking, and if a form can bear aspectual marking, it can (or must) bear tense marking. This differs from the relationship between tense/aspect and mood, since there are forms of the verbal complex which bear tense/aspectual marking, but which exclude mood suffixes, though there are no mood suffixes which disallow tense/aspect suffixes (a natural result if mood resides in C, and C selects IP). It is quite reasonable to assume that the verbal complex is formed through head movement of V^0 to I^0. In the typical case, this movement will not be visible since it is string-vacuous.

Besides the verb root and the inflectional material in the verb complex, there is often a "mood" suffix, which bears information of the type usually associated with complementizers (C^0). Some of these include:

(6)	**-d**	dynamic indicative
	-b	stative indicative
	-ma	yes-no question
	-da	wh-question (who?)
	-ya	wh-question (what?)

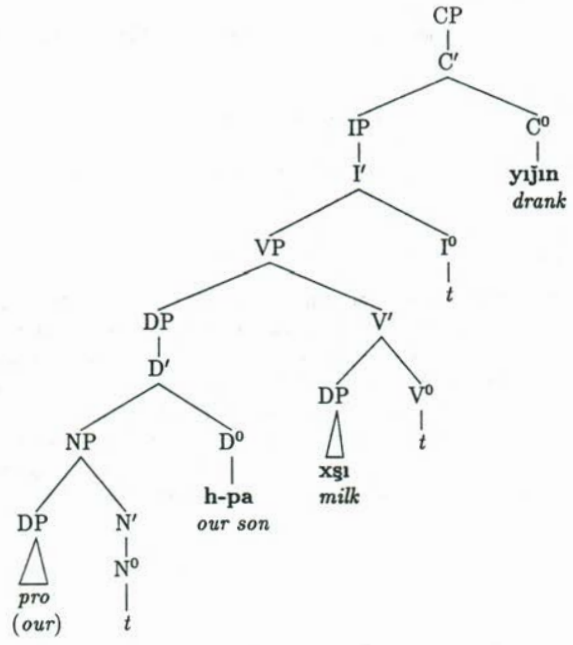
I assume, then, that the mood markers in Abaza are complementizers. This is consistent with the claim made by Cheng (1991, 26) that "Typing Particles," such as the suffixes in (6), are generated in C^0. If the mood markers are C^0s, then it is reasonable to assume I^0 to C^0 movement, motivated by the same considerations as V^0 to I^0 movement, namely that the complementizer is morphologically and phonologically included in the verb complex. Again, the movement is vacuous, since there are no (non-adjoined) structural positions between these heads. This movement may be motivated by the fact that the lexical material in I^0 and C^0 is not able to stand alone phonologically. Note that the order of suffixes, with mood always outside of tense and aspect, is consistent with this proposal, since the verb must raise first to I^0, where it is incorporated into I^0, and then into C^0, as in (7). For ease of presentation, I will include only the label C^0 in trees, but this always is shorthand for a structure as in (7) when there is a lexical verb complex dominated by it. The behavior of some classes of wh-movement, to be discussed below, will provide further evidence for this analysis.

(7)



Example (8) shows the phrase structure of a simple sentence with a transitive verb, given the above assumptions.

(8)



2.2 Agreement

We turn now to the basic agreement facts of Abaza. Agreement with a DP argument is marked morphologically on the licenser of that argument. Licensers in Abaza include the lexical categories N, P and V, as well as the functional category I. In the following sections, each of these will be discussed in turn.

2.2.1 Nominal Arguments

Agreement of a noun with its possessor is marked obligatorily, using the ergative series of agreement prefixes (see below). A possessed noun cannot have the definite prefix.[4] Examples of possessed DPs can be seen in (9).

(9) a. **a-phas l-qas'a**
the-woman 3sf-man
the woman's husband

b. **Sosrıq'ua yı-ğu-šamqa-k'**
S. 3sm-two-knee-INDEF
Sosruko's two knees

2.2.2 Postpositional Arguments

Postpositions obligatorily agree with their objects. Like nouns, they use the ergative series of prefixes.

(10) a. **awiy a-mštaxi**
that 3si-after
after that

b. {**sara**, *pro*} **s-pnı**
I 1s-at
at my house, by me

2.2.3 Verbal Arguments

The verb in Abaza morphologically marks agreement with all arguments, tense, aspect and mood, as well as negation and some directional and locative information. Tense, aspect and mood are realized as suffixes. Agreement is through prefixes, including absolutive, ergative and dative series. These differ in phonological form only in the 3rd person, so that 1st and 2nd person agreement markers are phonologically identical across all series, but each series occupies its own position in the prefix complex. Other information, such as directional and locative, tends to occur among the agreement prefixes of the verb. The basic order of the relevant verbal affixes can be seen in (11).

(11) ABS - PV - DAT - ERG - **STEM** - TNS - ASP - MOOD

[4]The definite prefix is identical to the 3rd person singular irrational (non-human) agreement marker. It is likely that the definite marker either developed from the agreement marker, or that a definite reading is one use of this marker.

2.2.4 Case Assignment

It is clear that nouns and postpositions assign ergative case to their respective arguments, since the ergative case is generally the only case involved in DPs and PPs. In the verbal complex, I will assume that (transitive) V assigns ergative case and I assigns absolutive case.[5] The following generalization can thus be made with respect to case assigning properties:

(12) A lexical head, X^0, may assign ergative case.

(13) I^0 assigns absolutive case.

I assume that case is assigned solely under government by a case assigning head. Nominals (DPs) do not bear morphological case, but case assignment is morphologically registered through agreement with each licensed argument on the case assigner. This accords with the following principle:

(14) Agreement of X^0 with YP reflects case assignment by X^0 to YP.

This principle means that in Abaza the ergative and absolutive markers in the verbal complex reflect case assignment by V and I. Intransitive verbs cause no problems, with I assigning absolutive case to the subject, and the intransitive verb having no case to assign. The potential difficulty is to ensure that in transitive verbs, the absolutive case (from I) is associated with the object, while the ergative case (from V) is associated with the subject, rather than the other way around. One possible way to account for such agreement is to make the assumption in (15):

(15) Abstract Case is assigned under government, where government is defined as in (16) and (17), following Chomsky (1986, 8).

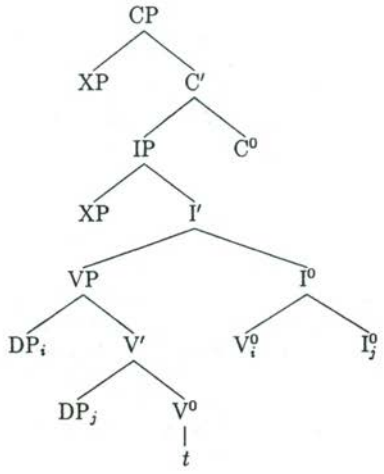
(16) α governs β iff α c-commands β and every barrier for β dominates α.

(17) α c-commands β iff α does not dominate β and every γ that dominates α dominates β.

Given the principles in (12), (13) and (15), plus the already motivated raising of V^0 to I^0, case assignment in a normal transitive verb takes place in the following way. V^0 has an ergative case to assign and I^0 has an absolutive case to assign. V^0 raises to I^0. From this structure, as in (18), V^0 assigns its ergative case to the subject in the specifier of V position, which it governs from the raised position under a strict interpretation of c-command, and I^0 assigns its absolutive case to the object of the verb. Indices in (18) indicate case assignment relationships.

[5] This is similar in spirit to the proposal by Levin and Massam (1984) for case assignment in ergative languages, but switches ergative and absolutive case assignment with respect to I and V.

(18)



The question arises why V^0 cannot assign its ergative case to its object. From its d-structure position, V^0 c-commands its object and has a case to assign, so the object should be able to bear ergative case in this configuration. I make the assumption, however, that abstract Case is not assigned until after movement.[6] Once V^0 has raised to I^0, ergative case is assigned to the subject instead. The question still remains why the verb cannot assign ergative case to its object from the raised position adjoined to I^0, since it c-commands the object as well as the subject from this position.

One possible way to rule out such a structure is through relativized minimality (Rizzi 1990). This requires the assumption, contra Baker (1988), that traces may assign case.[7] The raised V^0 cannot assign case to the verbal object since there is a

[6]There is a class of verbs, referred to as "inverted transitives" by Allen (1956), in which the agreement patterns are reversed, so that the subject is marked on the verb by the absolutive marker while the object is marked by the ergative marker. (Historically there was a meaning difference depending on the degree of affectedness of the object, which has since been lexically frozen. See Catford (1976).) The basic word order remains SOV:

(i) **S-pa sı-maç' d-a-tsha-d**
my-son my-finger 3sr-3si-bite-DYN
My son bit my finger.

I would like to argue that these "inverted" transitives result from allowing V^0 to assign its ergative case to its complement position from its d-structure position, perhaps as inherent case. As this is not relevant to the current topic, I leave it for further research. The contrast with uninverted transitives, however, provides support for the proposal made here.

[7]Tuller (1992) assumes that it is a parameter whether traces may assign case.

closer (i.e. intervening) potential governor, namely the trace of the verb itself. What, then, allows I^0 to govern the object, since I^0 is in the same structural position with respect to the object as the raised V^0? One possible solution comes from the argument by Baker and Hale (1990) that relativized minimality is sensitive to the distinction between lexical and functional heads. For our purposes, the trace of V^0, which is a lexical category, blocks government by V^0, another lexical category, but it does not block government by I^0, since I is a functional category.

Ergative case is assigned to possessors of nouns, and this is reflected by agreement on the head noun (or noun-determiner complex), following (14). Under a strict interpretation of c-command, N^0 does not govern its specifier. This necessitates the raising of N^0 to D^0, which may be motivated by the same considerations as V^0 to I^0 and I^0 to C^0 movement, namely the phonological dependence of many determiners on their associated nouns.[8] Note that this analysis places the possessor in the specifier of N position, rather than the specifier of D, so that it can be c-commanded (by either N^0 or D^0).

Under these assumptions about case assignment, postpositions may assign their ergative case directly to their complement. This is possible because postpositions c-command their complements at d-structure, and they do not undergo head raising to a higher functional head, as do nouns and verbs.[9]

If there is a third argument, such as an indirect object, it generally receives dative case. Like the ergative and absolutive cases, this is marked overtly on the verb, using an agreement series which is nearly identical phonologically to the ergative series, but which occupies a different position in the verbal complex. Since the behavior of dative agreement with respect to wh-agreement is not exceptional, I will not take a stand on the exact formulation of case assignment here.

Abaza is a pro-drop language, in that pronouns are allowed to be null (*pro*) when their features are indexed on the case assigner. Verbal agreement cannot be interpreted as some sort of (pronominal) incorporation, since verbal agreement with arguments is obligatory, regardless of whether there is an explicit DP or not.[10]

It is not unexpected that argument DPs may be null in Abaza, given the rich agreement system. Basic information is not lost when there is a null argument, since the ϕ-features are recoverable from agreement on the lexical head that licenses the null pronoun. This is consistent with the convention proposed in Rizzi (1986, 520):

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[8]Such an analysis is not possible under a simple NP phrase structure. This is one factor motivating a DP structure for Abaza specifically.

[9]Incorporated postpositions bear agreement marking. The only other incorporated heads which bear agreement marking directly are inverted transitives. Postpositions and inverted transitives share the property that case is assigned from a position identical to the d-structure position.

[10]There is at least one exception to this. If an overt direct object (and maybe an intransitive subject) immediately precedes the verb, the 3rd person singular irrational absolutive prefix may be null, and the two words seem to define a single prosodic domain (i.e. they act like a single word): **a-la a-dz-a-j-d** *The dog drank the water.* (Literally, *the-dog the-water-3si-drink-DYN*, with no apparent object agreement.)

(19) Let X be the licensing head of an occurrence of *pro*: then *pro* has the grammatical specification of the features on X coindexed with it.

As will be seen below, wh-question words can also (optionally) pro-drop. This is equally plausible, since there is a means of marking the feature [+wh] within the same agreement paradigm as the other features. There is no crucial information lost by allowing the question word to be null.

2.3 Verbal Non-Arguments

Non-arguments do not generally trigger agreement on any of the lexical heads. This is to be expected if agreement indicates case assignment under government, as assumed here, since non-arguments are not assigned case by the head to which they are adjoined. There are two ways in which non-arguments may be licensed. A (possibly closed) class of adverbs, primarily temporals such as **wjı** *now* and **waxiç'a** *today*, requires no overt morphological licensing. Other non-arguments require one of two adverbial clitics, **-la** and **-ta**. These clitics can be attached to an overt XP of any type which is in non-argument position. XPs with such an adverbial clitic can not be wh-questioned. I assume that these clitics indicate some sort of adjunction in the phrase structure, but this assumption is not crucial to the current discussion.

(20) **Sabiy-ta dı-l-ğaza-n.**
baby-AV 3sr-3sf-raise-PST
She brought him up as a baby/since he was a baby.

(21) **Ha-št'axi-la dızda y-ağus?**
1p-after-AV who AWH-pass
Who passed by behind us?

In order to wh-question an adjunct (non-argument), there is a morphological means to add an argument to a verb through incorporation. The types of postpositions which may incorporate include locatives, instrumentals, benefactives and comitatives ("with"). The incorporated licenser occurs in a unique position in the verbal prefixes between the absolutive and ergative positions, and the agreement is marked immediately to the left of the licenser using the ergative series. This incorporation may also be used without wh-questioning. Once incorporated, these XPs behave just as other XPs which are licensed by the verb, including with respect to wh-agreement, as shown in (24), where the object of the incorporated instrumental P, **-la**, is wh-questioned.[11]

[11]The verb **qumar** *play* is intransitive in Abaza. Without incorporation of **-la-**, only a single argument may be licensed (in the absolutive case). The instrument **kıımla** in (22) is completely optional, and not subcategorized for.

(22) **A-çk'uın kiım-la d-qumarı-y-d.**
the-boy top-AV 3sr-play-PRS-DYN
The boy is playing with the top.

(23) **A-çk'uın kiım d-a-la-qumarı-y-d**
the-boy top 3sr-3si-AV-play-PRS-DYN
The boy is playing with the top.

(24) **Ahı, wǰı wı-z-la-kşa-x-wa-ya?**
so now 2sm-IWH-INST-strike-ASP-PRS-WHQ
So, what will you strike (me) with now?

3 Wh-Agreement

As has been shown, Abaza lexical categories morphologically mark agreement with each of their syntactic arguments. When an argument is [+wh], the agreement with that argument is realized as wh-agreement. This wh-agreement exhibits some unusual syntactic behavior in three respects. Each of these will be discussed in turn.

Section 3.1 shows how wh-agreement patterns with other agreement as part of the basic paradigm. The structure of wh-questions is presented to demonstrate how agreement patterns. This is compared with the structure of relative clauses. Movement facts show that wh-agreement is not (solely) a case of agreement with a wh-trace, since there is wh-agreement even if the wh-phrase remains *in situ*.

Section 3.2 proposes that since [wh] patterns with other agreement, it shares the property of being a ϕ-feature with them. The other unusual properties of the feature [wh], discussed in sections 3.3 and 3.4, are shown to follow from the treatment of [wh] as a ϕ-feature. One apparent case of wh-agreement has a somewhat different distribution and behavior, and this is argued to be a result of its being based on the specifier-head relationship.

Section 3.3 presents the facts relating to the pro-drop of a wh-question word. Agreement with the rationality of the pro-dropped equivalents of *who* and *what* is obligatorily marked on the complementizer.

Section 3.4 gives data showing long distance effects of wh-agreement, in that a DP coindexed with a [+wh] DP also triggers wh-agreement on its licenser in the right syntactic configuration (i.e. under binding).

3.1 Wh-Agreement Patterns with Other Agreement

The agreement paradigms in Abaza are fully differentiated for person and number, and partially differentiated for gender and rationality. In addition, each of the agreement series paradigms (ergative, absolutive, dative) contains a separate marker indicating the feature [+wh]. For the ergative (and dative) series, this is z-; for the absolutive

series, it is **yı-**. The full ergative paradigm can be seen in (25), as agreement with the possessor of the noun **tşı** *horse*.

(25)
a.	**s-tşı**	*my horse*
b.	**b-tşı**	*your (fem.sg.) horse*
c.	**w-tşı**	*your (masc.sg.) horse*
d.	**l-tşı**	*her horse*
e.	**y-tşı**	*his horse*
f.	**a-tşı**	*its horse*
g.	**h-tşı**	*our horse*
h.	**ş-tşı**	*your (pl.) horse*
i.	**r-tşı**	*their horse*
j.	**z-tşı**	*whose horse*

The full absolutive paradigm can be seen in (26) as subject agreement on the intransitive verb **qıççа** *laugh*.[12]

(26)
a.	**s-qıççа-d**	*I laughed*
b.	**b-qıççа-d**	*you (fem.sg.) laughed*
c.	**w-qıççа-d**	*you (masc.sg.) laughed*
d.	**d-qıççа-d**	*s/he laughed*
e.	**y-qıççа-d**	*it laughed*
f.	**h-qıççа-d**	*we laughed*
g.	**ş-qıççа-d**	*you (pl.) laughed*
h.	**y-qıççа-d**	*they laughed*
i.	**yı-qıççа**	*who/what laughed?*

3.1.1 Content Questions

We turn now to the specific behavior of the wh-agreement marker with respect to the structure of content (wh-) questions in Abaza. Three factors are involved in the formation of content questions in Abaza. The licenser of the wh-questioned argument necessarily bears wh-agreement corresponding to the questioned element. A different set of mood markers than those used for indicative statements is used, indicating a content question. There is optionally the movement of the question word to a designated position.

[12]The absolutive wh-prefix is identical to the absolutive 3rd person singular irrational and 3rd person plural prefixes, both of which are also **y-**. This is potentially ambiguous only if the agreeing XP could be 3rd person singular irrational (non-human) or 3rd person plural, and even then the wh-marker can often be distinguished by the stress pattern, as in (26) (the epenthetic vowel in the prefix in (26i) is due to stress factors). O'Herin (1992) shows how this distinction can be derived from differing foot structure in the lexical entries of these prefixes.

Any argument showing agreement on the verb may be wh-questioned, regardless of which series registers its agreement. There may, however, be no more than one wh-agreement marker on a single licenser. The [+wh] element in each paradigm differs from the other members of the paradigm both in form and in the specific features shared with the DP it agrees with, i.e. either person and number, or [+wh], which overrides person and number. For example, the argument of a verb corresponding to the absolutive series must be indexed on the verb with the relevant prefix based on person and number unless the feature [+wh] overrides it, in which case it is marked only as "[+wh] absolutive".

The word **dızda** is used to question *who?*.[13] It may question any argument position, that is, any position licensed by a lexical head and showing agreement on that head. Examples (27) and (28) show **dızda** questioning a transitive subject. Note that the subject occurs after the object (**skitab**) in (27), and after the object (**afaçığu**) and location modifier (**afincan apnı**) in (28). As will be shown below, movement is to a position right-adjoined to VP.

(27) **S-kitab dızda y-na-z-axu?**
1s-book who 3si-PV-EWH-take
Who took my book?

(28) **A-façığu a-fincan a-pnı dızda y-na-z-axu?**
the-sugar the-cup 3si-at who 3si-PV-EWH-take
Who took the sugar out of the cup?

Example (29) shows an object being questioned (the prefix **ts-** *with*, which, following Baker (1988), I take to be an incorporated P, adds an argument to the otherwise intransitive verb **tsa** *go*).

(29) **Dızda dı-z-ts-tsa**
who 3sr-IWH-with-go
Who did she go with?

The word **yaç'ıya** is used to question *what?*.[14] Example (30) shows **yaç'ıya** as a subject, while example (31) shows it as an object.

[13]Historically, **dızda** apparently is derived from a verb of being. Thus there is a possible parsing into **dı-z-da** *3sr-EWH-WHQ*, with the verb root itself having been lost. It may be that examples with an overt **dızda** have a sort of clefted construction, as in *who is it who...?*.

[14]Like **dızda**, **yaç'ıya** can be viewed, historically at least, as a sort of cleft construction: *what is it that...?*. It breaks down into the absolutive wh-marker, **y-**, one of the roots *be*, **aç'ı**, and the wh-question mood suffix (=complementizer), **-ya**. Synchronically, there is still a distinction in the "what" versions of this question word, giving **zaç'ıya** with the ergative wh-marker, **dzaç'ıya** with the ergative wh-prefix plus a (non-wh) 3sr absolutive prefix, **d-**, and **aç'ıya**, with no prefixes. Except for the fact that **aç'ıya** seems to be identificational, the distribution of these is unclear to me at present. It seems that the other forms only occur when they function verbally, rather than nominally (hence the productive verbal agreement pattern). For example:

(30) **Y-ğay-wa a-skuış yaç'ıya xa-waş?**
AWH-come-PTC the-year what happen-FUT
What will happen next year? (lit. *the coming year*)

(31) **A-s'la a-pnı yaç'ıya yı-w-ba-z?**
the-tree 3si-at what AWH-2sm-see-PST
What did you see in the tree?

We turn now to a discussion of the location of the landing site of wh-question words, which I take to be a focus position. This is reasonable, since what is questioned is what the sentence is about. Hungarian likewise has a position which can be analyzed as a focus position immediately before the verb for wh-question words (see Horvath 1981). There are three possible ways to account for something in this position: movement to a structural position in the tree, movement of non-focussed elements away from this position, and adjunction. These will each be discussed in turn.

If the focus position is a non-adjoined position, the only possibility is the specifier of I, which must then actually be to the right of the head. This requires that the subject be internal to the VP (so that the specifier of I will be empty to receive the focussed XP), and that V^0 raise through I^0 to C^0, both of which I already assume. There are various reasons to reject this option, however. One is the strong preference for heads to be final in Abaza. Except for a few adjoined structures, all heads are final with respect to both complements and specifiers. This is consistent with the claim made by Kayne (1992) that specifiers are universally on the left.[15]

An alternative account of this word order is that the focused (wh-) word actually remains *in situ*, and the remaining XPs within the VP scramble out to the left of it. Since the subject may also occur in this focussed position, the landing site of this scrambling would have to be outside of the VP, either adjoined to IP or VP, or else in various specifier positions of functional heads.[16]

Abaza has relatively free word order in some respects, but I would argue that free scrambling of arguments is not a productively available option. In (32), for example, **ansımşgiy** *every day* and **labala** *with a stick* are adjuncts. The word

(i) **Izmir dzaç'ıya yı-r-ba-kua-z?**
I. who AWH-3p-see-PL-PST
Who did they see in Izmir?

(ii) **A-phas lı-xıız aç'ıya?**
the-woman her-name what
What is the woman's name?

[15]Kayne (1992) also claimed that there is no rightward head movement, a claim which is falsified if the structure proposed here (V^0 to I^0 to C^0) is correct.

[16]This latter option would require the adoption of a number of such functional heads (e.g. TP, AgrP, etc.) in order to provide an adequate number of specifier positions.

order possibilities allow the temporal modifier of VP, **ansımşgiy**, to occur before the subject, **açk'uın**, as in (33a), or after the object, **ala**, as in (33b). The instrument, **labala**, may occur between the subject, **açk'uın**, and the object, **ala**, as in (33c). The relative ordering between the adjuncts is free within these limitations. The relative order of subject and object is fixed. The object may not precede the subject. Additionally, the verb complex must occur last. These possibilities can be accounted for by allowing the adjuncts to adjoin freely within the verb phrase.[17]

(32) a. **A-çk'uın ansımşgiy a-la laba-la d-a-s-d.**
the-boy daily the-dog stick-AV 3sr-3si-hit-DYN
The boy hit the dog every day with a stick.

(33) a. **Ansımşgiy açk'uın ala labala dasd.**
b. **Açk'uın ala ansımşgiy labala dasd.**
c. **Açk'uın labala ansımşgiy ala dasd.**

In sentences in which the subject is wh-questioned, the permissible orderings are slightly different. Either the subject **dızda** *who?* occurs first in the sentence, as in (34a), or it occurs to the immediate left of the verb, as in (34b). Again the relative ordering among the other elements is free. This freedom of order can be accounted for by the same means that allows various word orders in non-question sentences, namely allowing adjuncts to freely adjoin at different places within the VP.

(34) a. **Dızda ansımşgiy ala labala yaswa?**
b. **Ala ansımşgiy labala dızda yaswa?**

There is another problem with a scrambling account, in that when there are layers of verbs, the focus position is (or at least may be) to the immediate left of the rightmost (highest) verb, as in (35).

(35) **Y-tsa-nıs dızda yı-z-taqı-z?**
AWH-go-INF who 3si-EWH-want-PST
Who wanted to go?

Except for the possible case of the extraposition of relative clauses (always to the right), any scrambling in Abaza appears to affect only DPs, PPs and adverbials,

[17] In order to keep the instrument from coming before the subject, it can be restricted to V' and V^0 as adjunction sites, while the temporal can adjoin to VP, V' or V^0. This is a violation of the claim by Chomsky (1986) that maximal projections adjoin only to other maximal projections, but compare the treatment of subject adjunction given in Chung (1990), where the various word order possibilities are achieved by allowing the subject NP to adjoin to V^0, V' or VP.

but not verb complexes.[18] Therefore **dızda** *who?*, the focused element in (35), must have moved to its surface location, since the verb complex (or IP) **ytsanıs** *who to go* cannot have moved to the left of it. As a subject of **yıztaqız**, **dızda** must have started to the left of **ytsanıs**, since the specifier position of this verb is to the left of the complement position. Therefore, we are forced to an analysis of focus in which the focussed element moves.

Among the possibilities for the landing site of moved wh-words, are a number of adjoined positions. These include right-adjunction to the rightmost sister of V^0 (or to the specifier of V if there are no complements), right- or left-adjunction to V^0, right- or left-adjunction to I^0, left-adjunction to C^0, or right-adjunction to V', VP, I' or IP.

Of these possible landing sites, adjunction to an argument inside VP can be rejected for a variety of reasons. There is not always a complement to the verb, in which case there would not always be an acceptable adjunction site. If adjunction were allowed to be to any XP within the VP, there is no elegant way to rule out adjunction to the subject (specifier) when there is an object (complement). Additionally, I have found no evidence that would indicate a treatment of the focussed DP as a constituent with the relevant XP. Besides these language specific reasons for rejecting adjunction to an argument inside a VP, McCloskey (1992) argues for the Adjunction Prohibition, which disallows adjunction to argument categories. Furthermore, downward movement is less preferable in general than upwards movement, since the trace cannot then be antecedent governed.

Adjunction to any of the heads, V^0, I^0 or C^0, is likewise a less than desirable option due to Chomsky's (1986; following Emonds 1976)) claim that adjunction of maximal projections may only be to other maximal projections and that only heads (X^0) may adjoin to heads. Adjunction to V' or I' has similar drawbacks. This leaves adjunction to VP and adjunction to IP as the best possibilities for the landing site.

If the focus position is adjoined to IP, then I^0 to C^0 movement must apply across this adjunction site. Likewise, if the focus position is adjoined to VP, then V^0 to I^0 movement must move over the adjunction site. There is evidence that head movement across something adjoined to IP is not a valid option, while head movement across something adjoined to VP is allowed. Consider the following English examples:

(36) **Every year the government goes deeper into debt.**
***Does$_i$ every year t_i the government t_i go deeper into debt?**

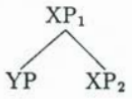
[18] **Y-tsa-nıs** is clearly verbal. The suffix **-nıs** is (one of) the infinitival suffix(es), and its verbal character can be seen in that it allows the full range of verbal agreement, including absolutive. A verb root with the true nominalizing suffix **-ra** can bear only an ergative case marker, like a noun.

(i) **Abaza-bizşa y-sı-rdır-nıs s-taqa-b.**
A.-language 3si-1s-learn-INF 1s-want-ST
I want to learn Abaza.

(37) **Fischer was$_i$ often t_i invited to play chess.**

Lasnik and Saito (1992) propose to account for this observation in the following way. First they assume (p. 85) that in an adjunction structure as in (38), both XP_1 and XP_2 count as separate maximal projections for the purpose of subjacency.

(38)



Furthermore, they note that VP is not a barrier. This is accounted for under their definitions of barrier, as in (39), which does not utilize the notion of blocking category, and subjacency, as in (40) (Lasnik and Saito, 1992, p. 87). Crucially I^0 must L-mark its VP complement.

(39) γ is a *barrier* for β if

a. γ is a maximal projection,
b. γ is not L-marked, and
c. γ dominates β.

(40) β is *subjacent* to α if for every γ, γ a barrier for β, the maximal projection immediately dominating γ dominates α.

Where there is adjunction to IP, C^0 does not L-mark its IP complement, so neither of the IPs is L-marked. The lower IP is thus a barrier for the movement of I^0 to C^0, since it is a maximal projection, it is not L-marked, and the XP immediately dominating it (the higher IP) does not dominate C^0.[19]

On the other hand, where there is adjunction to VP, I^0 L-marks its VP complement. Lasnik and Saito do not explicitly state that this L-marking is shared by the two (separate) VP nodes, but it is reasonable to assume that this is the case.[20] Neither VP will be a barrier, then, under the definition in (39), since both are L-marked.

[19]If the motivation for I^0 to C^0 movement is only phonological, i.e. it only occurs when there is overt material in C^0 that is phonologically dependent on the verb complex, then it is possible to claim that the verb has raised only as far as I^0 in some of these constructions. In that case, the fact that I^0 to C^0 movement violates subjacency is a moot point. However, word order then rules out adjunction to IP, since the focussed XP would occur to the immediate right of the verb complex instead of to its left.

[20]Otherwise VP would be a barrier in these structures, counter to their working hypotheses, as well as to the facts in English, as shown in (i), where an DP has been adjoined to VP (through heavy NP shift), yet there is V^0 to I^0 to C^0 movement.

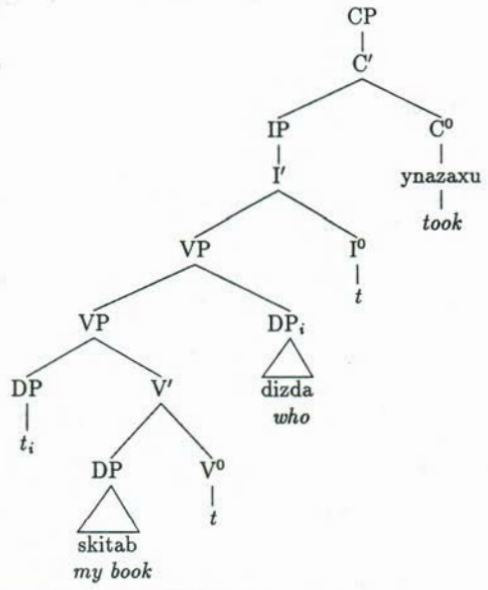
(i) Has Steven put in the tank the ugliest and most vicious of the tropical fish?

Furthermore, every adjunction structure would be a barrier for movement across it if the L-marking

Movement from V^0 to I^0 therefore does not violate subjacency. Movement from I^0 to C^0 also is allowed, since the IP is the only intervening barrier, but the XP dominating it (CP) also dominates the landing site of the movement (C^0).

This leads us to adopt adjunction to VP as the landing site of this type of (wh-) focus movement. The possible positions for wh-phrases in Abaza, then, are (i) *in situ*, (ii) adjoined to VP, and (iii) in the specifier of C (to be discussed below for the *why*-interpretation of **yaĝ'ıya**).[21] There is interesting cross-linguistic confirmation of this combination of positions found in Tuller (1992), where focus constructions (which include wh-phrases) in Chadic languages are analyzed as occurring in exactly these three positions. Her motivation for adjunction to VP is that a feature [FOCUS] is assigned by I^0, and adjunction to VP provides a position where I^0 can assign this feature through government. The resulting structure for (27) can be seen in (41).

(41)



of the higher XP were not shared with the lower XP, since the lower XP would never be L-marked, and the XP immediately dominating it would not dominate the landing site of the moved element.

[21]It is theoretically possible that a questioned argument could move to the specifier of C position. An observation in support of this possibility is the fact that adverbial elements may not occur to the left of a questioned subject as freely as to the left of a non-questioned subject. I take this to be either a gap in my data or a stylistic preference, since it is clear that no object may move to the sentence-initial position. Therefore, I assume the specifier of C is reserved for those question words which are base generated there.

3.1.2 Relative Clauses

The verb of the relative clause bears one of several tense/aspect combinations which are distinct in some ways from non-relative clauses (although one set of patterns is the same as for participles). Mood is not marked on the verb complex in relative clauses. I take this as evidence that the verb in relative clauses raises from V^0 to I^0, but not from I^0 to C^0. This mirrors the pattern found in languages such as German, in which I^0 to C^0 movement is impossible in relative clauses.[22] Further evidence will be seen below that supports an analysis of movement only this far.

The verb in a relative clause, like all case-assigning heads, obligatorily agrees with all its arguments. This includes the relativized argument, which bears the feature [+wh]. The agreement patterns here are identical to those found in wh-questions. Following are some examples:

(42) **y-awı-y-štı-z a-haqu-duw**
AWH-PV-3sm-throw-PST the-stone-big
the big rock that he threw

(43) **Z-tdzı yı-w-xuağ-z a-qas'a d-aba-ta-w**
EWH-house 3si-2sm-buy-PST the-man 3sr-where-be.in-PRS
Where did (does?) the man whose house you bought live?

(44) **Z-aba Ankara y-tsa-waş a-çk'uın d-çımazğua-xa-d**
EWH-father A. AWH-go-FUT the-child 3sr-sick-become-DYN
The child whose father is going to Ankara became sick.

(45) **Z-phuıs y-pa yı-z-zak-wa a-qas'a awiy d-l-ızdzırğui-y-d.**
EWH-wife 3sm-son 3sm-EWH-hit-PTC man s/he 3sr-3sf-hear-PRS-DYN
The man whose wife his son hits hears her.

There are two major differences between relative clauses and wh-questions. One is that the relativized argument can never appear overtly. I take this to indicate movement of a null relative operator originating in the argument position to be relativized.

[22] If German verb second phenomena (in independent indicative clauses) can be accounted for by movement of I^0 to C^0, then the inability of the verb to occur verb second in relative clauses (and other dependent clauses) is an indication that there is no I^0 to C^0 movement. Thanks to Jim McCloskey (p.c.) for pointing out these facts to me.

(i) **Ich habe dem Mädchen das Buch gegeben.**
I gave the book to the girl.

(ii) **Das Mädchen, dem ich das Buch gegeben habe, ...**
The girl to whom I gave the book...

(iii) ***Das Mädchen, dem habe ich das Buch gegeben, ...**

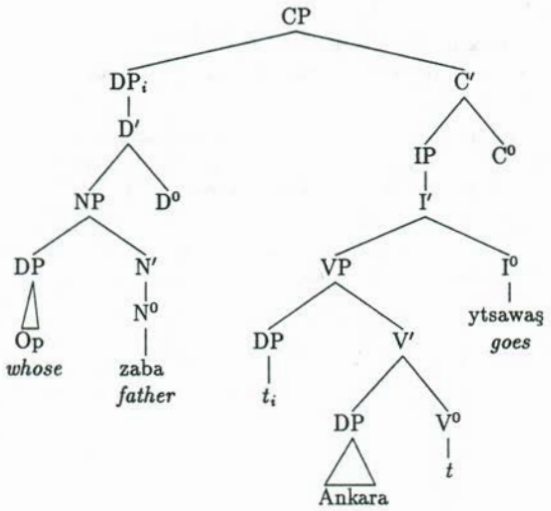
(iv) ***Das Mädchen, dem ich habe das Buch gegeben, ...**

The second difference between relative clauses and wh-questions is that this null relative operator moves to the specifier of C position in the relative clause. Evidence for this movement can be seen in examples like (45), where the relative operator drags along a head N (**zphuıs**) from object position past the subject (**ypa**) to the specifier of C at the left of the clause. This presumably also happens in (43) and (44), but vacuously. Example (46) shows a pied-piped postposition. Huang (1982) suggests the possibility that the relativization process in Chinese likewise involves the movement of an abstract operator.

(46) **Zı-was'a xşı yı-z-ta-s-ča-z fincan dızda yı-pı-z-çı?**
EWH-in milk 3si-IWH-in-1s-pour-PST cup who 3si-PV-EWH-break
Who broke the cup into which I had put the milk?

The structure of the relative clause from (44) is as in (47):

(47)



Here the relative operator is coindexed with the head noun **açkuın** *boy* (not shown in (47)). It originates as the possessor of the subject, hence in the specifier of the subject NP. As a relative operator, it moves to the specifier of C position of the relative clause. Because its head noun cannot be stranded,[23] it is pied-piped along with the operator to the specifier of C position. The verb of the relative clause shows

[23]Neither may postpositions be stranded in Abaza. This may be due to the Left Branch Condition of Ross (1967).

agreement with its subject. As a simple intransitive, **tsa** *go* takes the absolutive case for its subject. The agreement here is wh-agreement. This makes it appear that the feature [+wh] has percolated up from the specifier of the subject NP to give the whole DP the feature. Such a "percolation" happens regularly with [+wh] possessors, but only with possessors (i.e. not with postpositions or verbs).

One difference between the structure of DPs and PPs, as discussed above, is that the possessor is in a specifier position while the object of a postposition is in a complement position. This structural difference between DP and PP can account for the agreement pattern difference seen here. If [+wh] is a feature which is shared via specifier-head agreement, a [+wh] possessor will both trigger wh-agreement on the licensing head (noun or noun-determiner complex) and pass the feature to that head. The object of a postposition, which is in complement position, will not share the feature [+wh] with the postposition, although wh-agreement will appear on the postposition as a result of its licensing a [+wh] argument.[24]

3.1.3 Agreement with a Wh-Trace

Chung (1982) and Chung and Georgopoulos (1988) discuss a phenomenon in Chamorro and Palauan which they call wh-agreement. This agreement is only with a wh-trace, and not with a wh-word itself. The wh-agreement pattern found in Abaza is fundamentally different from the wh-agreement in Palauan and Chamorro. First, wh-agreement in Abaza is part of the pervasive regular agreement paradigm, behaving according to the same pattern as other agreement.

Second, wh-agreement in Abaza occurs whether or not there is movement. As is shown in section 3.1.1, wh-words in Abaza may optionally move to a (focus) position to the left of the verb, or remain *in situ*. In both cases wh-agreement is obligatory. Example (48) shows a case where the subject **dɪzda**, is questioned, but it is still to the left of the object, **kitab**, and thus *in situ*. Examples (49) and (50) show the optionality of focussing the questioned subject **dɪzda** *who?*. In both cases the wh-agreement pattern is identical.

(48) **Dɪzda kitab (y)-z-ɪma-m?**
who book 3si-EWH-have-NEG
Who doesn't have a book?

(49) **Y-tsa-nɪs dɪzda yɪ-z-taqɪ-z?**
AWH-go-INF who 3si-EWH-want-PST
Who wanted to go?

[24]The feature [+wh] is apparently not shared between a verb and its subject. There are two possible accounts of this. One is that the feature [+wh] is incompatible with [+V]. The second is that the subject is adjoined to VP (or is outside VP, but within V^{max}), as proposed by Koopman and Sportiche (1991), in which case there is no specifier-head relation through which to share the feature.

(50) **Dızda y-tsa-nıs z-taqı-z-şa yı-z-ba-w-z?**
who AWH-go-INF EWH-want-PST-NFF 3si-EWH-see-PRS-PST
Who seemed to want to go?

Even though wh-agreement with a wh-trace can occur in Abaza, this differs from that in Palauan and Chamorro in that it is not a special agreement used only to indicate the presence of a wh-trace. The feature [+wh] agrees with the licensing head in the same way that other features agree with their licensing heads, even when moved, for example by raising, as in (51). Any trace left in an argument position must provide access to the features of the moved XP to the licensing head, regardless of whether the feature [+wh] is present or not.[25]

(51) **A-qas'a dı-çaja-rnıs y-taqı-z-şa y-ba-wn.**
the-man 3sr-speak-INF 3sm-want-PST-NFF 3sm-see-IMPF
The man seemed to want to speak.

3.2 [wh] as a ϕ-feature

The feature [wh] has been shown to pattern with other agreement features in Abaza. These other features comprise a set including at least person, number, gender and rationality. These are the types of features generally assumed to be ϕ-features. Chomsky (1981, p. 330) listed several of the ϕ-features, and included the possibility that [wh] is among them.

(52) The set ϕ includes person, number, gender, Case, and perhaps other features (e.g., perhaps [*wh*-]).

I propose that the feature [wh] is, in fact, treated as a ϕ-feature in Abaza.[26] Besides patterning with other agreement, two facts about its behavior support this analysis. First, wh-agreement may license pro-drop of a corresponding wh-phrase. This is a natural result of the feature's membership in the set of ϕ-features, since these are what allow pro-drop. Second, a wh-phrase shares the feature [+wh] with a coreferent DP under the right structural configuration. These behaviors of the feature [+wh] will be discussed in sections 3.3 and 3.4.

[25]Note that all the features of the raised DP are recorded in the trace. This can be seen in that the ergative series, which is used on **taqı** *want* and **ba** *seem*, is concerned with the gender (masculine, feminine, inanimate) of 3rd person singular arguments, while the absolutive series, used on **çaja** *speak*, is concerned with the rationality of 3rd person singular arguments. The features of **aqas'a** *man*, [+masculine] and [+rational], are all correctly realized in their respective agreement series.

[26]Thanks to Jim McCloskey for suggesting this possibility.

3.2.1 Specifier-Head Agreement of *yaç'ıya*

Before moving on to the behavior of the feature [+wh], we will look at a case of what appears to be wh-agreement as discussed in section 3.1. This is involved in agreement with **yaç'ıya** with the interpretation as *why?*, the behavior of which differs from that of **yaç'ıya** under the interpretation as *what?*. I argue that this is a case of specifier-head agreement between **yaç'ıya** in the specifier of C and C^0 itself.

Abaza uses **yaç'ıya** to question both *what* and *why*. There are two factors which differentiate the two uses. The first of these is the order of **yaç'ıya** in the sentence. If it is questioning "why?", then it necessarily occurs sentence initially, as in (53)-(55). If it questioning "what?", then it occurs either *in situ* or to the immediate left of the verb, as in (30) and (31) above.

(53) **Yaç'ıya a-tdzı ş-(z)-z-na-m-şıl?**
why the-house 2p-SWH-can-PV-NEG-enter
Why weren't you able to enter the building?

(54) **Yaç'ıya rıs'a-gie šarda ş-zı-nı-m-xa-wa?**
why more-even hard 2p-SWH-PV-NEG-work-PRS
Why don't you work (even) harder?

(55) **Yaç'ıya sahat ağba r-pnı a-pqa-la y-z-ğay-z?**
why hour eight 3p-at 3si-before-AV 3p-SWH-come-PST
Why did they come before eight o'clock?

The second differentiating factor between the two uses of **yaç'ıya** is the agreement. The "what" interpretation always triggers wh-agreement in the prefix series corresponding to the argument which is questioned. This can be seen in the absolutive wh-agreement markers (AWH) in (30) and (31) above. Note that the intransitive verb in (30) uses absolutive agreement with the subject, where the transitive verb in (31) uses the absolutive series to agree with the object.

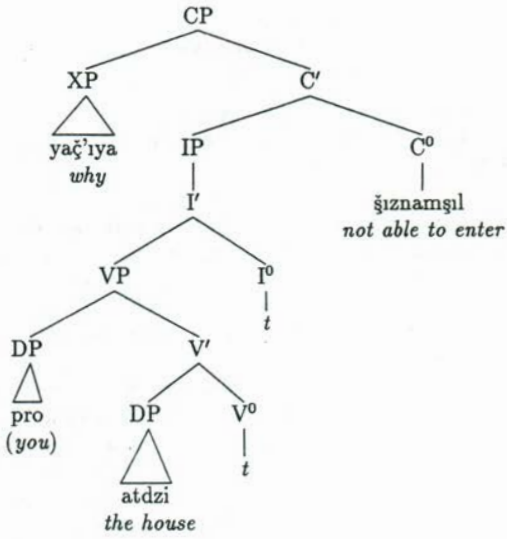
The "why" interpretation of **yaç'ıya** triggers a different sort of wh-agreement on the verb. This agreement (glossed SWH) is in addition to the prefixes for each argument, so there is essentially an "extra" agreement marker in these cases. Such an agreement marker is not a part of any regular agreement pattern, since it does not alternate with any other agreement markers, and is used only in this special case.

Rizzi (1990, 46-51) proposes to treat wh-reason adverbials as base-generated in the specifier of C position. This eliminates the problem of how the trace of these adverbs gets to be properly head-governed, since there will be no clause-internal trace. If it were base-generated lower than in the specifier of C, there is a question as to what would head-govern it. It would have to be outside the VP, since reason adverbials modify the VP. The V^0 could not then head-govern the trace. Rizzi also shows that there are difficulties with getting any of the functional heads to govern the trace of a moved reason adverbial. A second piece of evidence Rizzi uses to support

this proposal is that *pourquoi*, the reason adverbial in French, does not behave like other wh-phrases (including adverbials modifying VP). Other adverbials may be left *in situ*, but *pourquoi* cannot, and *pourquoi* may not trigger stylistic inversion like the other adverbials may. He argues that base-generation of *pourquoi* in the specifier of C adequately and correctly accounts for this behavior.

The analogous question word in Abaza, **yaǧ'ıya**, *why?* likewise behaves differently than other question words in Abaza, with respect to both position in the sentence and agreement. Following Rizzi's proposal, I propose that **yaǧ'ıya** is base-generated in the specifier of C position. This accounts for the requirement that it always occur at the left edge of the sentence, since there is no (non-adjoined) position to the left of the specifier of C. The "extra" agreement can be viewed as a case of specifier-head agreement. This provides evidence that V^0 has raised through the functional projections all the way to C^0, since this special agreement shows up in the verbal complex. The structure of (53) is as in (56):

(56)



Note that in relative clauses, if the relative operator moves to the specifier of C position, it stands in the same relationship with C^0 as the reason interpretation of **yaǧ'ıya**, which is base-generated there, namely the specifier-head relation. In the case of **yaǧ'ıya** *why*, there is a special agreement which shows up in the verb complex which is not part of the argument structure. There is, however, no such agreement on the verbal complex in relative clauses. This follows, though, given that there is

no I^0 to C^0 movement in the relative clause. With no I^0 to C^0 movement, the verbal complex is not in C^0, so it does not stand in the specifier-head relationship with the relative operator in the specifier of C.[27] This allows specifier-head agreement within the C projection to be exceptionless.

3.3 Pro-drop

If the feature [+wh] is a ϕ-feature in Abaza, another expected phenomenon is that wh-phrases behave the same as non-wh phrases with respect to pro-drop. As mentioned above, Abaza allows pro-drop of a phrase if it shows agreement on a licensing head. This is true also of the [+wh] pronouns **dızda** *who?* and **yaç'ıya** *what?*.

The question word **dızda** is itself subject to pro-drop, with the wh-agreement marker indicating the [+wh] nature of the *pro*. This can be seen in (57). Note that this requires the use of the WHQ mood marker, **-da**, which only shows up when there is no overt question word.[28] Furthermore, when **dızda** is present, there is no overt mood marker in the verbal complex.[29]

(57) **Ariy kitab yı-z-ç'u-w-da?**
this book 3si-EWH-possess-PRS-WHQ
Who owns this book? (=*Whose book is this?*)

Under the assumption made here that mood resides in C, this means that **-da** is a [+wh] (question) complementizer that agrees with the questioned word in rationality (i.e. *who?* as opposed to *what?*). A corresponding [+wh] question complementizer **-ya** agrees with a null irrational questioned word (*what?*).[30] An important question is how C^0 has access to the relevant features of rationality from the questioned element. There are at least two possibilities.

The first possibility is that the [+wh] *pro*, which must be present in this construction, obligatorily moves to the specifier of C. The relevant features can then be shared via the specifier-head relationship. It is not clear, however, how it can be

[27]The wh-phrase base generated in the specifier of C has the additional property that it is assigned case in that position. The relative operator is assigned case through its argument position.

[28]If **dızda** can be parsed as in fn. 12, then there is always exactly one occurrence of the suffix **-da**, either on the matrix verb or on **dızda**. In the latter case, the "main" clause constitutes a headless relative: [who is the one [(who) owns the book?]].

[29]It is possible that the verbal complex consists of only V^0 and I^0 when an overt question word is present, and has not raised all the way to C^0. This could be involved in the lack of rationality agreement in the examples with an overt question pronoun.

[30]It seems likely that historically the d(a)/y(a) distinction in the suffixes corresponds to the d/y distinction in the 3rd person singular within the absolutive series between rational (d-), interpreted as *who?*, and irrational (y-), interpreted as *what?*. It is not clear that it is necessary to account for this synchronically.

required only for a [+wh] *pro* to move to the specifier of C position without allowing (or requiring) wh-question words to move there in general.[31]

The second possibility does not involve the movement of a [+wh] *pro* to the specifier of C position. The feature [±rational] on the questioned element stands in a relationship with the verb such that the verb has access to the value of the feature. When V^0 raises to I^0, the verb takes the information about the rationality of the wh-phrase with it. Again, when the V^0-I^0 complex raises to C^0, access to the feature is carried along. Thus C^0 has access to information regarding the rationality of a wh-questioned element via the verb which has raised into it.[32] It is also possible that the information is passed to C^0 from V^0 via the chain which the verb heads, since the trace stands in the necessary relationship with the questioned element to access the feature value.

3.4 Wh-Agreement under Binding

Bouchard (1984, p. 17) makes the claim in (58) regarding ϕ-features (his F-features), namely that XPs with the same referential index share the same ϕ-features. If [+wh] is a ϕ-feature in Abaza, it should be expected that a DP coindexed with a [+wh] DP should also bear the feature [+wh]. This is true in a number of cases.

(58) *Agreement* (=Bouchard's (15))

α assigns (redundantly) its F-features to β if α and β have the same R-index, where F-features are person, number and gender.

In (59), the question word **dızda** *who?* has been pro-dropped, and the matrix verb is marked with the complementizer **-da**. The possessor of **pha** *daughter* is coindexed with the questioned word, and the agreement triggered by this possessor is, in fact, wh-agreement.

[31] Jim McCloskey has suggested that the Doubly-Filled COMP Filter may be involved here. This is possible if the DFCF can apply at LF and if wh-phrases in Abaza obligatorily move to the specifier of C at LF. In that case, only one overt element is allowed. It cannot account for the distribution in Abaza if the DFCF can only apply at PF or s-structure. This is because the wh-phrase generally either remains *in situ* or moves to the focus position, where it would not be involved in the DFCF, but a wh-phrase in either of these positions still prohibits the occurrence of an overt [+wh] C^0.

[32] An alternative way to account for the complementarity of **dızda** and **-da** is to list two lexical entries meaning *who?*. The form **-da** would have the additional (morphological) requirement that it (right-) adjoin to the verb complex. It is unclear what sort of morphological subcategorization would guarantee that it got to the correct position, and there may be additional problems in getting it to antecedent govern its trace from the position it occupies.

(59) **Z-pha k'ancı-k' (y)-l-zı-z-çpa-rnıs**
EWH-daughter doll-a (3si)-3sf-for-EWH-make-INF
d-zı-rguıga-da?
3sr-EWH-promise-who
Who promised her (own) daughter to make a doll?

Examples (60) and (61) contrast two interpretations of a single basic sentence, which differ only with respect to the type of agreement. In (60), the possessor of **pa** *son* is necessarily coreferent with the head noun of the relative clause and with the relative operator. Wh-agreement is triggered by the possessor. Example (61) differs only in that the possessor of **pa** has necessarily disjoint reference from the relative operator. Agreement triggered by the possessor is not wh-agreement, but normal 3rd person singular masculine agreement. Note that **zpa/ypa** is the object of the postposition **pnı**, which functions as the demoted subject in a sort of passive construction.

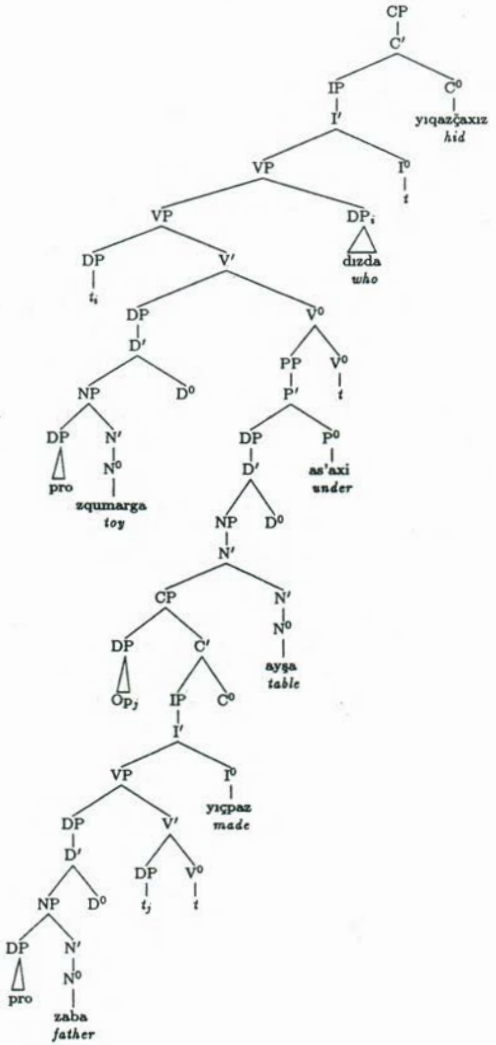
(60) **[[Z-pa y-pnı-la] y-zak-xa-z] a-qas'a dı-s-dır-iy-d.**
EWH-son 3sm-by-AV AWH-hit-ASP-PST the-man 3sr-1s-know-PRS-DYN
I know the man who$_i$ was hit by his$_i$ son.

(61) **[[Y-pa y-pnı-la] y-zak-xa-z] a-qas'a dı-s-dır-iy-d.**
3sm-son 3sm-by-AV AWH-hit-ASP-PST the-man 3sr-1s-know-PRS-DYN
I know the man who$_i$ was hit by his$_j$ son.

In (62) the "real" [+wh] DP is **dızda** *who?*, which is in focus position adjoined to the matrix VP. There are two cases of coindexation triggering wh-agreement in this example: the possessor of the matrix object, **qumarga** *toy*, and the possessor of **aba** *father*, the subject of a relative clause modifying the object of a postposition. The structure of (62) is as in (63).

(62) **Z-qumarga z-aba yı-çpa-wz ayşa a-s'axi**
EWH-toy EWH-father AWH-build-PST table 3si-under
dızda yı-qa-z-çax-ız?
who 3si-PV-EWH-hide-PST
Who hid his/her toy under the table his/her father built?

(63)



The feature [+wh] is not shared from a [+wh] DP to just any other coindexed DP in the sentence, however. Consider the following examples:

(64) **Z-pa bziy dı-z-ba-wa a-qas'a y-phas (*z-phas)**
EWH-son good 3sr-EWH-see-PRS the-man 3sm-wife
d-ğa-y-dı-d.
3sr-PV-3sm-get-DYN
The man$_i$ who loves his$_i$ son picked up his$_i$ wife.

(65) **Z-phuıs y-pa (*z-pa) yı-y-zak-wa a-qas'a**
EWH-wife 3sm-son AHW-3sm-hit-PRS man
awiy d-l-ızdzırğui-y-d.
s/he 3sr-3sf-hear-PRES-DYN
The man whose$_i$ wife his$_i$ son hits hears her.

In (64), the possessor of **phas** *wife* cannot be [+wh], even though it is coreferent with the relative operator (possessor of **pa** *son*). Likewise in (65), the possessor of **pa** cannot trigger wh-agreement, even under coreference with the relative operator. The data on wh-agreement under coreference can be accounted for by the following generalization:

(66) α shares the feature [+wh] with β iff:
i) α is [+wh]
ii) α binds β, and
iii) β does not bind α

Binding is defined as in (67) (cf. Chomsky 1981, 184-185).

(67) α binds β iff
i) α c-commands β, and
ii) α and β are co-indexed.

This accounts for all the examples in (59)-(62), since the binding configurations are satisfied in each case. It also accounts for the ungrammaticality of wh-agreement in the indicated positions in (64) and (65). In (64) there is no way for the relative operator to c-command anything outside the relative clause. In (65) the relative operator cannot c-command anything outside of the DP of which it is the possessor.

The question arises as to why there should be such a rule in Abaza. If pronouns are referentially free, i.e. they have no independent reference of their own, then they have to get their reference from somewhere. Suppose that when a pronoun gets its reference from a coindexed DP that c-commands (=binds) it, it receives all the ϕ-features (referential information) of that DP. In the non-wh case, the features of person and number are shared. In the [+wh] case, these features are shared, as is the feature [+wh], but this latter feature overrides person and number as it always does in Abaza. In essence, a referentially free pronoun seeks a reference from a coindexed element "higher up" (i.e. c-commanding it).

In a sentence like (64), the possessor of *wife* does not look down into the relative clause for its reference. The relative operator will share some of the ϕ-features of the possessor of wife, but as a relative operator it also bears the feature [+wh] independently. This feature overrides other features morphologically for the relative operator and for everything which it binds, but nothing above that.

In a sentence like (65), where neither of the DPs in question c-commands the other, neither will give the other its referential features. Therefore the feature [+wh] is not passed from one to the other.

The proposal in (66) is thus a modification of Bouchard's proposal in (58), such that (i) [+wh] is taken to be a ϕ-feature, and (ii) the sharing of ϕ-features moves in a downward direction. The proposal in (66) could be modified to say that all ϕ-features are shared in this way, with the understanding that [+wh] overrides other features of person and number morphologically.

4 Conclusion

The feature [+wh] in Abaza has the following unusual properties:

(68) i) patterning with other agreement features
ii) ability of [+wh] pronoun to pro-drop
iii) ability of DPs to agree in [+wh] under coreference

These facts all follow from a treatment of the feature [+wh] as a ϕ-feature for Abaza. As a ϕ-feature, it patterns quite naturally with the other ϕ-features (person, number, gender, rationality). Rich agreement systems tend to allow pro-drop, and it is reasonable to assume that the ability of wh-pronouns to pro-drop in Abaza is a result of the fact that the feature [+wh] patterns in the agreement system.

These phenomena are observed in content questions and relative clauses. Additionally, wh-agreement is used when a pronoun is coreferential with a [+wh] DP which asymmetrically c-commands it. This is not unexpected if a pronoun gets its referentiality (and ϕ-features) from the DP which binds it.

Because of the different behavior of **yaç'ıya** *what?, why?* with respect to its interpretation, there is shown to be an additional type of wh-agreement, which is a case of specifier-head agreement (other agreement, always with argument positions, is generally agreement as an indicator of case assignment, which is under government). This other type of wh-agreement is with the specifier of C, which adds an "extra" agreement marker on a verb, beyond the number expected based on the number of arguments.

Appendix: Abbreviations

ASP	aspectual
AV	adverbializer
AWH	absolutive series wh-agreement
COND	conditional
DEF	definite
DYN	dynamic
EWH	ergative series wh-agreement
FUT	future
INDEF	indefinite
INT	intensifier
IWH	incorporated postposition wh-agreement
NEG	negative
NFF	non-finite future
PL	plural
PRS	present
PST	past
PTC	participle
PV	preverb
REL	relative clause
Op	relative operator
ST	stative
SWH	specifier wh-agreement
WHQ	wh-question
YNQ	yes-no question
1,2,3	1st, 2nd, 3rd person
s,p	singular
f,m	feminine, masculine
i,r	irrational/inanimate, rational/animate

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Agreement in Nahuat

Peter Svenonius

0. Introduction

Nahuat is a Uto-Aztecan language spoken in Mexico.* The verb in Nahuat shows prefixal agreement morphology corresponding to the person and number of its subject and object. In this paper, I give a detailed account for the agreement rules that determine the distribution of the various agreement affixes and for the morphological rules that attach those affixes to stems.

I take the position that it is in the morphological component of the grammar of a language that fully inflected word forms are constructed for insertion into a phrase structure tree provided by the syntax, essentially adopting the 'Strong Lexicalist Hypothesis' of Lapointe (1978:3). The rules that determine the form of inflected words are on this view expected to be independent of rules operating in the syntactic component; this is a different view from that taken by much recent work in syntax, in which inflected forms are built in the syntax through 'head movement' or other syntactic mechanisms.

Nahuat provides some interesting challenges for an explicit morphological analysis, including portmanteau agreement morphemes encoding information about both the subject and the object, and cases where multiple agreement affixes encode information about the same argument. I deal with each of these in turn. A particularly interesting feature of Nahuat agreement morphology is the existence of a kind of 'agreement hierarchy' observable only with ditransitive verbs: when there are two internal arguments, their respective person values determine which is treated as the object for purposes of agreement. I deal with this fact by allowing the object agreement rule to generalize over internal arguments and by utilizing a default mechanism that sets unspecified argument positions in the verb's featural makeup to third person.

The paper is organized as follows. In the first section, I outline the general data and the facts of agreement in sentences with intransitive and simple transitive verbs. I discuss and treat the subject-object agreement portmanteau. In the second section I outline a general theoretical framework for the treatment of agreement morphology, arguing that agreement morphology should be attached to the verb stem in the lexicon, prior to lexical insertion (following Lieber 1981). I propose an explicit system for building up the inflected forms, using a categorial grammar. In the third section I present more data, showing the pattern of agreement in sentences with ditransitive verbs. These facts turn out to support the proposal of Pollard & Sag (1992; henceforth P&S) that agreement rules manipulate the SUBCAT frame of a verb. The ditransitive structures also provide evidence supporting the use of default values for agreement features.

1. Agreement with Subjects and Objects

The verb in Nahuat shows prefixal agreement morphology, generally described as consisting of a subject agreement prefix (SM, for 'subject marker') and in transitive clauses an object agreement prefix (OM, for 'object marker'). The agreement morphemes

* I am very grateful for the dedication, patience, and enthusiasm of Mr. Eufro Ramirez-Parra from San Miguel Tenextatiloyan (a town near Puebla, Mexico), who provided the data in this paper during the Field Methods class conducted at UC Santa Cruz in 1991. Thanks also to all the people who read and commented on earlier versions of this draft in the spring of 1991, including Judith Aissen, Donka Farkas, Jorge Hankamer, and Bill Ladusaw. I follow Key (1958) in calling dialects (such as the one under consideration) which do not have the /t/ phoneme 'Nahuat' rather than 'Nahuatl'.

distinguish among the canonical three persons (first, second, and third) and two numbers (singular and plural). Tense is indicated by a suffix (the present tense suffix is null). The example in (1) below shows a SM, an OM, and a tense suffix.[1]

(1)
ni-	mitz-	magha-	ti	
1	*2o*	*hit*	*FUT*	'I'll hit you'
SM	OM	stem	Tense	

I gloss SMs by number, e.g. 1 is 'first person singular', 22 is 'second person plural', etc. OMs are glossed with the number followed by the letter *o*.[2] In the following two subsections, I detail the agreement facts regarding intransitive and transitive verbs.

1.1. Intransitive Verbs

SMs are obligatory, whether the subject is overt or unexpressed. Some examples are given in (2).

(2) a. kochi
sleep 'he/she sleeps'

b. nan-kochi-h
22 sleep PL 'you (pl) sleep'

c. kochi-h no-pili -meh
sleep PL 1p baby PL 'my babies sleep'

d. nehwa ni-kochi
I 1 sleep *'I sleep'*

Overt subject NPs are always optional in Nahuat. In (2a) and (b), there is no overt subject NP. The third person subject agreement marker is null, as seen in (2a) and (2c). In (2c), there is an overt subject NP; although the prefix is null, agreement is signalled by the suffix *-h*, which is obligatory when the subject is plural (note the same suffix appearing in (2b)). In (2d), there is an overt personal subject pronoun, and the SM agrees with it.

The SMs that appear with intransitive verbs are exhaustively listed in the chart in (3), along with the glosses that I will be using for them.

(3)
SUBJECT MARKERS	Sing	Plur
First Person:	ni-	ti-
	1	*11*
Second Person:	ti-	nan-
	2	*22*

As noted above, the third person SM is null in both the singular and plural forms. I do not represent a third person SM in the examples, but the absence of a SM always signals that the subject is third person.

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[1] Symbols used in the transcriptions are fairly near their IPA values, except for the following: 'x' is [ʃ], 'ch' is [tʃ], 'tz' is [ts], and 'gh' is [ɣ].

[2] Abbreviations for other morpheme glosses used in this paper are: (verbal suffixes:) PST past, FUT future, COND conditional, PR.PROG present progressive, APP applicative, TO direction toward speaker, PL plural subject agreement; (nominal affixes:) 1p first person singular possessive, 2p second person singular possessive, DIM diminutive, PL plural, p.PL possessed plural. There is also a verbal reduplicative prefix glossed RDP which indicates multiple actions toward a single goal. Q is a question particle, NEG the negation marker.

Also mentioned above is the fact that a plural subject triggers plural agreement on the verb; there are two suffixes, *-h* and *-keh*, that signal that the subject is plural. The allomorph *-h* appears after vowels and *-keh* is used after consonants. Plural agreement is seen in (2b) and (2c) above, and in the examples in (4) below.

(4) a. in Mariah mihtoti-ti
the Maria dance FUT
'Maria will dance'

b. in Mariah iwan in Juan mihtoti-ti -h
the Maria and the Juan dance FUT PL
'Maria and Juan will dance'

c. in Mariah mihtoti-k
the Maria dance PST
'Maria danced'

d. in Mariah iwan in Juan mihtoti-keh
the Maria and the Juan dance (PST)PL
'Maria and Juan danced'

In (4b), the vowel-final future tense suffix is followed by the *-h* allomorph of the plural subject suffix; the past tense suffix *-k* is followed by *-keh* (degemination reduces the [kk] sequence to [k]). The morphemes are all strictly ordered; the plural suffix, for example, must follow a tense suffix, as shown in (5).

(5) a. kochi-to -keh
sleep PR.PROG PL
'they are sleeping'

b. * kochi-keh-tok
sleep PL PR.PROG

c. * kochi-h -tok
sleep PL PR.PROG

As shown in (5) the plural subject agreement suffix must follow the tense suffix (underlyingly *-tok*, 'present progressive'). The other order is bad with either of the plural subject agreement morphemes.

1.2. Transitive Verbs

Transitive verbs in Nahuat obligatorily show object agreement. In Classical Nahuatl (Andrews 1975), and perhaps in some modern dialects of Nahuat or of Nahuatl (see e.g. Tuggy 1979), transitive verbs can be analyzed as taking the same SMs as the intransitive verbs, followed by an Object Marker (OM) agreeing with the object of the verb. The same appears to be true some of the time in the dialect under discussion. Some examples are given in (6), with 'second person singular object marker' glossed *2o*, and 'third person object marker' glossed *3o*.

(6) a. ni-mitz-ita
1 2o see *'I see you'*

b. tehwan ti-k- ita-h in toto-tzin
we *1 1 3o see PL the bird DIM* 'we see the birdie'

On this view, the second person singular OM is *mitz-* (as in (6a)) and the third person OM is *k-* (as in (6b)). Assuming that the third person SM is always null, then the OMs can be identified as in (7), where the subject is third person in each case.

(7) a. nech-ita
1o see 'he/she/it sees me'

b. mitz-ita
2o see 'he/she/it sees you (sg)'

c. k-ita
3o see 'he/she/it sees him/her/it'

d. tech-ita
11o see 'he/she/it sees us'

e. namech-ita
22o see 'he/she/it sees you (pl)'

f. k-ita
33o see 'he/she/it sees them'

The third person object prefix *k-* in (7c) and (7f) is ambiguous between singular and plural. Having identified SMs as in (3) and OMs as in (7), we might expect to observe the paradigm given in (8). All reflexive forms are identical to the intransitive SM plus *mo*; the third person subject, third person object can be non-reflexive (*k*) or reflexive (*mo*). The gaps in the chart are combinations that are impossible due to a constraint on overlapping reference (e.g. * 'I saw us').

(8)

Subject: \ Object:	1	2	3	11	22
1	ni-mo	ni-mitz	ni-k		*ni-namech
2	*ti-nech	ti-mo	ti-k	*ti-tech	
3	nech	mitz	k/mo	tech	namech
11		ti-mitz	ti-k	ti-mo	*ti-namech
22	na-nech		nan-k	*nan-tech	na-mo

The second person plural subject prefix *nan-* is represented as *na-* before nasal-initial OMs, due to regular rules of assimilation and degemination.[3] 17 of the 22 forms shown in (8) are fine. However, five of the forms predicted are impossible, as indicated with asterisks. The proper forms cannot be described as straightforward combinations of SMs and OMs. Some of the irregular forms are shown in (9).

(9) a. xe tech- tataw-ti -ko-h namehwan?
Q 22-11o visit FUT TO PL you (pl)
'Will you (pl.) come to greet us?

b. tenech-ita
2-1o see
'you see me'

c. neh namech-maka-ti se pio
I 1-22o give FUT a chicken
'I'll give you (pl) a chicken'

---

[3] Specifically, *nan* (22) + *mo* (reflexive)—> *namo* and *nan* (22) + *nech* (1o)—> *nanech* .

In (9a), we expect *nan+tech*, but this is impossible; instead we see simply *tech*. In (9b), we expect *ti+nech*, but instead find *tenech*. And in (9c) we expect *ni+namech*, but find *namech*.

The correct paradigm for prefixal agreement on transitive verbs is given in (10). The irregular forms are underlined.

(10)	Object:	1	2	3	11	22
Subject:	1	ni-mo	ni-mitz	ni-k		namech
	2	tenech	ti-mo	ti-k	tech	
	3	nech	mitz	k/mo	tech	namech
	11		ti-mitz	ti-k	ti-mo	tamech
	22	na-nech		nan-k	tech	na-mo

If we count the imperative *xi-* as an SM, then the imperative forms in (11) below are regular; there are then 22 regular forms out of 27.

(11)	Object:	1	2	3	11	22
	IMP	ix-nech	ix-mo	ix-k	ix-tech	ix-mo

The remaining five forms (underlined in (10)), however, pose somewhat of a problem. As noted above, if the second person plural OM is *namech*, then the first person singular subject - second person plural object (1-22) form should be **ninamech*, but it is *namech* (as seen in (9c)). If the /i/ in *ni-* were epenthetic, we might think that the first person singular SM was really *n-*, and that the second person plural OM was really *amech*. Epenthesis would not apply between vowels, and we would have *n+amech* —> *namech*. Similarly, the first person plural SM would be *t-*, and this would give *t+amech* —> *tamech*.

However, the /i/ in the various SMs shows no signs of being epenthetic elsewhere. That it is not epenthetic can be seen from the fact that it is ordinarily pronounced even before vowel-initial stems, e.g. as in (12).

(12) a. ni-ixpetani
1 wake.up 'I wake up'

b. ti-ihka-tok
2 stand PR.PROG 'you're standing'

c. ti-amiki-h
11 thirst PL 'we're thirsty'

d. teh ti-o in iskwela
you 2 go the school 'you go to school'

To save the derivational account of 1-22o *namech* and 11-22o *tamech* as being composed of a SM plus a 22o *amech*, we might instead suppose that there is a special rule deleting the /i/ of *ni-* and *ti-* just in case they precede the second person plural OM; but we are still left with the third person subject, second person plural object form (3-22o) *namech*. If the third person SM is always null, where does the initial *n-* come from? To postulate a *n-* allomorph for the third person SM just in case it precedes the 22o OM would be completely ad hoc.

Similar problems arise in any attempt to treat the various first person plural object forms. *Nan-* (22) and *ti-* (2) would have to be deleted before the first person plural OM *tech-* to derive the 22-11 and 2-11 forms.

I assume that the irregular forms in (10) should not be synchronically derived using some abstract underlying OMs and a set of ad hoc phonological rules. It certainly places no great strain on the speaker's memory to simply list the necessary forms in the lexicon, and

none of the phonological rules that would be required to get the five irregular forms are independently needed. In fact, a speaker could easily memorize all 27 forms as unanalyzeable SOMs, 'Subject-Object Markers', as is clearly needed for such languages as Southern Tiwa.[4] The transparency of the derivation of the majority of the forms makes it perspicuous to represent them as being comprised of discrete morphemes, however. The analysis that I argue for in the following section deals naturally with portmanteaus[5], and extends to other data that will be subsequently considered.

I will henceforth represent the five irregular transitive agreement prefixes as single morphemes, glossed with the person/number of the subject followed by the person/number of the object, e.g. *tamech* 11-22. I will represent the object markers that are consistent with the 'regular' forms in (7) as discrete morphemes, glossed by a number followed by the letter 'o'. Note that '3o' is always ambiguous as to whether it is third person singular or third person plural. Note also that some other SMs and SOMs are ambiguous (*tech-*, *ti-*, and *namech-*), but I gloss them according to their intended meaning (as translated by the speaker). Third person subject agreement is not represented, as it is null, so e.g. *tech* glossed as '11o' implies third person subject.

2. Theoretical Framework

2.1. On the Place of Inflectional Morphology in the Grammar

Chomsky's (1970) 'lexicalist hypothesis' proposes that syntax does not interact with word structure. This entails that if words are constructed by some generative mechanism, then there must be a morphological component distinct from the syntactic component of the grammar. Various works have treated the rules of word formation in the morphological component, often taken to be a subpart of the lexicon, where all unanalyzeable words are listed (Siegel 1974, Aronoff 1976, Allen 1978, Selkirk 1982).

Though the lexicalist hypothesis has been widely adopted for derivational morphology, the status of inflectional morphology is less clear. Inflectional features are often relevant in some sense to syntax; for example, a verb with a third person singular subject agreement morpheme may only appear in a tree with a third person singular NP in subject position. Many have have followed Chomsky (1970) in assuming that syntactic rules build up inflected word forms, and that the lexicalist hypothesis is only relevant to derivational morphology (cf. Aronoff 1976:9). Affix-hopping (Chomsky 1957, 1991) is a typical example: the tense suffix in English is taken to occupy a node in the syntactic tree, and a rule of syntactic movement attaches it to a verb stem.

However, others have assumed instead a stronger version of the lexicalist hypothesis, one that requires that fully inflected forms are built by word-formation rules in the morphological component (part of the lexicon) before they are inserted into the tree (cf. Jackendoff 1972, Lapointe 1980). Certain feature specifications that may have been affected by word formation rules may be relevant to the syntax in that they will restrict the node under which a word may be inserted, but in the most general sense this is true of derivational morphology as well; just as a verb with third person singular subject agreement may only be inserted into a tree with a third person singular NP in subject position, a verb with a benefactive suffix may only be inserted into a tree with a benefactive argument, and a nominalized verb may only be inserted under a N node.

The position that inflectional morphology is part of the lexicon (i.e. that inflection occurs prior to lexical insertion) is assumed by most of the non-GB syntactic literature (e.g.

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[4] Aissen & Ladusaw (1988).

[5] Morphemes that combine the functions of ordinarily separate categories.

GPSG, LFG, CG, HPSG[6]) and is explicitly argued for by Lieber (1981), Lapointe (1980), and Selkirk (1982). The syntactic word-building approaches (most recently championed by Lieber 1992; see her pp. 19 ff. for references and summary) have several shortcomings, a few of which I will briefly mention here.

First, such approaches predict that morphemes should be subject to the same rules that constitute the syntax; yet morpheme distribution seems to be much more severely constrained in all languages than the distribution of phrases. We find languages with very free word order, but not languages with free morpheme order. We do not find languages in which morphemes undergo wh-movement, or inversion, or ellipsis. Rather, inflectional morphemes seem to behave much like derivational morphemes: they are attached to a stem in a strict, fixed order. Furthermore, it is typical that a language employs the same type of morphology for the realization of derivational and inflectional features, e.g. suffixation versus prefixation. McCarthy (1979) demonstrates that Semitic languages use skeletal morphology for both derivational and inflectional purposes.

A second problem with affix-hopping treatments of inflection is that they have never provided a satisfactory account for irregular forms (such as the alternations *be/is, go/went, mouse/mice*), which are naturally treated as simply residing in their fully inflected form in the lexicon. 'Morphosyntactic rules' or 'readjustment rules' are typically posited to clean up trees containing such falsely predicted forms as **goed* and **mouses*. These rules must, of course, refer to the lexicon, where the irregular forms are stored, in some sort of 'second lexical pass'. By treating inflection within the lexicon we can forego an entire level of derivation, and develop a model with only one point of contact between the syntactic component and the lexicon - namely, lexical insertion.

In short, I accept the arguments of Bresnan (1982), Zwicky & Pullum (1986), and Anderson (1992) for separating the morphological and syntactic modules. I will leave open the question of what, if any, distinction should be made between inflectional and derivational word-building rules, and will concentrate on inflection.[7]

Given a morphological component in the lexicon that builds inflected forms, there arise two questions, which might be informally posed as in (13).

(13) a. How does this component build up the words?

b. How does this component ensure that the forms so built will be inserted only into trees with the proper configuration?

As my answer to question (13a), I propose a modest categorial grammar. The rules of word formation are much simpler than the rules of sentence formation and don't require nearly as much machinery. A simple categorial grammar of the type developed by Bar-Hillel (1953, building on work published by Ajdukiewicz some eighteen years earlier) allows the straightforward expression of the ordering restrictions, selectional restrictions, and category membership that are characteristic of morphemes, and also allows for expression of other features such as obligatoriness or optionality. Formalisms other than categorial grammar could certainly be employed, for example a context-free rewrite grammar as in Selkirk (1982). In fact, an exactly equivalent context-free rewrite grammar could be devised, given certain assumptions about limitations on context-free rewrite rules (see Bar-Hillel 1953, Selkirk 1982). The restrictions that would have to be placed on a

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[6] And recently in the Minimalist framework of Chomsky (1992).

[7] Williams (1981) goes so far as to say that there is no difference. On this view, the generalizations usually made about the two types of morphology (e.g. that inflection occurs 'outside' derivation) would presumably be ascribed to historical and functional influences.

rewrite grammar would duplicate restrictions that are encoded into the categorial grammar, which makes the latter a convention better suited to the task at hand.

To question (13b), the question of how we can be sure that inflected forms appear in the right syntactic environments, my answer is simply that the featural content of the X° node that is built in the lexicon can be affected by the word formation rules. This is generally the solution adopted by those of the works previously cited as treating inflection in the lexicon that are at all explicit about the syntax-morphology interface. That morphological rules affect the feature specifications of a word is obviously true with respect to derivational morphology: derivational morphemes typically determine the category of the word (which led Williams (1981) to propose that derivational (and in fact inflectional) morphemes are the heads of the words in which they appear). To take an example involving inflectional morphology, consider the formation of regular plurals in English: '-z' is added to a noun stem, which is thereby specified as +PLURAL.

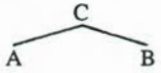
The interaction of inflectional morphology with the syntactic component has led to attempts to collapse inflectional morphology with syntax, but I will argue that this interaction is merely an extension of the kind of featural specification just described. Agreement rules in the lexicon add prefixes to the Nahuat verb stem and specify it for agreement features. I adopt the proposal of P&S that this is accomplished by giving agreement rules access to the SUBCAT list of the verb, where information about the arguments of the verb is encoded. Any theory of syntax must allow for subcategorization information to be shared throughout the tree; the unification of subcategorization and agreement is motivated by the fact that agreement relations are mainly relations between heads and their arguments.

2.2. *A Categorial Grammar*

In this section I lay out a categorial grammar for the internal structure of the verbal complex. There are a number of reasons for adopting the categorial grammar approach. First, the morphemes in the verbal complex are strictly ordered. It is an inherent feature of a prototypical categorial grammar that it imposes a strict ordering on the elements that are combined into phrases or sentences (here, stems or words). Second, certain sets of morphemes are in complementary distribution with each other. This is naturally captured in a categorial grammar, where elements of the same category will generally be in complementary distribution. Third, certain morphemes in the verbal complex are obligatory. This is enforced in a categorial grammar by restricting the 'free hops' from one level to another. Other types of formalism could certainly be employed. The categorial grammar is simple and familiar, and seems to be particularly suited to capturing the general properties of inflectional morphemes.

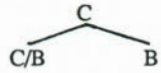
In a categorial grammar, the combinatory properties of the different elements (here, morphemes) are encoded in their lexical entries; there is no separate set of grammatical (or morpholexical) rules. Each element belongs either to a basic category or to a complex category; an element belonging to a complex category is a 'functor' that must combine with another element. A slash notation is used to indicate what kind of element a given functor must combine with. To give a very simple example, say that an element of category A may combine with an element of category B to form a structure of category C, i.e. we observe structures like that depicted in (14).

(14)



Suppose we designate B as basic (either arbitrarily or for some reason, e.g. because there are more elements of category B than of category A); then A is a functor with the complex category C/B; the symbol to the right of the slash (possibly complex) is the label of the category with which the functor must combine, and the symbol to the left is the output category (also possibly complex). The direction of the slash indicates the direction of combination; since the slash is right-leaning, the element of category B must appear to the right of the functor.[8] We might continue to use the label 'A' as a shorthand notation for the category C/B, but the more explicit representation of the tree in (14) would be the tree in (15).

(15)



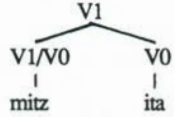
For more discussion, see e.g. Bar-Hillel (1953). Syntactic work in categorial grammar has proposed various additional conventions, including rules of type-shifting and composition, in order to capture complex facts of the grammars of natural languages (see for example Oehrle, Bach, and Wheeler 1988). However, for the purposes of describing morphological systems in general and the structure of the Nahuat verbal complex in particular, no such augmentation is necessary. The morphemes are very well-behaved in comparison to syntactic constituents.

Although the identification of certain categories as basic is somewhat arbitrary, certain choices wind up making for a simpler grammar than others, mainly with respect to the complexity of the node labels (which is probably not of real theoretical import). Other decisions about the categorial grammar, such as which elements combine to form subconstituents within a constituent, can make more significant differences. This will become clear as I outline the categorial grammar proposed here for the Nahuat verbal complex.

2.3. A Categorial Grammar for the Nahuat verbal complex

Assume that the verb stem itself is a basic category, call it V0, while the OM prefix is a functor, V1/V0 - it combines with a V0 to its right to form another basic category, a V1.[9] I will proceed with the construction of the form *nimitzitah*, 'I saw you'. To the stem *ita* is added the OM *mitz-*.

(16)



All OMs appear in precisely this kind of structure; they never appear in isolation, they never appear to the right of the verb stem, and they never combine with anything but the verb stem; furthermore, the transitive verb stem never appears without an OM. It is in this sense that I mean that the verbal complex is 'well-behaved'. We can say, then, that V0 is not a

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[8] The argument category is always to the right of the slash, the output category always to the left. Some authors keep the output category 'above' the slash, thus their A would be C/B, like mine, but their B would be A\C instead of my C\A.

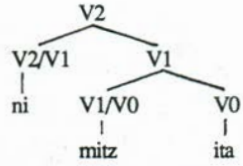
[9] Each of the complex categories introduced in the categorial grammar can easily be translated into a context-free rewrite rule; e.g. the structure in (4) could also be constructed by the rule V1 —> OM V0. All of the rewrite rules in this particular grammar would show exactly two elements on the right-hand side of the arrow, in fixed order.

word, and neither is V1/V0; nothing belonging to either of these categories will appear as a word in a sentence in Nahuat.

At this point it makes sense to ask how it is that intransitive stems never appear with an OM. The answer in categorial grammar is very simple: intransitive stems are not of category V0, but V1. This ensures that OMs will never combine with intransitive stems; they can only combine with V0s, by virtue of their category.

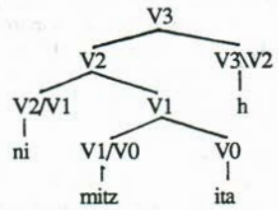
SMs, on the other hand, are found both with transitive and intransitive stems. This follows if they are of category V2/V1 - they return a V2 (another basic category) when combined with a V1 to the right, where V1 is either an intransitive stem or a transitive stem with an OM.

(17)



A tense morpheme can be assumed to be category V3\V2: it combines with a V2 and returns a V3. The tensed form *nimitzitah* is shown in (18).

(18)



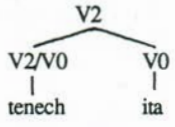
ni-mitz-ita -h
1 2o see PST

Now one might wonder why the constituent structure of the verbal complex should be [[SM-OM-stem] - tense] as shown, rather than, for example, [SM-OM-[stem-tense]]; the answer is that the categorial grammar is simpler with the structure shown. If tense and the stem were a constituent that excluded the OM, then it would be difficult to generalize over intransitive stems and transitive stems with OMs as both appropriate for the attachment of SMs. Since we observe the same set of tense suffixes and SMs on both transitive and intransitive stems, we want them to be applied to both by the same sets of rules. Only if the OM and the stem are a constituent categorially equivalent to an intransitive stem can this be the case. If there were some sort of evidence, for example phonological evidence, that suggested that the tense marker and the stem *were* somehow more closely-knit than the OM and the stem, it might be taken as problematic for the categorial grammar promoted here. I know of no such evidence, however.

Another alternative to the structure represented in (18) that might enter the reader's mind is [SM-[[OM-stem]-tense]], i.e. the tense is attached inside the SM. My reason for rejecting this possibility is the portmanteau SOMs discussed in section 1. If the SM attaches to the output category of the OM, as I have proposed, then an SOM can simply be a functor

that accepts V0 (the same input category as the OM accepts) and returns V2 (the same output category as the SM returns), i.e. it is a V2/V0.

(19)

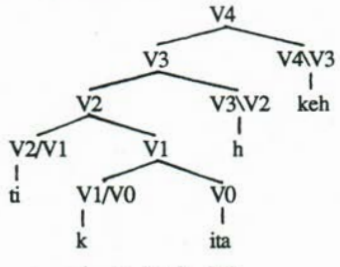


tenech-ita
2-1 see

The output of the SOM is the same as that of an SM, and appropriate for affixation of a tense morpheme. If tense attached outside the OM but inside the SM, there would be no obvious category appropriate for a SOM (of course, certain tricks could be played, but at a sacrifice of the simplicity of the proposed grammar).

There is one more morpheme that was mentioned in section 1 but which has not yet been assigned a category: the plural subject suffix. The most obvious category for it, given the grammar sketched so far, is V4\V3: it attaches to a V3 (the output of the tense morpheme) and returns a new basic category, V4. The complete structure for the form *tikitahkeh*, 'we saw it', is given in (20).

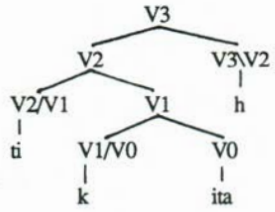
(20)



ti- k- ita -h -keh
11 3o see PST PL

V4 is a fully inflected verb. It is a word, and may appear in a sentence. We might suppose that V3 is also licit as a word, to allow a fully inflected verb like that in (18) to appear as well. The problem is that if V3 may be a word, we will need a mechanism to prevent (21) from appearing.

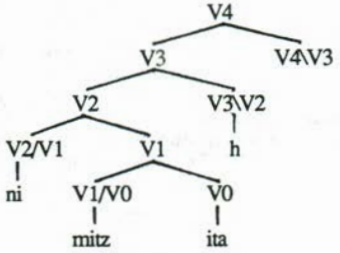
(21)



* ti- k- ita -h
11 3o see PST

(21) is bad if *ti-* is the first person plural SM, because a plural subject requires a plural subject suffix. Certainly, we could introduce rules in the lexical component that require the plural morpheme to appear if the subject is plural. But there is a simpler way to rule out (21), without appealing to any rules outside of the categorial grammar: we can require a verb to be V4 in order to appear as a word. This requires that we introduce a new null 'morpheme', a singular subject agreement suffix, that has the same category as the plural subject agreement suffix, but which does not have any phonological content. Then (18) is not a word, but the phonologically identical (22) is.

(22)

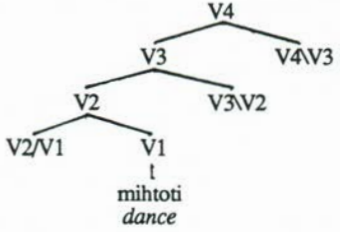


ni-mitz-ita -h
1 2o see PST

The V4\V3 shown in (22) will appear in the structure of all verbs with singular subjects. Since it has no phonological content, it is not obviously a suffix; we could assign it the category V4|V3, adopting an upright bar as an indication of directionless combination (as in Moortgat 1988). I will continue to assume, however, that there are only two types of composition, represented by / and \, in order to keep the grammar maximally simple. An advantage to this is that each type of affix has a single category, e.g. the OMs are all V1/V0.

There are other null inflections in Nahuat as well, and I propose to treat them in like fashion. Thus, the third person SM can be taken to be a V2/V1, just like all other SMs, with the special property that it has no phonological content. Likewise, the present tense morpheme is a phonologically empty V3\V2. The verb form *mihtoti* can mean 'he/she dances' although it has no affixes. Its structure is given in (23).

(23)



The intransitive stem is a V1; it is raised to a V2 by the null 'SM' that gives it third person subject agreement features. The V2 is raised to a V3 by addition of the null 'tense suffix', which sets the tense to PRESENT. Finally, the V3 is raised to V4 by addition of the null plural subject agreement 'suffix', which sets the subject to third person.

The categorial grammar sketched here has no rules per se, simply a set of verbal stems (listed in (24)) and several sets of inflectional morphemes, each belonging to one of five functor categories as listed in (25) (prefixes) and (26) (suffixes).

(24)	a.	Transitive stems	V0
	b.	Intransitive stems	V1
(25)	a.	OMs	V1/V0
	b.	SMs	V2/V1
	c.	SOMs	V2/V0
(26)	a.	Tense suffixes	V3\V2
	b.	Subject agrmt sufxs	V4\V3

Derivational morphemes (not treated here), generally occurring 'inside' inflection, could be treated exactly analogously, building V0s or V1s from other categories.

2.4. Inflectional Features

Now we have a system for constructing fully inflected verb forms in the lexicon, one which enforces the strict ordering of morphemes, their obligatoriness, and the complementary distribution among certain categories of the various inflectional affixes.

Of course, the process that allows the attachment of affixes to stems also sets the feature values on the stems; for example, a tense affix sets a value for the feature TENSE. We could model this by including the feature in the category label for the affix, as in the lexical entry for *-ti* (future tense suffix) depicted in (27).[10]

(27) -ti V3[TENSE:FUT]\V2

The suffix in (27) can combine with a V2 to its left to produce a V3 specified as future tense; in other words, an inflectional affix induces or requires a certain feature specification on its mother. In general I will adopt a shorthand notation for the feature bundles attached to words and simply give the value for the feature TENSE, as in (28).

(28) -ti V3[FUT]\V2

Tense values can be relevant to syntax, e.g. when an auxiliary selects for a particular verb form. This means that the value for the feature tense must percolate up to the top node of the verb, and even of the VP. The need for percolation of this kind is even more evident in the case of the agreement features, so it is to them that I will now turn.

2.4.1. Subject Agreement

Now we face the question of what it is that determines which inflected form appears in a given syntactic structure; that is, what rules (29a) out while allowing (29b).

(29) a. * tehwa ni-mihtoti-ti
you 1 dance FUT

b. nehwa ni-mihtoti-ti
I 1 dance FUT

Clearly, agreement information is shared among nodes in certain configurations. Let us simply stipulate agreement for now as in (30); this will be revised later.

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10 Again, there is nothing here that cannot also be modelled in a context-free rewrite grammar:
V3[TENSE:FUT] —> V2+ti

(30) Subject Agreement:
Agreement features are shared between a VP and its subject NP

The Head Feature Convention (HFC) of Gazdar et al. (1985; henceforth GKPS) will ensure that the V head of the VP bears the same feature specifications as the VP. Lexical insertion will be prohibited if the word bears feature-specifications that conflict with those on the V node. An uninflected verbal stem would not bear any conflicting agreement features, but it could not be inserted under the V node because of the stipulation that only a V4 is a word suitable for lexical insertion.

The various agreement facts now follow if the agreement morphemes, like the tense morphemes, require certain feature specifications on their mother nodes, as in (31).

(31) ni- V2[1sg]/V1

The prefix in (31) can combine with any V1 to the left to produce a V2 specified as [1sg]; The feature specification must be assumed to 'percolate' up to all higher V nodes as well, so for example when a tense suffix is attached to the V2, the V3 that results must also be specified for a subject agreement feature value. We might explicitly model this as in the lexical entry for *-ti* (future tense marker) in (32), where AGR is the subject agreement feature and α is a variable over agreement feature values.

(32) -ti V3[TENSE:FUT, AGR:α]\V2[AGR:α]

The entry in (32) simply enforces the percolation of the agreement feature value from the V2 level to the V3 level. But since all of the inflectional features can be assumed to percolate, we would rather have the percolation follow from some general principle. For the sake of explicitness, assume that the V in the category labels V1, V2, etc. represents a feature bundle with all the same specifications as the V that it immediately dominates. This is essentially simply to say that words are headed structures, following Williams (1981), and that the head of a stem plus inflectional affix is the stem, following Selkirk (1982).

Given this principle of headedness, the lexical entry in (32) is then unnecessarily complex and the one given previously in (28) will suffice.

2.4.2. Object Agreement

Thus far, I have been treating the feature specification introduced by the inflectional morphemes as unstructured bits of information tacked onto the V node. This assumption will be revised somewhat in section 2.4.4 below. First, there is one more point to be made about the internal structure of the feature bundle: the subject agreement features must not be confused with the object agreement features. Obviously, a first person singular subject and second person singular object must not indiscriminately pass '1sg' and '2sg' to the verb, lest we allow a verb with second person subject and first person object to be inserted into the tree. Instead, we can take Zwicky's (1986) approach and simply 'tag' the different agreement values as such. In the entry for the OM *mitz-* (second person singular) in (33), the object agreement value is tagged with an O.

(33) mitz- V4[2sgO]/V3

We must in addition, then, assume that there is an object agreement rule operative in the syntax that requires that the agreement features of the object of the verb appear on the verb. We can work with the preliminary formulation in (34).

(34) Object agreement:
Agreement features are shared between an object and its selecting V

In a sentence with a second person singular direct object, rule (34) will require that the V node bear the value '2sg' for the feature 'Object', which we have already abbreviated 2sgO. A V with any other value for 'Object' will not be able to be inserted into the tree.[11] To take a concrete example, consider the sentence 'I'm going to hit you'. The fully inflected V4 would have associated with it a list of feature specifications like that shown in (35). The subject agreement feature value is tagged with an 'S'.

(35) ni-mitz-maka-ti[1sgS, 2sgO, FUT]
1 2o hit FUT 'I'm going to hit you'

This form could only be inserted under a V node which had no conflicting feature specifications. If there is an overt subject NP, then rule (30) and the HFC will have ensured that its agreement features appear on the V node, so that an overt subject NP could only be *nehwa* 'I'. If there is no overt subject NP, then there will be no conflict with the subject agreement features on the verb. We can therefore model pro-drop simply by assuming that there is one null pronoun with no agreement features, following P&S. As they point out, a model in which the agreement features on the verb were transmitted there from a NP requires the assumption that there are several different null pro's, here one with first person singular features. The same is true of the object NP; if there is an overt object NP it will have to be *tehwa* 'you' (sg), but the null *pro* could also occupy object position.

2.4.3. Underspecification

The number of distinct morphemes can be kept to a minimum through the use of underspecification. For example, consider the third person OM *k-*. It can agree with either a singular or a plural third person object, as indicated by the gloss in (36).

(36) ni-k-ita
1 3o see 'I see him/her/it/them'

One way to capture this fact would be to list two morphemes with the phonological representation *k-*, as in (37).

(37) a. k- V1[3sgO]/V0
b. k- V1[3plO]/V0

But these entries can be collapsed into one by underspecifying the number of the object, as in (38).

(38) k- V1[3O]/V0

A verb with the OM *k-*, then, agrees with a third person argument, regardless of whether it is singular or plural. The forms in (39) can be similarly unified.

(39) a. tech- ita
2-11 see 'you (sg.) see us'

b. tech- ita -h
22-11 see PL 'you (pl.) see us'

Here we can postulate the entry shown in (40) to cover both of the SOMs in (39).

(40) tech- V2[2S, 1plO]/V0

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11 And an intransitive verb will be excluded by principles of syntax, e.g. the theta-criterion of GB or the SUBCAT principle of HPSG.

As seen in (39b), the presence of the plural subject agreement suffix will further specify the subject to plural; its absence as in (39a) will require the subject to be singular.

2.4.4. The SUBCAT List

The model here rests rather heavily on the vague and stipulative agreement rules in (30) and (34). Clearly, some such rule is needed, but it is less clear that the formulations in (30) and (34) are optimal. Various attempts have been made at formalizing agreement.

A recent proposal is that of P&S, where it is argued that agreement rules introduce restrictions on the NP slot on the SUBCAT list of a verb.[12] On this view, a verb-form inflected for agreement bears a restriction on its SUBCAT frame. For example, all intransitive verbs in English subcategorize for a NP subject, but a form inflected with -s, like *walks*, subcategorizes for a subject which is third person singular. Assuming an inflectional rule that adds -s to the stem of any regular verb in English, we can also allow this rule to require of the subject slot of the SUBCAT list that it be third person singular. In a categorial grammar where -s is of category V1\V0, the entry for -s might appear as in (41), where angle brackets indicate the SUBCAT list.

(41) -s V1[<NP[3sg]>]\V0

The Zwickian tag 'S' for subject is rendered unnecessary: the identity of the relevant argument is encoded in its position on the SUBCAT list. The agreement features appended to the NP are simply a further specification of what category this particular verb-form subcategorizes for. But the entry in (41) must be extended to transitive verbs as well. If there are several NPs on the SUBCAT list, the one specified as 3sg must be the first one, which is by convention the subject. We could represent this through the use of ellipsis dots following the NP, as in (42).

(42) -s V1[<NP[3sg]...>]\V0

Of course, a verb-form with this inflection is present tense as well. We might simply add this to the entry, as in (43).

(43) -s V1[<NP[3sg]...>, PRES]\V0

SMs in Nahuat are simpler than the English -s in that they specify only the agreement features on the subject NP, and do not affect tense. A sample entry for the SM *ni-* (first person singular) is given in (44).

(44) ni- V2[<NP[1sg]...>]/V1

An OM is exactly analogous to a SM, but affects the second NP slot (ignoring ditransitives for the moment). The second person singular OM *mitz-* and the third person OM *k-* are given in (45a-b) as examples. (45c) is an example of an SOM.

(45) a. mitz- V1[<NP NP[2sg]>]/V0
b. k- V1[<NP NP[3]>]/V0
c. tenech- V2[<NP[2sg] NP[1sg]>]/V0

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12 Subject agreement on an auxiliary or raising verb is possible because the subject value of the SUBCAT list is passed up to the point in the tree where the subject is actually realized, e.g. sister of the topmost auxiliary.

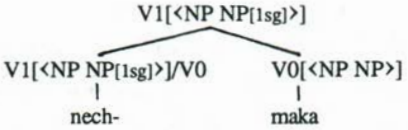
Given the entries in (45), these morphemes will attach only to verbs with exactly two NPs on their SUBCAT list. However, the same morphemes are noted to attach to other kinds of verbs, e.g. ditransitive ones. In order to generalize over other kinds of transitive verbs, we will need to observe the patterns of agreement that they exhibit. An object agreement rule in a given language might affect the second NP on the list, or the last, in case there are more than two. The pattern in Nahuat ditransitives will be discussed in section 3.

At this point, just in order to make the proposals completely clear, I will step through a sample derivation of the surface form of a Nahuat verb. Take the example in (46).

(46) na-nech-maka-ti -h
22 1o hit FUT PL
'You (pl) are going to hit me'

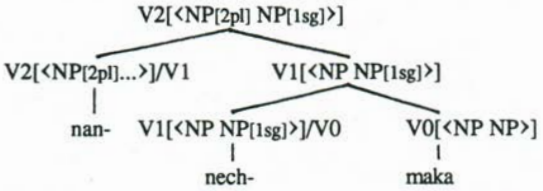
We begin in the lexicon with the V0 stem *maka*, 'hit'. The only things that can be attached to a V0 are an OM or an SOM. We attach the OM *nech-*, yielding the structure in (47).

(47)



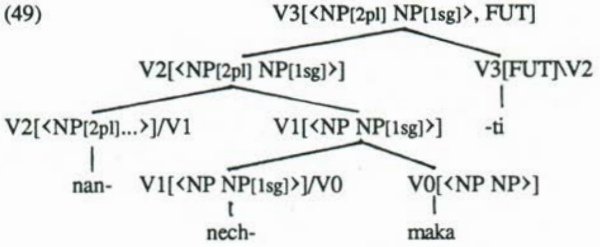
The V0 has a SUBCAT list with two NPs; the second one is restricted to first person singular by the attachment of the OM. Next, we attach an SM, *nan-*.

(48)



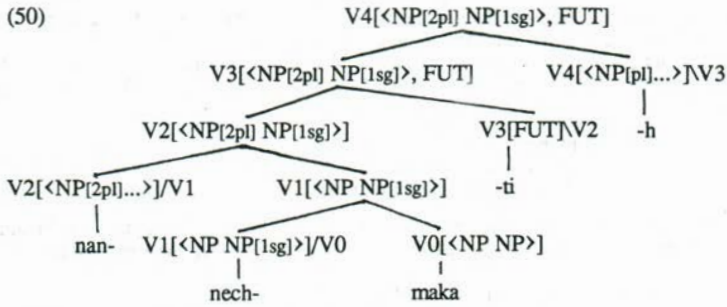
The resulting V2 has both NP slots on its SUBCAT list specified. Now we add a tense suffix, *-ti*.

(49)



Finally, we attach the plural subject suffix, which requires that the subject be plural. Since the V3 is already specified as having a plural subject, the specification on the resulting V4 is unchanged.[13]

(50)



The form *nanechmakatih* is a V4 eligible for insertion into a phrase structure tree. This form can be said to *subcategorize* for a second person plural subject and a first person singular object; principles of syntax (specifically the SUBCAT principle of P&S) will ensure that the proper NPs are located in the appropriate places in that tree.

There are several advantages to using the SUBCAT list for agreement. It allows a simple account that keeps the subject agreement features and the object agreement features distinct, as desired; it also accounts for the absence of agreement with adjuncts, since adjuncts do not appear on the SUBCAT list. Agreement rules are typically sensitive to the grammatical function of an argument rather than to its surface position, and exactly this information is encoded in the SUBCAT list.

The use of the SUBCAT list for agreement rules, along with a system of defaults, also allows for an elegant treatment of the rather complex facts of agreement in the ditransitive clause, as I will detail in the next section.

3. Internal Arguments

In this section I discuss the facts of agreement with ditransitive verbs. This leads to a proposal that the internal arguments on the SUBCAT list be formally distinguished from the subject. Supportive evidence for this distinction is drawn in subsection 3.2 from the distribution of an optional object agreement morpheme.

3.1. Ditransitive Verbs

As noted, a verb can only take one OM or SOM. If the two internal arguments of a ditransitive verb are both third person, it is impossible to tell which one the verb agrees with. However, if one of the two internal arguments is first or second person (a *participant* in the discourse), then the verb must agree with that argument.

The semantics of ditransitive verbs usually involves an agent, a theme, and a goal, the theme being something transmitted or moved by or from the agent to the goal. Generally, if one of the two internal arguments is a participant (or even just human), it will

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13 But given the underspecification conventions proposed in the previous section, this will not always be the case; for example, as noted in 2.4.3, the SOM *tech-* does not specify the number of its subject, so the plural subject suffix would not be redundant.

be the goal (the indirect object). Therefore, in the vast majority of examples of ditransitives in which one argument is a participant, the indirect object is that argument. Some examples are given in (51).

(51) a. nech-maka-ti -h se pio
1o give FUT PL a chicken
'they'll give me a chicken'

b. neh namech-magha-k namehwan in pio -meh
I 1-22 give PST you (pl) the chicken PL
'I gave you (pl) the chickens'

c. tech-tanewti-h se pitzot
11o lend PST a pig
'she lent us a pig'

d. ti-mo-tahkwilo-h-keh sekin ama-meh
11 RFX write PST PL some letter PL
'we wrote letters to ourselves/each other'

In each of these examples, the verb agrees with the indirect object, whether it is realized as an overt NP (as in (51b)) or not. In constructions with third person object agreement, the indirect object can only be understood as being third person. This pattern gives the impression that the verb *must* agree with the indirect object, but it can be demonstrated that this is not the case.

For example, the verb stem *temaka* 'send, send for' has ditransitive semantics (i.e. there is both a necessary theme and a necessary goal) and is often used with a human direct object theme (unlike the verbs in the examples in (51)).[14] The examples in (52) below show that agreement may be with either the direct or indirect object.

(52) a. amo ix- nech-temaka iwan in autoridades
NEG IMP 1o send to the authorities
'don't send me to the authorities'

b. amo ix-nech-temaka nihin-keh presos
NEG IMP 1o send that PL prisoners
'don't send me those prisoners'

In (52a) the verb agrees with the theme, and in (52b) the verb agrees with the goal. If there is a first or second person argument of the verb, the verb must agree with it. The same point is made by the examples in (53) below, using the stem *presentaro* 'introduce'.[15]

(53) a. namech-presentaro-ti a no-maman-tzin
1-22 introduce FUT 1p mother DIM
'I'll introduce you (pl) to my mother'

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[14] In fact, *temaka* is derived from *maka* 'give' by prefixation of *te-*, which creates a verb that takes human objects. Other dialects have a *te-* OM for 'unspecified human' object (see e.g. Tuggy 1979), but in the dialect under consideration here the *te-* morpheme does not take up the OM slot.

[15] The sentences in (53) were provided by the informant as translations from Spanish. It is quite possible that the two sentences are both ambiguous in the same way, and that there is no way to disambiguate the two in Nahuat. The particle *a* appears optionally before human direct and indirect objects in Nahuat, and cannot be used to distinguish direct from indirect arguments.

b. namech-presentaro-ti a namehwan a no-maman-tzin
1-22 introduce FUT you (pl) 1p mother DIM
'I'll introduce my mother to you (pl)'

It is possible to analyze the agreement facts here as indicating that participant goals must be 'promoted',[16] and that agreement is always with the second NP on the SUBCAT list. However, there is no evidence for this other than agreement. The theme argument in (52b) requires no preposition and shows no other signs of being demoted; themes precede goals in the unmarked order in the Nahuat VP regardless of which of the two controls object agreement.[17] I assume instead that both the direct and indirect objects are sisters to projections of V in the VP, and that they appear on the SUBCAT list in fixed order. The pattern established in (52) and (53) then appears to be a case of 'agreement hierarchy' known from the Algonquian languages,[18] where a second person argument triggers agreement on the verb, whether it is subject or object. If there is no second person argument, then a first person argument controls agreement. However, the situation in Nahuat is somewhat different since subjects are excluded; I will argue below that the hierarchy is only apparent, a result of the way the agreement rules constrain the argument structure of the verb.

Recall from section 2.3 that the standard object agreement rule could be said to pick out a particular NP on the SUBCAT list and specify the agreement features on that NP. If the object agreement rule consistently picked out the direct object, it could be a rule that applied to the last NP on the SUBCAT list. A rule that marked the direct object of a transitive verb but the indirect object of a ditransitive could be said to select the second NP on the list. What is needed here is an object agreement rule that does not distinguish between the direct and indirect object.

The most obvious way to do this, given the framework outlined thus far, would be to simply state that the attachment of an OM restricts some non-initial NP on the SUBCAT list. But this kind of statement opens up the possibility of having a rule that affects some non-**final** NP on the SUBCAT list; this would be a rule that could affect either the indirect object or the subject, but not a direct object. This sort of rule seems improbable. What is needed is a way to generalize over VP-internal arguments as a natural class.

Borsley (1987) argues that the subject should be distinguished from the other elements on the SUBCAT list; this suggestion is adopted in chapter 9 of P&S. There, the SUBCAT list is divided into a COMP(LEMENT)S list and a separate SUBJ(ECT) list, so that a ditransitive verb has a representation like that in (54).

(54) verb[SUBJ‹NP›, COMPS‹NP NP›]

In this case, a subject agreement rule could adjust the SUBJ list, while an object agreement rule would adjust the COMPS list. For example, the second person singular OM *mitz-* would have, rather than the entry in (45a), the entry in (55).

(55) mitz- V1[COMPS‹..NP[2sg]..›]/V0

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16 In RG terms; 'undergo dative-shift' in terms of transformational grammar. Whatever the framework, the requirement that participants be promoted would have to be coupled with the additional stipulation that the demoted theme *not* be a participant (in RG there would be a chômage ban on participants).

17 A standard test for '2-hood' in the RG literature is passivization. Unfortunately, this test is impossible here as Nahuat does not have a passive (though reflexives are occasionally used with a passive-like sense).

18 Phil LeSourd, personal communication; see Anderson (1992:100) for examples from Gyarong, a Tibeto-Burman language.

Once the subject is separated from the rest of the SUBCAT list, it becomes quite natural for a rule to apply to an internal argument ('any NP in the COMPS list'), but not at all natural for a rule to target the subject or indirect object ('the NP in the SUBJ list, or the first NP in the COMPS list if there are two NPs there').

As additional support for the notion that the NPs in the verb phrase are a natural class that we should be able to generalize over, I describe the facts of the optional second object marker in the next section.

3.2. The Second Object Marker

First and second person objects are always distinguished in the agreement paradigm with respect to number, that is, there is no form which is ambiguous between e.g. second person singular object and second person plural object. The number of third person arguments is not distinguished in the OM, however. It is possible to distinguish third person singular objects from third person plural objects; there is a morpheme slot immediately following the subject-object agreement prefix that is optionally filled. I will call it O2 for 'second object [agreement prefix slot]', although it has nothing in particular to do with second objects. It is always optional. The only morpheme that may appear there is *in-*, which can only appear if the object with which it agrees is third person plural. I therefore gloss it '33'; it will sometimes follow the *k-* prefix marking the same argument as '3o'.

Some examples of *in-* are given in (56).

(56) a. ni-k- in-ita
1 3o 33 see 'I see them'

b. ix- k- in-tapo mo-ixtololo-wan
IMP 3o 33 open 2p eye p.PL 'open your eyes'

In each of the above cases, the O2 *in-* is optional. It is not used to mark the number of first and second person objects, presumably because the first and second person object markers already encode number.

In the examples in (56), *in-* agrees with the direct object; *in-* may also agree with the indirect object, as shown in (57).

(57) a. ti- k- in-maka-tok -eh se regalo a in Mariah wan in Juan
11 3o 33 give PR.PRG PL a present P the Maria and the Juan
'We are giving a present to Maria and Juan'

b. ix- k- in-maka at nochin in tapial -meh
IMP 3o 33 give water all the animal PL
'give all the animals water'

In all of the above examples the O2 and the OM were picking out the same object.[19] However, the OM and O2 may agree with different objects, as shown in (58).

(58) a. ti- mitz-in-chih-chiwa-ti -h eyi pastel-meh
11 2o 33 RDP make FUT PL three cake PL
'we're going to make three cakes for you (sg.)'

b. amo ix- nech-in-temaka nihin-keh presos
NEG IMP 1o 33 send that PL prisoners
'don't send me those prisoners'

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[19] Or more precisely, there is no evidence that they weren't, since in (57a, b) the OM k- could be agreeing with the singular direct object.

In both (58a) and (b), the indirect object is singular, but number agreement with the direct object may optionally be expressed in O2. The examples below show that agreement with non-third person arguments is impossible for *in-*.

(59) a. tamech-in-chih-chiwi -li -ti -h ome pastel-meh
11-22 33 RDP make APP FUT PL two cake PL
'we're going to make two cakes for you (pl)'

b. * tamech-in-chih-chiwi -li -ti -h se pastel
11-22 33 RDP make APP FUT PL a cake

c. tamech-chih-chiwi-li -ti -h se pastel
11-22 RDP make APP FUT PL a cake
'we're going to make a cake for you (pl)'

(59a) is good, but since both arguments are plural, it is impossible to tell what the agreement facts are. (59b) is different only in that the direct object is singular, and it is ungrammatical. If the O2 is omitted, as in (59c), then a singular direct object is possible. In this particular construction, therefore, the O2 can only agree with the direct object, because only the direct object is third person. Compare this to the cases seen in (57) where the O2 can only be agreeing with the indirect object.

I give a lexical entry for *in-* in (60).

(60) in- V0[COMPS<..NP[3pl]..>]/V0

The fact that the morpheme *in-* takes a member of category V0 as input and returns the same as output allows it to be optional.[20] The entry would be complicated slightly given a SUBCAT list containing the subject, since plural subjects do not license *in-*. I take the distribution of *in-* as additional support for the claim that we need a way to generalize over VP-internal arguments.

4. Default SUBCAT Restrictions

The final problem is to account for the 'agreement hierarchy'. It turns out to follow very nicely from the assumptions that have already been adopted, coupled with a simple default rule.

The concept of default values for features has a long history in phonology; for their use in syntax, see GKPS; for their use in morphology, see Farkas (1990). A straightforward case of a default value in morphology is exhibited in (61) below. There, a verb with a clausal object shows third person agreement.

(61) nehwa ni-k- ihto-h ti-a -skia in iskwela
I 1 3o say PST 2 go COND the school
'I said that you should go to school'

Farkas (1990) models this kind of situation by setting the clause to 'third person singular' by a *feature specification default* (FSD) like that shown in (62).

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[20] It also suggests that the O2 might be iterative, which it is not. I am forced to stipulate that an O2 may not be attached to a V0 already containing an O2. Alternatively, we might introduce a new level, say Va, and say that transitive stems are Va, but OMs attach to Va. There are two ways to get a Va from a V0: by affixing the O2, or by a zero derivation. In this way, the optionality of the O2 is maintained, and iteration of the O2 is prevented, but the increased complexity of the grammar seems unwarranted; I prefer to stipulate that O2s cannot be iterated.

(62) [ ] —> [3sg]

The rule in (62) applies only to XPs unspecified for agreement features.[21] Now consider that the SUBJ and COMPS lists of a verb are really features, and the argument slots on those lists are a kind of feature specification. If an NP slot on a verb's COMPS list is restricted to some particular set of feature specifications, then the features on that verb are simply more fully specified than those on a verb that will accept an NP complement of any person or number. There is no reason that defaults should not apply to the NP slots on the COMPS list of a verb. I propose the following FSD rule for Nahuat.

(63) ‹..NP..› —> ‹..NP[3]..›

(63) is formulated to apply to all NP slots on SUBJ and COMPS lists. If an NP slot is not specified for agreement features (by the attachment of an agreement affix), then the slot is set to third person. Recall that every verb must take either an SM and an OM or an SOM, in order to be raised to a suitable level for lexical insertion. Because of this, NP slots on the SUBJ and COMPS lists will generally be specified for a person value. However, since it is only possible to attach one OM, only one slot on the COMPS list can ever be specified in this way. If there are others, they will be specified by the FSD in (63). From these facts the apparent agreement hierarchy falls out. This is because on a ditransitive verb, whichever internal argument is restricted by a first or second person OM, the other will be set to third person. A sample derivation is given in (64).

(64) a. *stem (V0):*
temaka[SUBJ‹NP›, COMPS‹NP NP›]

b. *add SOM (V2):*
tech+temaka[SUBJ‹NP[2]›, COMPS‹NP NP[1pl]›]

c. *add TENSE (V3):*
techtemaka[SUBJ‹NP[2]›,COMPS‹NP NP[1pl]›, PRES]

d. *add subject agreement (V4):*
techtemaka[SUBJ‹NP[2sg]›, COMPS‹NP NP[1pl]›, PRES]

e. *default:*
techtemaka[SUBJ‹NP[2sg]›, COMPS‹NP[3] NP[1pl]›, PRES]

In (64a), the base form for the verb temaka 'send' is given. It has one NP on its SUBJ list and two NPs on its COMPS list. In (64b), that stem has undergone prefixation of the 1pl SOM *tech-*. This places the restriction on the subject that it be second person and on one of the NPs on the COMPS list that it must be first person plural. In this example, the restriction is placed on the direct object, the last NP on the list. In (64c), the level is raised to V3 without overt affixation by the present tense rule. In (64d), the level is raised to V4 and the subject is specified as singular. The default rule applies to the unspecified object in (64e), requiring it to be third person, but not specifying it for number. Thus, this verb form can be used with a third person singular indirect object, as in 'he sent us to her', or with a

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[21] Seen another way, a default could be modelled by loosening the restrictions on the agreement 'target', in this case the verb. Specifically, in this case the third person OM could restrict an XP on the COMPS list to be '-prt', i.e. not a participant. This would exclude first and second person arguments while allowing third person arguments as well as clauses and expletives, even if they were unspecified for agreement features. Further investigation of other cases of default agreement, such as those discussed in Farkas (1990), are necessary before this alternative can be evaluated.

third person plural indirect object, as in 'he sent us to them'. If the O2 *in-* had been added before the SOM, it would have placed a restriction on one of the object NPs that required it to be third person plural, as in the form in (65).

(65) tech-in-temaka[SUBJ‹NP[sg]›, COMPS‹NP[3pl] NP[1pl]›, PRES]

Here, the restriction was placed on the indirect object; the indirect object, specified as third person plural, could not be further specified as first person plural, so when *tech-* is prefixed, its restriction could only apply to the direct object. The default rule does not apply, since there are no unspecified objects.

For comparison, consider a derivation where the third person OM *k-* is prefixed to the same stem, as in (66).

(66) a. *stem (V0):*
temaka[SUBJ‹NP›, COMPS‹NP NP›]

b. *add OM (V1):*
k+temaka[SUBJ‹NP›, COMPS‹NP NP[3]›]

c. *add SM (V2):*
ni+kitemaka[SUBJ‹NP[1sg]›, COMPS‹NP NP[3]›]

d. *add TENSE (V3):*
nikitemaka[SUBJ‹NP[1sg]›, COMPS‹NP NP[3]›, PRES]

e. *add subject agreement (V4):*
nikitemaka[SUBJ‹NP[1sg]›, COMPS‹NP NP[3]›, PRES]

f. *default:*
nikitemaka[SUBJ‹NP[1sg]›, COMPS‹NP[3]› NP[3]›, PRES]

In (66b), *k-* is prefixed. A restriction is placed on one of the VP-internal NPs, here again the DO. In (66c), a SM is prefixed, placing a restriction on the NP on the SUBJ list. In (66d), the present tense rule has applied. In (66e), the singular subject rule applies vacuously (as the subject is already specified as singular), in order to raise the level to V4. In (66f), the default rule applies, making the other NP on the COMPS list third person. Now this form is unsuitable for a tree in which both internal arguments are not third person. The 'agreement hierarchy', then, falls out from third person being a default value assigned to NPs on the COMPS list.

Thus, there is no real 'person hierarchy' at all, in the sense that there is no rule requiring first and second person agreement features to appear on the verb in preference to third person agreement features. The apparent hierarchy is the result of the fact that the only agreement value that is available by default is third person. First and second person agreement must be specified by a rule.

A prediction that this account makes is that it should be impossible for there to be a first and a second person VP-internal argument. This is because only one OM or SOM can be added, and each one only specifies at most one object; all other objects will be set to third person, making the verb form incompatible with a tree that has two participants in the verb phrase.

This prediction is borne out, and in order to describe events involving two participants as VP-internal arguments, one must be expressed in a prepositional phrase,

which prevents it from controlling agreement on the V (as it is no longer an NP on the SUBCAT list). This is shown in the examples below (compare example (53) above).[22]

(67) a. mitz-presentaro-h (a tehwa) no-wan
2o introduce PST you me with
'he introduced you to me'

b. nech-presentaro-h (a nehwa) mo- wan
1o introduce PST me you with
'he introduced me to you'

c. * mitz-presentaro-h (a tehwa) (a nehwa)
2o introduce PST you me

d. * nech-presentaro-h (a tehwa) (a nehwa)
1o introduce PST you me

It is clear from the above examples that there is no three-way hierarchy of agreement control in Nahuat, but only a special kind of default rule which specifies a person value for unspecified argument slots on verbs.

5. Conclusion

I have here developed an explicit and thorough treatment of the facts of Nahuat agreement which lends support to various theoretical proposals. First, it supports the notion that inflectional morphology is part of a morphological component of the grammar, rather than a part of the syntactic component. Second, it supports the idea that agreement is best handled through the SUBCAT list of a verb. Third, it encourages the proposal that the SUBCAT list should be separated into two parts, a SUBJ list and a COMPS list. Finally, it strengthens the notion that default feature specifications should be part of morphology.

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22 *wan* here is an adposition that takes proclitics to its left.

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The role of prosody in right node raising

Kari Swingle

1.0 Introduction: some problems with right node raising

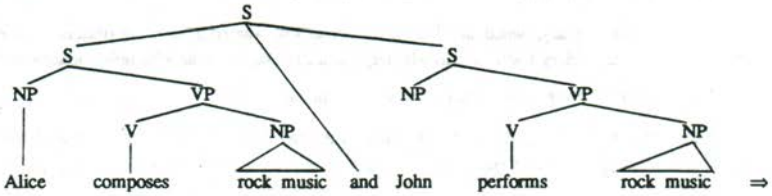
The construction known as RIGHT NODE RAISING (RNR) is exemplified in (1).

(1)a. Alice composes, and John performs, [Philadelphia-style punk rock music]. (MCb)
b. John gave a book, and Bill sent a money order, [to Susan]. (W&C)
c. I conjecture, though I don't assert, [that your theory is correct]. (B)

In each example is a coordinate structure in which the 'missing part' of each conjunct is understood to be the bracketed material in sentence-final position.[1] This bracketed material, I will call the 'pivot', following Postal 1991.[2]

The term RIGHT NODE RAISING reflects the earliest transformational analysis of this construction in which RNR is treated as a syntactic extraction operation that applies during the mapping of deep to surface structure (Ross 1967). Specifically, Ross proposes to derive the surface word order of an RNR construction by right-Chomsky adjoining to S a copy of the targeted maximal constituent with concomitant deletion of this constituent from each conjunct.

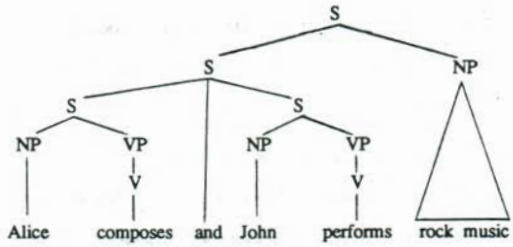
(2)



*Thanks to audiences at UCSC, the 1993 LSA Meeting, and the 1st Annual Trilateral Phonology Weekend for useful comments and criticisms. Special thanks to Judith Aissen, Cathal Doherty, Jorge Hankamer, Jim McCloskey, Louise McNally, and Geoff Pullum for their help, and, above all, to Armin Mester, whose advice, criticism, and lively commentary were truly invaluable. This work was partially supported by NSF grant BNS-9021398 awarded to William Ladusaw and James McCloskey.

[1] RNR is not exclusively restricted to coordinate structures, as noted by Hudson (1976), who cites examples like *Of the people questioned, those who liked, outnumbered by two to one those who disliked, the way in which the devaluation of the pound had been handled* (p. 550). Such examples will not be discussed here, although they are entirely compatible with the claims made below.

[2] Throughout the paper, much of the data is taken from the following sources: Abbott 1976 (A), Bresnan 1974 (B), Hankamer 1971 (H), Levine 1984a (La), Levine 1984b (Lb), McCawley 1982 (MCa), McCawley 1988 (MCb), Postal 1991 (P), Steedman 1985 (Sa), Steedman 1989 (Sb), Wexler and Culicover 1980 (W&C).



Since Ross's proposal, numerous problems with analyzing RNR as syntactic extraction have been noted; such problems include the failure of RNR to observe certain island constraints, 'still there' effects, and the sensitivity of RNR to prosodic factors.[3]

1.1 RNR and islands

If RNR is appropriately analyzed as syntactic extraction, we would expect this operation to be subject to the same constraints as other extraction processes. It appears, however, that RNR has a much freer application than extraction operations such as WH-movement in that RNR may target a constituent within an island. Wexler and Culicover 1980, for example, note that RNR may target a constituent within a complex NP (3), concluding that RNR does not observe the Complex NP Constraint.

(3)a. Mary owned, and John knew a man who wanted to buy, a portrait of Elvis Presley. (MCb)
b. Mary knows a man who buys, and Bill knows a man who sells, pictures of Fred. (W&C)

cf. *What does Mary know a man who buys?

Similarly, RNR is apparently not subject to the WH Island Constraint and the pivot in (4) is acceptably removed from the embedded WH-questions in each conjunct.[4]

(4) I can tell you what John bought, and I can also tell you what he stole, at the flea market yesterday.

cf. *Where can't you tell me what John bought yesterday?

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[3]For a more thorough survey and critical discussion of the problems faced by an extraction analysis of RNR, see Postal 1991 (a paper which ultimately supports the 'RNR as extraction' hypothesis).

[4]RNR does appear to observe the Coordinate Structure Constraint, as noted first in Ross 1967. Thus, the sentence in (a) is ungrammatical because the pivot has been removed from a conjoined NP structure in each conjunct.

(a) *Tom is writing an article on Aristotle and, and Elaine has just published a monograph on Mesmer and, Freud. (MCa)

Postal 1991 cites the apparent observance of the Coordinate Structure Constraint as support for an analysis of RNR as syntactic extraction. Although this paper ultimateily adopts the claim that RNR is an extraction process, facts like those in (a) are not taken as direct support for this claim. Instead, the ungrammaticality

1.2 'Still there' effects

A different kind of problem for an analysis of RNR as syntactic extraction is the observation that an RNR pivot behaves as if it were still in place in each conjunct for the purposes of s-structure constraints. In other words, at s-structure, an RNR pivot typically behaves as if it were not extracted at all. This class of phenomena I refer to as 'still there' effects, and exemplify a number of such cases immediately below.

1.2.1 NP anaphora

One example of a 'still there' effect is the application of s-structure constraints on NP anaphora in RNR constructions. Levine 1984a notes that such constraints apply to RNR constructions as if the pivot were still in place in each conjunct. Consider (5a), which is ungrammatical on the reading in which *she* and *Mary* are coreferential.

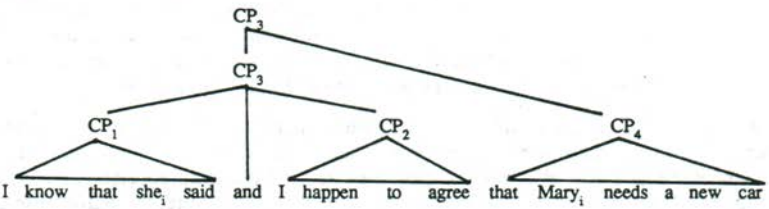
(5)a. *I know that she$_i$ said, and I happen to agree, that Mary$_i$ needs a new car. (La)

The ungrammaticality of this sentence follows straightforwardly as a Condition C violation if the Binding Conditions are applied to the pre-RNR structure, (5b), since here the pronoun *she* unacceptably c-commands, and is co-indexed with, the R-expression *Mary* in the first conjunct.

(5)b. *I know that she$_i$ said that Mary$_i$ needs a new car and I happen to agree that Mary$_i$ needs a new car.

In contrast, the ungrammaticality of (5a) goes unaccounted for if the Binding Conditions are applied to the output structure itself. Assuming with Ross that the output structure involves adjunction of the pivot to the matrix sentence as in (6), there is no longer a Condition C-violating configuration; the R-expression *Mary*, although co-indexed with the pronoun *she*, is not c-commanded by that element and the indicated coreference is wrongly predicted acceptable.

(6)



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of a sentence like (a) is attributed to a prosodic constraint. To anticipate the discussion below, note that each conjunct in (a) ends with the unstressed function word *and*, a situation which is generally disallowed in RNR constructions regardless of whether the sentence otherwise violates a syntactic constraint or not.

(b) *Ted has always wanted a, so I've given him my, [$_{NP}$ coffee grinder] (MCb)

The ungrammaticality of both sentences (a) and (b) is due to the prosodically unacceptable separation of the pivot from the preceding material in each conjunct; i.e., the strings *Aristotle and Freud* and *Mesmer and Freud* in the underlying structure of (a) form prosodic constituents which cannot be broken up by RNR and, likewise, the strings *a coffee grinder* and *my coffee grinder* in the underlying structure of (b) form prosodic constituents that cannot be broken up by RNR (cf. section 2.2).

1.2.2 VP ellipsis

VP ellipsis provides a second example of a 'still there' effect, as noted first by McCawley (1982). McCawley cites examples like those in (7) in which the null VP anaphor in each case takes as its antecedent the conjunct final VP, *talk about politics* in (7a) and *admire Adolf Hitler* in (7b).

(7)a. Tom talked, and I'm sure that everyone else talked, about politics, but of course you and I didn't. (=talk about politics) (MCa)
b. Tom admires, and is sure that everyone else admires, Adolf Hitler, but of course you and I don't. (=admire Adolf Hitler) (MCa)

Given the standard assumption that a null VP anaphor must find its antecedent at s-structure (Hankamer and Sag 1976), the proposal that RNR applies pre-s-structure along with other extraction operations is problematic, since RNR breaks up the intended antecedent. If, on the other hand, VP ellipsis applies to the input of RNR where the pivot is still in place, facts like those in (7) are accounted for directly.

1.2.3 Postal's examples

Postal 1991 cites what appear to be two further clear cases of 'still there' effects. The first involves *express* class verbs. Postal credits Grimshaw 1982 and Jacobson 1991 for the observation that verbs like *express*, *capture*, and *reflect* are exceptional in that, although they do not permit *that*-clause complements at s-structure (8), they apparently do permit *that*-clause complements at d-structure as evidenced by the fact that a *that*-clause can appear in derived environments such as passives (9), tough movement constructions (10), and topicalization constructions (11). (Examples (8)-(11) are taken from Postal 1991.)

(8) This theory captures/expresses/reflects *(the fact) that every verb begins with a vowel.
(9) That every verb begins with a vowel is captured/expressed/reflected by this theory.
(10) That every verb begins with a vowel is impossible for such a theory to capture/express/reflect.
(11) That every verb begins with a vowel, his theory fails to capture/express/reflect.

In short, the d-structure *that*-clause complement of such predicates can appear at s-structure if and only if some operation applies to remove the *that*-clause from its original complement position. We would expect then that if RNR is appropriately analyzed as an extraction operation in the mapping of d-structure to s-structure, the *that*-clause complement of such predicates will serve as an acceptable pivot since the complement will have been removed, as required, from its d-structure position. That this is incorrect is demonstrated by the ungrammaticality of (12).

(12) A good theory should capture/express/reflect, and would capture/express/reflect, *(the fact) that every verb begins with a vowel.

Again, an explanation for the ungrammaticality of (12) is forthcoming only if the s-structure constraint peculiar to these predicates is applied to the pre-RNR structure where the *that*-clause complement appears unacceptably in its d-structure position.

Postal's second observation is similar. Whereas predicates such as *certain* take a *that*-clause complement (13), extraction of that complement requires the stranding of a preposition (14) at s-structure, as noted originally, according to Postal, by Kaplan and Bresnan (1982). The application of RNR to the *that*-clause complement (15), however, does not require the appearance of a stranded preposition--in fact, does not allow the appearance of a stranded preposition--thus shedding further doubt on the analysis of RNR as an extraction operation in the mapping of d-structure to s-structure. (Examples are again taken from Postal 1991.)

(13) I am no longer certain (*of) that Nancy is an extraterrestrial.
(14) That Nancy is an extraterrestrial, I am no longer certain *(of).
(15) Frank may be certain (*of), and should be certain (*of), that Nancy is an extraterrestrial.

1.3 Prosodic constraints

A third type of problem for the analysis of RNR as extraction is the sensitivity of this operation to prosodic factors, a characteristic not typically associated with syntactic extraction processes. Numerous examples of this observation will be discussed below; as exemplification now, note the impossibility of function word pivots in (16), an observation attributed in Abbott 1976 to Jorge Hankamer (p.c.) as well as the impossibility of stranding a function word at the end of a conjunct, as noted in McCawley 1988 and exemplified in (17).

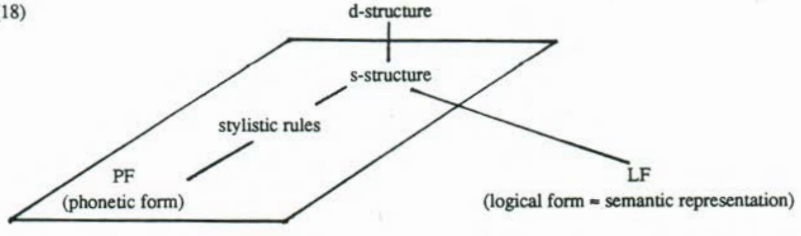
(16)a. *Alice composed, and John performed, [$_{DP}$ it]
b. *Mary bought, and Fred stole, [$_{DP}$ that]

(17)a. *Ted has always wanted a, so I've given him my, [$_{NP}$ coffee grinder] (MCb)
b. *I think that I'd, and I know that John'll, [$_{VP}$ buy one of those portraits of Elvis]

1.4 RNR as a stylistic rule

Because of facts like those in (3)-(17), RNR has sometimes been construed as a rule of P(honetic) F(orm), i.e., as a stylistic rule whose application occurs sometime during the mapping of s-structure to PF rather than during the mapping of d-structure to s-structure.

(18)



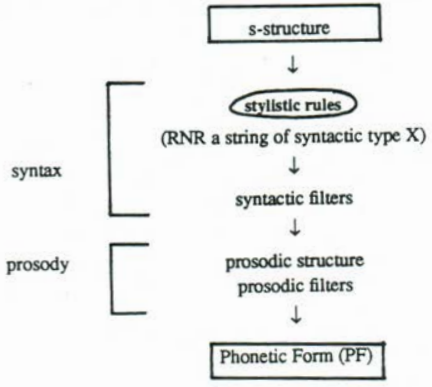
Doing this, of course, allows the problems noted above to be avoided: failure to observe island constraints on extraction can be explained by positing that constraints which hold at s-structure may no longer hold at PF; 'still there' effects need not be a problem if it is assumed that at s-structure, the pivot is, in fact, in place in each conjunct and it is only later that RNR disrupts this structure; and, finally, prosodic sensitivity is no longer surprising if RNR is in fact a rule of PF.

While these are all welcome results, this proposal raises the fundamental question of what exactly a stylistic rule is. What types of constraints apply to stylistic rules and what sorts of information do they have access to--syntactic information, prosodic information, or both?

In answer to these questions, there are in principle three possible positions one could take. Hypothesis A in (19) is the hypothesis that stylistic rules are like any other syntactic rule in that they make direct reference to syntactic structure alone. The main difference between stylistic rules and purely syntactic operations, under this hypothesis, is that the output of a stylistic rule like RNR may be subsequently ruled out for prosodic considerations. Hence, we can think of this hypothesis as the *Syntax first, prosody second* hypothesis. RNR, under Hypothesis A, will be an operation which applies to syntactic strings of some type X. The output of RNR will be first subject to whatever syntactic constraints (if any) are operative after s-structure and, if these are met, prosody will follow to determine if the output string is finally acceptable or not.

(19) **Hypothesis A** *Syntax first, prosody second*

Stylistic rules manipulate syntactic constituents. Their outputs may be subject to syntactic and prosodic constraints.

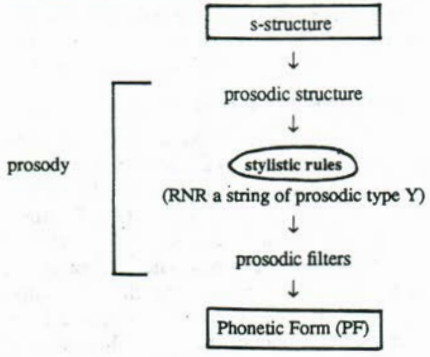


Hypothesis A is consistent with the *Principle of Phonology-free Syntax* proposed and argued for in a series of papers by Pullum and Zwicky (cf. Pullum and Zwicky 1988 for an introductory survey of their work; cf. also section 4.0 of this paper).

Hypothesis B in (20) holds that stylistic rules have access to prosodic information only. Under this hypothesis, syntactic considerations are irrelevant to the operation of stylistic rules; that is, the syntax is 'turned off' after s-structure, and the constituents manipulated by a stylistic rule are prosodic constituents, and the constraints applicable are prosodic constraints. Under this view, RNR applies after the assignment of prosodic structure and the operation itself is stated in terms of prosodic constituency: *RNR a string of some prosodic type Y.*

(20) **Hypothesis B** *Prosody only*

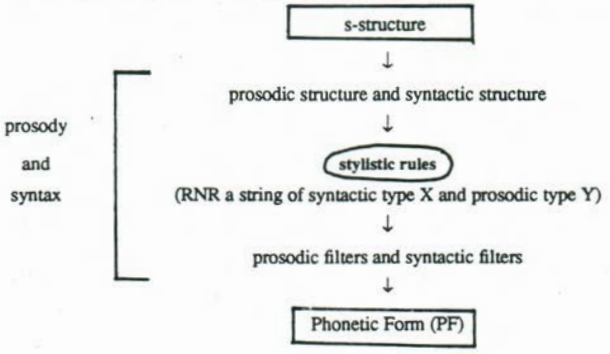
Stylistic rules manipulate prosodic constituents. Their outputs may be subject to prosodic constraints only.



The third hypothesis, Hypothesis C, maintains that stylistic rules are both syntactic and prosodic in nature. Such rules differ from purely syntactic rules like WH-movement, for example, in that their operation depends on the availability of both syntactic and prosodic information. RNR, under this view, is an operation that displaces a string which must meet both syntactic and prosodic criteria: *RNR a string of syntactic type X and prosodic type Y.*

(21) **Hypothesis C** *Syntax and prosody*

Stylistic rules have access to both syntactic and prosodic constituent structure.
The outputs of stylistic rules may be subject to both syntactic and prosodic constraints.



Hypothesis C has been argued for to greater or lesser degrees by numerous linguists including Chomsky and Lasnik 1977:

> *...we assume that they [stylistic rules] may refer to phonetic properties.* (p. 433))

Booij 1984:

> *...[coordination reduction in complex words in Dutch is a rule which refers both] to the syntactic notion 'conjunction'...and to the [prosodic] notion 'phonological word'.* (p.156)

and most explicitly and compellingly by Zec and Inkelas 1990:

> *Certain phenomena which belong to the borderland of syntax cannot be characterized in purely syntactic terms. At least part of the burden needs to be shifted to phonology, and this characterization does not merely depend on the nature of prosodic constituents, but also relies on the relation of the prosodic component to the syntactic one.* (p. 378).

I will argue here that the facts from RNR also support adoption of Hypothesis C.

As a working assumption, I will assume with Ross 1967 that RNR is an extraction operation; unlike this earlier work, however, I will assume that RNR is an extraction operation which applies *post*-s-structure as in the diagram in (18).[5] The question of what exactly is extracted by RNR--i.e., whether a targeted pivot is of some syntactic type X, some prosodic type Y, or some syntactic type X *and* some prosodic type Y--is addressed in sections 2.0 and 3.0. Section 2.0 argues that a prosodic constraint must be placed on a targeted RNR pivot; hence, that it is the operation rather than the output of RNR that is prosodically constrained. Specifically, it is proposed that a targeted RNR pivot must constitute an Intonational Phrase in each conjunct of the pre-RNR structure. Section 2.0 thus eliminates Hypothesis A as a viable characterization of the organization of the grammar

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[5]This is not an unproblematic assumption. Questions such as how to formally characterize the extraction of a single pivot out of two or more conjuncts, where the landing position of the pivot is, whether or not subjacency is observed at PF (it appears that it is not, given the acceptable island violation in (3)), whether or not antecedent government is observed at PF, and how double pivots are to be handled (cf. section 2.3.2) will be left unaddressed. While these are all important questions, the basic claim of this paper is that the acceptability of an RNR construction will depend on the prosodic structure of a representation of that sentence in which the pivot is *in place* in each conjunct, regardless of whether this abstract representation is taken to be a pre-movement representation (as assumed here), a pre-deletion representation (if RNR is analyzed as a copy-deletion process), a reconstructed representation, or anything else.

A further difficulty that arises by assuming the organization of the grammar in (18) together with an extraction analysis of RNR is the interaction of RNR with semantic interpretation. Abbott 1976 and Levine 1984b note RNR constructions of the following type:

(a) John gave Mary, and Joan presented to Fred, books which looked remarkably similar. (A)
(b) John sang, and Mary hummed, different tunes. (Lb)

Note that these sentences, on their most natural readings, mean very different things from the corresponding sentences in which the pivot is in place in each conjunct.

(a′) John gave Mary books which looked remarkably similar and Joan presented to Fred books which looked remarkably similar.
(b′) John sang different tunes and Mary hummed different tunes.

Sentence (a), but not (a′), can mean that the books that John gave Mary looked remarkably similar to the books that Joan presented to Fred; sentence (b), but not (b′), can mean that the tune(s) John sang were different from the tune(s) Mary hummed. But (a′) and (b′) are the s-structures of (a) and (b) under the assump-

between s-structure and PF. Section 3.0 addresses the question of whether or not RNR can be stated solely in terms of prosodic constituency and concludes that it cannot be, based on evidence indicating the operation of the Empty Category Principle, specifically the proper head government clause of this principle, to RNR constructions. This evidence supports the conclusions of Aoun, Hornstein, Lightfoot, and Weinberg 1987 concerning the operation of the ECP at PF and simultaneously eliminates Hypothesis B as the appropriate characterization of the organization of the grammar between s-structure and PF. Sections 2.0 and 3.0 thus leave us with Hypothesis C, lending further support to the Zec and Inkelas view of stylistic rules. Finally, section 4.0 summarizes the conclusions and considers briefly their implications for Pullum and Zwicky's principles of *Phonology-free Syntax* and *Superficial Constraints in Phonology*.

2.0 The prosody of RNR

I will begin by investigating the prosody of RNR and addressing the following question: Does prosody constrain the *output* of RNR, as would be consistent with the view of grammar posited by Hypothesis A, or does prosody constrain the *application* of RNR--i.e., must a targeted pivot meet a prosodic requirement in order to undergo RNR, as would be consistent with the views of grammar posited by Hypotheses B and C?

2.1 The Intonational Phrase

One of the most salient features of RNR constructions is the marked pause which occurs after each conjunct. Such pauses are standardly assumed to mark Intonational Phrase (IntP) boundaries; hence, we can conclude, that in the simplest case, an RNR construction consists of a sequence of intonational phrases equal to the number of conjuncts plus one--the pivot, as illustrated in (22).

(22) [$_{IntP}$ John gave a book] [$_{IntP}$ and Bill sent a money order] [$_{IntP}$ to Susan]

Given this observation, a reasonable hypothesis would be that an RNR construction is acceptable if and only if there is an acceptable assignment of prosodic structure to the sentence such that each conjunct and the pivot constitute an IntP. Under Hypothesis A, this constraint would be construed as an output constraint as in (23).

(23) **Prosodic Constraint on RNR output (Hypothesis A)**

an RNR construction is acceptable iff there is at least one acceptable assignment of prosodic structure to the output structure such that each conjunct and the pivot constitute an IntP.

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tions made here; hence (a′) and (b′) are the structures sent to the interpretive component of the grammar in (18), leaving us with the problem of how the most natural interpretations of (a) and (b) are to be derived. It would perhaps be profitable to recast the extraction analysis of RNR to be assumed here as a copy-deletion analysis along the lines of Chomsky 1992; that is, an RNR construction at s-structure and hence at LF, may have its pivot both in place in each conjunct *and* copied in final position. For example, an RNR construction like (b) will have the adjoined s-structure [$_{CP}$ [$_{CP}$ *John sang different tunes and Mary sang different tunes*] [$_{DP}$ *different tunes*]]. Conceivably, the appropriate interpretation of (b) could be derived from this structure at LF; at PF, each instance of the pivot within the conjuncts would be deleted. I will leave this alternative analysis as an option worthy of further investigation, but will not pursue or adopt it here.

Under Hypotheses B and C, this constraint may be construed as a constraint on the *application* of RNR, as in (24).

(24) **Prosodic Constraint on RNR application (Hypotheses B and C)**

an identical sequence of elements can be RNR'ed out of each conjunct iff there exists at least one acceptable assignment of prosodic structure to the input structure such that this sequence forms an IntP in each conjunct.

In effect, under Hypotheses B and C, the prosodic constraint in (24) amounts to requiring that whatever is extracted by RNR be an IntP at the time of extraction.

Under either version of the constraint, we predict that constraints on IntP construction will be reflected in RNR constructions. One set of such constraints are those constraints which hold at lower levels of prosodic structure. The theory of prosodic phonology maintains that a given phonological string can be exhaustively parsed into prosodic constituents of increasingly greater 'value' where 1) each level of prosodic structure exhaustively parses the string and 2) each prosodic constituent at a given level consists solely of prosodic constituents at the next lower level of structure and is grouped into exactly one prosodic constituent at the next higher level of structure. In this way, a fully assigned prosodic structure is said to be 'strictly layered' (Selkirk 1984).[6] The particular hierarchy I assume is given in (25) and is essentially that of Nespor and Vogel 1986, incorporating ideas of Selkirk 1972, 1980, and Hayes 1989.[7] An example of a fully assigned prosodic structure (based on an example sentence from Nespor and Vogel 1986) is given in (26).

(25) **The Prosodic Hierarchy**

Utterance (U)
Intonational Phrase (IntP)
Phonological Phrase (ϕ)
Clitic Group (C)
Phonological Word (W)

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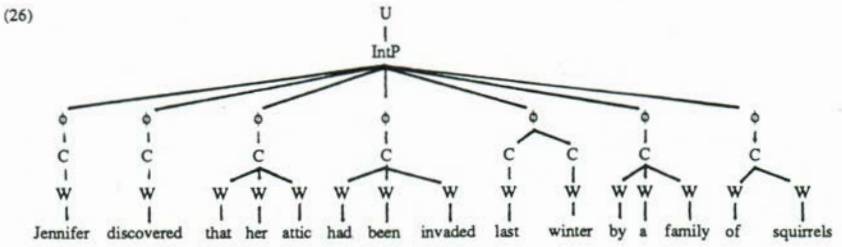
[6]The Strict Layer Hypothesis may be too strong, as argued by Itô and Mester (1992), who advocate a principle of 'Weak Layering' at least at prosodic levels below the level of the phonological word (see Itô and Mester for details). This paper provides no evidence to choose between these two hypotheses and is compatible with either.

[7]Although there is some question as to whether the clitic group is a necessary level of prosodic structure or not, nothing in the discussion below hinges on the decision made here to recognize it. For the purposes of this analysis, it is equivalent to assume either of the following: 1) function words cannot constitute a clitic group on their own and so must be grouped into an adjacent clitic group or 2) function words cannot constitute a phonological word on their own and so must be grouped into an adjacent phonological word.

(26)



Given the Strict Layer Hypothesis, it is clear that the parsing of a string into IntPs will be constrained not only by the construction rule for IntPs itself (whatever that may turn out to be) but indirectly by the rules for Phonological Phrase Formation, Clitic Group Formation, and Phonological Word Formation. That is, if a given string cannot constitute an acceptable sequence of phonological words, clitic groups, and phonological phrases, neither can it constitute an acceptable IntP or sequence of IntPs. Applying this observation to the proposal that RNR is constrained by a requirement that the targeted pivot constitute an acceptable IntP at some point in the derivation, we are committed to the view that the targeted pivot must also constitute an acceptable fully parsed string at all levels of prosodic structure lower than the IntP at the same point in the derivation.

2.2 The Clitic Group

Each layer of prosodic structure is built via a construction rule that makes direct reference to the syntactic structure of an input string. I will assume in the examples below that Phonological Word Formation proceeds by assigning each syntactic word to a phonological word. Clitic Group Formation, on the other hand, distinguishes between content words and function words. Hayes 1989 proposes the formulation in (27).

(27) **CLITIC GROUP FORMATION** (Hayes 1989)

a. Every content word belongs to a separate Clitic Group.
b. Rule: Clitic words [= function words] are incorporated leftward or rightward into an adjacent Clitic Group. The group selected is the one in which the clitic shares more category memberships with the host.
c. Dfn: The HOST of a Clitic Group is the content word it contains.
d. Dfn: X and Y SHARE CATEGORY MEMBERSHIP in C if C dominates both X and Y.

This construction rule will, for example, group a pronominal direct object into the clitic group of a preceding verb, (e.g., [$_C$ *composed it*]) and a possessive pronoun into the clitic group of a following noun, (e.g., [$_C$ *my book*]). I will make the standard assumption below that a stressed function word is like a content word in that it constitutes a single clitic group; thus, a phrase like *MY book*, with emphasis on the possessive pronoun *my*, will be grouped into two clitic groups, [$_C$ *MY*] [$_C$ *book*].

With the rule for Clitic Group Formation, we can explain the ungrammaticality of RNR constructions with function word pivots like those in (28).

(28)a. *Alice composed, and John performed, [$_{DP}$ it].

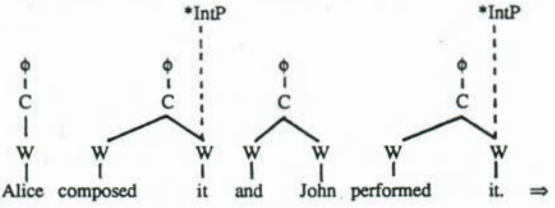
b. *He tried to persuade, but he couldn't convince, [$_{DP}$ them]. (B)

c. *Mary bought, and Fred stole, [$_{DP}$ that].

Put simply, if a function word cannot constitute a clitic group on its own, it cannot constitute an IntP. Hence, under either the application or the output version of the prosodic constraint, RNR is correctly precluded.

Consider first (29) and how the application constraint--Hypotheses B and C--rules out an RNR construction with a function word pivot.

(29) The application constraint (Hypotheses B and C)



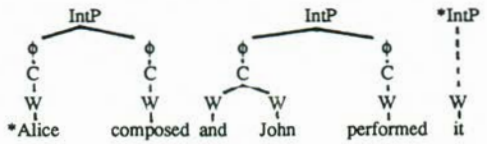
*Alice composed, and John performed, it.

Prosodic structure is assigned to the input string as shown; crucially here, the pronoun *it* is grouped into the clitic group of the verb in each conjunct (this being the adjacent element with which the pronoun shares the most category memberships in each case; namely, V′ and every node dominating V′). Thus, the sequences *composed it* and *performed it* form single clitic groups. The application constraint requires that a string targeted for extraction constitute an IntP in each conjunct. Here the targeted function word *it* clearly cannot form an IntP and application of RNR is correctly blocked.

Now consider Hypothesis A's account. Under Hypothesis A, prosody is relevant only after RNR has applied and an RNR output is acceptable if and only if an acceptable IntP parsing can be assigned to it. As seen in (30), an acceptable IntP parsing cannot be assigned to this output structure. Here the only element adjacent to the pronominal pivot *it* is the final verb of the second conjunct *performed*; presumably, then, the pronoun is grouped into the clitic group of this element as illustrated.[8] This being the case, the

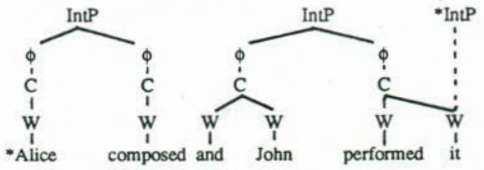
[8]I say presumably here because it is not clear whether Hayes intends his construction rule in (27) to allow clitic group formation across sentence boundaries. In the diagram in (30), I have assumed that this is possible and that the pronoun *it* can be grouped into the clitic group of *performed* despite the fact that *it* is not dominated by the lowest CP dominating this verb. Perhaps a more plausible and equally unacceptable prosodic parsing of this string would be (a), where the function word pivot is stranded and has no adjacent clitic group into which it can incorporate. Here again the output constraint makes the correct prediction, since the stranded function word does not form a clitic group and so cannot form an IntP.

(a)



construction rule for IntPs cannot subsequently apply to assign the pivot *it* to an independent IntP and RNR of this string is again correctly predicted ungrammatical.

(30) The output constraint (Hypothesis A)

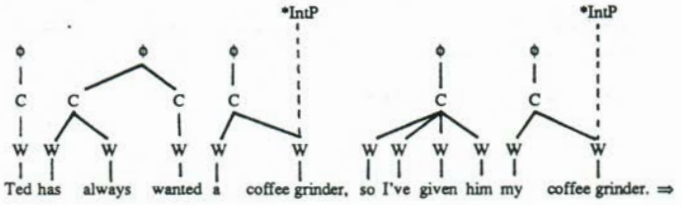


The unacceptability of function word *stranding* in RNR constructions like those in (31) can also be explained at the level of the clitic group, at least under the application constraint.

(31)a. *Ted has always wanted a, so I've given him my, coffee grinder. (MCb)
b. *I think that I'd, and I know that John'll, buy one of those portraits of Elvis.

Consider (32) which shows an attempted assignment of prosodic structure to the input of the ungrammatical (31a).

(32) The application constraint (Hypotheses B and C)



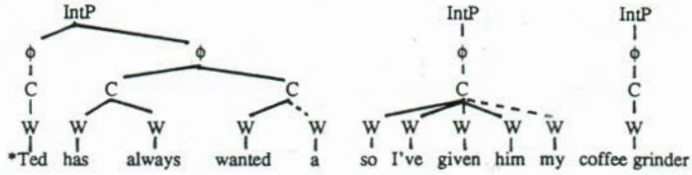
*Ted has always wanted a, so I've given him my, coffee grinder.

Here the function words *a* and *my* belong to the clitic groups containing the noun *coffee grinder* in each conjunct. As these function words cannot be separated from the noun *coffee grinder*, this noun cannot constitute an acceptable IntP on its own in either conjunct and therefore cannot undergo RNR.[9]

Matters are not so clear under the output constraint. In (33) is an attempted assignment of prosodic structure to the output of (31a).

[9]This explanation for the unacceptability of function word stranding has as a precursor McCawley's 1988 explanation for these same facts: *...both the raised constituent and the remainders of the constituents from which it is separated must be able to stand on their own as phonological phrases.* (p.529)

(33) The output constraint (Hypothesis A)



Here there is nothing wrong with the pivot; *coffee grinder* forms a perfectly acceptable clitic group, phonological phrase, and IntP. The problem has to lie in the parsing of the conjunct-final function words, *a* and *my*. What is not clear is why these function words do not incorporate into the preceding clitic groups as indicated by the dotted lines. Clitic Group Formation does not preclude, and in fact seems to require, this grouping; hence, unless Clitic Group Formation is itself revised, this output will be assigned an apparently acceptable prosodic structure and will be wrongly judged grammatical.[10]

2.3 The Phonological Phrase

At the next level of prosodic structure, the phonological phrase, we can provide a prosodic account for the unacceptability of non-maximal pivots like those in (34).[11]

(34)a. *John wrote an interesting, and Elvira wrote a brilliant, [$_{N'}$ thesis on nightingales]

b. *John wrote very, and Maria read extremely, [$_{A'}$ quickly]

The rule I assume for Phonological Phrase Construction in English is given, in part, in (35). The formulation is that of Hayes 1989.

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[10]Alternatively, one might attribute the impossibility of the prosodic structure in (33) to an unacceptable parsing at the level of the IntP. For example, one might propose that an IntP boundary cannot be placed after a function word; hence, while the parsing in (33) might be acceptable at the level of the Clitic Group, it will be ruled out at a higher level of prosodic structure. John McCarthy (p.c.) points out, however, that such a constraint on the assignment of IntPs is unwarranted, citing the work of Selkirk and Tateishi 1988 and Selkirk and Chen 1990 in which it is noted that a function word can exceptionally be IntP-final, but in such cases, the function word is 'promoted' to non-function word status (in our terms, to independent clitic group status). This promotion is typically indicated by stress on the relevant item and is exemplified in a sentence like *John is smarter than he thinks he is*, where the function word *is* is IntP-final. That this function word has independent clitic group status is supported by the fact that it cannot be reduced to *'s*: **John is smarter than he thinks he's*.

[11]I assume here that modifying adjectival and adverbial phrases are adjoined at the X'-level; for example, the string *interesting thesis* is assigned the syntactic structure [$_{NP}$ [$_{N'}$ interesting [$_{N'}$ thesis]]]. This assumption is made primarily to make it clear that the pivots in these examples are, at least in some sense, non-maximal. If it were assumed instead that modifying phrases adjoin to maximal constituents so that the string *interesting thesis* is assigned the syntactic structure [$_{NP}$ interesting [$_{NP}$ thesis]], then the NP *thesis* would not technically be non-maximal, but it would not be the highest segment of the adjoined structure.

(35) ENGLISH PHONOLOGICAL PHRASE CONSTRUCTION (Hayes 1989)

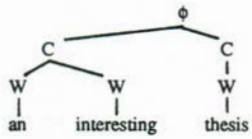
In the configuration $[_{X''} \ldots X^0 \ldots]$ where X = [±N, ±V]

a. The sequence $[\ldots X^0]$ obligatorily occupies the same ϕ-phrase,
b. All Clitic Groups unaffected by rule (a) form ϕ-phrases.

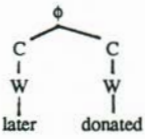
(incomplete)

This rule groups a lexical syntactic head with all material to its left within its maximal projection, capturing Nespor and Vogel's 1986 observation that preceding modifiers in English belong to the phonological phrase of the element they modify. A modifying adjectival phrase, for example, will thus be grouped into the phonological phrase of the noun it modifies as in (36a); likewise, an adverbial modifier preceding a verb will be grouped into the phonological phrase of the verb as in (36b).[12]

(36) a.

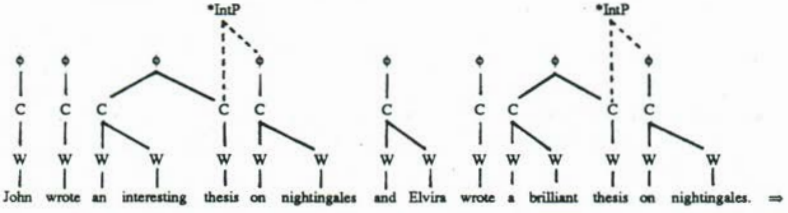


b.



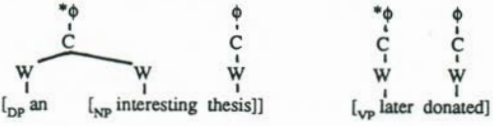
Consider then the structure in (37) and how the application constraint accounts for the ungrammaticality of examples like (34).

(37) The application constraint (Hypotheses B and C)



*John wrote an interesting, and Elvira wrote a brilliant, thesis on nightingales.

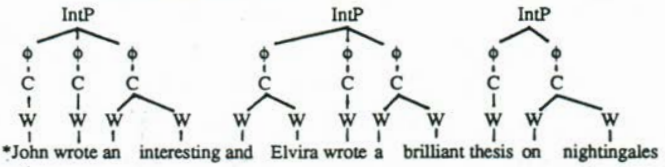
[12]Note that although adjectival and adverbial phrases may constitute independent phonological phrases by the rule in (35), they are precluded from doing so when they are dominated by the maximal projection of an element they modify, as in the examples in (36). That is, the alternative assignments of structure below are disallowed; no material preceding a lexical head within that head's maximal projection may belong to a phonological phrase separate from the phonological phrase containing the head.



Phonological Phrase Construction will group the sequences *an interesting thesis* and *a brilliant thesis* into single phonological phrases as shown. This grouping precludes a subsequent assignment of intonational phrases such that the sequence *thesis on nightingales* constitutes on its own an IntP; hence RNR is correctly precluded.

Under the output constraint, once again, matters are more complicated. In the structure in (38), it is not clear what prevents the sequences *an interesting* and *a brilliant* from constituting phonological phrases on their own since the head noun *thesis* is no longer present; nor is it clear what prevents the head noun itself from constituting a phonological phrase on its own. Thus, unless IntP parsing itself is formulated in such a way so as to preclude the parsing shown, this parsing will apparently be acceptable and RNR of the string *thesis on nightingales* wrongly predicted grammatical by the output constraint.

(38) The output constraint (Hypothesis A)



2.3.1 The role of contrastive stress

Of course, one might attempt to save the output constraint account by claiming that RNR constructions with non-maximal pivots are ruled out by a syntactic constraint. If this were the case, then it would be irrelevant whether (38) is an acceptable prosodic parsing or not since the sentence would be syntactically ill-formed.

There is a problem, however, with this proposal. If the ungrammaticality of a sentence like (38) or the other sentences in (34) is attributed to a constraint which requires that an RNR pivot be maximal, then the comparatively acceptable and structurally parallel examples in (39) should likewise be judged ungrammatical. The fact that they are not is due solely, it seems, to the presence of contrastive stress on the final elements of each conjunct.

(39)a. ?John wrote a mildly *interesting*, but Elvira wrote a truly *brilliant*, [$_{N''}$ thesis on nightingales]

b. ?John wants just *any*, but I want the very *best*, [$_{N''}$ portrait of Elvis] (MCb)

Various linguists, most notably Inkelas (1988, 1989), have proposed that prominent elements can form independent phonological phrases, where prominent elements include, but are not limited to, contrastively stressed elements. This observation is incorporated into Hayes's phonological phrase construction rule as clause (b) in (40) .

(40) ENGLISH PHONOLOGICAL PHRASE CONSTRUCTION

In the configuration [$_{X''}$ ... X^0 ...] where X = [±N, ±V]

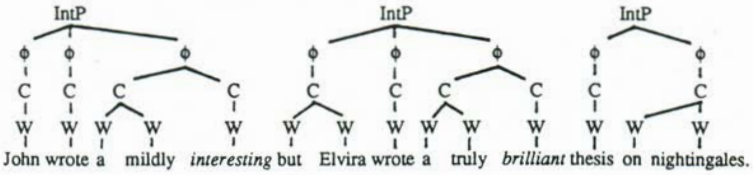
a. If the material preceding X^0 contains no prominent element, then the sequence [...X^0] obligatorily occupies the same ϕ-phrase.

b. **A Clitic Group containing a prominent element forms a ϕ-phrase.** (Inkelas 1988, 1989)

c. All Clitic Groups unaffected by rules (a) and (b) form ϕ-phrases.

Applying this algorithm to the output of (39a), for example, gives us the prosodic structure in (41), where each conjunct and the pivot form an IntP as required.

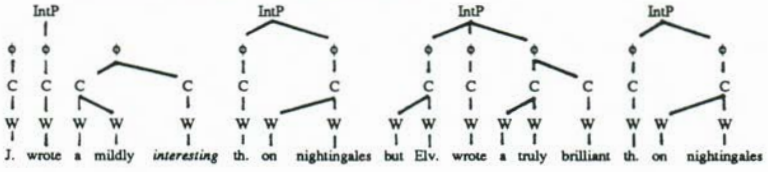
(41) The output constraint (Hypothesis A)



Since the only (relevant) difference between this structure and the one in (38) is the presence of contrastive stress on the conjunct-final elements *interesting* and *brilliant*, an account of the contrast in acceptability in syntactic terms is untenable. The only way in which this contrast could be accounted for under the output constraint would be to either revise the Phonological Phrase Construction rule or formulate IntP parsing in such a way so as to somehow preclude the parsing in (38).

The application constraint accounts straightforwardly for the relative grammaticality of sentences like (39). The prosodic structure assigned to the input of (39a) is given in (42), where the sequence *thesis on nightingales* constitutes an acceptable IntP in each conjunct and hence qualifies as an RNR pivot.

(42) The application constraint (Hypotheses B and C)



To this point then, we have seen that whereas a prosodic constraint on the application of RNR accounts directly for the facts presented, a prosodic constraint on the output of RNR fairs less well. The facts in the next section indicate conclusively that an output constraint is unworkable.

2.3.2 Double XP pivots

In early works on RNR, it was assumed that double XP pivots were impossible in light of the ungrammaticality of sentences like (43).

(43)a. ?*Smith loaned, and his wife later donated, [$_{DP}$ **a car**] [$_{PP}$ to the church].

b. ?*He tried to persuade, but he couldn't convince, [$_{DP}$ **his students**] [$_{CP}$ that he knew the right answers].

Abbott 1976, however, notes that the parallel examples in (44) appear to be fully acceptable.

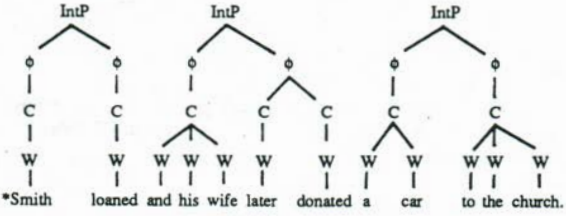
(44)a. Smith loaned, and his wife later donated, [$_{DP}$ **a valuable collection of manuscripts**] [$_{PP}$ to the library]. (A)

b. He tried to persuade, but he couldn't convince, [$_{DP}$ **his skeptical examiners**] [$_{CP}$ that he knew the right answers]. (A)

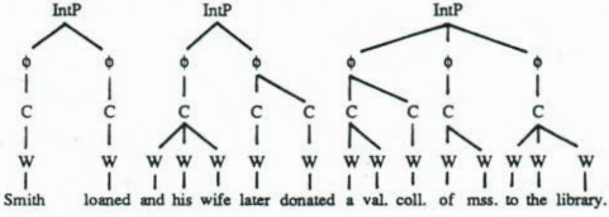
An examination of these data indicates that what differentiates them is the 'heaviness' of the first XP in the pivot: *a car* vs. *a valuable collection of manuscripts* in the (a) sentences and *his students* vs. *his skeptical examiners* in the (b) sentences. The heavier DPs in (44) are fine; the lighter DPs in (43) are not.

Consider the prosodic structures assigned to the RNR outputs of the (a) sentences in (45) and (46).

(45) The output constraint (Hypothesis A)



(46) The output constraint (Hypothesis A)



In both cases, there appears to be an acceptable prosodic structure in which both conjuncts and the pivot constitute IntPs--yet (45) is unacceptable whereas (46) is fine. The difference in acceptability, as noted above, appears to be due to the relative prosodic weight of *a car* in (45) vs. *a valuable collection of manuscripts* in (46). We can describe this difference a little more precisely by noting that the DP *a car* in (45) consists of a single clitic group and a single phonological phrase whereas the DP *a valuable collection of manuscripts* in (46) consists of three clitic groups and two phonological phrases, but there does not appear to be any way to rule out the prosodic structure in (45); at the level of the phonological phrase, the structure is in accordance with the construction rule for phonological phrases above. Thus, I conclude that the output constraint on RNR—and Hypothesis A—is incorrect.

In contrast, analyzing the prosodic constraint on RNR as an application constraint does allow for an explanation of these same facts. Nespor and Vogel 1986 and various other linguists since then (including Cowper and Rice 1987, Bickmore 1990 and references therein) have noted that, in English and many other languages, a complement, if prosodically light, may be incorporated into the phonological phrase of a preceding head. This clause is included as clause (c) in the revised version of Phonological Phrase Construction in (47), again using the formulation of Hayes 1989, where 'prosodically light' is defined as containing a single clitic group.

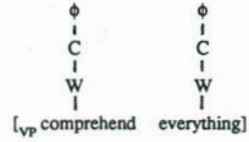
(47) ENGLISH PHONOLOGICAL PHRASE CONSTRUCTION

In the configuration $[_{X''} \ldots X^0 (Y'') \ldots]$ where X = [±N, ±V]

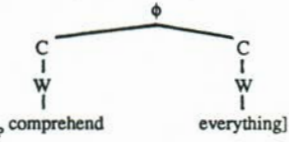
a. If the material preceding X^0 contains no prominent element, then the sequence [...X^0] obligatorily occupies the same ϕ-phrase.
b. A Clitic Group containing a prominent element forms a ϕ-phrase.
c. **Y″ may optionally adjoin to the ϕ-phrase of X^0 if it contains only one Clitic Group.** (Hayes 1989)
d. All Clitic Groups unaffected by rules (a), (b), and (c) form ϕ-phrases.

Clause (c) of the Phonological Phrase Construction rule will assign phonological phrases as illustrated in (48).

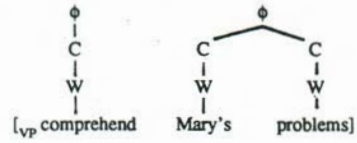
(48) a.



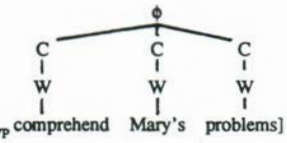
b.



c.



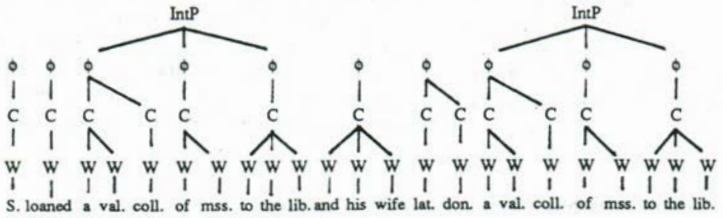
d.



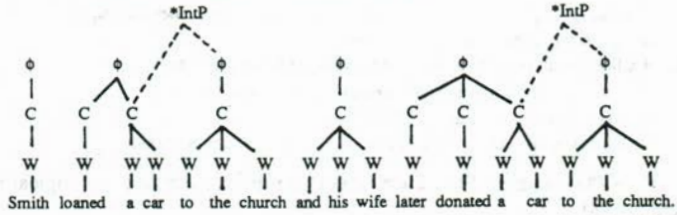
The VP *comprehend everything* consists of the head *comprehend* followed by the complement *everything*. Each of these elements may be assigned to phonological phrases as in (48a) or, because *everything* consists of a single clitic group, these elements may be assigned to one phonological phrase as in (48b). On the other hand, the VP *comprehend Mary's problems* contains a complement which consists of two clitic groups, *Mary's* and *problems*; therefore this complement is too heavy to be grouped into the phonological phrase of the verb *comprehend* and only the structure in (48c) is acceptable.

Now consider the prosodic structures of the inputs of the RNR constructions in (43a) and (44a) below in (49) and (50).

(49) The application constraint (Hypotheses B and C)



(50) The application constraint (Hypotheses B and C)



In particular, note the prosodic structure assigned to the DPs *a valuable collection of manuscripts* in (49) and *a car* in (50). *A valuable collection of manuscripts* is too heavy to be grouped into the phonological phrases containing the verbs *loaned* and *donated*; hence, the prosodic structure shown is the only one available at the level of the phonological phrase and, because the sequence *a valuable collection of manuscripts to the library* forms an acceptable IntP, it qualifies as an acceptable RNR pivot. In contrast, the DP *a car* in (50) consists of a single clitic group, hence Phonological Phrase Construction allows it to be incorporated into the phonological phrases of the verbs *loaned* and *donated*--and once this is done, note, the rule for constructing IntPs cannot subsequently apply to make the string *a car to the church* an IntP and RNR of this string is correctly blocked.[13]

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[13]Interestingly, we find a comparable contrast in Subject to Object Raising constructions.

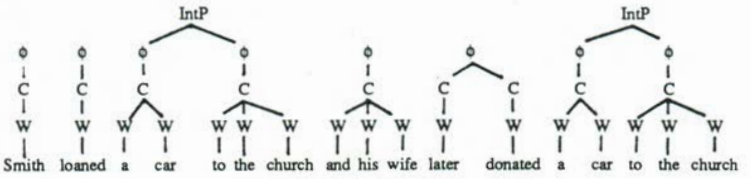
a. *I find it easy to believe, but Joan finds it hard to believe, Tom to be dishonest. (Postal 1974; p. 128)
b. I find it easy to believe, but Joan finds it hard to believe, any friend of my sister's to be dishonest.

Postal 1974 cites (a) as evidence that the string *Tom to be dishonest* is not a single constituent at s-structure. The reasoning behind this argument is based on the traditional assumption that an RNR pivot can consist of exactly one maximal constituent: if *Tom to be dishonest* were a single constituent, sentence (a) should be grammatical; since (a) is ungrammatical, this string must consist of more than one maximal constituent, namely, the DP *Tom* and sentential complement *to be dishonest* and this s-structure, Postal maintains, is derived by raising the deep structure subject *Tom* out of the embedded clause to matrix direct object position.

The discussion in this section shows that the traditional assumption concerning the number of maximal constituents per pivot is wrong, however, and, therefore, that Postal's argument is problematic. Nevertheless, the data in (a) and (b)--in particular, the fact that increasing the prosodic weight of the DP immediate-

This gives the desired result, although, given that the incorporation of a light complement is optional in English (cf. (47c)), there should be another prosodic structure of the string in (50) comparable to that in (49) where *a car* does form an independent phonological phrase and the string *a car to the church* forms an IntP. That is, (51) should be a possible prosodic structure and RNR of the string *a car to the church* is still wrongly predicted grammatical.

(51)



We can preclude this result by proposing that the incorporation of the DP *a car* into the phonological phrases of the preceding verbs in (50) and (51) is not, in fact, optional and what takes away the optionality here is the fact that this DP is not the final constituent inside the VPs; in each case, the DP *a car* is followed by the PP *to the church*. In other words, I propose to modify Phonological Phrase construction as in (52), where added to clause (c) is the condition that incorporation of Y″ is not optional when Y″ is not the final constituent inside X″.

(52) ENGLISH PHONOLOGICAL PHRASE CONSTRUCTION (revised)

In the configuration $[_{X''} \ldots X^0 (Y'') \ldots]$ where X = [±N, ±V]

a. If the material preceding X^0 contains no prominent element, then the sequence $[\ldots X^0]$ obligatorily occupies the same ϕ-phrase,
b. A Clitic Group containing a prominent element forms a ϕ-phrase.
c. Y″ may optionally adjoin to the ϕ-phrase of X^0 if it contains only one Clitic Group. **(obligatory if Y″ is not the final constituent within X″).**
d. All Clitic Groups unaffected by rules (a), (b), and (c) form ϕ-phrases.

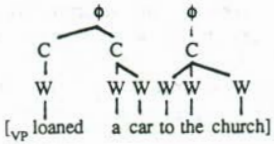
Thus, (53a) will be an acceptable prosodic structure but (53b) will not, because the light DP *a car* is not the final constituent inside the VP and so must belong to the phonological phrase of the verb *loaned*.

---

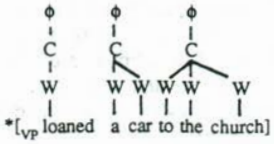
ly following the matrix predicate leads to grammaticality in the RNR construction (b)--allows for a different argument in favor of Postal's raising analysis.

The contrast in acceptability between the (a) and (b) sentences can be explained if, at s-structure, the verb *believe* takes two complements, a DP and a sentential complement of some kind: (a) is unacceptable because the light DP complement *Tom* must be grouped into the phonological phrase of *believe* in each conjunct and hence cannot be grouped into an IntP and RNR pivot with the following string *to be dishonest*; (b) is acceptable because the DP complement *any friend of my sister's* is heavy, hence forms a phonological phrase separate from the verb *believe* in each conjunct, thus allowing the string *any friend of my sister's to be dishonest* to form an IntP and acceptable RNR pivot. Note that an analysis of verbs like *believe* which posits only one s-structure (sentential) complement does not allow for an account of the contrast between (a) and (b) without simultaneous revision of the rule for Phonological Phrase Construction.

(53) a.



b.



There is independent evidence for this addition to the rule of Phonological Phrase Construction. This evidence comes from the English Rhythm Rule.

2.3.2.1 The English Rhythm Rule

Consider first the sentences in (54) and (55).

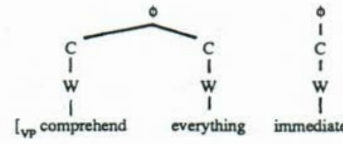
(54)a. The teachers in this school [$_{\phi}$ compreHEND] [$_{\phi}$ Everything]
b. The teachers in this school [$_{\phi}$ COMprehend Everything]

(55)a. The teachers in this school [$_{\phi}$ compreHEND] [$_{\phi}$ MAry's problems]
b. *The teachers in this school [$_{\phi}$ COMprehend MAry's problems]

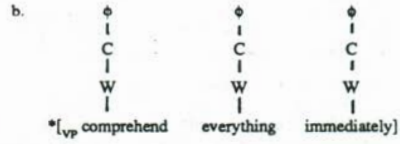
Spoken in isolation, the verb *comprehend* has final stress; and final stress is also fine in each of the (a) examples here. Furthermore, as seen in (54b), this stress can be retracted to the first syllable of *comprehend* before a word with initial stress like *everything*. However, stress cannot be retracted in the same way in (55b) despite the fact that *Mary* also has initial stress. Nespor and Vogel 1986 account for this observation by proposing that this kind of stress retraction can only apply within a phonological phrase; thus, retraction is possible in (54b) because *everything* can belong to the phonological phrase of the preceding verb *comprehend* as we saw in (48). Retraction is not possible in (55b) because the DP *Mary's problems* is too heavy to be incorporated into the phonological phrase of *comprehend* and must form a phonological phrase of its own as in (55b).

We can employ this test to demonstrate that when a light complement is not the final constituent in the maximal projection of a preceding head, it is obligatorily grouped into the phonological phrase of that head. Consider the VP *comprehend everything immediately*. If, as claimed here, a light complement must be incorporated into the phonological phrase of the verb when that complement is not VP-final, then we predict that this VP must be assigned the prosodic structure in (56a) and not the structure in (56b).

(56)a.



b.



Furthermore, we predict stress retraction on *comprehend* to be obligatory--and it appears that it is. Consider (57).

(57)a. The teachers in this school [$_\phi$ COMprehend Everything] [$_\phi$ immediately]

b. *?The teachers in this school [$_\phi$ compreHEND] [$_\phi$ Everything] [$_\phi$ immediately]

(57a), where stress has been retracted, is fine; (57b), where retraction has not applied, is unacceptable. The proposed revision to Phonological Phrase Construction in (52), then, appears to be correct. And if this revision is correct, then so is the prosodic structure of the sentence in (50) and we now have an account for the unacceptability of RNR of the string *a car to the church*. Note that this account of the difference in acceptability of double RNR pivots is only possible when prosody has access to the input of RNR as in Hypotheses B and C; that is, prosodic structure must be assigned *before* application of RNR and RNR itself must have access to this prosodic structure.

3.0 Against a purely prosodic account: ECP effects[14]

Having argued that the prosodic constraint which applies to RNR applies to the application rather than to the output of this operation, we need to address next the following question: does RNR refer solely to prosodic constituency (Hypothesis B) or does RNR refer to both prosodic and syntactic constituency (Hypothesis C)? While the former proposal, at first glance, may seem far-fetched, it is not, really. All of the data we have seen to this point could be described by analyzing RNR as an operation which displaces IntPs, and the fact that RNR has previously been construed as a syntactic rule could be attributed to the fact that prosodic structure often—though not always—mirrors syntactic structure.

Nevertheless, I believe a purely prosodic construal of RNR is wrong and that RNR must make reference to syntactic constituency. Consider the following ungrammatical RNR constructions.

(58)a. *John tried to force Harry to admit that Sally, and Albert succeeded in proving to Seymour that Kathy, [$_{VP}$ was a virgin] (H)

b. *I think that John, and Mary thinks that Bill, [$_{VP}$ plays a musical instrument]

Hankamer 1971 cites examples like these, concluding that VP pivots are impossible.[15] Under a purely prosodic account of RNR, this observation would have to be attributed to the lack of an acceptable prosodic parsing of the inputs of these sentences in which the targeted VP pivots constitute IntPs in each conjunct. In contrast, under an analysis of RNR which admits the operation of both prosodic and syntactic constraints on the application of RNR, an obvious alternative explanation for these facts is that constructions like (58) are ECP-violating constructions due to the failure of head government of the traces left behind by the VP pivots.

Let us consider the prosodic explanation first. If RNR is a purely prosodic operation, then the ungrammaticality of a sentence like (58b) will stem from the impossibility of the prosodic structure in (59).

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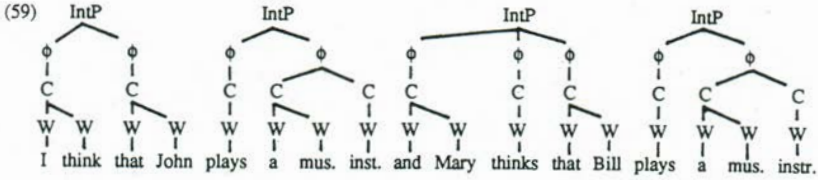
[14]This section benefited greatly from discussions with Armin Mester.

[15]The sequence *was a virgin* in (58a) is perhaps better analyzed as an I′, assuming head movement of main verb *BE* to I. This analysis of the string does not affect the argument below; the gaps left behind by the string *was a virgin* in each conjunct, if I′'s, also fail to be head-governed and hence violate the ECP.

(59)



Since all prosodic levels lower than IntP in this structure satisfy their construction rules, the only way for this structure to be ruled out will be at the level of IntP itself. Specifically, we would be committed to a formulation of IntP parsing such that the placement of a boundary after a DP subject (here the subjects *John* and *Bill*) is prohibited. The evidence against such a prohibition is considerable.

Although a precise formulation of IntP parsing in English has not been (and will not be here) proposed, those linguists who have examined English IntP phrasing most carefully agree on one point: when a single sentence is prosodically parsed into more than one IntP, the strongest tendency is for IntP boundaries to be placed after a DP.[16] Furthermore, a particularly natural position for an IntP break is between the subject DP and its predicate, in direct conflict with the position we would be forced to take if we attempt to provide a purely prosodic account for the examples (58) (see especially Bing 1980, Selkirk 1984, Nespor and Vogel 1986).[17] It appears unlikely therefore that a purely prosodic account of RNR is tenable.

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[16]Certain sequences obligatorily constitute independent IntPs regardless of speech style, rate, or sentence length; these include parentheticals, nonrestrictive relative clauses, vocatives, and expletives (cf. Nespor and Vogel 1986 and references therein for discussion).

Note that viewing adverbial clauses as belonging to the class of elements which obligatorily form independent IntPs permits an explanation for contrasts like the one below.

(a) Jerome may have tickled Marsha, and certainly should have tickled her, in the way that I told you. (P)
(b) *Jerome may have tickled Marsha in the way that I told, and certainly should have tickled her in the way that I told, your nephew.

As seen in (a), RNR of the entire adverbial clause *in the way that I told you* is perfectly acceptable; on the other hand, as seen in (b), RNR out of this clause is impossible. This is exactly as expected if the adverbial clause obligatorily constitutes an IntP. The entire clause meets the criterion for an acceptable RNR pivot, hence the grammaticality of (a). The RNR construction in (b), however, entails the breaking up of the obligatory IntP formed by the adverbial clause, a reparsing that is apparently disallowed. In short, it appears that obligatory IntPs are prosodic islands; i.e., no operation can apply to remove any part of an obligatory IntP.

As for what unifies the set of elements which obligatorily constitute independent IntPs, one possibility, (depending on one's assumptions concerning the syntactic position of adverbial clauses), is that this set of elements is the set of lexically ungoverned XPs, along the lines of work done by Hale and Selkirk 1987 and Aissen 1992.

[17]Nespor and Vogel (1986, pp. 193-205), for example, list the following three tendencies, listed in order of relative strength, governing the structuring of a single sentence into multiple IntPs (called *IntP Restructuring* in this work).

a. Avoid restructuring an IntP in any position other than at the end of a NP (DP).
b. Restructuring of IntP may take place in the context of a new CP provided no violation of (a) results.

On the other hand, Aoun, Hornstein, Lightfoot, and Weinberg (1987) (AHLW) have independently argued for the operation of the ECP--and specifically for the head government clause of the ECP--at PF. The relevant principles and definitions proposed by AHLW are given in (60)-(62).[18]

(60) *An empty category must be properly governed at PF.* (AHLW p.571)

(61) α properly governs β iff
α governs β and α is a lexical category (that is, an X^0 in the X-bar system, but not [non-overt] $Infl^0$). (AHLW, p. 537)

(62) α (X^0) governs β iff all maximal projections dominating α also dominate β *and* α is dominated either by all maximal projections dominating β or by all maximal projections dominating the maximal projection of β. (AHLW, p. 540)

To see how the ECP accounts for ungrammaticality of RNR constructions like (58), consider the syntactic structure of (58b) in (63).

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c. Avoid separating an obligatory argument from its verb (unless sanctioned by (a) or (b)).

It is clear that many of the IntP parsings assumed throughout this discussion do not observe Nespor and Vogel's "construction rule". For example, an RNR construction like *Alice composes, and John performs, Philadelphia-style punk rock music*, under the analysis proposed here, requires the placement of IntP boundaries after the verbs *composes* and *performs*; a parsing not sanctioned by any of the three tendencies in (a)-(c). This potentially embarrassing problem disappears, however, when the peculiar intonation patterns of RNR constructions are considered more carefully.

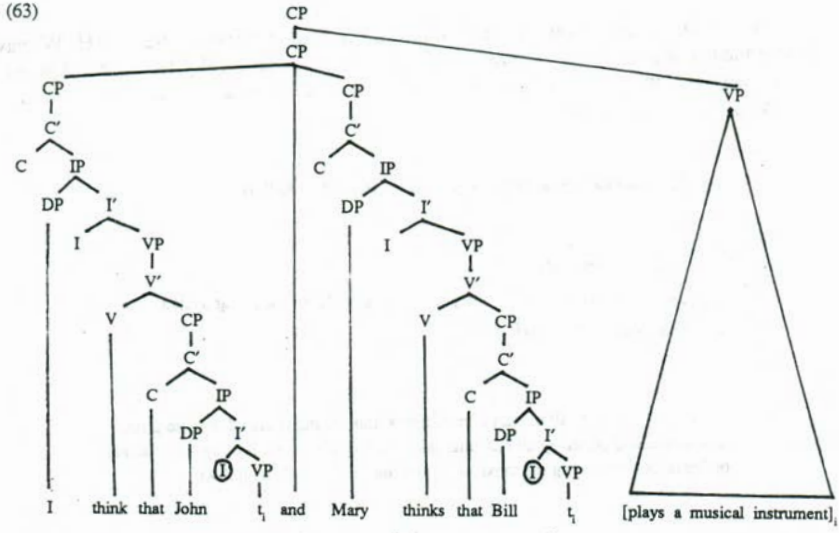
RNR constructions appear to be of two basic types: contrastive RNR, where material in each conjunct (typically the final element) bears some degree of contrastive stress (d) and list RNR, where the sequence of conjuncts is pronounced with a list intonation (e).

(d) John likes, but Mary hates, string beans.
(e) John picked, Mary washed, and Seymour prepared, the beans.

What is important about this observation is the fact that it is exactly in the cases of contrastive stress and lists that standard IntP parsing algorithms break down; that is, contrastive stress permits the placement of an IntP boundary in a position not typically suitable for an IntP break and, likewise, list intonation permits the placement of IntP boundaries after each element in the list, regardless of whether or not these elements are typical markers of IntP breaks (see especially Nespor and Vogel 1986, Ch. 7 for discussion).

[18]It is necessary to recognize overt I as a proper governor to account both for the data in (56a) and for VP ellipsis facts.

(63)



AHLW's definition of government in (62) requires that the head-governors for the VP traces in (63) be dominated by all maximal projections dominating the empty VPs themselves. This requirement entails that the only potential head-governor for each trace is the circled I in each conjunct since only these heads are dominated by the IPs that dominate the VP traces. Because each of these potential head-governing Is are non-overt, however, they are disqualified as proper head governors with the consequence that the structure in (63) is ruled out due to a double violation of the ECP.

Further support for the claim that RNR is constrained by the ECP comes from the observation that VP pivots are, in fact, licensed just in case head governors for their traces are available. Thus, RNR constructions like those in (64) are grammatical. In (64a), the VP traces are properly governed by the verbs *stopped* and *started*, and in (64b), the VP traces are properly governed by the modals *could* and *will* (whether these elements are analyzed as Vs or overt Is).[19]

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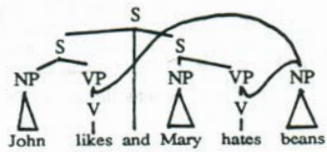
[19]Note that the contrast between the acceptability of VP pivots in (58) and (64) cannot be handled by a non-extraction analysis of RNR constructions like the 'simple' coordination analysis proposed in Steedman 1985, 1989 within the framework of categorial grammar or the analysis of McCawley 1982, 1989, where it is proposed that an RNR pivot 'belongs' to each conjunct; i.e., has multiple mother nodes as in (a), with no syntactic gaps anywhere.

(a)



(64)a. John has just [$_{V'}$ stopped [$_{VP}$ t]], and Mary has just [$_{V'}$ started [$_{VP}$ t]], [$_{VP}$ going to graduate school]

b. I think that Mary [$_{I'}$ *could* [$_{VP}$ t]], and I know that Louise [$_{I'}$ *will* [$_{VP}$ t]], [$_{VP}$ be at the meeting tomorrow]

Thus, the AHLW proposal accounts directly for the facts in this section and is in turn strongly supported by these same facts.[20]

4.0 Conclusion

In conclusion, it has been argued here that RNR is an operation which must make reference both to syntactic and prosodic constituent structure: a potential RNR pivot must constitute an acceptable IntP in each conjunct of the pre-RNR structure and the gaps left behind after extraction of the pivot must satisfy the ECP.[21] Thus, this analysis provides support for the Zec and Inkelas 1990 model of grammar characterized by Hypothesis C and for Aoun, Hornstein, Lightfoot, and Weinberg's 1987 claim that the ECP is operative at PF. Furthermore, this analysis poses an interesting challenge for the principles of *Phonology-free Syntax* and *Superficial Constraints in Phonology* proposed and argued

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[20]In AHLW's theory, C (if it is the head of a subcategorized CP complement) counts as a proper governor (p. 559). That this is correct is supported by RNR constructions like (a), where we have an IP gap in each conjunct and a grammatical sentence.

(a) I've been wondering whether [$_{IP}$ t], but I wouldn't want to positively state that [$_{IP}$ t], [$_{IP}$ your theory is correct]. (B)

On the other hand, P does not count as a proper governor in AHLW's theory [although not explicitly stated in their definitions above, cf. p. 566]. This is problematic both for AHLW and for the analysis of RNR presented here in light of the grammaticality of RNR constructions like (b).

(b) Ted is interested in [$_{DP}$ t], Alice has done some research on [$_{DP}$ t], and you are probably aware that Jenny is a recognized authority on [$_{DP}$ t], [$_{DP}$ the circulatory system of flatworms]. (MCb).

There are various ways to resolve this difficulty, none of which are entirely satisfactory. AHLW propose that apparently acceptable empty objects of Ps are ECP-licensed either via "...a reanalysis process along the lines of Hornstein and Weinberg 1981 [e.g., a sequence like *speak to* is reanalyzed as a complex V] or a process that extends government [of a lexical head] across a PP node." (p. 570).

[21]There is some reason to believe that the prosodic constraint on RNR is stronger than the syntactic constraint. For example, the RNR construction ?*John wrote a mildly INTERESTING [t], but Elvira wrote a truly BRILLIANT [t], thesis on nightingales* is only slightly deviant despite the fact that the traces in each conjunct are not properly head-governed (the determiner *a* not being a proper head-governor). This string does, however, satisfy the prosodic constraint on RNR, as seen above in (42). On the other hand, an RNR construction that satisfies the ECP but violates the prosodic constraint is significantly worse: **?I think that I would [t], and John says that he would [t], buy one of those portraits of Elvis*. In this example, the VP traces are each properly governed by the modal *would*; however, because this conjunct-final element is an unstressed function word in each conjunct, the sentence constitutes an instance of function word stranding and is therefore prosodically ill-formed (cf. 2.2). RNR constructions that satisfy both the prosodic and syntactic constraint are, of course, fully acceptable (e.g., *Alice composes [t], and John performs [t], Philadelphia-style punk rock music*; and RNR constructions that violate both the prosodic and syntactic constraint are fully unacceptable (e.g., **Ted has always wanted a [t], so I've given him my [t], coffee grinder*).

for by Pullum and Zwicky (cf. Pullum and Zwicky 1988 and references therein for discussion; for the original formulation of these principles, see Zwicky 1969, p. 411).[22]

The Principle of Phonology-free Syntax maintains that no syntactic rule can make reference to a phonological or phonetic predicate. *The Principle of Superficial Constraints in Phonology* maintains that where phonology makes reference to the syntax it will make reference only to surface syntax, never to underlying (e.g. pre-movement) levels. In the discussion above, I have presented the prosodic constraint on RNR as an application constraint ('you can only move an IntP'), suggesting that the principle challenged is the *Principle of Phonology-free Syntax*. This is not, of course, necessary, as both Armin Mester and Geoff Pullum have pointed out (p.c.). That is, the prosodic constraint on RNR may alternatively be viewed as follows: 'an RNR construction is acceptable if and only if a prosodic structure can be assigned to the underlying representation of the construction such that the pivot constitutes an IntP in each conjunct'. If this alternative conception of the prosodic constraint on RNR proves preferable, then it is the *Principle of Superficial Constraints in Phonology* that appears to be challenged. In either case, the question concerning the extent to which phonology and syntax interact has been re-raised.

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[22] I am indebted to Geoff Pullum for pointing out and discussing the implications of this analysis of RNR for the principles of *Phonology-free Syntax* and *Superficial Constraints in Phonology*.

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