A Government and Binding Analysis of the Verb in Amele

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1. Introduction

The verb in Amele[1] is morphologically complex. Indeed, it is cited in The New Guinness Book of Records (1995:136) as the language having the most verb forms with over 69,000 finite forms and 860 infinitive forms. Compare this with English, for example, which has just five forms of the verb, such as *show*, *shows*, *showed*, *shown*, *showing*. This complexity is not surprising considering the number of inflectional categories that can be marked on the Amele verb. These categories can be listed as follows.

Configurational categories:
- Indicative [–dependent]
  - Finite:
    - Realis: present tense (PRES), today's past tense (TODP), yesterday's past tense (YESTP), remote past tense (REMP), negative past tense (NEGP), past habitual aspect.
    - Irrealis: future tense (FUT), negative future (NEGF), counterfactual mood (CONTR), imperative (IMP) / injuctive (INJ) mood, prohibitive (PROH) / apprehensive (APP) mood.
  - Infinitive (INF)
- Subjunctive [+dependent]
  - Finite:
    - Sequential (SEQ) vs. simultaneous (SIM) tense, durative (DUR) vs. punctual (PUNC) aspect, realis (R) vs. irrealis (IR) mode, conditional mode (COND), same subject following (SS) vs. different subject following (DS)
  - Infinitive (INF)
    - Subject agreement (SuAgr) in 1, 2, 3 person and singular (S), dual (D), plural (P) number

[1] Amele has approximately 6,000 speakers most of whom live in Madang Province, Papua New Guinea. According to Z'graggen (1975, 1980) Amele is the largest of the Gum family of languages. This article discusses the Haija dialect (see Roberts, 1991a).

Derivational categories:
Aspect: iterative (IT) vs. irregular iterative (IRIT)
Voice: reciprocal (RECIP) and impersonal (IMPERS)
Object agreement: direct (DOAgr), indirect (IOAgr), and oblique (OOAgr) in 1, 2, 3 person and singular, dual, plural number

The configurational categories apply to all verbs without exception, whereas the derivational categories have restrictions with respect to their application. For example, iterative aspect cannot apply to stative verbs and the OAgr applies to verbs according to their subcategorisation properties, i.e. [±DO, ±IO, ±OO]. So some verbs, for example, take obligatory DOAgr marking while others do not. Bybee (1985:20) says that voice distinctions should be considered to be derivational because they change the relation that the surface subject has to the verb. For example, in the active voice, the subject is the doer of the action; in the passive voice, the subject is affected by the action; in the reflexive (middle) and reciprocal voice the subject both performs the action and is affected by the action; and in the impersonal voice the subject is affected by the action of an unspecified other person.

There is another difference between the configurational and derivational categories. Whereas the configurational categories are all distributionally mutually exclusive with INF in their occurrence on the verb, the derivational categories can all be marked on the verb either in conjunction with any configurational category or with any other derivational category. An illustration of this is given in Table 1 based on the verb *qoc* 'to hit'.[2] Each form of *qoc* is given in its infinitive form marked with *-oc/-ec*. Any one of the configurational categories can be marked in place of the infinitive.

[2] Orthographically *q* symbolises the bilabial implosive [6] and *c* symbolises the glottal stop [ʔ].

Table 1. Derivational Verb Inflection Combinations		
qoc	'to hit'	Base+INF
aqitec	'to hit them to/for me'	DOAgr+IO/OOAgr
aaqitiec	'to hit them to/for me repeatedly'	IT+DOAgr+IO/OOAgr
qututuec	'to hit him repeatedly'	IT+DOAgr
ququocobocobec	'to hit each other repeatedly'	IT+RECIP
qudoga doc	'for him to want to hit him'	IMPERS+DOAgr
qoga duduec	'for him to repeatedly want to hit'	IT+IMPERS
qocobqocobeiga adec	'for them to want to hit each other'	RECIP+IMPERS
qudocobqudocobec	'to hit each other'	RECIP+DOAgr
qutocobqutocobec	'to hit to/for each other'	RECIP+IO/OOAgr
aqaga doc	'to want to hit them'	IMPERS+DOAgr
ququdocobdocobec	'to hit each other repeatedly'	IT+RECIP+DOAgr
ququtocobtocobec	'to hit to/for each other repeatedly'	IT+RECIP+IO/OOAgr
qudoga duduec	'for him to repeatedly want to hit him'	IT+IMPERS+DOAgr
qudocobqudocobeiga adec	'for them to want to hit each other'	RECIP+IMPERS+DOAgr

The configurational categories can also be divided along certain parameters. The primary division is that between indicative and subjunctive, which is a distinction based on sentence types. There is a basic distinction in Amele between what has become a traditional term in Papuan linguistics of final verbs vs. medial verbs. Example (1) illustrates this. (1) is a clause chain comprising four clauses each of which, in this case, are realised by just a verb. Only the last verb in the chain, *beleqan*, is marked for final verb inflection which includes future tense. The preceding verbs are marked for various

types of medial verb inflection such as different subject following, simultaneous tense, sequential tense, durative aspect and irrealis modality.

1) *Ni-nij-emin* *h-oco-bil* *b-i* *bel-eq-an.*
SIM.DUR-lie-1S.SU.DS.IR come-SEQ.DS-2P.SU come up-PRED go-1P.SU-FUT
'I will stay a while and when you come we will come up.'

The basic difference between these two sentence types is one of dependence. Indicative sentences are not dependent on any other sentence or clause for their tense/aspect/mood designation and are therefore specified [–dependent]. Subjunctive sentences, on the other hand, are dependent on some other sentence or clause for their full tense/aspect/mood designation and are specified [+dependent].

Apart from SuAgr the indicative and subjunctive inflectional categories form two distinct sets and do not overlap with each other. However, the subjunctive categories are dependent on the final verb categories for full designation. So, for example, if we change the tense of the final verb it can affect the tense designation for some of the verbs in a subjunctive clause. In (2) the verb in the indicative clause is specified for remote past tense and this affects the first verb in the chain, which must now be specified for realis modality. An irrealis specification, as in (1) above, would now be ungrammatical.[3]

2) *Ni-nij-uqun* *h-oco-bil* *b-i* *bel-om.*
SIM.DUR-lie-1S.DS.R come-SEQ.DS-2P.SU come up-PRED go-1P.SU.REMP
'I stayed a while and when you came we came up.'

In effect, all the indicative categories can be divided into realis or irrealis mode depending on their cooccurrence with a realis or irrealis subjunctive category. This means that all the verbs in the clause chain are specified for the tense/aspect/mood category marked on the verb in the indicative clause.

Comrie (1985:102-107) distinguishes tense neutralisation from tense sequencing. In tense neutralisation one verb at the beginning of a string of verbs is marked for the tense to be expressed. The subsequent verbs in the string will either be unmarked for tense or will be marked by a single tense category which is neutralised by the tense category marked on the first verb in the string. So that in effect all the verbs in the string express the same tense category as the first verb. An example from English would be *I will go to the shop and buy some bread.* Future tense is only expressed overtly by the auxiliary *will* in conjunction with the first verb *go* but future tense also applies to the second verb in the string *buy.* So tense neutralisation can be characterised as a type of agreement operating across clauses.

[3] See Roberts (1990, 1994) for a more detailed discussion on irrealis modality in Amele and other Papuan languages.

Tense sequencing operates within a particular syntactic construction. In a given structure a particular tense will be required to be marked on a subsequent verb in a series in order to express the meaning. An example of tense sequencing in English would be in an indirect command, such as *I told him to eat his dinner*. Here the subsequent verb must be a *to* infinitive in order to express the indirect command. The crucial difference from tense neutralisation is that in tense sequencing the tense expression on the subsequent verb is usually different and independent from the tense expression on the first verb. Therefore tense sequencing can be characterised as a type of government where the tense-form of one verb in a given syntactic construction requires a particular tense-form of another verb which is structurally subordinate to it.

On balance, I would analyse the data in (1) and (2) as a case of tense sequencing because (a) a particular syntactic construction is required, namely, a subjunctive clause, and (b) the tense or rather the modal expression of realis vs. irrealis mode on the verb in the indicative clause requires a corresponding realis or irrealis modal expression on the verb in the subjunctive clause.[4]

Thus the Amele verb is morphologically complex by virtue of the large number of categories and inflectional paradigms, such as SuAgr and OAgr, that can be marked on it. Morphologically verbs in Amele can be very short, like *qoc* 'to hit', and also very long, like *cogogcigigutecebutecebec* 'to twist (it) for each other repeatedly in a haphazard manner'. The question I want to address in this article[5] is how do you analyse the verb in Amele? Do you treat it as a word, i.e. a lexical unit, or as some type of syntactic unit like a phrase or a clause? This question has a practical as well as a theoretical purpose. The practical purpose is with regard to how you write verbs in Amele.[6] With *cogogcigigutecebutecebec*, for example, do you write it as one word or do you put some breaks in and, if so, where?

In this article I will use a number of insights from Government and Binding (GB) Theory to develop an analysis of the verb in Amele that will help us understand its true nature.

2. Defining the Notion 'Word'

Before looking at the nature of the verb word-form in Amele it would be pertinent to review the notion 'word' itself. A number of linguists, for example Lyons (1968), Robins (1980), Bauer (1988) and Katamba (1993), have distinguished three main senses of the term word. Firstly, there is the notion of word as being a physically definable unit.

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[4] Note that this completely contradicts my analysis in Roberts (b. forthcoming).

[5] This article is based on papers presented previously as Roberts (1992b, 1995).

[6] A more extensive discussion of orthography problems in Amele is presented in Roberts (1991c, 1992a).

This applies to the phonological word and its derivative, the orthographic word. These are also termed the word-form. The boundaries of the phonological word can be determined by phonological features, such as pause or juncture features or stress placement. The orthographic word can be determined by graphemic features, such as blank spaces, commas, full-stops, and so forth. Secondly, there is the notion of word as being an abstract unit. This applies to the grammatical or morphosyntactic word and the lexeme.

The morphosyntactic word is a unit that functions at the word level in the grammar of the language. The notion of morphosyntactic word can be illustrated from a language like English. English is said to have five forms of the regular lexical verb, cf. Quirk *et. al* (1985) and Palmer (1974), for example; the base form, such as *show*, the third person singular subject form, such as *shows*, the past tense form, such as *showed*, the progressive participle form, such as *showing*, and the perfect participle form, such as *shown*. However, as Matthews (1991) has pointed out, several of these lexical forms function in an intregral way with what are termed the primary auxiliary verbs, *have* and *be*, to express certain morphosyntactic categories. For example,

HAVE *show*-N [+PERF]
BE *show*-ING [+PROG]
BE *show*-N [+PASS]

On this basis the word-form *shown* is actually two different morphosyntactic forms of the verb in the wider context of combining with the primary auxiliary verbs, *have* and *be*. The form *have shown* expresses PERF(ective aspect) and the form *be shown* expresses PASS(ive voice). The notion of morphosyntactic word assumes that there is a word level in the grammatical structure of language and that the word is the same kind of theoretical unit as sentence or morpheme. In fact, under this view sentences consist of words (a sentence is minimally one free word) and words consist of morphemes (a word is minimally one free morpheme). The morphosyntactic word relates to notions of syntactic structure, such as word order and syntactic function.

The lexeme, on the other hand, is an abstract unit that functions in the vocabulary or lexicon of a language and is the fundamental unit of the lexicon of a language. The lexeme refers to the common or base form of the word that can be abstracted when a set of forms are variations within a paradigm. For example, in English the lexeme *SHOW* can be abstracted from the paradigm: *show, shows, showed, shown, showing*, and can be represented orthographically in a dictionary of English as *'show'*. The lexeme then is a semantic or lexical unit and under this view the word is the minimum lexical unit, i.e. the minimum unit with an independently usable meaning.

The problems of defining what is a word in a given language depends on the definitional criteria being used. As already mentioned, 'word' can be defined according to phonological (or graphemic), morphosyntactic and lexico-semantic criteria. When these

criteria converge upon the same form then there is usually no difficulty in identifying that form as a word. However, when these criteria do not converge upon the same form the difficulty then is assessing which criteria is decisive.

Phonological criteria are usually the least reliable in determining the word-unit. For example, phonological and morphosyntactic criteria conflict in word determination in the case of the postpositional phrase in Amele. Postpositions are clitic-type constituents that attach phonologically to a preceding constituent to form a syntactic postpositional phrase. Postpositions are not lexically bound and are not restricted to attaching to a particular syntactic class of word and each postposition usually has a range of syntactico-semantic functions. However, the word that the postposition is attached to forms a phonological unit with that word and this unit will normally carry one primary stress pattern. Also a word final lax vowel in the constituent functioning as the object of the postposition will assume a nonfinal tense quality. This is illustrated in (3).

3)	a.		['mæhə]	/maha/	'ground'
		cf.	[mæ'hænə]	/maha na/	'on the ground'
	b.		['ʒo]	/jo/	'house'
		cf.	['ʒɔnə]	/jo na/	'at the house'
	c.		['ijə]	/ija/	'I'
		cf.	[i'jænu]	/ija nu/	'for me'
	d.		[ʒɔ'bɔn]	/jobon/	'village'
		cf.	[ʒɔ'bɔn?]	jobon de?/	'from the village'

The postpositional phrases in (3) form a unit of a single phonological word but are in fact a combination of a postposition and a nominal. The phonological pattern therefore underdifferentiates against the morphosyntactic pattern in this case.

It is not surprising that phonological factors prove to be unreliable in defining the word as a unit since they focus on the internal structure of the word. Lexico-semantic and the morphosyntactic factors, on the other hand, focus on the function of the word as a unit. Lexico-semantic factors focus on the word as a lexical unit, i.e. a unit of lexical meaning, and morphosyntactic factors focus on the word as a unit with a grammatical function within the sentence. However, there can also be a mismatch between lexico-semantic and morphosyntactic factors in defining what is a word in a given language.

Allerton (1979:183-209) discusses the problems of defining grammatical 'ranks', such as word rank, phrase rank, clause rank, etc., within the tagmemic and systemic frameworks. Allerton (1979:210-212) points out the difficulties of establishing a word rank where the same morpheme can be analysed as either the constituent of a word or the constituent of a phrase. In the list below, for example, the *-s* in *his*, *hers* and *theirs*

would normally be analysed as part of a word but in the other examples it would be analysed as a clitic constituent of a NP.

The same applies to the forms with *-th*. Which of these items are words and which are phrases?

his*s*	four*th*
hers	six*th*
their*s*	thirty nin*th*
Fred'*s*	one hundred*th*
the car'*s*	one hundred and fifty seven*th*
the Queen of England'*s*	

Allerton also points out that similar phenomena occur in many languages. Consider the Amele inalienably possessed noun forms in (4) for example. In (4) the suffixes *-i* and *-ag* mark agreement with the possessor, which in this case is 'my' and 'his' respectively. The suffix *-el/-ul* in (4b) and (4d) means 'plural possessed' and refers to 'grandparent'. This suffix would appear to be integral to the possessed word-form since it varies phonologically according to the phonological shape of the preceding morpheme. In some conjugations it can also be *-il*, as in *asige-il* 'our grandparents'.

(4) a. *as-i* 'my grandparent'
grandp.-1S.POSS
b. *as-i-el* 'my grandparents'
grandp.-1S.POSS-PL
c. *as-ag* 'his grandparent'
grandp.-3S.POSS
d. *as-ag-ul* 'his grandparents'
grandp.-3S.POSS-PL

Now consider (5). The possessed form *asag* can also have an extended meaning of 'the boss of' and can occur in expressions such as (5a). Here it is *jo* 'house' that is the possessed item and when this form is pluralised the *-ul* refers to *jo* even though it is still attached phonologically to *asag*. So do we consider *-ul* as a suffix that can attach to words or phrases, i.e. a clitic, or do we consider *jo asag* to be a lexical unit like *asag*?

(5) a. *jo* *as-ag* 'the boss of the house'
house grandp.-3S.POSS
b. *jo* *as-ag-ul* 'the boss of the houses'
house grandp.-3S.POSS-PL

On the basis of these phenomena and other phenomena that indicate an overlap of syntax and morphology, such as compounding and incorporation, Allerton argues that the word rank is not viable and that a simple three-term system would be adequate:

sentence > (phrase >) morpheme

Within this schema Allerton (1979:206) argues that the word can be regarded as a special kind of phrase, "one in which the members are close-knit, both grammatically and semantically. We recognise this status of affairs by describing combinations of morphemes within a word as morphological, but combinations outside the word as syntactic." Allerton also goes on to suggest that the word should be thought of as a lexical rather than a grammatical unit. However, defining the word-form as the minimum lexical unit is also unsatisfactory since idioms, for example, which can be understood as minimal lexical units, usually do not display internal integrity expected of a word-form. For example, an idiom such as *to take advantage of* can have extraneous material readily inserted within it as in (6a) and some parts of the idiomatic form can be separated from the other parts as in (6b).

6) a. He *take*[-s too much] *advantage of* her.
   b. *Advantage* was *taken of* her.

Quirk *et. al* (1985: 1530) in their major descriptive grammar of English also recognise that syntax and morphology are not discrete but rather grade into each other. They take the word (defined in terms of an integrity that resists interruption of its parts) as the unit of lexicology. Yet certain phenomena, such as complex prepositions, like *in aid of, by way of*, complex subordinators, like *in the event that*, and phrasal and prepositional verbs, like *give up, see to* are treated as syntactic phenomena, on the one hand, despite their lexical and syntactic unity, and compounding in general is treated as a lexical phenomenon despite the fact that certain compounds in English can undergo plural formation within the compound, for example:

son-in-law	→	sons-in-law
commander-in-chief	→	commanders-in-chief
man-of-war	→	men-of-war
coat-of-mail	→	coats-of-mail
passer-by	→	passers-by
hanger-on	→	hangers-on

With respect to compounding, Bauer (1988: 100-104) argues that there are more reasons for considering it to be a syntactic phenomenon than a lexical phenomenon cross-linguistically and in some languages, such as German, noun compounds are spontaneously and continuously formed in everyday use and just as quickly forgotten – clearly a syntactic function.

So the main problems for a lexico-semantic definition of the word are that, firstly, you can have affixes, such as *'s* and *-th* in English, which have a unitary meaning but which can be constituents of words or phrases and, secondly, you can have lexical items, such as idioms and compounds, which have a unitary meaning but have a complex syntactic internal structure.

All of this would therefore suggest that there is a gradience between syntax and morphology. The key notion is that of compositionality. Sentences, unlike words, are compositional. The meaning of a sentence can be inferred from the meaning of its parts. Therefore sentences do not need to be stored away after use but instead each sentence is generated anew according to the rules of sentence structure. The simplest word-form, on the other hand, comprises one morpheme which is noncompositional. Such a word-form would need to be stored in a lexicon for future use. The domain of syntax is primarily the structuring of sentences and the minimal unit of a sentence is the phrase. The domain of morphology is the structuring and storing of noncompositional units (call them words) in the lexicon. The simplest word is the morpheme. The convergence of syntax and morphology comes about, however, when words assume their own internal structure, become compositional and therefore require their own syntax, and conversely strings of words (phrases or clauses) assume an idiomatic meaning, become noncompositional and therefore require storing in the lexicon.

Nevertheless many linguists within the generative school, such as Chomsky (1970), Seigel (1974), Jackendoff (1975), Aronoff (1976), Allen (1978), Anderson (1982), and Scalise (1984), for example, maintain that there is a clear distinction between syntax and morphology. They would argue to varying degrees that syntax should be restricted to the syntactic component of the model and that morphology should be restricted to the lexical component, i.e. the lexicon.

3. Defining the Verb Word-Form in Amele

On first inspection the verb word-form in Amele can be analysed as a lexico-semantic and morphosyntactic unit. However, as more data is investigated this unity breaks down.

3.1 Evidence For the Verb Word-Form as a Unit

In Roberts (1987: 153-154) the verb is defined in terms of its structure, distribution and function. So structurally the verb is the word that can be inflected by affixes that indicate:

1. predication, e.g. the infinitive marker;
2. tense-aspect-mood and negation of the sentence;
3. person-number of the subject;

4. person-number-gender of the object (direct (DO), indirect (IO) or oblique (OO));[7]
5. subject coreferentiality or noncoreferentiality, i.e. the switch-reference (SR) inflection.[8]

Distributionally the verb is the obligatory constituent of all major sentence types except the stative clause, where it is optional, and can be the minimum constituent of the sentence. This is illustrated by (7).

7) *Siw-i-ad-i-h-ig-en.*
share-PRED-3P.IO-PRED-2P.OO-1S.SU-FUT
'I will share (it) out to them for you.'

With respect to stative clauses Amele does not have a verb 'to be' as such. Instead several verbs that have both a nonstative and stative function can occur in the stative clause. The main verbs that have this dual function are: *bilec* 'to sit (down)/to be', *nijec* 'to lie (down)/to be', *tawec* 'to stand (up)/to be', *qoc* 'to hit/to be/to have', *mec* 'to put/to become' and *lec* 'to go/to become'. Examples of this are given in (8-10). (8a) is a stative clause without a verb. This contrasts with the stative clause in (8b) which does have a verb. The difference between (8a) and (8b) is in the expression of tense/aspect. (8a) is essentially 'tenseless' and expresses an existential meaning. Therefore no verb is required to carry the tense marking. With (8b), on the other hand, a stative verb is required to express the notion of past habitual aspect and in this case the verb *bilec* 'to sit (down)/to be' is used. A similar situation holds for (9a) and (9b). The stative clause in (9a) does not require a verb but in (9b) a verb is required to express future tense. In this case the verb *mec* 'to put/to become' is used. In (10a) the verb *lec* 'to go/to become' has its nonstative function but in (10b-c) it has its stative function. The symbol = means a cliticised word.

8) a. *Dana eu utuqa-ni.*
man that neighbour-1S.POS
'That man is my neighbour.'

b. *Dana eu utuqa-ni bil-ol-oi.*
man that neighbour-1S.POS sit-HABP-3S.SU
'That man used to be my neighbour.'

[7] See Roberts (1993) for a full description of object agreement in Amele.
[8] See Roberts (1988a, 1988b, b. forthcoming) for more discussion on SR in Amele in particular and in Papuan languages in general.

9) a. *Mel eu ben.*
boy that big
'That boy is big.'

b. *Mel eu ben m-igi-an.*
boy that big put-3P.SU-FUT
'That boy will become big.'

10) a. *Dana toia bahu=na l-ei-a.*
man old forest=to go-3S.SU-TODP
'The old man went to the bush, i.e. went to the toilet.'

b. *Dana toia bahu l-ei-a.*
man old forest go-3S.SU-TODP
'The old man went bush, i.e. went to live in the forest.'

c. *Ija=na ho cus l-en.*
1S=of pig wild go-3S.SU.REMP
'My pig went wild.'

From a structural point of view the best analysis for the stative clause in Amele is that the verb has optional null realisation, i.e. there is a place in the clause structure for a verb but a verb is only realised when it is necessary to express a particular tense/aspect/mood or a particular stative meaning. With this analysis the basic structure of the clause can be defined in terms of the PS-rules in (11) where NC means non-active complement.

11) S → (NP[Su]) VP

$$VP \rightarrow \left\{ \begin{array}{c} (NP[OO])\ (NP[IO])\ (NP[DO]) \\ \left(\left\{ \begin{array}{c} NP \\ AP \\ PP \end{array} \right\} [NC] \right) \end{array} \right\} V$$

Thus the VP always has a V as head. Any analysis which posited a verbless clause in deep structure would require PS-rules defining a VP without a V as head and this would be a contradiction in terms. There is evidence that Amele has a VP constituent. The data in (12-14) demonstrates this. In (12) the locative *ene* 'here' can occur between the subject NP and the verb but not before the subject. This shows that *ene* is a constituent of the VP. The same applies to *qee* 'not' in (13) and *cain* 'do not' in (14).

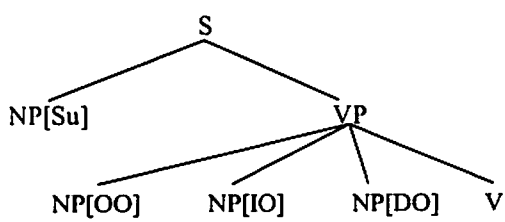
12) *dana eu uqa=na jo ene ceh-en*
man that 3S=of house here build-3S.SU.REMP
dana eu ene uqana jo cehen
**ene dana eu uqana jo cehen*
'That man built his house here.'

13) *dana eu uqa=na jo ene qee ceh-el*
man that 3S=of house here NEG build-3S.SU.NEGP
dana eu uqana jo qee ene cehel
dana eu qee uqana jo ene cehel
**qee dana eu uqana jo ene cehel*
'That man did not build his house here.'

14) *dana eu uqa=na jo ene cain ceh-ei-aun*
man that 3S=of house here PROH build-3S.SU-NEGF
dana eu uqana jo cain ene ceheiaun
dana eu cain uqana jo ene ceheiaun
**cain dana eu uqana jo ene ceheiaun*
'That man must not build his house here.'

Therefore a first approximation of the structure of the clause with its core arguments can be given as in (15). Notice that while the grammatical function (GF) of subject can be defined in terms of the structure as the NP immediately dominated by S, i.e. [NP, S], none of the object NPs can be uniquely defined in this way, since they are all immediately dominated by VP. Therefore all the GFs have to be defined on each node.

15)



In fact, the structure of the verb-word turns out to be a mirror image of the structure of the clause. This is illustrated by the verb *helec* 'to throw' in Table 2. This verb can optionally take any of the DO, IO or OO agreement morphology. The DOAgr attaches directly to the stem preceding the INF(initive) marker. When IOAgr or OOAgr morphology occurs there is also an intervening PRED(icate) marker which occurs between this morphology and anything that precedes, whether it is the verb stem or

DOAgr.[9] Where both IOAgr and OOAgr occur then IOAgr is nearer the stem than OOAgr.

Table 2. Verb Structure		
VERB STEM+INF	*helec*	'to throw'
VERB STEM+DO+INF	*heltec*	'to throw me'
VERB STEM+IO+INF	*helitec*	'to throw to me'
VERB STEM+OO+INF	*helitec*	'to throw for me'
VERB STEM+DO+IO+INF	*heladitec*	'to throw them to me'
VERB STEM+DO+OO+INF	*heladitec*	'to throw them for me'
VERB STEM+IO+OO+INF	*heliaditec*	'to throw to them for me'

Up to two sets of OAgr can occur on any one verb. This rule applies to every verb in Amele except the verb 'to give', which can have all three sets of OAgr marked. Example (16) illustrates this. Notice in this example that the IOAgr precedes the DOAgr. The best analysis here would seem to be that the IOAgr actually functions as the verb stem and the optional DOAgr and OOAgr attach to it as such.[10]

16) *Eeta=nu ut-ad-i-t-ag-a?*
what=for 3S.IO-3P.DO-PRED-1S.OO-2S.SU-TODP
'Why did you give him them on me?'

Since only up to two objects can be marked on the verb at any time there is a Primary Object (POAgr) and a Secondary Object (SOAgr) position in the verb.[11] The structure of the verb can therefore be diagrammed as (17).

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[9] Blake (1990) says that when an oblique is advanced to term status, most languages register this revaluation on the verb. He then gives an example from Indonesian where a locative is advanced to 2 and the verb is suffixed with *-i*. In Amele the predicate marker in the verb would appear to be signifying the term status of IO and OO. However, in most cases there is no equivalent PP to advance from. So IO and OO are therefore obligatory terms in Amele. It would seem to be the case then that the predicate marker *-i/-u* is best analysed as a pro-verb instead of as a type of applicative construction (postposition incorporation).

[10] For a fuller discussion of the properties of 'give' in Amele see Roberts (a. forthcoming).

[11] Dryer (1986) uses the PO and SO terminology to define a fourth type of relationship between terms, i.e. Obj → Su via passivisation, Erg → Abs via antipassivisation, IO → DO via dative movement and SO → PO via antidative movement. In a DO vs. IO system the NP referring to the OBJECT in a GIVE-type clause is marked in the same way as the single object

17) [[Vstem] ([Pred]) ([POAgr]) ([Pred]) ([SOAgr]) [INFL]]$_V$

The PO position can be occupied by any of the grammatical functions of DOAgr, IOAgr or OOAgr. The SO position, on the other hand, can only be occupied by IOAgr or OOAgr. If we assume for the verb 'give' that the IOAgr does function as the stem then the structural description in (17) would also apply to that verb.

INFL is the position of the infinitive marker which occurs in complementary distribution to the configurational categories already listed in the introduction. The configurational categories filling INFL in Amele are displayed in paradigms in Table 3 and Table 4 based on the verbs *fec* 'to see' and *hoc* 'to come'. Table 3 shows the final verb forms and Table 4 shows the medial verb forms. INFL also contains SuAgr. As well as occurring in complementary distribution to INF all the indicative categories apart from SuAgr are mutually exclusive to each other.

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of a monotransitive clause. In a PO vs. SO system the NP referring to the RECIPIENT in a GIVE-type clause is marked in the same way as the single object of a monotransitive clause. I am not using the terms PO and SO in this way. PO simply refers to the first position of object agreement after the verb stem and SO refers to the second position.

Table 3. Amele Final Verb Inflections

	REALIS					
	PRES	TODP	YESTP	REMP	NEGP	HABP
	±*qee*				+*qee*	±*qee*
1S	*ʃigina*	*ʃiga*	*ʃigan*	*ʃem*	*ʃelem*	*ʃolig*
2S	*ʃagana*	*ʃaga*	*ʃagan*	*ʃem*	*ʃelem*	*ʃolog*
3S	*ʃena*	*ʃeia*	*ʃeian*	*ʃen*	*ʃel*	*ʃoloi*
1D	*ʃowona*	*ʃowa*	*ʃowan*	*ʃoh*	*ʃoloh*	*ʃolou*
2/3D	*ʃesina*	*ʃesia*	*ʃesian*	*ʃesin*	*ʃelesin*	*ʃolosi*
1P	*ʃoqona*	*ʃoqa*	*ʃoqan*	*ʃom*	*ʃolom*	*ʃolob*
2/3P	*ʃegina*	*ʃiga*	*ʃeigan*	*ʃein*	*ʃelein*	*ʃoloig*
	'see(s)'	'saw' (today)	'saw' (y'day)	'saw'	'did not see'	'used to see'
1S	*hugina*	*huga*	*hugan*	*hom*	*holom*	*holig*
2S	*hogona*	*hoga*	*hogan*	*hom*	*holom*	*holog*
3S	*hona*	*hoia*	*hoian*	*hon*	*hol*	*holoi*
1D	*howona*	*howa*	*howan*	*hoh*	*holoh*	*holou*
2/3D	*hosina*	*hosia*	*hosian*	*hosin*	*holosin*	*holosi*
1P	*hoqona*	*hoqa*	*hoqan*	*hom*	*holom*	*holob*
2/3P	*hogina*	*hoiga*	*hoigan*	*hoin*	*holoin*	*holoig*
	'come(s)'	'came' (today)	'came' (y'day)	'came'	'did not come'	'used to come'

IRREALIS						
	FUT	NEGF	CONTR	IMP/ INJ	PROH/ APP	INF
		+qee	*±qee*		*±cain*	
1S	*figen*	*figaun*	*foum*	*figa*	*figaun*	*fec*
2S	*fegan*	*fagaun*	*foum*	*faga*	*fagaun*	
3S	*figian*	*feiaun*	*foub*	*feia*	*feiaun*	
1D	*fewan*	*fowaun*	*fouh*	*fowa*	*fowaun*	
2/3D	*fowasan*	*fowasin*	*foub*	*fesia*	*fowasin*	
1P	*feqan*	*foqaun*	*foum*	*foqa*	*foqaun*	
2/3P	*foqagan*	*fowain*	*foub*	*feiga*	*fowain*	
	'will see'	'will not see'	'would (not) see'	'see'	'lest/ must not see'	'to see'
1S	*hugen*	*hugaun*	*houm*	*huga*	*hugaun*	*hoc*
2S	*hogan*	*hogaun*	*houm*	*hoga*	*hogaun*	
3S	*hugian*	*hoiaun*	*houb*	*hoia*	*hoiaun*	
1D	*howan*	*howaun*	*houh*	*howa*	*howaun*	
2/3D	*howasan*	*howasin*	*houb*	*hosia*	*howasin*	
1P	*hoqan*	*hoqaun*	*houm*	*hoqa*	*hoqaun*	
2/3P	*hoqagan*	*howain*	*houb*	*hoiga*	*howain*	
	'will come'	'will not come'	'would (not) come'	'come'	'lest/ must not come'	'to come'

Table 4. Amele Medial Verb Inflections

	SEQ.SS	SEQ.SS COND	SEQ.DS	SIM.SS PUNCT	SIM.SS DUR
	±qee	*±qee*	*±qee*	*±qee*	*±qee*
1S	*ʃimeg*	*ʃifeg*	*ʃecem*	*ʃig*	*ʃifig*
2S	*ʃimei*	*ʃifei*	*ʃeceb*	*ʃeg*	*ʃefeg*
3S	*ʃimeu*	*ʃifeu*	*ʃecohul*	*ʃei*	*ʃefei*
1D	*ʃimeu*	*ʃifeu*	*ʃecohul*	*ʃi*	*ʃifi*
2/3D	*ʃimesi*	*ʃifesi*	*ʃecebil*	*ʃesi*	*ʃefesi*
1P	*ʃimeb*	*ʃifeb*	*ʃecomun*	*ʃob*	*ʃofob*
2/3P	*ʃimeig*	*ʃifeig*	*ʃecebil*	*ʃeig*	*ʃefeig*
	'see and …'	'if see and …'	'see and another'	'as see and …'	'while see and …'
1S	*humig*	*hufig*	*hocomin*	*hug*	*huhug*
2S	*humeg*	*hufeg*	*hocom*	*hog*	*hohog*
3S	*humei*	*hufei*	*hocob*	*hoi*	*hohoi*
1D	*humeu*	*hufeu*	*hocohul*	*hu*	*huhu*
2/3D	*humesi*	*hufesi*	*hocobil*	*hosi*	*hohosi*
1P	*humeb*	*hufeb*	*hocomun*	*hob*	*hohob*
2/3P	*humeig*	*hufeig*	*hocobil*	*hoig*	*hohoig*
	'come and …'	'if come and …'	'come and another'	'as come and …'	'while come and …'

	SIM.DS REALIS PUNCT	SIM.DS REALIS DUR	SIM.DS. IRREALIS PUNCT	SIM.DS. IRREALIS DUR	INF
	±qee	*±qee*	*±qee*	*±qee*	
1S	*figin*	*fifigin*	*femin*	*fefemin*	*fi*
2S	*fegan*	*fefegan*	*fem*	*fefem*	
3S	*fen*	*fefen*	*feb*	*fefeb*	
1D	*fowon*	*fofowon*	*fohul*	*fofohul*	
2/3D	*fesin*	*fefesin*	*febil*	*fefebil*	
1P	*foqon*	*fofoqon*	*fomun*	*fofomun*	
2/3P	*fegin*	*fefegin*	*febil*	*fefebil*	
	'as see and another'	'while see and another'	'as see and another'	'while see and another'	'seeing'
1S	*hugin*	*huhugin*	*homin*	*hohomin*	*hu*
2S	*hogan*	*hohogan*	*hom*	*hohom*	
3S	*hon*	*hohon*	*hob*	*hohob*	
1D	*howon*	*hohowon*	*hohul*	*hohohul*	
2/3D	*hosin*	*hohosin*	*hobil*	*hohobil*	
1P	*hoqon*	*hohoqon*	*homun*	*hohomun*	
2/3P	*hogin*	*hohogin*	*hobil*	*hohobil*	
	'as come and another'	'while come and another'	'as come and another'	'while come and another'	'coming'

Most verbs have a *-ec* infinitive form and some have a *-oc* form. In fact, some verbs can occur with either form, for example, *cob-oc* ≈ *cob-ec* 'to walk' and *nu-ec* ≈ *nu-oc* 'to go'. This distinction is not motivated by the phonological shape of the verb stem and is purely a morphological distinction. However, in some cases the phonological shape of the verb stem does affect the form of certain inflections. This is the case when the vowel in the verb stem immediately preceding the verb inflection is a high vowel such as /i/ or /u/. When such a vowel occurs in the verb stem any epenthetic or empty morph vowel in the verb inflection is raised. So a /e/ is raised to a /i/ and a /o/ is raised to a /u/. This only operates for certain inflections. Table 5 illustrates the inflections where this raising

occurs based on the verb *bilec* 'to sit'. The raised vowel is *underlined* in each case. Even so, this phonological variation is quite regular and predictable.

Table 5. Vowel Raising in some Verb Inflections

	PRES	TODP	YESTP	FUT	NEGF
1S	*biligina*	*biliga*	*biligan*	*biligen*	*biligaun*
2s	*biligina*	*biliga*	*biligan*	*bilegan*	*biligaun*
3S	*bilina*	*bilia*	*bilian*	*biligian*	*biliaun*
1D	*biluwuna*	*biluwa*	*biluwan*	*bilewan*	*biluwaun*
2/3D	*bilesina*	*bilesia*	*bilesian*	*biluwasan*	*biluwasin*
1P	*biluquna*	*biluqa*	*biluqan*	*bileqan*	*biluqaun*
2/3P	*bilegina*	*bileiga*	*bileigan*	*biluqagan*	*biluwain*

A whole class of verbs in Amele must take an obligatory transitive marker, *-doc*, in the infinitive form. A representative sample of these verbs is given in Table 6. All of these verbs must take an obligatory object agreement marker.

Table 6. Verbs with Obligatory Transitive Marker	
abul-doc	'to struggle'
bilisa-doc	'to disperse/sprinkle'
cesul-doc	'to help'
dodol-doc	'to approach'
fenun-doc	'to press'
goloc-doc	'to peel'
ququlub-doc	'to surprise'
sacia-doc	'to prepare'
tefac-doc	'to jump over'
wogol-doc	'to spear'

Every lexical verb minimally comprises a verb stem plus verb inflection. However, with some verbs the stem is just a single consonant. These are illustrated in Table 7 with the stem separated from the infinitive marker.

Table 7. Amele Verbs with Single Consonant Stems			
b-ec	'to come up'	*l-ec*	'to go (near)'
c-ec	'to copulate'	*m-ec*	'to put'
d-oc	'to know'	*n-ec*	'to come down'
f-ec	'to see'	*n-oc*	'to go down'
h-oc	'to come'	*q-oc*	'to hit'
j-ec	'to eat'	*t-ec*	'to go up'
j-oc	'to wash'		

There are also a few verbs that have just a single vowel for the stem. These are illustrated in Table 8. For the infinitive forms of *ec* 'to say/think' and *oc* 'to get' it is not possible to separate morphologically the single vowel stem from the infinitive marker. However, the fact that these verbs do have single vowel stems shows up in the iterative forms where the stem is reduplicated.

Table 8. Amele Verbs with Single Vowel Stems			
a-ec	'to open mouth'	*aa-ec*	'to open mouth repeatedly'
ec	'to say/think'	*ii-ec*	'to say/think repeatedly'
oc	'to get'	*uu-ec*	'to get repeatedly'

It is also the case that a verb stem must cooccur with verb inflection for it to be categorised as a verb. If a verb stem occurs without verb inflection then it is not categorised as a verb. Table 9 illustrates a sample of verbs with a related noun or adjective. In some cases a verb is derived from a noun or adjective by adding verb morphology, such as *bendoc* from *ben* and *fufuec* from *fufu*. In other cases a deverbal noun is derived from a verb, such as *ifan* from *ifanec* and *ihul* from *ihulec*.

Table 9. Decategorised Verb Stems			
bendoc	'to be big'	*ben*	'big'
cadec	'to fight'	*cad*	'an enemy'
cagucagdoc	'to cut across'	*cagucag*	'a cut across'
dadanec	'to be confused'	*dadan*	'confusion'
fufuec	'for the wind to blow'	*fufu*	'wind'
gaidec	'to be continuous'	*gaid*	'always'
ifanec	'to create'	*ifan*	'a created thing'
ihulec	'to mix'	*ihul*	'a mixture'
meleec	'to believe'	*mele*	'true'
teheldoc	'to block'	*tehel*	'a blockage'

In this section we have seen that there are a set of criteria that would indicate that verbs in Amele are clearly words:

1. A verb must obligatorily comprise a verb stem and verb inflection and the inflection determines the syntactic category.
2. Neither the verb stem (unless it is a derived verb stem) nor the verb inflection can occur independently of each other since they both form part of a verb word.
3. The verb inflection is phonologically conditioned by the verb stem in certain conjugations of the verb. Therefore the verb inflection functions as phonologically dependent affixation within the verb word.

In the next section data are presented that provide evidence against analysing the verb-word as a morpholexical unit.

3.2 Evidence Against the Verb Word-Form as a Unit

Within generative grammar there is one school of linguists who maintain that the lexicon, the component of the grammatical model that contains all the information about the structural properties of the lexical items in the language, should be treated as a completely separate part of the model to the syntax, the component of the grammatical model that contains the rules generating the syntactic (sentence) structures of the language. These linguists would subscribe to the Lexicalist Hypothesis (LH) first proposed by Chomsky (1970) and developed by others, such as Lapointe (1981: 22), Botha (1981: 18), Selkirk (1982) and Di Sciullo and Williams (1987). The LH can be defined in terms of two general principles:

1. Syntactic rules, such as deletion or movement transformations, cannot make reference to any aspect of the internal structure of a word.
2. Morphologically complex words cannot be constructed of syntactic phrases or categories higher than itself in the X-bar hierarchy.

Other linguists have argued against this radical separation of the lexico-morphological and syntactic components. Anderson (1982), for example, argues that the morphological component is split between the syntax and the lexicon.[12] With his Extended Word-and-Paradigm model (EWP) he maintains that since inflectional morphology is basically configurational in nature it must be generated by the syntax and that only derivational morphology is confined to the lexicon. However, both of these positions would have difficulty in dealing with some structures and processes found in the Amele verb.

Baker (1988) has proposed a novel theory of Incorporation in terms of syntactic movement (Move-α) operating over lexical X^0 categories rather than maximal syntactic XP projections. He argues that noun incorporation obeys the same principles that other movement rules obey under GB Theory. He applies GB principles to the incorporation of lexical categories by a lexical head, which in most cases is the main verb, and considers in particular incorporation phenomena involving passives, antipassives, causatives, applicatives (preposition incorporation) and possessor ascension. Under Baker's theory a lexical item such as a verb may only incorporate those X^0 categories which it properly governs. This is formalised as the Head Movement Constraint and is a crucial part of Baker's proposals. It claims that certain types of incorporation do not occur in natural language such as verb incorporation out of adverbial clauses and noun incorporation out of a subject-NP. In this framework morphology is viewed as a semi-independent system of principles or sub-theory of GB rather than as part of the lexicon proper.

[12] This is the position adopted by Bickford and Daly (1994), for example, which is the basic grammar course taught in most SIL training schools.

In the next section we will examine instances of adverbial incorporation in the Amele verb.

3.2.1 Syntactic Rules Applying to the Structure of Verb-Words.

There are several examples in Amele verb morphology of syntactic deletion and movement rules applying to the internal structure of the verb-word. We will discuss deletion rules first.

3.2.1.1 Deletion and Omission processes within the Verb-Word. Deletion under identity can occur in several syntactic contexts. For example, it is possible to delete the head noun of a NP if it is the same as in a previous clause, as in (18).

18) *Uqa ho nag q-oi-a qa (ho) ben busal-ei-a.*
3S pig small hit-3S.SU-TODP but (pig) big escape-3S.SU-TODP
'He killed the small pig but the big one got away.'

It is also possible to delete either the subject or object NP from the second of two coordinated clauses under identity. An example where both are deleted is given in (19).

19) *Uqa sigin haun faj-ei-a qa hib=na it-i-a.*
3S knife new buy-3S.SU-TODP but behind=at 1S-3S.SU-TODP
'He bought a new knife but later gave me (it).'

The VP in the second of two clauses can also be deleted where the negator *qee* 'not' expresses contradiction, as in (20) for example.

20) *Uqa ma cil-i-a ija=qa qee.*
3S taro boil-3S.SU-TODP 1S=but not
'She boiled the taro but not I.'

Deletion under identity can also occur within the verb-word. For a speech verb that reports direct speech, such as *madec* 'to say', the normal style for an Amele speaker is to have the speech verb preceding the quote with just verb inflection from the speech verb closing off the quote. This is illustrated by (21a). It is also quite acceptable to have the full verb, including the verb stem, closing off the quote, as in (21b).

21) a. *Uqa mad-ei-a, "Ija jobon t-ig-en," ei-a.*
3S say-3S.SU-TODP 1S village go up-1S.SU-FUT 3S.SU-TODP
'He said, "I will go home."'

b. *Uqa mad-ei-a, "Ija jobon t-ig-en," mad-ei-a.*
3S say-3S.SU-TODP 1S village go up-1S.SU-FUT say-3S.SU-TODP
'He said, "I will go home."'

Where there is DOAgr on the speech verb agreeing with the addressee then the DOAgr cannot be deleted even though the verb stem is. This is illustrated by (22).

22) *Uqa ma-ad-ei-a, "Jobon t-eig-a," ad-ei-a/ *ei-a.*
3S say-3P.DO-3S-TODP village go up-2P.SU-IMP 3P.DO-3S-TODP/ 3S-TODP
'He told them, "Go home."'

This can be analysed as an optional deletion rule where the closing quote speech verb stem is deleted under identity. There is also another context in which the verb stem can be deleted or omitted. This occurs in a context such as that illustrated by (23). The response stative clause "*ija qee i el*" does not have a verb stem. Instead it has the negator *qee* followed by negative past verb inflection. In §3.1 I described how Amele does not have a verb 'to be' as such but instead certain verbs with a dual nonstative/stative meaning can function as the verb in the stative clause. However, stative clauses occur with no verb and these are analysed as having a verb in D-structure with null realisation in S-structure. In the same way when a negated stative clause occurs it is possible, as in (23), for the verb stem to be omitted leaving just the negator and the verb inflection.

23) *Uqa ma-do-n, "Hina age=na=dec oso!" do-n.*
3S say-3S.DO-3S.SU.REMP 2S 3P=of=from one 3S.DO-3S.SU.REMP
'He said, "You are one of them!"'

Eu=qa uqa ma-do-n, "Dana,
that=but 3S say-3S.DO-3S.SU.REMP man
ija qee i el!" do-n.
1S not PRED NEGP.3S.SU 3S.DO-3S.SU.REMP
'But he said, "Man, I am not!"' (or more literally: "it is not I")

The rule of deletion under identity can operate on a range of syntactic constituents. It would therefore be reasonable to assume that the same syntactic rule operates on the quote closure speech verb. However, this and the optional omission of the verb stem in a negative stative clause presents a problem for principle (1) of lexical morphology stated above, since the items deleted or omitted are constituents of a word and not the constituents of a clause. We will now examine some cases of movement where a syntactic constituent is moved into the verb-word.

3.2.1.2 Movement Rules to within the Verb-Word. In Amele it is possible to incorporate certain adverbial constituents into the verb. One of these is the emphatic word *bahic* 'very, must, really'. This adverb can occur either preceding the verb, as in (24a), or be incorporated into the verb between the verb stem and the configurational suffixation, as in (24b). The function of this incorporation is to express special emphasis for the purposes of contrast or correction, for example.

24) a. *Age Anut bina-n bahic sul-eig-a!*
2P God fame-3S.POSS really lift up-2P.SU-IMP
'Really praise God!'

b. *Age Anut bina-n sul bahic eig-a!*
2P God fame-3S.POSS lift up really 2P.SU-IMP
'REALLY praise God!'

Another adverb that can be incorporated into the verb-word between the verb stem and the configurational suffixation is the limiter *dih* 'just'. In (25a) it qualifies the noun phrase *uqana lotoc bibig* 'the fringe of his clothing' but in (25b) it qualifies the verb itself.

25) a. *Ija uqa=na lotoc bibig dih qudu-do-co-min fi...*
1S 3S=of clothing fringe just touch-3S.DO-DS-1S.SU if
'If I can touch just the fringe of his clothing ...'

b. *Ija uqa=na lotoc bibig qudu dih do-co-min fi...*
1S 3S=of clothing fringe touch just 3S.DO-DS-1S.SU if
'If I can just touch the fringe of his clothing ...'

Another adverb like *dih* is *himec* 'only'. In (26a) it qualifies *ahul* 'coconut(s)', while in (26b) it qualifies *gel* 'scrape'.

26) a. *Mel aid uqa ahul himec gel-ei-a.*
boy female 3S coconut only scrape-3S.SU-TODP
'The girl scraped only the coconuts.'

b. *Mel aid uqa ahul gel himec ei-a.*
boy female 3S coconut scrape only 3S.SU-TODP
'The girl only scraped the coconuts.'

The negators *qee* 'not' and *cain* 'prohibitive' are another class of adverbial constituents that can be incorporated into the verb-word in this way. The negators *qee* and *cain* can occur either preceding the verb, as in (27a) and (28a), or be incorporated into the verb, as in (27b) and (28b). As with *bahic*, the function of this incorporation is for special emphasis.

27) a. *Ege qee cucui-uq-una.*
1P not fear-1P.SU-PRES
'We are not afraid.'

b. *Ege cucui qee uq-una.*
1P fear not 1P.SU-PRES
'We are NOT afraid.'

28) a. *Ege cain cucui-uq-aun.*
1P PROH fear-1P.SU-NEGF
'We must not be afraid.'

b. *Ege cucui cain uq-aun.*
1P fear PROH 1P.SU-NEGF
'We MUST NOT be afraid.'

There is no semantic restriction on the verbs that *bahic, dih, himec, qee* and *cain* can be incorporated into but there is a phonological restriction. They can be incorporated into any verb which has a verb stem containing at least one syllable but cannot be incorporated into verbs that have a stem comprising just one consonant, such as those listed in Table 7.

3.2.1.3 Simultaneous-Durative Reduplication. One of the configurational inflectional paradigms illustrated in Table 4 is the combination of simultaneous tense (SIM) and durative aspect (DUR). SIM contrasts with sequential tense (SEQ). Neither SIM nor SEQ are marked overtly on the verb. Instead these categories are marked by a combination of particular SuAgr markers and the presence or absence of SS/DS markers. The main different between SIM and SEQ is that, whereas with SEQ one of the markers *-m(e)* 'SS', *-f(e)* 'SS.CONDITIONAL' or *-VcV* 'DS' is present in the paradigms, with SIM these markers are absent and the categories of SS/DS are expressed by different sets of SuAgr markers. It is also the case that only SIM combines with DUR and the way this category is marked is by reduplication of some part of the SIM verb.

First it is necessary to demonstrate that SIM-DUR is a configurational category as opposed to a derivational category. There is another inflectional category that is expressed on the verb by reduplication and this is iterative aspect (IT). However, whereas a verb marked for IT can have an infinitive form (INF), a verb marked for SIM-DUR cannot. This is because SIM-DUR, like the other tense, aspect and mood categories displayed in Table 3 and Table 4, are in complementary distribution to INF.

The difference between SIM-DUR and IT can be illustrated with a verb such as *helec* 'to throw'. *Helec* is a verb that expresses SIM-DUR by reduplicating the first CV of the verb stem. This is shown in column 2 of Table 10. This type of reduplication can only

occur with one of the SIM-DUR sets of SuAgr – either SS, DS.R or DS.IR. It cannot occur with INF. This would produce an ungrammatical form, as shown in the table. The category IT, on the other hand, can cooccur with INF. IT is also expressed by reduplication but in this case it is a form of whole stem reduplication. In fact, as one would expect if SIM-DUR is in complementary distribution to INF, IT can also combine with SIM-DUR. This is illustrated in column 4 of Table 10.

Table 10. SIM-DUR Contrasted with IT

Base+INF	Base+SIM-DUR	Base+IT+INF	Base+IT+SIM-DUR
hel-ec	*he-hel-en*	*heli-heli-ec*	*heli-heli-een*
'to throw'	'as he threw...'	'to throw repeatedly'	'as he threw repeatedly...'
	Base+SIM-DUR+INF		
	**he-hel-ec*		

SIM-DUR reduplication is also formally as well as functionally different from IT reduplication. SIM-DUR operates leftward from the base reduplicating the first (C)V of the base. SIM-DUR reduplication can also operate on any part of the SIM verb. This is also illustrated in Table 10. In the form *helihelieen* it is the first V of the verb inflection, *-en*, that is reduplicated to express SIM-DUR. IT reduplication, on the other hand, operates rightward from the base and only operates on the verb stem as whole stem reduplication. The fact that IT is expressed by rightward reduplication can be demonstrated by looking at the irregular iterative (IRIT) forms. In the IRIT form there is a system of vowel change that accompanies the reduplication and in this instance it is the formant on the right that exhibits this vowel change[13]. A set of verbs is given in Table 11 to illustrate this.

[13] For a full account of this vowel change process see Roberts (1991a).

Table 11. Iterative and Irregular Iterative Forms		
+INF	+IT+INF	+IRIT+INF
lahadoc	*lahalahadoc*	*lahaluhudoc*
'to stamp'	'to stamp repeatedly'	'to stamp all over'
filihicdoc	*filihicfilihicdoc*	*filihicfolohocdoc*
'to unravel'	'to unravel repeatedly'	'to unravel all over'
cogogec	*cogogcogogec*	*cogogcigigec*
'to twist'	'to twist repeatedly'	'to twist in every direction'
buduec	*budubuduec*	*budubadaec*
'to thud'	'to thud repeatedly'	'to thud sporadically'

The point of the foregoing is to demonstrate that SIM-DUR inflection is both configurational and accesses the internal structure of the verb-word. It is also the case that SIM-DUR inflection does not just access the phonological structure of the verb-word, e.g. reduplicates the first (C)V, but it also accesses the morphological and syntactic structure of the verb-word.

As already stated, with some verbs the first CV of the verb stem is reduplicated when inflected for SIM-DUR. An illustrative set of such verbs is given in Table 12, as set (a). For other verbs inflected for SIM-DUR the first V is reduplicated, as in set (b). And yet for other verbs the SIM-DUR category is expressed by reduplicating the first segments of the SuAgr, as illustrated by set (c) in Table 12.

Table 12. Forms of SIM- DUR Reduplication			
Set (a)			
bilec	'to sit'	*bi-bilen*	'as he sat...'
cafalec	'to untie'	*ca-cafalen*	'as he untied...'
fajec	'to pay'	*fa-fajen*	'as he paid...'
gelec	'to scrape'	*ge-gelen*	'as he scraped...'
hoc	'to come'	*ho-hon*	'as he came...'
jaqec	'to write'	*ja-jaqen*	'as he wrote...'
libec	'to tie'	*li-liben*	'as he tied...'
mudec	'to make'	*mu-muden*	'as he made...'
nuec	'to go'	*nu-nuen*	'as he went...'
qatanec	'to split'	*qa-qatanen*	'as he split...'
siwec	'to share'	*si-siwen*	'as he shared...'
tanawec	'to make peace'	*ta-tanawen*	'as he made peace...'
wegec	'to weave'	*we-wegen*	'as he weaved...'
Set (b)			
adec	'to be like what'	*a-aden*	'as it was like what...'
edec	'to be like this'	*e-eden*	'as it was like this...'
ilalec	'to dodge'	*i-ilalen*	'as he dodged...'
oc	'to get'	*o-on*	'as he got...'
odoc	'to do'	*o-odon*	'as he did...'

Set (c)			
abalec	'to handle'	*abale-en*	'as he handled...'
babalec	'to cross'	*babale-en*	'as he crossed...'
cogogec	'to twist'	*cogoge-en*	'as he twisted...'
deeec	'to stare'	*deee-en*	'as he stared...'
euec	'to cry'	*eue-en*	'as he cried...'
faninec	'to flatter'	*fanine-en*	'as he flattered...'
gasuec	'to search'	*gasue-en*	'as he searched...'
idadec	'to trade'	*idade-en*	'as he traded...'
meciec	'to watch'	*mecie-en*	'as he watched...'
qelelec	'to tremble'	*qelele-en*	'as he trembled...'
tatalec	'to pull down'	*tatale-en*	'as he pulled down...'
utaec	'to call'	*utae-en*	'as he called...'

Some of this variation in reduplication patterns is phonologically conditioned. For example, some of the verbs in set (c) that reduplicate on the SuAgr do so because the verb stem already has a duplication of segments. This applies to *babalec*, *cogogec*, *deeec*, *qelelec* and *tatalec*. This is confirmed by the fact that all iterative verbs without OAgr, such as *cogogcogogec* and *budududuec* illustrated in Table 11, reduplicate the SuAgr to express SIM-DUR, i.e. *cogogcogogeen* 'while he twisted repeatedly' and *budududueen* 'while it thudded repeatedly' respectively. As for the remaining verbs in set (c) there would appear to be no satisfactory phonological or morphological explanation as to why these verbs reduplicate for SIM-DUR on the SuAgr part instead of on the verb stem. Verbs in Amele are simply divided into two morphological classes by SIM-DUR reduplication.

However, as already mentioned, if the verb has any type of OAgr then this is normally the site of the SIM-DUR reduplication. A sample set of verbs with DOAgr marked for SIM-DUR is given in Table 13 to illustrate this.

Table 13. SIM-DUR Reduplication with DOAgr			
abuldoc	'to struggle'	*abuldodon*	'as he struggled...'
baladoc	'to tear'	*baladodon*	'as he tore...'
cahacdoc	'to obstruct'	*cahacdodon*	'as he obstructed...'
didoc	'to pull'	*didodon*	'as he pulled...'
elelandoc	'to provoke'	*elelandodon*	'as he provoked...'
fagdoc	'to stick'	*fagdodon*	'as he stuck...'
goldoc	'to stir'	*goldodon*	'as he stirred...'
hehdoc	'to support'	*hehdodon*	'as he supported...'
iwesdoc	'to sweep'	*iwesdodon*	'as he swept...'
jabdoc	'to pursue'	*jabdodon*	'as he pursued...'
loldoc	'to wander'	*loldodon*	'as he wandered...'
meledoc	'to examine'	*meledodon*	'as he examined...'
saciadoc	'to prepare'	*saciadodon*	'as he prepared...'
welacdoc	'to scorch'	*welacdodon*	'as he scorched...'

The relevance of this is that SIM-DUR reduplication functions differently depending on whether the OAgr is DO or not. When DOAgr is reduplicated to indicate SIM-DUR, for the nonsingular second and third person forms of most verbs the first V is reduplicated. However, when the OAgr is not DO then the first VC is usually reduplicated to indicate SIM-DUR. This is illustrated in Table 14.

Table 14. SIM-DUR and DOAgr vs. nonDOAgr			
Base+DOAgr		DOAgr+SIM-DUR	
manadec	'to cook them'	*manaaden*	'as he cooked them...'
qetadec	'to cut them'	*qetaaden*	'as he cut them...'
Base+OOAgr		OOAgr+SIM-DUR	
maniadec	'to cook for them'	*maniadaden*	'as he cooked for them...'
qetiadec	'to cut for them'	*qetiadaden*	'as he cut for them...'

For some of the verbs with a minimal verb stem (see Table 7) the difference between DOAgr SIM-DUR and nonDOAgr SIM-DUR reduplication is even more marked and applies to all person and number combinations. Table 15 illustrates how some of these verbs form DOAgr and OOAgr and how this agreement interacts with the SIM-DUR reduplication. For DOAgr the first (C)V of the verb stem reduplicates to indicate SIM-DUR. Note that *mudec* 'to put him' is somewhat irregular here. This is presumably because the homophonous *mudec* 'to make' has a SIM-DUR form of *mumuden*. The suppletive *mimidon* therefore serves to distinguish 'as he put him...' from 'as he made...' For OOAgr, on the other hand, the OOAgr itself is reduplicated to express SIM-DUR.

Table 15. SIM-DUR and DO/nonDOAgr for Verbs with Minimal Stems		
Base	+DOAgr	+DOAgr+SIM-DUR
qoc	*qutec*	*ququten*
'to hit'	'to hit him'	'as he hit him...'
mec	*mudec*	*mimidon*
'to put'	'to put him'	'as he put him...'
oc	*oitoc*	*ooiton*
'to get'	'to get him'	'as he got him...'
Base	+OOAgr	+OOAgr+SIM-DUR
qoc	*qutoc*	*qutoton*
'to hit'	'to hit for him'	'as he hit for him...'
mec	*mutoc*	*mutoton*
'to put'	'to put for him'	'as he put for him...'
oc	*utoc*	*utoton*
'to get'	'to get for him'	'as he got for him...'

Therefore the SIM-DUR reduplication pattern for verbs with minimal stems follows the pattern for verbs with more visible stems in that the reduplication for DOAgr applies further leftward towards the beginning of the verb-word than the reduplication for nonDOAgr. The data presented in this section shows that the inflectional category SIM-DUR has the following properties:

1. SIM-DUR occurs in complementary distribution to the infinitive marker *-ec/-oc* and is therefore configurational.
2. SIM-DUR is expressed by reduplicating part of the verb-word, either V, CV or VC.
3. SIM-DUR reduplication is sensitive to the internal structure of the verb-word and can function on either the verb stem, the SuAgr, the DOAgr or the IO/OOAgr depending on the morpho-syntactic properties of the verb.

In this section we have examined a range of syntactic rules that can access the internal structure of the verb word-form, viz.:

a) optional deletion under identity of the verb stem in the closing quote verb
b) optional omission of the verb stem in the negative stative clause

c) optional movement of certain adverbial constituents to the end the verb stem within the verb word
d) application of the configurational category SIM-DUR by the phonological process of reduplication to either the verb stem, the OAgr or the SuAgr part of the verb word depending on the morphosyntactic properties of the verb.

3.2.2 Syntactic Phrases and Clauses Functioning as Verb Stems

In this section we will examine evidence that verbs in Amele are actually phrasal constituents. This evidence is based on the iterative and reciprocal verb forms.

3.2.2.1 Iterative Verbs. Amele has iterative (IT) verbs where the stem is reduplicated to produce a duplicated verb stem. As noted in §3.2.1.3 the production of the irregular iterative form involves a system of vowel change in the righthand formant. This demonstrates that IT inflection is expressed by a rightward copying of the whole verb stem. Some more examples of this process are given in Table 16.

Table 16. Iterative Verb Forms with Reduplicated Stems

Base+INF		Base+IT+INF	
buduec	'to thud'	*budu-budu-ec*	'to thud repeatedly'
faleec	'to flash'	*fale-fale-ec*	'to flash repeatedly'
gasuec	'to search'	*gasu-gasu-ec*	'to search repeatedly'
gelec	'to scrape'	*gel-gel-ec*	'to scrape repeatedly'
libec	'to tie'	*lib-lib-ec*	'to tie repeatedly'
joec	'to hover'	*jo-jo-ec*	'to hover repeatedly'
qatanec	'to split'	*qatan-qatan-ec*	'to split repeatedly'

At this moment it would be relevant to show that although the inflectional categories of iterative and durative aspect are both marked on the verb by reduplication they are different types of inflection. I have already shown that durative aspect in combination with simultaneous tense, SIM-DUR, is a configurational category marked on the verb. Iterative aspect, however, is derivational. This can be demonstrated by the fact that, whereas SIM-DUR can be marked on any verb without restriction, IT cannot be marked on stative verbs (cf. for example Bybee, 1985:150).

I described in §3.1 several verbs in Amele that can have a stative or nonstative meaning. When these verbs are inflected for SIM-DUR they still maintain their dual meaning. However, when these verbs are inflected for IT they can only have their nonstative meaning. This is illustrated for *bilec*, *nijec* and *tawec* in Table 17.

Table 17. Durative and Iterative Forms of Stative Verbs in Amele		
Base+INF	Base+SIM-DUR	Base+IT+INF
bilec	*bibilen*	*bilibiliec*
'to sit (down), to be'	'as he sits ..., as he is ...'	'to sit down repeatedly'
nijec	*ninijen*	*nijinijiec*
'to lie (down), to be'	'as he lies ..., as he is ...'	'to lie down repeatedly'
tawec	*tatawen*	*tawitawiec*
'to stand (up), to be'	'as he stands ..., as he is ...'	'to stand up repeatedly'

Table 16 shows one type of iterative reduplication, viz. whole stem reduplication. Table 18 illustrates another type of iterative reduplication. Here the verb stem comprises two verbs which are themselves inflected for the medial verb infinitive marker *-i/-u*, termed the predicate marker (PRED).

Table 18. Iterative Verb Forms with Reduplicated Word-Stems			
Base+INF		Base+IT+INF	
bec	'to come up'	*bi-bi-ec*	'to come up repeatedly'
bilec	'to sit'	*bili-bili-ec*	'to sit repeatedly'
cagoc	'to cut'	*cagu-cagu-ec*	'to cut repeatedly'
helec	'to throw'	*heli-heli-ec*	'to throw repeatedly'
hoc	'to come'	*hu-hu-ec*	'to come repeatedly'
lec	'to go'	*li-li-ec*	'to go repeatedly'
oc	'to get'	*u-u-ec*	'to get repeatedly'
qoc	'to hit'	*qu-qu-ec*	'to hit repeatedly'

Thus the analysis of *bilibiliec* 'to sit repeatedly' is as in (29).

29) *hil-i-hil-i-ec*
sit-PRED-sit-PRED-INF

Therefore the verb stem of *hilihiliec* is actually constructed of two fully inflected verb-words in contrast to verb stems in the verbs illustrated in Table 16. So whereas the stem of *hudududuec* 'to thud repeatedly', for example, can still be considered to be a stem, the stem of *hilihiliec* must be analysed as a word compound.

The notion of iterative actions can be extended with forms that express a series of contrasting actions, such as those given in (30-34). In each of these examples a series of up to four different verbs function as the 'stem' of the matrix verb. The inflection for the matrix verb attaches to the end of the series.

30) *Age uqa ton-i tob-i ceb f-oqag-an.*
3P 3S descend-PRED ascend-PRED 3P.SU.SIM.DUR.DS.IR see-3P.SU-FUT
'They will see him ascending and descending.'

31) *Uqa l-i l-i h-u h-u ena.*
3S go-PRED go-PRED come-PRED come-PRED 3S.SU.PRES
'He comes and goes.'

32) *Age t-i t-i n-i n-i egi-na.*
3P go up-PRED go up-PRED come down-PRED come down-PRED 3P.SU-PRES
'They go up and come down.'

33) *Ege cinim qet-i l-i qet-i h-u oqo-na.*
1P kunai cut-PRED go-PRED cut-PRED come-PRED 1P.SU-PRES
'We cut the kunai grass backwards and forwards.'

34) *Uqa f-i f-i d-u d-u igi-an.*
3S see-PRED see-PRED know-PRED know-PRED 3S.SU.FUT
'He will see and know.'

These forms should be contrasted with serial verbs, such as those illustrated in (35-37). With each of these examples there is a medial verb inflected with the predicate marker followed by a final verb which carries the final verb inflection. In the examples (30-34) there is no final verb as such. Instead there is just 'free' final verb inflection.

35) *Ege cesel-i bel-om.*
3P return-PRED go-3P.SU.REMP
'We came back.'

36) *Uqa sab j-i f-ei-a.*
3S food eat-PRED see-3S.SU.TODP
'He tasted the food.'

37) *Age nu-i bil-egi-na.*
3P go-PRED sit-3S.SU.PRES
'They go continuously.'

The verb series functioning as stems in examples (30-34) could be analysed as a type of compounding. However, such contrastive formations are readily generated by Amele native speakers in a similar way to compounding by German speakers. These verb series are therefore better analysed as syntactic constituents, i.e. series of syntactically generated clauses. In some contrastive expressions the embedded verb stem can be more clearly analysed as a series of clauses. An example of this is given in (38) in which the verbs in the embedded clause series have the subjects *wa* 'rain' and *cam* 'sun' respectively.

38) *Wa n-i cam taw-i ena.*
rain come down-PRED sun stand-PRED 3S.SU.PRES
'Come rain or shine.'

In fact, verb stems in these types of constructions can be very complex, as illustrated by (39) taken from text. In this example there is a series of four reduplicated verbs each marked for its own inflection. Verb inflection expressing past habitual aspect then follows the verb series. The first two verbs *lahaluhududu* and *wolwildudu* have reduplicated stems with a vowel change in the second formant which expresses an irregular repeated action. In addition these two verbs are also marked for third person singular direct object agreement which is expressed in the medial verb form, i.e. *doc* + *-i* → *du*. This morphology is also reduplicated to express iterativity. The second two verbs in the series *li li* and *hu hu* are of the type already described above and express a contrastive action. Each of these reduplicated verbs therefore form a clause chain which functions as the 'stem' of the verb.

39) *Cebina-g=ul ale laha-luhu-du-du wol-wil-du-du*
sibling-3S.POSS=PL 3D stamp-IRIT-3S.DO-IT turn-IRIT-3S.DO-IT
l-i l-i h-u h-u olo-si
go-PRED go-PRED come-PRED come-PRED HABP-3D.SU
'His (two) sisters used to stamp on him all over, turn (their heels) on him all over, this way and that way.'

The data presented in this section clearly demonstrates that the verb stem position in Amele can be filled by verb stems proper, reduplicated verb stems, reduplicated verb-words, serial verb constructions up to clauses and clause chains. And in each case the final verb inflection attaches to the whole construction rather than to the final verb in the construction. This is confirmed by the fact that the final verb inflection is not affected phonologically by the vowel in the preceding verb at the end of the verb stem.

Recall from Table 5 that when the vowel in the verb stem immediately preceding the verb inflection is a high vowel, such as /i/ or /u/, any epenthetic or empty morph vowel in certain conjugations of the verb inflection is raised. A paradigm of *bilec* 'to sit' from

Table 5 is reproduced in Table 19 along with the corresponding iterative paradigm. Notice that the relevant vowel is not raised in the iterative paradigm. This shows that in this case the verb inflection is not phonologically bound to the preceding iterative stem. The same observation can be made from data examples (31) and (33) above.

Table 19. Vowel Raising and Iterative Verbs

	Base+PRES		Base+IT+PRES	
1S	*biligina*	'I am sitting'	*bilibili-igina*	'I am sitting repeatedly'
2s	*biligina*	'you are sitting'	*bilibili-agana*	'you are sitting repeatedly'
3S	*bilina*	'he is sitting'	*bilibili-ena*	'he is sitting repeatedly'
1D	*bilɯwɯna*	'we(2) are sitting	*bilibili-ɵwɵna*	'we(2) are sitting repeatedly'
2/3D	*bilesina*	'you(2)/they are sitting'	*bilibili-esina*	'you(2)/they are sitting repeatedly'
1P	*bilɯqɯna*	'we are sitting'	*bilibili-ɵqɵna*	'we are sitting repeatedly'
2/3P	*bilegina* -	'you/they are sitting'	*bilibili-egina*	'you/they are sitting repeatedly'

3.2.2.2 *Reciprocal Verbs.* Amele has another type of verb where the stem is reduplicated and this is in the reciprocal verbs. As described in Roberts (1987: 131, 306-308 and 1991a), the reciprocal verb is realised by two coordinate serial verbs embedded within a matrix verb. The two coordinate serial verbs can be identical in structure and each coreferences an individual reciprocant. They are formed by a verb stem and verb inflection that expresses DS and third person subject agreement. This construction is then followed by verb inflection which expresses subject agreement with the reciprocant group as a whole, either dual or plural number. Examples (40-44) illustrate the reciprocal verb construction. In examples (40-43) the full verb is reduplicated and in example (44) just the DOAgr is reduplicated.

40) *Age q-oco-b q-oco-b ec=nu bel-ein.*
3P hit-DS-3S.SU hit-DS-3S.SU INF=for go-3P.SU.REMP
'They went to hit each other.'

41) *Dana lecis mad-ece-b mad-ece-b eesi cob-osin.*
man two say-DS-3S.SU say-DS-3S.SU SIM.3S.SU.SS walk-3D.SU.REMP
'The two men talked to each other as they walked.'

42) *Age qet-ud-ece-b qet-ud-ece-b ol-oin.*
3P cut-3S.DO-DS-3S.SU cut-3S.DO-DS-3S.SU HABP-3P
'They used to cut each other.'

43) *Dana age sagag-do-co-b sagag-do-co-b oqag-an.*
man 3P hate-3S.DO-DS-3S.SU hate-3S.DO-DS-3S.SU 3P.SU-FUT
'Men will hate each other.'

44) *Ege cesul do-co-b do-co-b oq-a=le.*
1P help 3S.DO-DS-3S.SU 3S.DO-DS-3S.SU 1P.SU-INJ=HORT
'Let us help each other.'

The reciprocal verb is an example of a GF changing process. The function of the two embedded DS verbs is to indicate the GF change as

subject → object; object → subject

It is interesting that Baker (1988:9-12) says that when we look at the class of GF changing processes which appear in languages of the world, we find that not every permutation of GFs is permitted. On the contrary, the class of existing processes is restricted to just a small set. Baker describes the following as a representative set of attested processes found in language:

Passive.
subject → oblique (or null); object → subject

Antipassive.
object → oblique (or null)

Applicatives.
$$\left\{\begin{array}{c}\text{oblique}\\ \text{indirect object}\\ \text{null}\end{array}\right\} \rightarrow \text{object; object} \rightarrow \text{"2nd object" (or oblique)}$$

Causative.
a. null → subject; subject → null
(i.e. add a new subject and delete the old one)
b. null → subject
If there is an object, subject → oblique
otherwise, subject → object

c. null → subject; subject → object
If there is an object, object → "2nd object" (or oblique)

Possessor raising.
possessor of object → object; object → "2nd object"

While Baker argues that all these phenomena can be better accounted for under his Incorporation theory without reference to GFs, such as subject and object, he (Baker, 1988:11) also notes that no language apparently has a GF changing process that could be described as

subject → object; object → subject

However, this is exactly the type of GF changing process that occurs in the Amele reciprocal verb system.[14] In fact, the reciprocal verb can mark a range of GF changes. In the reciprocal verb construction the antecedent must always be the subject of the matrix verb since the subject is always coreferenced on the embedded reciprocal verb. All the reciprocal relations in (40-44) are between subject and direct object, i.e. Su ↔ DO. Other reciprocal relations can also be marked by the object agreement morphology. The examples in (45-48) illustrate the relations Su ↔ IO and Su ↔ OO.

45) *Ege ceb ut-ece-b ut-ece-b oqo-na.* (Su ↔IO)
1P betelnut 3S.IO-DS-3S.SU 3S.IO-DS-3S.SU 1P.SU-PRES
'We are giving betelnut to each other.'

46) *Age age=na mel mad-i to-co-b to-co-b eig-a.* (Su ↔IO)
3P 3P=of son say-PRED 3S.IO-DS-3S.SU 3S.IO-DS-3S.SU 3P.SU-TODP
'They spoke about their sons to each other.'

47) *Age jacas qet-i to-co-b to-co-b eig-a.* (Su ↔ OO)
3P tobacco cut-PRED 3S.OO-DS-3S.SU 3S.OO-DS-3S.SU 3P.SU-TODP
'They cut tobacco for each other.'

48) *Ale=na ho u to-co-b to-co-b esin.* (Su ↔ OO)
3D=of pig get.PRED 3S.OO-DS-3S.SU 3S.OO-DS-3S.SU 3D.SU.REMP
'They(dl) killed their pigs on each other.'

The point to note, however, is that in all reciprocal forms the reciprocal reduplication is followed by 'free standing' verb inflection which can be any of the configurational categories or the infinitive marker, as in (40) for example.

In this section we have examined iterative and reciprocal verb constructions both of which can be analysed as having verb stems constituting phrasal or even clausal

[14] This verb form does not, in fact, vitiate Baker's claim since it does not involve incorporation out of a subject-NP.

constructions to which verb inflection can be structurally attached. Therefore we are now in the position of having established, on the one hand, a set of criteria that would indicate that verbs in Amele are clearly words, viz.

1. A verb must obligatorily comprise a verb stem and verb inflection and the inflection determines the syntactic category.
2. Neither the verb stem (unless it is a derived verb stem) nor the verb inflection can occur independently of each other since they both form part of a verb word.
3. The verb inflection is phonologically conditioned by the verb stem in certain conjugations of the verb. Therefore the verb inflection functions as phonologically dependent affixation within the verb word.

On the other hand, there are also a set of criteria that would indicate that verbs in Amele are clearly phrasal constructions:

1. Syntactic deletion and movement rules can have access to the internal structure of the verb.
2. The internal structure of verbs can contain phrase level or even clause level constituents.
3. The verb inflection is not phonologically conditioned by the verb stem when this stem comprises phrase level or clause level constituents. Therefore the verb inflection functions as a bound word phonologically independent of the verb stem.

In the following sections I will propose an analysis of the Amele verb using insights from current GB theory to account for this apparent paradox.

4. The Clitic Properties of Amele Verb Inflection

Verb inflection in Amele is a type of bound morphology, since it can only occur when attached to some other morpheme or morphemes which function as a verb stem or base. However, there is a question as to what type of bound morphology it is. On first inspection it appears to be verbal affixation, but there is evidence that it is a type of clitic morphology rather than affixation.

Zwicky and Pullum (1982) suggest a range of criteria for distinguishing clitics from affixes. They argue that word-clitic combinability is largely governed by syntactic considerations and that word-affix combinability, on the other hand, is controlled by morphological and/or lexical considerations which are concerned with the substructure of a particular set of words. Zwicky and Pullum (Z&P) apply their criteria to the contracted forms in English *'s* 'is', *'s* 'has', *'ve* 'have' and *n't* 'not'. They determine that while the forms *'s* 'is', *'s* 'has' and *'ve* 'have' meet all the criteria of being simple clitics, *n't* 'not', on the other hand, is distinguished as being an affix. The criteria that Z&P use are:

1. Clitics exhibit a low degree of selection with respect to their hosts, while affixes exhibit a high degree of selection with respect to their stems.
2. Arbitrary gaps in the set of combinations are more characteristic of affixed words than of clitic groups.
3. Morphophonological idiosyncrasies are more characteristic of affixed words than of clitic groups.
4. Semantic idiosyncracies are also more characteristic of affixed words than of clitic groups.
5. Syntactic rules can affect affixed words, but cannot affect clitic groups.
6. Clitics can attach to material already containing clitics, but affixes cannot.

These criteria can be applied to the Amele verb inflection and it can be demonstrated that this is a clitic form. By way of comparison the same criteria can also be applied to other constituents which are more clearly clitics, on the one hand, and more clearly affixation, on the other.

Amele has a number of clitic-type words. They include the postpositions, conjunctions and sentence particles listed in Table 20. None of these forms are phonologically reduced and can only occur suffixed to a preceding host constituent. In each case, however, there is no categorial restriction on the host constituent. All of these items would therefore be analysed as clitics. In the clitic typology proposed by Zwicky (1977) they are bound words.

Table 20. Clitic-type Words in Amele

Postpositions:		Conjunctions:		Sentence Particles:	
ca	'with, add, have, at, in, towards'	*ca*	'and'	*da*	'counter-expectation'
		fi	'if (potential)'	*dain*	'apprehension'
dec	'from'	*fo*	'or'		
gul	'own, self'	*mi*	'if' (counterfactual)	*do*	'encouragement'
hen	'in the direction towards the speaker'	*qa*	'but'	*fa*	'dubitive'
				fo	'yes-no question'
na	'at, in, on, with, of'			*ijom ≈ om*	'emphatic assertion'
nu	'for, so, about'			*le ≈ l*	'permissive'
				lu	'obligatory'
sec	'in the direction away from the speaker'			*mo*	'supplicative'
				nu	'hortative' (+infinitive)
				nu	'habitual' (+present)
we	'seem, able'				

Amele also has another major set of affixation. This is the inalienably possessed noun morphology. Possessed nouns are mainly kinship and body part terms. They can be inflected for first, second and third person and singular, dual and plural number of the possessor and, in the case of the kinship terms, also for singular and plural number of the possessed. An illustrative paradigm for *cotig* 'brother' is given in Table 21.

Table 21. Paradigm of Inalienably Possessed Noun Morphology				
	Singular possessor	Dual possessor	Plural possessor	
1	*coti* *cotiel*	*cotile* *cotileil*	*cotige* *cotigeil*	 Plural possessed
2	*cotin* *cotinel*	*cotola* *cotolail*	*cotoga* *cotogail*	 Plural possessed
3	*cotig* *cotugul*	*cotola* *cotolail*	*cotoga* *cotogail*	 Plural possessed

4.1 Affix vs. Clitic Criterion (1)

With respect to criterion (1) the postpositions, conjunctions and sentence particles given in Table 20 can be attached to hosts that are nouns, pronouns, verbs, adjectives, adverbs and other clitics. Some examples are given in (49-54).

49) [Noun+P] [Noun+P] [Verb+P]
Dana caja ca age maha na bil-egi-na na ija h-om.
man woman add 3P ground on sit-3P.SU-PRES at 1S come-1S.SU.REMP
'I came to where the men and women were sitting on the ground.'

50) [Adj+P] [Adv+P]
Dana me ca cebit na cob-ona.
man good add slow with walk-3S.SU.PRES
'The important man is walking slowly.'

51) [Verb+Conj]
h-ugi-an fi...
come-3S.SU-FUT if
'if he comes ...'

52) [Noun+P+P] [Verb+Conj+Conj]
Wa eu maha na dec cal-ou-b mi qa...
water that ground in from come out-CONTR-3S.SU if but
'But if that water had come out of the ground ...'

53) [Verb+SP]
Uqa cabi na nu-i-a fo?
3S garden to go-3S.SU-TODP QUESTION
'Did he go to the garden?'

54) [Noun+P+SP]
Uqa cabi na fo nu-i-a?
3S garden to QUESTION go-3S.SU-TODP
'Is it to the garden he went?'

With the possessed noun morphology, however, the host constituent is limited to nouns only. For the verb inflection we have already noted that, while in most cases it is attached to a verb stem, it can also be attached to an adverbial constituent, such as *bahic*, *himec* or *dih*, or a negator, such as *qee* or *cain*, when any of these items are incorporated into the verb. So under criterion (1) the verb inflection falls into the clitic class.

4.2 Affix vs. Clitic Criterion (2)

Criterion (2) says that arbitrary gaps in the set of combinations are more characteristic of affixed words than of clitic groups. This can be illustrated from the possessed noun morphology where there are arbitrary gaps in the inflectional paradigms. As already stated, only kinship terms can be marked for plurality of the possessee. In addition some kinship terms only have a plural possessee form. Some of these are given in Table 22. So there are arbitrary gaps in the possessed noun morphology indicating that this is a host-affix combination.

Table 22. Inalienably Possessed Nouns Restricted to Plural Possessee Forms

	Singular	Dual	Plural	
1	*abi-el*	*abile-il*	*abige-il*	'all the men on the
2	*abin-el*	*abala-il*	*abaga-il*	mother's side of the
3	*abeg-ul*	*abala-il*	*abaga-il*	family'
1	*memeti-el*	*memetile-il*	*memetige-il*	'all the men on the
2	*memetin-el*	*memetela-il*	*memetega-il*	father's side of the
3	*memeteg-ul*	*memetela-il*	*memetega-il*	family'
1	*sihuni-el*	*sihunile-il*	*sihunige-il*	'the clan'
2	*sihun-el*	*sihunula-il*	*sihunuga-il*	
3	*sihuneg-ul*	*sihunula-il*	*sihunuga-il*	

For the set of clitic words given in Table 20 there are no arbitrary gaps in their attachment to host constituents. So this indicates that they are a host-clitic combination. It is also the case that there are no arbitrary gaps in the way the final and medial verb paradigms given in Table 3 and Table 4 are inflected on the verb. Every verb can be

inflected for all of these paradigms. So criterion (2) indicates that the verb inflection is a host-clitic combination.

4.3 Affix vs. Clitic Criterion (3)

Criterion (3) states that morphophonological idiosyncrasies are more characteristic of affixed words than of clitic groups. Specifically clitics do not exhibit an unexpected phonological form in combination with their host, i.e. hosts are unaffected by these clitics and the clitics themselves have allomorphs distributed by general rules referring to phonological and morphological properties of the hosts. For host-affix combinations, on the other hand, morphophonological idiosyncracies are very common: there are arbitrary groupings into paradigm sets, subregular and irregular forms for both stems and affixes, and suppletion.

Most of the clitic words in Table 20 do not exhibit morphophonological variation with respect to their host constituent. Of the two that do, viz. *ijom* ≈ *om* 'emphatic assertion' and *le* ≈ *l* 'permissive', the variation in both of these forms can be explained in terms of optional contraction.

The situation is the complete opposite, however, with respect to the possessed nouns. In Roberts (1987:172-175) the one hundred plus possessed noun forms are analysed into over thirty morphological classes based on the allomorphic variation in the first, second and third person singular forms. Table 23 illustrates the range of possibilities for each of these person categories. Some of this variation has a phonological basis. For example, the *-ni/-mi*, *-n/-m* and *-m/-im* alternations often correspond with the absence or presence of a V[+round] or C[+labial] in the noun stem. However, there are many exceptions and a phonological rule cannot be sustained that accounts for all forms.

Table 23. Nominal Possessor Agreement Morphemes

First person			Second person			Third person		
-ni	*-mi*	*-i*	*-n*	*-m*	*-win*	*-g*	*-h*	*-ʔ*
-ani		*-li*	*-in*	*-im*		*-ag*	*-ah*	*-iʔ*
-eni		*-wi*	*-en*			*-eg*	*-eh*	
-ini			*-un*			*-ig*		
-oni			*-ain*			*-ug*		
-uni			*-ein*			*-iag*		
			-oin					∅
						-nag		
			-nin			*-nug*		
			-inin					
			-unin			*-n*		

This situation can be contrasted with the plural possessed morpheme *-el/-il/-ul*. Recall the expression in (5) *jo asagul* 'the boss of the houses' where the *-ul* 'plural possessed' applies to *jo* 'house' and not to *asag*, and therefore *-ul* is actually a phrasal affix or clitic having scope over the whole NP. This affix has phonological variants depending on the segment at the end of the noun base it attaches to. However, unlike the inalienably possessed noun morphology proper its phonological variation is regular and predictable. A set of singular forms in Table 24 illustrates this. In the first and second person singular the form is always *-el* and this is taken as the base form. In the dual and plural number forms the *-el* → *-il* following the [–high] vowels /e/ or /a/. This is a process of diphthongisation and is illustrated in Table 22 above. For the third person singular forms there is more complexity but even so a regular phonological pattern can be discerned.

Table 24. Plural Possessed Forms			
'my'	'your'	'his/her'	
utuɓani *utuɓaniel*	*utuɓain* *utuɓainel*	*utuɓan* *utuɓanel*	'neighbour' 'neighbours'
melami *melamiel*	*melem* *melemel*	*melah* *melahul*	'son' 'sons'
tala?uni *tala?uniel*	*tala?un* *tala?unel*	*tala?* *tala?ul*	'child' 'children/family'
awi *awiel*	*awin* *awinel*	*awag* *awagul*	'nephew / neice' 'nephews / neices'
bini *biniel*	*binim* *binimel*	*binig* *binugul*	'father's sister' 'father's sisters'
?oti *?otiel*	*?otin* *?otinel*	*?otig* *?otugul*	'sibling of same sex' 'siblings of same sex'
meni *meniel*	*menim* *menimel*	*menig* *menugul*	'husband's sister' 'husband's sisters'

A set of third person singular forms is given in Table 24 that illustrates all the morphophonemic possibilities. Where the preceding segment is a /h/, /?/ or /g/ then *-el* → *-ul*, i.e. the /e/ assimilates to the preceding consonant and becomes [+high, +back]. In other contexts there is no change. In addition when the segments preceding *-ul* happen to be *-ig*, as in *binig*, *?otig* and *menig*, for example, then a further backing process operates to produce the sequence *-ugul*. These morphophonological processes apply without exception to all the inalienably possessed nouns that can be marked for plural possessee. This confirms that *-el/-il/-ul* is a clitic and not an affix.

Thus the phonological behaviour of clitic morphology can be seen to be different from that of affixation even in the possessed nouns. In addition to the fact that the possessed nouns form many morphological classes several of these nouns have contracted variations where the affixation is either fused with the noun stem or reduced. These are illustrated in Table 25.

Table 25. Contracted Possessed Noun Forms			
an-i	→	*au*	'my mother'
mem-i	→	*mei*	'my father'
waw-ig	→	*waug*	'his/her stomach'
ɓehi-h	→	*ɓeih*	'his/her ribs'
aiden-egail	→	*aidagail*	'their wives'
gemun-ugail	→	*gemugail*	'their husbands'

In contrast to this the verb inflection is extremely regular in morphophonological form. There are variations in the phonological shape of the verb inflection but like the plural possessed clitic these are conditioned by general rules relating to the phonological and morphological properties of the verb stem. Firstly, there are two basic forms of the verb inflection paradigms depending on whether the infinitive base is inflected for *-ec* or *-oc*. This rule is morphologically conditioned. Secondly, there is a vowel raising rule which applies to certain conjugations of the verb inflection when the verb stem has a /i/ or /u/ vowel. This is a phonological rule which is quite regular and predictable. There are no irregular forms of the verb inflection. Therefore under criterion (3) the verb inflection also behaves like a clitic.

4.4 Affix vs. Clitic Criterion (4)

Criterion (4) states that semantic idiosyncracies are more characteristic of affixed words than of clitic groups. Specifically, the meaning of a host-clitic combination will be equivalent to the meaning of the two parts but the meaning of a host-affix combination is sometimes not equivalent to the summation of the parts. This contrast between clitics and affixes is not so easily illustrated in Amele since a number of the clitic words, i.e. some of the postpositions, given in Table 20 have multiple meanings and functions. For example, *na* has the meanings of 'at, by, in, on (locative); with (instrument); to, towards (allative - inanimate goal); of, belonging to (possession)', and *ca* has the meanings of 'with (comitative); and, add (additive); have (stative); at, in, on (temporal location); towards (allative - animate goal)'. Most of the other clitic words, however, have more unitary meanings and in these cases the meaning of the host-clitic combination is a summation of the parts. This contrasts again with the noun morphology. A number of possessed noun forms have an idiomatic meaning in addition to a more literal meaning. Some of these forms are illustrated in Table 26.

Table 26. Possessed Nouns with an Idiomatic Meaning	
ameg	'reward (lit. eye(s))'
anag	'primary (lit. mother)'
asag	'boss of (lit. grandparent)'
belecan	'lust, passion (lit. flame)'
ceban	'lifestyle (lit. kidneys)'
co	'speech, words (lit. lips)'
cul	'inner emotions (lit. heart)'
gemag	'anger (lit. liver)'
hiliman	'character (lit. tendon)'
memeg	'boss of (lit. his father)'
muguh	'share (lit. breastbone)'
uen	'bravery, valour (lit. upper arm)'
waug	'outer emotions (lit. stomach)'
wowogon	'shelter, refuge (lit. bosom)'

By comparison, the verb inflection is even more regular in meaning than the clitic words. The meaning of the inflected verb is always equivalent to the combination of verb stem plus verb inflection. Therefore under criterion (5) the verb inflection has the semantic properties of a clitic form.

4.5 Affix vs. Clitic Criterion (5)

Criterion (5) states that syntactic rules can affect affixed words, but cannot affect clitic groups. In Z&P's schema this criterion applies to movement rules where there are no movement rules in English syntax which treat a word combined with one of the clitics *'s* or *'ve* as a unit. This criterion does not apply to Amele in a straightforward way since there are syntactic movement rules which treat a host+clitic combination as a unit. For example, postpositions cannot be stranded by movement rules but rather they must accompany the object constituent in the movement process. In a nonecho information question, for example, the questioned item can optionally be moved to the preverbal focus position, as illustrated by (55a-b). Where the questioned item is a PP, such as a comitative phrase, however, the whole phrase must be moved. It would be ungrammatical to 'strand' the postposition, as in (55c).

55) a. *Hina in ca jobon nue-si-a?*
2S who with village go-2D.SU-TODP
'With whom did you go to the village?'

b. *Hina ____ jobon in ca nue-si-a?*
2S village who with go-2D.SU-TODP
'With whom did you go to the village?'

c. **Hina ____ ca jobon in nue-si-a?*
2S with village who go-2D.SU-TODP
'Who did you go to the village with?'

In fact, Amele does not allow any of the clitic items listed in Table 20 to be stranded by movement rules. This means that in Amele syntactic movement rules do treat host+clitic combinations as units. However, it is also the case that syntactic movement rules in Amele treat clitics separately from their host constituents with respect to landing sites for movement.

With some of the sentence particles, for example *fo* 'yes-no question' and *fa* 'dubitive question', these particles can occur either at the end of the sentence in which case they have scope over the whole predication, as in (56a), or they can be focused on a particular constituent in which case they are placed immediately following that constituent, as in (56b-c). Notice that in (56c) the focused sentence particle is placed between the host noun and the clitic postposition. Therefore the situation in Amele with respect to syntactic movement rules is that a host+clitic combination can be treated as a unit when that construction is the one moved, but when the host+clitic is the target of the movement rule then the juncture between the host and clitic can function as the target position.

56) a. *Uqa cabi na nu-i-a fo?*
3S garden to go-3S.SU-TODP QUESTION
'Did she go to the garden?'

b. *Uqa cabi na fo nu-i-a?*
3S garden to QUESTION go-3S.SU-TODP
'Is it to the garden that she went?'

c. *Uqa cabi fo na nu-i-a?*
3S garden QUESTION to go-3S.SU-TODP
'Is it the garden that she went to?'

It should also be noted that while syntactic movement rules have access to the juncture position in host+clitic combinations they do not have access to the juncture position in host+affix combinations such as inalienably possessed nouns. In (57), for example, there is no possibility of placing the question particle between the noun stem

and the possessive morphology. So syntactic movement rules do not have access to the juncture position in host-affix combinations.

57) a. *Ija waw-i f-eg-an fo?*
1S brother-1S.POSS see-2S.SU-FUT QUESTION
'Will you see my brother?'

b. *Ija waw-i fo f-eg-an?*
1S brother-1S.POSS QUESTION see-2S.SU-FUT
'Is it my brother you will see?'

c. **Ija waw fo i f-eg-an?*
1S brother QUESTION 1S.POSS see-2S.SU-FUT

With respect to verbs it is also not possible to incorporate the sentence particles *fo* or *fa* within the verb. However, it is the case that adverbial constituents, such as *bahic* 'very' and *qee* 'not', can be moved to the juncture position of verb stem and verb inflection by the syntactic movement rule of contrastive focus. This would therefore indicate that the juncture position of verb stem and verb inflection is a target site for movement rules and therefore confirm that this is a host-clitic combination and not a host-affix combination.

4.6 Affix vs. Clitic Criterion (6)

Criterion (6) states that clitics can attach to material already containing clitics, but affixes cannot. In other words the orders of host+affix+clitic and host+clitic+clitic are predicted in language but not the order host+clitic+affix. In the Amele case the possessed noun inflection, which has been determined as affixal inflection, cannot occur outside of any of the clitic words but only inside such clitic words, as illustrated by (58).

58) *ija na wal-i na jo*
1S of brother-1S.POSS of house
'my brother's house'

With the verb inflection, however, it can occur after a clitic word. Examples of this have already been given involving the clitic-type adverbials *bahic* 'very', *himec* 'only' and *dih* 'just'. Another set of examples is given in (59) involving *dih*.

59) a. *Ija dih ahul gel-ig-a.*
1S just coconut scrape-1S.SU-TODP
'Just I scraped the coconuts.'

b. *Ija ahul dih gel-ig-a.*
1S coconut just scrape-1S.SU-TODP
'I scraped just the coconuts.'

c. *Ija ahul gel dih ig-a.*
1S coconut scrape just 1S.SU-TODP
'I just scraped the coconuts.'

Example (59c) must therefore be an instance of host+clitic+clitic and the verb inflection is a clitic.

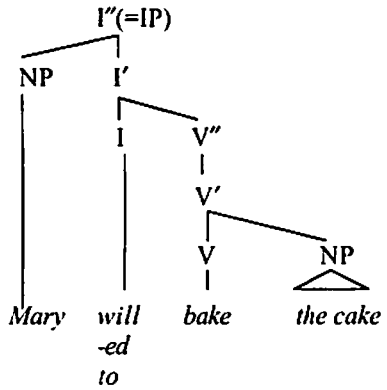
In fact, we have seen in this section that under each of Z&P's six criteria the Amele verb inflection has the defining properties of a clitic form instead of affixation. Even so, as a complex of configurational categories it would appear to be a very unusual type of clitic. In the following sections I will attempt to account for these properties under GB theory.

5. Verb Inflection as INFL

At this point we need to introduce the notion of INFL as an abstract syntactic category in current GB theory. INFL or I stands for 'inflection' and is an abstract constituent used in GB theory which subsumes various inflectional properties, in particular TENSE and AGR. This abstract constituent of the clause was first proposed by Chomsky (1982:18-19) to indicate in particular whether the clause is finite or infinitival, since these properties occur in the clause in complementary distribution to each other. Chomsky suggested that INFL should have the values of [±Tense], where [+Tense] stands for finite and [–Tense] stands for infinitival. In this proposal Chomsky noted that the distinction between indicative and subjunctive is ignored. In addition Chomsky (1982: 52) suggested that INFL should also include a complex called AGR with the features of person, gender and number. This would be primarily subject agreement (SuAgr). The motivation for this proposal was so that subjects could be assigned nominative case by virtue of being governed by INFL.

In current GB theory (e.g. Haegeman, 1991) I is considered to be like the lexical categories N, V, A and P, in that it is a zero-level category with two phrasal projections, I′ and I″. I″, the maximal projection of I, is usually referred to as the Inflection Phrase (IP). This is equivalent to S in earlier versions of GB and generative grammar (see Radford, 1988). An illustration of this structure is given in (60) based on English.

60)

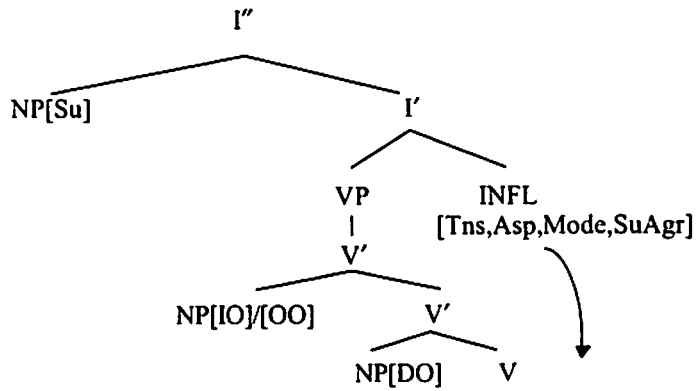


The standard X-bar structure of I″ is given in (61) where the Specifier is the NP[Su].

61) I″ ⟶ Spec; I′
I′ ⟶ I; VP

On the basis of the evidence in §4 we can analyse the configurational verb inflection in Amele as the lexical category INFL which then cliticises to the verb. We can therefore posit a revised structure for the clause in Amele as (62).

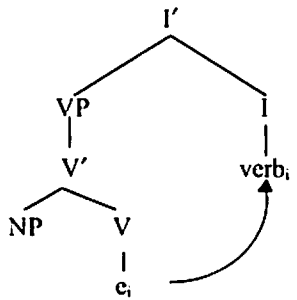
62)



Note that in the Amele case the contents of INFL is much greater in terms of configurational categories than in English, for example. In English INFL basically includes tense/aspect and SuAgr and the infinitive morpheme *to*. Whereas in Amele INFL must include all the categories of tense, aspect and mood listed in the introduction and displayed in Table 3 and Table 4, i.e. both indicative and subjunctive categories, as well as SuAgr and the infinitive morphemes *-ec/-oc* (indicative) and *-i/-u* (subjunctive).

In the *Barriers* model (Chomsky, 1986) proposed by Chomsky verbs actually receive tense/aspect and agreement morphology as the result of being raised into the I node. In the Amele case this would apply as in (63). The *Barriers* model also specifies that only minimal and maximal projections (X° and X″) are "visible" for the rule Move-α.

63)



6. Verb Specifiers

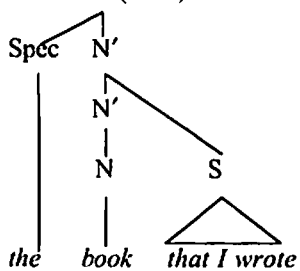
We are now in a position to posit an analysis of the incorporated adverbials *bahic* 'very', *dih* 'just' and *himec* 'only'. Before doing this, however, we need to give a fuller explication of the the notion of X-bar syntax. Within current GB theory phrase structure is constrained under X-bar theory. Under X-bar theory it is proposed that all phrase structure can be reduced to the schemata:

X″ ⟶ Spec; X′
X′* ⟶ X′; YP
X′ ⟶ X; YP

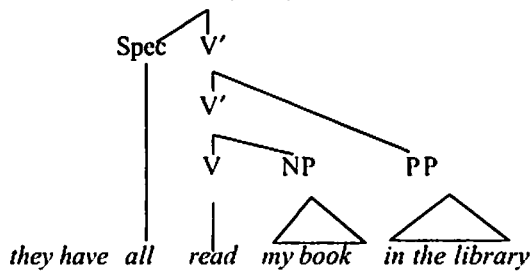
X = any syntactic category, Spec = Specifier, and YP = complement. The primes are to indicate three different levels of °, ′, and ″ within the phrasal category. Specifiers are normally seen as combining with a single-bar category to form the related double-bar category. This schemata does not impose any order on the respective categories.

The tree diagrams (64a-d) give examples based on English of the four main phrasal categories of NP, VP, AP and PP analysed according to X-bar structure.

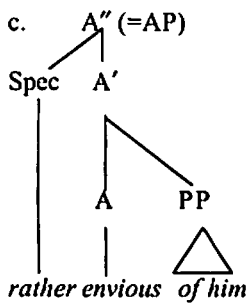
64) a.



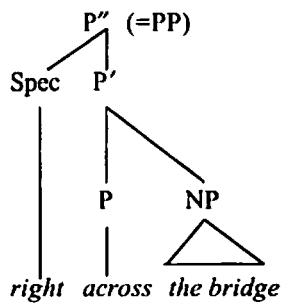
b.



c.

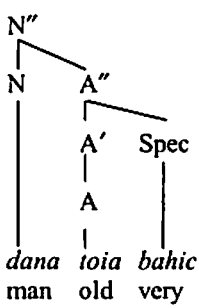


d.



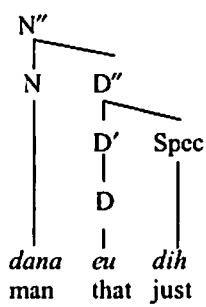
The fact that we have analysed the verb inflection as INFL, a lexical category that cliticises to the verb, means that we can analyse the adverbials *bahic* 'very', *dih* 'just' and *himec* 'only' as specifiers on the verb. Firstly, they all function as specifiers in their more regular distribution. This is illustrated by (65).

65) a.



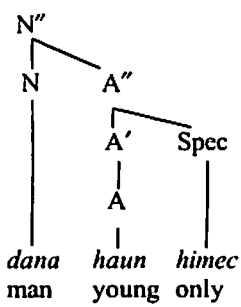
'very old man'

b.



'just that man'

c.



'only young men'

Secondly, they can occur right after the verb stem even when OAgr is present. This shows that they are not constituents of INFL. Example (25b) reproduced below illustrates this for *dih* and the same applies for *bahic* and *himec*, as illustrated in (66) and (67) respectively.

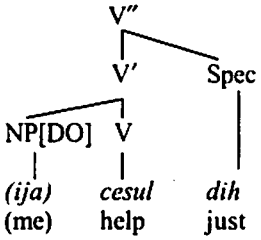
65) b. *Ija uqa=na lotoc bibig qudu dih do-co-min fi...*
1S 3S=of clothing fringe touch just 3S.DO-DS-1S.SU if
'If I can just touch the fringe of his clothing ...'

66) *Uqa cesul bahic t-ei-a.*
3S help really 1S.DO-3S.SU-TODP
'He REALLY helped me.'

67) *Mel aid uqa ahul eu gel himec ad-ei-a.*
boy female 3S coconut that scrape only 3P.DO-3S.SU-TODP
'The girl only scraped those coconuts.'

Thirdly, these items can only modify the constituent immediately to their left, so it is only in this position following the verb stem that they can modify the verb. It was stated above that specifiers are normally seen as combining with a single-bar category to form the related double-bar category. With the verb forms we have examined above the verb stem functions at the V′ level in combination with the following specifier, i.e. they are sister nodes under V″. Where the verb stem is at the V° level it functions as a sister node to NP[DO], the category that the verb governs. This is illustrated by (68).

68)

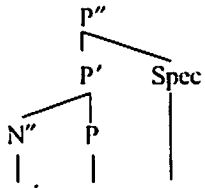


This analysis therefore avoids the problem of analysing these adverbials as being incorporated into the verb and does not violate the Head Movement Constraint.

7. Negators as part of INFL

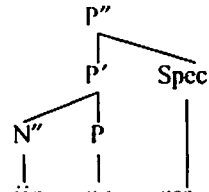
The analysis of the negators *qee* 'not' and *cain* 'prohibitive' is not the same, as that for the clitic adverbials. On the one hand, *qee* can occur in a specifier position in the PP, as in (69).

69) a.



'without food'

b.



'not mine'

However, the prohibitor *cain* cannot occur in such a position. When these negators occur with the verb in most cases they occur with accompanying negative inflection. For example, as illustrated in Table 3, *qee* 'not' cooccurs with negative past and negative future inflection and *cain* 'must not' cooccurs with negative future inflection. The negator *qee* can also occur with verb inflection as the sole instantiation of the clause. This is illustrated by (70).

70) *Qee i-el.*
not PRED-3S.SU.REMP
'It was not.'

It is also the case that both *qee* and *cain* can occur as the sole representation of INFL. This is illustrated by (71) and (72).

71) *Uqa ja hud-ei-a, ija qee.*
3S fire open-3S.SU-TODP 1S not
'She lit the fire, not I.'

72) *Eu odi cain.*
that like must not
'Not like that.'

In light of this it is probably best to anlayse both *qee* and *cain* as constituents of INFL rather than as instances of verb specifiers. One would therefore need to posit a movement rule that moves these negators out of INFL and places them anywhere within the VP.

8. Discussion and Conclusion

The analysis presented thus reveals the verb in Amele to be a phrasal complex of host+clitic where the host is a constituent that functions as verb stem and the clitic is the constituent INFL. Thus INFL in Amele can be viewed as a clitic constituent similar to *'s* and *-th* in English. Recall from §2 that these morphemes can function either as an integral

part of a word, as in *hers* and *fourth*, or as part of a phrase, as in *the Queen of England's* and *one hundredth*. Likewise INFL in Amele can be viewed as integral to the verb word or it can be analysed as part of a larger phrasal structure. For example, with regard to the verbs with minimal verb stems, such as those listed in Table 7, it is not possible to place a verb specifier or negator between the verb stem and the INFL inflection. For these verbs the stem and INFL inflection form an indivisible unit. This can be demonstrated with the verb *qoc* 'to hit'. (73) shows how it is not possible to place the negator between the verb stem of *qoc* and the INFL inflection.

73) a. *ege qee q-oqo-na*
1P not hit-1P.SU-PRES
'we are not hitting'

b. **ege q qee oqo-na*
1P hit not 1P.SU-PRES

However, if we expand the stem of *qoc* with iterative inflection, i.e. reduplication, as in (74) then it is possible to separate the verb stem from INFL by the negator *qee* 'not'.

74) a. *ege qee ququ-oqo-na*
1P not hit.IT-1P.SU-PRES
'we are not repeatedly hitting'

b. *ege ququ qee oqo-na*
1P hit.IT not 1P.SU-PRES
'we are NOT repeatedly hitting'

This type of phenomenon presents difficulties for the versions of generative morphology that adher to the Lexicalist Hypothesis and restrict all morphology to the lexicon. For example, in lexical morphology (cf. Allen, 1978; Kiparsky, 1982a, 1982b, 1983, 1985; Mohanan, 1986) all derivational and inflectional morphology is handled in the lexicon. The central thesis of lexical morphology is that the morphological component of the grammar is organised in a series of hierarchical strata. Affixes can be grouped into classes on the basis of their phonological behaviour and morphological distribution. In English, for example, the suffix *-ly* does not affect the phonological shape of the root it is attached to. This is illustrated in (75a). However, a suffix like *-th* does affect the phonological shape of the root it is attached to. This is illustrated in (75b).

75) a. wide [waɪd] → wide-ly [waɪdlɪ]
broad [brɔ:d] → broad-ly [brɔ:dlɪ]

b. wide [waɪd] → wid-th [wɪdθ]
broad [brɔ:d] → bread-th [bredθ]

On this basis affixes in English can be divided into two broad classes; neutral, which do not affect the phonological shape of the root, and non-neutral, which do. It has also been noticed that non-neutral affixes tend to occur nearer the word root than neutral affixes. On this evidence Mohanan (1986) has proposed a four-stratum morphology for English, viz.

76) *stratum* 1: class 1 derivation, irregular inflection
↓
stratum 2: class 2 derivation
↓
stratum 3: compounding
↓
stratum 4: regular inflection

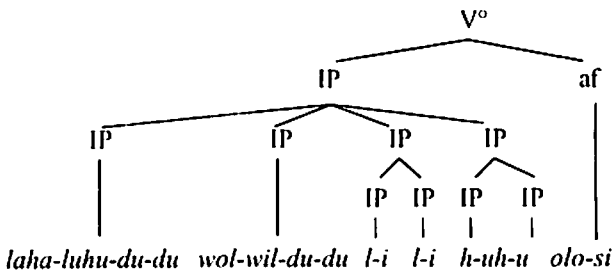
Stratum 1 morphology precedes in production and is less neutral than the following strata. This hierarchy of morphological strata would accord well with the Amele case. For example, the iterative morphological process operates on the verb stem and this is a derivational process. Similarly the OAgr morphology, which is irregular both in application and formation, occurs nearer the verb stem than the regular INFL inflection. The compounding stratum would apply to iterative and contrastive forms, such as *heliheliec* 'to throw repeatedly', where one verb word is reduplicated, or *tonitobiec* 'to descend and ascend', where two verb words with contrastive meanings are co-compounded into a single verb stem. The regular INFL inflection normally occurs outside of all of this morphology.

However, lexical morphology would have difficulty in accounting for some Amele verb forms. Under lexical morphology the lexical rules that operate within the morphological component must be structure preserving. This means that the output of each layer of derivation (or inflection) must be a phonologically well-formed word in the language. We have already seen how some Amele verb forms can have phrases or even extended clause structures functioning as the 'stem' of a verb. One such example, (39), is reproduced below.

39) *Cebina-g=ul ale laha-luhu-du-du wol-wil-du-du*
sibling-3S.POSS=PL 3D stamp-IRIT-3S.DO-IT turn-IRIT-3S.DO-IT
l-i l-i h-u h-u olo-si
go-PRED go-PRED come-PRED come-PRED HABP-3D.SU
'His (two) sisters used to stamp on him all over, turn (their heels) on him all over, this way and that way.'

Under lexical morphology the six or so clauses in (39) would have to be represented as a single word structure, such as (77), with INFL affixation functioning as head. We would then be in the position of having the stem of a word comprising a complex syntactic structure generated in the lexicon.

77)



Even for the EWP model that Anderson has proposed where configurational inflection is generated by the syntax and derivational inflection is generated in the lexicon there are problems in accounting for some Amele verb forms. Under EWP the root or stem of a lexical item is supplied from the lexicon and inserted in the terminal node of the syntactic structure and then morpholexical rules specify how a given morphosyntactic category is to be spelled out in phonological form. This is illustrated by (78).

78) a. V b. [+subj, +1person, +plural] d. V

q → /X/ → /X*oqo*/ → *qoqona*

c. [+present] /X/ → /X*na*/

The root *q* 'hit' is inserted under the node V (78a). Then the morpholexical rules (78b) for subject agreement and (78c) for tense apply to produce the fully inflected form *qoqona*, (78d). Anderson regards configurational morphology as distinct from derivational morphology. He defines configurational morphology as 'what is relevant to the syntax' (1982: 587) and confines derivational morphology to the lexicon. Anderson therefore subscribes to a split-morphology thesis where configurational morphology is handled in the syntactic component by morpholexical rules and derivational morphology is handled in the lexicon by word formation rules (WFR). So in Amele a derivational process such as iterative aspect would be handled in the lexicon by a WFR such as (79).

79) [X]$_v$ α

↕

[XX]$_v$ α iteratively

However, there is a difficulty. In EWP all morphophonemic rules affecting configurational morphology must occur after any derivational processes and after the lexical item has been inserted into the syntactic configuration. Recall from Table 16 and Table 18 that in Amele the iterative reduplication process can operate in two different

ways. Firstly, there are some verbs, such as *gelec* 'to scrape', which reduplicate the whole stem (→ *gelgelec* 'to scrape repeatedly') to derive the iterative form. Then there are other verbs, such as *helec* 'to throw', which reduplicate the stem plus the subjunctive infinitive morpheme (→ *heliheliec* 'to throw repeatedly') to derive the iterative form. This is the difficulty for EWP. For these iterative forms the infinitive morpheme *-i/-u*, a configurational morpheme, must be added before the reduplicative derivational process applies.

The difficulty is even more pronounced with the reciprocal forms. With a form like *qocobqocobec* 'to hit each other' the stem comprises two switch-reference verbs each marked for different subject following. This morphology is, of course, configurational, i.e. part of INFL. Since reciprocal voice is derivational this morphology would need to be generated in the lexicon. When the reciprocal verb contains OAgr the situation becomes even more complex. OAgr itself has both configurational and derivational properties. The configurational properties are that it is agreement and paradigmatic in nature. The derivational properties are that it changes the meaning of the verb in terms of valency and applies to verbs differently according to their subcategorisation features. As mentioned above in §6 the adverbial constituents *bahic* 'very', *himec* 'only' and *dih* 'just', as well as the negators *qee* 'not' and *cain* 'don't' can all occur in between the verb stem and the OAgr. This would indicate that the OAgr is actually a clitic type of constituent like INFL, although its domain of operation is within the VP instead of the IP. Thus a reciprocal form containing OAgr, such as *cesuldocobdocobec* 'to help each other', has various levels of INFL morphology as well as clitic-type OAgr. All of which would need to be generated in the lexicon under Anderson's EWP model. Furthermore, a verb such as *cesuldocobdocobec* demonstrates lexical properties in that it has an optional reduced form of *cesuldodec*, which in turn can be deverbalised to produce *cesuldod* 'the helping of each other'. This reduced form option applies to any reciprocal verb with DOAgr. To account for the full range of forms in the Amele verb under EWP you are more or less forced to locate the production of all verb morphology in the syntactic component.

The Amele case suggests that there is a good deal of overlap between syntax (the domain of clauses) and morphology (the domain of words). After surveying a wide range of current approaches to morphology Spencer (1991) comes to the conclusion that the answer to Anderson's question 'where's morphology?' is that it is everywhere. He follows Baker (1988) and proposes that morphology should be conceived of as an autonomous module representing a set of rules and principles which define the well-formedness of words, irrespective of the way in which they are formed.

Finally, the question posed at the beginning of this article was 'how do you analyse the verb in Amele – as a word or as a phrase?' and the answer is either, depending on its compositional properties. Every verb is decompositional to a certain degree. That is every verb is composed of a morpheme or morphemes functioning as a verb stem plus a morpheme or morphemes expressing configurational categories. Where the verb stem is a

from the stem by a process like adverb insertion. So these verb forms can be analysed as unitary word forms. However, as one increases the morphosyntactic complexity of the verb stem then the verb unit becomes less word-like and more compositional and phrase-like. It would also be completely arbitrary to say the verb-word ends here and the verb-phrase starts there. All verb forms, except those with single segment stems, demonstrate syntactic interruptability with adverb insertion. So you could say that only those verbs with single segment stems are true word-forms. However, as we have already seen, even these verbs can undergo adverb insertion when the stem is reduplicated for iterative aspect. Conversely, a comparatively long stem construction like *cogogcogogec* cannot be interrupted morphologically between the reduplicated formants. The Amele verb-forms therefore demonstrate clearly that morphology and syntax grade into each other and that the notion of word itself is an epiphenomenonal product of syntactic and compositional factors.

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