

Aspects of Fijian Syntax: A GPSG Analysis

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ABSTRACT

This thesis presents a basic Generative Grammar for the Fijian language. To be more precise it presents a grammar for the dialect spoken by Rev. Samuela Tamata, a native of the island of Kadavu. The data gathered from my informant supplemented (and typically confirmed) two non-Generative Grammars of Fijian which were at my disposal. These were Milner (1956) and Schuetz (1985). The former is a paedagogical work aimed at acquainting the beginner with the rudiments of Fijian. The latter provides a comprehensive description of the Fijian language based on extensive recent survey work. Unfortunately only a fraction of this work is devoted to sentence structure, the subject of this thesis.

After setting the linguistic and non-linguistic background in Chapter 1, I proceed to outline the Generative Grammar which I assume for the majority of the thesis, namely Generalized Phrase Structure Grammar as presented by Gazdar et al. (1985).

Chapter 3 then presents several revisions of the standard model. These were principally motivated by aspects of Fijian syntax e.g. the revision of the Subcategorization mechanism in the light of Object agreement on Verbs and the rejection of Slash Termination Metarules so that Unbounded Dependencies could terminate in Subject position.

Chapter 4 provides a detailed analysis of the four subclasses of Noun i.e. Names, Pronouns, Common Nouns and Numerals. This is followed by an examination of Person and Number in conjoined Noun Phrases, a topic of particular interest to GPSG.

Chapter 5 proceeds to an examination of various NP modifiers such as Adjective Phrases, Prepositional Phrases and Relative Clauses. The internal structure of Relative Clauses is however taken up in Chapter 8.

Chapter 6 outlines the structure of the Fijian clause and comes to the perhaps surprising conclusion for a GPSG analysis that the Sentence is a projection from the Inflection rather than the Verb. (This IP analysis is however advocated in the Government and Binding theory of Chomsky (1986)).

Chapter 7 attempts to deal with the variations in phrase ordering in Fijian. This involves firstly the introduction of a second [SLASH]-like feature to account for double extractions and secondly the positing of twin heads in flat VSO structures.

In Chapter 8 we turn to Fijian Unbounded Dependencies, principally Topicalization and Relativization. We here present the evidence which led to our rejection of Slash Termination Metarules in Chapter 3 and argue against the need for the [WH] feature in Fijian Relative Clauses or Constituent Questions.

Chapter 9 outlines the two raising constructions in Fijian; Subject-to-Subject Raising with impersonal verbs such as RAWA "possible" and Subject-to-Object Raising with verbs such as NUITAKA "expect". The latter construction is of particular interest since the rival Government and Binding theory claims that it is universally unacceptable!

In Chapter 10 I change theoretical frameworks and present Government and Binding analyses of two topics of particular interest to that theory; namely multiple adjunction structures and Head-to-Head movement.

Finally the Appendix includes a suggestion for an alternative Head Feature Convention for GPSG which operates on a more constrained notion of "Free Head Feature".

DECLARATION

I hereby declare that this thesis is my own work and has not previously been published, with the exception of sections 4.4.1 and 4.4.2 which appeared in the Department's Work in Progress (1989).

CHAPTER 1 PRELIMINARIES

1.1 GEOGRAPHY

The Fiji islands lie in the South Pacific some 2,000 km to the north of New Zealand. They have a total land area of 18,274 sq. km. The capital, Suva, is on the southeast coast of the largest island, Viti Levu (area 10,388 sq. km.). The other main island, Vanua Levu (area 5,535 sq. km.), lies to the north east of Viti Levu. There are two smaller islands, Taveuni to the east of Vanua Levu, and Kadavu to the south of Viti Levu. The remainder of Fiji is formed of three island groups; the Yasawa group in the west, the Lomaiviti group in the centre and the Lau group in the east towards Tonga.

1.2 INHABITANTS

Table 1

1976 Census Population figures

Fijians	259,932
Indians	292,896
Europeans	4,929
Part-European	10,276
Pacific Islanders	6,822
Rotumans	7,291
Chinese	4,652
Others	1,270
TOTAL	588,068

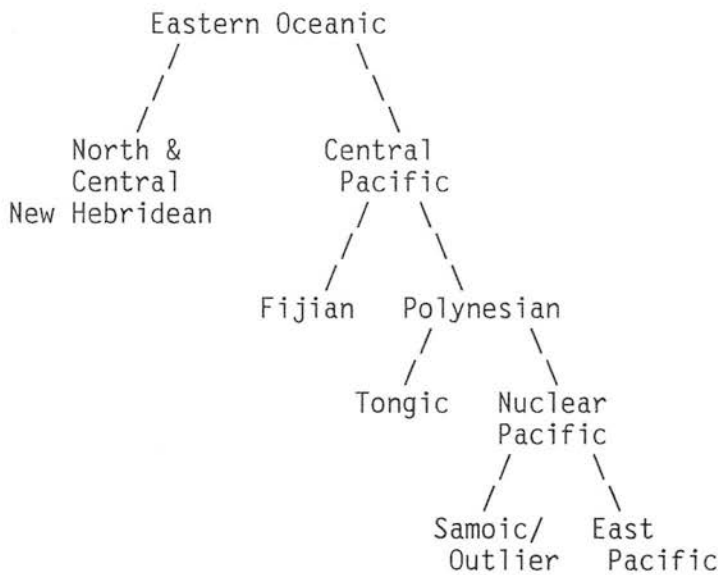
There is no general name for a citizen of Fiji. "Fijian" refers specifically to the native Melanesian inhabitants of the islands and not to Indians or Europeans. The first Indians came to the islands in 1879 as indentured labourers but in less than a hundred years they outnumbered the native Fijians. The two coups in 1987 restored political control to the Fijians and caused some Indians to emigrate so the 1976 figures are somewhat inaccurate but they are the most recent and specific available to me.

1.3 LANGUAGE FAMILY

Fijian is a member of the Austronesian phylum (also known as Malayo-Polynesian in older works.) Austronesian languages are found in Indonesia, Malaysia, Taiwan, Madagascar and New Guinea as well as the Pacific islands.

In a series of papers (Pawley, 1966, 1967 & 1981) Andrew Pawley motivated an Eastern Oceanic subgrouping within the Pacific island languages. The languages of the S.E. Solomons were later excluded from his Eastern Oceanic family so the current hypothesis about the subgroupings within Eastern Oceanic is that given in (1).

(1) THE EASTERN OCEANIC FAMILY



As this family tree makes clear Fijian is not a Polynesian language. Fijian and Polynesian however share Proto-Central Pacific innovations such as the "focus particle" *KO, the desiderative prefix *FIA- and Verb first rather than Subject first preferred sentence order. (Clark in Lynch, 1981 :31)

In addition Fiji's geographic proximity to Tonga has meant that it has borrowed extensively from this particular Polynesian language.

1.4 ORTHOGRAPHY and PHONOLOGY

The orthography employed throughout this thesis is that of standard written Fijian, with one exception; vowel length is marked by a double vowel. Capell (1957), Churchward (1941) and Milner (1956) all indicate a long vowel with a macron but in non-linguistic works there is no indication of vowel length even though it can be contrastive e.g.

SASA	"part of a fish fence"	RORO	"to approach" (of a time/season)
SAASAA	"dry coconut leaves"	ROOROO	"to settle" (of a bird)

Of the 26 letters of the Roman alphabet three are never employed in Fijian orthography, namely <h,x,z>. Early missionaries made an abortive attempt to introduce the word HEVENI but this was rejected by Fijians in favour of their word for "sky", LOMAALAGI. Another three letters, <f,j,p> only occur in loan words e.g. PAUNDI "pound". The Fijian spelling of "Fiji" is "Viti".

The remaining 20 letters stand in a one to one correspondence with the 20 phonemes in Fijian with two exceptions. The phoneme /ⁿr/ is represented by a digraph <dr> and the <y> does not represent a separate phoneme but rather the palatal on-glide to a word initial /a/ phoneme.

The orthographic forms and the principle phonetic exponents of the 20 phonemes are given below.

<m> = [m]	<n> = [n]	<g> = [ŋ]		
 = [ᵐb]	<d> = [ᵐd]	<q> = [ᵑg]	<dr> = [ᵐr]	
<v> = [β]	<t> = [t]	<k> = [k]	<r> = [r]	
<c> = [ð]	<s> = [s]	<w> = [w]	<l> = [l]	
<i> = [i]	<e> = [ɛ]	<a> = [a]	<o> = []	<u> = [u]

The principal area of initial confusion for English readers is the use of <g> and <q>. Given the use of and <d> for prenasalized stops we might have expected that <g> would be the prenasalized velar stop rather than <q>. The missionaries who created this system had worked in Tonga and so followed Tongan orthography in their choice of <g> for the velar nasal. This then forced them to adopt a different graph, <q>, for the prenasalised velar stop. In certain areas such as Kadavu <t> is pronounced as [tʃ] before <i>. This may account

for the presence of <j> in the English "Fiji", though Capell (1957) regards this spelling as reflecting a Tongan pronunciation of the name. For more precise information about the phonetics of Fijian see Scott (1948).

1.4.1 Phonotactics

Syllables in Fijian consist of an optional consonant phoneme followed by a vowel phoneme. There are no consonant clusters; <dr> represents a single phoneme. Nor are there any syllable codas. We can see below some examples of how this affects English words borrowed into Fijian.

EPERELI	"April"	ALAKAOLO	"alcohol"
SUKURU	"screw"	KIRIKITI	"cricket"

1.5 MORPHOLOGY

Although Fijian is basically an isolating language, there are several productive affixation processes associated with the Verb. These Fijian affixes do not however include Subject Agreement, Tense or Aspect since these three are free morphs which occur around the Verb.

Instead the three most common verbal affixes in Fijian indicate Causativity, Transitivity and Object Agreement. The ordering of the affixes is given in (2).

(2) CAUS+BASE+TRANS+O/AGR

The Causative prefix is always VAKA-. The Object Agreement suffix is either -I indicating a [PROPER,+] Object or -A indicating a [PROPER,-] Object. (See section 4.1 for an explanation of the feature [PROPER]). The Transitive suffix can be an empty morph, a single consonant or -TAK-. The choice of Transitive suffix is determined by the base. Although Arms (1974) claims that various semantic and phonological constraints can be discerned in the choice of suffix, to the layman the choice seems idiosyncratic.

(3) provides us with some examples of these affixes. The non-affixed base in (3a) and (3c) indicates an intransitive Verb.

- (3a) e sucu na gone yalewa e Suva
 born child female S.
 "The girl was born in Suva".
- (3b) e vakasucuma na gone yalewa e Suva
 give-birth-to child female S.
 "She gave birth to the girl in Suva".
- (3c) e bula ko noqu itau
 alive my friend
 "My friend is alive".
- (3d) e vakabulai noqu itau
 save my friend
 "He saved my friend".

In Fijian a morphologically transitive verb does not simply have an XP complement i.e. an Object but rather has a *specific* Object. As the examples in (4) indicate there is no transitive marking on the Verb when its Object is generic or non-specific.

- (4a) au a gunu yaqona tiko
 1sg dirnkrink kava cont.
 "I was drinking kava"
- (4b) au a gunuva tiko na yaqona
 1sg drink cont. kava
 "I was drinking the kava".
- (4c) o cei a vakadewataka na ivola oqoo?
 who translate book this
 "Who translated this book?"
- (4d) saa kaa dreedree na vakadewa ivola
 thing difficult traslate book
 "Translating books is difficult."
 (lit. is a difficult thing)

Since Intransitives can have generic Objects, it is possible for a Verb such as VAKADEWA in (4d) to be Causative and yet Intransitive.

Together with the lack of a Transitive suffix on the Verb, non-specific Objects are indicated by the omission of the Determiner NA. Since this Determiner is one of the main indicators of an NP, its absence in (4b) and (4d) means we could regard the Object there as an AP or AdvP i.e. a modifier of the head rather than one of its arguments.

The presence of a Determiner is however not compulsory in an NP.

[PROPER,+] Objects such as NOQU ITAU in (3d) above never occur with a Determiner, so the lack of a Determiner in (4b) and (4d) does not necessarily preclude the Object's classification as an NP. Moreover as the examples in (5) indicate Adverbial Phrases in Fijian typically have the prefix VAKA-, so YAQONA in (3b) does not seem to be an Adverb.

- (5a) ko kilaa vakacava?
2sg know how
"How do you know?"
- (5b) saa tabaki vakavula
printed monthly
"It is printed every month."
- (5c) saa vinaka vakalevu
good greatly
"Thank you very much"

Milner: 103

There is no productive affixation process associated with common nouns. As we shall see in Chapter 4, Number is only indicated morphologically on Pronouns. Moreover as Chapter 7 will illustrate "Case" or grammatical function is determined purely on distributional or semantic criteria.

CHAPTER 2

GPSG

Generalized Phrase Structure Grammar (henceforth GPSG) was developed by Gerald Gazdar and his associates in the late seventies and early eighties. Early versions of the theory are outlined in Gazdar & Pullum (1980) - later revised as Gazdar & Pullum (1982) - and in Gazdar (1982). The "standard" version of the theory is that of Gazdar, Klein, Pullum & Sag (1985) which we will henceforth abbreviate as GKPS. In the rest of this chapter we will outline the theory of GPSG as given in GKPS. For a more concise introduction to GPSG the reader is referred to the relevant chapter in Sells (1985b).

2.1 ID/LP FORMAT

A basic difference between GPSG and traditional Phrase Structure Grammars is that GPSG distinguishes between Immediate Dominance Rules (henceforth ID Rules) and Linear Precedence Rules (henceforth LP Rules) whereas traditional Phrase Structure Grammars conflate these two. Consider for example the rules in (1).

- (1a) $S \rightarrow NP VP$
(1b) $S \rightarrow NP, VP$

(1a) is a traditional PS Rule and indicates not only that S exhaustively dominates an NP and a VP but that the NP precedes the VP. The use of a comma between the daughters in (1b) indicates that this is an ID Rule. This ID Rule tells us only that S exhaustively dominates NP and VP. It makes no claim about their ordering. Thus both trees in (2) are acceptable projections from (1b).



This format is obviously advantageous in languages which allow greater sister order freedom than English since a single ID rule can replace several PS rules. Note that it is sister order freedom rather than word order freedom that can be captured by non-linearised ID Rules. True word order freedom will probably require the conflation of several rules via a Liberation Metarule (see section 3.6).

When we do want to constrain the ordering of sisters in GPSG, we must use an LP rule such as LP 3.

LP 3 NP < VP

This LP rule means that every NP must occur to the left of every sister VP. (2b) cannot therefore be an admissible projection from (1b). For a tree to be a admissible projection, it must be a projection from some ID rule which obeys all the LP rules in the grammar.

2.2 COMPLEX CATEGORIES

In GPSG the categories in a syntactic rule, and in any trees projected from these rules, are regarded not as monadic labels but rather as sets of features where a feature is an ordered pair consisting of a feature name and a feature value. Thus a simple S node is replaced by the set of features in (2).

(3) [V,+]
 [N,-]
 [BAR,2]
 [SUBJ,+]

Although all the features in (3) are atomic valued, it is possible for a feature value to be itself a category and hence consist of another set of features. Such category-valued features include [SLASH] which is involved in Unbounded Dependencies and [AGR] which is involved in Subject-Verb agreement. A category-valued feature must not contain a feature with the same name as part of its value so preventing infinite categories.

Obviously if we replace monadic labels with feature sets such as (3) then we very quickly have an explosion of feature specification on the ID rules. Since much of this feature specification is however predictable GPSG provides various Feature Instantiation Principles (henceforth FIPs) to expand the minimal feature specification given in the ID rules. Thus the familiar sentence expansion rule in (1) becomes the ID rule in (4).

(4) [V,+;N,-] → H[SUBJ,-] , [BAR,2]
 [BAR,2]
 [SUBJ,+]

In the following sections we will examine in turn each of these FIPs.

2.3 THE HEAD FEATURE CONVENTION

This FIP ensures that all (or most) of a certain set of features, namely the HEAD features, will be instantiated identically on the mother category and its head daughter or daughters. The only multi-headed constructions assumed in both GKPS and this thesis are co-ordinate structures, for which see section 4.4.2. In addition I however assume that Fijian VSO structures are multiheaded. (see section 7.3.3).

The head daughter is identified in the ID rules by an "H" which GKPS describe as "a metagrammatical place holder standing for a largely unspecified category" (GKPS p.51) GKPS's definition of the Head Feature Convention (henceforth HFC), makes crucial reference to "free" HEAD features. They provide the following definition of the set of free features or more accurately the set of free <name,value> pairs.

Definition 7 : Free feature specification sets

Let C_i be a category in a rule r , and let Ψ_r be a set of projections of r . Then the set of *free feature specifications on C_i in Ψ_r* is $\psi(C_i, \Psi_r)$, where

$$\psi(C_i, \Psi_r) = \{ \langle f, v \rangle : \exists \phi \in \Psi_r [\langle f, v \rangle \in \phi(C_i)] \}$$

GKPS: 95

Basically this definition means that any features that *ever* occur on a category are free features. Remember that the set of features that *can* occur on a category is larger than the set of features that actually do occur on a category in any particular projection. Furthermore features that *must* occur are included in the set of features that *can* occur. Definition 7 therefore means that "free" features on a category include not only actual "freely" instantiated features, but also those we *could* have instantiated as well as those features inherited from ID rules. This I find a psychologically implausible definition of free features but then GKPS maintain that "it is possible and arguably proper, for a linguist (*qua* linguist) to ignore matters of psychology" (GKPS: 5). (For an alternative definition of "free" feature, see Appendix 1).

We now turn to the definition of the HFC itself. The formal definition of the

HFC is that given in GKPS whilst the verbal paraphrase of Clauses 1 and 2 is taken from Sag et al. (1985).

Definition 8 : Head Feature Convention (HFC)

i.
 $\forall C_i \in W_H [(\phi(C_0) \cap \psi(C_i, \Phi_r)) | \text{HEAD} \sqsubseteq \phi(C_i) | \text{HEAD}]$

ii.
 $(\cap_{C_i \in W_H} \phi(C_i) \cap \psi(C_0, \Phi_r)) | \text{HEAD} \sqsubseteq \phi(C_0) | \text{HEAD}$

iii.
 $\forall C_i \in W_H [\text{BAR} \in \text{DOM}(\phi(C_0) \cap \text{DOM}(\phi(C_i)))]$

GKPS p.97

(i) The HEAD feature specifications on each head are an extension of the HEAD features of the category created by taking the intersection of the mother with the free feature specifications on that head.

(ii) The HEAD feature specifications on the mother are an extension of the HEAD features of the category created by taking the intersection of the heads with the free feature specifications on the mother.

2.4 THE FOOT FEATURE PRINCIPLE

The Foot Feature Principle, or FFP, is responsible for matching the instantiated FOOT features on the daughters in a rule with the instantiated FOOT features on the mother. (Note that following GKPS terminology, we refer to features specified in ID rules as "inherited" so it is only those features which are optionally added which are "instantiated".) The FFP operates on instantiated FOOT features on any or all of the daughters and not just those instantiated on the non-head daughters.

There are three FOOT features mentioned in GKPS; [SLASH], [RE] and [WH], all of which are category valued. [RE] is involved in Reflexivisation and [WH] in WH-Questions and WH-Relatives. Most attention however revolves around [SLASH], the feature involved in various Unbounded Dependencies.

[SLASH] is however also a HEAD feature and it is this fact that forces GKPS to impose an ordering on the application of the HFC and the FFP. This ordering

is imposed via a stipulation that the set of projections on which free HEAD features are defined i.e. Φ_r is the set of projections from some rule r which meets the Control Agreement Principle and the FFP (see next section for an explanation of the Control Agreement Principle). Given an alternative conception of "free" feature this ordering would however not be required (see page 210 for one such redefinition).

Let us now examine the formal definition of the Foot Feature Principle and see how it effects the instantiation of [SLASH].

Definition 2 : Foot Feature Principle

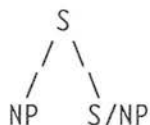
Let Φ_r be the set of projections from r ,
 where $r = C_0 \rightarrow C_1, \dots, C_n$.
 Then $\phi \in \Phi_r$ *meets the FFP on r* if and only if

$$\phi(C_0)|\text{FOOT} \sim C_0 = \sqcup \phi(C_i)|\text{FOOT} \sim C_i$$

GKPS: 82

Given Definition 8 and Definition 2, the FFP must precede and hence override the HFC to prevent contradictory [SLASH] specifications on the mother in (5). XP here stands for any [BAR,2] category.

(5) $S \rightarrow XP, H/XP$



If the HFC were to apply prior to the FFP, the mother would receive [SLASH,NP] from its daughter. According to the FFP however the mother should have no [SLASH] specification since there is no *instantiated* [SLASH] on the daughter. Thus there would be no legal projections from the rule in (5).

Apart from forcing extrinsic ordering of the FIPs another way out of this difficulty would be to assume that [SLASH] was not a HEAD feature and hence not liable to the HFC. Since FOOT features may match features on the head and on the mother, the relevant [SLASH] matching could still occur between mother and head. The problem is however that in most local trees we need to ensure that this [SLASH] matching will always occur, rather than merely allowing it to occur.

Definition 4 : Control

If ϕ is a projection of r , where $r = C_0 \rightarrow C_1, \dots, C_n$

then a category $\phi(C_i)$ controls $\phi(C_j)$ in ϕ , $1 \leq i, j \leq n$ if and only if

(1) $TYP(\xi(\phi(C_i))) = TYP(\xi(\phi(C_j))), TYP(\xi(\phi(C_0))),$ OR

(2) $TYP(\xi(\phi(C_i))) = TYP(VP)$ and one of the types associated with the head of r is $\langle TYP(VP), \langle TYP(\xi(\phi(C_i))) \rangle, TYP(VP) \rangle$

GKPS: 88

Clause 1 in this definition means that a category which is a semantic argument controls the category which is the semantic predicate. Clause 2 means that if a predicate combines with a VP argument and then with another argument this second argument controls the first VP argument.

In Definition 2 the semantic types were not those associated with the complete syntactic category but rather those associated with $\xi(\phi(C_i))$, a subset of the features on the category namely the HEAD features minus the instantiated FOOT features. The inclusion of the instantiated FOOT features would lead to a much less perspicuous definition of the semantic types involved in defining "control".

Armed with this definition of "CONTROL" GKPS then proceed to define CONTROL features and the CAP itself as follows.

Definition 5 : CONTROL feature

Suppose C_i is a category in a rule r , $C_i(\text{BAR}) \neq 0$, and ϕ is a projection of r . Then a feature f is the CONTROL feature of (C_i) if and only if

(1) $f = \text{SLASH}$ and $f \in \text{DOM}(C_i)$, OR

(2) $\text{SLASH} \notin \text{DOM}(C_i)$ and $f = \text{AGR}$

Definition 6 : Control Agreement Principle

Let Φ_r be the set of projections from r , where $r = C_0 \rightarrow C_1, \dots, C_n$.

then $\phi \in \Phi_r$ meets the CAP on r if and only if

(1) if $\phi(C_j)$ controls $\phi(C_i)$, then

$\phi(C_i)(f_i) = \xi(\phi(C_j)) \sqcup \phi(C_j)\{f_i\}$, where f_i is the CONTROL feature of $\phi(C_i)$.

(2) if there is a $\phi(C_j)$ which is a predicative category with no controller, then $\phi(C_i)(f_i) = \phi(C_0)(f_0)$ where f_i and f_0 are the CONTROL features of $\phi(C_i)$ and $\phi(C_0)$ respectively.

GKPS: 89

An extensive revision of this agreement process will be presented in section 3 to permit a lexical approach to subcategorization and overcome various descriptive inadequacies in the GKPS mechanism outlined above. We therefore delay any further discussion of CONTROL features and the CAP until that section.

2.6 FEATURE CO-OCCURRENCE RESTRICTIONS

As their name suggests Feature Co-occurrence Restrictions, or FCRs, prevent certain features occurring in the same category. All FCRs apply to all the categories in the grammar and are typically written as material implications. (8) provides some examples of the range of FCRs available within a GPSG framework.

- (8) FCR 1 [+INV] ==> [+AUX;VFORM,FIN]
FCR 5 [PAST] ==> [VFORM,FIN;SUBJ,-]
FCR 7 [BAR,0] ==> [N] & [V] & [SUBCAT]
FCR 17 [COMP *that*] ==> ([VFORM,FIN] V [VFORM,BSE])
FCR 20 ~([SLASH] & [WH])
FCR 22 VP ==> ~[WH]

In FCR 1 the features on both sides of the implication bear feature values. In FCRs 5 and 7 however the features on one side of the implication lack a value specification. This means that the FCR ranges over any value for that feature. FCR 7 also reveals that FCRs may involve bilateral implications and that features may be conjoined in an FCR. FCR 17 meanwhile shows that feature disjunctions are also permissible in FCRs. Finally we have the negative FCRs 20 and 22. FCR 20 indicates that no category may contain both a [SLASH] and a [WH] specification. This is the only FCR in GKPS which does not involve an implication though it is perfectly possible to recast this restriction as two FCRs

involving implications of the type in FCR 22.

2.7 FEATURE SPECIFICATION DEFAULTS

The final set of constraints on feature instantiation which we must consider are the Feature Specification Defaults (or Feature Co-efficient Defaults as they were earlier called). As the examples in (9) illustrate FSDs are written in the same format as FCRs

- (9) FSD 1 [-INV]
FSD 3 ~[NULL]
FSD 7 [BAR,0] ==> ~[VFORM,PAS]
FSD 10 [+N,-V,BAR 2] <==> [CASE ACC]

Thus we may have positive FSDs such as 1, negative FSDs such as 3, FSDs involving a material implication such as 7 or indeed FSDs involving a bilateral implication such as 10.

The formal definition of the operation of the Default mechanism given in GKPS is rather opaque so I instead present their verbal paraphrase.

a candidate projection meets the defaults if and only if for every category and every default,

- (i) the default is true of the category
- (ii) no candidate projections exist in which the default is true of that category OR
- (iii) The default is false of the category but making it true would necessitate changing some other category in the local tree (in particular changing a sister if the category is a lexical daughter)

GKPS: 103

CHAPTER 3 REVISIONS OF GKPS THEORY

3.1 The [BAR] Feature

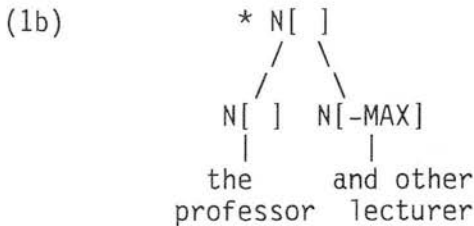
In GPSG a lexical head is distinguished from the various categories that project from it by the feature [BAR]. Permissible values for BAR in GKPS are {0,1,2} where [BAR 0] is a lexical head and [BAR 2] is a phrasal category.

The permissible values for [BAR] vary across frameworks and even within the GPSG framework e.g. Sag & Klein (1982) where S is V3, but the two-bar variant is now the most widely used.

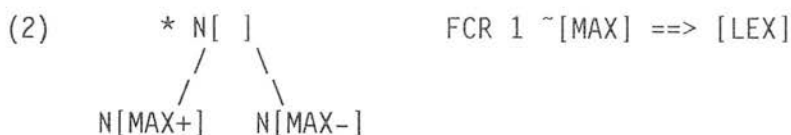
Following Cann (1986) I propose to constrain the range of permissible projections by replacing the multi-valued [BAR] feature with two features which indicate maximality and lexicality i.e. whether the category constitutes a complete phrase and whether it is a word. Cann's analysis employed two unary valued features, [-LEXICAL] and [-MAXIMAL] but I will instead use two binary valued features [MAXIMAL] and [LEXICAL], the former being a HEAD feature and the latter a non-HEAD feature.

My motivation for regarding [MAXIMAL] as a binary valued HEAD feature comes from the unacceptability of the co-ordination of maximal and non-maximal categories in (1).

(1a) * I saw (the professor and other lecturer).



Given the unary analysis in Cann (1986) where maximal categories lack a [-MAX] specification, the tree in (1b) will satisfy the Head Feature Convention so (1a) should be acceptable. If [MAX] were a binary HEAD feature then the tree in (2) could be ruled out via FCR 1.



FCR 1 also ensures that there cannot be projections from minor categories such as Determiners. Even without FCR 1, (2) would still be rejected if we made the standard X-Bar assumption that the mother node here must be maximal since it is the complement of the verb SEE. Since the mother and the first daughter in (1b) are identical categories, it would be impossible for Cann to rule out (1) without simultaneously but incorrectly ruling out (3).

(3) I saw the professor.

Throughout the thesis $X[\text{MAX},+]$ will frequently be abbreviated as XP and $X[\text{MAX},-]$ as X#. A simple X means that the category is unspecified for [MAXIMAL].

There is no comparable evidence that [LEXICAL] need be a HEAD feature. We however modify Cann's unary analysis in that I take [LEXICAL] to be a binary valued feature. The motivation for this is that various FCRs and LP Rules in Fijian and English must distinguish between lexical and non-lexical categories whereas with Cann's analysis there is no means of referring exclusively to lexical categories.

The feature [LEXICAL] is also used in HPSG (Head Driven Phrase Structure Grammar), a derivative of GPSG and Categorical Grammar. (see Sag, 1987 and Sag & Pollard, 1987). Sag (1987) shows that Linear Precedence statements in English must distinguish between lexical and non-lexical categories.

$X[\text{LEXICAL},+]$ will be abbreviated as XL and $X[\text{LEXICAL},-]$ as XS. A simple X will mean that the category is unspecified for the feature [LEXICAL]. [MAXIMAL] and [LEXICAL] will then produce the following four categories; XPL, XP\$, X#L and X#S. Examples of these four categories in English nominal constructions are provided in (4) below.

- (4) NPL = "Ronnie"
 NP\$ = "the other guy"
 N#L = "guy"
 N#\$ = "other guy"

3.2 SLASH INSTANTIATION and THE CAP

GPSG handles unbounded dependencies such as Topicalization via the category valued feature [SLASH]. Thus an X2 Topic is introduced via Rule 32 below.

RULE 32 $S \rightarrow X2, S/X2$

([SLASH,X] is typically written as "/X" in ID Rules). Despite two categories in this rule being labelled X, GKPS do not regard this ID rule as forcing feature identity between these categories. Rather they assume that this identity results from the operation of the CAP.

It would of course be descriptively adequate to assume with Jacobson (1987) an ID rule containing category variables and a convention which required that such variables be identically instantiated. This is basically the approach outlined in Gazdar (1981) where Constituent Questions are introduced by the rule in (5).

(5) $[_O \alpha Q/\alpha]$
where $\alpha \in \{NP, PP, AP, AdvP\}$

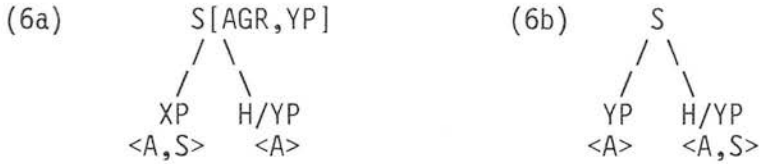
Gazdar (1981: 165)

The use of category variables in a rule such as 32 would however create a distinction between agreement which results from ID Rules and other agreements such as Subject-Verb agreement which results from the CAP. We could write these other agreements on to the ID rules as well but we would thereby lose explanatory adequacy in that agreement would no longer be related to type theory as it is in GKPS. Rather it would be an arbitrary property of the ID Rules. We will therefore maintain the GKPS type-driven approach to Agreement.

It should perhaps be added that as GPSG has developed there has been a consistent reduction in the number of rules involving bound variables, so adopting Jacobson's suggestion would run counter to all recent trends within the theory. (see section 4.4.1 for my re-analysis of the Co-ordination Schema and section 6 for my re-analysis of the Complementizer Schema).

Before proceeding however I must answer the major criticism which Jacobson (1987) levels against the use of the CAP in Rule 32, namely that this

approach results in a completely circular process. The line of reasoning is as follows. A category's semantic type is derived from certain features in its syntactic category, one of which is [SLASH]. The instantiation of [SLASH] is constrained by the CAP. The operation of the CAP depends however upon the identification of TARGETs and CONTROLLERS and these can only be identified from their semantic type. Hence there is a circular process. This circle can however be easily broken. Consider the two trees in (6).



The Heads in (6) have been given different types to illustrate the workings of the two clauses in the CAP. In (6a) the Head has been given the type of a Controller. Because the head does not have a controller sister, the CAP demands that its mother should then have a CONTROL feature with YP as its value. Because [SLASH] was stipulated in the ID rule the FFP will block its occurrence on the mother category so the mother must be [AGR,YP]. In (6b) the Head is a Target with a potential Controller as its sister. The CAP therefore demands that its [SLASH] value should be equal to the Controller i.e. [SLASH,YP].

These then are the only two structures licensed by the CAP. (6a) will however be blocked by FCR 10. This FCR will be independently motivated later to ensure that subcategorization requirements are always satisfied within a sentence.

FCR 10 $XP[SUBJ, +] ==> \sim[AGR]$

This then means that we can only have legitimate projections from Rule 32 if, as in (6b), the Head's semantic type is a function over the type of XP. In other words FCR 10 is equivalent to a stipulation that the Head must be the TARGET in Rule 32 and XP must be its Controller. Given this information the rest of the CAP can then apply without any circularity to ensure that the Head's [SLASH] value matches XP.

The most typical terminus for a SLASH path is a [NULL, +] category. GKPS however maintained that such dependencies need not always end in a gap. More

specifically they claimed that there is no gap in the embedded subject position in sentences such as (7)

(7) The politician, Ronnie thought ____ was a fool.

This is because the [SLASH] path is terminated by the stipulation of [SLASH] in Rule 40.

RULE 40 VP/NP → H[40] , V2[FIN;SUBJ,-]

This analysis is partly the result of theory internal limitations on the distribution of gaps. Gaps were licensed by the Slash Termination Metarule. Metarules were in turn restricted by the Lexical Head Constraint. Since the Subject was not sister to a lexical head, the STM could not apply and a gap could not therefore occur in this position. Theory external motivation for this analysis can however be found in that the subjectless embedded sentence in (8) cannot conjoin with the S/NP category, "Ronnie hates ____".

(8)

* Who do you think [likes Mary] and [Ronnie hates ____] ?

Given GKPS's assumption that any and all like categories, including slashed ones, can conjoin but unlike ones never can, the ungrammaticality of (8) falls out automatically from a VP analysis but not from an analysis which allows a gap in embedded Subject position.

Assuming therefore that Rule 40 is correct, we must still capture the person-number agreement between the extracted constituent and the verb in the subordinate clause. That there is indeed an Agreement here can be seen from the ungrammaticality of sentences such as (9) as opposed to the grammaticality of (7).

(9) * The politicians, Ronnie thought was a fool.

This Filler-Gap agreement involves the CAP matching the [SLASH] value on the mother with the [AGR] value on the daughter. This is possible because the CAP refers only to CONTROL features and not specifically to [SLASH] or [AGR]. This however means that there has to be some way of deciding which Control feature is to apply in the CAP. GKPS therefore stipulated in Definition 5 (GKPS: 89) that instantiated [AGR] was to be the CONTROL feature unless an inherited

[SLASH] occurred on the same node in which case this [SLASH] would be the CONTROL feature.

In trees projected from Rule 40 this will mean that [SLASH] will be the CONTROL feature on the mother since [SLASH] was inherited from the ID Rule. Since the VP daughter lacks a [SLASH] specification, [AGR] will be the CONTROL feature on this category. Whilst the GKPS definition of a CONTROL feature is perfectly adequate for sentences such as (7), as Jacobson (1987) points out, it runs into difficulties when we consider sentences such as (10) which exhibit "Tough Movement".

(10)

That fact is hard for Mary to convince herself of ____.

In GKPS the "Tough Movement" or "Missing Object" construction results from Rule 42 below.

RULE 42 A1 → H[42] , V2[INF]/NP[-NOM]

Possible extensions of a V2 category are a Clause, a Sentence or a Verb Phrase. GKPS's FSD 9 will however block the instantiation of a Sentence, alias V2[SUBJ,+;COMP,nil] since our ID Rule has not overridden this FSD.

FSD 9 [INF;SUBJ,+] == > [COMP,for]

This would then force us to instantiate a V2[SUBJ,+] daughter in Rule 42 as an infinitival FOR clause, alias V2[SUBJ,+;INF;COMP,for]. (The only other possible instantiation for V2 is as a simple infinitival Verb Phrase, alias a V2[SUBJ,-;INF;COMP,NIL]).

Jacobson however maintains that TOUGH Adjectives do not subcategorize for an S[COMP,for]/NP since under that analysis FOR and the NP controlling the TO phrase do not form a constituent. Yet they can be topicalized as in (11a) or questioned as in (11b).

(11a) (For Mary), that would be hard to accept.

(11b) (For which students) will this problem
be difficult to solve?

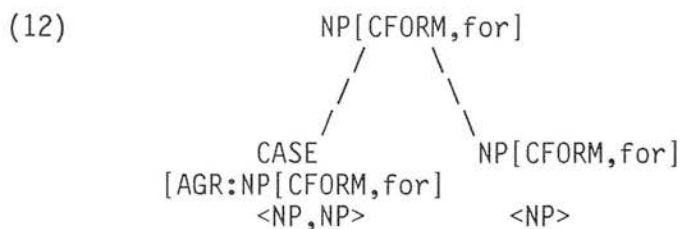
(11b) is actually taken from GKPS where the FOR phrase is dismissed simply as a modifying adverbial. (GKPS: 152)

In the light of examples such as (11) Jacobson claims that Rule 42 should be replaced by Rule 13.

RULE 13 A1 → H[42] , (PP[FOR]) , VP/NP

Whilst this analysis will interact with Topicalization and Subject-Auxiliary Inversion to generate the sentences in (11), it creates another set of problems. This mainly has to do with the category of the FOR phrase. The Reflexive in (10) agrees in person, number and gender with MARY. This information must pass up to the mother node of the FOR phrase since it is this node that is the Agreement Controller. Remember a Controller must be the sister of its Target, rather than its niece. Since [PERSON], [NUMBER] and [GENDER] are assumed to be HEAD features, MARY would appear to be the head of the whole FOR phrase, thus making it an NP. An NP analysis would also remove the anomaly of having the reflexive agree with a PP.

This leaves us with the problem of introducing a FOR into this NP. This can however be achieved in the same way we ensured the presence of a Complementizer in a Clause. [CFORM,X] is marked on the mother and passes to the Head via the HFC. The Complementizer or Case Marker then agrees with its Head sister in [CFORM].



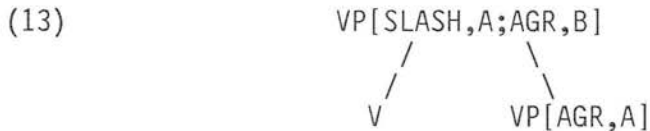
The tree in (12) will thus allow the relevant feature information to appear on the mother node of the FOR phrase. This however still leaves GKPS with another more serious problem.

Their problem is that the VP in Rule 13 has [SLASH] specified in the ID Rule. Given Definition 5 [SLASH] will therefore be the CONTROL feature and the CAP will try to instantiate the [SLASH] value as PP and fail since PP cannot be an extension of NP[-NOM]. For the CAP to work properly here the [AGR] which encodes the person, number and gender of the Reflexive must be chosen as the CONTROL feature. The [SLASH] however must also be a CONTROL

feature since it is the matching of its value with the [AGR] value on the mother which will ensure that the category of the gap in the VP is identical to the Subject's category.

In trees projected from Rule 13 the FFP will always block the instantiation of [SLASH] on the mother so the mother has only one possible CONTROL feature, namely [AGR]. In trees projected from Rule 40 however it is possible to have both [SLASH] and [AGR] on the mother.

RULE 40 VP/NP \rightarrow H[40] , V2[FIN;SUBJ,-]



The [AGR] value on the VP daughter in (13) however must match the [SLASH] value on the mother to prevent Filler - Gap mismatches such as in (9) above. Thus we have evidence that [AGR] cannot be the CONTROL feature on the mother if the mother bears a [SLASH] specification. This then means that we need a definition of CONTROL feature which allows two CONTROL features on certain daughters but still only permits one on the mother. Such a definition is given below.

Definition 5b : CONTROL feature (non-final version)

Suppose C is some category in a rule r ,

where $r = C_0 \rightarrow C_1, \dots, C_n$

and ϕ is a projection of r .

Then a feature f is a *CONTROL feature* of $\phi(C)$

if and only if (a) or (b) is true.

(a) $C = C_0$ and either (1) or (2)

(b) $C = C_i$ and either (1) or (3)

(1) $f = \text{SLASH}$ and $f \in \text{DOM}(C)$

(2) $\text{SLASH} \notin \text{DOM}(C)$ and $f = \text{AGR}$

(3) $f = \text{AGR}$

Of course this will necessitate a revision of Definition 6 in GKPS since this had been formulated on the assumption of a single CONTROL feature occurring on any category. Apart from replacing references to "the CONTROL" feature with references to "a CONTROL feature", this will involve deleting "with no

controller" from clause (ii) in Definition 6 so that the [SLASH] value on the VP in Rule 13 may pass up to A1 even though this VP has a controller, namely the PP. (See page 31 for this revised version of the CAP).

Without these revisions GKPS were confronted with a dilemma. They had either to accept that their analysis was descriptively inadequate at this point, or try to avoid the problem by positing an S[COMP,for]/NP in the Tough construction. In the local tree where VP-NP agreement would then take place there would be no inherited [SLASH] feature to thwart the operation of the CAP. This analysis however leads to incorrect predictions about subcategorization and hence topicalization. In fact its only clear motivation seems to be to avoid the difficulties outlined in a two complement analysis. Since we have circumvented these difficulties, there is no reason to advocate this S[COMP,for]/NP analysis.

3.3 SUBCATEGORIZATION and THE CAP

Within Generative Grammars information about subcategorization was traditionally stored in the lexical entries for heads. However as GKPS correctly pointed out this information was also contained in the ID Rules which introduced these heads. They therefore dispensed with lexical subcategorization in favour of subcategorization via ID Rules. I will however argue that the redundancy problem should have been resolved in the opposite direction i.e. by including subcategorization information in the lexical entries and removing it from the ID Rules.

This would enable related verb frames, such as Passives and Actives, to be produced via general Lexical Redundancy Rules rather than the Metarule mechanism employed in GKPS. The need for Metarules rather than LRRs in GKPS results from the fact that subcategorization requirements are only indirectly encoded in the lexicon via the atom-valued [SUBCAT] feature. For example since V[SUBCAT,2] can only occur as the head in Rule 2, the [SUBCAT,2] specification effectively means that these lexical items subcategorize for NP Objects.

Rule 2 VP → H[2], NP

However verbs with other [SUBCAT] values may also include an NP Object in their subcategorization requirements e.g. V[3] GIVE and V[6] PUT. Since there is no way to refer to this whole class of NP Object taking verbs without referring to the rules in which they occur Passivisation in GPSG has to be treated as an operation on ID rules i.e. a Metarule, rather than a Lexical Redundancy Rule.

Passive Metarule

$$\begin{array}{l} \text{VP} \quad \rightarrow \text{W} , \text{NP} \\ \quad \quad \quad \Downarrow \\ \text{VP[PAS]} \rightarrow \text{W} , (\text{PP[by]}) \end{array}$$

An added disadvantage for this approach is that Metarules greatly increase the formal power of our grammar so preventing us making stronger claims about the class of possible Natural Language Grammars.

Conversely an advantage of the lexical approach is that it eliminates the overlap in the GKPS approach between ID Rule Subcategorization and the Control Agreement Principle. In GPSG verbs only subcategorize for their VP internal arguments. Verbs can nevertheless, as in English, display morphological agreement with their VP-external argument i.e. their Subject. This Agreement is captured via the operation of the CAP on the VP's CONTROL feature, AGR. In such cases ID Rule Subcategorization and the CAP complement each other in the task of ensuring the correct argument structure for the verb.

Consider however the situation in Fijian where a verb displays object agreement.

(14) au a raica na yalewa
 lsg see woman
 "I saw the woman".

au a raici Bale
 lsg see B.
 "I saw Bale".

In (14) the verb RAICA "see" appears with two different affixes, -A and -I, indicating respectively a common and proper NP Object.(See section 4.1 for further discussion of common versus proper NPs). The appropriate complements in (14) could be ensured by means of two separate ID Rules or by different values for the head's CONTROL feature. Obviously we do not want the two processes to duplicate information, but rather to provide complementary

information. How then should the work load be divided between the two?

A general assumption within GPSG analyses is that ID Rules should be minimally specified and then fleshed out by universal Feature Instantiation Principles such as the Control Agreement Principle. With regard to Object Agreement this would then mean the ID rules merely specifying that there was a category present i.e. introducing the empty category X as a place holder. As with the Subject, the identification of this Object would result solely from the operation of the CAP.

Following this parallel with the Subject I assume that Object agreement would be encoded in a category valued CONTROL feature. Since GKPS's atom valued [SUBCAT] feature will no longer be needed we will call this new CONTROL feature [SUBCAT]. An example of the lexical entry required for Object Agreement in Fijian is given below.

(14) RAICI ; see' ; V#[SUBCAT,NP[SPEC,-;PROP,+]]
RAICA ; see' ; V#[SUBCAT,NP[SPEC,+;PROP,-]]

Before we turn to an analysis of the mechanism which produces correct subcategorization from this [SUBCAT] feature in the lexicon, I must point out two of the benefits of this lexical approach.

Firstly this approach means we vastly reduce the number of ID rules we require. Whereas GKPS required 30 lexical VP expansion rules we require only Rules 1 and 2.

Rule 1 XP → H# , Y⁺
2 X# → HL , Y⁺

The various expansion rules in GKPS are simply projections from lexical heads into these rules. (These rules are in fact rule schemata because they employ the Kleene + to indicate one or more Y categories. This Kleene + operator is used in the GKPS analysis of Co-ordinate Structures. see page 69)

Secondly the presence of the [SUBCAT] feature makes for a transparent mapping between lexical categories and their semantic type. This is as follows;

if a category X~[SUBCAT] is of type <X>
and a category Y is of type <Y>
then X[SUBCAT,Y] is of type <Y,X>.

We begin our discussion of the subcategorization mechanism by considering the ways in which subcategorization can fail. To put it simply subcategorization will fail if the head has the wrong arguments. This could mean it had the wrong category of argument e.g. a Clause in (15a) instead of the correct NP in (15b). Alternatively it could mean that the wrong number of arguments are present. (15c) and (15e) have the correct number of arguments but (15d) has one too few and (15f) has one too many.

- (15a) * She built (that he was wrong)
- b She built (a cabin)
- c She put (the book) (on the shelf)
- d * She put (on the shelf).
- e She resembled (her sister)
- f * She resembled (her sister) (to leave tomorrow)

The data in (15) can however be handled via the interaction of a revised Control Agreement Principle with the lexical entries for BUILD, PUT and RESEMBLE.

Before we can precede to these lexical entries we must first provide a feature definition of the three argument categories which may be required by a verb in English. (For convenience we will refer to these three categories via their grammatical functions).

Subject == [ARG,+;EXT,+;OBJ,-]
 Object == [ARG,+;EXT,-;OBJ,+]
 2object == [ARG,+;EXT,-;OBJ,-]

The binary HEAD feature [ARG] indicates whether or not a category is an argument of the head. All three of the categories above are therefore [ARG,+]. Modifiers and Specifiers on the other hand will be [ARG,-]. The binary HEAD feature [EXTERNAL] distinguishes the Subject from the VP internal arguments. Within the VP internal arguments another distinction is made via the binary HEAD feature [OBJECT]. Please note that although we follow GKPS in using a feature [SUBJECT], this feature does not identify Subjects but rather phrases which contain Subjects.

The lexical entries for the three verbs are provided in (16). [AGR], [SUBCAT] and [SUBCAT2] are all taken to be category valued CONTROL features. Unlike GKPS we do not include [AGR] as a HEAD feature. For a brief discussion of [AGR] as a non-HEAD feature see Shilliday (1988).

- (16) BUILD V#L[AGR:NP[EXT,+];SUBCAT:NP[EXT,-]]
 PUT V#L[AGR:NP[EXT,+];SUBCAT:NP[EXT,-];
 SUBCAT2:PP[OBJ,-]]
 RESEMBLE V#[AGR:NP[EXT,+];SUBCAT:NP[EXT,-]]

To include [AGR] and [SUBCAT] on lexical heads as CONTROL features we must amend Definition 5b by adding option (c).

Definition 5c CONTROL feature

Suppose C is some category in a rule r ,
 where $r = C_0 \rightarrow C_1, \dots, C_n$
 and ϕ is a projection from r .

Then a feature f is a CONTROL feature of $\phi(C)$
 if and only if (a), (b) or (c) is true.

(a) $C = C_0$ and either (1) or (2) is true

(b) $C = C_i$ and either (1) or (3) is true.

- (1) $f = \text{SLASH}$ and $f \in \text{DOM}(C)$
 (2) $\text{SLASH} \notin \text{DOM}(C)$ and $f = \text{AGR}$
 (3) $f \in \{\text{AGR}, \text{SUBCAT}, \text{SUBCAT2}, \dots\}$

Rather than add a separate clause (4) to list the CONTROL features on the lexical heads, we have simply added these features to the options in clause (3). Since the subcategorization mechanism below will prevent [SUBCAT] or [SUBCAT2] ever occurring on a VP, this extension of the set of features in clause 3 will not enlarge the set of actual CONTROL features on a [MAX, +] category.

We can now turn to the revised definition of the CAP itself.

Definition 6b CONTROL AGREEMENT PRINCIPLE

Let Φ_r be the set of projections from r ,

where $r = C_0 \rightarrow C_1, \dots, C_n$.

Then $\phi \in \Phi_r$ meets the CAP on r

if and only if for every CONTROL feature, f_i , of $\phi(C_i)$
 either (a), (b) or (c) is true.

(a) $\phi(C_j)$ controls $\phi(C_i)$ and
 $\phi(C_i)(f_i) = \chi(\phi(C_j)) \sqcup \phi(C_j)\{f_i\}$,

(b) $C_i(\text{MAX}) = \{+\}$ and $\phi(C_i)(f_i) = \phi(C_0)(f_0)$
 where f_0 is the CONTROL feature on $\phi(C_0)$.

(c) $C_i(\text{MAX}) = \{-\}$ and $\phi(C_i)(f_i) = \phi(C_0)(\text{AGR})$

The crucial clauses with regard to subcategorization are clauses (a) and (c). Their workings will perhaps become more understandable as we apply them to the examples in (15).

BUILD has the semantic type $\langle \text{NP}, \langle \text{NP}, \text{VP} \rangle \rangle$. Given that clauses are of type $\langle \text{S} \rangle$ the clause does not control BUILD. Clause (a) of the CAP will therefore not apply so Clause (c) passes [SUBCAT]'s value (i.e. NP[EXT,-]) up the tree as the value for [AGR] on the VP mother. However Clause (c) of the CAP will also pass up the [AGR] value on the lexical entry as the [AGR] value on the VP mother. Thus the CAP will try to instantiate both NP[EXT,-] and NP[EXT,+] as the [AGR] value for the mother VP. Since the tree fails to satisfy the CAP it will therefore be rejected as an impermissible projection from Rule 1.

Given the lexical entry for PUT in (15) the CAP will also outlaw (15d). The fact that PUT in (15d) had a PP controller sister, triggered clause (a) of the CAP and prevented [SUBCAT2;PP[-EXT]] passing up to the VP. The verb nevertheless lacked a second controller sister, so NP[-EXT] was passed up as the [AGR] value on the mother. Because of the lack of a controller sister so too was the NP[EXT,+] value on [AGR]. Again we get a contradictory value for [AGR] on the mother and the tree is rejected as an illegal projection from Rule 2.

Blocking the extra argument in (15f) requires a different strategy. Here the CAP correctly matches the [SUBCAT] and [AGR] values with respectively "her sister" and "she". To block extra complements we first of all include an [ARG,+] specification in ID Rules 1 and 2 and then add FSD 50.

RULE 1' $XP \rightarrow H\# , Y[\text{ARG},+]^+$
RULE 2' $X\# \rightarrow HL , Y[\text{ARG},+]^+$

FSD 50 $[\text{ARG},+] ==> [\text{EXT},- ; \text{OBJ},+]$

FSD 50 is the equivalent of the GKPS claim that Accusative NPs are the unmarked NP in a sentence. The precise operation of FSDs in GPSG is quite complex but the relevant clause in the GKPS definition of an admissible projection is paraphrased by them as follows;

non lexical categories ... become exempt from a default if they

co-vary ... with *any* other category in the local tree.

(GKPS: 103)

This means that the Y categories, which in GKPS terms are non-lexical, will only avoid FSD 50 if the CAP forces them to be [OBJ,-]. In (15f) this does not occur so we have two [OBJ,+] categories. This situation will however always lead to an inadmissible projection if we assume LP 40.

LP 40 [+OBJ] < [EXT,-]

This might seem a rather baroque mechanism for achieving descriptive adequacy were it not for the fact that LP 40 is independently motivated by the examples in (17) where it is not possible to alter the ordering without altering the meaning.

- (17a) Kim gave the boss the present.
b * Kim gave the present the boss.

Since "the boss" and "the present" in (17) are both non-conjoined NP's and none of the LP Rules in GKPS distinguish between such categories either order should be permissible without any alteration in meaning.

GKPS try to account for the fact that "the present" in (17b) has a different Theta role by linking the first post verb NP with GIVE's semantic second argument

Argument Order

In a local tree t , if

(1) there are C_i, C_j such that $TYP(C_i) = TYP(C_j) = NP$, and

(2) C_j immediately follows C_i in t , then

$C_0' \in FR(a_0, \{a_1, \dots, a_n\}_m)$ only if C_i is the 2-argument in C_0'

(GKPS: 214)

Rather than impose this ad hoc restriction on Functional Realization so as to relate argument position with linear order, we would maintain it is preferable to include this argument ordering information directly in the syntax by means of LP 40.

An alternative approach to ruling out extra arguments is given in (18) where

arguments are asked to obey FSDs which conflict with FCR 90.

(18)
FSD [ARG,+] ==> [EXT,+] FCR 90 [EXT,+] ==> [OBJ,-]
FSD [ARG,+] ==> [OBJ,+]

The FSDs in (18) are not implausible in that they claim that Subjects and Objects are equally unmarked arguments, each satisfying one FSD, whilst the 2Object is highly marked since it disobeys both these FSDs. The FCR is even less controversial in that it claims that the VP external argument cannot be an Object. This is the equivalent of saying that Objects are in fact VP internal arguments.

Let us now consider how the restrictions in (18) affect the acceptability of the four candidate projections from Y[ARG,+] in (19).

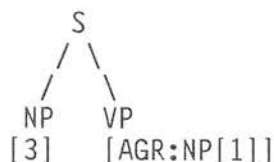
(19)
(a) Y[ARG,+] (b) Y[ARG,+] (c) Y[ARG,+] (d) Y[ARG,+]
 [EXT,+] [EXT,+] [EXT,-] [EXT,-]
 [OBJ,+] [OBJ,-] [OBJ,+] [OBJ,-]

The instantiation in (19a) will instantly be rejected because it does not obey the FCR in (18) so we are left with the three candidate projections (19b) - (19d).

Since extra argument categories have no instantiation imposed upon them by the head, clause (iii) in the definition of admissible projections will not apply to the categories in (19). Clause (ii) states that FSDs can be false if no candidate projections exist in which the default is true of that category. Since (19b) - (19d) contain candidate projections of Y[ARG,+] in which the FSDs in (18) are individually true, this clause cannot apply. This then only leaves us with clause (i) which states that the default must be true for a candidate projection to be admissible. There are however no candidate projection for which the FSDs in (18) are simultaneously true. Thus it becomes impossible for an extra argument to appear in an admissible projection from Rules 1 or 2.

The final type of argument mismatch is that in (20) where the Subject NP does not agree with the [AGR] value on the VP.

(20) * Ronnie am in his office.



Since clause (a) of the CAP will fail to operate in this tree, clause (b) or (c) will pass the [AGR] value up to the S node. (See page 103 for my reservations about the [MAX,+] status of the Subject's sister). We can however ensure that such a situation will always lead to the tree being rejected, if we include FCR 10 in our grammar.

$$\text{FCR 10 } XP[\text{SUBJ,+}] \Rightarrow \sim[\text{AGR}]$$

Conclusion.

In GPSG (and in GB) lexical heads only subcategorize for their sisters. Verbs therefore subcategorize for all their arguments apart from the VP external argument i.e. the Subject. This of course does not mean that the verb can place no restrictions on the identity of its Subject. Rather such restrictions arise through the operation of the CAP on the CONTROL feature [AGR]. Since subcategorization in GKPS arises through the atom-valued [SUBCAT] feature this means that subcategorization and agreement are regarded as distinct processes.

Given our approach to subcategorization however the distinction becomes simply one of terminology i.e. calling the features [AGR], [SUBCAT] and [SUBCAT2] rather than [SUBCAT#1], [SUBCAT#2] and [SUBCAT#3]. Thus the implicit claim in our approach is that Agreement and Subcategorization are basically the same phenomenon. In adopting this view we are following the approach in Lexical Functional Grammar and Head-driven Phrase Structure Grammar. This merging of Agreement and Subcategorization is clearly advantageous in languages such as Fijian which display Object agreement and allow unbounded dependencies to terminate in Subject position. In other languages such as English it leaves us with the problem of finding alternative accounts for Subject/Object asymmetries, though an obvious approach would be to link them in some way to the feature [EXTERNAL].

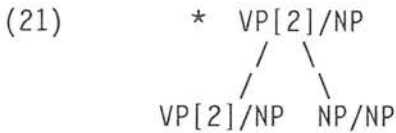
3.4 THE HFC - FCR INTERACTION

FCR 6 [SUBCAT] ==> ~[SLASH]
 FCR 9 [BAR,2] ==> ~[SUBCAT]

Negative FCRs such as 6 and 9 limit the set of free HEAD features and hence limit the matching of features on mother and head daughter(s). The default nature of the HFC would clearly be reduced if such FCRs did not override the HFC. The following paragraphs examine several ways we might set about achieving this.

Firstly we could simply ignore FCRs in our definition of Φ_r , the set of projections over which free HEAD features are defined. This however would create problems for projections from Rule 2 such as (21).

RULE 2 VP → H[2] , NP



The first problem is that the HFC would pass the instantiated [SLASH,NP] down from the VP to the V[2] but this violates FCR 6 since the head now has both a [SUBCAT] and a [SLASH] specification. This means that the mother of a lexical head could never have a [SLASH] specification so rendering unbounded [SLASH] paths impossible. A second and unavoidable problem is however that the HFC would have passed [SUBCAT,2] up from the head to the mother VP thus making the mother [BAR,2;SUBCAT,2] and thereby violating FCR 9. This would mean that no acceptable tree could ever be projected from a rule introducing a lexical head!

Secondly we could simply reject the FCRs and allow the instantiations in (18). Since all GKPS [SUBCAT] categories are [LEX,+] in my analysis and [BAR,2] categories are [MAX,+], FCR 9 would outlaw [MAX,+;LEX,+] categories. I however indicated in section 3.1 that we found such categories acceptable. It is obvious therefore that we have already rejected FCR 9.

Jacobson (1987) was in favour of also abandoning FCR 6 and permitting [SLASH] to occur on lexical heads. In her opinion there was no theory external

reason for the rejection of [SLASH] on lexical heads. If we abandon FCR 6 then we need some mechanism to prevent (22) where the [SLASH] has passed down to the head but not to the S. Remember that although [SLASH] is a FOOT feature the FFP is satisfied by the instantiation of [SLASH] on *any* daughter even the head daughter.



* The car we _{VP/NP}(thought _S(John had fixed the bike))

There are at least three ways to avoid the situation in (22). Firstly as suggested by Ronnie Cann (personal communication) we could redefine the FFP so that it ignored FOOT features on lexical heads, thus producing FFP' in (23).

(23) FFP'
 Let Φ_r be the set of projections from r ,
 where $r ::= C_0 \rightarrow C_1, \dots, C_n$.

Then $\phi \in \Phi_r$ meets the FFP' on r
 if and only if $[\text{MAX}, -; \text{LEX}, +] \notin \phi C_i$

and $\phi(C_0)|\text{FOOT} \sim C_0 ::=$
 $\cup_{C_i} \phi(C_i)|\text{FOOT} \sim C_i$

Since a [SLASH] has been instantiated on the mother in (22), FFP' would then have to instantiate [SLASH] on the [MAX, +] daughter in (22).

A second approach would be to require slashed lexical heads to always subcategorize for a slashed complement. This could be achieved by assuming that [SLASH] could not be freely instantiated in a lexical entry but rather had to be stipulated in all relevant lexical entries. This stipulation would typically be via a Lexical Redundancy Rule. Thus we could posit LRR 1 which simultaneously put a [SLASH] on the head and on one of its complements.

LRR 1

For every lexical entry $\alpha[\text{CONTROL}, \beta]$
 create a new lexical entry $\alpha[\text{SLASH}, X; \text{CONTROL}, \beta/Y]$
 where α and β are variables over sets of features

CONTROL in LRR 1 can be any CONTROL feature except [SLASH]. This restriction would hold even if [SLASH, X] had not been stipulated in the output

from LRR 1 since the constraints on permissible values for category-valued features would have prevented CONTROL from being [SLASH]. If CONTROL were [SLASH], LRR 1 would have created the recursive category [SLASH β [SLASH,Y]] but such recursive categories are outlawed in GPSG. (see GKPS: 36-37).

Since a lexical entry can contain more than one CONTROL feature, LRR 1 could apply more than once to the same lexeme. I will however assume a general prohibition on the recursion of LRRs. This parallels the GKPS assumption of Finite Closure on the operation of Metarules. If it transpired that some other LRR was in fact recursive, then the recursion of this particular LRR could be blocked by adding the constraint in (24) to LRR 1.

$$(24) \text{ [SLASH]} \notin \alpha$$

Although GKPS do not permit the use of bound category variables in ID rules they do permit their use in lexical entries. We have gone a step further here in assuming that the category variables, α and β , may also be bound in a Lexical Redundancy Rule. An equally powerful variable binding was assumed in Metarules where the variable, W , ranged over a multi-set of categories and ensured their identity in the input and output rules so the use of variable binding in our LRR cannot really be objected to by anyone who was prepared to accept the original Metarule formalism.

Although the two [SLASH] values in LRR 1 have been given as X and Y, the FIPs ensure that they will in fact be identical. The CAP ensures that the head's sister is [SLASH,Y]. Since this [SLASH] is not inherited, the FFP then ensures that the mother is [SLASH,Y]. Finally the HFC ensures that the mother's [SLASH] value and the head's [SLASH] value match, so X must be equal to Y.

Given that there is a correlation between CONTROL features and semantic type assignment, it might be feared that an extension of [SLASH] to lexical heads would have adverse consequences for this assignment. A perfectly consistent category-type assignment is however still possible. This assignment is given in (25).

(25) *Type Assignment Convention*

if X is of type <x> and Y~[SLASH] is of type <...,y>
 then Y/X is of type <...,<x,y>>

Thus if we assume THINK has the lexical entry in (26a), the LRR will produce the second syntactic category in (26b) and (25) will then associate this category with the appropriate type.

(26a) THINK V#L[AGR:NP;SUBCAT:S] <S,<NP,S>>

(26b) THINK V#L[SLASH:X;AGR:NP;SUBCAT:S/X]
 <<X,S>,<NP,<X,S>>>

The third solution to the problem of HFC-FCR interaction is to modify the HFC. For such a modification the reader is again referred to Appendix 1.

3.5 [SLASH] & LP RULES

[SLASH] is unusual in that it is both a Head and a Foot Feature. Because it is a HEAD feature [SLASH] must pass from the mother to its Head daughter. Because it is a FOOT feature it must pass from the mother to one or more of its daughters even the head daughter. This produces a chain of [SLASH] categories known as a Slash Path which links the antecedent with the extraction site or Gap. The Gap need not be an empty category but may, as in Fijian, be an overt pronominal.

Since FOOT features inherited from ID Rules are outside the domain of the FFP, the [SLASH] feature which has been explicitly mentioned on the Head daughter in Rule 32 will not be passed up to the mother S.

RULE 32 S → XP , H/XP

It will however pass down to at least one of the Head's daughters.

GKPS restrict the set of categories on which [SLASH] can occur by means of FCR 6 which translates into our feature system as FCR 10. (see section 3.1 for the relationship between [LEX] and [SUBCAT]).

FCR 6 [SUBCAT] ==> ~[SLASH]
 FCR 10 [SLASH,X;LEX,+] ==> [MAX,+]

Since only heads and their projections are specified for [MAX] this correctly prevents minor categories such as Determiners and Complementizers which are

[LEX,+] from having a [SLASH] specification. FCR 10 however also blocks the instantiation of [SLASH] on lexical heads which are [MAX,-] e.g. transitive verbs. In the previous section we however argued against this on the grounds that it increased the default nature of the HFC. We therefore recast FCR 10 as FCR 11. FCR 11 [SLASH,X;LEX,+] ==> [MAX] Although FCR 11 permits lexical heads to be [SLASH] termini, this does not mean that there will never be "missing" categories in such situations. Rather I assume, along with GKPS, that typically there will also be an X/X Gap (or Trace) category related to the Filler. Given FCR 11 the sole terminus for a [SLASH] path could nevertheless theoretically be an X/Y category.

The instantiation of [SLASH] will also be restricted by any LP Rules referring to it. GKPS do not include an English LP rule which refers to [SLASH] since in sentences such as (27a)- (27c) the correct ordering results from GKPS's LP 1.

- (27a) John, we saw yesterday. [N,+] < PP < VP
 b To whom did you give the book ?
 c How successful is he ?
 d That John came, we believe.

However as Jacobson pointed out LP 1 will not ensure the correct ordering in (27d). She therefore proposed that LP 2 be added to handle such examples.

LP 2 ~[SLASH] < [SLASH]

This LP Rule ensures that the Filler in an unbounded dependency will always be to the left of the Gap; a fact that seems to be true not only for English but also cross-linguistically. As she however admits (footnote 31) this LP Rule ignores the fact that most Adverbial Phrases must follow VP[SLASH] categories. Lexical manner Adverbs such as HURRIEDLY in (28) are exceptional in that they may precede or follow a VP[SLASH].

- (28a) Which paper did Ronnie hurriedly_{VP}(read ___)?
 b Which paper did Ronnie_{VP}(read ___) hurriedly ?
 c * Which paper did Ronnie yesterday_{VP}(read ___)?
 d Which paper did Ronnie_{VP}(read ___) yesterday?
 e * Which paper did Ronnie outside_{VP}(read ___)?
 f Which paper did Ronnie_{VP}(read ___) outside?

Before we can turn to a revision of LP 2 we must say something about the feature analysis we are assuming for Adverbials. In GKPS [ADV] is a Boolean

valued feature. I however take [ADV] to be a trinary valued feature; the three values being Time, Place and Manner. Sag et al. (1985) regard Time and Manner as separate features; [+TEMP] and [+MANNER], and analyse Adverbial Phrases as XP[+MANNER] or XP[+TEMP]. Their analysis however does not account for the non-existence of [+MANNER;+TEMP] categories. In our approach such categories would be illegal since they involve contradictory values for the [ADV] feature. We however make a further distinction within Adverbials between [LY,+] and [LY,-] categories. These categories obey the FCRs in (29).

$$(29) \quad \begin{array}{l} [LY,-] \implies [ADV] \\ [LY,+] \iff [ADV,M;LEX,+] \end{array}$$

This then means that we can refer to lexical manner adverbs simply as [LY,+] and to all other adverbs simply as [LY,-]

With this analysis of Adverbials we can now attempt a revision of LP 2. We cannot however simply add a reference to [LY,-] Adverbials to LP 2 to produce LP 2b.

$$LP\ 2b \quad \sim[SLASH] < [SLASH] < [LY,-]$$

LP 2b would prevent any of these Adverbials occurring as the sister of a VP[SLASH] since it would simultaneously require them to precede and follow this VP. Examples (28d) and (28f) however indicate that such Adverbials can occur as sister to a VP[SLASH]. We could add a \sim [ADV] specification to the \sim [SLASH] but this would produce a rather cumbersome feature specification so I will instead replace the \sim [SLASH] specification with a simple V[MAX,+] category, thus producing LP 2c.

$$LP\ 2c \quad VP < [SLASH] < [LY,-]$$

LP 2c will not only account for (27d) and all the examples in (28), it will also rule out (30a), a sentence which is perfectly acceptable according to the analysis in GKPS. (The difficulty for their analysis is that the VP(frighten Mary) is not the head of the sentence so [SLASH] will not compulsorily occur on this VP).

- (30a) * Who did _{NP}(the picture of __) frighten Mary ?
 (b) Who did Mary persuade __ to take her class?
 (c) Who do you believe __ to be in charge?

Unfortunately however LP 2c rules out (30b) and (30c) which are acceptable. As

can be seen from (31) the problem here is that an NP/NP Gap precedes a VP.



There are various ways to get round the problem in (30b) and (30c). One is simply to exempt [NULL] categories from LP constraints. There is no need however to grant [NULL] categories such a privilege since we can amend the LP rule as below to avoid the problem in (30).

LP 2d VP < [SLASH,X;LEX,-] < [LY,-]

This LP Rule depends crucially on the fact that the feature [LEXICAL] can occur on phrasal categories. Its GKPS counterpart [SUBCAT] is however prevented from occurring on phrasal categories by FCR 9.

FCR 9 [BAR,2] == > ~[SUBCAT]

Given such an FCR we could only achieve the correct ordering in (25b) if with Jacobson (1987) we claimed that Gaps are not themselves [SLASH] categories. Her Slash Termination Metarule below would be one way of achieving this.

Jacobson's Termination Metarule

$$\begin{array}{l}
 X \rightarrow W, Y \\
 \Downarrow \\
 X/Y \rightarrow W, Y[NULL,+]
 \end{array}$$

Jacobson justifies her Metarule by claiming that it does away with the need for variables in the lexical entry for Trace i.e. GKPS's $XP[\alpha]/XP[\alpha]$ now becomes simply $XP[NULL,+]$. This is however achieved only at the expense of assuming that the two Y categories in X/Y and Y[NULL,+] will receive the same instantiation. Unfortunately GKPS do not assume bound category variables in their ID Rules. Categories such as Y are simply minimally specified categories which must be fleshed out by the Feature Instantiation Principles.

Admittedly the operation of the FIP's can lead to two minimally specified categories receiving identical instantiations. For example the X's in Rule 32 will be identical because of the operation of the CAP.

RULE 32 $S \rightarrow X, H/X$

This however does not mean that identically labelled minimally specified categories in ID rules are treated as bound variables! The minimally specified category, usually labelled X or Y, has no privileged position in ID rules. It is an ordinary category just like NP[PERS,3;PLU,-;CASE,ACC]. (It must be admitted however that GKPS does give a misleading impression by labelling both categories in Rule 32 "X", rather than labelling one "X" and the other "Y").

3.6 METARULES

In the previous section we noted an objection to a specific Metarule proposed by Jacobson. There is however a more general objection which could be raised against the use of *any* Metarule. Uszkoreit & Peters (1986) showed that the unconstrained use of Metarules enables a grammar to generate Recursively Enumerable languages. There is however no proof that Natural Language belongs to this class of languages. (It has only recently been independently proved by Culy (1985) and Shieber (1985) that Natural Languages are not a subset of the class of Context Free languages).

Linguists have therefore adopted two strategies in their attempts to constrain the potential power of Metarules. Firstly in some cases they have replaced Metarules with other mechanisms e.g. Gazdar (1982) induced Rule 6 from Rule 5 via the Metarule in (32).

Rule 5 $S \rightarrow NP, VP$
Rule 6 $S/NP \rightarrow NP, VP/NP$

(32) $[_a X \sigma Y] \implies [_{a/b} X \sigma/b Y]$
 where σ is a non-terminal syntactic category

Gazdar (1982: 181)

In GKPS Rule 6 is simply a projection from Rule 5 which satisfies the various constraints on instantiation of [SLASH].

Secondly they have attempted to impose constraints on the application of the remaining Metarules. The most well known constraint is the Lexical Head constraint proposed by Flickinger which meant that only rules introducing lexical

heads were permissible input to a Metarule. A second constraint was the more formal Finite Closure constraint of Thompson (1982) which prevented a Metarule operating on an ID Rule which this same Metarule had earlier created. This prevented a grammar containing an infinite number of ID rules.

In this section we would like to advance the first strategy, namely the replacement of Metarules by other mechanisms.

In presenting her STM Jacobson suggested that it might be stated as a Lexical Redundancy Rule. Let us now consider how a Slash Termination Lexical Redundancy Rule might be formulated in the light of the approach to subcategorization which we have outlined in section 3.3.

We begin by assuming that SAW can occur as the head of Rule 1 and that it has the lexical entry in (33).

RULE 2 $X\# \quad \rightarrow HL, Y[ARG,+]^+$

(33) SAW $V\#L[AGR:NP[EXT,+];SUBCAT:NP[EXT,-]]$

Since we assume that [SLASH] cannot be freely instantiated in lexical entries this lexical entry and Rule 1 will license the VP in (34a) but not the VP in (34b).

(34a) You _{VP}(saw the book)

(34b) The book which you _{VP}(saw __) was burnt.

(34b) would require a lexical entry for SAW which contained NP/NP as a permissible value for [SUBCAT]. This second lexical entry will be derived by LRR 1 which we introduced in section 3.4.

LRR 1

For every lexical entry $\alpha[CONTROL,\beta]$
 create a new lexical entry $\alpha[SLASH,X;CONTROL,\beta/Y]$
 where α and β are variables over sets of features

The lexical entry for the Gap itself need not however be derived via a Lexical Redundancy Rule. Rather it will be a minimally specified category which the lexicon is free to extend to produce a range of Gap categories.

Gap = $[\alpha;MAX,+;LEX,+]/[\alpha;MAX,+]$

As in GKPS the lexical entry for the Gap (or Trace) makes use of a variable, α , which is a variable over a set of features. It will be obvious that there is a certain

asymmetry in this entry in that the Gap is specified as [LEX,+] whilst its [SLASH] value is unspecified for [LEXICAL]. To force the Gap and its Filler to have identical values would in our system prevent unbounded dependencies which involved phrases rather than words. The GKPS entry for Trace likewise makes the Gap and its Filler differ in one feature; in their case the feature [NULL]. As we shall see later the Filler and Gap in Fijian differ in the feature [PROPER] and the Fillers and Gaps in many languages differ in Case. None of this poses any problem since we only require near identity rather than absolute identity between Filler and Gap.

Although most of these XP/XP categories can terminate a [SLASH] path, there are some (e.g. the Subject position in English) which cannot. This restriction can be captured by the [EXT,-] specification in FCR 32.

FCR 32 [SLASH,X;MAX,+ ,LEX,+] ==> [EXT,-;NULL,+]

This FCR also ensures via the [NULL] specification that all Gaps will be empty categories. The need for a [MAX,+] specification in this FCR arises from our decision in section 3.4 to let [SLASH] be instantiated on [MAX,-;LEX,+] heads. Since these slashed heads are always overt and frequently not the heads of complement clauses we do not wish them to be [EXT,-;NULL,+]. (Since Complement clauses are VP internal arguments we assume that they are [EXT,-]).

This approach to restricting Slash Termini was inspired by Cann (1985) which advocated the FCR and FSD in (35).

(35) FCR [+NULL] ==> [SLASH]
FSD ~[NULL], if ungoverned

The FSD in (35) is unorthodox in that it does not relate one category with another category but rather with "government". Cann's definition of Government however is such that only Objects can be "governed" so his FSD can be translated into our framework as the relationship between [NULL] and [EXT,-] in (36).

(36) [NULL,+] ==> [EXT,-]

There is no reason however why (35b) should not be regarded as an FCR rather

than simply an FSD, so (36) can then be combined with the FCR in (35) to produce a single FCR such as FCR 37.

Apart from the need to restrict Gaps to complement positions Cann (1985) noted another problem for a non-Metarule approach to Slash Termination, namely the ungrammaticality of the double Gap construction in (37).

(37) * What did you give ____ ____?

Whilst Cann rejected (37) purely on the basis of semantic anomaly, our analysis can provide a non-semantic reason for the rejection of this sentence. Note incidentally that GKPS explicitly denounce "semantic filtering" when they state that "every well-formed syntactic structure is assigned a non-empty set of semantic translations". (GKPS: 242 fn.7). Cann's rejection of (37) purely on semantic grounds is therefore not an orthodox GPSG solution.

We can however rule out (37) simply by assuming that LRR 1 which licenses slashed complements, is not a recursive rule. This could result either from explicitly stipulating that [SLASH] is not a member of α in LRR 1 or assuming that LRRs in general are non-recursive. This will not only account for the unacceptability of the two Gaps in (37) but also for their unacceptability in (38).

(38) * Which slave did you give ____ to ____?

Although Thompson's Finite Closure constraint on the operation of Metarules can rule out (37) where the two Gaps are sisters, it cannot block (38) since the two Gaps here occur in distinct local trees. Thus LRR 1 can account for a wider range of data than the GKPS metarule analysis.

Given LRR 1 and FCR 32 there is then no need to assume that the limited distribution of Gaps results from their introduction via Metarules. Moreover in section 8.2 we will see that Gaps in Fijian need not occur as sisters to lexical heads, so further weakening the assumption that they are introduced via Metarule. A revision of the Lexical Head Constraint would of course resolve the problem in Fijian, but if it were possible for other mechanisms in the grammar to perform the work of Metarules, Occam's razor would encourage us to abandon them completely.

As Cann (1985) however points out there is one set of Metarules, namely Liberation Metarules, that cannot be recast as Lexical Redundancy Rules. A fuller presentation of Liberation Metarules is given in Zwicky (1986) where he presents the following formulation of a Liberation Metarule.

LIBERATION METARULE SCHEMA
 if $X \rightarrow W, Y$ and $Y \rightarrow Z$
 then $X \rightarrow W, Z$
 where W and Z are multisets of categories

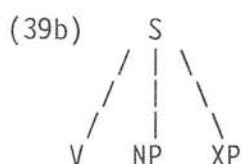
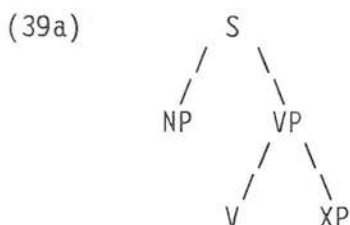
Basically a Liberation Metarule flattens two local trees into one by destroying the Y node which is common to the two trees. As noted above it is standardly assumed that an ID Rule induced by a Metarule may not subsequently be operated on by that same Metarule. A Liberation Metarule however can apply to its own output so producing progressively flatter structures.

If no restrictions were placed on the operation of this metarule we would end up with a free word order, or W Star, language as opposed to a configurational, or X Bar, language. X Bar and W Star languages are thus regarded as opposite ends of a scale rather than two radically different language types. This indeed seems to be the case since even languages such as Dyirbal can display some rigid word ordering and configurational languages often display some freedom in word ordering. Each language then imposes particular restrictions on the Liberation Schema in terms of permissible values of X and Y . One restriction that is quite common across languages is that Y not be a Noun Phrase.

The only rule in GKPS that we could classify as a Liberation Metarule is their Subject-Auxiliary Inversion Metarule.

SAI Metarule
 $VP \rightarrow W$
 \Downarrow
 $S \rightarrow W, NP$

Although this metarule is descriptively adequate, it misses the obvious point that it is not coincidental that the addition of an NP to a VP creates a sentence. On reflection what is actually happening here is the flattening of the structure in (39a) to create the structure in (39b).



(39a) You have no chance (39b) Have you any chance?
 (39a) You did phone back? (39b) Did you phone back?

This Flat Sentence structure can easily be accounted for in our analysis with the rules and lexical entries we have already motivated. The two rules we have presented to introduce arguments are repeated below.

RULE 1 XP → H# , Y[ARG,+]⁺
 RULE 2 X# → H#L, Y[ARG,+]⁺

In structure (39a) the S node is an XP category and is expanded by Rule 1 and then the V# is expanded by rule 2, assuming for the moment that finite verb phrases are V#. There is nothing however to prevent the head of rule 1 being [LEX,+] and more than one Y category being introduced. The subcategorization requirements of the head could therefore be satisfied in a single local tree, thus producing the flat structure in (37b).

To ensure that the correct verbs appear in each structure we then add FCRs 51 and 52 which regulate the distribution of [INV,+] and [INV,-] verbs.

FCR 51 [LEX,-;INV,+] ==> [MAX,+]
 FCR 52 [LEX,-;MAX,-] ==> [INV,-]

We follow GKPS in assuming that [INV] is a binary HEAD feature. Most verbs will be [INV,-] apart from finite auxiliary verbs which can be either [INV,+] or [INV,-].

All we then need to do is ensure the correct ordering of constituents in (37b). As we have already noted GKPS do not provide LP rules which order non-conjoined NP sisters, so we must add LP 51 to rule out (40).

LP 51 [EXT,+] < [EXT,-]
 (40) * Have any chance you?

In section 7.3.3 a similar Subject before Object ordering will be shown to operate in Fijian.

CHAPTER 4 NOUN PHRASES

4.1 NOUN SUBCLASSES

Open word classes in Fijian are not typically identifiable on the basis of inflectional or derivational morphology. Instead these classes are identified by their distribution i.e. the syntactic frames in which they are inserted. If an open class lexeme is preceded by the particles NA or KO then the lexeme is nominal. (Other means of identifying NPs will be introduced later).

The category of nominals will be analysed as containing four sub-classes, namely Names, Pronouns, Common Nouns and Numerals. These subclasses will be defined by the two binary HEAD features [PROPER] and [TRANSITIVE].

Names and pronouns are [PROPER,+] whilst Common Nouns and numerals are [PROPER,-]. The value of the feature [PROPER] is reflected in the form of the determiner; KO with [PROPER,+] Nouns and NA with [PROPER,-] Nouns.

The [TRANSITIVE] feature indicates whether the Noun can have an NP complement. Numerals and pronouns are [TRANSITIVE,+]. Common Nouns and names are [TRANSITIVE,-]. In section 3.6 transitivity was associated with the feature [MAXIMAL]; transitive lexical items being [MAX,-] and intransitive lexical items being (at least sometimes) [MAX,+]. Once a transitive lexical head had combined with its complement, it then produced a category which had the same [MAX] value as a lexical intransitive head. Thus it is impossible to consistently distinguish phrases with a transitive head and those with an intransitive head. As we shall see below we need to make precisely this distinction with regard to NPs, so we are forced to introduce the feature [TRANSITIVE]. FCR 1 makes explicit the relationship between [TRANS] and [MAX].

FCR 1 [LEX,+;TRANS,+] ==> [MAX,-]

Nouns which are [TRANS,+] have a lexically specified value for [NUMBER]. This takes one of the following range of values: {sg,dl,tl,pl}. These four [NUMBER] values are realised morphologically on the Pronouns and Inflections.

(See sections 11.3 and 11.4 for the Pronominal and Inflectional paradigms).

Nouns which are [TRANS,-;PROPER,-] i.e. Common Nouns, have no specification for [NUMBER] in the lexicon. The nominal prefix VEI, sometimes found as a free morph, forms collectives rather than true plurals e.g. "VEI-KAU" means "forest" rather than simply "trees". A name i.e. an NP[TRANS,-;PROPER,+], will have the lexical specification [NUM,SG].

(1) NOUN SUBCLASSIFICATION

	PROPER	PROPER
	+	-
T		
R		
A +	pronouns	numerals
N		
S		
I		
T		
I	names	common
V -		Nouns
E		

A further distinction is made in intransitive Nouns between animate and inanimate. (see section 5.2.3)

Certain [TRANS,-] Nouns are unspecified for the feature [PROPER]. This means they may function as either names or Common Nouns. The examples below are taken from Cammack (1962: 43).

(2)

ko qase ni vuli	Teacher (a specific person)
na qase ni vuli	teacher (any member of the profession)
ko Tui Lau	King of Lau (a specific person)
na Tui Lau	king of Lau (the office)
ko matanivanua	Herald (a specific person)
na matanivanua	herald (anyone of this rank)

(MATANIVANUA was an important rank in Fijian society, second only to the king). Since the [PROP,+;TRANS,-] forms pick out specific individuals or places it is impossible for them to occur in non-singular Noun phrases. The [PROP,-] forms must be used instead. This can be seen when we compare the Determiner preceding NOQU in (3a) and (3b).

(3a)

ko noqu i tau	My Friend
b ko ira na noqu i tau	my friends

Most kinship terms can occur with either KO or NA ; the choice being

conditioned by social factors. "The proper article with terms of kinship implies familiarity and close acquaintance." (Milner, 1956: 72)

With two or three kinship terms however both Determiners can appear simultaneously. Again the use of NA implies lack of acquaintanceship.

- (4) ko na ganena his sister/her brother
 ko ganena his sister/her brother

For an explanation of the Fijian kinship system see Nayacakalou (1955).

Note that KO NA is also found in place names such as "ko Nasigatoka" (loosely translatable as "Sunset") where the "na" has become fossilized as a nominal prefix.

With this in mind I propose to treat NA as a nominal prefix whenever it is preceded by KO. The fact that Fijian orthography treats NA as a separate word here obscures the fact that it is really a bound morph. No particle can intervene between NA and the kinship terms. A similar situation can be found with the nominalising prefix, I. My informant, in line with Churchward (1941), writes this as a separate particle e.g. "i tau" but I follow Milner (1956: 57) in regarding it as a prefix.

Numerals have been treated as N[PROP,-;TRANS,+] because they take the common Determiner NA. They may however also occur with the particle E which I take to be an Inflection or Subject-Agreement marker. (see section 8.2). Foley (1976) regards this E as a main clause Complementizer but both of our analyses suggest that these Numerals should be treated as verbal rather than nominal. This would seem to be borne out by examples such as (5a) where the Numeral Phrase functions as a predicate.

- (5a) e tolu na waqa " There are three canoes."
 three canoe lit "The canoe threes".
 b na cava na betana ? " What's its function? "

what function-its The verbal status of these Numeral Phrases is not however conclusively proven by examples such as (5a) since Fijian possesses copular-less sentences such as (5b) which consist solely of two NPs.

I nevertheless regard the numeral phrase in (5a) as verbal rather than

nominal since the latter analysis would require treating "E" as a numeral Determiner in (5a) whilst elsewhere it would clearly have to be an Inflection. Although Churchward (1941) assumes that two homophonous lexemes exist here I contend that it is simpler to assume that the numeral in (5a) is verbal and that there is no distinct numeral Determiner.

According to Milner (1956: 22) there is in general a choice between E and NA with Numerals. The one exception is the obligatory use of NA when the Numeral Phrase is the object of a Preposition. However my informant appears to restrict the use of E to numeral *predicates* so that NA with numeral NPs is much more frequent than Milner would have us believe. (This is just one of the instances where my informant appears, thankfully, to have regularised Milner's grammar. See below Section 4.3.2)

However the example in (6) below which is taken from a Fijian newspaper, shows that a verbal numeral, RUA, can occur as the head of the Subject; a position where we might have expected a referring expression and hence an NP.

(6)
 erau rairai e na mataveilewai e Suva e na Moniti
 3d1 appear court S. M.
 (e rua na cauravou)
 two youth

"Two youths appeared in the court in Suva on Monday."

It is of course possible that the bracketed Numeral Phrase in (6) is a completely distinct clause rather than the clausal Subject of the matrix verb RAIRAI. In which case we would have some sort of clausal parataxis rather than a more rigid construction. Since there are however clear examples of Clausal Subjects in Fijian (see (5) on page 181) I find no compelling evidence to reject the analysis of the numeral phrase in (6) as the Subject of the main clause. I then take the choice of E rather than NA in (6) as a reflection of the newness of the information. Since (6) is the opening sentence of a report, the youths have not been referred to previously.

4.2 NP EXPANSION RULES

4.2.1 Determiner + Noun

We begin our analysis of the structure of the NP by formulating an ID Rule to account for the NPs in (7).

- (7a) e a raici_{NP}(Wati) NP(ko Bale) "Bale saw Wati"
b e a raica_{NP}(na gone) NP(na tagane) "The man saw the child"
c e a raici_{NP}(Bale) NP(ko Wati) "Wati saw Bale"
d * e a raica_{NP}(ko Wati) NP(Bale) "Bale saw Wati"
e * e a raica_{NP}(na gone) NP(na na tagane)

Since WATI in (7a) and BALE in (7c) share the referential function of the other bracketed phrases in (7) they have been included as NPs although they are not preceded by NA or KO. In effect this means that we now have a third slot for identifying Nouns; any open class lexeme preceded by a verb with an -I suffix is nominal.

Although not all NPs in (7) have a Determiner, the ungrammaticality of (7d) illustrates that the Determiner is not simply an optional element in the NP. Rather its presence or absence is part of the subcategorization requirements of the verb. All -I suffix verbs require a Determiner-less NP Object. (Incidentally (7d) remains ungrammatical even if we take "Wati" to be the Subject and "Bale" the Object because of an adjacency requirement between the verb and the NP Object; see section 7.3.3). The presence or absence of a Determiner in nominal categories will be captured via the binary HEAD feature [SPEC] which can then be included in the Verb's [SUBCAT] value to ensure correct subcategorization.

If we compare (7b) with the ungrammatical (7e) we see that the rule introducing Determiners must be a non-recursive rule i.e. the NP mother must differ from its head daughter by at least one feature.

We could prevent recursion with the [SPEC] feature we have already posited to distinguish [PROP,+] objects from other NPs. It is after all undeniable that the mother category possesses a Determiner whilst the daughter does not.

Within standard X Bar analyses however the Determiner's mother and sister are usually distinguished via the [BAR] feature: the mother being [BAR,2] the sister [BAR,1]. For some reason GKPS do not include this rule in their list of English ID rules (GKPS: 247-248). Nevertheless in their discussion of NPs they make it clear that they too take the specifier's sister to be an N1 category (GKPS: 126). This [BAR] distinction translates into our framework as a [MAX,+] mother versus a [MAX,-] daughter. This would then lead to Rule 1a. (Since no feature definition is provided for minor categories such as Determiners in GKPS I have defined them via a non-HEAD feature [MINOR]. The [MINOR,A] category defines Determiners. I will however frequently use the alias "Det").

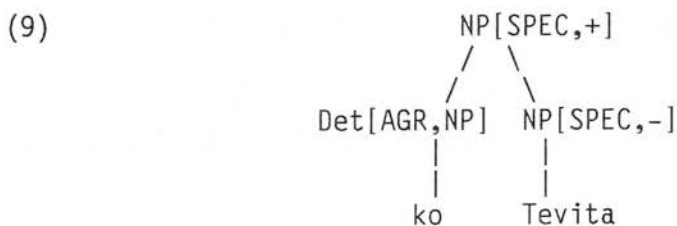
RULE 1a $N[MAX,+;SPEC,+]$ \rightarrow $H[MAX,-;SPEC,-]$, $[MIN,A]$

The non-phrasal status of the Determiner's sister is not immediately obvious in Fijian since as (8) illustrates this sister category can appear as a complement.

- | | | |
|-----|---------------------------|--------------------|
| (8) | au a raica (na noqu itau) | "I saw my friend" |
| | au a raici (noqu itau) | "I saw My Friend" |
| | au a gunuva (na yaqona) | "I drank the kava" |
| | au a gunu (yaqona) | "I drank kava" |

If we are concerned solely with a GPSG description of Fijian there is no compelling reason to treat the Determiner's sister as a [MAX,-] category. (Within a GB analysis of Fijian on the other hand the [MAX,+] analysis would incorrectly predict that the Determiner's sister should be a Barrier. (see section 10.1 for more details). We will therefore assume that the Determiner's sister and mother are both [MAX,+] and differ simply in their [SPEC] specification. This then produces Rule 1b.

RULE 1b $NP[SPEC,+]$ \rightarrow $[MIN,A]$, $H[SPEC,-]$



The NP mother could also have been distinguished from its head daughter via the feature [LEXICAL]; the mother being [LEX,-] and the daughter [LEX,+]. Given the examples we have seen so far this would indeed be adequate. It

nevertheless fails once we extend our analysis to [TRANS,+] NPs or [PROP,-] NPs which contain APs. (See (11) and (14) below for examples).

Rule 1b will then generate the local tree in (9) but it will not account for the agreement between the Determiner and the NP[SPEC,-]. This is rather the work of the Control Agreement Principle, alias CAP.

Informally the CAP operates as follows. We begin by assuming we have the lexicon in (10).

(10)

ko	Det[AGR,NP[PROP,+]]	Wati	N[PROP,+;TRANS,-]
na	Det[AGR,NP[PROP,-]]	tamata	N[PROP,-;TRANS,-]
oqo	Dem[AGR,NP[PROP,-]]	taci	N[TRANS,-]

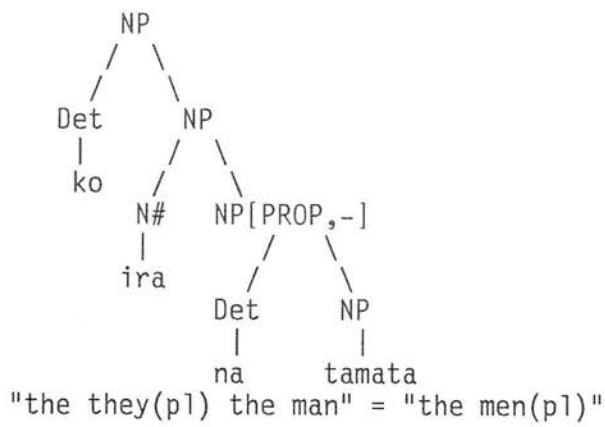
If we insert WATI as the head Noun then the NP[SPEC,-] category will be extended to become NP[SPEC,-;PROP,+;TRANS,-]. The CAP now comes into operation to check that the HEAD features on the Controller (i.e. WATI) are an extension of the [AGR] value on the Target i.e. the Determiner. Since the Determiner is KO this is indeed the case and KO WATI is an acceptable string. The CAP would however rule out NA WATI since a [PROP,+] category cannot be an extension of a [PROP,-] category. If on the other hand we inserted TAMATA as the head Noun then the CAP would ensure that the Determiner NA would have to be introduced, so generating the string NA TAMATA. Since the Noun TACI however has no lexical specification for [PROPER] both [PROP,+] and [PROP,-] are valid extensions. The CAP will therefore be satisfied by either choice of Determiner.

4.2.2 Pronoun + NP

To generate non-singular NPs we need Rule 8 which introduces the numbering pronouns.

RULE 8 NP[PROP,+;TRANS,+] → H#[LEX,+] , NP[PROP,-]

(11)



Note that rules 1b and 8 do not license an infinite recursion since the embedded NP is specified as [PROP,-] in Rule 8 whereas the matrix NP must be [PROP,+] since IRA is lexically specified as [PROP,+] and the HFC will transmit this feature specification to the matrix NP.

Since the embedded NP is [PROP,+] names and pronouns can not head this NP.

- (12) * ko ira ko ira na tamata "the men (pl)"
 * ko ira ko Tevita "the Davids"

If we try to make non-singulars from names the names then cease to be proper. (cf. "My Friend" and "my friends" in (3) above).

With the introduction of Rule 8 we have additional evidence for the correctness of Rule 1. If we had treated the Determiner's sister as [MAX,-] then we would have been forced to postulate the rules in (13).

- (13)
 RULE 1a NP[SPEC,+] → H#[SPEC,-] , Det
 RULE 8b NP[SPEC,-] → H#[LEX,+] , NP[PROP,-]
 RULE 8c N#[SPEC,-] → H [LEX,+] , NP[PROP,-]

In 1a the mother and Head daughter differ by two features whereas in Rule 1b mother and head differ by only one feature. The feature economy of the [MAX,+] analysis therefore makes it preferable to the [MAX,-] analysis. More significantly however Rule 8 must be replaced by two ID rules; one with a [MAX,+] mother and another with a [MAX,-] mother.

Rules 8b and 8c are admittedly simply projections from the two argument schemata which are independently required in Fijian. Nevertheless I regard the

This N/K distinction is discussed in Lichtenberk (1983). A similar distinction in Possessives can be found in many Central Pacific languages. (see section 1.3). In Polynesian languages it is usually referred to as the A/O distinction e.g. Wilson (1976). (Although A/O refers to the vowel in the Possessive, it also serves as a handy mnemonic for the Actor/Object distinction which it conveys).

Poss however also agrees in person and number with its NP Possessor, so producing paradigms such as (18). For a full list of Possessives see Appendix 11.2.

(18) N-CLASS POSSESSIVES

		PERSON			
		1st Excl	1st Incl	2nd	3rd
N U M B E R	sg	noqu	*****	nomu	nona
	d1	neirau	nodaru	nomudrau	nodrau
	t1	neitou	nodatou	nomudou	nodratou
	p1	neimami	noda	nomunii	nodra

Possessive Articles therefore require lexical entries with two agreement features. GKPS do not deal with this situation but then they deal almost exclusively with English. They however suggest (p.107) that such double agreements should be handled by allowing the [AGR] feature to take a list of categories instead of a single category. Lists are used extensively as feature values in HPSG alias Head-driven Phrase Structure Grammar (see Pollard, 1987). However rather than add new apparatus to the GPSG formalism to handle lists, we use a larger set of CONTROL features with a corresponding revision of the CAP. (See section 3.3 for a detailed explanation of these revisions). Thus Possessives will have lexical entries such as (19).

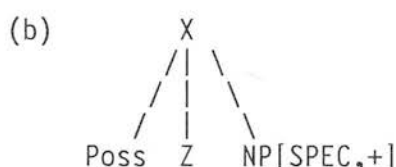
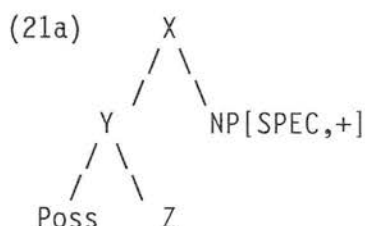
(19) NONA ; X[AGR;Y[SPEC,+;PERS,3;NUM,SG]]
 [SUBCAT;Y[SPEC,-;GEN,N]]

Let us now turn our attention to the structure of the Possessive NPs in (20).

(20)
 a e a raica_{NP}(na nona motoka) "He saw his car"
 b e a raica_{NP}(na nona motoka na vuniwai) "He saw the doctor's car"
 c e a raici_{NP}(nona itau) "He saw His Friend"
 d e a raici_{NP}(nona itau na vuniwai)

(20) shows the most common word order within the Possessive NP; namely Determiner, Possessive, Possession, Possessor. The only possible variation from this order occurs when the Possession is a heavy phrase. In such instances it is possible for the Possession to precede the Possessive. (See (13a) and (14c) in Chapter 5.)

Given the orderings in (20) and in Chapter 5, the Possessive NP must then have one of the structures in (21).



Evidence for Poss and Z forming a constituent can be found in inalienable nouns. In this gender class the possessive marker is not a separate particle but a suffix. Since Z + Poss is here a single word it must by definition be a syntactic constituent. If we adopt the flat structure in (21b) then the terminal nodes on this tree will not be words but morphs. I however follow GKPS in assuming that the terminal nodes in a syntactic tree will always be words. (For a GPSG analysis which abandons this assumption and treats morphs as the terminal nodes in a syntactic tree, the reader is referred to Russell (1987)).

Assuming then that our terminal categories are words, the only way to salvage (21b) would be to posit an empty category as the realization of Poss when the Possession is inalienable.

- (22) 0 Poss[SUBCAT,Y[GEN,i;PER,α;NUM,β];
 AGR,NP[SPEC,+;PER,α;NUM,β]]

Although the empty category Poss is supposed to agree with the Possession and the Possessor, it is transparently obvious from the variables that the agreement is actually between the Possession and the Possessor. Moreover the use of such variables in lexical entries has been challenged in Jacobson (1987) so any solution involving them should always be a last resort. (In our analysis Gaps are the only lexical entries which involve feature variables). With (21a) we will

instead have lexical entries such as those in (23).

(23)
tamata ; man' ; N[PROP,-;TRANS,-;SUBJ,-]
gane ; sister ; N[TRANS,-;SUBJ,-]
gane-na ; his-sister ; N[SUBJ,+;AGR,NP[PER,3;NUM,SG]]

(GANE actually means "opposite-sex sibling" so the examples above could equally be glossed "brother" and "her brother".) Most Nouns will like TAMATA be specified as [SUBJ,-] but inalienable Nouns like TACI will have separate possessive and non-possessive forms. All the [SUBJ,+] forms will have [AGR] to ensure agreement with the possessor in the Fijian genitive.

Assuming that the structure in (17a) is correct we must now discover the categorial identity of X,Y,Z and of course Poss. Since Rule 1b is the only rule introducing Determiners in Fijian, X must be an NP[SPEC,-]. Since Z is [PROPER,+] in (20c) and (20d) it must be [N,+;V,-] at least in these instances. We can prove that it is Z which is marked for [PROPER] if we compare (20a) with (20c). As we know from Rule 1b the choice of Determiner is conditioned by the [PROPER] feature. Apart from the Determiners the only difference between (20a) and (20c) is the different lexical item inserted under Z. Hence it must be Z that contains the [PROPER] specification which leads to the choice of KO or NA. The fact that Z in (20c) and (20d) is [N,+;V,-] does not of course prove in itself that Z in (20a) must also be [N,+;V,-]. Poss might subcategorize for several different complements. Since clausal complements in Fijian always contain a Complementizer and Z does not, we can take it that Z is not a Clause. Likewise since it lacks a Preposition it cannot be a PP. This means that Z can only be nominal or adjectival. Since there is no independent evidence for any item subcategorizing for an AP so it seems that Z must indeed be nominal.

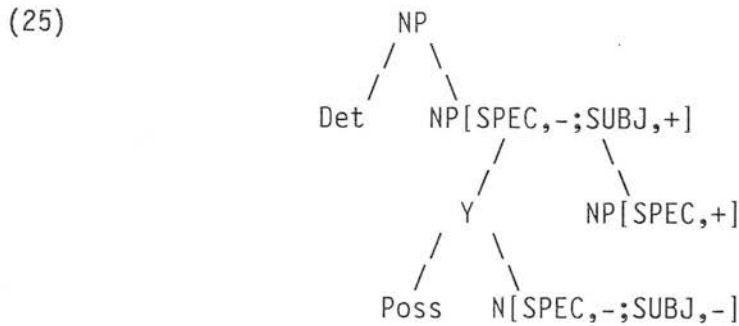
This analysis is supported by the fact that Z is always marked for [GENDER] a feature that we traditionally associate with nominal categories. (Even if we accept Lichtenberk's analysis of Poss as a Classifier the point still stands since it is only nominal categories which have Classifiers).

Although Z is then [N,+;V,-] it clearly lacks a Determiner. Thus, like X, it must be [SPEC,-]. Given the ungrammaticality of (24), it is clear that X and Z cannot be the same category.

(24) * na nona (nona waqa na vuniwai) na vuniwai

We will assume for the moment that they differ in the feature [SUBJ]; X being [SUBJ,+] and Z being [SUBJ,-].

If we add all this information to (21) we produce tree (25).



We now turn our attention to the identity of Y. Since I assume that heads are always overt categories (as opposed to non-heads which may be non-overt), the lack of an overt NP Possessor in (20c) indicates that Y must be the head of X i.e. NP[SPEC,-;SUBJ,+]. Of course it might be the case that there was no NP Possessor category present at all in (20c). In which case Y would again be chosen as the head since it would be the sole obligatory daughter.

Given that Y seems to occur on its own as a complement in (20c), Y could be a [MAX,+] category. The presence of a Possessor NP in Possessive NPs would then be optional. Such an assumption would however require the introduction of a second lexical entry for each Possessive particle; an entry which lacked the [AGR] specification on Poss in (19). If [AGR] was still present on Poss and no Controller occurred within the Y, the CAP would make this CONTROL feature continue to climb up the tree until it either reached the mother S node or merged with some other CONTROL feature. Neither of these situations are desirable. The first is tantamount to a claim that there is an argument missing in the Sentence and the second to a claim that the Possessor is co-referential with some NP higher in the tree. (See section 3.3 for the working of the CAP). We avoid both of these situations if we assume that the [AGR] specification is optional.

This optional Possessor analysis has two disadvantages. Firstly it ignores the fact that the Subject NPs in Sentences are frequently non-overt. In fact they are

categories displaying agreement with a head sister e.g. the Determiner with the NP[SPEC,-], we have no examples of a minor category displaying agreement with an argument outside its local tree. In fact as we shall see in sections 5.3 and 6, the only categories in Fijian which display morphological agreement with an external argument are the Possessive Prepositions and the Inflections, both of which are heads of their respective phrases.

The obvious way to reconcile the head-like properties of these two categories is then to produce a multi-headed rule such as Rule 5.

RULE 5 N# --> H , H[SUBJ,-]

Since the mother category in Rule 5 is nominal i.e. [N,+;V,-] the HFC would cause both of the heads to likewise be nominal, unless of course the HFC was overridden by some explicit feature specification on the heads. Without this overriding, we would have to regard Poss as a nominal category. Since Poss immediately follows a Determiner or a -CI suffix verb, it occupies the nominal slot so this nominal classification seems quite plausible.

We might in fact want to use FCR 11 to make the stronger claim that the heads in a multi-headed construction must belong to the same major category.

FCR 11 XP ==> [N] & [V]

If the heads belonged to different major categories then the HFC would prevent either [N] or [V] occurring on the XP category and so violate the FCR.

It should be noted that FCR 11 also appears to hold for the one multi-headed ID Rule provided in GKPS.

RULE 48 VP --> H[48] , H[CONJ,AND]

"She _{VP}(went and bought a parrot)."

GKPS: 176

In English a [PRED,-] specification would nevertheless have to be added to the XP in FCR 11 to permit projections from the Co-ordination Schema such as (27) where an AP[PRED,+] and a PP[PRED,+] conjoin.

(27) She walked slowly and with great care.

There is no equivalent co-ordination in Fijian so we can omit this [PRED] specification from our FCR 11.

GKPS endorse the standard X-Bar assumption that the head's [BAR] value cannot be greater than the mother's value. (GKPS: 50). Translated into our feature system, this means that since the mother in Rule 5 is a [MAX,-] category the daughters can only be [MAX,-]. This [MAX,-] specification is not a necessary consequence of the HFC since it may be overridden by an explicit [MAX,+] specification on one of the daughters.

It might be countered that the H[SUBJ,-] in Rule 5 i.e. the Possession, is a sister of a lexical head, Poss, and should therefore according to Jackendoff's X-Bar schema be a [MAX,+] category.

X-Bar Schema

$$X^n \rightarrow (C_1) \dots (C_j) X^{n-1} (C_{j+1}) \dots (C_k)$$

where $1 < n < 3$, and for all C_i ,
either $C_i = Y^3$, for some lexical category Y ,
or C_i is a specified grammatical formative

Jackendoff (1977: 36)

(Note that the maximum Bar level here is Y^3). Jackendoff (1977) does not envisage multi-headed structures so it is unclear what the correct interpretation of this schema should be with regard to multi-headed structures. Nevertheless given that he defines X^{n-1} as the head of X^n , I would argue that (28) is a valid paraphrase of the relevant part of the schema.

(28)

"Every non-head in the expansion of a rule must itself be a Maximal Projection of some category"

Stowell (1981: 70)

(28) then means that there is no difficulty with the Possessor being the [MAX-] sister of a head since it is itself a head.

Since X and Z now differ in the feature [MAX] it might be thought that the [SUBJ] feature we introduced above to distinguish them is superfluous. This is in fact true for X and Z but we will still need the feature [SUBJ] to distinguish Y

and Z, both of which are [MAX,-]. Y will be assumed to be [SUBJ,+] and Z as before will be [SUBJ,-].

As can be seen from (29a) and (29b) N#[SUBJ,-] and NP[SUBJ,-] can dominate the same material. Since this material is [LEX,+] in both sentences, no ID Rules are required to expand it so we do not have the redundant use of two ID Rules which we criticised above.

- (29)
- | | | | |
|---|---------------------------------|------------------------------|---------------------------|
| a | e a raica na | _{NP} (vuniwai) | "He saw the doctor" |
| b | e a raici na | nona _{NE} (vuniwai) | "He saw his doctor" |
| c | * e a raici nona ira na gone | | "He saw his children" |
| d | * e a raica na nona dua na gone | | "He saw his two children" |

As (29c) and (29d) show N#£[SUBJ,-] is never [TRANS,+]. Thus the only expansion rule which need apply to it is Rule 10 which introduces optional modifiers.

Rule 10 N[SPEC,-] → H , AP

Since we can omit a [MAX] specification from this rule, we again avoid the redudant use of two ID rules in the expansion of identical strings.

Possessive NPs are therefore generated by Rules 3 and 4.

RULE 3	NP[SPEC,-;TRANS,-;SUBJ,+]	→ H# , NP[SPEC,+]
RULE 4	N#[SUBJ,+]	→ HL , H[SUBJ,-]

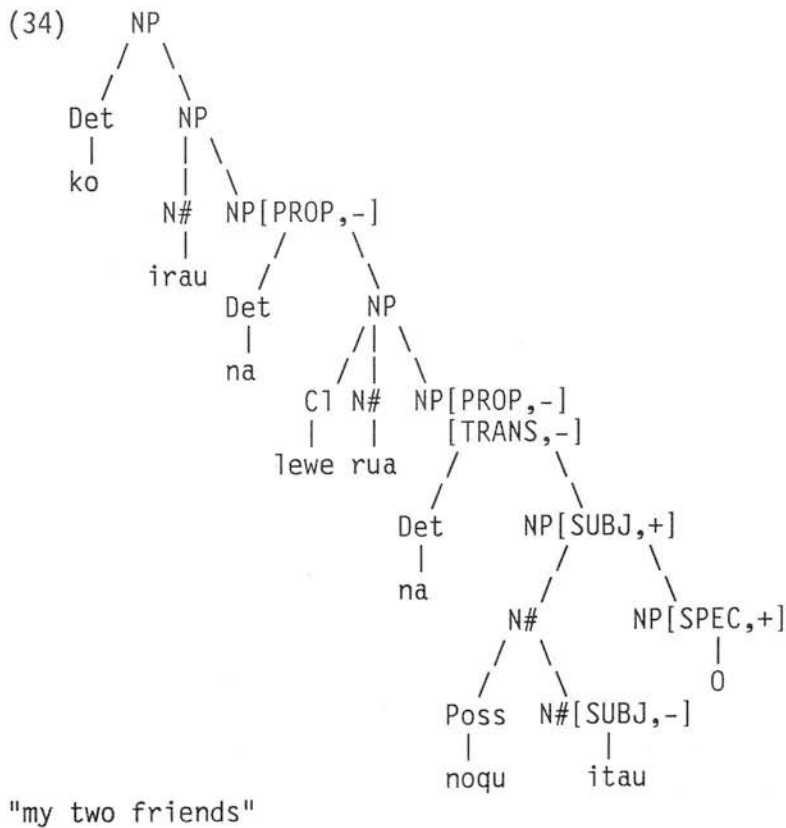
4.3.2 The Possessor NP

The NP[SPEC,+] in Rule 3 clarifies the identity of the the possessor. When this is a speech act participant i.e. first or second person singular, an overt NP[SPEC,+] does not usually occur. Presumably the identity of the possessor is in no need of further specification. With third person or non-singular possessors, overt NPs occur quite freely.

Milner (1956) however claims that the possessor in this construction should not be a singular name i.e. an NP[PROP,+;TRANS,-;NUM,SG]. Instead he advocates the alternative possessive construction with the Preposition NEI.

- (33)
- a na nona motoka ko koya
 his car he
 "his/her car"
- b na nodra veivale ko ira na tamata
 their(pl) houses they man
 "the men(pl)'s houses"
- c na nodra veivale na tamata
 their(pl) houses man
 "the men(pl)'s houses"
- d na nodratou motoka na lewe vaa
 their(tl) car person 4
 "the four men's car"
- e na nodra veivale na tacidra na noqu itau
 their(pl) houses sibling-their(pl) my friend
 "My friends'(pl) siblings'(pl) houses"

Putting together the various NP expansion Rules we have discussed so far we can generate the tree in (34).



4.4 CONJOINED NPs

4.4.1 The Theoretical Framework

In GKPS co-ordinate constructions are licensed by either the Iterating Co-ordination Schema (CS^+) or the Binary Co-ordination Schema (CS^2).

CS^+

$X \rightarrow H[CONJ\alpha_0] , H[CONJ\alpha_1]^+$
where $\alpha \in \{ \langle and, NIL \rangle , \langle NIL, and \rangle , \langle neither, nor \rangle , \langle or, NIL \rangle \langle NIL, or \rangle \}$

CS^2

$X \rightarrow H[CONJ\alpha_0] , H[CONJ\alpha_1]$
where $\alpha \in \{ \langle both, and \rangle , \langle either, or \rangle , \langle NIL, but \rangle \}$

GKPS p.171

As GPSG developed, its reliance upon rule schemata diminished with the result that the only other schema remaining in GKPS is the Complementizer schema. I however argue in section 6 that the Complementizer Schema can be dispensed with in favour of an analysis involving the Control Agreement Principle. If the two co-ordination schemata could also be removed we would then have a grammar where feature co-variance would result solely from the interaction of the Feature Instantiation Principles. Such an analysis arguably possesses more explanatory power than the explicit stipulation of feature co-variance in rule schemata.

An additional reason for recasting these schemata is that they cannot account for co-ordinate structures such as (35) which involve three different values for [CONJ], namely NEITHER, NIL and NOR. [CONJ] encodes the form of the Conjunction in a particular Conjunct. The lack of an overt Conjunction is encoded as [CONJ,NIL].

(35) neither heat, frost, nor thunder

Although GKPS may be in some doubt as to the grammaticality of (35) I am one of the speakers who agree with Keenan in finding (35) perfectly acceptable. Recognising this deficiency in their analysis GKPS suggest (fn.11 p.180) that CS^2 be abandoned completely in favour of a modified CS^+ and a larger set of LP rules referring to [CONJ]. This suggestion was developed in Evans (1986). I will

also propose a single co-ordination schema for English but one which does not rely on LP rules to filter out unacceptable projections.

In his treatment of co-ordinate structures Evans introduced a feature [CONJORD] which indicated the position of a particular Conjunct within the overall structure. In Evans' analysis [CONJORD] was a binary valued feature; the two values being {FIRST} and {LAST}. As we shall see below there is however motivation for a third Conjunct position; the intermediate position. My initial response to this was to propose a third value for the [CONJORD] feature. This proposal however obscured the similarities between non-initial Conjuncts.

I therefore decided to encode the conjunct order information in two binary-valued head features; [FIRST] and [LAST], and use LP 22 and 23 to ensure the correct ordering of these conjuncts.

LP 22 [FIRST,+] < [FIRST,-]
LP 23 [LAST,-] < [LAST,+]

Although an obvious improvement on the 8 LP rules collapsed in GKPS's co-ordination LP schema the use of two LP rules here might still seem rather cumbersome since LP 24 on its own would produce the same ordering of Conjuncts.

LP 24 [FIRST,+] < X < [LAST,+]

Our analysis however requires the percolation of [FIRST] and [LAST] to the heads of the conjuncts to ensure the presence of the appropriate Conjunction and these heads do not obey LP 24. If they did then (36) would be acceptable.

(36) * Bruce both and Anna

Three of the four categories defined by these two binary features are fairly transparent encodings of initial, intermediate and final conjuncts. These are respectively [FIRST,+;LAST,-], [FIRST,-;LAST,-] and [FIRST,-;LAST,+]. The [FIRST,+;LAST,+] category will be taken to be the category of the complete co-ordinate structure. The benefits of such an analysis of the matrix category will become more apparent once we introduce the [TEAM] feature in co-ordinate structures.

Given this analysis of the matrix category we can only distinguish between

three different conjunct positions. Support for such a three-way distinction can be found in English not only in the three different conjunctions in (1) but also, I believe, in the data in (37).

- (37)
- | | | | |
|----|-------|----------|------------|
| a. | Bruce | Anna | and Vernon |
| b. | Bruce | and Anna | and Vernon |
| c. | Bruce | Anna | or Vernon |
| d. | Bruce | or Anna | or Vernon |

If we examine each of the four co-ordinate structures in (37) *in isolation* then we might conclude that there were indeed only two positions of any relevance for Conjunctions since none of the four structures contain three distinct Conjunctions. If however we were to compare (37a) with (37b) or (37c) with (37d) we would I believe come to the conclusion that there was a third relevant position, the intermediate position. Whilst in the first Conjunct the absence of a Conjunction was compulsory and in the last Conjunct the presence of a Conjunction was compulsory, in this intermediate position the presence of the Conjunction was optional.

Further support can be found in (38a) which parallels (35) above in containing three distinct Conjunctions.

- (38a)
 Either Heriot-Watt Edinburgh Glasgow or Dundee
- (38b)
 Either Heriot-Watt or Edinburgh or Glasgow or Dundee

I am aware that not all English speakers will find the examples in (38) acceptable but if even one dialect finds the data acceptable then the general theory must be able to account for it.

Having motivated the three Conjunct positions and provided them with a feature definition, we now turn our attention to the ID Rule which introduces these Conjuncts.

RULE 22
 $[FIRST,+;LAST,+]$ $\rightarrow H[L-]$, $H[F-;L-]^*$, $H[F-]$

The Kleene star on the second head in rule 22 means that any number of $H[F-;L-]$ categories can be introduced by this rule. The star differs from the plus in CS^+ in that zero is an acceptable value for the star but not for the plus. Thus

Rule 22 could simply introduce the two heads H[L-] and H[F-]. Using the Kleene star we are therefore able to collapse CS^2 and CS^+ into a single rule. This however means that we need to block superfluous conjuncts such as "Anna" in (39).

(39) * both Bruce, Anna and Vernon

The unacceptable conjunct in (39) will be ruled out by means of an FCR but before we can formulate it we need to introduce some more features into our analysis.

The first of these is the binary feature [CONJ]. [CONJ,+] will indicate that a conjunct contains an overt conjunction whilst [CONJ,-] will indicate that it contains a null conjunction. Such categories are expanded by Rules 23 and 24.

RULE 23 [CONJ,+]
 RULE 24 [CONJ,-]

One of the deficiencies of GKPS is that no feature definition is provided for minor word classes such as Determiners, Complementizers and Conjunctions. (GKPS do however provide a feature definition for the individual members of these classes). I have therefore had to introduce a three-valued feature [MINOR] to define these classes. [MIN,C] in rule 23 is therefore my feature definition for Conjunctions (see sections 4.2.1 and 6 for the analysis of Determiners and Complementizers).

Although [CONJ] is not a HEAD feature rules 23 and 24 could still license recursive structures if the appropriate [CONJ] value were to be freely instantiated on a daughter. Rule 23 for example could then generate multiple conjunctions as in (40).

(40) * Bruce and and and Anna

We prevent this possibility by introducing FSD 22.

FSD 22 ~[CONJ]

This FSD however does more than simply block recursion in rules 23 and 24. It also prevents these rules ever being called in the first place since it prevents [CONJ] occurring on the daughter categories in other rules. There is however one rule whose daughters must license rules 23 and 24, namely rule 22.

Feature Specification Defaults however are defined so that the non-default can occur on some category in a rule if it occurs on this category in every projection of the rule. Such a situation occurs when the non-default is inherited from an ID Rule or forced to occur because of an FCR. We can therefore override the FSD if we revise rule 22 as rule 25 and add FCR 22.

RULE 25

[FIRST,+;LAST,+] → H[L-] , H[F-;L-]* , H[F-;CONJ,+]

FCR 22 [LAST,-] ==> [CONJ]

Since the last conjunct in English always contains an overt conjunction we want this category to be expanded by Rule 23 and therefore stipulate that this conjunct is [CONJ,+]. The other conjuncts may however be expanded by either rule 23 or 24 so we cannot specify a [CONJ] value for these conjuncts in Rule 22. Instead we simply specify via FCR 22 that they have some [CONJ] value. Since the default is for a category to lack any specification for [CONJ] this FCR is still sufficient to override the FSD.

The final feature we require in our analysis of co-ordinate structures is the multi-valued HEAD feature [TEAM]. As the name suggests this feature allocates individual conjuncts to various teams. Membership of a particular team will be reflected in the choice of conjunction (or lack of a conjunction). For convenience we name the [TEAM] values after one of these conjunctions. In English the [TEAM] feature will have the following five values {AND,OR,NOR,BOTH,BUT}. A clearer understanding of the [TEAM] feature will probably be gained by examining the lexical entries for Conjunctions in (41).

(41) AND ; [MIN,C;AGR[TEAM,AND;LAST,+]]
 EITHER ; [MIN,C;AGR[TEAM,OR;FIRST,+]]
 OR ; [MIN,C;AGR[TEAM,OR;FIRST,-]]
 NEITHER; [MIN,C;AGR[TEAM,NOR;FIRST,+]]
 NOR ; [MIN,C;AGR[TEAM,NOR;FIRST,-]]
 BOTH ; [MIN,C;AGR[TEAM,BOTH;FIRST,+]]
 AND ; [MIN,C;AGR[TEAM,BOTH;LAST,+]]
 BUT ; [MIN,C;AGR[TEAM,BUT;LAST,+]]

Here we can see for example that both EITHER and OR agree with a category of [TEAM,OR], this being the category of all the conjuncts in an iterating disjunction. The appearance of EITHER in a [FIRST,+] conjunct is ensured by the [FIRST,+] specification in its [AGR] value. Likewise the appearance of OR

in non-initial conjuncts is ensured by the [FIRST,-] specification in its [AGR] value. What we have not ensured however is that all the conjuncts in a given co-ordinate structure will have the same [TEAM] value.

If we simply let [TEAM] be freely instantiated on categories then trees such as (42) would be acceptable.



* both Bruce nor Anna

Although the daughters in (42) have conflicting [TEAM] values, the HFC does not reject the tree. Rather it merely demands that the mother lack any [TEAM] specification. Clearly we need to ensure that the mother will always have a [TEAM] value in Rule 22. If we tried to do this by directly stipulating the [TEAM] feature in the ID rule, then we would have to have five different rules, one for each feature value since [F+;L+;TEAM] is not a valid category. (Although categories in an ID Rule can be underspecified they must still be sets of features i.e. <name,value> pairs). We can however refer to a feature with an unspecified value in an FCR such as FCR 23.

FCR 23 [FIRST] & [LAST] ==> [TEAM]

[TEAM] has been linked with both [FIRST] and [LAST] in this FCR since the choice of any one of these features would be purely arbitrary, though nevertheless descriptively adequate. It is also because of the need for an FCR such as 23 that we decided to mark the mother category in Rule 22 as [FIRST,+;LAST,+]. Our only alternative would have been to leave the mother category without any specification for these two features but this would then have made it impossible to force a [TEAM] specification on to the mother in every projection from Rule 22 since there would be no feature which occurred in every projection from the mother. (Note also that not specifying [FIRST,+;LAST+] on the mother in Rule 22 would not have reduced the number of features in the rule since these two features would have had to be stipulated on the first and last conjuncts instead).

Most discussions of the interaction of the HFC with FCRs e.g. Jacobson (1987) concentrate on negative FCRs such as GKPS's FCR 6.

FCR 6 [SUBCAT] ==> ~[SLASH]

Such FCRs reduce the set of free features on a category and therefore limit the matching of HEAD features between mother and head daughter(s). FCR 23 on the other hand does not limit the set of free features on a category so [TEAM] values must be identical on mother and all head daughters.

We are now in a position to present FCRs which will block the occurrence of more than two conjuncts in binary co-ordinate structures. These are given as FCR 26 and 27.

FCR 26 [F-;L-;TEAM,BOTH] ==> ~[CONJ]
FCR 27 [F-;L-;TEAM,BUT] ==> ~[CONJ]

Since every category must obey every FCR and FCR 22 makes a [CONJ] specification compulsory on every [LAST,-] category there can be no acceptable extension of either [F-;L-;TEAM,BOTH] or [F-;L-;TEAM,BUT].

Another pair of FCRs are required to ensure that certain [FIRST,+] conjuncts will always contain a conjunction i.e. always be [CONJ,+].

FCR 28 [F+;TEAM,NOR] ==> [CONJ,+]
FCR 29 [F+;TEAM,BOTH] ==> [CONJ,+]

FCR 23 it will be remembered does not specify that [LAST,-] categories are [CONJ,+] or [CONJ,-] merely that they have some [CONJ] specification. It is therefore possible for a category to satisfy both FCR 23 and FCR 28 or 29.

In our attempt to do away with the co-ordination schema and achieve descriptive adequacy with regard to the English data we have had to use four features, [FIRST], [LAST], [CONJ] and [TEAM] as opposed to GKPS's single [CONJ] feature. This is however a price which, I believe, is worth paying if it enables us to do away with the stipulation of feature co-variance in rule schema in favour of co-variance resulting solely from the interaction of the feature instantiation principles. The greater use of FCRs in our analysis is largely due to our attempt to merge binary and iterating structures (hence FCR 26 and 27) and to the idiosyncrasies of the conjunction system in English (hence FCR 28 and

Since we have not specified the mother NP as [DET,-] the KEI phrase need not be within the scope of the Determiner. Indeed it is arguable that it is never within the scope of the Determiner. (see section 5.2.1 for discussion of PP Modifiers).

In this section however I want to concentrate on true conjoined NPs i.e. those where the person and number of the matrix NP is a function of the person and number of *both* the subordinate NPs. These co-ordinate structures will be expanded by the same ID rules as the English structures above i.e. Rules 23, 24 and 25. They will also obey LP 22 and LP 23. They will not of course obey the various FCRs which we introduced to account for the idiosyncracies of the English Conjunction system.

There is no evidence of a binary co-ordination structure in Fijian so in the Fijian examples below we will be concerned solely with iterating co-ordination. The number of conjuncts in each example has however been restricted to two to simplify our examination of Number and Person changes in these structures.

The four numbers in Fijian are traditionally referred to as SINGULAR, DUAL, TRIAL and PLURAL. "TRIAL" is a rather misleading name since groups of more than three can be "TRIAL". This number really designates "a few" and was therefore termed "PAUCAL" by Hockett. For the moment we will retain the traditional names in our discussion. The means of determining the number of the various NPs has already been outlined above.

(45) "their village the x boy and the y woman "

- | | | |
|-----|--|--------------|
| (a) | na nodrau koro na cauravou
kei na yalewa | SG + SG = DL |
| (b) | na nodratou koro na cauravou
kei na rua na yalewa | SG + DL = TL |
| (c) | na nodratou koro na cauravou
kei na tolu na yalewa | SG + TL = TL |
| (d) | na nodra koro na cauravou
kei na vitu na yalewa | SG + PL = PL |
| (e) | na nodratou koro na rua na cauravou
kei na rua na yalewa | DL + DL = TL |
| (f) | na nodratou koro na rua na cauravou
kei na tolu na yalewa | DL + TL = TL |
| (g) | na nodra koro na rua na cauravou
kei na vitu na yalewa | DL + PL = PL |
| (h) | na nodra koro na tolu na cauravou | |

- | | | |
|--------------|--------------------------|--------------|
| | kei na tolu na yalewa | TL + TL = PL |
| (i) na nodra | koro na tolu na cauravou | |
| | kei na vitu na yalewa | TL + PL = PL |

The examples in (45) clearly do not involve KEI Adjuncts since the number of the mother, NP₁, is never identical to that of NP₂. There are however two instances where we would claim that two NPs have been conjoined even though NP₁ and NP₂ have the same number, namely when NP₂ is either TRIAL or PLURAL. Two examples of this are provided in (46).

- (46)
- | | | |
|------------------|-----------------------|--------------|
| na nodratou koro | na tolu na cauravou | |
| | kei na tolu na yalewa | TL + TL = TL |
| na nodra koro | na vitu na cauravou | |
| | kei na vitu na yalewa | PL + PL = PL |

The conjunction of two PLURALS to form a PLURAL will seem uncontroversial to English speakers. That two TRIALS should conjoin to produce a TRIAL is proof that the TRIAL in Fijian designates "a few" rather than exactly three. It is possible to add "a few" to "a few" and still be left with "a few". Alternatively, as (45h) illustrates, it is possible to add "a few" to "a few" and suddenly become "a lot" i.e. a PLURAL. The examples in (46) will therefore be included in the conjunction data.

Our analysis follows Sag et al. (1985) in dispensing with a single number feature in favour of a set of features. Again following their approach we assume that the number of features we require is one less than the number of number distinctions in the language and that the largest number will lack any of these features. Thus we arrive at a feature analysis such as (47).

- (47)
- | | |
|------|---------|
| SG = | [A;B;C] |
| DL = | [B;C] |
| TL = | [C] |
| PL = | [] |

The features have simply been labelled [A], [B] and [C] since to label them [SG], [DL] and [TL] would be counter-intuitive.

The first problem our analysis encounters is to explain why the conjunction of two identically numbered categories produces a different number on the mother category in (45a), (45e) and (45h). This problem also arises in English where two SINGULARS conjoin to form a PLURAL. Sag et al.'s solution

involved modifying the rule introducing conjunctions and adding an FCR which forced the non-appearance of the [+SING] specification on certain conjuncts, hence making these structures PLURAL.

$$X[\text{CONJ}, \alpha] \rightarrow \alpha, H(+\text{SING})$$
$$\text{NP}[\text{CONJ}, \text{AND}] \Rightarrow \sim [+ \text{SING}]$$

Sag et al. p155

This solution will not work for Fijian where we have to account for the conjunction of DUALs and TRIALS as well as SINGULARs.

Our second problem is to explain why the conjunction of a SINGULAR and DUAL in (11b) does not simply produce a DUAL as would be expected from a straightforward intersection of their NUMBER features.

I will propose a unified solution to these two problems which relates NUMBER features to the [FIRST] and [LAST] features we introduced in our analysis of English conjunctions. Before we can do so however we need to make a slight digression to discuss the relationship between lexical entries and the terminal categories in a tree.

GKPS assume that the category of a terminal node must be an extension of the lexical entry which is inserted under it.

a category C can immediately dominate a lexical item α just in case C extends the category label in the lexical entry for α

GKPS p. 34

As Warner (1988) pointed out this creates difficulties for Sag et al.'s analysis of number in English. Since SINGULAR, alias NP[+SG] will always be an extension of PLURAL, alias NP[], a PLURAL can always be inserted under a SINGULAR. This would then make (48) acceptable.

(48) * The students is in the lecture theatre.

I propose to get round this problem firstly by imposing an identity requirement between the terminal syntactic category and the lexical entry.

a category C can immediately dominate a lexical item α just in case C is identical to the category label in a lexical entry for α

Clearly adopting this requirement will mean that we need a much larger set of entries in our lexicon. These entries need not however be exhaustively listed in the lexicon. Rather various lexical redundancy rules will be assumed to constrain the permissible extensions of a smaller set of entries. Amongst these will be Lexical Specification Defaults which operate as follows.

Either every extension of a lexical entry obeys some LSD, L , or
no extension of this lexical entry obeys L

In English we could then use LSD 1 to prevent a PLURAL lexical entry being extended as [+SING] and therefore appearing under a SINGULAR terminal node.

LSD 1 ~[+SING]

Given the more complex NUMBER system in Fijian it will require the three LSDs in (49).

(49) LSD 2 ~[A] LSD 3 ~[B] LSD 4 ~[C]

We can now turn to the lexical entries which will relate the NUMBER features to [FIRST] and [LAST]. Remember that because of our LSDs these are the only lexical entries which can bear the NUMBER features.

(50)

SG =	N[A+;B+;C+;FIRST,+]	N[A-;B+;C+;LAST,+]
DL =	N[B+;C+;FIRST,+]	N[B-;C+;LAST,+]
TL =	N[C,-;FIRST,+]	N[C,+]
PL =	N[]	

Apart from the addition of [FIRST] and [LAST] the major difference between the definitions in (47) and (50) is that the NUMBER features are unary features in (13) but binary features in (15). The mere creation of lexical entries with opposing values for [A], [B] or [C] means that we would sometimes accidentally generate the correct number on the mother category. We can however ensure that the correct number will always occur on the mother by linking these values to certain conjunct positions. Thus it becomes impossible to conjoin two SINGULARs and produce a SINGULAR on the matrix NP. Since the conjunction of two TRIALS may be either a TRIAL or a PLURAL we simply let either feature definition for TRIAL occur in the [FIRST,+] conjunct.

These lexical entries will then overcome our first problem. They also *appear*

their(t1) boat Eroni
"Ronnie and his partners' boat"

SG under TL

(Milner, 1956: 79)

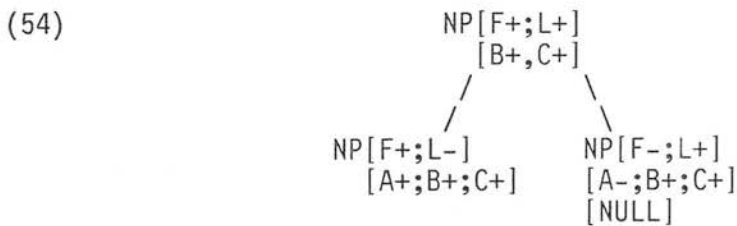
[PROP,+;TRANS,-] nouns, alias names, are consistently SINGULAR in Fijian yet the Possessive particle clearly indicates that the NP above this name is not SINGULAR.

My initial reaction to this was that the GKPS condition on lexical insertion should be reversed so that the lexical entry was an extension of the terminal category in the tree. Thus a SINGULAR could appear under a terminal category of any number. Assuming that the terminal category to lexical entry mapping was consistent across languages this would then have meant that (53) would be acceptable in English.

(53) *Ronnie are in the lecture theatre.

In the light of (48) and (53) I eventually developed the hypothesis on page 79 with regard to lexical insertion.

How then can we account for the data in (52)? Simply by assuming that there is a non-overt conjunct to the name which produces the unexpected number on the matrix NP. The proposed local tree for (52a) is given in (54).



Obviously we do not want [NULL] categories occurring freely in our lexicon so we include FCR 33 to limit the instantiation of [NULL].

FCR 33 [NULL] ==> NPL[PROP,-;LAST,+]

For evidence that [NULL] categories are [PROP,-] see section 8.2

4.4.4 Person in NP Conjuncts

In GKPS information about PERSON was encoded in the multi-valued [PER] feature. An analysis of conjoined NPs led Sag et al. (1985) to propose that PERSON information should instead be encoded in two unary features [XSP] (= Excluding Speaker) and [THP] (= Third Person). The various persons were then defined as in (55).

- (55) First Person = []
Second Person = [XSP]
Third Person = [XSP,THP]

Although this feature analysis was adequate for English it cannot be applied to Fijian since Fijian distinguishes between two first persons; first person inclusive and first person exclusive. The use of the First Person Inclusive implies the inclusion of the hearer in the group whereas the First Person Exclusive implies the exclusion of the hearer.

A possible adaptation of the unary feature analysis to account for this Inclusive versus Exclusive distinction is given in (56). Here the feature [THP] has been replaced by a new feature [XHR] (= Excluding Hearer) so that the same feature can be used to encode the Inclusive versus Exclusive distinction and the second person versus third person distinction.

- (56) First Person Inclusive = []
First Person Exclusive = [XHR]
Second Person = [XSP]
Third Person = [XSP,XHR]

Let us now check whether this intuitive feature analysis can account for the real data in (57).

The person and number of the matrix NP is indicated by the Possessive Particle since it agrees with the matrix NP. Since the individual conjuncts are Pronouns their PERSON is indicated in their morphological form . (see Appendix 11.2 for the full Pronominal paradigm). Exclusive is abbreviated as X and Inclusive as N.

- (57)
na nodaru koro ko iau kei iko 1X,SG + 2,SG = 1N,DL
na neirau koro ko iau kei na cauravou
1X,SG + 3,SG = 1X,DL
na nodatou koro ko iko kei keirau

	2,SG + 1X,DL = 1N,TL
na neitou koro ko ikeirau kei na cauravou	
	1X,DL + 3,SG = 1X,TL
na nodatou koro ko ikedaru kei koya	
	1N,DL + 3,SG = 1N,TL
na nomudrau koro ko iko kei na cauravou	
	2,SG + 3,SG = 2,DL

The feature revision we have provided above accounts perfectly for the data in (57). It would appear then that two unary features are sufficient to account for the data in English and Fijian though the interpretation of the second feature differs between the languages, thereby permitting a distinction in the first person in Fijian which is not possible in English.

The only other GPSG analysis of the Inclusive versus Exclusive distinction that I am aware of, occurs in Russell (1987) where the distinction is captured by means of two binary features [FINCL] and [SINCL]. His analysis of person in Cheyenne PLURAL nouns is given in (58).

(58) 1X = [+FINCL; -SINCL]
 1N = [+FINCL; +SINCL]
 2 = [-FINCL; +SINCL]
 3 = [-FINCL; -SINCL]

(Russell, 1987: 91)

Russell's analysis clearly will not account for the Fijian data we have presented since the conjoining of 1X and 2 will not produce 1N. (see (57a) above). Our analysis will however account for the morphological agreement patterns discussed by Russell. To ensure for example that the NE person prefix agrees with either a First Person Inclusive NP or a Second Person NP, we need only the lexical entry in (59) and LSD 30.

(25) NE [AGR[]] LSD 30 ~[XHR]

LSD 30 means that NE can only agree with a category completely lacking in PERSON features i.e. First Person Inclusive or with an [XSP] category i.e. Second Person. The fact that agreement *suffixes* can distinguish between First Inclusive and Second Person can be handled by assuming that they obey LSD 31 in addition to LSD 30, where [ALT] is a feature which occurs on the relevant suffixes in Russell's analysis.

LSD 31 [ALT] ==> ~[XSP]

CHAPTER 5 MODIFYING PHRASES

5.1 ADJECTIVE PHRASES

As was the case with Nouns and Verbs, adjectives in Fijian are identified not on the basis of their inflectional or derivational morphology but via their syntactic distribution. The Adjective slot has a negative definition in that unlike Nouns and Verbs, Adjectives are never preceded by a particle but always by another open class lexeme. The Noun, Verb and Adjective slots for TAGANE are clearly contrasted in (1).

- (1)
- | | | |
|----|--------------------------|---|
| a. | e a raica na tagane | He/she saw the male |
| b. | e tagane | He/It is male |
| c. | e a raica na gone tagane | He/she saw the boy
lit. "male child" |

Although the English translation of (1b) contains a Predicative AP, TAGANE is preceded here by the Inflection E, a particle which elsewhere only precedes verbs. Rather than alter our definitions of Adjectives and Verbs, I will treat such predicates as a verbal subclass in Fijian.

We begin our analysis of Adjective Phrases with sentence (2).

- (2) e a raica na kato kau lailai oqoo
 see box wood small this
 He/she saw this small wooden box

In (2) KAU, LAILAI and OQOO all satisfy our definition of an Adjective. The deictic OQOO however differs from KAU and LAILAI in that it may precede the Noun Phrase as in (3).

- (3)
- | | | |
|--------------------|---------------------------|-------------------------|
| e a raica oqoo | _{NP} (na kato) | she saw this box. |
| * e a raica kau | * _{NP} (na kato) | she saw the wooden box. |
| * e a raica lailai | * _{NP} (na kato) | she saw the small box. |

We therefore treat OQOO as one of a closed subclass of Adjectives which we will term Demonstratives. These Demonstratives will be introduced by Rule 51.

RULE 51 NP[DEM,+] → H[DEM,-] , [DEM,+]

OQO ; this ; XP[N,+;DEM,+;AGR,NP[DEM,-;SPEC,+;PROP,-]]

The differing [DEM] specifications on mother and head daughter prevent this rule from being recursive and hence ensure that only one Demonstrative will occur in any NP.

The lexical entry for OQOO ensures that it will always occur as the sister to an NP[SPEC,+] and thus outside the Determiner. This entry also ensures that the head noun it modifies will be a common noun rather than a name or a pronoun, thereby accounting for the unacceptability of (4a) and (4b).

- | | | | |
|------|---|----------------|---------------|
| (4a) | * | ko ira oqoo | "this they" |
| (4b) | * | ko Tevita oqoo | "this David" |
| (4c) | | oqoo na tolu | "these three" |
| (4d) | | na tamata oqoo | "this man" |

The fact that the Demonstrative has been classed as [N+] rather than [N+;V+] means that it can function not only as an AP but also as an NP. Thus it can occupy one of the NP slots in the equative (or copular) construction in (5).

- | | | |
|-----|---------------------|----------------------|
| (5) | na cava na kaa oqoo | |
| | what thing this | "What's this thing?" |
| | na cava oqoo | "What's this?" |

As in Latin and Turkish there are three demonstratives in Fijian; OQOO, OQORI and (K)OYA. These may refer to either temporal or spatial proximity.

OQOO, the first person demonstrative, is used to signal proximity to the speaker (= Latin "hic" or Turkish "bu").

OQORI, the second person demonstrative, is used to signal proximity to the hearer (= Latin "iste" or Turkish "su").

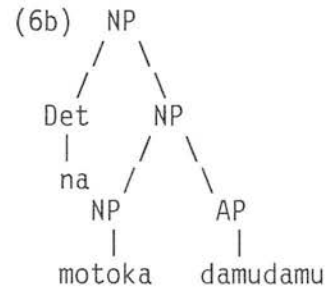
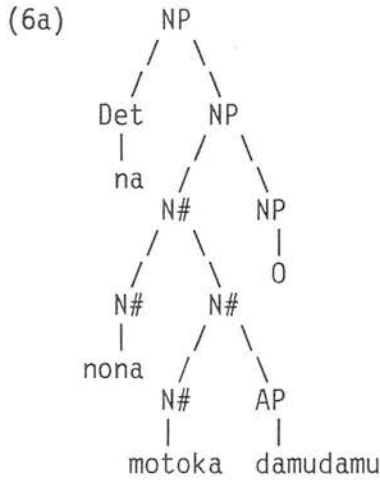
(K)OYA, the third person demonstrative, is used to indicate proximity to someone else i.e. remote from both speaker and hearer (= Latin "ille" or Turkish "o").

Again like Latin and Turkish the third person demonstrative can be used as a pronoun (see section 4.2.2). The fact that this demonstrative to third person pronoun shift occurs in languages as geographically remote as Latin and Fijian suggests that there is a universal pragmatic principle underlying this development.

The other Adjective phrases will be introduced by Rule 5.

RULE 5 N[SPEC,-] \rightarrow H , AP

Since it is recursive this rule can generate an infinite number of APs. Hence the presence of both KAU and LAILAI in (2). No [MAX] value has been specified on the mother in Rule 5 so this rule can expand both the N# category in (6a) and the NP category in (6b).



(6a) na nona motoka damudamu (6b) na motoka damudamu
 his car red car red
 "his red car" "the red car"

(See section 4.3.1 for a justification of the [MAX,-] status of the Possession in (6a)).

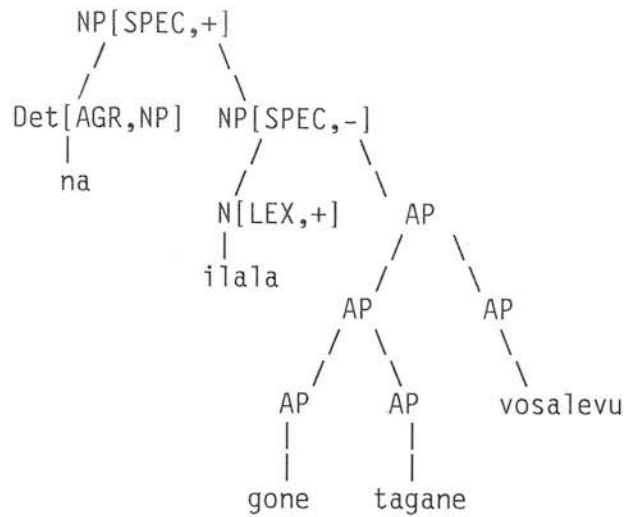
As we have seen with KAU, LAILAI and OQO, APs are frequently lexical and therefore the terminal nodes in trees. APs can however be expanded by Rule 12.

RULE 12 AP \rightarrow H , AP

The principal motivation for Rule 12 comes from strings such as (7a) which we assume has the structure in (7b).

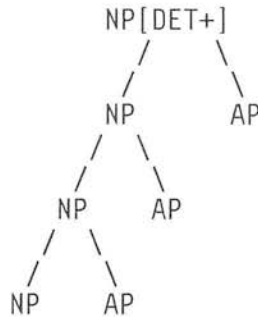
(7a) na ilala gone tagane vosalevu
 crowd child male talkative
 " the crowd of talkative boys"

(7b)



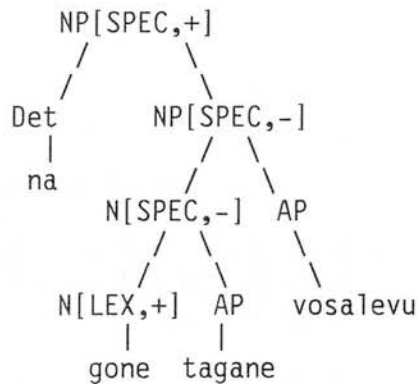
Given the lack of particles the only other possible structure for (7a) would be that in (8) where the Adjectives individually modify ILALA.

(8)



In my opinion it is semantically more plausible to assume that VOSALEVU and TAGANE are modifying GONE rather than ILALA though this is a moot point. If however we accept the structure in (7b) this would make the structure of the Adjective Phrase there mirror that of the Noun Phrase in (9).

(9)



the child male talkative = "the talkative boys"

It would then be possible to generate the string "gone tagane vosalevu" in (7)

and (9) from the same ID rule namely Rule 53 where the head may be either an Adjective or a Noun.

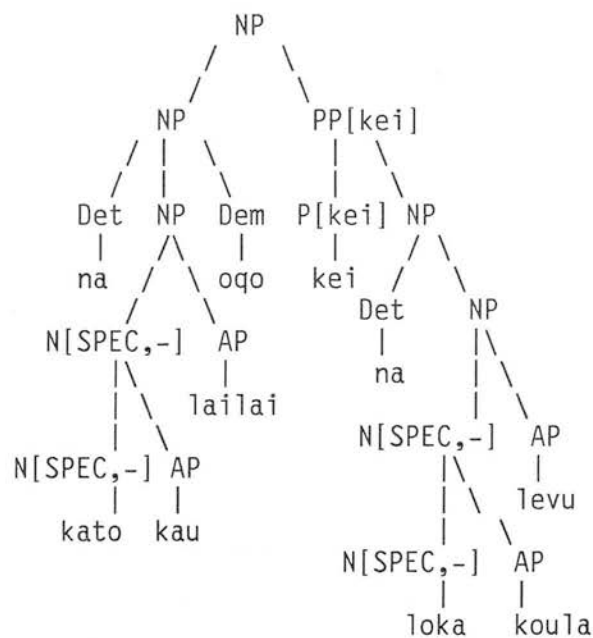
RULE 53 [N+;SPEC,-] --> H , AP

5.2 PREPOSITIONAL PHRASES

5.2.1 KEI Phrases

KEI phrases have two related functions in Fijian The first is as the final Conjunct in Co-ordinate Structures and the second is as an Adjunct. (10) provides us with an example of a modifying KEI phrase Adjunct. (For a discussion of KEI Conjuncts see section 4.4.2).

(10)



na kato kau lailai oqo kei na loka koula levu
 box wood small this with lock gold large

[KEI] in (10) is an abbreviation for [PFORM , KEI].
 As in GKPS we use the feature [PFORM] to ensure the presence of a particular head in PP. (Other values for [PFORM] in Fijian are NI and VEI).
 "this small wooden box with the large golden lock"

The PP in (10) must modify the whole NP since it occurs outside the Demonstrative. According to standard interpretation of X bar structures this would make the PP a non-restrictive modifier supplying additional information

5.2.4 VEI

The Prepositions above can take a PP[VEI] as a complement where [VEI] is an abbreviation for [PFORM,VEI]. The Preposition VEI has the lexical entry in (18).

(18) P#[PFORM,VEI;SUBCAT:NP[SPEC,-;PROP,+;ANIM+]

"to" This Rule will then allow (19a) but not (19b) or (19c), since SUVA is [ANIM,-] and TAGANE is [SPEC,+;PROP,-]. Note however that TAGANE can also be [PROP,+] as in (19d). This is an example of what is ordinarily a common noun being used as a name.

(19a) vei Bale (19b) * vei Suva
(19c) * vei na tagane (19d) vei tagane

E, KI and MAI are not the only heads which subcategorize for PP[vei] so VEI need not always be preceded by another Preposition. Indeed it seems to be occurring more frequently on its own than in the past.

5.3 POSSESSIVE PPs

Apart from using a Possessive Article, Possession in Fijian may be indicated by one of five Prepositions; NI, NEI, KEI, MEI and I. Like their English equivalent OF, as well as indicating ownership they can indicate a close association between the two nouns as in (20).

(20) na bilo ni yaqona
 cup of kava
 "a kava cup" NOT "a cup of kava"

("A cup of kava" would be "na bilo yaqona"). The choice of Possessive Preposition is dependent on the two nouns which are linked.

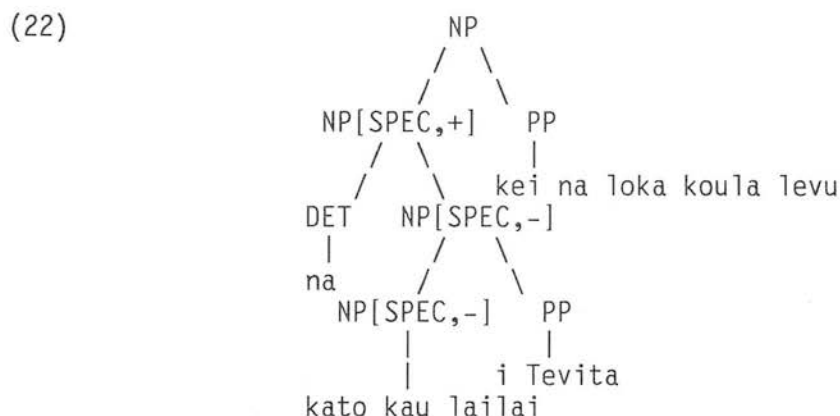
If both are common then use NI.
If the second is proper and the first N gender use NEI
If the second is proper and the first K gender use KEI
If the second is proper and the first M gender use MEI
If the second is proper and the first I gender use I

The examples in (21) are taken from Milner (1956).

(21)	na isulu nei Bale	"the dress of Bale"
	na dalo kei Kolomavu	"the taro of Kolomavu"
	na drose mei Livai	"the jelly-fish of Livai"
	na ulu i Alivereti	"the head of Albert"

Milner claims that the Inalienable gender I can occur where one would expect the Neutral gender NEI and this is confirmed by my informant. (See (13b) above). As noted above these Possessive PPs always occur to the left of KEI PPs. We must therefore regard Possessive PPs as NP[SPEC,-] modifiers. This then gives us Rule 6 and the structure in (22).

RULE 6 NP[SPEC,-] → H , PP[NEI]



As well as ensuring the correct ordering of the two PPs, Rule 6 also prevents the occurrence of a Possessive PP within Possessive NPs since the Possession in this construction is an N#[SPEC,-] and hence rules out examples such as (23a).

(23a) * na nona isulu nei Wati o Bale
 her dress of W. B.
 "Bale's dress of Wati"

Note however that an AP modifier such as KAU or LAILAI in (22) may occur within a Possessive NP since according to Rule 5, APs may modify NPs or N#s. To ensure the occurrence of the correct form of the Preposition in (22) we give these Prepositions an [AGR] and a [SUBCAT] feature as in (24).

(24) NI ; P#[AGR,N#; SUBCAT,NP[SPEC,-;PROP,-]]
 NEI ; P#[AGR,N#[GEN,N];SUBCAT,NP[SPEC,-;PROP,+]]
 KEI ; P#[AGR,N#[GEN,K];SUBCAT,NP[SPEC,-;PROP,+]]
 MEI ; P#[AGR,N#[GEN,M];SUBCAT,NP[SPEC,-;PROP,+]]
 I ; P#[AGR,N#[GEN,I];SUBCAT,NP[SPEC,-;PROP,+]]

Since every Noun which has a [GEN] specification is [PROP,-] we need not indicate this in each lexical entry but instead use an FCR.

FCR 20 [GEN] ==> N[PROP,-]

The only other lexical items which display morphological agreement with two Nouns are the Possessive Particles. (See section 4.3.1). The Particles however differ from the Prepositions in that the former head the phrase containing the two Nouns whilst the latter only head the phrase containing the second Noun. Thus (25b) is grammatical whilst (25d) is not.

(25a) au a raica na nona motoka o Jone
1sg see his car J.
"I saw Johnny's car".

(25b) au a raica na nona
"I saw his".

(25c) au a raica na motoka nei/i Jone
1sg see car of J.
"I saw the car of Johnny".

(25d) * au a raica (na) nei/i
"I saw of".

The fact that NEI/I cannot substitute for the whole possessive phrase does not of course prove in itself that the Preposition is not the head of the possessive phrase. However the fact that one of the other constituents, the Possession, can substitute for the whole phrase, supports the non-head status of the Preposition.

Note finally that since the Control Agreement Principle is only concerned with the semantic type of a constituent rather than whether it is a head, there are no repercussions for the Preposition's agreement with the two Nouns if we accept that it has the semantic type $\langle \text{NP}, \langle \text{NP}, \text{NP} \rangle \rangle$.

CHAPTER 6 CLAUSES AND SENTENCES

In this section we examine how NPs and VPs combine with Complementizers and Inflections to form Sentences and Clauses. For the moment we will simply make the assumption that a Verb and a Patient or Theme NP combine to make a VP. For a more thorough examination of the internal structure of a VP, the reader is referred to section 7.4.

There are two permissible orderings of these four constituents in subordinate clauses, namely Comp, Infl, VP, NP as in (1) and Comp, NP, Infl, VP as in (2).

(1) ko Tevita e vakabauta ni ra (vinakati Samu) na gone
C I VP NP

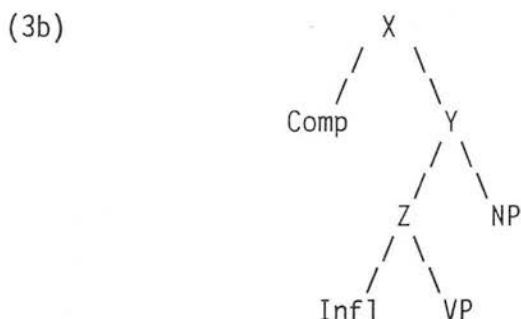
(2)
 ko Tevita e vakabauta ni (na gone) era (vinakati Samu).
C NP I VP

"David believes that the children like Sam."

These subordinate clauses can be generated by the ID Rules and LP Rule in (3).

(3b) shows the structure these rules would assign for (1).

(3) X → Comp , Y [LEX] < ~[LEX]
 Y → NP , Z
 Z → Infl , VP

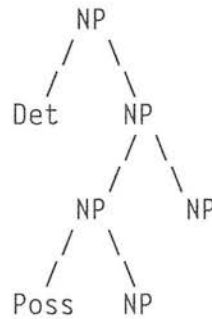


The LP rule will permit the Subject NP to precede the Z since Z is non-lexical so generating the ordering in sentence (2) but will not permit any other variation in the order of constituents. A flatter structure which had the NP subject as a sister of Infl and VP could only generate (2) by discarding this LP rule but we would then require a new LP Rule to prevent the ungrammatical VP before Infl ordering.

Further support for the first two rules in (3) comes from two places. Firstly

the rules in (3) are assumed in analyses of other languages within both GPSG and GB frameworks. (see GKPS and Chomsky (1986)). Within GB at least, the claim is made that (3b) is a universal deep structure and so other things being equal we would favour this structure. Secondly we have already motivated the structure in (4) for Noun Phrases in Fijian (see section 4.3.1) If Clauses and Noun Phrases were given parallel structures we could provide a simple account for Nominalized Sentences.

(4)



Assuming (3) is the correct structure for clauses, we must still clarify the identity of X,Y and Z.

We begin by considering the sentences in (5).

(5a) e a sega ni ko (lako yani)
 C I VP

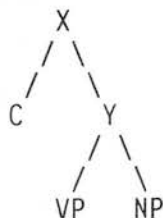
"It is not the case that you went away."

(5b) sa dodonu mo (lako yani)
 ?? VP

"It is right that you go away."

Whilst the Comp and Infl in (5a) are separate items in (5b) the Complementizer and Inflection are fused into a single word MO. Unlike Ojeda (1987) I do not permit multidominance in my grammar so MO must be analysed as either Comp or Infl. Assuming for the moment that there are no null Complementizers or Inflections in our grammar, we are left with a choice between the structures in (6a) and (6b).

(6a)



(6b)



(The Subject NP in (5b) is non-overt but this need not concern us here). The ban on empty Complementizers and Inflections would fall out from my assumption of strict endocentricity if the empty category were a head in its structure. This ban on empty heads was also advocated by Kaplan and Bresnan in their "Lexical Signature" requirement (Bresnan, 1982: 246) and more recently but in a slightly weaker form by Tait & Cann in their "PF Licensing Principle" (Tait & Cann, 1989).

There is clearly an agreement between MO and the Subject since MO only occurs when the Subject is second person singular. This then gives MO a lexical entry as in (7).

(7) MO [AGR:NP[XSP;A+;B+;C+]] = [AGR:NP[PER,2;NUM,SG]]

(For an explanation of the PERSON and NUMBER features see sections 4.4.4 and 4.4.2.) If MO were an Inflection Infl headed Z and [AGR] was a head feature then the relevant [AGR] information would pass up to Z where the CAP could apply. If VP were the head we could invoke clause B in our definition of the CAP on page 31 to allow the [AGR] value to pass up to Z. The same feature percolation is permitted by Clause 2 in GKPS's definition of the CAP.

if C is a predicative category with no controller, then the value of CONTROL feature of C must be equal to the value of the CONTROL feature of its mother, C_0 .

GKPS: 89

If however we take MO to be a Complementizer then we are faced with difficulties since we need to pass [PERSON] information up from the Subject to Y in (6a). This entails either treating [PERSON] as a foot feature or making Y multi-headed. Although not actually specified by GKPS all Foot features would appear to be category valued so we do not expect [PERSON] to be a Foot feature. Multi-heads have been advocated by Cann (1987) and were earlier utilized in our analysis of Possessive NP structures. We however imposed a requirement that all multi-heads be of the same major category. This is transparently not the case for NP and VP. We will therefore also reject this second option in favour of the less controversial analysis of MO as an Inflection.

This in fact entails that our Sentences (alias Y's) will always have an Inflection but Clauses (alias X's) will not necessarily have a Complementizer. And this indeed appears to be the case since main clauses always and relative clauses sometimes lack an independent Complementizer.

Given that we now have two permissible structures (3) and (6b) we must ensure that the correct Inflections occur in each; namely KO in (3) and MO in (6b). We begin by distinguishing them by the feature [SPEC]; KO = I[SPEC,-], MO = I[SPEC,+].

We must now pass this [SPEC] information up to a position where it can influence the presence or absence of a Complementizer. This can be achieved via the HFC if we assume that Z is the head of Y. Since there are no advocates of the Subject being the head of Y this seems a reasonable assumption.

We must then assume that we have an ID rule such as Rule 8 involved in the generation of (3).

$$X \rightarrow [\text{MIN},\text{B}], Y[\text{SPEC},-]$$

As previously noted with regard to Determiners in section 4.2.1, GKPS provides no feature definition for minor word classes. I have therefore introduced the non-head feature [MINOR] for this purpose. [MINOR,B] defines the class of Complementizers. I will however frequently use the alias "Comp".

To license (6b) we simply assume that a Y[SPEC,+] can be called instead of an X. Although Y[SPEC,+] has the same distribution as X, this does not prove in itself that X is Y[SPEC,+]. Even if X were a [SPEC,+] category Y need not be its head since the Complementizer could also be a [SPEC,+] category.

We must then look elsewhere to discover the identity of X. We begin by comparing an ordinary clause, (8a), with (8b) a clause where raising to Subject has taken place.

(8a) = (5a) e a sega ni ko lako yani
 "It is not the case that you went away."

(8b) ko a sega ni lako yani
 "You did not go away."



Clauses in Fijian must typically have a specific Complementizer. e.g. conjoined clauses must have KA, complement clauses must have NI or ME depending on the verb. This information which will be contained in the multi-valued feature [CFORM] must appear on X and pass down to Comp. The simplest way to achieve this is to assume that X = CP.

However we must have some means of distinguishing between clauses which have undergone raising and those which have not. We could add an arbitrary feature to Comp, say [R+], to indicate Raising and then provide lexical entries such as in (9) to produce the right structures.

- (9) Comp[R,+;SUBCAT:VP]
 Comp[R,-;SUBCAT:Y]

This solution misses the obvious point that the [R] value influences the non-head daughter rather than the Complementizer itself and therefore raises the suspicion that the Complementizer does not in fact head the clause.

Further support for X not being CP comes from the fact that there are clauses which lack a Complementizer. Main clauses such as (10a) always lack a complementizer and relative clauses such as (10b) may lack a complementizer. If Comp is not a compulsory part of the clause then it can not be the head. This is of course assuming strict endocentricity i.e. the impossibility of empty Heads.

- (10a) _ e a raica na vale o Bale
 "Bale saw the house."
 (10b) o Bale e a vinakata na vale _ e a raica o Wati
 "Bale likes the house Wati saw"

The argument here turns crucially on our analysis of E as an Inflection rather than a Complementizer. Foley's claim that E is synchronically a Complementizer fails to account for the occurrence of E in (2).

If Comp does not head the clause then it must be headed by both Y and VP in (8c). Clearly we do not want two totally distinct categories to head a clause, so we instead assume that Y and VP are the "same" phrasal category i.e. share enough features to distinguish them from all other phrasal categories. However

they must differ in at least one feature so that we can distinguish the complement clauses in (8).

We will therefore treat Y as a VP but differing from VP in the feature [SUBJECT]; Y = VP[SUBJ,+] and VP = VP[SUBJ,-]. Thus we distinguish Sentences (alias Y's) from Verb Phrases in exactly the same way as Borsley and GKPS.

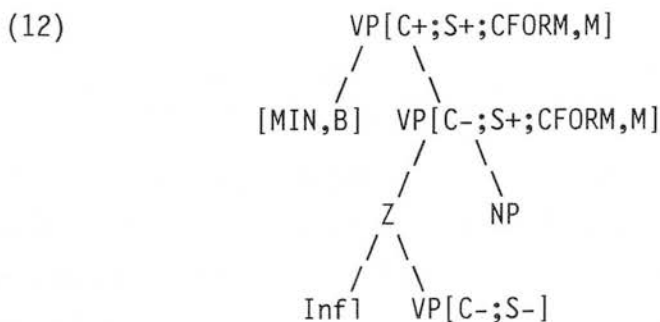
X will then also be a verbal projection but one differing from Y or VP in that that it contains a Complementizer. We will indicate this by the binary feature [SPEC] i.e. the same feature that we used to distinguish MO from KO.

(Originally I had called this feature [COMP] and had another feature [DET] to distinguish NPs. It however became obvious that a single feature would be adequate for both the nominal and the verbal distinctions. This feature was therefore given the more neutral name [SPEC], an abbreviation for [SPECIFIER]).

Clauses, sentences and verb phrases will then be distinguished as follows.

- | | | |
|------|---------------------|---------------------|
| (11) | FULL CLAUSE | = VP[SPEC,+;SUBJ,+] |
| | POST-RAISING CLAUSE | = VP[SPEC,+;SUBJ,-] |
| | SENTENCE | = VP[SPEC,-;SUBJ,+] |
| | VERB PHRASE | = VP[SPEC,-;SUBJ,-] |

This is essentially the analysis given in GKPS except that due to their FCR 15 the post-raising clause is impermissible in English. With these values for clauses and sentences, (3) now appears as in tree (12). [C] = [SPEC] [S] = [SUBJECT]



If Comp does not head the clause then the insertion of the correct Complementizer can only be ensured by a [CFORM] agreement between Comp and its sister VP e.g. ME Comp[AGR:VP[CFORM,M]]. Note that we have used

two features here [SPEC] and [CFORM] whereas GKPS used only one, the multivalued [COMP] feature. However they were only able to present an analysis with one feature because they had built the relevant agreement in feature instantiation into their ID Rule schema below.

(13) $S[COMP\alpha] \rightarrow [SUBCAT \alpha], H[COMP \text{NIL}]$

The use of variable feature values shows that there is obviously an agreement process at work here but GKPS are unable to use the CAP because they only have the one feature [COMP].

Moreover the two features [SPEC] and [CFORM] are required in the lexical entries for Inflections.

(14) MEU I [SPEC,+;CFORM,M;AGR:NP[A+,B+,C+]]
 SEU I [SPEC,+;CFORM,S;AGR:NP[A+,B+,C+]]

It now remains only to identify Z but this depends crucially on whether Z is headed by Infl or VP. If VP were the head and there were no other Feature Instantiation Principles overriding the HFC then Z would be VP[C-;S-] which would make Z itself a plausible head daughter of VP[C-;S+]. The differing [SUBJ] values could simply be written on to the relevant ID Rule.

The difficulty with this analysis is that the correct distribution of Inflections depends upon [SPEC] and [CFORM] information being specified on the Inflection but if VP were the head then this could not arise via the HFC. We could of course encode the relevant information in an [AGR] feature on the Inflection.

(15) MO I [SUBCAT,VP[SPEC,+;CFORM,M]; AGR:NP[XSP;A+,B+,C+]]
 RA I [SUBCAT,VP[SPEC,-;CFORM,M]; AGR:NP[XSP,XHR]]

The VP[SPEC,+] category in (15a) would however also license the Complementizer ME to the right of the Inflection. This is ungrammatical and is basically the problem which GKPS would have run into if they had tried to use [AGR] in (12) above. We could however use their ploy of mentioning features explicitly in the ID Rules.

(16) Z[SPEC,+] \rightarrow VP[SPEC,-;SUBJ,-] Inf1[SPEC,+]
 Z[SPEC,-] \rightarrow VP[SPEC,-;SUBJ,-] Inf1[SPEC,-]

This approach is at least descriptively adequate in that a Complementizer will not occur inside the VP. However it is obvious from these ID Rules that the [SPEC] value on the Inflection is dependent on the [SPEC] value on Z. This strongly suggests that Infl is the head of Z. If this were so then the [CFORM] value could also pass directly down to Infl and there would be no need for an agreement with VP at all.

This would then entail that Y must also be a projection from Infl but since we have assumed that Y is a verbal projection then, inferring backwards, Infl must be a verb i.e. [N-;V+]. The fact that Fijian Inflections were historically pronouns is irrelevant. Synchronically they have a verb-like distribution and can be treated as such. This could be compared to GKPS's analysis of English TO as synchronically an auxiliary verb. (GKPS: 114)

Inflections of course differ morphologically from other verbs in Fijian in that they show Subject Agreement rather than Object Agreement. It is unclear which of these agreements should be regarded as more typical of a Verb, so this morphological difference is not decisive.

Moreover given that cross-linguistically Inflections are typically verbal; either auxiliary verbs or verbal affixes, our analysis here should not appear surprising.

So far we have shown that Z (and Y) are projections from Infl and that the latter is a verbal category. We have not however uncovered the precise feature specification for Z. We begin this search by reminding ourselves of the rules we have motivated so far in this section.

- (17)
- | | |
|-------------------|--------------------------|
| VP[SPEC,+] | → H[SPEC,-] , Comp |
| VP[SUBJ,+] | → Z , NP |
| Z | → HL , VP[SPEC,-;SUBJ,-] |
| VP[SPEC,-;SUBJ,-] | → HL , NP |

Now let's examine the ungrammatical expansions of Z in (18) in the light of the Rules in (17). In each example the string dominated by Z has been bracketted.

- (18a) * e a sega ni (ni ko lako yani)
 b * ko a sega ni (ni lako yani)
 c * e a sega ni (lako yani ko Tevita) ko Bale
 d * e a sega ni (raica na gone) ko iko

(18a) and b show that Z cannot dominate a Complementizer and so can not be

VP[SPEC,+]. (18c) shows that it cannot dominate a Subject and therefore cannot be VP[SUBJ,+]. (18d) shows that it cannot dominate an Object NP, NA GONE, so it cannot be VP[SPEC,-,SUBJ,-].

In short Z is none of the four VP categories we defined in (11). We therefore clearly need a feature apart from [SPEC] and [SUBJ] to differentiate Z from these four categories. We need not however create a new feature to do this, since we already have one available namely [MAXIMAL]. If we take Z to be V[MAX,-] then we cannot generate any of the ungrammatical strings in (18) since those strings are all expansions of [MAX,+] categories. The HFC will then ensure that Z and its head Infl are always [SUBJ,+]. Thus the [SUBJ,+] v. [SUBJ,-] distinction is operative at both the phrasal and non-phrasal level in Fijian whereas in English the distinction exists only at the phrasal level.

In taking the Subject's sister to be non-phrasal we have not only the support of current GB analyses such as Chomsky (1986) but also of earlier GPSG analyses such as Gazdar (1982). In both these analyses the Subject's sister is taken to be a [BAR 1] category; for Chomsky it is I1 whilst for Gazdar it is V1. Borsley (1983) however showed that Gazdar's [BAR 1] analysis had several flaws which led him to advocate the Subject's sister being a [BAR 2] category. This analysis later became enshrined as GPSG orthodoxy by its inclusion in GKPS. Let us however re-examine Borsley's criticism's in light of our [MAX,-] analysis.

Criticism 1. The Welsh Clitic Insertion process which Borsley discusses clearly operates identically on non-finite Sentences and VPs. He claims that it is impossible to formulate a metarule to account for this process if Sentences and VPs have differing [BAR] levels and therefore makes the Verb Phrase a [BAR,2] category. His claim with regard to Metarules is however completely spurious. Metarule 10 below can account for Clitic Insertion in Sentences and VPs of differing [BAR] levels simply by omitting any [BAR] specification from the mother category.

METARULE 10

$$\begin{array}{l} V[-FIN] \quad \rightarrow w, N2[-PRO] \\ \quad \quad \quad \Downarrow \\ V[-FIN] \quad \rightarrow w, N2[+PRO, \alpha], C1[\alpha] \end{array}$$

For proof that Metarules need not specify a [BAR] level on the mother category

see Slash Termination Metarules 1 and 2 in GKPS.

Criticism 2. Support for the non-finite VP being [BAR,2] also comes from its occurrence as a complement since, following Jackendoff (1977), Borsley claims that complements should be maximal projections. Since the Subject's sister never occurs as a complement in Fijian its being [MAX,-] presents no difficulties.

Criticism 3. Only [BAR 2] categories should be Topicalized. Since the Subject's sister is never Topicalised in Fijian, this again presents no difficulties.

It should also be noted that Borsley's claim that taking Infl to be the head of the Sentence requires ad-hoc feature passing is not true, for Fijian at least.

In short not only is our analysis immune to all of Borsley's criticisms but we could counter with one of our own. Borsley's second and third criticism turn crucially on the Subject's sister being universally a potential complement or topic. But as (19) shows this is almost never the case in English.

- (19) Sean wins the race.
* Sean must [wins the race.]
* And [wins the race] he will.

The only instance of an inflected VP occurring as a complement in English is when an unbounded dependency terminates into embedded subject position. Borsley has therefore crucially failed to prove that the Subject's sister i.e. [wins the race] has the same [BAR] level, or [MAX] value, as the VP [win the race]. Any analysis which treated these two categories as completely distinct verbal projections would of course be equally mistaken since they clearly have the same internal structure.

If the Subject's sister is [MAX,-] and the complement VP is [MAX,+] we admittedly cannot capture their similarity by expanding both categories by a single ID Rule so as to always generate the required [MAX,-] head. We can however capture this similarity in the [AGR] values provided in the lexical entries for WIN and WINS in that they would both contain [SUBCAT:NP[OBJ]]. If we lacked this lexical apparatus as was the case in the framework assumed by Borsley, then we would have had another motivation for the Subject's sister being [BAR,2].

SUMMARY

Although working within a GPSG framework we have motivated a clause structure which is basically that of earlier GB analyses such as Chomsky (1982) i.e. one where both Sentences and Clauses are headed by Infl. Our analysis differs in that we take Inflections to be synchronically verbs.

CHAPTER 7 VARIATIONS IN CONSTITUENT ORDERING

7.1 INTRO & DATA

Following Greenberg (1963) the ordering parameter is here described in terms of the major sentence constituents Verb, Subject and Object. While grammatical functions, such as Subject, are defined partly syntactically and partly semantically I will assume that at least for the examples cited below it is possible to identify grammatical functions purely on the basis of their Participant (or Theta) Roles.

S = Agent or Experiencer O = Patient or Theme

In examining the ordering of Verb, Subject and Object, pronominal forms are typically excluded. They have however been included below since they influence the acceptability of certain word orders. In the examples below a lower case letter indicates a proform e.g. "o" is a Direct Object pronoun.

The examples below also examine the influence of common and proper nouns on the acceptability of the various orders. The (a) sentences contain two proper NPs whilst the (b) sentences contain a proper Subject and a common Object. The (c) sentences contain a common Subject and a proper Object. Finally the (d) sentences contain two common NPs.

To aid in the identification of Subjects and Objects below, the proper Subject is always BALE, the proper Object is always WATI, the common Subject is always TAGANE "man" and the common Object is always GONE "child". The Verb is always RAI-CI or RAI-CA "see".

- (1) VOS (a) e a raici Wati o Bale
 (b) e a raica na gone o Bale
 (c) e a raici Wati na tagane
 (d) e a raica na gone na tagane
- (2) VSO (a) * e a raici o Bale o Wati
 (b) e a raica o Bale na gone
 (c) * e a raici na tagane Wati
 (d) * e a raica na tagane na gone
- (3) VS0s (a) * e a raici o Bale Wati o koya

- (b) * e a raica o Bale na gone o koya
 (c) * e a raici na tagane Wati o koya
 (d) * e a raica na tagane na gone o koya
- (4) SV0 (a) o Bale e a raici Wati
 (b) o Bale e a raica na gone
 (c) na tagane e a raici Wati
 (d) na tagane e a raica na gone
- (5) SV0s (a) o Bale e a raici Wati o koya
 (b) o Bale e a raica na gone o koya
 (c) na tagane e a raici Wati o koya
 (d) na tagane e a raica na gone o koya
- (6) OVS (a) o Wati e a raica o Bale
 (b) na gone e a raica o Bale
 (c) ? o Wati e a raica na tagane
 (d) * na gone e a raica na tagane
- (7) OVoS (a) o Wati e a raici koya o Bale
 (b) na gone e a raici koya o Bale
 (c) o Wati e a raici koya na tagane
 (d) na gone e a raici koya na tagane
- (8) OSV (a) o Wati, o Bale e a raica
 (b) na gone, o Bale e a raica
 (c) o Wati, na tagane e a raica
 (d) na gone, na tagane e a raica
- (9) OSVs (a) * o Wati, o Bale e a raica ko koya
 (b) * na gone, ko Bale e a raica ko koya
 (c) * o Wati, na tagane e a raica ko koya
 (d) * na gone, na tagane e a raica ko koya
- (10) OSVo (a) o Wati, o Bale e a raici koya
 (b) na gone, o Bale e a raici koya
 (c) o Wati, na tagane e a raici koya
 (d) na gone, na tagane e a raici koya
- (11) SOV (a) * o Bale, o Wati e a raica
 (b) * o Bale, na gone e a raica
 (c) * na tagane, o Wati e a raica
 (d) * na tagane, na gone e a raica
- (12) SOVs (a) o Bale, o Wati e a raica ko koya
 (b) o Bale, na gone e a raica ko koya
 (c) na tagane, o Wati e a raica ko koya
 (d) na tagane, na gone e a raica ko koya
- (13) SOVo (a) * o Bale, o Wati e a raici koya
 (b) * o Bale, na gone e a raici koya
 (c) * na tagane, o Wati e a raici koya
 (d) * na gone, na tagane e a raici koya

7.2 UNMARKED ORDER

Milner (1956), Keenan (1978) and my informant all agree that the basic word order in Fijian is VOS. This hypothesis seems to be supported by the data presented in (1) above. The VOS order is unaffected by the commonness or properness of the Subject and Object. Contrast this with (2) VSO and (6) OVS which are sensitive to the properness of the noun phrases. VOS also does not require the presence of an overt pronoun as opposed to the SOV ordering which requires a subject pronoun. Thus (12) SOVs is acceptable whilst (11) SOV and (13) SOVo are not.

It will be noted however that there is another ordering, namely (4) SVO, which is also oblivious to the properness of Subject and Object and to the presence of an overt pronoun. SVO could therefore be regarded as an alternative basic order. This analysis seems plausible from a diachronic perspective since Fijian's parent language, Proto Eastern Oceanic, had SVO ordering.

Further support for SVO as an alternative basic order can be found in Amnon Gordon's observation that the Subject is the only phrase that can precede the Verb in a Relative clause. (Gordon, A. 1976: 2-3)

(14a) na toa ka vakamatea na tagane
 hen kill man
 "the hen that the man killed"

(14b) na toa ka na tagane a vakamatea
 "the hen that the man killed"

(14c) na tagane ka vakamatea na toa
 "the man that killed the hen"

(14d) * na tagane ka na toa a vakamatea
 "the man that killed the hen"

The simplest and most satisfactory analysis of the data in (14) is to assume that Subject before Verb and Verb first are the two basic orderings in Fijian. If we assume that the Subject before Verb ordering in (14b) is a marked ordering, then two problems arise. Firstly what has given rise to this marked ordering? Since the head of a Relative clause is by definition the topic of the clause, we cannot argue that the ordering in (14b) results from Topicalization of the Subject.

Secondly if we could find some justification for the ordering in (14b) how would we then rule out (14d)? As we can see from (15) Fijian will permit even inanimate NPs such as IVOLA to be topicalized so we cannot claim there is some bar on the topicalization of non-human NPs.

- (15) e a nuitaka tiko o Tevita
 hope prog. D.
 ni na ivola e na solia vei Timoci o Paula
 letter fut. give to T. P.
 "David was hoping
 that the letter, Paul would give to Timothy"

Incidentally Gordon's later claim (Gordon, A. 1976: 11) that VOS and SVO are the only possible orderings in complement clauses is falsified by the OVS ordering in (15).

It has to be admitted that there are two facts that count against the data in (14). Firstly my informant completely rejects a Subject-first ordering in Relative Clauses. Secondly and more importantly, even Gordon's informant does not consistently accept this ordering. In fact Keenan, who used the same informant stated that sentences such as (16) were generally rejected.

- (16) * na tagane ka na yalewa a raica
 man that woman see
 "the man whom the woman saw"

(Keenan 1978: 278)

It is clear from Keenan's and Gordon's differing conclusions that two interpretations of their informant's acceptability judgements are possible. I am nevertheless prepared to accept the data in (14) as weak corroboration of SVO as an alternative basic word order.

Assuming with Chapter 5 that the basic sentence structure is that defined by Rules 1-3, SVO and VSO ordering would then result if there was no LP Rule to impose a rigid order between the V#[SUBJ,+] and the NP Subject. All the other sisters in the tree would however need to have a rigid ordering imposed upon them by an LP Rule such as LP Rule 1.

- RULE 1 VP[SUBJ,+] → H# , NP
 2 V#[SUBJ,+] → H[LEX,+] , VP[SUBJ,-]
 3 VP[SUBJ,-] → H#[LEX,+] , NP

LP 1 [TNS] < [MAX,-;LEX,+] < XP

Note incidentally that if no ordering was defined between the verb and the NP Object this would not produce the OVS examples in (6) but rather sentences such as in (17) where the Object comes between the Inflection and the Verb.

- (17a) * e a Wati raici o Bale
(17b) * e Wati a raici o Bale
 I V

One slightly awkward consequence of these rules is that SVO is structurally ambiguous. Is the Subject "fronting" the result of the lack of ordering between the daughters in Rule 1, or is it the result of an unbounded dependency with a null terminus for the Slash path? (see next section)

This ambiguity may not however be as serious as it initially appears. Firstly it seems to make no semantic difference and so could be tolerated in the same way that GKPS tolerated ambiguity within their analysis of "It" Clefts. (GKPS: 167 fn. 10). Secondly the ambiguity is more theoretical than real since it will be resolved by a general parsing strategy referred to by Prideaux & Baker as the Normal Form strategy

"The language user assumes that the unit being processed is in its "normal" or "canonical" form unless the unit is overtly marked to the contrary." *where Normal Form is defined as "that form which is most frequent and least marked for special or exceptional use."*

Prideaux & Baker (1987: 32)

In GPSG terms the normal form of a sentence would lack a [SLASH] feature hence when parsing an SVO structure we would use Rule 1. SVOs however could only be parsed if we used the Slash mechanism.

7.3 MARKED ORDERINGS

Assuming VOS and SVO are the basic orderings a means must be provided of deriving the other acceptable orderings. The most obvious approach is to regard the "fronted" NPs as being Topics and hence introduced by Rule 32.

RULE 32 VP[SPEC,-;SUBJ,+] → XP , H/XP

Apart from our use of the [SPEC] feature, Rule 32 is identical to the rule

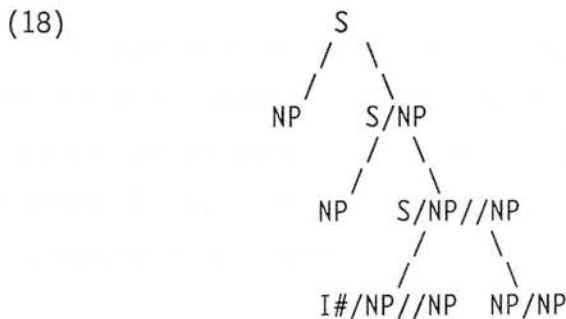
provided in GKPS to account for Topicalization in English. Section 8.2 will demonstrate that this rule can nevertheless be motivated in Fijian. It will also be shown there that unbounded dependencies may terminate in an overt pronoun, alias a Resumptive Pronoun.

Rule 32 and the possibility of overt termini will now permit us to generate orders (5) SVOs, (6) OVS and (7) OVoS if the VP precedes the Subject. If on the other hand the Subject precedes the VP, (8) OSV and (10) OSVo will be generated.

7.3.1 Multiple Extractions

With the use of Rule 32 we cannot however generate the SOV order in (12). (If we had rejected SVO as a basic order then (8) OSV and (10) OSVo would also have been problems). (12) is problematic because it requires the extraction of two distinct categories and hence the instantiation of contradictory [SLASH] values on the Sentence node. The only way to avoid this problem would be to have a second [SLASH]-like feature, say [SLASH#2]. Whilst not employing a second [SLASH] feature in their analysis of English, GKPS do nevertheless admit that such a feature may be necessary in analyses of other languages. They in fact refer to one such analysis, that of Maling & Zaenan (1982) which advocated the use of two [SLASH] features in Icelandic unbounded dependencies. (GKPS: 81)

We will therefore assume that there are two separate features [SLASH] and [SLASH#2] available for double extractions. [SLASH#2] will be written as "//". Sentences such as (12) would then have the structure in (18).



The [SLASH] path leading from the Subject in (12) terminates in an overt

Pronoun. Since the slash terminus may be non-overt we would expect there to be acceptable SOV sentences whereas all the examples in (11) are ungrammatical. (Or more precisely the examples in (11) are ungrammatical under an SOV interpretation. These examples would be acceptable as OSV structures). However when one NP is inanimate it cannot be the Experiencer so it can only function as as the Object. As (11e) proves, in such instances it is possible to have acceptable SOV structures.

(11e) 0 Bale , na vale e a raica
 B. house see
 "(It was) Bale saw the house."

Although SOV structures are therefore permissible, they are clearly highly marked in that if there is another possible parse of the string i.e. OSV then this is the preferred parse. The reason for preferring an OSV structure would seem to be that SOV requires the use of [SLASH] and [SLASH#2] whereas OSV only requires the use of [SLASH]. OSV therefore has the more "normal form" though obviously not as normal as SVO or VOS.

7.3.2 Constraining Multiple Slashes

Although the Normal Form parsing strategy accounts for (11e) we must still account for the differences in acceptability within the doubly slashed examples (9) * OSVs, (10) OSVo, (12) SOVs and (13) * SOVo. Acceptability here seems to be constrained by pragmatic rather than simply syntactic considerations.

There are two syntactic means of focussing attention on some constituent in a Fijian sentence. We can make the constituent the Topic by Rule 32 or an overt coreferential pronoun can be inserted.

We can now see the difficulty with examples such as (9) * OSVs. Topicalization focusses our attention on the Object but Pronominalization focusses our attention on the Subject. This pragmatic contradiction would be resolved if the same constituent was focussed by Topicalization and by Pronominalization. Hence the acceptability of (10) OSVo and (12) SOVs.

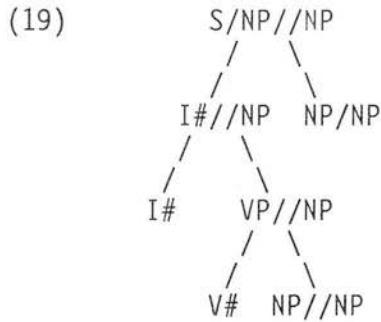
It should be noted that Maling and Zaenan (1982) also had to appeal to pragmatic considerations to constrain the potential output of a grammar with

multiple extractions. They assumed that the pragmatic organisation of discourse outlined in Kuno (1976) could not be violated and therefore certain syntactically possible sentences would never occur.

While accepting that the restriction operating in (9), (10), (12) and (13) is primarily a pragmatic one it is nevertheless possible to capture this distinction in the syntax. We assume firstly that [SLASH] may terminate in an overt or a non-overt pronoun but [SLASH#2] can only terminate in a null category. Hence the lexical entry provided for SLASH#2 trace will be NP[NULL,+]//NP. We then assume that the head of a [SLASH#2] path can only be a category on which [SLASH] is already instantiated. This requirement is enforced by FCR 35.

FCR 35 S[SLASH#2] == > [SLASH]

As can be seen in (19), the [SLASH] path in SOVs structures terminates higher in the tree than the [SLASH#2] path.



This leads to a VP[SUBJ,-] category containing a [SLASH#2] specification but lacking a [SLASH] specification. Hence our need to restrict FCR 35 to VP[SUBJ,+] categories.

Together FCR 35 and null [SLASH#2] termini ensure that only the leftmost Filler can have an overt pronominal linked with it.

7.3.3 VSO Order

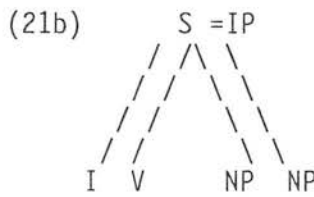
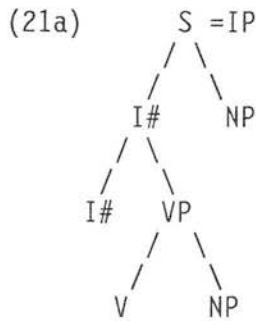
It now only remains to account for the VSO orderings in (2) and (3). The standard GPSG approach to such structures is to use a Metarule which adds an NP to the Verb Phrase.

$$(20) \quad \begin{array}{l} VP \rightarrow W \\ \quad \downarrow \\ S \rightarrow W, NP \end{array}$$

As we demonstrated in section 3.6 flat sentence structures can however be generated in our analysis from a non-derived ID rule, namely Rule 1.

$$\text{RULE 1} \quad XP \rightarrow H\#, Y^+$$

Rule 1 however only allows us to create a flat structure consisting of a single head and all its arguments. It will not allow us to flatten a structure which has two heads, but as (21a) illustrates VOS and SVO structures in Fijian do have two heads.



How then can we generate the flat structure in (21b) for the sentences in (2)? The most obvious solution is to follow Cann (1987) and propose a multi-headed structure for (21b) i.e. allow the Inflection and the Verb to jointly head the Sentence. This would involve introducing a rule such as Rule 3.

$$\text{RULE 3} \quad XP[\text{INV},+] \rightarrow H\#L, H\#L, Y^+$$

Although most Verbs can appear as the head in Rules 1, 2 or 3, there is at least one set of verbs, Verbal Possessives, which are restricted to Rule 3. We capture this restriction by means of the [INV,+] specification. Since it seems sensible to consider the whole structure induced by Rule 3 as being "inverted" I have added this [INV] specification to the mother category. Following GKPS I take [INV] to be a HEAD feature so the [INV,+] specification will pass down to both heads in Rule 3.

We have also stipulated that both of these heads must be [LEX,+]. This therefore means that such a multi-headed structure must be a local tree of depth one i.e. a flat structure such as in (21b). This restriction does not hold for all multi-headed structures since Rule 5 in section 4.3.1 has a [LEX,-] head.

Rule 3 does however obey FCR 11 which we proposed on page 64 as a condition on Fijian multi-headed structures, since both Inflections and Verbs are [V,+;N,-] categories.

FCR 11 XP ==> [N] & [V]

Although Inflections and Verbs are both [V,+;N,-] categories they differ in the feature [SUBJ]; Inflections being [SUBJ,+] and Verbs being [SUBJ,-]. The mother category in Rule 3 would therefore lack a [SUBJ] specification. There are at least three reasons however why we would want the mother to be a [SUBJ,+] category. Firstly the presence of a Subject or [EXT,+] category in a [MAX,+] category has been consistently indicated by means of a [SUBJ,+] specification on the [MAX,+] category. Since the trees licensed by Rule 3 all contain a Subject we would therefore expect the mother XP here to be [SUBJ,+].

Secondly it would mean that the FCR which we had introduced to ensure the presence of the correct arguments in other phrases, namely FCR 10, could also apply to this phrase.

FCR 10	XP [SUBJ,+]	==>	~[AGR]
* FCR 10b	XP [INV]	==>	~[AGR]
FCR 10c	XP [INV,+]	==>	~[AGR]

Since subcategorization/agreement need not be satisfied within an XP[SUBJ,-;INV,-] phrase i.e. an ordinary VP, we cannot replace FCR 10 with FCR 10b. If the mother in Rule 3 lacks a [SUBJ,+] specification we are instead forced to include FCR 10c alongside FCR 10. This is clearly undesirable since these two rules perform the same function.

The third reason for wanting a [SUBJ,+] specification on the mother in Rule 3 is that this rule can expand a VP[SUBJ,+] category, namely the Relative Clause. (see section 8.3.1 for a justification of this claim).

We therefore replace Rule 3 with Rule 3b.

RULE 3b XP [SUBJ,+;INV,+] -> H#L , H#L [SUBJ,-] , Y⁺

Given the [SUBJ,+] specification on the mother category in Rule 3b, the HFC will then ensure that the first head is [SUBJ,+] and therefore an Inflection. The second head will have to be a Verb since it has been specified as [SUBJ,-].

One final adjustment has to be made to permit the flat structures indicated in (21b) and that is to LRR 3 is to give Inflections two [SUBCAT] values, namely VP[INV,-] and V#[INV,+]. Note that these two [SUBCAT] values cannot be combined in a simple [V] specification since that would incorrectly permit V#[INV,-] to occur as a sister to the Inflection in singly headed structures. (V#[INV,+] would be ruled out by FCRs 51 and 52 on page 48 or by FSD 70 below).

Having created a flat structure with Rule 3b we still need to account for the permissible and impermissible orderings in (2). The most obvious solution within the GPSG framework is to invoke a Linear Precedence Rule which would ensure that Proper Objects can not be separated from the Verb. It might seem that LP 2 would suffice to ensure that Proper Objects preceded Subjects since in all the examples in (2) and (3) the Object was [LEX,+] whilst the Subject was [LEX,-].

LP 2 [LEX,+] < [LEX,-]

LP 2 however will not account for the fact that the bracketed [LEX,-] Proper Object in (23) must also precede the Subject.

(23a) e a raici_{NP}(noqu itau) ko Bale
 b * e a raici ko Bale_{NP}(noqu itau).
 "Bale saw My Friend".

The Proper Objects in (2) and (21) are however alike in that they lack a Determiner whilst the Subjects in both instances possess one. We could therefore capture the ordering constraints via LP 3.

LP 3 [SPEC,-] < [SPEC,+]

Since Common Objects and Subjects are both [SPEC,+] no ordering is defined between them so the VSO orderings in (2b) and (2d) will be permissible. This LP Rule will correctly disallow flat structures such as (2a) and (2c) because the Proper Object is preceded by a [SPEC,+] category, namely the Subject.

If however we assume merely Rule 3 and LP 3 we are left with the unacceptability of (2d) unaccounted for. Fortunately however (2e) is acceptable.

(2e) e a raica na tagane na vale
 see man house
 "The man saw the house. "

In the light of (2e) the "unacceptability" of (2d) must be regarded as simply indicating a preference for non-inverted structures rather than an absolute ban on Common Subjects preceding Common Objects in inverted structures. This preference could be encoded in an FSD such as FSD 70.

FSD 70 V# ==> [INV,-]

GKPS proposed an FSD for English which made all categories take [INV,-] as their default. This FSD helped account for the unacceptability of inverted embedded sentences such as (24b).

(24a) She asked _s(who I had seen)
 (24b) * She asked _s(who had I seen)

(I appreciate that (24b) is acceptable in various dialects but we can ignore that here). As we can see from (24a) ASK does not always subcategorize for an inverted sentence so the sentence must instead always satisfy the FSD, thus ruling out (24b).

The examples in (25) however show that embedded clauses in Fijian may be either [INV,-] or [INV,+].

(25a)
 au a nuitaka tiko nira na volia na cauravou na motoka
 1sg hope that buy youth car
 "I was hoping that the young men would buy the car."

(25b)
 au a nuitaka tiko nira na volia na motoka na cauravou
 "I was hoping that the young men would buy the car."

If we assumed the global FSD in GKPS NUITAKA could not subcategorize for [INV,+] clauses and the VSO ordering in (25b) would be impossible. If we limit the default to [MAX,-] categories, (25b) will however be acceptable.

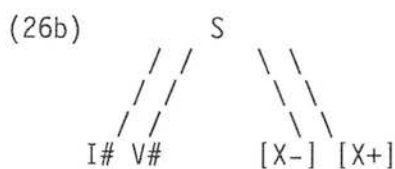
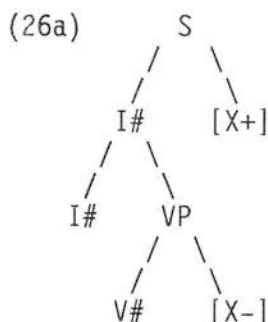
FSD 70 will of course be overridden in all projections from Rule 3 since the mother is specified there as [INV,+]. Rule 3 is however only assumed in a parse of a string if there is no alternative parse. For example, in (2e) the house could not be the Experiencer, so it had to be the Object. In (2b) the verb suffix -A and the Determiner O indicated that BALE could not be the Object. In both these instances we had therefore no choice but to assume the flat structure.

On the basis of (2b) and (2e) it would seem that we could also include LP 4,

the LP Rule we had proposed for English inverted sentences.

LP 4 [EXT,+] < [EXT,-]

This LP rule might seem redundant were it not for the fact that it enables us to prevent ambiguous analyses of VOS strings.



The Subjects and Objects in (26) can be identified via their [EXTERNAL] value; Subjects being [X+] and Objects being [X-].

Without LP 4 each and every VOS string could have either of the structures above. With LP 4 however (26b) is an impermissible structure. In effect this LP Rule maximizes the number of VP[SUBJ,-] categories in our analysis by forcing all VOS strings to contain a VP[SUBJ,-]. As we have already seen in our discussion of (2d) Fijian speakers prefer non-inverted structures i.e. ones involving a VP[SUBJ,-] node, so rejecting (26b) in favour of (26a) should not be controversial. The converse of LP 4's rejection of (26b) is of course that all flat structures will have a VSO ordering. Moreover because of the conflicting demands of LP 3 and LP 4, the Object NP in such flat structures will never be [PROP,+].

Since the Y categories in Rule 3 are [MAX,+] arguments of Infl and V, this rule will not permit the Pronoun heading a [PROP,+;TRANS,+] Subject NP to be separated from its Common NP complement to produce SXs structures such as VSOs in (3). Even if such a separation had taken place, the Pronoun which had headed the Subject NP would still presumably be [EXT,+] so it would precede the Object as in (27a) or (27b).

- (27a) e a raica (ko koya na tagane) na gone.
 b * e a raica ko koya na gone na tagane.
 "The man saw the child."

7.4 INSTRUMENT and RECIPIENT PPs

In this section we examine the ordering of certain Prepositional phrases with regard to Subjects and Objects. Two verbs are used ; SOLIA "give" which takes a Recipient PP and VAKAMATEA "kill" which takes an Instrument PP.

In the examples below the properness of Objects and Prepositional Objects varies as follows.

The Object is common in (a) and (c) but proper in (b) and (d). The Prepositional Object is common in (c) and (d) but proper in (a) and (b).

- (29) VOPS (a) e a solia na toa vei Tevita o Bale
(b) e a solii Samuela vei Eli o Ana
(c) e a vakamatea na toa e na ise le o Bale
(d) e a vakamatei Wati e na ise le o Bale
- (30) SVOP (a) o Bale e a solia na toa vei Tevita
(b) o Ana e a solii Samuela vei Eli
(c) o Bale e a vakamatea na toa e na ise le
(d) o Bale e a vakamatei Wati e na ise le
- (31) VPOS (a) e a solia vei Tevita na toa o Bale
(b) * e a solii vei Eli Samuela o Ana
(c) e a vakamatea e na ise le na toa o Bale
(d) * e a vakamatea e na ise le Wati o Bale
- (32) SVPO (a) o Bale e a solia vei Tevita na toa
(b) * o Ana e a solii vei Eli Samuela
(c) o Bale e a vakamatea e na ise le na toa
(d) * o Bale e a vakamatei e na ise le Wati
- (a) Bale gave the chicken to David.
(b) Anna gave Samuel to Eli.
(c) Bale killed the chicken with a knife.
(d) Bale killed Wati with a knife.

The variation in the position of the Subject in these examples can be accounted for by the lack of ordering between the Subject and its sister. The variation in the ordering of Objects and PPs would suggest that these two are in fact sisters. This impression is reinforced by the fact that where free ordering of Objects and PPs does not exist i.e. (31b), (31d), (32b) and (32d), the sentences all contain a Proper Object non-adjacent to the Verb. In the light of LP 3 we would expect just such an ordering to be illegal, provided of course that the PP were a sister to the NP Object. LP rules it will be remembered only operate between sister

KO, in [PROP,+] Subjects and [PROP,+] Topics, but not in [PROP,+] Objects, can most easily be accounted for if the Topic and Subject have the same [EXT] or [OBJ] value. If the Topic were simply [EXT,+] then we could account for the presence of (K)O without infringing LP 3b. In our discussion of the subcategorization mechanism on page 34 we however proposed FCR 90 below.

$$\text{FCR 90 } [\text{EXT},+] \implies [\text{OBJ},-]$$

This FCR would force Topics to be [OBJ,-]. LP 3b would then make the wrong prediction about ordering.

Sentence (33) does not however conclusively disprove LP 3b since these difficulties would disappear if we replaced FCR 90 with FCR 91.

$$\text{FCR 91 } [\text{OBJ},+] \implies [\text{EXT},-]$$

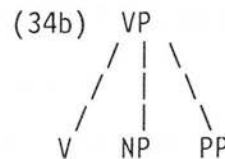
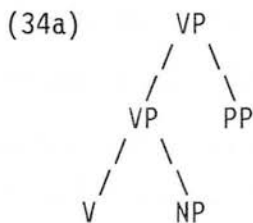
FCR 91 will not affect subcategorization but it will allow Topics to be simply [EXT,+] and thus avoid LP 3.

LP 3c provides another possible revision of LP 3.

$$\text{LP 3c } [\text{N},+;\text{SPEC},-] < [\text{MAX},+]$$

Since Subjects and PPs are both [MAX,+] categories this LP Rule will ensure that they follow the [SPEC,-] Proper Object, though without specifying whether the Subject will precede the PP or vice versa. Thus it will permit sentences such as (38a) and (39c).

Apart from permitting Subjects to precede PPs, the [N,+] specification is required in this rule to permit PPs to occur as sisters of Proper Objects. The sentences in (29) and (30) above do not prove that these two categories occur as sisters since these sentences could involve the structure in (34a) where the PP is a VP Adjunct rather than the flat structure in (34b).



The proof that PPs and Proper Objects can occur as sisters comes from sentences

such as (35) which involve the Resumptive Propreposition KINA.

- (35a) e na ise le e a vakamate a kina na toa o Bale
* e na ise le e a vakamate a na toa kina o Bale
* e na ise le e a vakamate i kina Wati o Bale
e na ise le e a vakamate i Wati kina o Bale

"With the knife, Bale killed Wati/the chicken."

The unacceptability of (35b) indicates that the PP KINA cannot be an Adjunct to the VP. Thus KINA in (35d) can only be a sister to the Verb. KINA's distribution is therefore different from that of non-lexical PPs such as "e na ise le" in (29c) and (31c) above in that KINA cannot occur to the right of an NP[PROP,-]. With (35d) we then have conclusive proof that a PP and a Proper Object can occur as sisters.

This then means that in (35d) an NP[SPEC,-] and a PP[SPEC,-] are sisters. Without the [N,+] specification LP 3c would then try to order each of these categories to the left of the other with the result that PPs could never occur as sisters of Proper Objects. Since PPs are [N,-], the [N,+] specification removes this contradictory ordering.

Even with this revision LP 3c is unable to account for the ordering of the head and AP in Rule 53.

RULE 53 [N,+ ,SPEC,-] → H , AP

As we have already noted APs are always [SPEC,-]. They are also of course [N,+] categories. The two daughters in Rule 53 are therefore both [N,+ ;SPEC,-] categories. LP 3c will therefore try unsuccessfully to order each category before the other.

Apart from [N] the only other feature which consistently distinguishes complement PPs from Proper Objects is the feature [OBJ]; Objects naturally being [OBJ,+] and PPs being [OBJ,-]. Thus LP 3c could be revised as LP 3d.

LP 3d [OBJ,+ ;SPEC,-] < [MAX,+]

Since modifiers are not arguments they do not bear an [OBJ] specification so this LP Rule does not run into any difficulties with projections from Rule 53. We therefore eventually have a replacement for LP 3!

It should be obvious that this Metarule is the equivalent of LRR 2 above, apart from my broadening of the set of PPs which may appear as optional complements.

PPs may also appear in VSO structures such as (38) and (39).

- | | | |
|------|-------|--|
| (38) | (a) | e a solia o Bale vei Tevita na toa |
| VSP0 | (b) * | e a solii o Ana vei Eli Samuela |
| | (c) | e a vakamatea o Bale e na iseles na toa |
| | (d) * | e a vakamatei o Bale e na iseles Samuela |
| (39) | (a) | e a solia vei Tevita o Bale na toa |
| VPS0 | (b) * | e a solii vei Eli o Ana Samuela |
| | (c) | e a vakamatea e na iseles o Bale na toa |
| | (d) * | e a vakamatei e na iseles o Ana Samuela |

In section 7.3.3 we motivated Rule 3 to account for VSO structures.

RULE 3 $XP[INV,+]\rightarrow H\#L,H\#L,Y^+$

According to this rule the Subject and Object in such strings are sisters so the intervening PP in (38) must too be a sister of these constituents. Since Rule 3 forced the Verb in these strings to be a lexical category, it cannot dominate the adjacent PP in (39) so the PP here must also be a sister of the Subject and the Object.

The ordering of Subject, Object and PP should then be liable to LP 3d and LP 4.

LP 3d $[OBJ,+;SPEC,-] < [MAX,+]$
 LP 4 $[EXT,+] < [EXT,-]$

That these strings do indeed obey LP 3d can be seen from the ungrammaticality of the (b) and (d) examples in (38) and (39). These sentences do not however appear to obey LP 4 since the PP can precede the Subject in (39a) and (39c) despite the fact that the PP is an $[EXT,-]$ category and the Subject is an $[EXT,+]$ category. Clearly LP 4 needs to be revised. Two possible alternatives to LP 4 are given in (40).

(40) LP 4b $[EXT,+] < [OBJ,+]$
 LP 4c $[LEX,-] < [OBJ,+]$

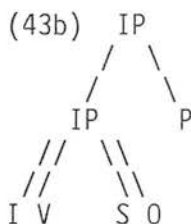
LP 4b forces Subjects to precede Objects but makes absolutely no reference to PPs so they can turn up in any position. LP 4c on the other hand forces all

Subjects and most PPs to precede Objects though it does not specify whether the Subject or PP will be first. The one PP which is unaffected by LP4c is of course KINA since it is a [LEX,+] category. Thus in (35d) KINA can legally follow WATI, an NP[OBJ,+] category. Although both of these LP Rules will account for the data we have seen so far, I would claim that LP 4c is nevertheless to be preferred since it will prevent two structures being assigned to the VSOP strings in (41).

- (41) (a) e a solia o Bale na toa vei Tevita
 VSOP (b) * e a solii o Ana Samuela vei Eli
 (c) e a vakamatea o Bale na toa e na ise le
 (d) * e a vakamatei o Bale Samuela e na ise le

- (42) (a) e a solia na toa o Bale vei Tevita
 VOSP (b) e a solii Samuela o Ana vei Eli
 (c) e a vakamatea na toa o Bale e na ise le
 (d) e a vakamatei Samuela o Bale e na ise le

The two potential structures underlying the VSOP string in (41) are those in (43).



(The sentence node in (43) has been labelled IP rather than S to avoid confusion with the Subject node).

The sentences in (38) and (39) have been shown to involve the flat structure in (43a). The sentences in (42) however would appear to require a structure where the PP was adjoined to the Sentence node. This results from the fact that we have assumed that a VOS string cannot involve a flat structure where the Subject and Object are sisters. The Subject is instead sole sister of the V#[SUBJ,+] node. This then means that the PPs occurring to the right of the Subjects in (42) must be attached somewhere higher in the tree. Since there are no other intervening constituents we assume that the PPs are simply adjoined to the VP[SUBJ,+] dominating the Subject. This will then require the addition of Rule 33 to our grammar.

RULE 33 VP[SUBJ,+] → H , PP

We could try to merge Rule 33 with Rule 6, the rule which introduces PP Adjuncts into NPs to produce Rule 33b.

RULE 6 NP[*SPEC,+*] → H , PP
RULE 33b XP[*SPEC,+*] → H , PP

This will require us analysing main clauses as [*SPEC,+*]; an assumption that we have not so far made. This is however possible since the "E" in the examples above could be analysed as a Complementizer-Inflection i.e. a V#L[*SPEC,+;SUBJ,+*] rather than a simple Inflection i.e. a V#L[*SPEC,-;SUBJ,+*]. This would in turn require omitting the [*SPEC,-*] specification in the lexical entry for "E".

Whatever its exact specification an adjunct introducing rule such as Rule 33b would seem to be motivated on the basis of the examples in (42). The presence of this rule will then mean that the VSOP structure in (41) can have either of the structures in (43).

With LP 4c (43a) will however be illegal since a PP[*LEX,-*] category occurs to the right of its NP[*OBJ,+*] sister.

It might of course be argued that permitting two structural analyses for (41) is non-pernicious , so we need not introduce LP 4c into our grammar.

I however assume as a metatheoretical principle that the goal in writing a grammar is to provide the most constrained account consistent with the data. Ambiguous structural analyses are therefore avoided whenever possible.

That they do nevertheless still occur is evidenced by the SVO structures in (4) above where the subject could be sister to a V#[*SUBJ,+*] or a VP[*SUBJ,+*]. The ambiguity in (4) could only be removed if initial Subjects were consistently topics but this would then leave us without an explanation for SOV being more marked than OSV. (See page 112 for more details).

7.5 TEMPORAL and LOCATIVE PREPOSITIONAL PHRASES

Temporal and Locative PPs differ from Instrumental and Recipient PPs in that they are not participants in the event but rather circumstances surrounding the event. The two circumstantial PPs we will examine are "e na noa" which means "yesterday" or more literally "on the yesterday" and "e na boto" which means "on the boat". As before we use the Verb RAICA meaning "see".

As (44) - (46) illustrate these circumstantial PPs occupy the same positions as the participant PPs we examined in the previous section.

- (44) (a) * e a raici e na noa Jone o Tevita
VPOS (b) * e a raici e na boto Jone o Tevita
(c) e a raica e na noa na cauravou o Tevita
(d) e a raica e na boto na cauravou o Tevita
- (45) (a) e a raici Jone e na noa o Tevita
VOPS (b) e a raici Jone e na boto o Tevita
(c) e a raica na cauravou e na noa o Tevita
(d) e a raica na cauravou e na boto o Tevita
- (46) (a) e a raici Jone o Tevita e na noa
VOSP (b) e a raici Jone o Tevita e na boto
(c) e a raica na cauravou o Tevita e na noa
(d) e a raica na cauravou o Tevita e na boto

"David saw John yesterday/on the boat".

We therefore simply assume that there is no bar on the PPs that can become optional complements via LRR 2 nor on the PPs which may be introduced by Rule 33b.

The only difference in the distribution of circumstantial and participant PPs is that Temporal PPs (but not Locative PPs) may be clause initial even when KINA is not present.

- (47a) e na noa e a raici Jone o Tevita
(b) * e na boto e a raici Jone o Tevita
(c) e na noa e a raici Jone kina o Tevita
(d) e na boto e a raici Jone kina o Tevita

Since the presence of the Resumptive PP, KINA, is compulsory whenever a PP is topicalized, the clause initial PP in (47a) can only result from a lack of ordering between this PP and its sister VP[SPEC,+] in Rule 33b.

RULE 33b XP[SPEC,+] → H , PP

The ungrammaticality of (47b) however illustrates that only Temporal PPs may precede their sister. If we are to account for (47a) and (47b) via an LP Rule, this LP Rule must be able to distinguish between these two PPs.

So far however we have not introduced any feature in our analysis of Fijian which could make this distinction. We are therefore forced to turn to the [ADV] feature which we motivated for English in section 3.5 so producing LP 6.

LP 6 VP < [ADV,P]

Since this LP Rule only constrains Locative Adverbs, the Temporal Adverb may precede the VP as in (47a) or follow it as in (46a) and (46c). The Locative Adverb can only follow the VP as in (45b) and (46d).

7.6 VERBAL PARTICLES

Following Milner (1956) we define a Particle as any lexical item which is not a Head. (The fact that Milner refers to "Bases" rather than "Heads" is simply a trivial difference in terminology). A Verbal Particle is then a non-Head lexical item which is the sister of a verbal projection. Thus the Aspect markers TIKO "continuous" and TALE "iterative" would be verbal particles.

In this section we examine the distribution of Post-Verbal Particles with regard to the Verb's other complements. Rule 1 and the lexical entries in (48) produce the VPs in (49). The NP complements in (49) have been bracketed.

RULE 1 XP → H#[LEX,+], Y, (Part)

(48) RAICA ; V#[LEX,+;AGR:NP[SPEC,+;PROP,-]]
 RAICI ; V#[LEX,+;AGR:NP[SPEC,-;PROP,+]]
 MASULAKI; V#[LEX,+;AGR:NP[SPEC,-;PROP,-;TRANS,-]]
 VIRI; V#[LEX,+;AGR:NP[PROP,-;TRANS,-]]

(49a) raica [na gone] "see the child"
 b raica [na dua na gone] "see the two children"
 c raici [Paula] "see Paul"
 d raici [ira na gone] "see the children(pl)"
 e masulaki [ka] "pray for things"
 f viri [polo] "throw ball"
 g viri [na polo] "throw the ball"

It is virtually impossible to get the full range of NP complements with any one verb, hence the need to use MASU and VIRI as well as RAI. (49e) and (49g)

were provided by Schuetz (1985) as exceptions to the general rule that the lack of a Determiner on the Object implies the lack of a Transitive suffix and vice versa. (49e) contains the Transitive suffix -LAKI but lacks a Determiner for KA whilst POLO in (49g) has the Determiner NA but VIRI lacks a Transitive suffix.

It is possible that there is a lexical motivation for -LAKI in (49e). The base MASU "pray" can occur with two different Transitive suffixes -LAK- and -T-. The complement's participant role however varies with the choice of transitive suffix. If it is -LAK- then the complement is an object prayed for. If on the other hand it is -T- then the complement is a person prayed to. Thus the Transitive suffix is arguably needed with non-specific Objects to clarify their participant role.

Let us now examine these same VPs when a Particle is present. TIKO marks the progressive aspect.

- (50a) raica tiko [na gone]
 b raica tiko [na dua na gone]
 c raici [Paula] tiko
 d raici ira tiko na gone
 e masulaki [ka] tiko
 f viri [polo] tiko
 g viri tiko [na polo]

The position of TIKO clearly varies depending on the NP complement. Variations in the order of sisters are typically handled via Linear Precedence Rules such as LP 1 and LP 3d which we motivated in sections 7.2 and 7.4.

- LP 1 [MAX,-;LEX,+] > XP
 LP 3d [SPEC,-;OBJ,+] > [MAX,+]

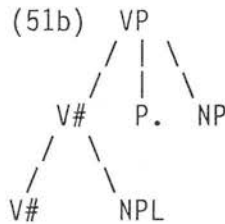
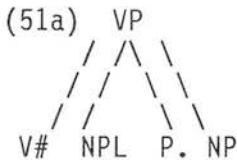
LP 1 ensures that lexical heads precede their complements whilst LP 3d defines an ordering amongst some of the complements, since we follow Jackendoff in assuming that complements are [MAX,+] categories. Following GKPS we also assume that there are certain lexical categories which lack a specification for the feature [MAXIMAL]. (In terms of GKPS features this means they lack a [BAR] specification.) These ~[MAX] lexemes will include not only Determiners and Complementizers but also Particles. If we examine the position of TIKO relative to the various NPs we discover that (with the exception of (50d) an NP[SPEC,-] will precede TIKO whilst an NP[SPEC,+] will follow it. This ordering is

compatible with that in LP 3d. In fact it is quite simple to extend LP 2 to account for the position of TIKO. If we assume that TIKO and all other post-head particles are marked as [PART] then the position of Particles and their NP sisters will be defined by LP 3e.

LP 3e [SPEC,-;OBJ,+] < [PART] < [MAX,+]

This then leaves us with the problem of example (50d). In (49d) the string "ira na gone" was taken to form an NP but this constituent analysis is impossible in (50d) since TIKO intervenes. (Since there is no independent motivation for TIKO being NP internal we reject any such analysis. We are of course also maintaining the traditional orthodoxy that branches in a tree do not cross.)

Since particles do not have projections, the string must then have one of the structures in (51), where "P." indicates a Particle.



The flat structure in (51a) cannot be a projection from Rule 3b since FCR 11 would prevent a V# and an NP from jointly heading an XP. (51a) would therefore require the addition of a new ID rule to the grammar. (51b) on the other hand employs two ID rules already in our grammar; Rule 1, the XP expansion rule, and Rule 2 the X# expansion rule. Since it employs two independently motivated rules (51b) is obviously a preferable structure.

Unfortunately the use of a particular ID Rule in a tree is assumed to be optional so we must provide a means of blocking the generation of the ungrammatical string in (52) which would result if only the VP expansion rule had applied.

(52) * raici [ira na gone] tiko

This can be achieved by another extension to LP 3 to produce LP 3f.

LP 3f [SPEC,-;OBJ,+] < [PART] < [MAX,+;LEX,-]

LP 3f now requires that [ira na gone] which is an NP[SPEC,-;OBJ,+;LEX,-] both

precede and follow the Particle TIKO. This is clearly impossible so [ira na gone] can never occur as the sister of TIKO. If instead the V# expansion rule, applied after Rule 1 IRA and TIKO, would belong to different local trees so LP 3f would not apply.

LP Rule 3f would likewise fail to apply if an NP[SPEC,-;OBJ,+;SUBJ,+] category such as [nona itau na vuniwai] were sister to a Particle , thus correctly predicting the unacceptability of (53a) and (53b).

- (53a) * Au a raici tale_{NP}(nona itau na vuniwai)
 b * Au a raici_{NP}(nona itau na vuniwai) tale.
 c Au a raici_{NP}(nona itau) tale_{NP}(na vuniwai).

As (53c) nevertheless indicates, if Rule 2 applies we can produce an acceptable ordering in (53c). (53c) does not contravene LP 3f because the NP[SPEC,-;OBJ,+] i.e. [nona itau] is again not a sister of TIKO.

LP 2b not only blocks (52) whilst allowing all the grammatical strings in (50) but also reflects what seems to be a general principle in Fijian LP Rules, namely that "heavier" constituents occur to the right of "lighter" ones.

CHAPTER 8 UNBOUNDED DEPENDENCIES

8.1 INTRO

GKPS define an Unbounded Dependency Construction as follows;

- (1) a syntactic relation of some kind holds between the substructures in the construction and
- (2) the structural distance between these two substructures is not restricted to some finite domain (e.g. by a requirement that both be substructures of the same simple clause).

GKPS: 137

Conceptually it is often easiest to understand Unbounded Dependencies in terms of movement, though GPSG being a non-Transformational syntactic theory technically does not involve movement. Any references to "movement" below should therefore be understood as an alias for the dependency relationship between the two constituents.

The general mechanism for dealing with Unbounded Dependencies in GPSG has already been outlined in sections 3.5 and 3.6 so in the following sections we will deal with the language specific adaptation of these mechanisms for Fijian.

8.1.1 ID RULES

In sections 8.2 - 8.4 we will assume the following ID Rules which were motivated in Chapters 4 and 5.

VP[SPEC,+] → H[SPEC,-] , Comp
VP[SUBJ,+] → H# , NP[EXT,+]
V#[SUBJ,+] → HL , VP[SPEC,-; SUBJ,-]

NP[SPEC,+] → H[SPEC,-] , Det
NP[TRANS,-; SPEC,-; SUBJ,+] → H# , NP[EXT,+]
N#[SUBJ,+] → HL , H[SUBJ,-]

[N,+; SPEC,-] → H , AP

As before we will use S1 as an alias for VP[SPEC,+; SUBJ,+], S as an alias for VP[SPEC,-; SUBJ,+], VP as an alias for VP[SPEC,-; SUBJ,-] and H# as an alias for V[MAX,-; SUBJ,+].

8.2 TOPICALIZATION

We have already come across quite a few examples of Topicalization in our examination of constituent orders in section 7.3.1 but in this section we present a more rigorous examination of the Topicalization process.

Topics are introduced by Rule 32.

Rule 32 VP[SPEC,-;SUBJ,+] → XP[NULL,-] , H/YP

The lack of a [CFORM] specification on the mother means that Topicalization can occur not only in main clauses but also in subordinate clauses. (1a) and (1b) provide examples of these two topicalizations. The topics in both sentences have been underlined.

(1a) o Bale o Wati e a raica
"Wati saw Bale"

(1b) e a nuitaka tiko o Tevita
ni na ivola e na solia vei Timoci o Paula.
"David was hoping
the letter Paul would give to Timothy."

Since main clauses do not contain an overt Complementizer it is only because of Subordinate Topicalization as in (1b) that we can prove topics occur inside a VP[SPEC,-] category rather than a VP[SPEC,+] category.

It is also on the basis of sentences such as (1b) that we reject Foley's analysis of E as a (main clause) complementizer. The Complementizer analysis in Foley (1976) can only be maintained in the light of (1b) if E were introducing a new subordinate clause within the NI Clause. This however would mean that the NI clause would not be a projection from a verb but rather from the noun IVOLA. (Since IVOLA is preceded by the Determiner NA there is no question that this is indeed a noun). The only clauses however which are not projections from verbs are equatives which consist simply of two juxtaposed NPs. This is clearly not the situation in the subordinate clause in (1b) since E never heads an NP. (See section 4.1 for my rejection of E Numeral phrases as NPs).

The most typical form of topicalization is that in (1a) where a main clause constituent is "moved" to main clause topic position. As (2) however illustrates constituents from subordinate clauses can also become main clause topics.

- (2) ko iko au a sega ni rawa mokuta
 you 1sg not can hit
 "You, I couldn't hit"

Not all constituents may however be topicalized. The Topicalization of a complement clause as in (3a) whilst easily understood is barely acceptable. Even when as in (3b) the Topicalized Clause occurs in apposition to the Demonstrative, OOO, my informant still regarded it as "not good Fijian".

- (3a) * Ni ra na volia na cauravou na motoka
 o Tevita e vakanuinui tiko kina
 "That the young men will buy the car, David doubts"
- b * Me ra na volia na motoka na cauravou,
 oqo e nuitaka tiko kina o Tevita
 "That the young men will buy the car,
 this is what David is hoping."

As we can see from the ungrammaticality of (4b) the Topicalization of an Adjective Phrase is also impermissible.

- (4a) e a raica na motoka _{AP}(damudamu) o Wati
 see car red W.
 "Wati saw the red car".
- (4b) * damudamu e a raica na motoka ___ o Wati
 "Red, Wati saw the car"
- (4c) e _{VP}(damudamu) na motoka e a raica o Wati
 "The car was red that Wati saw."

If we wish to focus attention on some attribute then we can use a sentence such as (4c) where the Attributive AP has been replaced by a VP. Such VPs are quite common in Fijian being the equivalent of the English Copular plus Predicative AP construction.

As we can see from (5) the topicalization of a PP is however possible.

- (5a) e na isele e a vakamtei Wati kina o Bale
 by knife kill W. by-it B.
 "With a knife, Bale killed Wati."
- (5b) e na noa e a sega ni raica kina na kato
 on yesterday not see on-it box
 "Yesterday I couldn't find the box."

Note that in (5b) the Topic PP has been extracted from the subordinate clause. This can be seen from the fact that the Resumptive Pro-preposition, KINA, occurs beside the subordinate verb RAICA instead of the main verb SEGA.

For a long time the correct analysis for KINA eluded Europeans attempting to write grammars of Fijian. KINA's role as a Pro-preposition was however eventually recognised by Cammack.

it functions as though it consisted of a generalized preposition followed by a pronoun or substitute of indefinite non-personal third person reference

Cammack (1962: 73)

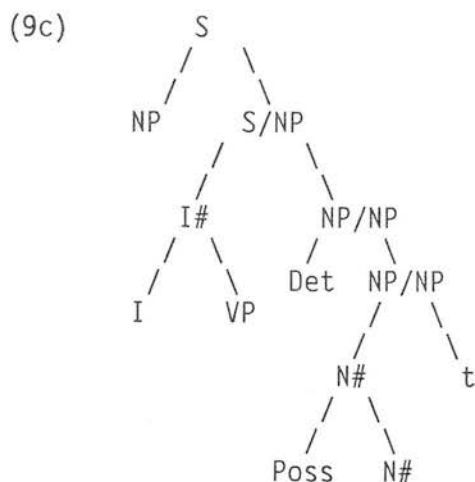
Since KINA marks the extraction site for the PP, it would seem sensible to regard it as a PP/PP category. As the examples in (6) however illustrate KINA may also occur when an NP is topicalized.

- (6a) na isele e a vakamatei Wati kina o Bale
 knife kill W. by-it B.
 "The knife, Bale killed Wati with it."
- (6b) na cava au sega ni raici iko kina e na noa?
 what not see you by-it yesterday
 "Why didn't I see you yesterday?"

We could account for the presence of KINA in (5) and (6) by simply defining it as PP[SLASH[V,-;MAX,+]] so permitting either PP or NP dependencies to terminate in it.

There is however a problem in assuming that KINA is simply a [SLASH] terminus, in that sentences such as (7b) do not appear to involve an unbounded dependency.

- (7a) au a rogoca tale gaa ni ko a vosa
 1sg hear also 2sg speak
 vakacacataki au e na dua na yabaki saa oti yani
 exaggeratedly me one year end away
 "I also heard that you were gossiping
 about me the year past."
- (7b) au nanuma ni sega ni dina ... ka niu a se sega
 1sg think not true 1sg not
 ni sucu kina
 born at-it
 "I think that's not true since I wasn't even
 born then."



Moreover as can be seen from (9c) the Slash terminus or trace in (9b) is within an NP which is itself a non-complement so we cannot use STM 2 which GKPS provided to permit slash paths to terminate into embedded subject positions.

STM 2

$$\begin{array}{l}
 X \quad \rightarrow W, V2[+SUBJ, FIN] \\
 \quad \quad \quad \downarrow \\
 X/NP \rightarrow W, V2[-SUBJ]
 \end{array}$$

There are two obvious solutions to this problem. We either maintain the LHC on metarules and modify the rest of our analysis or we maintain the rest of our analysis and modify the LHC.

To maintain the LHC we could follow a suggestion of Ronnie Cann's and re-analyse the NP[*SPEC, +*] as a Determiner Phrase. This would then give us a lexically headed rule which could serve as input to Metarule 12, our equivalent of STM 2.

METARULE 12

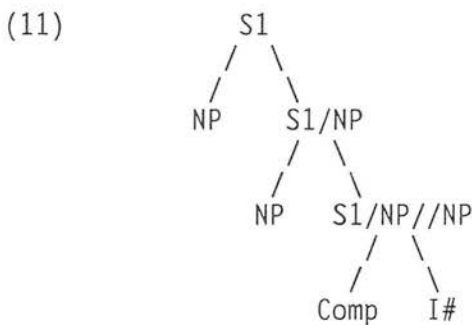
$$\begin{array}{l}
 XP \quad \rightarrow W, XP[SUBJ, +] \\
 \quad \quad \quad \downarrow \\
 XP/NP \rightarrow W, X#[SUBJ, +]
 \end{array}$$

An obvious deficiency in this analysis is that it introduces a [MAX, -] category, X#, as a complement, thus flying in the face of standard Jackendoffian X-Bar assumptions. Of course we could always re-analyse X# as a [MAX, +] category and introduce another feature to distinguish it from the XP in the input rule. Given the existence of empty possessor NPs the [MAX, -] status of N# is not uncontroversial.

A more substantial problem however is the fact that this metarule will not account for the SLASH path in (10) terminating into Subject position.

- (10) $\frac{o}{B.}$ $\frac{Bale}{house}$, na vale e a raica $\frac{_}{see}$ $\frac{_}{_}$
 "(It was) Bale saw the house."

There is no overt Complementizer in (10) but given (1b) it seems fair to assume that the Complementizer would be clause initial. This then means that the Complementizer introducing rule must apply before the Slash introducing rule. The Complementizer introducing rule cannot therefore be used to terminate the SLASH path. Even if we could find evidence for a later Complementizer position in (10) we could only produce the structure in (11) if we assumed that the Complementizer was the head of S1 in Rule 62a so permitting Metarule 12 to induce Rule 62b.



- RULE 62a S1 \rightarrow Comp , S
 RULE 62b S1/NP \rightarrow Comp , I#

As we saw however in section 6 the evidence all points in favour of S being the head of S1. (See section 7.3.1 for an explanation of the // feature).

Since (10) seems to be an insurmountable obstacle to maintaining the LHC on metarules we turn to our second option, revision of the LHC itself. The simplest revision we can make which will permit (9) and (10) is to stipulate that the head in the input rule be [MAX,-] rather than [MAX,-;LEX,+]. This weaker restriction would then predict that Locative PPs which are complements could be Topicalized, whilst those which were S Adjuncts could not be Topicalized. This prediction is borne out by the grammaticality of (12c) and the ungrammaticality of (12d).

- (12a) e a raica $_{pp}$ (e na boto) na gone o Tevita
 see boat child D.

"David saw the child on the boat."

(12b) e a raica na gone o Tevita_{pp}(e na boto)
 "David saw the child on the boat."

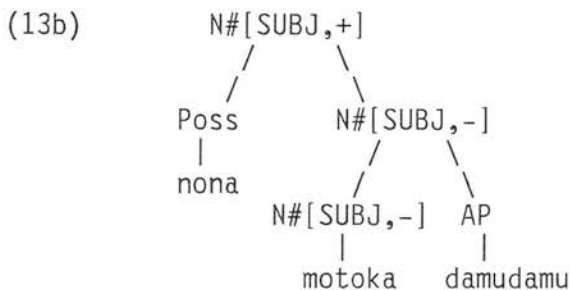
(12c) _{pp}(e na boto) e a raica kina na gone o Tevita
 "On the boat David saw the child."

(12d) * _{pp}(e na boto) e a raica na gone o Tevita kina
 "On the boat David saw the child."

KINA, it will be remembered, is the resumptive PP which is obligatorily present when non-animate PPs are extracted.

This [MAX,-] restriction will also prevent the extraction of the AP in (25) since the AP is there sister to an NP[SPEC,-] head. The AP topicalization in (13) will however still be permitted since we assumed in section 4.3.1 that the Possession was an N[MAX,-] category.

(13a) * damudamu au a raica na nona motoka ___
 red lsg see his car
 "Red, I saw his car."



We could of course avoid the problem with (13a) if we allowed the [MAX,-] matrix category to have a [MAX,+;SUBJ,-] daughter since we could then replace Rule 10 with Rule 10b.

RULE 10 [N,+;SPEC,-] --> H , AP
 RULE 10b [N,+;MAX,+;SPEC,-] --> H , AP

There is however an alternative means of ruling out (13a). This is to include an [ARG,+] specification on the Topic in Rule 32 so producing Rule 32b.

RULE 32b VP[SPEC,-;SUBJ,+] --> H/XP , YP[NULL,-;ARG,+]

The [ARG,+] specification will prevent the extraction of any non-argument XPs thus accounting for the unacceptability of (12d) and (13a). This [ARG,+] restriction on Fillers and Gaps makes our [MAX,-] restriction on heads

redundant.

The inclusion of the [ARG,+] specification in Rule 32b is itself redundant since FCRs 96 and 33 below will in any event make AP[SLASH,AP;LEX,+] an illegal category.

Given our lexical approach to sub categorization the occurrence of gaps in argument positions will arise from the operation of Lexical Redundancy Rule 1.

LRR 1

For every lexical entry α [CONTROL, β]
create a new lexical entry α [SLASH,X;CONTROL, β /Y]
where α and β are variables over sets of features

In section 3.4 we motivated the same LRR for English as a means of blocking (14b) and (14d).

- (14a) We gave John the worst student.
(14b) * Who did you give ___?
(14c) We gave the worst student to John.
(14d) * Who did you give ___ to ___?

The problem with both (14b) and (14d) was that GIVE had two slashed complements. However since LRR 1 is not recursive, no more than one of GIVE's arguments can be slashed. Metarules are of course also non-recursive so STM 1 would not have licensed (14b), but it would have licensed (14d) where the [SLASH] termini occur in distinct local trees.

A similar ban on instantiating [SLASH] on two arguments of the one head can be seen in the Fijian examples in (15).

- (15a) o cei a vakabauta o Wati ni a vakamatea ___ ___?
 who believe W. kill
* "Who does Wati believe ___ killed ___?"
 "Who does Wati believe that she killed ___?"
 "Who does Wati believe ___ killed it?"
- (15b) o cei a solia o Ana ___ ki vua?
 who give A. to him
* "Who did Anna give ___ to ___?"
 "Who did Anna give it to ___?"
 "Who did Anna give ___ to him?"
- (15c) na cava e a vakamatea kina ___ o Bale?
 what kill for-it B.
* "Why did Bale kill what?"
 "Why did Bale kill it?"

"What did Bale therefore kill?"

Since KINA and the Gap in (15c) are both sisters to the lexical head, VAKAMATEA, GKPS's metarule analysis would be adequate to rule out the double [SLASH] instantiation which gives rise to the unacceptable meaning for this sentence. In (15a) and (15b) however the unacceptable meaning arises from [SLASH] termini occurring in distinct local trees. These instantiations can only be ruled out by LRR 1. We can therefore dispense with the use of Slash Termination Metarules in our analysis of Fijian.

Given the GKPS approach to HFC - FCR interactions, (16) provides another means of at least dealing with (9) and (10), though not with (15a) and (15b).

(16) XP[SPEC,-;SUBJ,+] → H#L , Y[STOP]
[STOP] ==> ~[SLASH]

According to GKPS the FCR will prevent the percolation of [SLASH] to the non-head, thus forcing the [SLASH] path to terminate on the lexical head rather than on a phrasal category. Since NP and VP are the only [SUBJ,+] categories in Fijian, this rule will generate (9) and (10) without also generating any ungrammatical structures.

Apart from the fact that we have already rejected FCRs overriding the HFC in section 3.4, Rule 16 also fails to account for (17) and (18) where the Slash terminus is an overt phrasal constituent, the Pronominal NP, KO KOYA.

- (17) na cauravou e damudamu na motoka ko koya
"The young man, his car is red."
(18) na tagane o Wati e a raica ko koya
"The man, he saw Wati."

STM 2, Metarule 12 and Rule 16 all assume that there is no phonologically null constituent introduced in the non-complement position. Instead that position has been completely eradicated. Thus the overt Slash terminus KO KOYA in (17) and (18) needs to be introduced by a different rule or metarule.

LRR 1 on the other hand introduces an XP/YP category as the Slash terminus. To generate (17) and (18) from this same Metarule all we then need do, is ensure that [ANA], the feature identifying proforms, is instantiated on

[NULL,-] termini. This will be achieved by FCR 96 which we introduced above.

FCR 96 XP[LEX,+;SLASH,X;NULL,-] ==>[V,-;ANA]

Since [LEX,+;SLASH,X] is the category of a SLASH terminus, this FCR means that any overt terminus will be NP[ANA] or PP[ANA]; these two categories being respectively Pronouns and KINA.

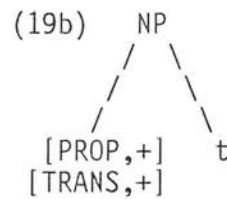
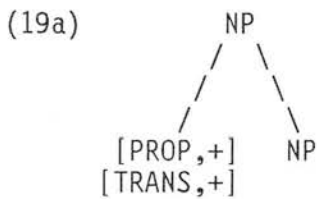
Only NP dependencies terminate in [NULL,+] categories, so we can also add FCR 97 to our grammar.

FCR 97
 [LEX,+;SLASH,X;NULL,+] ==> NP

FCR 97 is however redundant since FCR 33 ensures that all null categories are NPs

FCR 33 [NULL,+] ==> [LAST,+;PROP,-]NPLST,+;PROP,-]

So far we have simply assumed that the Pronouns in (17) and (18) are overt termini for the Slash path. Given the existence of structures such as (19a) in Fijian it might be countered that (17) and (18) involve null termini as in (19b).



If we adopt (19b) however we run into difficulties with the sentences in (20) where the Topic is itself headed by a Pronoun.

(20a)
 ko iratou na gone au a lako kei iratou ki Suva
 they(tl) child I go with them(tl) to S.
 "The children, I accompanied to Suva."

(20b)
 ko ira na tamata au na tukuna vei ira
 they(pl) man I tell to them(pl)
 "The men, I will tell it to."

Milner p.100

To maintain (19b) in the light of (20) requires assuming that Pronouns can subcategorize for Pronominal NPs, since the instantiation of Slash assumes that the Topic and the trace share all major features. However as we saw in section

4.2.2 Pronouns only subcategorize for [PROP,-] NPs i.e. Common NPs or Numeral NPs. This counter-argument to (17b) has an admitted weakness in that, as shall become apparent shortly, there can be disagreement in the [PROP] and [TRANS] values of the Topic and terminus categories. I would however claim that there is a radical distinction between such a feature mismatch and the functional redundancy which would arise from assuming Pronouns subcategorize for Pronouns. In Fijian a single Pronoun will indicate the Person and Number of a Common NP and/or provide emphasis, so what function could the second Pronoun in (20c) serve?

- (20c) * au na tukuna vei ira o ira na tamata
 1sg tell to them they man
 "I told it to them the men."

The Pronoun terminus analysis is further strengthened by the fact that it occurs quite commonly in languages around the world. The examples in (21) come from Sells (1987). The Pronoun terminus has been underlined in the examples and the glosses.

- (21) HEBREW
 (a) ha'if je pagafiti 'oto
 the man that I-met him
 "the man that I met"
 (b) ha'if je rakadti 'ito
 the man that I-danced with-him
 "the man that I danced with"
 (c) ha'if je imo ohevet 'et rina
 the man that mother-his loves Rina
 "the man whose mother loves Rina"

IRISH

- (d) an fear arL mhol an tsagart e
 the man ptc praised the priest him
 "the man that the priest praised"
 (e) an fear aN raibh me ag caint leis
 the man ptc was I speaking with-him
 "the man that I was speaking with"
 (f) an fear aN raibh a mhac san otharlann
 the man ptc was his son in-the hospital
 "the man whose son was in the hospital"

Perhaps more significant are the analyses of Palauan (or Belauan) presented in Georgopoulos (1983) and (1984). Palauan is a Micronesian language and

therefore a member of the same phylum as Fijian, namely Austronesian. In her papers Georgopoulos argues that all unbounded dependencies in Palauan end in Resumptive Pronouns. Since Palauan permits non-overt Subject and Object pronouns these Resumptive Pronouns are however frequently null categories.

As we can see from sentence (22) Fijian also permits non-overt Subject and Object pronouns.

(22)

e	a	raica	—	—	e	a	raici	koya	ko	koya
3sg	past	see			3sg	past	see	her	she	
"He/she saw him/her/it"					"He/she saw him/her"					

The Person and Number of the Subject is indicated by the Inflection E whilst the presence of an Object is indicated by the Transitive suffix -CA on the verb.

The existence of [NULL,+] Pronouns means that we can also apply Georgopoulos's analysis to Fijian. To do so we simply recast FCR 96 as FCRs 25 and 26.

FCR 25	XP[LEX,+;SLASH,X]	==>	[ANA]
FCR 26	[ANA;NULL,-]	==>	[V,-]

Although Overt Pronouns may be [MAX,-], in FCR 27 we stipulated that Null Pronouns were [MAX,+] categories. This stipulation is a consequence of our earlier assumption that Heads i.e. [MAX,-] categories must always be overt categories. This led us in section 6 to reject Null Inflections as the Heads of Sentences in favour of fused Complementizer-Inflections as the Heads of Clauses.

Given the presence of -CA rather than -CI as the suffix on the verb in (1a), it would appear that Null Pronouns are [PROP,-] categories. They therefore differ yet again from their overt counterparts which are [PROP,+]. Thus the class of overt and non-overt Pronouns must be defined simply as N[ANA].

The [PROP,-] specification for Null Pronouns however leads to a feature mismatch between the Filler and Gap in (28) since WATI is [PROP,+].

(28)

o	Wati	o	Bale	e	a	raica	—
	W.		B.			see	
"Bale saw Wati."							

This mismatch can however be accommodated by the lexical entry for Null

Termini in (29).

- (29) Null Resumptive α [PROP,-;NULL,+]/ α
Pronouns
where α is a variable over a set of features

The α specifications in (29) ensure near identity between Filler and Gap. [PROP] and [NULL] are exempted since they are explicitly referred to in the lexical entry. Thus the [SLASH] value in (29) may contain either [PROP,+] or [PROP,-]. Although (29) will likewise permit the [SLASH] value to contain either [NULL,+] or [NULL,-], the inclusion of a [NULL] specification in Rule 32 means that the [SLASH] value in (29) can only be [NULL,+].

We conclude this discussion of [SLASH] termini by presenting the lexical entries for the two overt termini.

- (30) Overt Resumptive α [PROP,+;NULL,-]/ α
Pronouns

KINA PP[NULL,-]/[V,-;MAX,+]

Note that the [ANA] specification has been omitted on all three termini since it will be automatically included by FCR 25. Since it is not a HEAD feature, [ANA] will be ignored by the CAP and will not therefore pass down as part of the [SLASH] value.

8.3 RELATIVIZATION

By a Relative Clause in Fijian we mean any KA phrase which modifies an NP. Thus we regard (31) and (32) as involving a Relative Clause. (33) on the other hand simply involves a Conjoined KA Clause.

- (31) o Tevita e a raica na cauravou ka solia na iloloma
D. see youth & give present
vei qase ni vuli
to teacher
"David saw the young man who gave the present
to the teacher."

- (32) o Tevita e a raica na iloloma ka solia na cauravou
D. see present & give youth
vei qase ni vuli
to teacher
"David saw the present which the young man gave

to the teacher."

- (33) era solia vua na iyaloalo ka solia na ivola
3pl give her picture & give book
ko Tevita vua e dua tani
D. her one other
"They gave her the picture and David gave
someone else the book."

Relative Clauses in Fijian will be introduced by our Rule 52.

RULE 52 NP[SPEC,-] → H, S

As in GKPS the Relative Clause is not taken to modify the whole Noun Phrase but rather N1(= NP[SPEC,-]). This allows the Determiner to have scope over the head noun and the Relative Clause.

We now turn our attention to the precise identity of the Relative Clause itself. In Rule 52 we had regarded it simply as a V[MAX,+;SUBJ,+] category. Support for a [SUBJ,+] analysis can be found in the presence of a Subject phrase in the Relative Clause in (32) above and (34) and (35) below. The Subject has been underlined in (34) and (35).

- (34) au a raica na cauravou
see youth
ka vinakata ko vuniwai me taya na waqa
& want doctor cut boat
"I saw the young man
that The Doctor wanted to build the boat."

- (35) e a raica na cauravou ka balavu vei koya ko Taniela
see youth & short to him Daniel
"He saw the young man that Daniel is shorter than."

If the Relative Clause is then a VP[SUBJ,+] we must account for the absence of a Subject NP in sentence (31). A closer examination of the Relative Clauses in (32) and (34) however reveals that they also lack an overt NP. In (32) the Verb SOLIA lacks an overt NP Object whilst the ME Clause in (34) lacks an overt Subject for TAYA.

Since VINAKATA is a Raising to Object Verb, it could be claimed that it also lacks an Object in (34). This sentence would then involve two dependencies; a relativization dependency terminating in the Raising Verbs clause and a raising dependency terminating in the TAYA clause. (see section 9.4.1 for a fuller discussion of VINAKATA).

Be that as it may (32) and (34) nevertheless suggest that the KA phrase could carry a [SLASH:NP] specification thus producing Rule 52b.

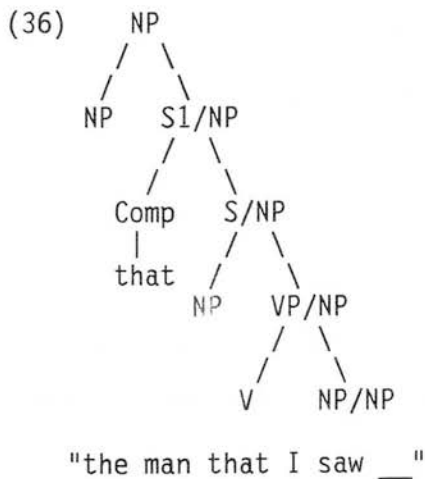
RULE 52b NP[SPEC,-] → H , VP[SUBJ,+]/NP

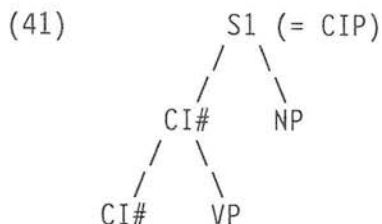
As we have already seen in section 8.2 there is no bar on SLASH paths terminating in Subject position in Fijian so Rule 52b will account for the Relative Clauses in (31), (32) and (34). Moreover since SLASH paths in Fijian may also terminate in a Pronoun, this rule will also account for Relative Clauses such as (35) which have no "missing" constituents but which contain a Pronoun; in this instance KOYA.

It is perhaps worth pointing out that GKPS do not include a [SLASH] specification in their equivalent of Rule 52. Rather they introduce a category-valued FOOT feature, [WH]. This feature links the head of the Relative clause with a WH phrase such as WHO or WHICH. This WH phrase is then typically linked with the "Gap" in the Relative Clause via [SLASH]. The one exception is when this "Gap" would be in Subject position. In such cases the WH phrase is assumed to actually be in the Subject position itself.

Since there is no equivalent of a WH Relative Phrase in Fijian, there is however no need for such a two stage linkage in Fijian Relative Clauses. Rather we can link the head of the Relative clause and the "Gap" directly via the [SLASH] feature.

Such an analysis might also be postulated for English THAT Relative Clauses such as in (36).





Apart from enabling us to avoid positing null Inflections, this analysis also provided a simple syntactic account for the existence of words such as SEU "if-I" or MO "that-you". Since we also have KAU "and-I" it would seem that we have similar morphological evidence for a KA + Inflection category.

If however KA was a Conjunction, we would then have to assume a null Inflection, thus vitiating the analyses in section 6, and abandon a simple syntactic explanation for the existence of KAU. (It is unclear to me whether an alternative phonological account can be provided which does not rely upon a knowledge of the syntactic structure).

A merged Conjunction-Inflection or $V\#L[SUBJ,+;CONJ,+]$ category would be impossible since neither my analysis nor that in GKPS assume that [CONJ] can percolate down to the Inflection from the Sentence node. This in turn is mainly due to the fact that the instantiation of [CONJ] is constrained by FSD 22.

FSD 22 $\sim[CONJ]$

Since this FSD is however the only FIP which will block the illegal projections in (42), it would appear that we have no alternative but to maintain it.

(42)

Projection VP \rightarrow V , NP[CONJ,+;LAST,+;TEAM,KEI]

* au a raica kei na gone
 1sg see & child
 "I saw and the child"

Projection VP \rightarrow V , NP[CONJ,+;LAST,+;TEAM,KEI] , PP

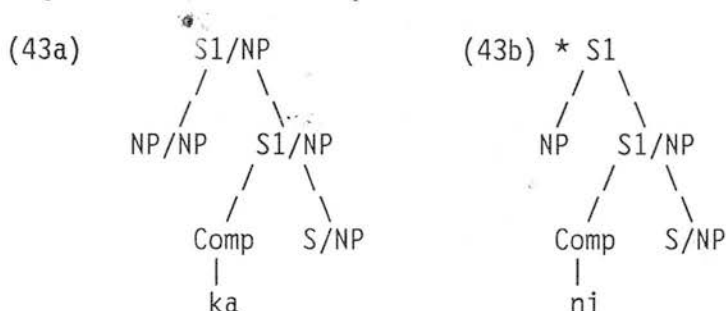
* au a solia vei Jone kei na ivola
 1sg give to J. & book
 "I gave and the book to John."

It might be countered that FSD 22b would also rule out the examples in (42) whilst still allowing [CONJ] to appear freely on a category.

FSD 22b [CONJ,-]

This FSD would however mean that all Inflections would be [CONJ,-] so we would still be unable to account for the different distributions of KAU and AU by making the former a [CONJ,+] category and the latter a [CONJ,-] category.

The weight of evidence then favours an analysis of KA as a Complementizer so making the Relative Clause a [SPEC,+] category. To account for OKOYA in (38) we must however assume that this category can be expanded by Rule 32, so Rule 32 must lack the [SPEC,-] we had stipulated in section 8.2. How then can we account for the fact that although a Topic may precede KA in (43a) it may not precede any other Complementizer such as the NI in (43b).



(43b) * au a sega_{si} (ko iko ni mokuta)
 1sg not you hit
 "You I didn't hit."

(43b) * au a vinakata_{si} (o Jone ni volia na motoka)
 1sg want J. buy car
 "I wanted John to buy the car."

Since this restriction on projections from Rule 32 seems to be sensitive to the choice of Complementizer, the most obvious means of dealing with it would be to relate it to the [CFORM] feature. Clearly we cannot force every S1 category to be [CFORM,KA] since this would prevent any NI or ME clause ever occurring. Equally we cannot have an FCR simply forcing every S1[SLASH] category to be [CFORM,KA] since this would prevent the extraction of a constituent from a complement clause whereas (44) clearly demonstrates that this is possible.

(44) ko iko au a sega ni mokuta _
 you 1sg not hit
 "You, I did not hit!"

Such an FCR would in fact limit all Unbounded Dependencies to a single complement clause and thus make them decidedly "bounded". What we instead

need is an FCR which only applies to the S1 categories which are expanded by Rule 32. This will mean adding some unique feature specification to the mother in Rule 32 which we can then relate to [CFORM,KA]. Rule 32b and FCR 71 show one possibility.

RULE 32b VP[SUBJ,+;TOP] → H/XP , YP

FCR 71 [SPEC,+;TOP] → [CFORM,KA]

FSD ~[TOP]

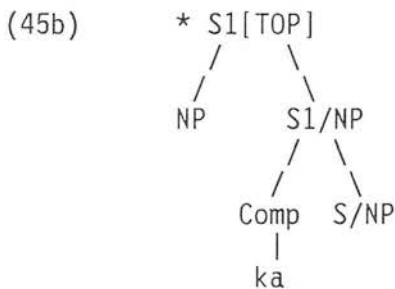
The feature [TOP] will be assumed to be a unary valued non-HEAD feature.

Although it blocks (43b), FCR 71 will nevertheless admit the unacceptable KA phrase in (45a).

(45a) a solia vua ko Jone na iyaloalo
 give to-him J. picture

_{si}(na ivola ka solia ko Tevita vua e dua tani)
 book give D. to-him one other

"John gave the picture to him
 and the book David gave to someone else."



Given the similarities between (45b) and (43a), the unacceptability of the KA phrase in (45b) can only arise from some unacceptable feature specification in the S1[TOP] node itself. Since (33) and (45) both contain KA these would both appear to be VP[SPEC,+;CFORM,K] categories. The illegal feature in (45) would then appear to be [TOP]. Before we can formulate an FCR which might prevent the occurrence of [TOP] on this node, we must consider the rule which introduces this category.

The KA phrase in (45b) is a simple conjoined clause, so we would expect it to be introduced by the Co-ordination Schema in (46).

(46) [F,+;L,+] → H[L,-] , H[F,-;L,-]* , H[F,-;CONJ,+]

"I saw the axe the young man cut the tree down with."

The location of the Resumptive Pronoun KOYA in (48) show that Relativization can occur across a clause boundary, in this instance from inside the NI clause, thus proving Relativization is indeed an Unbounded Dependency.

In (49) and (50) the PP KINA functions as a terminus for an NP dependency. This PP/NP classification for KINA has already been motivated with regard to Topicalization, so its occurrence here comes as no surprise.

Note incidentally that the location of KINA to the left of a non-Adverbial NP[PROP,-] sister in (49) and (50) shows that as in English, Fijian [SLASH] termini need not be to the right of non-slashed sisters. In English however non-lexical [SLASH] categories consistently occur to the right of all non-adverbial categories.

The occurrence of the Possessor NP, NA CAURAVOU, to the right of its N#[SUBJ,+]/NP sister in (47) clearly demonstrates that this LP Rule does not operate in Fijian.

8.3.1 CLEFT RELATIVES

Alongside the simple Relative Clauses discussed above, there are more complex examples involving two KA phrases. Since the biclausal nature of such Relatives is most accurately conveyed by means of a Cleft construction in English, I will refer to them simply as Cleft Relatives.

Perhaps not surprisingly my informant did not make much use of Cleft Relatives. In fact he seemed to reserve them purely for the relativization of a Possessor e.g. VUNIWAI in (51).

(51)

au a raica na vuniwai, ka nona na kau,
1sg see doctor his tree

ka a tamusuka na tacina na cauravou.
& cut brother youth

"I saw the doctor whose tree it was
that the young man's brother cut down"

We begin our analysis of (51) with an investigation of the category assigned to

NONA in the first KA phrase. We have already come across NONA in section 4.3.1 where it was given the lexical entry in (52).

- (52) Poss [SUBCAT:N#[SPEC,-;GEN,N];
[AGR:NP[SPEC,+;NUM,SG;PERS,3]]

(The [PERSON] and [NUMBER] features were revised in section 4.4.2 but this need not concern us at the moment). Since we have assumed that KA is a complementizer in Relative Clauses, NONA in (51) cannot be regarded as a Possessive Particle since these can only follow a Determiner or an -I suffix Verb. Instead NONA would appear to be an Inflection or a Verb in (51). Since I have been unable to illicit any acceptable Clefts involving an overt Inflection or Tense marker, there is no direct distributional evidence for NONA's classification in (51) as a Verb rather than an Inflection (or vice versa). In (53) however NONA must be analysed as a Verb since it follows the Inflections E and ERA.

- (53a) e nona na motoka na cauravou
3sg his car youth
"The car is the young man's".

- (53b) era nona na motoka na cauravou
3pl his car youth
"The cars(pl) are the young man's."

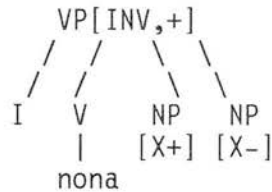
As we can see from (53) the Verb NONA has two NP arguments; the Possession and the Possessor. As was the case with the Possessive, the verb NONA agrees in gender with the Possession and in person and number with the Possessor. This is not surprising since a head's valency is typically unaffected by a change in its [N] and [V] values. What is surprising however is the fact that the Inflection agrees with the first NP, the Possession, rather than the second NP, the Possessor. This is not obvious in (53a) where Possessor and Possession have the same person and number but is clearly demonstrated in (53b) where the Inflection is PLURAL and NONA is SINGULAR, Since a category may not have contradictory NUMBER specifications ERA and NONA must agree with different NPs. The translation leaves us in no doubt that it is the Possession which is PLURAL rather than the Possessor.

Given our definition of the CAP, the Inflection can only agree with the Possession if the Possession is not lower down in the tree than the Inflection. (The only exception would be where the Possession was the head of a phrase

which was the sister of the Inflection). Since MOTOKA is preceded by the Determiner NA it is clearly a Noun but Inflections only occur as sisters of nominal categories in flat VSO structures. Thus the examples in (53) must involve the structure in (54). The feature [EXTERNAL] which distinguishes the external argument i.e. the Subject from the internal argument i.e. the Object has been abbreviated in (54) simply as [X].

RULE 3b $XP[\text{SUBJ},+; \text{INV},+] \rightarrow H\#L, H\#L[\text{SUBJ},-], Y^+$

(54)



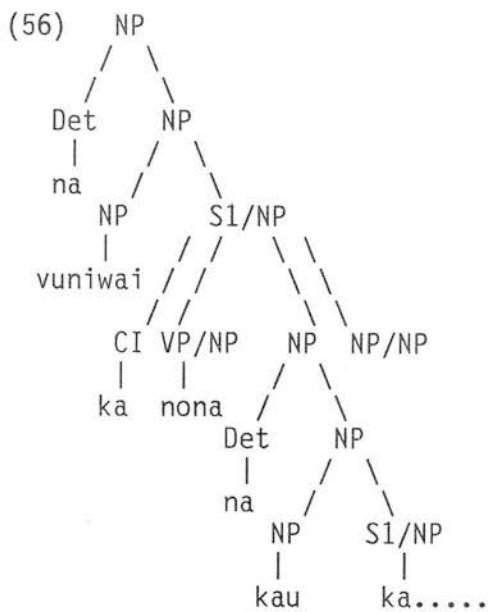
(For a justification of Rule 3b see section 7.3.3). Since most verbs can be either [INV,+] or [INV,-] in Fijian, flat structures such as (54) are not usually compulsory. We can however account for the fact that the verb NONA must appear in such structures by including [INV,+] in its lexical entry. This then produces the lexical entry in (55a).

(55a) NONA $V\#L[\text{INV},+; \text{SUBCAT}:\text{NP}[\text{SPEC},+; \text{GEN},\text{N}]; \text{AGR}:\text{NP}[\text{SPEC},+; \text{PERS},3; \text{NUM},\text{SG}]]$

(55b) NONA $V\#L[\text{INV},+; \text{SUBCAT}:\text{NP}[\text{SPEC},+; \text{GEN},\text{N}]; \text{AGR}:\text{NP}[\text{SPEC},+; \text{PERS},3; \text{NUM},\text{SG}]; \text{SLASH},\text{NP}]; \text{SLASH},\text{NP}]]$

The lexical entry in (55b) will then result from the application of Lexical Redundancy Rule 1 which replaces an [AGR] or [SUBCAT] feature with an identically valued [SLASH] feature. (see page 37 for more details).

With Rule 3 and the lexical entry for NONA, we can now return to the analysis of (51). Since there is no independent Inflection in the first KA phrase in (51) we will make our usual assumption that the Complementizer is in fact a Complementizer-Inflection. This will then mean that (51) involves the tree in (56).



Although it has not been indicated in (56), the CI must also bear a [SLASH:NP] specification since it is a head daughter of S1/NP. Assuming that KA has the lexical entry in (57a), LRR 1 will provide it with the second lexical entry in (57b).

(57a) KA V#L[SPEC,+;SUBJ,+;
SUBCAT:VP[SPEC,-;SUBJ,-]
AGR:NP[PERS,3;NUM,SG]]

(57b) KA V#L[SPEC,+;SUBJ,+;SLASH:NP;
SUBCAT:VP[SPEC,-;SUBJ,-;SLASH:NP]
AGR:NP[PERS,3;NUM,SG]]

Since NONA is a VP/NP the [SUBCAT] specification on the CI/NP will be satisfied and (51) will be accepted.

All that is now required for the acceptability of (51) is for the second dependency to terminate successfully. Since we have already seen that a dependency may terminate in a non-overt Object NP following an -A suffix Verb, this requires no further justification.

(58) also appears to be a Cleft Relative since it involves two KA phrases.

(58)
 au a raica na qasenivuli, ka nona na matau,
 1sg see teacher & his axe

 ka tamusuka na tacina na cauravou na kau nei vuniwai
 & cut-down brother youth tree of doctor

"I saw the teacher to whom the axe belonged which the brother of the young man cut down the doctor's tree with."

(Note incidentally that my informant gave "QASENIVULI" as one word here but as three separate words in (31)-(32) above. This confirms that word division is not yet completely standardized in Fijian)

On closer examination however we discover that there is no indication of a missing constituent in the second KA phrase. An extracted NP could leave a null NP Gap but both the Subject and the Object are overt in this clause, being respectively NA TACINA NA CAURAVOU and NA KAU NEI VUNIWAI. Since NA MATAU is an Instrument we would have expected it to have been extracted from a PP in the second KA clause but in that case the extraction site should have been marked by the Resumptive Pronoun KINA.

(58) then leaves us with two alternatives. We either maintain that the second KA phrase is a Relative Clause and permit Resumptive PPs to be non-overt or we re-analyse the second KA clause as a Conjoined Clause rather than a Relative Clause. (See sentence (3) above for an example of a KA clause performing this role).

If we adopt this second analysis we must find an initial S1 conjunct to combine with this KA phrase. The two possibilities are presented in (59).

- (59) S1(au a raica na qasenivuli ka nona matau)
S1(ka tamusuka na tacina na cauravou
na kau nei vuniwai)
- S1(ka nona na matau)
S1(ka tamusuka na tacina na cauravou
na kau nei vuniwai)

In (40) above we suggested that Conjoined KA phrases could be Sentences i.e. VP[SPEC,-;SUBJ,+] categories. On page 127 we however decided to analyse main clause Inflections such as ERA in (3) or AU in (59) as Complementizer-Inflections i.e. V#[SPEC,+;SUBJ,+] categories, thus making main clauses [SPEC,+] categories. Since the default assumption is that only like categories conjoin this would make the KA Conjunct in (3) and (59) likewise a VP[SPEC,+] category. Since nothing crucially depends on this [SPEC,+] analysis, I will assume it without further justification. This [SPEC,+]

specification and the presence of KA rather than some other Complementizer, will be ensured by FCR 85.

FCR 85 VP[SUBJ,+;CONJ,+] ==> [SPEC,+;CFORM,K]

Because the first conjunct in (59b) is a Relative Clause it is not simply an S1 but rather an S1/NP. The HFC will then only license projections from the Co-ordination Schema if the second conjunct is also S1/NP. Since we adopted the Conjunct analysis to avoid precisely such a situation (59b) is clearly of no benefit to us. Thus we are forced to adopt (59a) for the Conjunct analysis. This would then provide the meaning in (60) for (58).

(60) I saw the teacher that the axe belonged to
and the young man's brother cut down the tree.

The Conjunct analysis clearly involves a much looser syntactic relationship between the second KA clause and NA MATAU than the Head-Modifier relationship involved in a proper Relative clause. This does not *per se* indicate a deficiency in this analysis. Indeed the desire for a "tighter" syntactic relationship may simply reflect a desire to squeeze Fijian into the mold of Standard Literary English.

If we nevertheless reject (60) then we are forced to propose a non-overt Resumptive PP i.e. an non-overt equivalent of KINA. The difficulty with a non-overt PP is that in the vast majority of sentences, there would be no way of discovering whether or not it was present. This contrasts with the other non-overt XPs in Fijian which are clearly signalled; non-overt Subjects being signalled by the Inflection or Possessive Particle and non-overt Objects being signalled by the Transitive suffix on the Verb. I will therefore assume that empty PPs are not permissible and that (59a) is the correct analysis for (58).

8.4 CONSTITUENT QUESTIONS

Constituent Questions in Fijian do not *per se* involve an unbounded dependency. As the examples in (61)-(66) illustrate the questioned constituent, henceforth the Q-Phrase, may occur in the same position as a non-questioned constituent. The Q-Phrases in (61a)-(69a) have been underlined.

(61a) o cei a solia na iloloma vua na qase ni vuli?

who give present to elder of teaching
"Who gave a present to the teacher?"

(61b) na cauravou a solia na iloloma vua na qase ni vuli
youth give present to elder of teaching

"The young man gave a present to the teacher."

(62a) na cava a solii vei qase ni vuli?
what given to elder of teaching
"What was given to the teacher?"

(62b) na iloloma a solii vei qase ni vuli
present given to elder of teaching
"The present was given to the teacher."

(63a) a solia na iloloma na cauravou vei cei ?
give present youth to who
"Who did the young man give the present to ?"

(63b) a solia na iloloma na cauravou vei Tevita
give present youth to D.
"The young man gave the present to David."

(64a) a kauta ki vei na niu na cauravou ?
carry to where coconut youth
"Where did the young man take the coconuts ?"

(64b) a kauta ki vale na niu na cauravou
carry to home coconut youth
"The young man took the coconuts home."

(65a) e a tamusuka na vunika e na cava na cauravou ?
cut-down tree by what youth
"With what did the young man cut down the tree ?"

(65b) e a tamusuka na vunika e na matau na cauravou
cut-down tree by axe youth
"The young man cut down the tree with an axe."

(66a) e balavu cake vei cei o Taniela ?
short up to who D.
"Who is Daniel shorter than ?"

(66b) e balavu cake vei Jone o Taniela
short up to J. D.
"Daniel is shorter than John."

Examples (61) and (62) possibly involve a vacuous Subject-to-Topic move but (67)-(69) provide clear examples of the topicalization of Q-Phrases.

(67) na cava a solia na cauravou vei qase ni vuli?
what give youth to elder of teaching
"What did the young man give to the teacher?"

- (68) o cei a gadreva na vuniwai me taya na waqa ___?
 who wish doctor cut boat
 "Who did the doctor want to make the boat?"
- (69) o cei a taya na nona waqa ___ na cauravou?
 who cut his boat youth
 "Whose boat did the young man make?"

8.4.1 Q-Phrases

Question Phrases in English are often referred to as WH-Phrases since they typically contain a word beginning with "WH" such as WHO or WHICH. Not surprisingly Fijian Question Phrases do not contain WH words, so I will instead refer to them as Q-Phrases.

There is also a GPSG theory internal reason for my rejection of the term "WH-Phrase". GPSG categories which contain the category valued feature [WH] are often simply referred to as WH phrases. On page 148 we dispensed with the use of the [WH] feature in Fijian Relative Clauses. In GKPS the [WH] feature was also used in Constituent Questions to constrain the distribution of the question phrases. Hence their FCRs below.

~([SLASH] & [WH])
 A1 ==> ~[WH]
 VP ==> ~[WH]

GKPS: 153

The examples in (61)-(66) clearly indicate that question phrases do not have a more constrained distribution than their non-question counterparts. There is thus no motivation for the [WH] feature in Fijian. We underline our rejection of the [WH] feature by referring to question phrases as Q-Phrases.

There are only six lexical Q-Phrases in Fijian.

CEI	NP[prop,+;trans,-]	"who"
CAVA	NP[prop,-;trans,-]	"what" or "why"
VEI		"where"
VAKACA		"how"
NAICA		"when"
VICA		"how many"

"Why" in Fijian is a non-lexical PP, "e na vuku ni cava" which is literally "for the sake of what?". Alternatively the NP, NA CAVA, "what" can be used along

with the Resumptive PP, KINA.

- (70) na cava ko a volia kina na motoka?
 what 2sg buy for-it car
 "Why did you buy the car?"
 OR "What did you buy the car for?"

The more colloquial English translation above gives a more literal rendering of sentences involving CAVA and KINA.

The classification of CAVA in (65) as a Common Noun and CEI in (66) as a Name is non-controversial given their occurrence with the Determiners KO and NA. The classification of VEI in (64) however is more problematic.

As we can see from the examples in (71) Prepositions subcategorize for both PPs and NPs.

- (71) ki_{PP}(vei Timoci) "to Timothy"
 ki_{NP}(vale) " (to) home"

As (71a) illustrates non-question VEI is clearly a Preposition. This might suggest that question VEI was also a Preposition. If this were the case it would have to be a PP rather than a P#, since it occurs without a complement in (64). (63) and (66) show that non-question VEI however always occurs with an NP[SPEC,-] complement. This would then mean that two separate lexical entries are required for question and non-question VEI.

Alternatively we might try to merge the two entries by positing a null NP complement for VEI. Unfortunately this does not solve the problem since we then have to explain why the null complement does not occur with non-question VEI. Moreover the Preposition VEI always subcategorizes for a [PROP,+] NP whilst empty categories in Fijian would appear to be consistently [PROP,-]. Note the -A Common Object suffix in (67) above. Thus positing a null NP would require the creation of a proper empty category. The classification of question VEI as a Preposition though initially attractive would force several ad hoc modifications elsewhere in our grammar.

The alternative then seems to be to treat VEI as a [MAX,+] category. So far we have only considered the possibility of its being a PP. Given (71b) however it could also be an NP[SPEC,-]. The only NP[SPEC,-] categories which occur as

complements to E ,KI and MAI are place names and this class might reasonably be expected to include the unknown place, "where".

Question VEI however differs from place Names in that it never occurs as a Subject and therefore never occurs with the Determiner KO.

(72a) e tiko e Viti Levu o Suva
 be on V. L. S.
 "Suva is on Viti Levu."

(72b) * e tiko e Viti Levu o vei
 be V. L. where
 * "Where is on Viti Levu?"

(72c) e tiko e vei o Suva?
 be where S.
 "Where is Suva?"

We could try to capture this restriction by including an [OBJ,+] specification on question VEI. This would lead to the lexical entry in (73).

(73) VEI NP[SPEC,-;OBJ,+]

(73) however fails to account for the unacceptability of (74b) where VEI occurs in an NP[SPEC,-;PROP,+;OBJ,+] slot and (74d) where it occurs in an NP[SPEC,-;PROP,-;OBJ,+] slot.

(74a) au a raici Suva
 1sg see S.
 "I saw Suva."

(74b) * au a raici vei
 1sg see where
 "I saw where?"

(74c) au a rai rarama
 1sg see light
 "I saw light."

(74d) * au a rai vei
 1sg see where
 "I saw where."

(For a discussion of the range of Verb suffixes and corresponding complements see section 1.5).

If we adopted the PP analysis in (75), we can easily account for the ungrammaticality of (72b), (74b) and (74d) since VEI would no longer be an NP

category.

(75) VEI PP[SPEC,-;OBJ,+]

The [OBJ,+] specification in (75) is need to rule out (76).

(76) * au a raica 0 vei
1sg see it where
"Where did I see it?"

VEI is here either the 2Object of the Verb RAICA in which case it is [EXT,-;OBJ,-], or it is an adjunct to the VP in which case it lacks any [OBJ] specification. In either case we have a clash with the [OBJ,+] specification in its lexical entry so (76) is rightly rejected.

Thankfully the classification of the other Q-words is less controversial. As (77) illustrates VAKACAVA lacks a preceding particle so it must be an AP or an AdvP.

(77) a tamata vakacava na tamata cakacaka
man how man work
"What sort of man was the workman?"

(Note that although the VAKA- prefix occurs quite commonly on Fijian Adverbs, it also occurs on Adjectives so it is not the exact equivalent of the English -LY suffix).

In (78) NAICA follows the Preposition E and is therefore regarded as an NP[SPEC,-].

(78) era saa yaco mai e naica na gone ?
3pl come here when child
"When did the children arrive?"

Since E is also an Inflection Milner (1956: 43) argued that NAICA was in fact a VP. In (78) however NAICA occurs between the Subject, NA GONE, and its VP, SAA YACO MAI, a slot reserved for PPs rather than Sentences. (See examples in (45) in section 7.5).

CHAPTER 9 RAISING VERBS

A Raising Verb is a verb which can remove or "raise" a Noun Phrase from its complement clause to a position in the same clause as the Raising Verb. There are two distinct types of Raising Verb in Fijian. Firstly there is a small class of raising to Subject verbs such as SEGA and then there is a larger class of raising to Object verbs such as VINAKATA.

9.1 RAISING to SUBJECT

There are only three Raising to Subject verbs.

SEGA	"to be not the case that"
RAWA	"to be possible that"
KUA	"to be forbidden to"

Gordon (1976) includes DODONU "to be (morally) right that" as a Raising to Subject verb on the basis of the variation in Inflections in (1).

- (1a) e dodonu meu biuti iko
right leave you
"It is right that I leave you"
- (1b) au dodonu me biuti iko
"I should leave you"
- (1c) e a dodonu mo cakava
right you do
"It is right that you do it."
- (1d) ko a dodonu me cakava
you right do
"You should do it."

Although I accept that the pattern of Inflections in (1) would be sufficient evidence for a raising construction, my informant however regards (1b) and (1d) as ungrammatical. I take this variation in acceptability to simply reflect dialectal differences in the class of Raising to Subject verbs. (My informant comes from Kadavu whereas Gordon's informant came from Bau). It should also be pointed out that even Gordon's informant only occasionally used DODONU in a raising construction. SEGA on the other hand was only occasionally *not* used in a raising construction. My informant shared this dislike of SEGA in non-raising constructions. In the following analysis we will therefore confine ourselves to

examples of Raising involving the three verbs above which Gordon and myself agree belong to the Raising to Subject class.

We begin by examining sentences which contain SEGA and RAWA but where Raising has not taken place.

(2a) e a sega niu mokuti iko
3sg not 1sg hit you
"It was not the case that I hit you."

(2b) e rawa ni ko vukei au
3sg may 2sg help me
"It is possible for you to help me"

Note incidentally that these sentences lack an overt Subject NP for the main clause. In fact although they co-occur with the V#[SUBJ,+] E, these verbs never have an overt Subject NP. We leave this issue for the moment and turn our attention instead to the complements of SEGA and RAWA in (2). Since these complements both contain Complementizers and Inflections they would appear to be VP[SPEC,+;SUBJ,+] categories. In (3) however the complements contain a Complementizer but lack an overt Inflection so they would appear to be VP[SPEC,+;SUBJ,-] categories.

(3a) au a sega ni _ mokuti iko
1sg not _ hit you
"I didn't hit you".

(3b) ko rawa ni _ vukei au
2sg can _ help me
"You can help me".

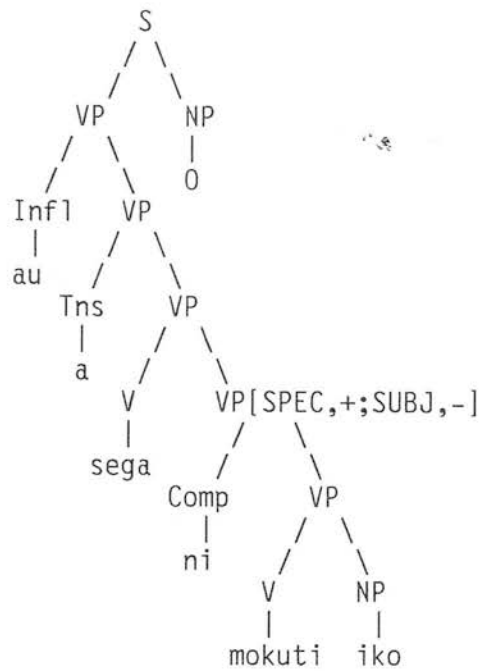
Although we had earlier sometimes analysed NI as a Comp-Infl, it always agreed with a third person singular Subject. If we were to regard NI in (3a) or (3b) as a Comp-Infl agreeing with a first or second person Subject, we would then be unable to block the incorrect examples in (4).

(4a) * e a sega (ni mokuti iko o iau)
not hit you I
"It is not the case that I hit you".

(4b) * e rawa (ni vukei au o iko)
can help me you
"It is possible for you to help me".

We instead assume that there is no Inflection in the complement clause in (3), thus producing the tree in (5) for sentence (3a).

(5)



The differing complement clauses in (2) and (3) could be licensed simply by omitting a [SUBJ] specification from the Raising Verbs' [SUBCAT] values, thus producing the lexical entries in (6).

(6) V#L[SUBCAT:VP[SPEC,+;CFORM,NI]]

(7a) * au a sega niu mokuti iko
1sg not 1sg hit you
"I didn't I hit you".

(7b) * ko rawa ni ko vukei au
2sg can 2sg help me
"You can you help me".

Unfortunately (6) will also license the ungrammatical sentences in (7) where both the main and subordinate clauses have overt non-third person Inflections.

Incidentally the unacceptability of (7a) and (7b) also indicates that we are not dealing here with an Unbounded Dependency construction since the Inflection would still be present in the subordinate clause even if the Subject had been "moved" out of the clause. This can be seen in English in the retention of the Inflection on the verb in the complement clause in (8).

(8) Who do you think lives in that house?

What we need instead of (6) is some means of relating the presence or absence of Inflections in the main and subordinate clauses so that only one non-third person

Inflection appears. We set about achieving this by introducing LRR 5 which relates the [SUBJ] value of the complement to a feature [IMP] on the main verb. [IMP] encodes whether the main verb is impersonal i.e. whether it can occur with an overt Subject or a non-third person Inflection.

LRR 5

For every lexical entry α [IMP,+;SUBCAT[β ,SUBJ,+]]
 create a new entry α [IMP,-;SUBCAT[β ,SUBJ,-]]
 where α and β are variables over sets of features

FCR 60 will then relate an [IMP,+] specification to the absence of an overt main clause Subject and the absence of first or second person Inflections.

FCR 60 [IMP,+] ==> [AGR:NP[PERS,3;NUM,SG;NULL,+]]

When as is typically the case, a Verb is [IMP,-], FCR 60 will not apply so the Subject may be overt or non-overt and may be any [PERSON] or [NUMBER].

An alternative to FCR 60 is FCR 60b.

FCR 60b [IMP,+] ==> [SUBJ,-]

Since this would make the main clauses in (2) [SUBJ,-] categories, the E which we had been assuming headed these clauses could no longer do so since it is a V#[SPEC,+;SUBJ,+] category. Alternatively the E could be a Complementizer, so leaving the Verb to head the clause. None of these repercussions arise if we adopt FCR 60 instead.

In the sentences in (3) there is an empty pronoun in Subject position as is typically the case when the Subject is first or second person. However the verbs are clearly no longer impersonal since overt pronouns can occur as in (9) to given increased emphasis.

(9) au a sega ni mokuti iko ko iau
 1sg not hit you I
 "I myself did not hit you".

Since a sentence final NP could be the Subject of the main *or* the subordinate clause the presence of an overt Subject NP is not sufficient in itself to indicate that Raising has taken place. This can only be proved by the Inflection. Moreover since the default value for Inflection is [PER,3;NUM,SG] it is impossible to prove that a sentence with a third person singular Subject such as (10a) has undergone Raising unless the Subject precedes the Verb as in (10b).

- (10a) e a sega ni tagi na tagane
 not cry man
 "It is not the case that the man cried."
 OR "The man did not cry."
- (10b) na tagane e a sega ni tagi
 man not cry
 "The man did not cry"

I take this to be another example of a syntactic ambiguity that is semantically innocuous. (see page 110).

9.2 TENSE RAISING

It might appear from sentences such as (11) that it is not only Subject NP's but also Tense that can be raised by these verbs.

- (11)
- e sega niu a mokuti iko
 au sega ni a mokuti iko
 e a sega niu mokuti iko
 au a sega ni mokuti iko
 e a sega niu a mokuti iko
 au a sega niu a mokuti iko
 * e a sega niu na mokuti iko
 * au a sega ni na mokuti iko
 "It was not the case that I hit you!"

The examples in (11) show that the Tense marker can occur in a wide variety of clauses. In (11a) it occurs in a VP[SUBJ,+] whilst in (11b) it occurs in a VP[SUBJ,-]. In (11c) it occurs in a VP[IMP,+] whilst in (11d) it occurs in a VP[IMP,-]. Tense however always precedes a VP[SPEC,-;SUBJ,+] category. We therefore introduce Tense via Rule 7.

RULE 7 VP[SPEC,-;SUBJ,-] → H , Tense

Since this rule is recursive it would however permit an infinite number of Tense markers in a single clause. We therefore revise Rule 7 as Rule 7b and add FCR 17.

Rule 7b VP[TNS,+] → H[TNS,-] , Tense

FCR 17 [TNS] ==> [SPEC,-;SUBJ,-]

Note that Rule 7b does not force a Tense marker to occur in every clause so all the examples in (11) are acceptable in our grammar. However typically the

Tense marker is given the widest possible scope and therefore occurs in the main clause. When one Tense marker occurs within the scope of another Tense marker it is either redundant as in (11e) or completely unacceptable as in (11g). It does not give rise to Past Perfect or Future Perfect tenses. Moreover given the acceptability of (12) we can not impose a global prohibition on A main clauses taking NA complement clauses.

- (12) e a nuitaka tiko niu na volia na motoka
 3sg hope cont.1sg buy car
 "He was hoping that I would buy the car".

9.3 INTERACTIONS WITH OTHER PROCESSES

The nominalization of a Fijian sentence is quite common. Nominalization involves adding the Determiner NA to indicate an NP, replacing the Inflection with the corresponding N-class Possessive Particle and omitting the Tense marker.

- (13a) au a volia na motoka
 1sg buy car "I bought the car."

- (13b) na noqu volia na motoka
 my buy car "My buying the car"

The nominalization of Raising Verbs is slightly unusual in that they can only undergo nominalization after raising has taken place.

- (14) ko sega ni lako mai
 2sg not go here
 "You didn't come."

 na nomu sega ni lako mai
 your not go here
 >Your not coming."

 e sega ni ko lako mai
 not 2sg go here
 "It is not the case that you came."

 * na nona sega ni ko lako mai
 its not 2sg go here
 "Its not being the case that you came."

The nominalization is easily accounted for if we assume that [IMP,-] categories are not listed in the lexicon as Verbs or Nouns i.e. lack any [N] or [V] specification. Thus they can appear in the nominal or verbal constructions in

(14). [IMP,+] categories on the other hand could be required to be verbal categories either via explicit stipulation in the lexicon or via a revision of FCR 60 to produce FCR 60b.

FCR 60b [IMP,+] → V[SUBJ,-]

If we had adopted FCR 61 on the other hand then we could capture the same restriction by amending it to produce FCR 61b.

FCR 61b [IMP,+] ==> V[AGR:NP[PERS,3;NUM,SG;NULL,+]]

The nominalization data thus does not decide between the Complementizer and Comp-Infl analysis of E in (2). I will therefore continue to assume that E is consistently a V#[SUBJ,+] category rather than a true Complementizer.

A sentence which has undergone Raising may subsequently undergo Topicalization as in (15).

(15) ko iko au a sega ni mokuta
 you 1sg not hit
 "You, I did not hit."

For a discussion of Topicalization see section 8.2.

A sentence which has undergone Raising may function as a Relative Clause as in (16b).

(16a) era a mokuti Wati (na gone ka sega ni ra tagi)
 3pl hit W. child not 3pl cry
 "The children who didn't cry hit Wati".

(16b) era a mokuti Wati (na gone ka ra sega ni tagi)
 3pl hit W. child 3pl not cry
 "The children who didn't cry hit Wati".

Alternatively the KA phrases in (16) could be analysed as simple Conjoined Clauses. (See section 8.3).

It is also possible of course to Raise a Subject which has already been raised as in (17).

(17a) e sega ni rawa niu vukei iko
 "It's not the case that it is possible
 for me to help you".

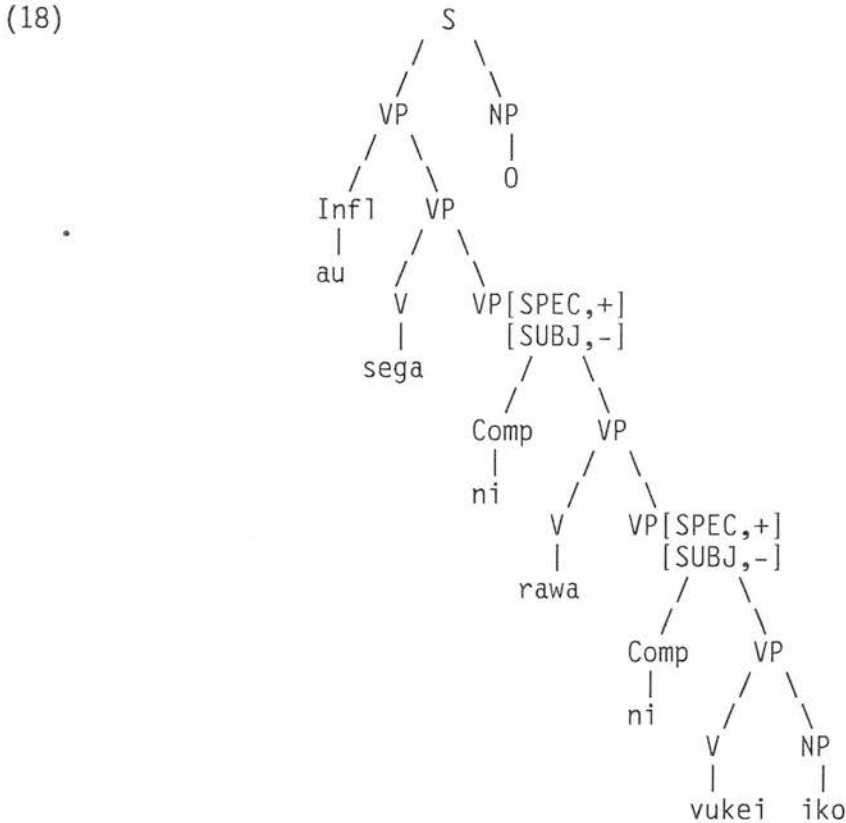
(17b) e sega niu rawa ni vukei iko
 "It's not the case that I can help you".

(17c) au sega ni rawa ni vukei iko
 "I can't help you".

(17d) e dodonu me kua ni ko a cakava
 "It's proper that it's not the case
 that you did it".

(17e) e dodonu mo kua ni a cakava
 "It's proper that you didn't do it".

The structure of sentence (17c) is shown in (18).



9.4 RAISING TO OBJECT

9.4.1 The Data

By a "Raising to Object" construction we mean one such as (19b) where one of the arguments of the subordinate verb appears as the Object of the matrix clause.

(19a)
 e nuitaka tiko ko Wati ni na volia ko Timoci na motoka
 hope cont. W. fut. buy T. car
 "Wati is hoping that Timothy will buy the car".

(19b)
 e nuitaki Timoci tiko ko Wati ni na volia na motoka
 3sg hope T. cont. W. that fut. buy car
 "Wati is hoping that Timothy will buy the car."

Given the interpretation of (19b) I take it as uncontroversial that TIMOCI is an argument of the subordinate verb VOLIA.

The evidence for TIMOCI being nevertheless in the matrix clause is as follows. Firstly it is to the left of the Complementizer NI whereas the Complementizer (when present) is always the initial element in a Fijian clause. Secondly TIMOCI comes between the verb, NUITAKI and its aspect marker TIKO which clearly makes it part of the main clause Verb Phrase. Thirdly it now triggers proper-object agreement on the verb ie. the verb suffix is -I in (19b) but -A in (19a). Finally the matrix clause Subject, KO TEVITA, intervenes between TIMOCI and the complement clause.

Raising to Object in (19b) should not be confused with Subordinate clause Topicalization in (20b).

(20a) e a nuitaka tiko o Tevita
 3sg hope cont. D.
 ni na solia na ivola vei Timoci o Paula.
 fut. give book T. P.

"David was hoping
 that Paul would give the book to Timothy".

(20b) e a nuitaka tiko o Tevita
 3sg hope cont. D.
 ni na ivola e na solia vei Timoci o Paula.
 book fut. give T. P.

"David was hoping that
 the book Paul would give to Timothy."

Although NA IVOLA is not in the same position in (20a) and in (20b) it is not in the matrix clause in (20b) since it possesses none of the four characteristics mentioned above. (see section 8.2 for the analysis of such constructions)

The Raised Object can be linked with various different positions in the subordinate clause. Along with the Subject to Object Raising in (19b) we can have Object to Object Raising in (21b), Prepositional Object to Object raising in (22b), Possessor to Object Raising in (23b) and even Object to Object Raising

across two clause boundaries in (24b). (The Raised constituent in (21b)-(24b) has been underlined).

(22a) o Tevita e a nuitaka tiko ni vukei Bale o Wati.

(22b) o Tevita e a nuitaki Bale tiko ni vukea o Wati.

"David hoped (that) Wati would help Bale."

(22a) o Tevita e a nuitaka tiko
ni na solia na ivola vei Timoci o Paula

(22b) o Tevita e a nuitaki Timoci tiko
ni solia na ivola vei koya o Paula

"David was hoping Paul would give the book to Timothy."

(23a) o Tevita e a vakabauta tiko
ni rua na nona motoka o Paula

(23b) o Tevita e a vakabauti Paula tiko
ni rua na nona motoka

"David believed (that) Paul had two cars."
lit. "Paul's car is two."

(24a) o Tevita e a nuitaka tiko
ni sega ni vukei Bale o Wati

(24b) o Tevita e a nuitaki Bale tiko
ni sega ni vukea o Wati

"David hoped (that) Wati did not help Bale."

A Raised Object can therefore be linked with any position in the subordinate clause. This however is not the same as saying that Raising to Object can apply to any NP. As (25) and (26) illustrate there appear to be other restrictions on the application of Raising to Object.

(25a) o Tevita e a nuitaka tiko
ni na solia na ivola vei Timoci o Paula.

(25b) * o Tevita e a nuitaka tiko na ivola
ni solia vei Timoci o Paula.

"David was hoping Paul would give the book to Timothy."

(26a) o Epeli e a nuitaka tiko
ni na kauta na niu ki na vale o Paula.

(26b) * o Epeli e a nuitaka tiko na vale
ni kauta kina na niu o Paula.

"Abel hoped Paul would take the coconuts to the house."

9.4.2 The Analysis

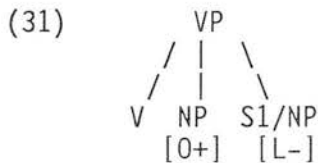
Given examples such as (24b) above where Raising to Object involves a dependency over more than one clause boundary plus the fact that the extraction site can be marked by an overt pronominal, it seems clear that Raising to Object is an Unbounded Dependency in Fijian. Our analysis of it will therefore use [SLASH]. We introduce the dependency via Rule 4 and given NUITAKA the lexical entry below.

RULE 4 VP → H#L , Y , VP/X

NUITAKA V#L [SUBCAT: NP[ANIM,+;OBJ,+];
SUBCAT2: VP[SPEC,+;SUBJ,+;CFORM,NI]/X]

(Note that the feature [ANIM] was independently motivated in section 5.2.3). As well as being included in the lexical entry for NUITAKA, the [SLASH] has to be mentioned in Rule 4 to prevent the percolation of the feature to the mother VP. Thus the CAP must apply and make Y the [SLASH] value in all legal projections from Rule 4.

Given Rule 4 (21b)-(24b) must involve the local tree in (31) where an NP[OBJ,+] occurs to the left of a VP[LEX,-] i.e. the S1/NP.



This tree will however violate LP 4c.

LP 4c [LEX,-] < [OBJ,+]
LP 4d [V,-;LEX,-] < [OBJ,+]

We therefore replace this LP rule with LP 4d so that only non-lexical NPs and PPs are required to precede the Object. (See section 7.4) LP 4d will ignore the S1/NP category in (31) and so this tree will be acceptable.

As we have seen in the examples above, verbs which permit Raising to Object also occur with simple clausal complements. The converse is not true. Some verbs such as KILA may occur with a clausal complement but without allowing Raising to Object.

(32a)

o Epeli e a kilaa tiko ni sega ni vukei Bale o Wati.

(32b)

* o Epeli e a kilai Bale tiko ni sega ni vukea o Wati.
"Abel knew that Wati did not help Bale."

The ungrammaticality of (32b) seems to lie in the fact that KILA, like its English counterpart KNOW, takes either a person or a proposition as its second argument. As we parse (32b) we first think that KILA has a person as its argument but then discover that that it in fact takes a proposition.

Whatever the cause of the ungrammaticality in (21b) we still want to capture the fact that all verbs which trigger raising also occur with simple complement clauses. We therefore add the Lexical Redundancy Rule in (33).

(33)

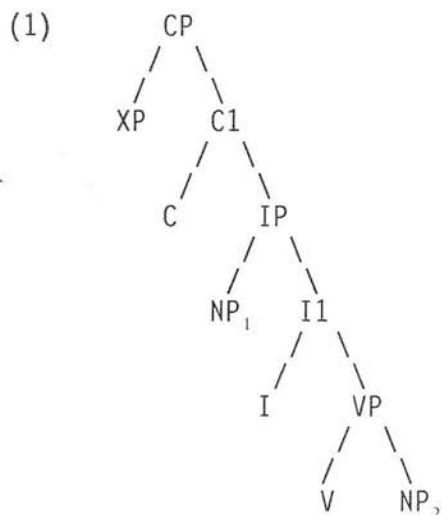
For every lexical entry $V\#L[\text{SUBCAT2:VP}[\alpha;\text{SLASH},X];$
 $[\text{SUBCAT:NP}]$

create a new entry $V\#L[\text{SUBCAT:VP}[\alpha]]$
where α is a variable over a set of features

CHAPTER 10 GOVERNMENT AND BINDING

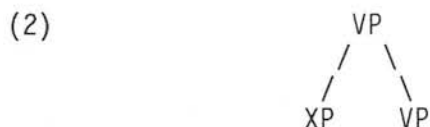
10.1 Multiple Adjunction to IP

Chomsky (1986), henceforth "Barriers", assumes a D-Structure as in (1).
(Linearization as for English)



Although Complementizers and Inflections have bar projections in (1) they differ from Nouns, Verbs, Adjectives and Prepositions in that only the latter group are "lexical". As we shall see later this distinction is exploited in the definition of a Blocking Category and hence of a Barrier.

The Move Alpha transformation can alter the structure of (1) by creating Adjunction structures such as in (2).



It is only possible to adjoin phrasal categories to non-argument phrasal categories. This means that we can not adjoin to NPs or Clausal Complements. As Lasnik however pointed out sentences such as (3) indicate that it is possible to adjoin to an IP.

(3) Bill thinks that_{ip}(John_{ip}(I like t))

"Barriers" fn.6 p.92

Evidence for IP Adjunction can also be found in Fijian. Consider the complement Clauses in (4).

- (4a) e a nuitaki tiko _{CP}(ni o Wati e na raici Bale)
 b e a nuitaki tiko _{CP}(ni o Bale e na raica o Wati)
 c e a nuitaki tiko _{CP}(ni o Bale o Wati e na raica)
 d * e a nuitaki tiko _{CP}(ni o Wati o Bale e na raica)
 3sg past hope cont. that W. B. 3sg fut see

"It was hoped that Wati would see Bale."

NI is a Complementizer and E is an Inflection (= Subject agreement marker). An NP may intervene between the Complementizer and the Inflection. This NP may be an Agent as in (4a) or a Patient as in (4b). It is also possible for two NPs to intervene if their ordering is non-agent before agent. The opposite ordering as in (4d) is unacceptable.

Since the D-Structure in (1) possesses a single NP slot between C and I; the IP specifier position, [NP,IP], our initial assumption might be that this is the position occupied by the pre-Inflection NPs in (4a) and (4b). However although the dominance relations in (1) are assumed to be universal the linearization of sister constituents is not so the IP specifier need not always precede the Inflection. We therefore need further proof that a pre-Inflection NP is indeed the IP specifier.

We note firstly that the Inflection agrees with one of the NPs in the clause. When this NP is third person singular then the Inflection is E but when the the NP is third person plural then the Inflection is ERA. Compare (4a) and (4b) with the examples in (5).

- (5a) * e a nuitaki tiko ni o Wati era na raici Bale.
 b e a nuitaki tiko ni na gone era na raici Bale.
 c * e a nuitaki tiko ni o Bale era na raica o Wati.
 d e a nuitaki tiko ni o Bale era na raica na gone

"It was hoped that Wati/the children would see Bale"

There is clearly an agreement process here reflecting the co-indexing of the Inflection with one of the NPs; the standard assumption being that the Inflection is co-indexed with its specifier.

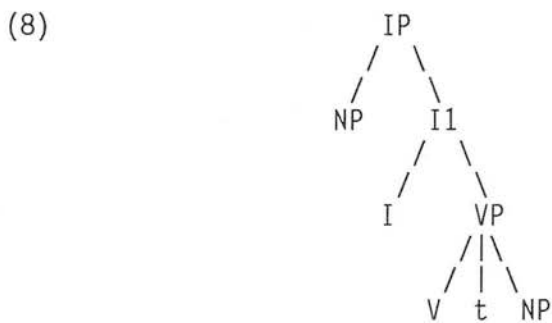
- (6) Infl is co-indexed with [NP,IP]

Let's for the moment assume that the pre-Inflection NP is in specifier position. As the examples in (5) show the Inflection does not always agree with this NP. Therefore either this is not the IP specifier position or there is some other means of identifying the co-indexed NP. One alternative means of identifying the NP is given in (7).

(7) Infl is co-indexed with the NP to which it assigns Case.

Since Case is assigned under government and every head can govern its specifier (7) might seem to be a mere paraphrase of (6). Even if this were true, (7) would still arguably be an improvement on (6) in that agreement is thereby related to government, one of the central concepts in the Government & Binding framework.

(6) and (7) however differ empirically in that only (7) permits a non co-indexed NP such as O BALE in (5d) to occupy the IP specifier position. (8) displays the structure that we are assuming for the moment underlies (5d).



O BALE in (5d) does not agree with Infl so it must receive Case from elsewhere. Since it receives its Theta role from the verb we therefore assume that its D-structure position was as a sister to the verb and that the verb also assigned it Case. Since O BALE now occupies the IP specifier position the co-indexed NP, NA GONE, must be a verbal complement. Hence the presence of two complements in (8). Infl cannot assign case to this position since the VP is a barrier to government and hence to Case assignment. If however we had a V to I movement then VP would cease to be a barrier since VI would be a lexical item and could L-mark the VP. Moreover since VI is arguably non-distinct from the Verb trace, VP could not become a barrier via the Minimality Condition. (See Chomsky, 86: 42). An alternative means of voiding barrierhood would be to adjoin the NP to the VP so that the VP no longer excluded the NP.

Given sentences such as (5d) where the pre-inflection NP is not co-indexed with Infl it is clear that Infl must assign Case to the right. But what of sentences such as (5b) where the co-indexed NP precedes Infl? Has this NP been moved from the right of Infl or does Infl here assign Case to the left?

This second non-movement analysis is extremely dubious in that it flies in the face of most standard assumptions with regard to the directionality of Case assignment.

Koopman (1984: 210) makes the claim that direction of Case assignment is a parameter set for *all* the categories in a given language. For example if, as in Fijian, Adpositions assign Case to the right then Infl should also assign case to the right. This assumption runs into difficulties with SVO languages such as English where Infl is assumed to assign Case leftwards although the Verb assigns Case rightwards. Chomsky (1986b: 194) therefore assumes that direction of Case assignment is uniform across *lexical* categories thereby permitting the non-lexical Infl to assign Case leftwards in SVO languages.

Obviously if we adopt Koopman's assumption about uniform direction of Case assignment then there must be a movement of the co-indexed NP in (5b). Even under Chomsky's weaker assumptions the fact that we have already shown that Infl must sometimes assign Case to the right could be taken as implying it never assigned Case to the left on other occasions.

Support for (5b) involving a leftward movement of the co-indexed NP can I believe be found in a comparison of "ordinary" clauses and nominalized clauses. As the examples in (9) illustrate the same particles, TIKO, SA etc, occur in both types of clause. The clauses however differ in that "ordinary clauses" have a (possibly null) Complementizer and an Inflection whereas nominalized clauses have a Determiner, NA, and a Possessive, here NONA or NODRA.

(9a)

e	sa	yadra	mai	na	koli	"the dog is waking up"	
na	nona	sa	yadra	mai	na	koli	"the dog's waking up"

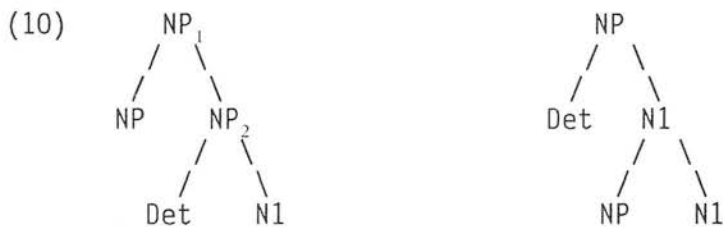
(9b)

era	veitara	tiko	na	gone	"the children are playing tag"	
na	nodra	veitara	tiko	na	gone	"the children's

- (9c)
 na gone era veitara tiko
 * na (na gone) nodra veitara tiko
 * (na gone) na nodra veitara tiko

As we can see from (9a) and (9b) the Possessive like the Inflection agrees with an NP. However as can be seen from the ungrammatical examples in (9c) this NP can only occur to the right of the Possessive. Given the very strong distributional and semantic, not to mention morphological parallels between Possessives and Inflections this would be somewhat unexpected if Inflections could assign case to the left.

Instead I take the data in (9) as further support of exclusively rightward case assignment by Infl. If however we assume that Poss and Infl behave identically we then need some independent motivation for the ungrammaticality of movement to pre-Poss position in (9c). Two possible adjunction structures underlying (9c) are shown in (10).

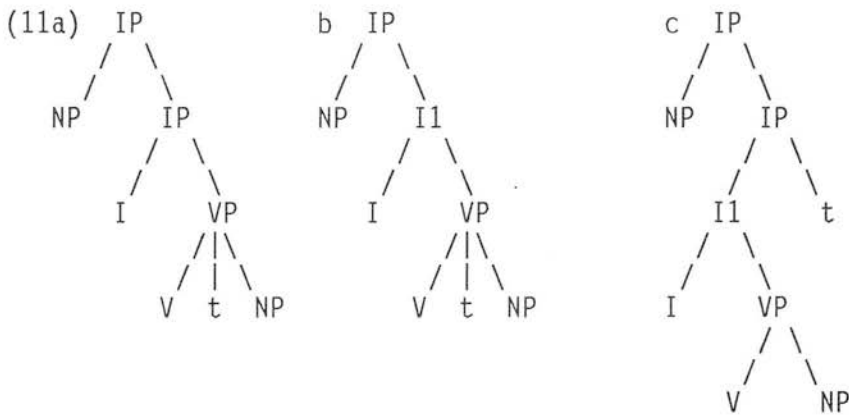


According to "Barriers" however both these adjunction structures are illegal. (10b) is illegal simply because $N1$ is not a maximal category and adjunction is only permitted to a maximal category. (10a) would be ruled out by the Theta criterion. NP_1 is an argument and is therefore Theta marked. It is however impossible for this Theta marking to percolate down to NP_2 since Theta marking can not percolate through Adjunction structures resulting from Move Alpha. This is possibly a result of projections being defined at D-Structure so that NP_2 in (10a) is not the head of NP_1 . (see Chomsky, 1986: 16)

Note incidentally that an explanation of illegal adjunctions in terms of a violation of Theta theory is not consistent with Chomsky's twin assumptions that Infl Theta marks VP and that VP Adjunction is permissible. Chomsky's solution is to regard the Theta marking of VP as optional. (Barriers: 95 n54). An

alternative solution would be to assume that only *lexical* heads can assign Theta roles and redefine "L marking" so that it did not depend upon Theta role assignment. A revision along these lines is presented in Baker (1988: 56) who defines barrierhood in terms of "selection" rather than "L-marking".

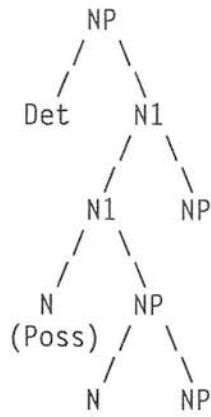
Comparing the structure of ordinary clauses and nominalized clauses then supports the conclusion that Infl assigns case to the right and that all pre-Inflection NPs have been moved to that position. This information however still vastly underdetermines the structure of the clause. More precisely it does not prove that the pre-Inflection NP is an IP specifier as opposed to an IP adjunct. The specifier or adjunct analysis will depend upon the D-structure position we assume for the fronted Agent NP in (5b). The structures in (11) illustrate some possibilities.



Although (11a) could satisfy the case assignment requirements we have been discussing, this structure would be rejected by the Extended Projection Principle since there is no IP specifier. This then leaves us with the structures in (11b) and (11c). (11c) is the more standard structure in that the co-indexed NP is base generated in IP specifier position. In fact the internal structure of the IP differs from the structure in (1) only in the linearization of I1 and its specifier.

Most of the evidence seems to point towards the structure in (11c). Firstly this structure parallels the nominalized clause which we show in full in (12).

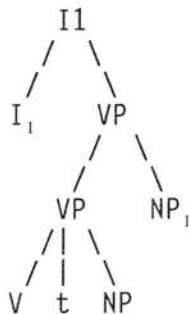
(12)



Secondly the structure in (11c) conforms to my informant's intuitions about the unmarked word order in Fijian clauses, namely Infl-Verb-NP₁-NP₂ where NP₂ is co-indexed with Infl. This ordering, otherwise known as VOS ordering, is assumed by Milner (1956), Schuetz (1985) and Keenan to be the unmarked ordering, although it is only Keenan (1978: 278) who explicitly discusses unmarked orderings. His main motivation for choosing VOS was the ungrammaticality of pre-Inflection NPs in Relative Clauses thereby indicating SVO cannot be the unmarked order.

The structures in (11) also make different predictions about the relative markedness of orderings. With (11b) we must assume that Infl always assigns case as a result of a V to I move eliminating VP as a barrier. The ordering in (5d) where the non co-indexed NP, alias O, precedes Infl would then be no more marked than the ordering in (5b) where the co-indexed NP, alias S, precedes Infl, since both involve compulsory V to I movement and an optional NP movement. In fact the OVS ordering in (5d) is much more uncommon than the SVO ordering in (5b). Moreover (11b) can only account for VOS being more common than VSO by assuming that the co-indexed NP is adjoined to VP in VOS structures so producing (13).

(13)



NP_i in (13) can be case marked by Infl without a V to I move whereas VSO ordering would require this V to I move so that VI could case mark NP_i in its D-Structure position. If Head-to-Head moves were more marked than the movement of phrasal categories we would have accounted for VSO being more marked than VOS.

Assuming the VP-Adjunction in (13) however creates another problem. Linearization of most sisters in GB results from the direction of Case assignment or Theta marking. Those sisters not ordered by either of these are assumed to obey a default ordering. (Chomsky 86b: 160). This means that the IP specifier in (11b) and NP_i in (13) should either both be on the right or on the left of their sister. The fact that this is not the case means that our linearization requirements contradict the Adjunction structure we had to assume in (13). This provides further evidence that (11b) is not the correct D Structure.

If we assume the structure in (11c) however we immediately account for VOS being the unmarked ordering. We also account for SVO being preferred to OVS since the latter involves movement across VP which is a barrier whilst SVO does not involve the crossing of a barrier.

The one piece of evidence in support of (11b) is the ordering of constituents in the sentences in (14).

- (14) e a vakamatea (na toa) (e na iseIe) (o Bale)
 e a vakamatea (e na iseIe) (na toa) (o Bale)
 e a vakamatea (e na iseIe) (o Bale) (na toa)
 e a vakamatea (o Bale) (na toa) (e na iseIe)
 e a vakamatea (o Bale) (e na iseIe) (na toa)

"Bale killed the chicken with a knife"

In (12) there seems to be complete freedom in the ordering of the three constituents O BALE, NA TOA and E NA ISELE. Since, O BALE, is co-indexed with Infl (11c) would predict that it is in IP specifier position in all the examples in (14). Assuming for the moment that the rightmost phrase was in CP specifier position, that would mean that we need at least one adjunction to IP to account for the ordering in (14d) and (14e). (Alternatively we might assume that the rightmost phrase was also adjoined to the IP). The adjunction would however be suspicious on two counts. Firstly we have just assumed in (11c) that a

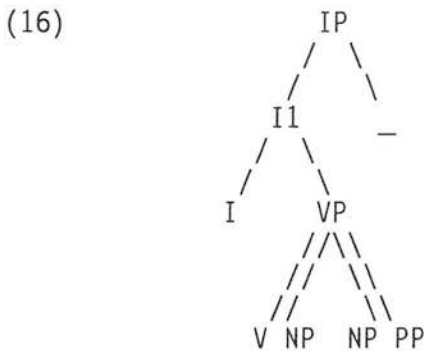
phrase adjoins to the left of IP whereas here the adjunction would be to the right. Secondly although multiple adjunctions are permissible within the framework outlined in "Barriers" and will in fact be used later in our analysis, I regard multiple adjunction as highly marked phenomena only to be used as a last resort.

The sentences in (15) confirm that a simple movement analysis cannot account for the orderings in (14).

- (15) o Wati e a raica o Bale
 * e a raica o Bale (o) Wati
 * e a raici o Bale (o) Wati

"Bale saw Wati".

In (15) the Patient is a proper NP, (O) WATI. Although this NP can move to the left it is impossible to move it to the right, regardless of the suffix on the verb or the presence or absence of the Determiner, O. This seems fairly conclusive evidence that Patient NPs are not moved leftwards. How then do we account for the orderings in (14)? Quite simply by assuming that all three constituents are sisters of the verb as in (16).

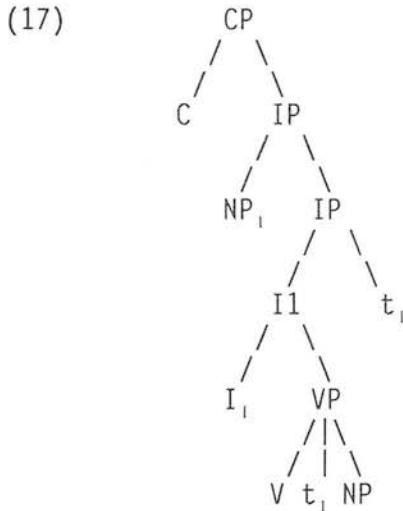


The orderings in (14) result from the fact that Case assignment in Fijian does not have an adjacency requirement. Infl and V can therefore assign case to any NP to their right that they govern. Since the Case Filter does not apply to a PP it too is free to assume any position to the right of the verb. For a more detailed discussion of NPs and Case assignment see section 10.3.

An added advantage of the structure in (16) is that it does away with the need for indirect Theta marking i.e. the Theta marking of a non-sister. If we assume as in (11c) that the NP co-indexed with Infl is base generated in IP

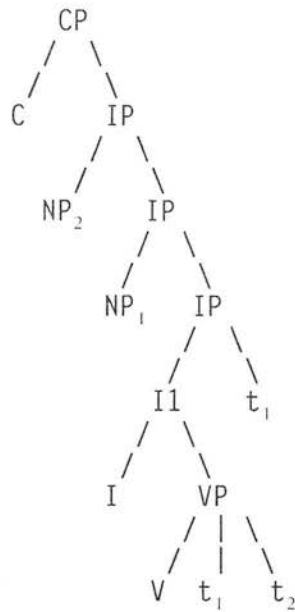
specifier position then this NP must receive indirect Theta marking from the Verb since it is not a complement of the Verb and yet receives a Theta role from the verb. Even if it is maintained that the VP as a whole Theta marks the NP, this is still an example of indirect Theta marking.

It would seem therefore that there is evidence to support the co-indexed NP, alias the Subject, being base generated under VP but there is no support for the IP specifier being in pre-Inflection position. This then leaves us with a structure as in (17) for the subordinate clause in (5b).



If pre-Inflection NPs are then IP adjuncts this forces us to the conclusion that when two such NPs are present as in (4c) we must have a double IP adjunction. This is clearly a very marked structure but one we must assume since there is no other position available for the pre-Inflection NPs. Thus we arrive at the structure in (18) for sentence (4c).

(18)



If it is possible to adjoin twice to IP we need some independent motivation for rejecting sentences such as (4d) where the Agent precedes the Patient. The difference between the two structures in (4c) and (4d) is shown in (19).

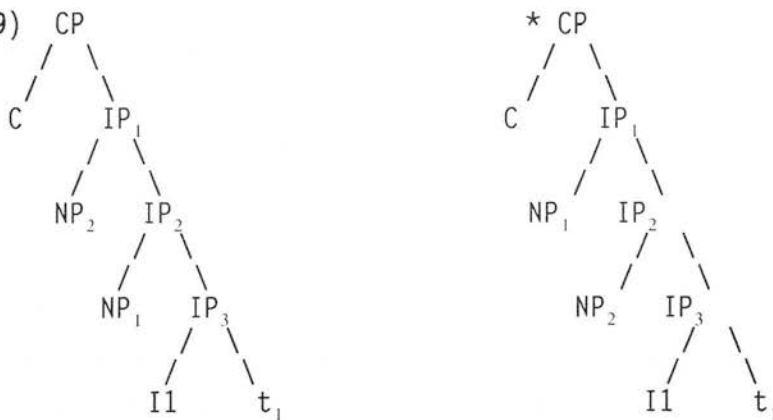
(4c)

e a nuitaki tiko ni_{NP}(o Bale) ni_{NP}(o Wati) e na raica

(4d)

* e a nuitaki tiko ni_{NP}(o Wati) ni_{NP}(o Bale) e na raica
 "It was hoped that Wati would see Bale."

(19)



Before we attempt to account for the data in (4c) and (4d) it must be pointed out that the Agent before non-Agent ordering in (20b) is slightly more acceptable. To quote my informant, "This one might just pass the mark".

(20a) e a nuitaki tiko
 ni na solia na ivola vei Bale o Wati.

(20b) ? e a nuitaki tiko

"It was hoped that Wati would give the letter to Bale"

(20b) might suggest that both orderings of pre-Inflection NPs were grammatical and that (4c) and (4d) merely express a *preference* for non-agent before agent ordering. An explanation would nevertheless still have to be provided for this preference. One possibility would be that the less favoured ordering involved the crossing of an extra bounding node. Unfortunately no matter what moves we assume in (19) the movement of NP₁ in (19b) cannot involve the crossing of more Barriers than the movement of NP₂ in (19a).

Instead we can attribute the marginal status of (20b) to the fact that although it is syntactically ill-formed the unambiguous assignment of Theta roles to the NPs enables us to arrive at a unique interpretation. Semantics triumphs over syntax!

But what then is the source of the syntactic ill-formedness of (19b)? (4c) and (4d) clearly indicate that NP movement in Fijian is asymmetrical in that Patient NPs but not Experiencer NPs can move across IP₂. Such asymmetries are standardly explained in terms of the interaction of the ECP with the different positions of Experiencer and Patient traces. The Empty Category Principle requires every trace to be properly governed i.e. Theta governed or antecedent governed. Since the D-structure position of an Experiencer is assumed not to be a complement position it would have to be antecedent governed. For the purposes of our present discussion though we need only make the weaker assumption that the trace governed by NP₁ is not in a complement position. (For a discussion of the possible D-structure positions of Subjects see pages 185ff). A Patient trace on the other hand is the sister of a zero level category, the verb, and is therefore Theta governed. Whether or not it is also antecedent governed is irrelevant (*pace* "Barriers"p.79). The asymmetries in (4c) and (4d) will now follow if we assume that IP₂ in (19b) constitutes a barrier to government of the Experiencer trace.

Of course if we were to take up Chomsky's suggestion that *all* traces must be antecedent governed we would in so doing have had to abandon our explanation of the asymmetries in (4c) and (4d). Instead I will maintain the earlier view that

Theta government suffices for proper government and submit the examples in (4) as counter-examples to Chomsky's claim.

Let's now consider Chomsky's definition of a barrier.

(21) γ is a BC for β
iff γ is not L-marked and γ dominates β

(22)
 γ is a barrier for β iff (a) or (b):

- a. γ immediately dominates δ , δ a BC for β ;
- b. γ is a BC for β , $\gamma \neq IP$

"Barriers" p.14

Chomsky assumes that γ in (21) and (22) is not only a maximal projection but also a full category. Given the data in (19) it would appear however that at least in (22) γ can be a *segment* of a maximal category since it is IP_2 that appears to be the Barrier to government of the trace.

If a segment can be a Barrier we would then expect γ in (21) also to be a segment rather than a full category, since according to (22b) Blocking Category and Barrier are typically synonymous. Let us then examine the repercussions of assuming that maximal *segments* can constitute Barriers or Blocking Categories.

10.1.1 Segments as Barriers and BCs

We first turn to the definitions of Government and Exclusion.

α governs β iff α m-commands β
and there is no barrier γ , a barrier for β ,
such that γ excludes α .

α excludes β if no segment of α dominates β

"Barriers" p.9

In the definition of Exclusion the assumption had been that α was a full category. Since we have assumed that α is instead a segment we need to re-interpret references to α 's segments. Let's assume that a segment of the segment α means any other segment that combines with α to make up a full category. IP_1 in (19) would then be a segment of the segments IP_2 and IP_3 . Neither of these could then

exclude NP_1 in (19b) since IP_1 dominates NP_1 . To maintain that they did exclude NP_1 would require us claiming that either IP_1 did not dominate NP_1 or that IP_1 was not a segment of the same category as IP_2 and IP_3 . Neither of these alternatives is very attractive!

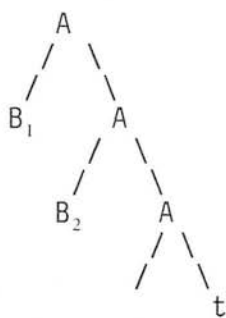
Firstly IP_1 stands in the same relationship to NP_1 in (19b) as IP_2 does to NP_1 in (19a) so there appears to be no justification for regarding the latter but not the former as a dominance relationship. The second alternative is unattractive in that it involves assuming two IP categories in (19) whereas there was only one in the D-Structure underlying it. Even if we permit this we must then explain why a category can contain no more than *two* segments regardless of the number of Adjunctions which had taken place.

Of course we could always replace Exclusion with some other relationship between Barrier and governor. One possibility is the C-commanding relationship outlined below.

α governs β iff α m-commands β
and there is no barrier γ , a barrier for
 β , such that γ does not C-command α

The effect that this c-command requirement would have on government in an Adjunction structure can be illustrated in (23) below.

(23)



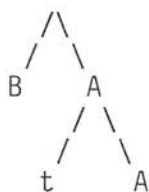
Assume that A is not L-marked and that all segments within A are therefore potential Barriers for government of the trace. All segments of A C-command B_2 so B_2 can govern the trace. The lowest segment of A however does not c-command B_1 so B_1 cannot govern the trace.

This could explain the data in (19) if it were not for the fact that Chomsky regards IP as a defective category which can only become a Barrier by

inheritance. (see (22) above). There is no BC from which IP_3 can inherit Barrierhood so our explanation will fail. Moreover although IP_2 could be argued to inherit Barrierhood from IP_3 , IP_2 c-commands NP_1 in (19b) so it should not prevent government by NP_1 .

Of course we could always claim that IP is not a defective category and so allow it (when not L-marked) to be an inherent Barrier. Since it is not a Barrier in English it presumably is L-marked by the Complementizer. Conversely since an IP segment is a Barrier in (19b) IP must *not* be L-marked in Fijian. We would then have to find some independent explanation for this cross-language variation.

Finally we need to re-interpret the notion of dominance in the definition of a Blocking Category. Consider the structure in (24).



Assume that A is not L-marked and is not IP. According to "Barriers" B can nevertheless govern the trace because the full category A does dominate the trace. The upper A segment however would appear to dominate the trace. Since we have assumed that a segment can be a Blocking Category we now have a Barrier for government of the trace.

In "Barriers" there is however a slight ambiguity in the use of the term DOMINATES so (21) could be paraphrased as in (25).

- (25) γ is a BC for β
 iff γ is not L-marked
 and all segments of γ dominate β

As I earlier suggested we could interpret "a segment of the segment γ " to mean all other segments that combine with γ to form a full category. Given this interpretation the upper A segment in (24) would not qualify as a BC and government of the trace would be possible. This solution is admittedly rather counter-intuitive since although we earlier assumed that a BC was a segment, in our definition of a BC we had to refer to dominance by the full category rather than by this segment.

Taking γ in (21) and (22) to be a segment will then involve discarding the concept of Exclusion in the definition of government, treating IP as a non-defective category but permitting cross-language variation in the properties of the Complementizer and re-introducing dominance by a category in our definition of BC segments. When taken together I believe these repercussions justify us questioning our initial assumption that segments were BCs and Barriers.

10.1.2 Category Barriers and BCs Revisited

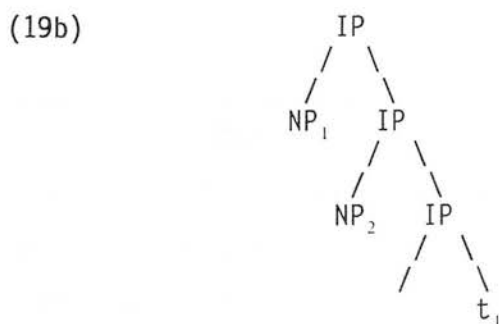
Let us assume instead that the approach outlined in "Barriers" was correct i.e. γ in (25) and (26) is a full category and IP is a defective category. To prevent government across two IP segments we will then have to add a new clause referring specifically to BCs to our definition of government.

- (26) α governs β
 iff 1. α m-commands β
 2. any γ , a barrier for β , does not exclude α
 3. any δ , a BC for β , m-commands α

In line with the definition of domination by a category we define m-commanding by a category as follows.

- (27) a category α m-commands β
 iff all segments of α m-command β
- (28) a segment α m-commands β
 iff all maximal segments dominating α dominate β

Let us check this new definition of government against the ungrammatical structure in (19b) repeated below.



The whole IP category is a Blocking Category for the trace. According to clause for NP_1 to govern the trace the IP category must m-command NP_1 . This in turn

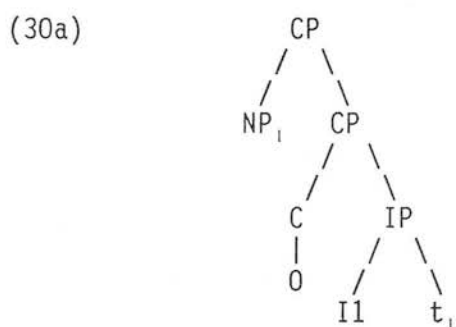
means that all IP segments must m-command NP_1 . The lowest IP segment however does not m-command NP_1 so government of the trace will fail. The NP_2 position is however m-commanded by each IP segment so this position can govern the trace as in (19a).

It might appear that we have accounted for the data in (19) only at the expense of adding an otherwise unmotivated clause to the definition of Government Note however that Chomsky's definition of Government referred back to Barriers which were defined as in (29).

- (29) γ is a barrier for β iff (a) or (b):
- a. γ immediately dominates δ , a BC for β ;
 - b. γ is a BC for β , $\gamma \neq IP$

It will be obvious that the clause (29a) has much the same effect as the clause we added to the definition of government in that both permit government across a Blocking Category provided the governor is not too superior to the BC.

They differ however in that "Barriers" permits a greater level of superiority than does our definition. An example of this can be seen in structure (30a) which is a possible analysis of (30b).



- (30b) o Wati o_{IP(I1(e a raici Bale) t1)}
 "Wati saw Bale"

According to the "Barriers" definition NP_1 can govern its trace in (30) since although CP is a Barrier it does not exclude NP_1 . According to our definition however government of the trace fails because the Blocking Category IP does not m-command NP_1 . Thus Subject-initial sentences in Fijian cannot involve CP Adjunction.

Clause 3 in (26) is then simply a more stringent formulation of Clause (22a) in "Barriers" such that given the addition of Clause 3 it is possible to dispense with clause (26a). Overall then our re-definition of government involves the same number of clauses as the "Barriers" definition.

10.2 Redefining Governing Category

The presence of IP adjunction structures also complicates the definition of a Governing Category in the Binding Theory. Aoun (1985) defines a Governing Category as follows.

β is a *governing category* for α
 iff β is the lowest phrasal projection containing
 α , a governor of α , and a SUBJECT accessible to α .

(Aoun 1985: 33)

(I have taken the liberty of replacing Aoun's infelicitous reference to a "minimal maximal projection" with "lowest phrasal projection"). This definition means that the governing category in a Fijian clause will be an IP. In a structure such as (17) however we have three IP segments. Which of these is the governing category?

In order to discover this we need to examine the sentences in (31) to (33).

(31a) e a nuitaki tiko ni o Wati_i e a raici Bale o koya_i
 hope cont. W. see B. she
 "It was hoped that Wati, she had seen Bale".

(31b) e a nuitaki tiko ni o Wati_i e a raici koya_i o Bale
 hope cont. W. see her B.
 "It was hoped that Wati, Bale had seen her".

(32a)
 e a nuitaki tiko ni o Wati_i o Bale e a raica o koya_i
 "It was hoped that Wati, she had seen Bale".

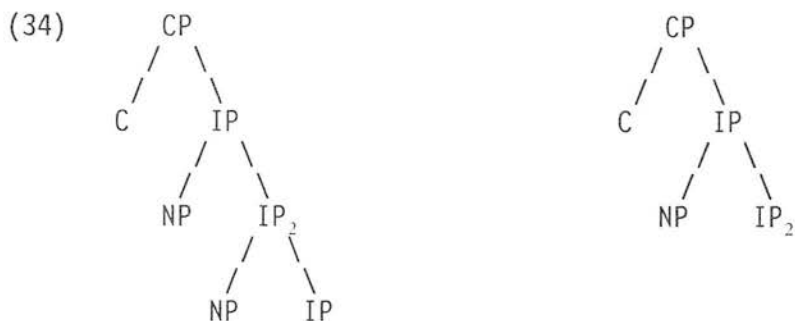
(32b)
 * e a nuitaki tiko ni o Wati o Bale_i e a raica o koya_i
 "It was hoped that Wati, she Bale had seen".

(33a)
 e a nuitaki tiko ni o Wati_i o Bale e a raici koya_i
 "It was hoped that Wati, Bale had seen (her)".

(33b)

* e a nuitaki tiko ni o Wati o Bale₁ e a raici koya₁
 "It was hoped that Wati had seen her, Bale".

The structures underlying (32) and (31) are shown in (34a) and (34b) respectively.



Given the data in (31) to (33) it would seem that IP_2 must be the Governing Category in Fijian. If we had only the data in (31) there would be no need to alter Aoun's definition of a Governing Category since here IP_2 is the lowest phrasal category to contain the Pronoun, its governor and an accessible SUBJECT, namely Infl. We must however modify Aoun's definition in the light of structure (34a) to ensure that IP_3 is not taken to be the governing category.

There are at least two ways in which we could make this ammendment. Firstly we could simply define the notion "phrasal projection" so that it referred to the second top segment in an adjunction structure. This is undesirable firstly because it is an ad-hoc stipulation and secondly because it distinguishes between adjunction structures and ordinary structures.

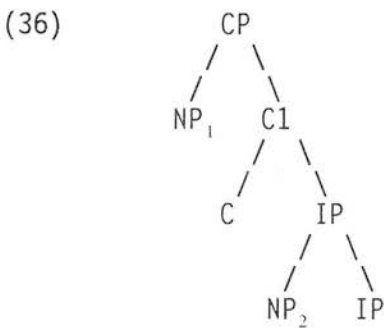
An alternative means of modifying Aoun's definition would be to replace the reference to "lowest phrasal projection" with "lowest *governed* phrasal projection". This modification is clearly preferable to the one above in that it does not distinguish between adjunction structures and ordinary structures. It is also arguably less ad-hoc in that it defines Governing Category by referring to one of the primitive concepts of our theory, namely government.

As in Aoun's original definition we take government here to mean government by a zero level category. In (31) to (33) above this will mean government by the overt Complementizer, NI. As the data in (35) shows main clauses show the same pattern of acceptable binding as in (32) and (33) above.

- (35a) o Wati_i o Bale e a raica o koya_i
 b * o Wati o Bale_i e a raica o koya_i
 c o Wati_i o Bale e a raici koya_i
 d * o Wati o Bale_i e a raici koya_i

Although there is no overt governor for IP₂ in (35) it is still clearly the Governing Category. I therefore assume that even an empty category can be an acceptable zero level governor when defining a Governing category.

Since there is no overt Complementizer in (35) it is of course possible to analyse the leftmost NP, O WATI, as being in CP specifier position so producing the structure in (36).



This is however incompatible with our definition of Governing Category. Since Comp can govern the lower IP in (36) this IP will be the Governing Category. It should therefore be possible for the second NP to bind a Pronoun but as (35b) and (35d) show, such binding is unacceptable. The Governing Category can only be the category which excludes NP₁ but dominates NP₂. In (36) this would mean that C1 would have to be regarded as the Governing Category but this raises at least two problems. Firstly our set of Governing categories would now comprise NPs, governed IPs and ungoverned C1s. This is not a very natural class of categories! Secondly we have to complicate the definition of Governing Category so that we know when to choose a governed IP as opposed to an ungoverned C1 as Governing Category.

There is in fact independent motivation for rejecting (36) in favour of double adjunction to IP as in (33a). There are two ways in which an NP could end up adjoined to IP. Firstly it could be moved to this position at S-Structure as a result of Move Alpha. Alternatively it could be base generated in this position at D-structure. Either way the NPs in (31), (32) and (34) would need to be case marked in order to satisfy the Case Filter. The only possible source for their case

marking is the Complementizer. As we have already seen Case assignment in Fijian seems to be consistently rightwards so the Complementizer should precede the NP, as it indeed does in (33a). To maintain (34) as the correct analysis we must permit the Complementizer to be the only leftward case assigner in Fijian. And of course redefine Governing Category!

10.3 N Movement

There are two parameters which must be set for case assignment. One is the direction of case assignment. This determines whether the case assigner precedes or follows the case marked NP. The second parameter is the presence or absence of an adjacency requirement between the assigner and the NP.

On page 188 we claimed that the adjacency requirement did not hold in Fijian so accounting for the free ordering of the three bracketed phrases in (14).

- (14) e a vakamatea (na toa) (e na isle) (o Wati).
 3sg past kill chicken with knife Wati
 "Wati killed the chicken with a knife"

Adjacency however seems to hold between the verb and a Determiner-less NP. Compare (14) with the examples in (37).

- (37) e a vakamatei (Bale) (e na iselev) (o Wati)
 e a vakamatei (Bale) (o Wati) (e na iselev)
 * e a vakamatei (e na isle) (Bale) (o Wati)
 * e a vakamatei (e na iselev) (o Wati) (Bale)
 * e a vakamatei (o Wati) (Bale) (e na iselev)
 * e a vakamatei (o Wati) (e na iselev) (Bale)

This adjacency requirement holds not only for -I suffix verbs but also for the base (alias intransitive) form of the verb. Hence YAQONA must precede O WATI in (38).

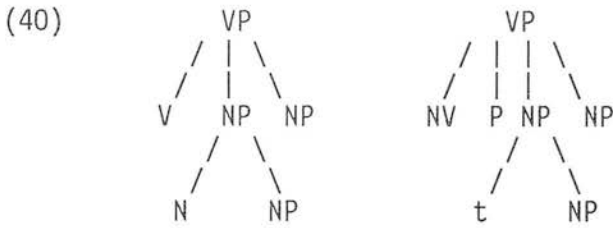
- (38) e a gunu (yaqona) (o Wati)
 drink kava
 "Wati drank kava"

Here again the adjacent NP is determinerless. It is however arguable that YAQONA should in fact be regarded as an AP modifier of the verb. There is no syntactic or morphological evidence to decide between these two analyses. In the examples below we will therefore concentrate on the -I suffix verbs which definitely have an adjacent NP.

Assuming then that -I verbs assign case under adjacency, we must account for the examples in (39).

- (39) e a raici (ira na gone) (o Wati)
 e a raici ira tale (na gone) (o Wati)

(40a) shows the structure that I had assumed in (39a).



I assume the Particle, TALE, is a sister of the verb so (39b) must involve the head to head move shown in (40b). In the light of (39b) we would have to re-analyse (39a) as involving a similar but vacuous head to head move.

Although certain Particles may occur between IRA and NA GONE as (41) shows it is impossible for a maximal category to occur in this position.

- (41) e a raici ira tiko na gone o Wati
 * e a raici ira (o Wati) na gone

We will refer to this weaker form of adjacency as "m-adjacency" meaning that the case marked NP is the closest maximal category.

The head to head move in (40b) is permissible since NV antecedent governs the trace. This analysis does not however explain *why* IRA must move in (40b). I therefore present a tentative analysis below in terms of Case Theory.

The inspiration for an analysis of N to V movement in terms of Case theory is that compulsory NP movement is typically assumed to result from Case theory or more specifically from a desire to avoid a Case Filter violation.

We begin by adopting Chomsky's earlier formulation of the Case Filter in terms of N^0 's.

- (42) CASE FILTER :
 * N^0 if N^0 has phonetic content and has no Case

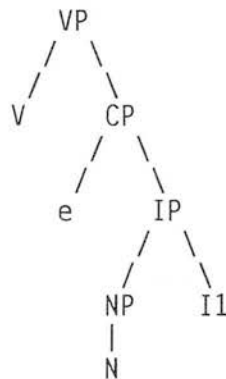
(Chomsky 1981: 49)

This definition differs from the standard one in that (42) only forces N^0 's to move

whereas the standard definition forces whole NPs to move. For (42) to operate we of course need some mechanism to ensure that N^0 's receive Case marking. This will occur whenever the head's maximal projection is Case marked since X-Bar theory ensures that " a head and its projections share all properties apart from bar level". ("Barriers" p.18)

The other alternative is to assume direct Case marking of the N^0 by its zero-level governor. This approach is incorrect because the NP will be a barrier to government of the N^0 in Exceptional Case Marking Constructions such as in (43).

(43) I want _{IP}(him to fix the car)



Given the defective status of IP and the lack of an overt Complementizer there is no barrier to government of NP by the verb, WANT. NP will however be a barrier for the government of N by the Verb since NP is not L-marked.

Given Definition (42) and the fact that there is an obligatory N^0 move in (39) we can deduce that NP is not case marked by the verb here. We simply assume therefore that -I suffix verbs do not assign case. This assumption is supported by the fact that the -I suffix is also used in the passive construction.

(44)
e a raici o Wati e na noa. " Wati was seen yesterday"

The Case Filter will then force N to V movement in (39b) but what of the NP complement NA GONE which is left behind? How is it case marked? There is only one [BAR,0] category left which could assign Case to this position, the Pronoun IRA. Given the data in (41) it would seem however that an m-adjacency requirement holds between the Pronoun and NA GONE even after N-to-V

movement. This strongly suggests that the Pronoun, IRA is not only assigning case to NA GONE in (41a) but that it is assigning case from its S-Structure position.

Although Chomsky assumes that in English "only the terminal D-Structure position in the chain retains the capacity to Theta mark or Case mark" ("Barriers" p.72), he however suggests that the situation might be different in other languages, so there is no theoretical reason to reject Case-marking by the head of the chain in Fijian. Whilst (39) illustrates Case government by the head of the chain there is no evidence that this position also Theta marks so we will adopt the weaker parameter setting in (45).

(45) In Fijian only the head of a chain can Case-mark.

The Pronoun can however govern and assign case to NA GONE in (29) only on the assumption that NP[DET,-] is not a barrier via the minimality condition. Chomsky defines the Minimality Condition as follows.

γ is a barrier for β
if γ is (a projection/the immediate projection) of δ ,
a zero-level category distinct from β .

Chomsky (86.42)

(In order to permit the extraction of the Subject from an NP as in (54a) we will adopt the narrower definition of the Minimality Condition in terms of *the immediate projection*.)

Chomsky also later adds a requirement (ibid p47) that δ not be the empty category, e.

There are then various ways in which we could claim that the Pronoun trace in (39) fails to qualify as a Minimal Governor. Firstly it could be claimed to be non-distinct from the actual governor, IRA. Secondly Chomsky's additional requirement for a Minimal Governor might be broadened as in (46) so as to rule out traces as well as empty categories.

(46) δ is an overt category

A third means of avoiding barrierhood in (39b) would be simply to declare the NP[DET,-] to be "defective" in the same way that Chomsky assumes I1 is

defective in English. I reject this approach because it is ad-hoc; it fails to have any explanatory or predictive power.

Since the standard assumption is that only Verbs and Adpositions assign case it might seem surprising that we have taken the Pronoun to be a case assigner in (39) rather than assuming that the verb RAICI was the case assigner. This after all would also account for the adjacency effects in (39). However if the verb assigned case then the Pronoun could be governed by it so it should be possible on at least some occasions to leave IRA in its D-Structure position to the right of TALE, but this never happens.

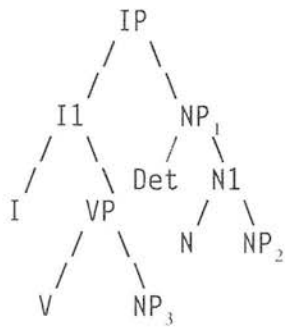
(46b) * e a raici tale ira

We could of course look for independently motivated principles which would prevent the verb ever assigning case to the Pronoun. One suggestion was that NP[DET,-] categories are never assigned case and hence their N^0 head must always move. The Prepositional phrases in (47) contain NP[DET,-] categories but provide no syntactic evidence for a movement. (Following "Barriers" I reject any proposed movement at S-structure which is syntactically vacuous).

(47) nei Wati
 kei Wati
 mei Wati
 i Wati

Another more plausible possibility was that the Pronoun could not assign case to NA GONE. This NP had instead to receive case from the verb. This in turn would leave the Pronoun caseless so it would have to move. In (48) however we must assume that the Subject Pronoun IRA is assigned case since it has not adjoined to an X^0 . (Note that NA GONE cannot receive inherent case. If it was inherently case marked then we would have no explanation for the adjacency requirements illustrated above.)

(48) e a raica_{NP}(na motoka)_{NP}(ko ira_{NP}(na gone))
 "The children(pl) saw the car."



Infl assigns case to NP₁, KO IRA NA GONE. The verb assigns case to NP₃, NA MOTOKA. NP₂ NA GONE must therefore be assigned case by N.

To account for (39) and (48) we must therefore regard Pronouns such as IRA as at least optional case assigners. To ensure obligatory Pronoun to Verb movement in (29) we must however prevent this optional case marking taking place. I can think of no principled means of doing this so I reject RAICI as the case assigner for NP[DET, +].

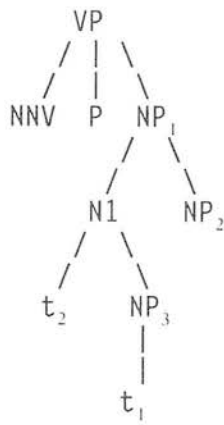
A more complex example of N Movement can be found in Determiner-less Possessive NPs such as in (49).

(49) Au a raici_{NP}(nona itau na vuniwai)
I saw the doctor's Friend

Au a raici nona itau tale na vuniwai.
I saw the doctor's Friend again

In (49b) the Particle, TALE, separates two elements which had formed a single constituent in (49a). Once again I assume that this indicates that there has been a Head-to-Head move. Since both NONA and ITAU have been moved I assume that two moves have taken place. Firstly ITAU has moved to NONA's position, forming an NN, then this NN has moved to RAICI's position to form an NNV.

(50)



Since t_2 governs t_1 and NNV governs t_2 both these Head-to-Head moves are perfectly acceptable. Once again these moves are forced by the Case Filter. RAICI does not assign case so NONA is caseless. As we shall see below NONA assigns case to NP_2 so ITAU will also be caseless. The movements indicated in (50) must therefore take place.

We now turn to our claim that NONA assigns case to NP_2 , NA VUNIWAI. As (51) shows it is impossible for a maximal category to intervene between NNV, and NA VUNIWAI.

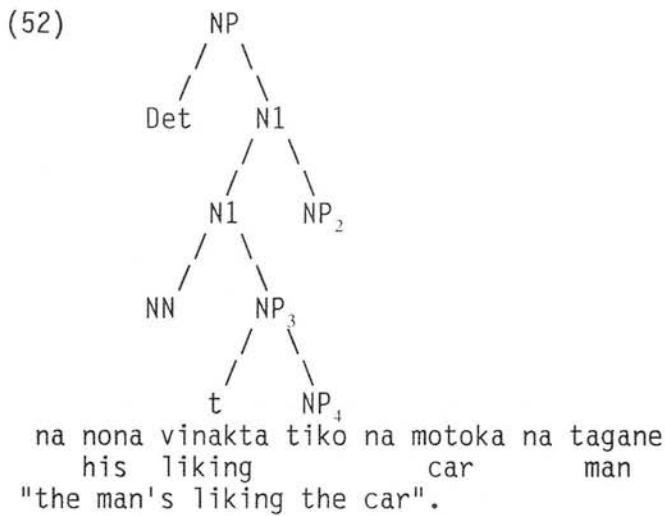
- (51a) au a raici nona itau na vuniwai_{pp}(e na noa).
 b * au a raici nona itau_{pp}(e na noa) na vuniwai.
 "I saw the doctor's Friend yesterday."
 OR "I saw his Friend, the doctor, yesterday."
 c e a raica (e na noa) (na cauravou) (o Tevita)
 "David saw the young man yesterday."

(51c) simply confirms that it is possible for the Time Phrase, E NA NOA, to occur inside the Verb Phrase so there must be something else producing the ungrammaticality in (51b). As before I assume that the ungrammaticality results from the governor assigning case under m-adjacency. Trace₂ in (50) cannot therefore be the governor since it would be m-adjacent to NP_2 in both (51a) and (51b). Likewise Trace₁ could not be the governor since after the N-to-N move it too would be m-adjacent in both (51a) and (51b). Only NNV would be m-adjacent in (51a) but not adjacent in (51b). The governor must then be in NNV. The V in NNV, RAICI, does not assign case so we are left with a choice between the two Nouns, NONA and ITAU.

Given the Case-marking parameter in (45) the structure in (50) provides no

syntactic evidence to decide between these two. From their S-Structure position in NNV both NONA and ITAU can govern and hence assign case to NP₂. There is however morphological evidence supporting NONA as the Case assigner in that the Possessive displays morphological agreement in both person and number with NP₂. The presence of NONA in (49) indicates that NA VUNIWAI must be third person singular. (See Appendix 11.2 for the complete Possessive paradigm.) There is thus clear evidence of a relationship between the Possessive and NP₂ whereas there is no evidence whatsoever of a relationship between ITAU and NP₂.

Support for the Possessive as the case assigner can be found in nominalizations of transitive clauses such as in (52).



Since there are three NPs within the Possessive NP but we only have two zero-level governors, NONA and VINAKATA, at least one of the NPs will fail to receive case. The head of this caseless NP will then have to move to another head to avoid the Case Filter. NP₂ does not occur adjacent to a zero-level category so it cannot have taken part in a head to head move. The head of NP₄ occurs to the right of the Particle TIKO so it too is not adjacent to a zero-level category. Only the head of NP₃ occurs adjacent to a zero-level category, the Possessive NONA, so only it can be assumed to have been involved in a head to head move. This then leaves NP₂ and NP₄ to be case-marked from NN. Since one of these can assign case to NP₄ we must assume that NP₃ is not a barrier. Presumably it is L-marked either by the Possessive alone or by NN.

Comparing (50) and (52) we then see that both require the case marking of NP₂ and that both contain the Possessive NONA. (50) and (52) differ however in the head of NP₃ and the presence or absence of a second case marked NP, NP₄. The simplest means of accounting for the case marking in both structures is then to assume that the Possessive case marks NP₂ in both and that VINAKATA in (52) case marks NP₄ whereas ITAU in (50) does not assign case.

If we regard the head of NP₃ as assigning case to NP₂ then we must assume that the Possessive is an optional case marker but there is no independent motivation for optional case marking in Fijian.

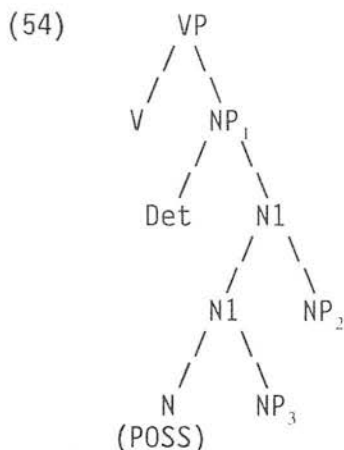
We now turn our attention to Possessive NPs which have Determiners. As the examples in (53) illustrate, there is no N-to-V movement here so TALE does not intervene between ITAU and NA VUNIWAI but rather precedes the whole Possessive NP.

- (53a) au a raica tale (na nona itau na vuniwai)
 "I saw the doctor's friend again".
- b e a raica (o Tevita) (na nona itau na vuniwai)
 "David saw the doctor's friend."

Since NONA has not moved in (53) we assume that its maximal projection must be case marked. Given that Infl is case marking O TEVITA in (53b) the only available case assigner for the Possessive NP is the verb RAICA. It must therefore assign case without an m-adjacency requirement. As we have already noted this is a general property of -A suffix verbs.

As the examples in (54) show the Possessor, NP₂, can be extracted from the Possessive NP but the Possession, NP₃ cannot.

- (54a) (o cei)_i a taya (na nona waqa t_i) na cauravou ?
 "Whose boat did the young man make?"
- (54b) *
 (na cava)_i a taya (na nona t_i na vuniwai) na cauravou ?
 "What did the young make of the doctor's ?"



This suggests that NP_2 is properly governed whereas NP_3 is not. Given the narrower definition of the Minimality Condition in terms of the immediate projection of a zero-level category, the higher N1 in (53) cannot serve as a barrier to antecedent government of NP_2 . Nor will NP_1 be a barrier since it is L-marked by the verb. NP_2 can then be properly governed by antecedent government.

The lower N1 will however act as a barrier to antecedent government of NP_3 since this N1 is the immediate projection of a zero-level category. This NP could however still be properly governed if it was Theta governed by the Possessive. We might conclude therefore that Possessives do not Theta mark their complements.

Alternatively an ECP violation would arise if we adopted Chomsky's suggestion ("Barriers" p.78) that Theta government of a complement is not sufficient for proper government but rather a trace must be antecedent governed to be properly governed. Verbal complements can still be properly governed because we can adjoin the complement to the VP so allowing it to antecedent govern its trace. It is impossible however to adjoin to the lower N1 so it remains a barrier for NP_3 .

11.1 Alternative HFC

Instead of employing GKPS's definition 7 we can define free features simply as those features actually present on a category minus those inherited from the licensing category in the ID rule. The free HEAD features on any projection from a category C_i will then be $\phi(C_i)|\text{HEAD} \sim C_i$. Note that we define the set of free features for each individual projection of C_i . Definition 7 defines the set of free features on *all* projections from C_i . When we have to construct the set of free HEAD features for the HFC, our definition will obviously be more tractable since it refers to one projection rather than all the projections.

It is not possible however to amend the HFC simply by replacing their definition of the set of free HEAD features with ours. If we did, this would produce the following erroneous definition of the HFC.

$$\forall C_i \in W_{11} [(\phi(C_0)|\text{HEAD} \cap \phi(C_i)|\text{HEAD} \sim C_i) \subseteq \phi(C_i)|\text{HEAD}]$$

$$(\bigcap_{C_i \in WH} \phi(C_i)|\text{HEAD} \cap \phi(C_0)|\text{HEAD} \sim C_0 \subseteq \phi(C_0)|\text{HEAD})$$

This definition may be more comprehensible if we renamed the sets $\{A\}$, $\{B\}$ and $\{C\}$. so producing $\{A\} \cap \{B\} \subseteq \{C\}$. This set formula is provably always true. Firstly as an axiom of set theory we know $\{A\} \cap \{B\}$ is a subset of $\{B\}$. We will call this subset $\{D\}$. (Even if $\{A\}$ and $\{B\}$ do not intersect, the empty set $\{\}$ is still a subset of $\{B\}$.) Secondly from our theory of features we know that Free Head features are a subset of the set of Head features ie. $\{B\}$ is a subset of $\{C\}$. Since Subset is a transitive relationship this means $\{D\} \subseteq \{C\}$ for any and every set. In other words this equation places no restrictions on the two sets $\{A\}$ and $\{C\}$ but it is this very equation which we want to use to define the set of permissible features on mothers and heads.

Some of the ridiculous projections this will admit are given in (4).

(4) S \rightarrow X2 , H/X2	becomes	S \rightarrow N2 , P2/N2
VP \rightarrow H , ADVP	becomes	VP \rightarrow N2 , ADVP
NP \rightarrow NP[+POSS] , H1	becomes	NP \rightarrow NP[+POSS] , A1

$N1 \rightarrow H1, PP[+POSS]$ becomes $N1 \rightarrow A1, PP[+POSS]$
 $X \rightarrow H[CONJ,NIL], H[CONJ,AND]$
 becomes $N2 \rightarrow A1[CONJ,NIL], PO[CONJ,AND]$

The first two examples give rise to (5a) and (5b) below.

- (5a) * Ronnie beside ____ .
 b * Ronnie the car slowly.

The fact that there are not more examples like those in (4) is not because of any constraint imposed by the HFC but rather because other principles reject instantiations permitted by the HFC. For example the instantiation in (6a) is ruled out via an FCR and that in (6b) via an FSD.

- (6) $S[COMP,\alpha] \rightarrow [SUBCAT,\alpha], H[COMP,NIL]$
 * $S[COMP,\alpha] \rightarrow [SUBCAT,\alpha], P2[COMP,NIL]$
via FCR 15 & 11
 (6b) $AP \rightarrow H1$ * $AP \rightarrow P1[PFORM,TO]$
via FSD 5

Clearly if we adopt our definition of the set of free features then we need a revision of the HFC itself. This revised definition is given below.

Definition 8' : Head Feature Convention

$$\phi(C_0)|HEAD \sim C_0 \cap_{C_i \in WH} \phi(C_i)|HEAD$$

$$\cap_{C_i \in WH} \phi(C_i)|HEAD \sim C_i \sqsubseteq \phi(C_0)|HEAD$$

$$\forall C_i \in WH [BAR \in DOM(\phi(C_0)) \cap DOM(\phi(C_i))]$$

1. The intersection of the HEAD features on the heads are an extension of the free HEAD features on the mother.
2. The HEAD features on the mother are an extension of the intersection of the free HEAD features on the heads.
3. The mother and all the heads must have a [BAR] specification.

This is a simple revision of a preliminary definition of the HFC given by GKPS (Definition 43 p. 94) so that it now refers to free HEAD features rather than to all HEAD features.

11.2 THE POSSESSIVE PARADIGM

N Class

	1EXCL	1INCL	2	3
SING	noqu	----	nomu	nona
DUAL	neirau	nodaru	nomudrau	nodrau
TRIAL	neitou	nodatou	nomudou	nodratou
PLUR	neimami	noda	nomunii	nodra

K Class

	1EXCL	1INCL	2	3
SING	qau/kequ	----	kemu	kena
DUAL	keirau	kedaru	kemudrau	kedrau
TRIAL	keitou	kedatou	kemudou	kedratou
PLUR	keimami	keda	kemunii	kedra

M Class

	1EXCL	1INCL	2	3
SING	mequ	----	memu	mena
DUAL	meirau	medaru	memudrau	medrau
TRIAL	meitou	medatou	memudou	medratou
PLUR	meimami	meda	memunii	medra

I Class

	1EXCL	1INCL	2	3
SING	-qu	----	-mu	-na
DUAL	-i keirau	-daru	-mudrau	-drau
TRIAL	-i keitou	-datou	-mudou	-dratou
PLUR	-i keimami	-da	-munii	-dra

11.3 Inflections

[CFORM,E]

	1EXCL	1INCL	2	3
SING	au	----	(k)o	e
DUAL	keirau	e daru	(k)o drau	erau
TRIAL	keitou	e datou	(k)o dou	eratou
PLUR	keimami	e da	(k)o nii	era

11.4 Pronouns

Object Pronouns

	1EXCL	1INCL	2	3
SING	au	----	iko	koya
DUAL	keirau	kedaru	kemudrau	rau
TRIAL	keitou	kedatou	kemudou	iratou
PLUR	keimami	keda	kemunii	ira

11.4.1 Non-Object Pronouns

These Pronouns are formed by adding a prefix "i-" to the Object forms, unless they already begin with "i". They are then preceded by the Proper Determiner, KO.

CHAPTER 12
BIBLIOGRAPHY

ABBREVIATIONS

- A.L. = Anthropological Linguistics
B.S.O.S. = Bulletin of the School of Oriental Studies
J.Ling = Journal of Linguistics
J.P.S. = Journal of the Polynesian Society
Lg. = Language
Ling = Linguistics
LI = Linguistic Inquiry
L&P = Linguistics & Philosophy
N.E.L.S. = Proceedings of the North Eastern Linguistic Society
N.L.L.T. = Natural Language & Linguistic Theory
O. = Oceania
O.L. = Oceanic Linguistics
W.I.P = Edinburgh University Linguistics Dept.
Work in Progress
W.P.L.C. = Working papers of the Linguistic Circle
of Victoria University, Canada

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