

# Warlpiri and the Theory of Second Position Clitics

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**Abstract.** In the vast literature on second position clitics, Warlpiri has received little attention. This paper addresses this lacune, presenting the Warlpiri data in detail, and using them to evaluate leading theories of clitic placement. An analysis in terms of syntactic head movement is shown to best account for the Warlpiri case. In addition, an apparent first word phenomena is examined, whereby a preverb may be split from the associated verb; the construction is revealed to be morphological and a morphological analysis is provided.

**Keywords:** second position clitics, clitics, preverb, Warlpiri, Slavic

## Warlpiri and the Theory of Second Position Clitics

### 1. Introduction

In the vast literature on second position clitics, Slavic languages have played the starring role. In contrast, Warlpiri, although well-known as also having second position clitics, has played little role in the debate. This is partly due to availability of data; however, there is another important factor: whereas the analysis of Slavic clitics has seemed wide open to phonological, morphological, or syntactic analyses, the Warlpiri equivalent has seemed clearly phonological.

The importance of phonology in the placement of Warlpiri clitics originates with a generalization from Hale (1973): disyllabic clitics may appear initially, monosyllabic may not. However, as we discuss in Section 1, Hale’s generalization is based on an early misanalysis of a Warlpiri morpheme. Although the error is corrected in later work, the consequences for second position clitics escaped notice. And the consequences are significant: the correct generalization turns out to be one based on part of speech rather than phonological weight, thus eliminating the crucial evidence for phonological placement.

Section 2 evaluates on the basis of Warlpiri data, three representative approaches to second position clitic placement: (1) an analysis based on a unique syntactic position for the clitics plus Prosodic Inversion (Halpern 1995) (see Austin & Bresnan 1996 for Warlpiri); (2) an Optimality-Theoretic approach that places clitics through constraint ranking (see Anderson 1995, 1996, 2000, 2004, in press; Legendre 1998, 1999, 2000a,b,c); (3) Bošković’s (2001) mixed phonological/syntactic approach.<sup>1</sup> All are found empirically problematic.

Section 3 begins by outlining Laughren’s (2002) analysis of clitic placement in Warlpiri, in which the clitics undergo syntactic head-movement. We provide additional arguments that the approach is largely correct, and demonstrate that standard arguments against syntactic placement of clitics are unconvincing. However, Laughren’s analysis of apparent first word effects, always a difficult issue for syntactic analyses, is problematic. We examine these effects in more detail, and provide an alternative, morphological analysis. The overall analysis proposed, then, will involve syntactic head movement of clitics, combined with extremely limited reordering of clitics within a complex head in a post-syntactic morphology.

Although we refer to the Warlpiri clitics as “second position clitics” in accord with previous literature, it is important to note that the proposed analysis accords no status to the notion of second position. As we demonstrate, this is a correct stance for Warlpiri, since under certain conditions the clitics may appear in positions that are neither phonologically nor syntactically second. One approach to this discovery for Warlpiri would be to claim that the notion of second (or initial, as in the work of Anderson, Legendre, and Bošković) does play a role in the grammar of certain languages, but not Warlpiri. The conclusion would then be that there are “true” second position clitics in human language, but Warlpiri doesn’t

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<sup>1</sup> Embick & Noyer 2001 is not considered in detail since they do not provide an analysis of clausal second position clitics. Some considerations for a morphological movement type of approach like theirs are noted when relevant. Overall, the analysis proposed here, while not making use of Embick & Noyer’s technology, may not be incompatible with their approach. Embick & Noyer (1999) does include a brief discussion of Warlpiri second position clitic placement. However, Warlpiri is not their primary focus, and their analysis is based on a misunderstanding of the Warlpiri facts. Therefore, we do not discuss it here.

have any (since the notion of second/initial plays no role in the placement of its clitics). We take a different approach. We believe that the similarities between clitic placement in Warlpiri and other languages warrant adopting the working assumption that the phenomena are fundamentally the same. The Warlpiri data thus suggest that there are no “true” second position clitics in human language, that is the notion of second/initial plays no role in the placement of clitics. Whichever conclusion is ultimately correct, the reader is warned that we employ the term second position clitic throughout as a purely descriptive term.

## 2. The Phonological Generalization

Warlpiri displays a second position clitic cluster, formed of an aspectual “auxiliary”, subject agreement, and object agreement, usually in that order (see Hale 1973 for discussion of limited deviations from this order):<sup>2</sup>

- (1) Maliki-jarra-rlu-ka-pala-jana puluku-patu wajilipi-nyi  
 dog-Dual-Erg-PresImpf-3DualSubj-3plObj bullock-Pauc chase-Npast  
 ‘The two dogs are chasing the several bullocks’

These are enclitics, attaching unselectively to the preceding prosodic word. This phonological dependence is illustrated for example by the application of *u/i* vowel harmony to the sequence of suffixes and clitics, as illustrated in (2) (see Nash 1986, Harvey & Baker 2005, for discussion of vowel harmony in Warlpiri). (2a) shows the underlying form of the suffixes and clitics (the noun *minija* ‘cat’ ends in *a*, which is inert for vowel harmony), and (2b) shows application of the harmony throughout the suffixes and clitics (the noun *maliki* ‘dog’ ends in *i*, which triggers progressive harmony).

- (2) a. minija-kurlu-rlu-lku-ju-lu  
 cat-Prop-Erg-now-1sgObj-3plSubj  
 ‘As for the cats, they are with me now.’  
 b. maliki-kirli-rli-lki-ji-li  
 dog-Prop-Erg-now-1sgObj-3plSubj  
 ‘As for the dogs, they are with me now.’ (Nash 1986)

In contrast, vowel harmony does not apply between prosodic words, for example within nominal compounds, or between preverbs and verbs:

- (3) a. miyi kupu-rnu  
 food winnow-Nomin  
 ‘food winnower’

<sup>2</sup> An anonymous review asks if the clitic cluster in Warlpiri can be split, as in Serbo-Croatian (Stjepanovic 1998, Bošković 2001). No such examples are attested, however the issue has not been investigated systematically.

- b. pirri-kuju-rnu  
 scatter-throw-Past  
 ‘scattered’ (Nash 1986)

Our interest here is the placement of these clitics in second position. An often-cited generalization for clitic placement in Warlpiri is as follows: when the auxiliary consists of one syllable or fewer, it must appear in second position; when the auxiliary consists of two or more syllables, it may appear either initially or in second position. This generalization has led many researchers to conclude that Warlpiri second position clitic placement is phonological in nature (see for example Anderson 1999, Billings 2002, Embick & Noyer 1999, Hale 1973, Laughren 1989, Nash 1986, Simpson 1991). And indeed, the generalization has seemed very natural given that the prosodic word in Warlpiri is minimally disyllabic (Nash 1986),<sup>3</sup> a fact which has played important roles in some analyses (Anderson 2000, Billings 2002).

The apparent naturalness of the generalization is partially eroded by the fact that while the auxiliaries and agreement markers are all clitics, only the auxiliaries (and the non-clitic complementizers) count towards the syllabic count. Thus, the clitic cluster in (4), although consisting of six syllables, cannot appear initially because only one of the syllables comes from an auxiliary clitic, *ka*, while the remaining five syllables are from agreement clitics. Why the phonology would make such a distinction has not been explained on any account.

- (4) ka-nkulu-jarrangku  
 PresImpf-2plSubj-1DualExclObj  
 ‘you (plural) acting on us (dual exclusive)’

Natural or not, the generalization has become common lore to such an extent that it is often cited without data and without source. The source is Hale (1973:312-3). Hale proposes that the clitics are generated initially; subsequently an *Aux-Insertion* rule applies to place them after the first constituent, where application of the rule is dependent on syllable count (We leave aside the issue of negation until section 3):

I will assume that the auxiliary is basically initial in Walbiri and that it is moved into second position by the Aux-Insertion Rule. Furthermore, Aux-Insertion is (a) obligatory if the portion of the auxiliary preceding the person markers is less than disyllabic (that is monosyllabic or phonologically null), (b) blocked if the auxiliary is negative and is immediately followed by the verb, and (c) optional otherwise. This insertion must be ordered in the grammar to follow all syntactic operations which have an effect on the ordering of nonauxiliary constituents. (Hale 1973:313)

The contrast Hale uses to motivate his generalization is the following:

- (5) a. Wawiri-ka-rna purra-mi  
 kangaroo-PresImpf-1sgSubj cook-Npast  
 ‘I am cooking the kangaroo’

<sup>3</sup> More accurately, bimoraic.



Thus, morphological realization of both future and imperfective aspect marking are incompatible in Warlpiri, regardless of the manner in which the future is realized. The source of this restriction deserves investigation; however, for current purposes we note simply that the apparent complementary distribution between *kapi* and the aspectual auxiliaries has an independent source. The complementary distribution between *kapi* and other complementizers, on the other hand, does not have an independent source, and is best explained by *kapi* belonging to the series of complementizers.<sup>7</sup>

Returning to the contrast in (2a), we now have two possible explanations. The first is Hale’s (1973) analysis based on number of syllables preceding the agreement clitics: if two or more syllables precede the agreement clitics, initial placement is possible; if one or fewer syllables precede the agreement clitics, initial placement is impossible.<sup>8</sup> The second is an analysis based on part of speech: complementizers (and attached clitics) may appear initially, but the auxiliary and agreement clitics alone cannot. On this second possibility, number of syllables is irrelevant. Indeed, *kapi* does share the ability to appear initially with other complementizers, for example:

- (8) a. Kala-ka-rlipa-nyanu mata-rra-ma-ni?  
 PotentialC-PresImpf-1plIncl-Anaph tired-thither-Cause-Npast  
 ‘But aren’t we liable to tire ourselves?’ (Simpson 1991:163)
- b. Kaji-lpa-ngku wanti-yarla nyiya-rlangu milpa-kurra ...  
 NfactC-PastImpf-2sgObj fall-Irr what-e.g. eye-All  
 ‘If something were to fall into your eyes...’

However, these complementizers are also disyllabic, and so are also compatible with either explanation. The two possible explanations can be differentiated, though, by the behaviour of the relational complementizer *yi*, the only monosyllabic complementizer (there are no disyllabic auxiliaries). The explanation based on number of syllables predicts that *yi* will not be able to appear initially, except when followed by a pronounced auxiliary (thus increasing the number of syllables before the agreement clitics to two). The explanation based on part of speech predicts that *yi* will always be able to appear initially. The prediction based on part of speech is borne out; *yi* may appear initially even without a pronounced auxiliary:

- (9) a. Yi-rna munga-wiri jiwini-pu-ngu.  
 RelationalC-1sgSubj all.night toss.and.turn-VF-Past  
 ‘As I tossed and turned all night.’
- b. Yi-rlipa-jana ngangkayi-wana-wana miyi ka-rla  
 RelationalC-1plInclSubj-3plObj medicine.men vegetable transport-Irr

<sup>7</sup> Semantically, *kapi* also fits more naturally into the complementizer series, which realizes a coherent subsection of Cinque’s (1999) hierarchy of functional projections: T(Past), T(Future), Mood<sub>irrealis</sub>, Mood<sub>possibility</sub>, Asp<sub>habitual</sub>. The auxiliaries, on the other hand, realize only perfective versus imperfective aspect (see Legate 2003b for demonstration that the present/past distinction in the imperfective aspect is not interpreted).

<sup>8</sup> An anonymous reviewer suggests that this generalization could be explained if the monosyllabic auxiliaries are clitics, whereas the complementizers are ambiguous between a clitic use and a non-clitic use. However, the complementizers do not have a clitic use, as indicated by the lack of vowel harmony effects between the complementizers and preceding material. See section 3.2 for discussion.

‘So we can dig up yams for the medicine men.’ (Warlpiri Dictionary Project 1993)

We conclude that number of syllables is not relevant to the placement of clitics in Warlpiri. Instead, pronounced complementizers and attached aspectual and agreement clitics may appear either initially or in second position; otherwise the aspectual and agreement clitics must be in second position.

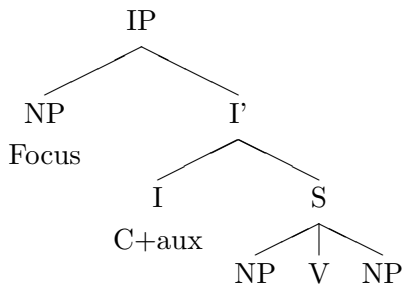
Given that the correct generalization of clitic placement in Warlpiri is based on part of speech rather than syllabic weight, it is no longer obvious that Warlpiri clitic placement is phonological. In the following section, we evaluate three representative analyses of placement of second position clitics based on Warlpiri data, beginning with the unique syntactic position analysis combined with Prosodic Inversion (Halpern 1995, Austin & Bresnan 1996).

### 3. Three Analyses

#### 3.1. UNIQUE SYNTACTIC POSITION + PROSODIC INVERSION

One approach to second position clitic placement identifies the position of the clitics with a unique syntactic position—the head of some (high) XP. Second positioning then is derived through obligatory filling of the unique specifier of XP. This type of analysis for Serbo-Croatian may be found in Franks & Progovac 1994, King 1996, Progovac 1996, Percus 1993, Roberts 1994, Schütze 1994, Tomić 1996a, Wilder & Cavar 1994a,b. Such an analysis of Warlpiri is proposed by Austin & Bresnan (1996).<sup>9</sup> Austin & Bresnan place the clitics, and the complementizer, in the head of IP, and claim that Warlpiri lacks a CP. Their structure for Warlpiri is the following:

(10)



Bošković (1995) argues that a unique syntactic position analysis cannot be correct for Serbo-Croatian, using adverbs to identify second position clitics in distinct syntactic positions. The claim that second position clitics do not occupy a unique syntactic position receives independent support from Warlpiri, where evidence comes from the interaction

<sup>9</sup> Halpern (1995) also proposes a unique syntactic position analysis of Warlpiri, but considers the clitics adjoined to IP. This seems less plausible, in that the aspect markers are heads rather than XPs. The problems raised in the text for Austin & Bresnan’s proposal carry over to Halpern’s as well.

between clitics and wh-phrases. Wh-phrases in Warlpiri do not exhibit freedom of ordering; to be interpreted as a wh-phrase, the phrase must appear in a left-peripheral position. If it fails to appear in this position, the phrase is interpreted as an indefinite. This is illustrated in (11). Notice that the (complementizer and attached) clitic cluster obligatorily follows the wh-phrase in (11a).

- (11) a. Nyiya-rlangu kaji-ka-lu nyina  
 what-e.g. NDeclC-PresImpf-3plObj be.NPast  
 wampana-piya-ju?  
 spectacled.hare.wallaby-like-Top  
 ‘What ones for example might be like the spectacled hare wallaby?’
- b. Kaji-lpa-ngku wanti-yarla nyiya-rlangu milpa-kurra ...  
 NDeclC-PastImpf-2sgObj fall-Irr what-e.g. eye-All  
 ‘If something fell into your eyes ...’ (Warlpiri Dictionary Project 1993)  
 \*‘What might have fallen into your eyes?’

Wh-questions may also contain a topicalized phrase,<sup>10</sup> in which case the topicalized phrase precedes the wh-phrase. Crucially, the clitic cluster must now precede the wh-phrase:

- (12) Kuturu-ju-ka-npa-nyanu nyarrpara-wiyi marda-rni?  
 nullanulla-Top-PresImpf-2sgSubj-AnaphObj where-first have-NPast  
 ‘Where do you have this nullanulla of yours?’ (Hale 1960:7.20-7.21)

So, when the wh-phrase in its left peripheral position happens to also be initial, the second position clitics will follow it. However, when the projection hosting the wh-phrase is dominated by a topic projection, the second position clitics precede the wh-phrase. Thus, the second position clitics do not appear in a unique syntactic position in Warlpiri.<sup>11</sup>

Austin & Bresnan combine their unique syntactic position analysis of Warlpiri with Halpern’s (1995) Prosodic Inversion operation. Prosodic Inversion is a phonological operation whereby a second position clitic in initial position is inverted phonologically with a following prosodic word as a last resort in order to provide the clitic with a host. Prosodic Inversion is coupled with the unique syntactic position analysis to deal with clauses in which the initial position does not appear to be phrasal, but rather the first prosodic word (potentially) of a larger constituent. Whether such placement is possible in Serbo-Croatian

<sup>10</sup> This topicalization is distinct from hanging topic left dislocation constructions, which are also available in Warlpiri. Unlike topicalized phrases, hanging topics cannot host the clitic cluster. An example of hanging topic left dislocation is given in (1). See Legate 2002, 2003a for discussion of topicalization and hanging topic left dislocation in Warlpiri.

- (1) Wawirri, ngula-ka nyina walya-ngka-jala.  
 kangaroo, that-PresImpf be.Npast ground-Loc-actually  
 The kangaroo, it lives on the ground. (Warlpiri Dictionary Project 1993)

<sup>11</sup> This point is also made in Laughren 2002.

has been a matter of some debate: for example, Halpern (1995) argues that first word placement is possible, while Progovac (1996) and Wilder & Ćavar (1994a) argue that apparent first word placement can be reduced to first phrase; Schütze (1994) presents examples that appear problematic for a first phrase account, but the examples are disputed by Bošković (2001). In addition, Franks & Progovac (1994), Progovac (1996), Wilder & Ćavar (1994), and Bošković (2001) present arguments against a Prosodic Inversion analysis for Sero-Croatian.

Considering the issue in Warlpiri yields clear additional arguments against Prosodic Inversion. Like Serbo-Croatian, Warlpiri allows noun phrases (and (the equivalent of) post-positional phrases), to be discontinuous in the syntax. However, there is unambiguous morphological evidence to distinguish between noun phrases that are intact and those that are split. When a noun phrase is intact, case marking is optional on non-final elements of the phrase. However, when a noun phrase is split, each piece of the noun phrase must bear final case marking (similar facts obtain in Serbo-Croatian, but are limited to multi-word names, see Franks 1997a,b, and Bošković 2001). Thus, an element lacking appropriate case marking must form part of a larger DP projection.

- (13) a. [Maliki wiri-ngki]-ji      yalku-rnu  
           [dog    big-Erg]-1sg.Obj bite-Past  
           ‘The/a big dog bit me’
- b. Maliki-rli-ji      yarlku-rnu wiri-ngki  
           dog-Erg-1sg.Obj bite-Past    big-Erg  
           ‘The/a big dog bit me’ (Hale 1983:38)
- c. \* Maliki-rli-ji      yarlku-rnu wiri  
           dog-Erg-1sg.Obj bite-Past    big  
           ‘The/a big dog bit me’
- d. \* Maliki-ji      yarlku-rnu wiri-ngki  
           dog-1sg.Obj bite-Past    big-Erg  
           ‘The/a big dog bit me’

Using this morphological test, we find that Prosodic Inversion over-generates in Warlpiri. Clitics may not appear internally to a noun phrase. This is illustrated in (14). In (14a), *kurdu yalumpu-rlu* ‘that child’ must be a single, intact, noun phrase, since *kurdu* ‘child’ lacks case-marking. Cliticization to *kurdu* is ungrammatical. In (14b), on the other hand, ‘child’ bears case-marking, *kurdu-ngku*, allowing a parse in which the noun phrase has been split into two phrases. Thus, cliticization to *kurdu-ngku* is grammatical.

- (14) a. \* Kurdu-ka-jana      yalumpu-rlu maliki-patu jiti-rni  
           child-PresImpf-3plObj that-Erg    dog-Pauc    tease-Npast  
           ‘That child is teasing the dogs’
- b. Kurdu-ngku-ka-jana      yalumpu-rlu maliki-patu jiti-rni  
           child-Erg-PresImpf-3plObj that-Erg    dog-Pauc    tease-Npast  
           ‘That child is teasing the dogs’

Austin & Bresnan are aware of these data, and claim that (14a) is ruled out in the following way: “prosodic inversion is a ‘last resort’, according to Halpern (1995). We assume that this is what prevents the prosodic splitting of a caseless nominal component from a larger nominal constituent ... In this situation, the alternative always exists of placing a case-marked form of the nominal in the specifier of IP position” (1996:227-228). However, the alternative of placing a nominal in the specifier of IP also exists in (15), and yet here placement after the first prosodic word, a verb, is grammatical.

- (15) Wangka-mi-ka-lu                      Yurntumu-wardingki-patu  
 speak-Npast-PresImpf-3plSubj Yuendumu-habitant-Pl  
 ‘The Yuendumu people are speaking’(Laughren 2002:[14])

The Prosodic Inversion operation, as phonological, cannot make the required distinction between a prosodic word that is a verb, which may host the clitics, and a prosodic word that forms part of a larger noun phrase, which may not host the clitics (for a similar point, see Laughren 2002). We return to the analysis of verb-initial clauses in section 4 below.

Prosodic Inversion also under-generates in Warlpiri. Recall that overt complementizers and attached clitics may appear initially in Warlpiri. Therefore, the Prosodic Inversion analysis predicts that verb initial clauses should never have an overt complementizer: the clitics’ requirement for a phonological host is met by the complementizer, and so Prosodic Inversion would not be triggered. This prediction is not borne out. Verb-initial clauses may have overt complementizers, as illustrated here by (16). This example begins with an adjoined dependent clause *kuja palijalku* ‘when he died’, followed by a pause; such adjoined elements are ignored for the purposes of clitic placement (see section 3.3 for further discussion). In the main clause, the verb *waarrpakarnu* ‘hit many times’ is initial, followed by the complementizer *kala*, and the clitic cluster *lunyanu*:

- (16) (Kuja pali-ja-lku,)    waarr-paka-rnu-lku            kala-lu-nyanu  
 DeclC die-Past-then, many.times-hit-Past-then PastC-3plSubj-AnaphObj  
 nyanungu-rla-ju katu-mparra.  
 3sg-Loc-Top    top-along.side  
 ‘(When he died,) they would beat themselves over him.’ (Warlpiri Dictionary Project 1993)

Such serious difficulties with the operation for Warlpiri invite the conclusion that Prosodic Inversion does not apply in the language. However, before reaching this conclusion, we must consider another apparent first word phenomenon that Austin & Bresnan analyse using Prosodic Inversion: clauses in which a preverb is separated from the verb by the clitic cluster. An example of this phenomenon, which we refer to as the “preverb split” construction is provided in (17).<sup>1213</sup> In this example the preverb is *yarda* ‘again’.

<sup>12</sup> The phenomenon is also discussed by Laughren (2002), who refers to it as “aux straddling”. Laughren proposes a syntactic movement account; as we will see below, this type of account is unable to explain the full range of data, in particular the possibility for semi-productive preverbs to participate in the construction.

<sup>13</sup> Embick & Noyer (2001) analyse similar data from Lithuanian involving placement of the reflexive marker between a preverb and the verb stem. Since the preverb is a terminal node (in their terms, a

- (17) *yarda-lpa*      *ya-nu*  
 again-PastImpf go-Past  
 ‘He/she/it was going again’ (Laughren 2002)

Warlpiri has a relatively impoverished set of verb roots, with much of the expressive burden being borne by nominal/adjectival<sup>14</sup> elements adjoined to the left of the verb root. These often have a resultative interpretation, for example *pirri-luwarni* ‘scattered-hit’ ‘strike and scatter’. These constructions will be examined in section 4.2. For now, a few observations suffice. In a thorough description of Warlpiri preverbs, Nash (1982) demonstrates that preverbs classify into a few distinct types, some of which may participate in the preverb-split construction, but not all. However, the phonology cannot make the required distinction between those preverbs that may participate in the preverb-split construction and those that may not. All preverbs behave identically phonologically, forming a separate phonological domain from the verb for *u/i* vowel harmony, while constituting part of the domain of the verb for primary stress assignment (see Nash 1986, Berry 1999, Harvey & Baker 2005 for discussion). This is illustrated in (18) for two classes of preverbs, “lexical”, which do not participate in the preverb split construction, and “semi-productive”, which do. In (18a), the lexical preverb *yirri* and the associated verb *kujurnu* ‘threw’ fail to show *u/i* vowel harmony effects, while bearing a single primary stress, on the preverb. Identically, in (18b), the semi-productive preverb *milki* ‘show’ and the associated verb *yungkurnu* ‘lit’ fail to exhibit *u/i* vowel harmony, while bearing a single primary stress, on the preverb.

- (18) a. Lexical preverb  
       *Marlu-lpa-lu*                      *yirri-kùju-rnu.*  
       kangaroo-PastImpf-3plSubj Preverb-throw-Past  
       ‘They would bring down kangaroos.’
- b. Semi-productive preverb  
       *Yali-yijala-lpa-lu-nyanu*                      *yangka-ju warlu mílki-yùngku-rnu.*  
       yonder-also-PastImpf-3plSubj-AnaphObj that-Top fire show-light-Past  
       ‘There too they lit fires to show each other [where they were]’

In addition, the ability of preverbs to be separated from the verb by the auxiliary is lost in the gerundive form of the verb (Laughren 2002). This is illustrated here with the preverb *yarda* ‘again’ and the associated verb *yani* ‘go’:

subword), rather than the entire complex head (in their terms, a morphosyntactic word), it is important for them that the reflexive marker is also a subword. They argue that subwords may only adjoin to subwords, and morphosyntactic words to morphosyntactic words. The Warlpiri case, while also involving adjunction to a subword (the preverb), involves adjunction of the aspectual clitic, the subject agreement clitic, and the object agreement clitic, clearly more than a single subword. For this to be compatible with Embick & Noyer’s proposal, string vacuous adjunction of the clitic subwords (aspect, subject agreement, and object agreement) to each other would be required, so that the entire clitic cluster may behave as a single subword for adjunction to the preverb.

<sup>14</sup> The distinction between nouns and adjectives in Warlpiri is quite difficult to make, see Bittner & Hale 1995 for discussion.

- (19) a. Yarda-ka-lu                      ya-ni  
           again-PresImpf-3plSubj go-NPast  
           ‘They are going again’  
       b. \* Yarda-ka-lu                      ya-ninja-ku ...  
           again-PresImpf-3plSubj go-Infin-Dat  
           (‘going again, they are ...’) (Laughren 2002)

Again, the phonology cannot make the required distinction between preverbs associated with a finite verb and preverbs associated with a gerund.

Finally, in the preverb-split construction, consonant-final preverbs appear with a final CV suffix; this allows them to satisfy the condition in Warlpiri that all prosodic words must end in a vowel. Significantly, this suffix must be added in the morphology rather than the phonology. The choice of suffix is lexically determined; while most preverbs appear with *pa*, a subset select for *ki*:

- (20) a. jaaly(pa), ‘whispering’, jamparl(pa) ‘chewing’, kanginy(pa) ‘ignorant’, karlirr(pa)  
           ‘swerving’, paarr(pa) ‘into the air’, tiirl(pa) ‘split’, ...  
       b. liirl(ki) ‘white’, miril(ki) ‘shine’, larlarl(ki) ‘up high’, ...

Note also that the problem of consonant-final prosodic words is resolved in the phonology in a different manner: through epenthesis of *-i* (or *-u* if required by vowel harmony). This can be observed through loan words from English:

- |      |           |          |
|------|-----------|----------|
|      | yard      | yarti    |
|      | truck     | turaki   |
|      | rubbish   | rapiji   |
| (21) | machine   | majini   |
|      | bullock   | puluku   |
|      | nannygoat | nanikutu |
|      | mule      | miyurlu  |

Indeed, /i/-epenthesis is a more expected phonological repair strategy to eliminate a word-final coda, rather than *pa/ki* suffixation.

Given that the final suffix is inserted in the morphology, this indicates that the preverb must already be split from the verb in the morphology. Again we conclude that the split cannot be produced through a phonological operation like Prosodic Inversion.

This section has two important, but negative, conclusions. First, Warlpiri clitics do not occupy a unique syntactic position. Second, Prosodic Inversion plays no role in second position clitic placement in Warlpiri. In the next section, we consider an alternative leading analysis of second position clitic placement, based on ranked, violable constraints.

### 3.2. OPTIMAL CLITIC PLACEMENT

An approach to the placement of clitics is developed in the framework of Optimality Theory (OT) by Anderson (1995, 1996, 2000, 2004, in press), and Legendre (1998, 1999, 2000a,b,c), and adopted by later researchers (e.g. Billings 2002).

On the OT analysis, clitics are inserted in their surface positions by ranked, violable morpho-phonological constraints. The core of the OT analysis is a set of constraints favouring leftmost placement of each clitic in a certain domain, Edgemost(cl, L, D), which are outranked by a set of constraints favouring non-initial placement of each clitic in a domain, Non-Initial(cl, D). Thus, the clitics will appear as far to the left as possible without being initial.

The availability of first word phenomena is regulated by an additional set of constraints: Integrity constraints. These punish candidates in which an element is interrupted by phonological material that does not form part of that element. Thus, ranking of Integrity(word) over Edgemost(cl, L, D) prevents the clitic from appearing inside a word. Similarly, ranking of Integrity(XP), where XP is a specific syntactic phrase, over Edgemost(cl, L, D) prevents the clitic from appearing within that type of syntactic phrase.

In this section, we consider a number of empirical problems for this approach. One type of problem comes from optionality. Optionality is difficult to encode in an OT framework in that the model is designed as a competition in which a single candidate wins. For clitics, the core proposal of the OT approach is the idea that clitics appear as far to the left as possible without being initial. However, we discuss a number of cases in which the clitics optionally occur farther from the left edge than necessary.<sup>15</sup>

Another type of problem comes from interpretative effects. Assuming a standard inverted Y-model of the grammar, operations on the PF branch cannot receive a semantic interpretation. In the OT analysis of second position clitics, the clitics are inserted in their surface positions on the PF branch. Therefore, the position of clitics should not receive a semantic interpretation. However, we demonstrate that the position of clitics does have semantic consequences in Warlpiri.<sup>16</sup>

Before turning to these problems, let us first consider possible support for this type of analysis. Support for an analysis based on ranked Integrity constraints would come from the contrast between languages in which an element may be broken up by the clitics versus

<sup>15</sup> One approach to optionality in OT that holds some promise for the Warlpiri case involves coexisting grammars—one grammar in which constraint A is ranked above constraint B, and another exhibiting the opposite ordering (original suggestion by Prince & Smolensky 1993). This idea is further pursued in footnote 21 below, after discussion in the text of the relevant data.

<sup>16</sup> These data also raise issues for analyses involving movement of clitics in a post-syntactic morphological component, like Embick & Noyer's (1999, 2001) work in a Distributed Morphology framework. Such analyses would also predict that the position of clitics are not interpreted. However, Distributed Morphology (see, for example, Marantz 1995) explicitly denies the standard assumption that post-syntactic morphological operations, as post Spellout, cannot effect semantic interpretation. Instead, Marantz proposes that non-forced choices in the morphology are interpreted, in order to allow lexical roots to be inserted only at PF. The interpretive effects therefore could potentially be captured in such a system. The conflict only arises for those, like ourselves, who adopt a post-syntactic morphology while maintaining the standard inverted Y-model of grammar (thus rejecting late insertion of lexical roots), see for example Embick (2000), Chomsky (2001).

languages in which the element may not be. Thus, like Prosodic Inversion, the OT analysis predicts first word phenomena; however the OT analysis allows for distinctions between types of elements which may be broken up – these may be quite specific; Anderson (2000:23) mentions as an example “the case where XP consists of a Noun governing a following genitive.” As discussed in the previous section, whether first word phenomena are attested is a matter of considerable debate. For Warlpiri, preverb split constructions constitute an example of a (morphological) first word construction, but no other first word constructions are found. This may be encoded in the OT framework by ranking an Integrity(preverb-verb) constraint below Edgemost(cl, L, D), and all other Integrity constraints above Edgemost(cl, L, D). However, without a substantial typology of attested alternative ranking possibilities, this analysis of Warlpiri can be no more than an alternative statement of the facts. The Integrity-based analysis also predicts the existence of languages that allow second position clitics to violate Integrity(word). No such language has been discovered; the one language for which this was suggested, Pashto, appears rather to have a construction similar to the Warlpiri preverb split construction (Roberts 1996).

Both Anderson (2000) and Billings (2002) support the OT premiss that clitics want to be as close to the left edge as possible through an observation about Warlpiri from Simpson (1991:69): “in connected speech, monosyllabic AUX bases are found sentence-initially, because the last element of the previous sentence provides a phonological host for the clitics.” The following is an example from Hale (1966) (pc Jane Simpson to Steve Anderson):

- (22) Jinarn-kiji-ni-ji.            Ngulanya-ka-rnal            ngarri-ni  
trip-throw-NPast-Top    that-PresImpf-1plExclSubj    call-NPast  
jinarn-kiji-ni-ji,            kaji-lpa-npa            watiya-rla-rlangu    wanti-yarla.  
trip-throw-NPast-Top    NFact-PastImpf-2sgSubj    log-Loc-for.example    fall-Irrealis  
Ka            jinarn-kiji-ni.  
PresImpf trip-throw-NPast  
‘*Jinarn-kijirni*. We call it *jinar-n-kijirni* if you fall over on, say, a piece of wood, it trips one up.’

However, caution must be used when drawing any conclusions from such examples. Certainly the transcription gives no indication that *ka* is cliticized to the preceding word. Indeed, Laughren (2002) characterizes such examples as involving a pause between the preceding material and *ka*, casting doubt on such an interpretation.

More interesting perhaps is the possibility that the status of *ka* as a clitic is in flux.<sup>17</sup> Since the vowel /a/ is inert for vowel harmony, vowel harmony effects provide no evidence for the cliticity of *ka*. And there is some evidence from secondary stress placement and from phonetics that *ka* behaves differently from other clitics and affixes.

A sequence of monomoraic suffixes/clitics in Warlpiri receives secondary stress as follows: binary trochaic feet are built beginning with the initial monomoraic suffix; a final odd mora

<sup>17</sup> This is not possible for *lpa*, since prosodic words may not begin with the consonant sequence *lp* in Warlpiri.

is unstressed (see Nash 1986, Kager 1995, Pensalfini 1997, Berry 1999 for further details of stress placement in Warlpiri<sup>18</sup>:

- (23) a. wáti-ngka  
man-Loc  
b. wáti-ngkà-rlu  
man-Loc-Erg  
c. wátiya-rlà-rlu  
tree-Loc-Erg  
d. wátiya-rlà-rlu-ju  
tree-Loc-Erg-Top

However, when *ka* appears in a sequence of monomoraic suffixes and clitics, it attracts stress:<sup>19</sup>

- (24) a. wángka-mi-kà-rna  
speak-Npast-PresImpf-1sgSubj  
b. wángka-mi-kà-rna-ngkù-lu  
speak-Npast-PresImpf-1sgSubj-2sgObj  
c. wángka-mi-kà-rna-ngkù-lu-rla  
speak-Npast-PresImpf-1sgSubj-2sgObj-3DatObj

In this, it resembles monomoraic roots, which bear stress regardless of position (Nash 1986):

- (25) túrl-tùrl-ngà-rni  
split-split-eat-Npast

*ka* behaves differently from roots, however, in that it does not bear stress if this would result in a monomoraic foot. One such context is when a bimoraic suffix or clitic follows; bimoraic suffixes and clitics always bear initial stress in Warlpiri.

- (26) a. Wárlpirì-ka-rlipa  
Warlpiri-PresImpf-1plIncl

<sup>18</sup> Stress placement in Warlpiri is more variable than the theoretical discussions generally acknowledge, with some tendency found to ignore morpheme boundaries in casual speech. This variability is partially addressed in Berry 1999, but further work is required. The variability does not bear directly on the current discussion.

<sup>19</sup> In contrast, *lpa* patterns with other clitics and suffixes:

- (1) wátiya-rlà-lpa-jàna  
tree-Loc-PastImpf-3plObj  
(2) wángka-jà-lpa-rna  
speak-Past-PastImpf-1sg

- b. wángka-mì-ka-pàla  
 speak-Npast-PresImpf-3DualObj

Thus, the behaviour of *ka* with respect to stress assignment is intermediate between a prosodic word and a clitic/suffix.

In addition, Pentland (2004) documents phonetic strengthening of word-initial consonants in Warlpiri (longer stop closure duration, and longer and stronger release bursts). Interestingly, she notes that the /k/ in *ka* displays an unusually high frequency of consonant strengthening, more comparable to word-initial consonants than to word-medial. This is all the more striking in that Pentland's data involve *ka* in second position.

Finally, *ka* can bear contrastive focus, appearing initially in polarity focus clauses:

- (27) Ka-rna ya-ni.  
 Pres.Impf-1sg.Subj go-Nonpast  
 ‘I AM going.’

In sum, attested examples of *ka*-initial clauses do not clearly support the claim that the second position clitics prefer first position but appear second to satisfy their need for a phonological host. There is no evidence of cliticization of *ka* to an element in a preceding clause, and there is reason to question the status of *ka* as a clitic. Thus, *ka*-initial clauses bear further study, but cannot provide evidence for the OT analysis of clitic placement at the present level of understanding.

Furthermore, there is evidence in Warlpiri against the idea that first position is preferred, while second position is forced. Consider the optionality of placement of the complementizers. As discussed above, complementizers (and attached clitics) may appear either in initial or second position in Warlpiri:

- (28) a. Kapi-rna-ngku yimi-ngarri-rni.  
 FutC-1sgSubj-2sgObj story-tell-Npast  
 ‘I’ll tell you about it’  
 b. Jurru kapi-ngki kaarrkaarr-janka.  
 head FutC-2sgObj singe.Npast  
 ‘it will singe your hair’ (Warlpiri Dictionary Project 1993)

To account for this pattern, Anderson (2000) proposes that complementizers come in two variants: a non-clitic that forms a phonological word and so may appear initially, and a clitic that does not form a phonological word, and so must appear in second position in order to be integrated into a preceding phonological word.<sup>20</sup> Anderson compares this to the situation of English *is* and *has*, which have both full and clitic forms. However, in the English case, the clitic forms are phonologically distinct from the full forms. This is not the case for the Warlpiri complementizers; there is no evidence for two distinct forms of the complementizers, one prosodically deficient and one not. Indeed, there is evidence against the claim that complementizers in second position in Warlpiri are clitics, in that they fail to show the *u/i* vowel harmony effects exhibited by clitics in the language. Examples follow for the declarative complementizer *kujá*: and the relational complementizer *yi*:

<sup>20</sup> Note that Anderson 2000 assumes Hale's (1973) generalization.

- (29) a. Ngamirlji, ngula-ji kuja-ka ngati-nyanu-rlu marda-rni kurdu,  
in.arms that-Top DeclC-PresImpf mother-Anaph-Erg hold-NPast child  
'Ngamirlji is when a mother holds a child'
- b. nganayi kuja-lpa-lu liwanja-paju-rnu, ...  
whatchamacallit DeclC-PastImpf-3plSubj fish-call-Past  
'that thing they called *fish*, ...' (Warlpiri Dictionary Project 1993)
- (30) a. Jukaruru yi-lpa payi ya-nu-rnu nyanungu-kurra-juku –  
straight RelC-PastImpf wind go-Past-hither 3sg-All-still  
yujuku-kurra.  
humpy-All  
'As the wind came straight towards it – towards the humpy.'
- b. Nantuwu yi-rna nganta yali puuly-marda-karla, ngula-ju  
horse RelC-1sgSubj supposedly yonder seizing-have-Irr that-top  
wuruly-paruka-ja.  
hidden-run-Past  
'Just as I was about to grab hold of that horse it ran off.' (Warlpiri Dictionary Project 1993)

If the complementizers were clitics, vowel harmony would have required \**ngulaji kijaka* and \**nganayi kijalpalu* in (29), and \**yukaruru yulpa* and \**nantuwu yurna* in (30).

A similar problem arises from the optionality of preverb splitting. Preverb splitting is not obligatory, but alternates with the preverb and verb both appearing before the clitic cluster, as shown here with the preverb *rampal(pa)* 'mistake' and the associated verb *luawrnu* 'shot':

- (31) a. Rampal-luwa-rnu-rna-rla-jinta marlu-ku  
mistake-shoot-Past-1sgSubj-3DatObj-3DatObj kangaroo-Dat  
'I shot at a kangaroo and failed'
- b. Rampalpa-rna-rla-jinta luwa-rnu marlu-ku  
mistake-1sgSubj-3DatObj-3DatObj shoot-Past kangaroo-Dat  
'I shot at a kangaroo and failed' (Laughren 1989)

A possible approach to these data would be to claim that the preverbs come in two variants, one that requires splitting and the other that disallows it; however again we have no independent evidence for two variants of these preverbs.

Another case of optionality involves the evidential markers, which appear initially in Warlpiri. These evidential markers only optionally host the clitics, resulting in clitic second or clitic third:

- (32) a. Kari-nganta miyi-wangu ka-rnalujana yarnunjuku nyina  
fact food-without PresImpf-1plExcl-3plObj hungry sit  
'Isn't it obvious that we are waiting for them (here) hungry without any food?'

- b. Kari-nganta-rna kuyu-jarra yampi-ja-rni  
 fact-1sg meat-two leave-Past-hither  
 ‘The fact is I left two animals (I speared) and came here’ (Warlpiri Dictionary Project 1993)

Furthermore, this optionality extends to clauses with overt complementizers:

- (33) a. Kulanganta kapu-npa-ju yu-ngkarla  
 counterfact FutC-2sgSubj-1sgObj give-Irrealis  
 ‘I thought you would have given it to me (but you didn’t)’  
 b. Karinganta warnarrpi-rlangu-rlu kapi-pala-nyanu jalangu-ju  
 fact brother.in.law-plural-Erg FutC-3dualSubj-AnaphObj now-Top  
 wajampa-ma-ni.  
 injured-VF-Npast  
 ‘My two brother-in-laws will fight each other now.’ (Warlpiri Dictionary Project 1993)

This pattern cannot be explained by claiming that the domain of clitic placement optionally excludes the evidentials. As discussed above, the complementizer plus attached clitics can optionally appear initially. However, initial placement of the complementizer and clitics is impossible when the clause contains an evidential. If the domain of clitic placement does include the evidentials, this restriction is unexplained. If the domain of clitic placement does not include the evidentials, the evidentials would not be able to host the clitics. (This pattern is analysed in section 4.1 below.)<sup>21</sup>

Let us now consider whether the position of the clitics has any interpretive effect. The clitics themselves, as aspectual and agreement markers cannot be tested. However, positional interpretive effects can be tested for the complementizers. Complementizers invariably host the clitics, and the combination of a complementizer and attached clitics has the same positional possibilities as the clitics alone (second position, or third position with an initial evidential), with the sole difference that the complementizer may appear initially, whereas

<sup>21</sup> These data may be accounted for using coexisting grammars (mentioned in footnote 15 above). In this case, we require the cluster of constraints  $\text{Edgemost}(\text{Complementizer}, L, D) \gg \text{Edgemost}(\text{cl}, L, D)$  to exhibit variable ranking with respect to  $\text{NonInitial}(\text{cl}, L, D) \gg \text{NonInitial}(\text{Complementizer}, L, D)$ . In addition, a higher ranking constraint against enclitics lacking a host must rule out clitics in absolute initial position, but allow clitics initially after a complementizer. Given these coexisting grammars, the evidential data may be accounted for if the domain of clitic placement excludes the projection hosting the evidential markers. Identifying this domain, however, may be difficult. As discussed in section 2.1, the projection that appears immediately below the evidentials varies—including at least TopicP, and CP. Nor does the clause excluding the evidentials correspond to a relevant phonological domain; unlike hanging topics, which also induce clitic third (see footnote 10 and Legate 2002, 2003a), evidentials are not followed by an intonational break. Thus, the difficulty with a unique syntactic position analysis discussed in section 3.1 resurfaces for the OT analysis. An option does exist for the OT analysis, however, that was not available for the unique syntactic position analysis: to posit an obligatory functional projection between the evidentials and the remainder of the clause and identify that projection as the domain of clitic placement. In that this projection hosts no other material in its specifier or its head, such a move may appear undesirable, although there are clear candidates in the literature for such a projection (e.g. Rizzi’s ForceP).

the clitics alone, being enclitics, may not. Thus, whatever mechanism places the clitics in second position must also place the complementizers in second position. On the OT approach, this would be a set of constraints referring to positional possibilities of the complementizers. Therefore, the OT approach predicts that the position of the complementizer, as determined on the PF branch, not have interpretive consequences. Here we consider the negative complementizer *kula*, and the nonfact complementizer *kaji*.

One type of interpretive effect involves the interaction between clitics and negation. In Bulgarian, the lexical verb cannot appear before the clitic cluster in the presence of negation (Rivero 1994, Legendre 1996).

- (34) a. Ne sũm proĉel knigata  
 Neg be.1 read book  
 ‘I haven’t read the book’  
 b. \*Proĉel ne sũm knigata  
 read Neg be.1 book  
 ‘I haven’t read the book’

Legendre explains this in an OT framework by claiming that negation is a first-position clitic–Edgemost(Neg, L, D) outranks Noninitial(Neg, D). In Warlpiri as well, the verb may not appear to the left of the negative complementizer *kula*, and *kula* may also appear initially (data from Laughren 2002):

- (35) a. Kula-ka-rna ya-ni  
 NegC-PresImpf-1sg go-Npast  
 ‘I’m not going’  
 b. \*Ya-ni kula-ka-rna (ngaju)  
 go-Npast NegC-PresImpf-1sg (I)  
 ‘I’m not going’

However, Legendre’s analysis cannot carry over to Warlpiri, since negation otherwise behaves as other complementizers in Warlpiri, obligatorily hosting the clitics and optionally appearing in second position:

- (36) Ngaju kula-ka-rna ya-ni  
 I NegC-PresImpf-1sgSubj go-Npast  
 ‘I’m not going’

Laughren (2002) shows that *kula* differs from other complementizers in Warlpiri in that the position preceding *kula* cannot be interpreted as a focus position, although it can be interpreted as a topic position. Instead, focus must appear immediately following *kula*:

- (37) a. Ngaju kula-ka-rna ya-ni  
 I Neg-PresImpf-1sg go-Npast  
 ‘I’m not going’ (subject topic, verb focus)

- b. Kula-ka-rna ngaju ya-ni  
 Neg-PresImpf-1sg I go-Npast  
 ‘I’m not going’ (subject focus)

Laughren suggests that the ungrammaticality of the verb appearing to the left of the complementizer results from the impossibility of topicalizing the verb in Warlpiri.

In addition, for an indefinite to be interpreted in the scope of negation, it must follow the negative complementizer and attached clitics:

- (38) a. Kula-ka-rna ngana nya-nyi  
 NegC-PresImpf-1sgSubj who see-Npast  
 ‘I don’t see anybody’
- b. Kula-ka-ngku ngana-ngku nya-nyi  
 NegC-PresImpf-2sgObj who-Erg see-Npast  
 ‘Nobody sees you’ (Hale 1976:70-71)
- c. Kula-ka nyiya-rla nguna-mi kurdu  
 NegC-PresImpf what-Loc lie-Npast child  
 ‘The child is not lying on anything’
- d. Kula-ka ngana nyina-mi pirli-ngka  
 NegC-PresImpf who sit-Npast stone-Loc  
 ‘Nobody is sitting on the stone’ (Hale 1976:49)
- e. Kula Jakamarra-rlu ngarru-rnu Jampijinpa nyiya nga-rninja-ku  
 NegC Jakamarra-Erg tell-Npast Jampijinpa what eat-Gerund-Dat  
 ‘Jakamarra didn’t tell Jampijinpa to eat anything’ (Granites et al)

Since negative wh-questions are not possible in Warlpiri, positioning the indefinite to the left of negation is simply ungrammatical.

A similar effect is found with the nonfact complementizer *kaji*. Consider the following (from Laughren 2002):

- (39) a. Kaji-ka-rna nyarrpara-kurra ya-ni  
 NFactC-PresImpf-1sgSubj where-All go-Npast  
 ‘I might go somewhere’  
 ‘Where might I go?’
- b. Nyarrpara-kurra kaji-ka-rna ya-ni  
 where-All NFactC-PresImpf-1sgSubj go-Npast  
 \* ‘I might go somewhere’  
 ‘Where am I likely to go?’

Here we observe that although the non-fact complementizer *kaji* (often translated using ‘if’, ‘might’, ‘when’, ‘while’) may appear initially or in second position, the choice is not simply a matter of phonology. In order for *nyarrpa* ‘where/somewhere’ to be interpreted as an indefinite, it must follow *kaji* in the surface string.

In sum, the position of the complementizers in Warlpiri has semantic consequences. The phenomena considered in this section thus highlight an important point: an OT analysis of clitic placement cannot be grafted onto a derivational syntactic theory. To adopt an OT analysis of clitic placement requires also adopting an OT analysis of more general word order phenomena, including the representation of scopal relations, and placement of various non-clitic elements, such as topics and foci, complementizers, and evidentials.<sup>22</sup> Thus, justification of the OT analysis of clitics cannot be accomplished in isolation, but only within a general framework of OT-based approaches to word order phenomena. Such a discussion goes beyond the scope of this paper, but see for example the criticism in Newmeyer (2002).

To conclude, Warlpiri fails to support the basic claim of OT approaches that clitics prefer to be in first position, but are forced into second. Evidence cited to support this idea, from clause-initial but discourse medial clitics, was revealed to be inconclusive. Furthermore, in certain syntactic environments, clitics are found to optionally appear later in the clause than required for grammaticality, contrary to the expectations of an OT account. Finally, to adopt an OT-based analysis of clitic placement requires also adopting an OT-based analysis for syntactic ordering in general.

### 3.3. WEAK PHONOLOGICAL APPROACH

Bošković (2001) develops an approach to second position clitics placement that he characterizes as a *weak phonological* approach, focusing on Serbo-Croatian. On Bošković's analysis, clitics undergo movement in the syntax, with the results being filtered or repaired in the phonology.

For Bošković, clitics are lexically equipped with conflicting demands: (1) the clitic must be initial in its intonational phrase; and (2) the clitic is a suffix. This closely resembles the OT account discussed in section 2.3 above (suffixal replacing NonInitial(Cl, D)). However, Bošković does not rank these conflicting requirements; instead, he claims that they may be satisfied simultaneously. First, he states that after affixation of the clitics to a preceding word, the entire word inherits the clitics' requirement to be initial in its intonational phrase. Thus, if the host of the clitics is initial in the intonational phrase, that will satisfy the clitics' requirement. Furthermore, adopting Marantz' (1989) proposal that the head of a constituent at PF is the most peripheral element in the constituent, Bošković proposes that the requirements of a word may be satisfied by the phrase it heads. Thus, when a clitic suffixes onto the final word of a phrase, the clitic's requirement that it must be initial in its intonational phrase is transferred to the final word. Since this word is the PF head of the phrase, its requirements can be satisfied by the whole phrase. Thus, suffixation onto the final element of a phrase that is initial in its intonational domain allows the clitic to count as initial.

Primary placement of clitics for Bošković is accomplished through optional syntactic movement, the results of which are filtered by the lexical requirements of the clitics as discussed. In addition, a major theme of the book is the claim that the head of a movement chain need not be pronounced. Adopting the copy theory of movement (Chomsky 1993),

<sup>22</sup> This is indeed explicitly adopted in Legendre's work.

he argues that if forced by phonological requirements, a copy lower in the chain may be pronounced (see for example Groat & O’Neil 1996, Pesetsky 1997, Bobaljik 2002 for pronunciation of lower copies of a chain). Thus, if the output of the syntax includes initial enclitics, lower copies may be pronounced in order to satisfy the clitics’ suffixal requirement.

Empirical problems faced by the OT approach for Warlpiri resurface here. Data involving the positioning of the clitics in later than second position appear problematic, however caution must be taken. Bošković’s analysis crucially refers to the intonational phrase rather than clause. Thus such examples are only problematic in so far as the clitics are also later than second position in their intonational domain. Certainly, there are constructions in which clitics appear later than second position in the clause, but second in their intonational domain. Hanging topic left dislocation constructions constitute such a case; the left dislocated topic induces clitic third, however an intonational phrase boundary follows the left dislocated topic, rendering the construction irrelevant to the current discussion (see Legate 2002, 2003a for discussion of hanging topic left dislocation in Warlpiri).

- (40) Wawirri, ngula ka nyina walya-ngka-jala.  
 kangaroo, that PresImpf be.Npast ground-Loc-actually  
 The kangaroo, it lives on the ground. (Warlpiri Dictionary Project 1993)

There has been little work on intonational phrases in Warlpiri, however two recent instrumental analyses by Butcher & Harrington (2003) and Berry (1999) are relevant. These identify a characteristic tune for the (declarative) intonational phrase, with a high onset falling to a low final boundary tone. In addition, in casual speech, the intonational phrase constitutes a single primary stress domain—the initial primary stress is maintained, while following primary stresses are realized as secondary stresses. These tests may be used to determine intonational phrases in Warlpiri.

Recall from section 3.2 above that complementizers in Warlpiri are not clitics, and do not suffix to a preceding word (see (29)). Therefore, on Bošković’s account, suffixation of the clitics to the complementizers will allow the clitics to satisfy their initial requirement only if the complementizer is itself in initial position. Clauses with the complementizer and thus attached clitics in second position should violate the initial requirement of the clitics. As mentioned previously, such examples are grammatical, and Berry 1999 shows that they constitute a single intonational domain based on the above criteria. An example from Berry 1999 follows, in which the relational clitic *yi* and attached clitics follow the initial phrase *nyampurla* ‘here’:

- (41) Nyampu-rla-lku yi-rna purra-mi  
 here-Loc-now RelC-1sgSubj cook-Npast  
 ‘I’m here now to cook’ (Berry 1999)

Indeed, the placement of the complementizers themselves in either initial or second position cannot be captured. Bošković’s analysis is explicitly designed to account for the placement of suffixal second position clitics, whereas the complementizers are not clitics. However, since the complementizers share the distribution of the clitics exactly, with the one distinction that the complementizers can appear initially, it is perhaps worth noting

that the analysis does not extend to the placement of the complementizers in Warlpiri. Since the complementizers are not suffixal, the optionality of their placement cannot be located in the suffixal requirement. Nor can the optionality be located in the initial requirement. Pure optionality of the initial restriction would incorrectly predict clauses with the complementizers in later positions, for example following both a topic and a *wh*-phrase. Even making the (dubious) proposal that the initial requirement alternates with a requirement that the complementizer be second in its intonational phrase would be inadequate. Since the complementizers are not suffixal, their requirements cannot be transferred to the final element of a preceding phrase. Therefore, this move would incorrectly predict that complementizers could not follow an initial phrase:

- (42) Wajirrki wiri-ngka kala-lu turnu-jarri-ja - kuyuku, miyiki.  
 new.growth big-Loc PastC-3pl gathering-Incho-Past meat-Dat, food-Dat  
 ‘When it was very green (after good rain) they used to come together to get meat and fruits.’ (Warlpiri Dictionary Project 1993)

These optionality issues again only compound when the evidentials are taken into consideration.

- (43) a. Kari-nganta-rna kuyu-jarra yampi-ja-rni  
 fact-1sg meat-two leave-Past-hither  
 ‘The fact is I left two animals (I speared) and came here’  
 b. Kulanganta kapu-mpa-ju yu-ngkarla  
 counterfact FutC-2sgSubj-1sgObj give-Irrealis  
 ‘I thought you would have given it to me (but you didn’t)’  
 c. Kari-nganta miyi-wangu ka-rnalujana yarnunjuku nyina  
 fact food-without PresImpf-1plExcl-3plObj hungry sit  
 ‘Isn’t it obvious that we are waiting for them (here) hungry without any food?’  
 d. Karinganta warnarrpi-rlangu-rlu kapi-pala-nyanu jalangu-ju  
 fact brother.in.law-plural-Erg FutC-3dualSubj-AnaphObj now-Top  
 wajampa-ma-ni.  
 injured-VF-Npast  
 ‘My two brother-in-laws will fight each other now.’ (Warlpiri Dictionary Project 1993)

The source of the difficulties in attempting to apply Bošković’s theory to Warlpiri is that he crucially makes use of the suffixal nature of the clitics in his analysis of second positioning. The Warlpiri complementizers illustrate that second positioning is independent of suffixhood (although suffixhood does eliminate the possibility of initial positioning).

The interpretive effects of the complementizer placement discussed in section 3.2 may be accounted for on Bošković’s theory, depending on the resolution of the complementizer placement. Recall that for Bošković, clitics (and complementizers) are placed in the syntax.

This will allow for the position of the complementizer to be interpreted, provided that the head of the complementizer chain is always pronounced.

Finally, consider the preverb split construction under Bošković's theory. Clitics for Bošković undergo syntactic head movement, and are pronounced only in one of the chain positions (the head, or a lower copy if forced by phonological requirements). Reordering of elements, other than achieved through lower copy pronunciation, is explicitly disallowed. The preverb split construction involves pronunciation of the clitics inside the preverb-verb unit, thus the question becomes whether aspect, subject agreement, and object agreement chains could occur in this position. Detailed analysis of the preverb construction is beyond the scope of this paper, however we may make some observations that are relevant for the present discussion. For many preverbs that participate in the preverb split construction, it is clear that they originate low in the verb phrase, as they are crucially involved in theta-role assignment. One such example involves the verb *mani* used as a (causative) light verb when combined with a preverb. For example, in (44) *mani* is combined with the nonfinite verbs used as preverbs *yulanjaku* 'to cry', and *wangkanjaku* 'to speak'.

- (44) a. Kaji-ka-ju                      juju-ngku      yula-nja-ku-yula-nja-ku-ma-ni  
 PotC-PresImpf-1sgObj evil.being-Erg cry-Infin-Dat-cry-Infin-Dat-get-NPast  
 'The evil one can make me cry'
- b. Nganka-lu-jana                      wangka-nja-wangu-rla,  
 later-3plSubj-3plObj speak-Infin-without-Loc  
 wangka-nja-ku-wangka-nja-ku-ma-nu  
 speak-Infin-Dat-speak-Infin-Dat-get-Past  
 'Later although they were not supposed to speak to them, they made him speak.'  
 (Warlpiri Dictionary Project 1993)

In other cases, the verb functions as a light verb, expressing inchoative or stative semantics, whereas the lexical content is contained in the preverb. The following examples involve the light verb *jarrimi* and the preverbs *mata* 'tired', and *lani* 'afraid':

- (45) a. Wurnturu-rla-rna mata-rni-jarri-ja                      ya-ninja-rla.  
 far-Loc-1sgSubj tired-hither-Incho-Past go-Infin-Loc  
 'I have gone a long way and have become tired.'
- b. Lani-jarri-mi                      ka                      Jampijinpa kuuku-ku-ju,                      Jangala.  
 afraid-Incho-NPast PresImpf Jampijinpa bogey.man-Dat-Top Jangala  
 'Jampijinpa is afraid of the bogey-men, Jangala.'

Another example of preverbs that must originate low in the verb phrase are those with resultative semantics. Although the analysis of resultatives is much debated, there is agreement on the placement of resultative predicates within the verb phrase. Examples with the resultative preverbs *tiirl* 'split', *larra* 'cracked', and *jurnpu* 'piled up' follow:

- (46) a. tiirl-paka-rni                      ka-rnalu                      – warlu-ku  
 split-strike-NPast PresImpf-1pl fire-Dat  
 'we split it for firewood'

- b. Jirrima-lku ka larra-pi-ny<sup>i</sup> yangka-ju watiya jinta-jangka  
 two-then PresImpf cracked-hit-NPast that.one-Top tree one-from  
 ‘Then one tree is chopped into two’
- c. Wantawanta ka-lu jurnpu-pangi-rni, rdaku wiri ka  
 red.ant PresImpf-3plSubj piled.up-dig-NPast hole big PresImpf  
 jurnpu-yirra-ni, lulju, ...  
 piled.up-place-NPast mound.of.dirt  
 ‘Red ants dig mounds, they dig out a big hole and pile up the dirt’ (Warlpiri Dictionary Project 1993)

These types of preverbs participate in the preverb-split construction. Examples follow. (47) illustrates a sequence involving the preverb *yitaki* ‘tracked’ combined with the light verb *mani*; in the first sentence the preverb and verb occur together before the clitics, while in the second sentence the preverb is split from the verb by the clitics. (48) illustrates a preverb split construction with the preverb *mata* ‘tired’ and the light verb *jarrimi*. (49) shows use of *nyarrpa* ‘how’ as a preverb with the light verb *jarrimi*, first with the preverb and verb before the clitics, and then with the preverb split from the verb by the clitics.

- (47) Yitaki-ma-nu-jana. Yitaki-rra-jana ma-nu  
 tracked-get-Past-3plObj tracked-Thither-3plObj get-Past  
 parnman-kurlangu-rlangu kuja-lpa-lu ya-nu.  
 mother.in.law-having-also DeclC-PastImpf-3pl go-Past  
 ‘He followed their tracks. He went off tracking his mother-in-law and his wives, following where they had gone.’ (Warlpiri Dictionary Project 1993)
- (48) Wurnturu ka ya-ni, mata-lku ka jarri.  
 later PresImpf go-Pres tired-then PresImpf become  
 ‘He goes a long way, and then gets tired.’ (Warlpiri Dictionary Project 1993)
- (49) a. Nyarrpa-jarri-mi ka-lu Yurntumu-wardingki-patu?  
 how-Incho-NPast PresImpf-3plSubj Yuendumu-habitant-Pl  
 ‘What are the Yuendumu people doing?’ (Laughren 2002)
- b. nyarrpa-rlipa jarri?  
 how-1plIncl Incl.Npast  
 ‘What shall we become?’ OR ‘What shall we do?’ (Warlpiri Dictionary Project 1993)

Thus, the preverbs originate in the verb phrase and form a unit with the inflected verb, reflected phonologically by the verb and preverb forming a single domain for primary stress (as discussed in section 3.1 above), and reflected syntactically by the ability for the verb and preverb to appear together before the clitic cluster. Whether this unit is formed through base generation or movement inside the verb phrase is immaterial to the present discussion.

Consider now the merged position of the aspectual clitics, *ka* and *lpa*, which express present imperfective and past imperfective respectively (see Legate 2003b for arguments

that the tense distinction is not interpreted in these forms), and which contrast with the  $-\emptyset$ perfective. These aspectual clitics have semantic scope over the whole event rather than the verb or preverb alone, as illustrated in the following with the preverb-verb combinations *pirri-karrka* ‘scattered-walk’, *pirri-ngunami* ‘scattered-lie’, *jakati-wapaja* ‘leaving-walked’, and *jakajaka-manu* ‘singing spell-got’:

- (50) a. Kuyu-ku ka-nkulu nyurrurla pirri-karrka – karnta-karnta.  
 meat-Dat PresImpf-2plSubj you.pl scattered-walk.NPast woman-woman  
 ‘You women are each going out to (look for) meat.’
- b. yangka kuja-ka-lu pirri-nguna-mi manu pularra-nguna  
 like DeclC-PresImpf-3plSubj scattered-lie-NPast and scattered-lie.NPast  
 miyi manu kuyu kiji-rninja-warnu.  
 food and meat throw-Infin-after  
 ‘... so that the food and meat lies scattered after being thrown.’
- c. Jakati-jakati-lpa-lu wapa-ja yama-ngurlu.  
 leaving-leaving-PastImpf-3plSubj walk-Past shade-El  
 ‘They would leave the sunshelter’
- d. Jaka.jaka-ma-nu-lpa-nyanu-rla juju-ngku.  
 singing.spell-get-Past-PastImpf-Anaph-3Dat evil.one-Erg  
 ‘The evil one was singing a spell for herself.’ (Warlpiri Dictionary Project 1993)

This suggests that the aspectual clitics originate in a position with scope over the verb and preverb. This positioning is expected on crosslinguistic grounds; imperfective and perfective aspect are referred to in the semantics literature as *viewpoint* aspect (Smith 1991) or *outer* aspect (Verkuyl 1989), positioned syntactically between the verb phrase and TP (Kratzer 1998, Matthewson 2002, Ramchand 2004, Zagona 2004, Terry 2005, among many others).

If this discussion is on the right track, the preverbs and verbs originate in the verb phrase and form a syntactic and phonological unit, while the aspectual clitics originate outside the verb phrase. This makes it unlikely that a syntactic copy of the aspectual clitic could appear between the preverb and the lexical verb; thus Bošković’s theory, which admits no alternative mechanism for clitic placement than pronunciation of syntactic copies, would wrongly predict clitic split constructions to be impossible. Further research is needed to explore these issues in more detail, however, this preliminary discussion suggests that the preverb split construction is problematic for Bošković’s theory as well.

We conclude that Bošković’s theory faces empirical challenges when applied to the Warlpiri data, with respect to clitics appearing later than second and the placement of the complementizers, and possibly also with respect to the preverb split construction. In the following section, we develop an alternative analysis of the Warlpiri data, combining syntactic head movement with limited morphological reordering.

## 4. Head Movement Plus Morphology

### 4.1. HEAD MOVEMENT...

In this section we develop an analysis of Warlpiri second position clitic placement, building on Laughren (2002). Laughren proposes that the clitics are generated as the head of a syntactic projection, and undergo head movement in the syntax to a position determined by the functional projections present in the clause (see also Franks 1998 for Serbo-Croatian). We adopt this approach, along with the partial structure for Warlpiri in (51), adapted from Legate (2002).

$$(51) \quad (\text{EvidentialP}) > (\text{TopicP}) > (\text{FocusP}) > \text{CP} > \text{TP} > \text{AspectP}$$

We adopt an analysis of head movement based on Attract (Chomsky 1995); thus, it is the properties of each functional head that motivates movement of the clitics. For concreteness, we will employ the terminology of Chomsky (1995), and state that the property of a functional head that motivates movement to it is a “strong feature.” Thus, in (51), T, C, Focus, and Topic, all have strong features.<sup>23</sup> Thus, Aspect raises to each (when present).<sup>24</sup>

<sup>23</sup> There are various possibilities for the identity of this strong feature. Each head may have a feature corresponding to the projection it immediately dominates (i.e. C has a strong [T] feature); each head may have a strong [Asp] feature, which induces pied-piping of the entire complex head; or each head may have an indiscriminate [Head] feature that attracts the head of the projection it immediately dominates. The choice is not crucial to the current discussion.

<sup>24</sup> We consider it likely that the agreement clitics are simply the realization of syntactic  $\phi$ -feature agreement. However, the status of the agreement clitics in Warlpiri is highly controversial due to the purported nonconfigurational nature of the language. For related discussion see for example Hale 1982, Jelinek 1984, Laughren 1989, Legate 2002, among many others. Therefore, we leave the syntactic positioning of the agreement clitics aside in this discussion, noting simply that our analysis requires that the agreement features form part of the complex head C+T+Aspect before the application of morpho-phonology. Thus, we also leave aside the internal ordering of the clitics in the clitic cluster. On the present analysis, involving right head-adjunction (see below), it is unsurprising to find that the subject agreement clitics normally proceed the object agreement clitics, since subject agreement is likely to be hierarchically higher than object agreement. However, care must be taken, since the morphology plays a role in the placement of the agreement clitics. Consider an example. For many clitics, person and number are realized in a single porte-manteau clitic. However, some clitics are analysable into separate person and number morphemes, including the subject clitics *rna-lu* ‘1st person plural exclusive’, *nku-lu* ‘2nd person plural’, and *lu* ‘3rd person plural’, which all contain the plural morpheme *lu*. Similarly, *npa-pala* ‘2nd person dual subject’, *ngka-pala* ‘2nd person dual object’, and *pala* ‘3rd person dual subject’ contain the dual morpheme *pala*. When these subject clitics cooccur with the object clitic *ju* ‘1st person singular’, or *ngku* ‘2nd person singular’, the subject number morpheme inverts with the object (person) agreement morpheme:

- (1) a. ka-rna-ngku-lu            (\*ka-rna-lu-ngku)  
       PresImpf-1subj-2obj-pl  
       “we all (exclusive) act on you (singular)”
- b. ka-npa-ju-pala            (\*ka-n-pala-ju)  
       PresImpf-2subj-1obj-dual  
       “you two act on me”
- c. ka- $\emptyset$ -ju-pala            (\*ka-pala-ju)  
       PresImpf-3-1obj-dual

Let us consider several sample derivations, building up complexity as we go. First, a simple wh-question:

- (52) Nyarrpara-kurra ka-*npa* ya-ni?  
 where-All PresImpf-2sgSubj go-Npast  
 ‘Where are you going?’ (Warlpiri Dictionary Project 1993)

Aspect (*ka* ‘present imperfect’) is attracted by the strong feature of T, and raises to T. The strong feature of C attracts and T+Aspect raise to C; subsequently the strong feature of Focus attracts and C+T+Aspect raises to Focus. In addition, Focus attracts the wh-phrase *nyarrparakurra* ‘to where’ to its specifier.

Adding a TopicP results in the following:

- (53) Kuturu-ju-ka-*npa-nyanu* nyarrpara-wiyi marda-rni?  
 nullanulla-Top-PresImpf-2sgSubj-AnaphObj where-first have-NPast  
 ‘Where do you have this nullanulla of yours?’ (Hale 1960:7.20-7.21)

The derivation proceeds as above to FocusP. Subsequently, Topic attracts and Focus+C+T+Aspect raises to Topic. Thus, we obtain the result that the clitics do not surface in a unique syntactic position. In addition, Topic attracts the topic *kuturuju* ‘nullanulla’ to its specifier.

Consider a hanging topic left dislocation construction, containing a TopicP but no FocusP:

- (54) Wawirri, ngula-*ka* nyina walya-ngka-jala.  
 kangaroo, that-PresImpf be.Npast ground-Loc-actually  
 The kangaroo, it lives on the ground. (Warlpiri Dictionary Project 1993)

Topic attracts, and C+T+Aspect raise to Topic. In addition, Topic attracts the topic *ngula* ‘that’ to its specifier. The hanging topic *wawirri* is adjoined to TopicP.<sup>25</sup>

Consider a derivation with no functional projections above CP. The strong feature of C attracts, and T+Aspect raise to C. If C is pronounced, the complementizer plus attached clitics appear initially in the clause. If C is not pronounced, the clitics will appear initially without a host and the derivation will fail to converge. Thus, we differ from Halpern (1995) and Bošković (2001) in maintaining that derivations resulting in initial enclitics are filtered

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“they two act on me”

- d. ka-rna-ngku-lu-pala (\*ka-rna-lu-ngku-pala)  
 PresImpf-1subj-2obj-pl-dual

“we all (exclusive) act on you two”

See Hale 1973 for further discussion, including discussion of morphological cooccurrence constraints on subject and object agreement clitics. (Halle 1997 is a recent discussion of the Warlpiri agreement system, however that work contains an error regarding the Warlpiri paradigm, inverting inclusive and exclusive agreement morphemes. The correct paradigm is in Hale et al 1995.)

<sup>25</sup> We leave open the possibility that there exists a unique highest functional projection present in every clause—a (potentially null) EvidentialP, or a projection like Rizzi’s ForceP that would be uniformly null. If so, hanging topics would adjoin to this projection.

out, rather than triggering morphophonological repair operations.<sup>26</sup> A smaller clause may be possible, lacking functional projections above TP. On such a derivation, T attracts Aspect to raise to T; the derivation will converge, providing the specifier of TP is occupied.

On this analysis, second position is epiphenomenal, driven solely by the properties of functional projections present in the clause. This is supported by clauses with overt evidentials. These were discussed above as problematic for alternative accounts of second position clitic placement. Evidentials optionally host the clitics, and optionally trigger clitic third; examples illustrating this behaviour with the factive evidential *karinganta* are repeated below:

- (55) a. Kari-nganta-rna kuyu-jarra yampi-ja-rni  
 fact-1sg meat-two leave-Past-hither  
 ‘The fact is I left two animals (I speared) and came here’
- b. Kari-nganta miyi-wangu ka-rnalu-jana yarnunjuku nyina  
 fact food-without PresImpf-1plExcl-3plObj hungry sit  
 ‘Isn’t it obvious that we are waiting for them (here) hungry without any food?’  
 (Warlpiri Dictionary Project 1993)

On the present analysis, Evidential does not trigger head movement (in the terminology of Chomsky 1995, the relevant feature of Evidential is weak (or simply absent)). In (55a), TopicP and FocusP are absent. T attracts Aspect; C attracts, raising T+Aspect to C. Evidential does not attract. The clitics surface in C, in second position, after the evidential. In (55b), *miyiwangu* ‘without food’ is focused. T, C, and Focus all attract in turn, resulting in the complex head Focus+C+T+Aspect in the head of FocusP. Focus also attracts the focused phrase *miyiwangu* to the specifier of FocusP. Evidential does not attract. This results in the clitics surfacing in Focus, in third position, after the evidential and the focused phrase. Notice that this account predicts without further ado that the complementizer and attached clitics cannot appear initially before an evidential. The head of EvidentialP does not attract the clitics, and no functional projection dominates EvidentialP. Thus, there is no possible derivation that would result in the complementizer and clitics being placed before the evidential.

On the proposed account, the behaviour of the complementizers is captured without additional stipulation. Recall that the complementizers are not clitics, but share the distribution of the clitics, with the exception that the complementizers may also appear initially. This fact was problematic for alternative analyses. On the present analysis, in all derivations, the complementizer, tense, and aspect surface as (part of) a single complex head, regardless of whether the complementizer is overtly pronounced or null. Therefore, the distribution of the pronounced complementizer and attached clitics is exactly that of the clitics without the pronounced complementizer. As discussed above, the difference in their distribution follows from the enclitic status of the clitics. If the clitics surface in an initial position, the derivation crashes due to the lack of a phonological host for the clitics,<sup>27</sup> whereas if a (pronounced) complementizer surfaces initially, the derivation converges unproblematically. This analysis

<sup>26</sup> See section 4.2 for a limited exception.

<sup>27</sup> See section 4.2 for a limited exception.

of the placement of the complementizers means, for example, that the derivations of (56a) and (56b) are identical in relevant respects to (55a) and (55b) respectively.

- (56) a. Kulanganta kapu-npa-ju                      yu-ngkarla  
           counterfact FutC-2sgSubj-1sgObj give-Irrealis  
           ‘I thought you would have given it to me (but you didn’t)’
- b. Karinganta warnarrpi-rlangu-rlu            kapi-pala-nyanu                      jalangu-ju  
           fact                      brother.in.law-plural-Erg FutC-3dualSubj-AnaphObj now-Top  
           wajampa-ma-ni.  
           injured-VF-Npast  
           ‘My two brother-in-laws will fight each other now.’ (Warlpiri Dictionary Project 1993)

A couple of remarks are in order regarding the realization of the head-adjunction structure. Notice that pronunciation of the complementizer and aspect uniformly results in C-Aspect order. We assume that head movement in Warlpiri creates a right adjunction structure.

Consider also the possible realizations of T in the head-adjunction structure. Imperfect aspect in Warlpiri encodes a distinction between past, *lpa*, and nonpast, *ka*. However, Legate (2003b) argues that this distinction is not interpreted, but rather results from differential realization of imperfect aspect based on its environment. Verbal suffixes also encode a past/nonpast distinction (as well as irrealis, imperative, and, in western dialects, future). However, there are several pieces of suggestive evidence that the verbal suffixes are not inflectional morphology realizing the features of T, but rather are derivational morphology,<sup>28</sup> forming participles (as suggested by the standard practice of referring to the clitic cluster as an auxiliary).

First, the past suffix triggers a lexically restricted regressive *i* → *u* vowel harmony pattern from the suffix to the verbal root, while the language otherwise exhibits productive progressive *u* → *i* harmony from roots to suffixes and clitics (see Nash 1986, Harvey & Baker 2005 for details).

- (57) kiji-rni            kiji-ka            versus kiju-rnu  
           throw-Npast throw-Imper                      throw-Past

Second, the past suffix is found as the agentive nominalizer in compounds, (58). The relationship between the past and the agentive nominalizer does not seem to be simply one of homophony, since the class-based allomorphy found for the past suffix is replicated in the agentive nominalization (with the exception that Class 1 collapses with Class III), (59).

- (58) a. marna-nga-rnu  
           grass-eat-Nom  
           ‘grass eater’

<sup>28</sup> Or rather, morphology close to the root; see Marantz 2001

- b. *yarla-karla-ngu*  
*yam-dig-Nom*  
 ‘yam digger’ (Nash 1986)

	Verb Class	I	II	III	IV	V
(59)	Past	-ja	-rnu	-ngu	-rnu	-nu
	Nomic	-ngu	-rnu	-ngu	-rnu	-nu

Third, the present suffix appears inside nominalizing morphology in the gerund, which involves nominalization below TP (see Legate 2002, to appear).

- (60) *paka-rni-nja*  
*hit-NPast-Infin*  
 ‘hitting’

Fourth, the present suffix appears inside the inceptive, which arguably heads a (light) verb phrase taking the vP associated with the root as its complement; notice that the inceptive exhibits its own verbal suffixes:<sup>29</sup>

- (61) a. *kiji-rni-nji-ni*  
*throw-Npast-Incept-Npast*  
 ‘come/go and throw’  
 b. *kuju-rnu-nju-nu*  
*throw-Npast-Incept-Past*  
 ‘came/went and threw’

Thus, there is reason to believe that the verbal suffixes in Warlpiri are not inflectional morphology realizing T. Rather, T appears to be unpronounced. Therefore, the existence of these verbal suffixes does not contradict our claim that T in Warlpiri raises through head movement with the second position clitics.

In sum, clitics are placed through syntactic head movement, triggered by the properties of high functional heads in the clause. This often has the effect of placing clitics in second position in the clause, but not uniformly. In the following section we consider the role of morphology in second position clitic placement in Warlpiri.

<sup>29</sup> The *rni/rnu* alternation in the nonpast morpheme in (61) is the result of vowel harmony, rather than being a nonpast/past distinction. This is clearly observed with a verb like *nguna-(mi)* ‘lie’, which has the zero nonpast with the inceptive in contrast with the *ja* past:

- (1) a. *nguna-nju-nu*  
*lie.Npast-Incept-Past*  
 ‘came/went and lay’  
 b. cf: *nguna-ja*  
*lie-Past*  
 ‘lay’

## 4.2. ...PLUS MORPHOLOGY

Now let us consider a standard challenge for the head-movement approach to clitics: the appearance of a head rather than phrase in initial position. In Warlpiri, there are two relevant constructions: verb-initial clauses, like (62a), and preverb-initial clauses, like (62b) with the preverb *warrarda* ‘always’.

- (62) a. Wangka-mi-ka-lu Yurntumu-wardingki-patu  
 speak-Npast-PresImpf-3plSubj Yuendumu-habitant-Pl  
 ‘The Yuendumu people are speaking’ (Laughren 2002:[14])
- b. Warrarda-ka-ju janka-mi karnta yalumpu.  
 always-PresImpf-1sgObj burn-Npast woman that  
 ‘That woman is always angry with me.’ (Warlpiri Dictionary Project 1993)

We begin with verb initial clauses. Laughren (2002) proposes that verb initial clauses involve movement of the verb phrase to a high specifier position; in a specifier position, the verb does not interfere with head movement of the clitics. A question raised by such an approach is why phrasal movement of the verb must look like head movement. Thus, the verb may appear initially, but not in combination with other (non-head adjoined) material, such as the object:

- (63) a. \*Wawirri nya-nyi-ka-rna  
 kangaroo see-Npast-PresImpf-1sgSubj  
 ‘I am looking at a kangaroo’
- b. \*Nya-nyi wawirri-ka-rna  
 see-Npast kangaroo-PresImpf-1sgSubj  
 ‘I am looking at a kangaroo’ (Hale et al 1995: 1434)

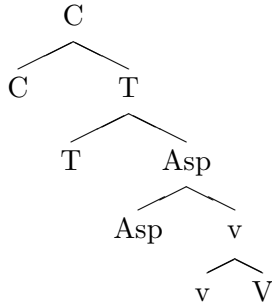
Laughren correctly notes that the ungrammaticality of these constructions may be accounted for by overt object raising to a VP-external case licensing condition. However, no other VP-internal material may appear initially with the verb either (adverbs, prepositional phrases, and so on),<sup>30</sup> for example:

- (64) \*yaruju-(rlu) paka-rnu-ju  
 quickly-(Erg) hit-Past-1sgObj  
 ‘He/she/it hit me quickly’

Let us develop an alternative analysis. A number of distinct derivations must be considered. Assume that the verb optionally raises to Aspect in Warlpiri, in which case it will undergo head movement with the clitics to C. Given the previous discussion that head movement appears to create a right-adjunction structure in Warlpiri, the following partial structure results:

(65)

<sup>30</sup> Note that Warlpiri does indeed have a verb phrase; see Legate (2002, 2003a) for discussion.



If the complementizer is unpronounced (or absent), the aspectual clitic has no host within its complex head. If higher projections containing pronounced material are present in the clause, the clitic will suffix to the higher material. If no such higher projections are present, the aspectual enclitic finds itself in initial position without a host. However, an available host is present within the complex head containing the clitic: the verb. Thus, in a single complex head, we find a suffix syntactically placed before a possible host. In this situation, the morphology may place the clitic as a suffix onto the verb. Such a morphological operation is commonly assumed for affixes (see Embick & Noyer to appear for recent discussion). The clitic case differs primarily in its unselectivity. Since the clitics do not select for a particular stem, they will suffix onto any available preceding host. It is only if a preceding host is unavailable that we see the inversion with the verb within its complex head. Affixes, on the other hand, are selective, and will suffix onto the appropriate host within their complex head without consideration of preceding material.

Consider now a derivation in which the verb raises not as optional head movement to Aspect, but rather as focus movement. This is a very natural context for verb-initial clauses, like the initial focused verb in the second sentence of (66).

- (66) Nyarrpa-jarri-mi ka-lu Yurntumu-wardingki-patu?  
 how-Incho-Npast PresImpf Yuendumu-habitant-Pl  
 “What are the Yuendumu people doing?”

Wangka-mi ka-lu Yurntumu-wardingki-patu  
 speak-Npast PresImpf-3pl Yuendumu-habitant-Pl

“The Yuendumu people are speaking” (Laughren 2002)

Given the above discussion that lexical verbs in Warlpiri are participles, such clauses involve *long head movement* (see for example, Lema & Rivero 1989, Rivero 1991, 1994, 1998, 2000, 2003, Roberts 1993). Movement of a participle over a finite auxiliary is attested crosslinguistically. Importantly, this movement is not limited to clitic auxiliaries.<sup>31</sup> Examples follow:

<sup>31</sup> For auxiliaries that have both clitic and non-clitic forms, like *sam* versus *jesam* ‘am’ in Serbo-Croatian, the clitic form is used in the long head movement construction. In a Distributed Morphology framework, the clitic and non-clitic auxiliaries compete for insertion into the auxiliary head in a post-syntactic morphological component. Clearly, the clitics must win the competition in this syntactic environment; we leave the morphological details.

- (67) a. *Serbo-Croatian*  
 Pojeo bješe sve gljive  
 eaten be-Past all mushrooms  
 “He has eaten all the mushrooms” (Ackema & Camdizic 2003)
- b. *Bulgarian*  
 Proeli bjaxa statijata  
 read aux.pt.3pl.pl paper.the  
 “They had read the paper” (Lambova 2003)
- c. *Breton*  
 Lennet en deus Yann al levr  
 read 3sg.M has Yann the book  
 “Yann has read the book” (Borsley, Rivero, & Stephens 1996)

The issue of how long head movement is allowed in the syntax is therefore independent of clitic placement. For concreteness, we adopt Roberts (1993) distinction between A-head movement and A'-head movement. Constructions like (66), involving focus movement of the verb are clearly A'-movement. On Roberts' theory, this type of movement may skip intervening A-heads, most relevantly here, the (complementizer and) aspectual auxiliary.

Now let us consider the preverb-initial clauses, for example, (68) with the preverb *yarda* ‘again’:

- (68) *Yarda-ka-lu* ya-ni  
 again-PresImpf-3plSubj go-NPast  
 ‘They are going again’ (Laughren 2002)

A thorough description of Warlpiri preverbs is presented in Nash (1982). Nash observes that the preverbs classify into a few distinct types, based on the closeness of the relationship with the verb root. On one extreme are the adverbial/quantificational and dative adjunct preverbs. These combine freely with any verb, are semantically transparent, and occur outermost in a sequence of preverbs. Examples are *yarda* in (68), *jurnta* “away”, and *warrarda* “always”:<sup>32</sup>

<sup>32</sup> Adverbial preverbs are distinct from non-preverb adverbs like *yaruju* “quickly”: the preverb+verb combination may appear as a unit before the second position clitics (1a)-(1b), whereas adverb+verb combinations may not, (1c); adverbs agree in case with the subject of the clause, (1d), whereas preverbs do not, (1b), (1e), (Nash 1982).

- (1) a. *yarda ya-nu-lpa*  
 again go-Past-PastImpf  
 “He/she/it was going again”
- b. *Warrarda nya-nyi-ka-ju*  
 always look-Npast-PresImpf-1sgObj  
 “He keeps looking at me”
- c. \**yaruju-(rlu) paka-rnu-ju*  
 quickly-(Erg) hit-Past-1sgObj

- (69) a. Kulu-parnta-ku kala-rnalu-jana jurnta-wuruly-parnka-ja  
 anger-having-Dat PastC-1plExclSubj-3plObj away-escape-run-Past  
 “We ran away from those angry people.”  
 b. Jurnta-ka-rla ma-ni yapa-kari-ki  
 away-PresImpf-3DatObj get-NPast person-other-Dat  
 “He takes it away from another person” (Warlpiri Dictionary Project 1993)
- (70) a. Malamarri kala-lu nyina-ja jarlu-patu kuja-lpa-lu  
 skilled.hunter PastC-3plSubj be-Past old.man-Pauc DeclC-PastImpf-3plSubj  
 kuyu warrarda pu-ngu.  
 meat always strike-Past  
 “The old people used to be expert hunters who always caught game.”  
 b. Warrarda-ka-ju janka-mi karnta yalumpu.  
 always-PresImpf-1sgObj burn-Npast woman that  
 “That woman is always angry with me.” (Warlpiri Dictionary Project 1993)

As illustrated in (68), (69b), and (70b), adverbial/quantificational and dative adjunct preverbs participate in the preverb split construction. However, they also show syntactic independence from the verb in that they may appear following the verb, and may be separated from the verb by clausal material (Nash 1982).<sup>33</sup> This is illustrated below for *jurnta* “away”, and *warrarda* “always”:

- (71) a. Yunta-rla muku kuju-rnu jurnta karnta-ku-ju.  
 windbreak-3DatObj all throw-Past away woman-Dat-Top  
 “He threw the windbreak off from the woman”  
 b. Jajaly-nga-rni, ngula-ji yangka kuja-ka-lu kurdu-kurdu-rlu  
 all-eat-NPast that-Top like DeclC-PresImpf-3plSubj child-child-Erg  
 panu-ngku miyi, kuyu muku nga-rni ngurra-ngka ngatinyanuku manu  
 many-Erg food meat all eat-NPast house-Loc mother-Poss-Dat and  
 kirdanyanuku jurnta.  
 father-Poss-Dat away  
 \_\_\_\_\_  
 “He/she/it hit me quickly”  
 d. Yaruju-rlu-ju paka-rnu  
 quickly-Erg-1sgObj hit-Past  
 “He/she/it hit me quickly”  
 e. Jinta-kari-rli-ji yarda paka-rnu kakarda,  
 one-other-Erg-Top again hit-Past nape.of.neck  
 “The other one struck him once again on the back of the neck” (Warlpiri Dictionary Project 1993)

<sup>33</sup> Legate 2005, analyses the preverb construction as involving head movement of the preverb to the verb. She argues that this movement is optional for the adverbial/quantificational and dative adjunct preverbs, explaining their syntactic independence from the verb.

“*Jajaly-ngarni* is when all the children eat up all the bread and meat in the house belonging to their mother and father.”

- (72) a. Wurdungu-jala-lpa-rnalu nyina-ja, pama-jangka-ju lirra  
 quiet-certainly-PastImpf-1plExclSubj sit-Past alcohol-from-Top mouth  
 wiri-kirli-lpa wangka-ja warrarda.  
 big-having-PastImpf speak-Past always  
 “We were quiet but the drunken loud mouth kept on and on talking.”
- b. Warrarda-ka-jana panu-kari paka-rni kulu-ngku  
 always-PresImpf-3plObj many-other hit-Past anger-Erg  
 “He is always hitting others aggressively” (Warlpiri Dictionary Project 1993)

On the other extreme are the lexical preverbs. These occur in fixed combinations with a few verb roots, often do not have an isolable meaning, and do not show syntactic independence from the verb (Nash 1982). They cannot be separated from the verb by directional clitics, other preverbs, or clausal material, and they cannot follow the verb. Examples of lexical preverbs are *wurru* “concealed” and *yirri*:

- (73) a. Nyanungu wardilyka kuja-lpa-lu nya-ngu, palka,  
 3sg turkey DeclC-PastImpf-3pl see-Past body  
 yali-kirra-ji-lpa-lu-rla wurru-ka-ngu  
 that.yonder-All-Top-PastImpf-3plSubj-3DatObj concealed-transport-Past  
 karli-parnta-ji.  
 boomerang-having-Top  
 “When they actually saw a turkey they would sneak up on it, [armed] with a boomerang.”
- b. Wurru-marda-rnu-lpa-rna-rla marlu-ku.  
 concealed-have-Past-PastImpf-1sgSubj-3DatObj kangaroo-Dat  
 “I ambushed the kangaroo” (Warlpiri Dictionary Project 1993)
- (74) a. Nama-ngku kaji-ka-ngku yirri-ka-nyu.  
 ant-Erg PotC-PresImpf-2sgObj Preverb-transport-NPast  
 “Ants can make you itchy.”
- b. Yirri-kiji-rni-ka-lu-jana maliki kulu-parnta,  
 Preverb-throw-NPast-PresImpf-3plSubj-3plObj dog anger-having  
 marlu-ku, yankirri-ki manu yapa-ku  
 kangaroo-Dat emu-Dat and person-Dat  
 “They sick aggressive dogs onto kangaroos, emus, and people.” (Warlpiri Dictionary Project 1993)

Lexical preverbs cannot participate in the preverb split construction (Nash 1982).

- (75) \* Yirri-ka-lu-jana kiji-rni ...  
 Preverb-PresImpf-3plSubj-3plObj throw-NPast

For neither of these preverb classes do we need to say anything special about clitic placement. The lexical preverbs may not be separated from the verb in the syntax, and may not be separated from the verb by the clitic cluster. The adverbial and dative adjunct preverbs may be separated from the verb in the syntax, and may be separated from the verb by the clitic cluster.

The most interesting preverbs from our perspective are those Nash calls semi-productive. These occur outside lexical preverbs, but inside adverbial and dative adjunct preverbs. They combine with any semantically appropriate verb root, but may give rise to unpredictable and idiomatic interpretations. Examples are *pirri* “scattered” in (76), and *walyi* “spilt” in (77).

- (76) a. Pirri-kiji-rni                    ngula-ji    yangka kuja-ka                    yapa-ngku miyi,  
 scattered-throw-Npast that-Top like    DeclC-PresImpf person-Erg food  
 manu kuyu kiji-rni                    kujapurda-kujapurda, yangka kuja-ka-lu  
 and    meat throw-Npast towards-towards                    like    DeclC-PresImpf-3pl  
 pirri-nguna-mi                    manu pularra-nguna miyi manu kuyu kiji-rninja-warnu.  
 scattered-lie-Npast and    scatter-lie                    food and    meat throw-Infin-after  
 “Throw and scatter is like when a person tosses food and meat here and there,  
 so that the food lies scattered after being thrown.”
- b. Pirri-parnka-ja-lu,                    ngula-ju-lu                    jinta-kari-jinta-kari  
 scattered-run-Past-3plSubj that-Top-3plSubj one-other-one-other  
 jarnku-parnka-ja.  
 separately-run-Past  
 “They ran and scattered. That is each one ran off on his own.”
- c. Milpa-lku pirri-matu-rnu  
 eye-then    scattered-travel.in.line-Past  
 “Then his eyes popped out” (Warlpiri Dictionary Project 1993)
- (77) a. Purru-rla                    walyi-karli-ja.  
 milk-3DatObj spilt-flow-Past  
 “The milk spilt over from it.”
- b. Nyiya-npa                    walyi-ma-nu                    nyampu-ju?  
 what-2sgSubj spilt-Cause-Past here-Top  
 “What have you split here?”
- c. Walyi-kiji-rni,                    ngula-ji    yangka kuja-ka                    karnta-ngku ngapa  
 spilt-throw-NPast that-Top like    DeclC-PresImpf woman-Erg water  
 kartaku-ngurulu kiji-rni                    walya-kurra  
 billycan-from    throw-Npast ground-All  
 “*Walyi-kijirni* is like when a woman throws water out from a billycan onto the  
 ground” (Warlpiri Dictionary Project 1993)

Like the lexical preverbs, these may not follow the verb, and may not be separated from the verb by phrasal material; however, unlike lexical preverbs, semi-productive preverbs may be

separated from the verb by the clitic cluster (Nash 1982), as illustrated here with *jaalypa* “whispering”:

- (78) Jaalypa-ka                      wangka,              kula-lpa-rna                      purda-nya-ngkarla.  
 whispering-PresImpf speak.NPast NegC-PastImpf-1sgSubj aural-perceive-Irrealis  
 “He’s whispering and I can’t hear him.” (Warlpiri Dictionary Project 1993)

Thus, we have a clear first word effect in Warlpiri: semi-productive preverbs may be separated from the verb by the clitics but by no other phrasal material.<sup>34</sup>

Recall that in section 3.1 above, we argued that this is a morphological rather than phonological first word effect: the clitics must be positioned between the preverb and the verb in the morphology, partly in order to capture the lexically-dependent choice of augment found on consonant-final preverbs:

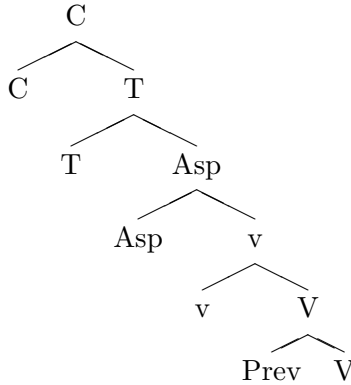
- (79) a. jaaly(pa), ‘whispering’, jamparl(pa) ‘chewing’, kanginy(pa) ‘ignorant’, karlirr(pa) ‘swerving’, paarr(pa) ‘into the air’, tiirl(pa) ‘split’, ...  
 b. liirl(ki) ‘white’, miril(ki) ‘shine’, larlarl(ki) ‘up high’, ...

We argue that the morphological analysis of verb-initial clauses carries over to the preverb-split construction. Assume, minimally, that the preverb and verb form a complex head.<sup>35</sup> The preverb-split construction involves head movement of the preverb+verb, resulting in a structure in which the complementizer, tense, aspect, preverb, and verb form a complex head.

(80)

<sup>34</sup> This observation argues against the account of the preverb split construction proposed by Laughren (2002). Simplifying somewhat, Laughren claims that the preverbs head a projection dominating the verb phrase; clauses in which the verb appears in a high position result from phrasal movement of this projection. In the preverb split construction, the projection headed by the preverb undergoes phrasal movement to a projection immediately below the clitics. The preverb then moves out of this specifier to the specifier preceding the clitics. This analysis seems problematic in a number of respects. For example, the movement of the preverb may violate the left branch condition, and the necessity for phrasal movement of the preverb+verb to the position below the clitics only in this construction is not explained. However, the semi-productive preverb data may be the most compelling evidence against Laughren’s account. The semi-productive preverbs are syntactically immobile and yet participate in the preverb split construction. Thus the analysis of the preverb split construction must not require syntactic movement of the preverb.

<sup>35</sup> Whether this head-adjunction structure is base-generated, or derived through movement is immaterial for the present discussion. See Legate 2005 for a discussion of the syntax of the preverb-verb structure.



As discussed above, if a potential host precedes the clitic (a complementizer, or phonologically realized material higher than the complex head), the clitic will suffix to it. If no preceding host is available, the clitics will suffix onto a host within their complex head. For semi-productive and adverbial preverbs, both the preverb and the verb are available within the complex head to host the clitics, and both are used. Thus, the optionality noted above between the preverb split construction with preverb-clitics-verb ordering, and the preverb appearing with the verb before the clitics, preverb-verb-clitics ordering.

Now let us return to lexical preverbs, which recall may not occur in the preverb split construction, appear only in fixed combinations with a few verb roots, often do not have an isolable meaning, and must appear immediately preceding the verb. Examples with the preverb *yirri* are repeated below:

- (81) a. Nama-ngku kaji-ka-ngku yirri-ka-nyi.  
 ant-Erg PotC-PresImpf-2sgObj Preverb-transport-NPast  
 ‘Ants can make you itchy.’
- b. Yirri-kiji-rni-ka-lu-jana maliki kulu-parnta,  
 Preverb-throw-NPast-PresImpf-3plSubj-3plObj dog anger-having  
 marlu-ku, yankirri-ki manu yapa-ku  
 kangaroo-Dat emu-Dat and person-Dat  
 ‘They sick aggressive dogs onto kangaroos, emus, and people.’ (Warlpiri Dictionary Project 1993)

The inability of lexical preverbs to participate in the preverb-split construction may be naturally accounted for if the preverb and verb, although diachronically independent, are synchronically lexicalized, forming a mono-morphemic verb. Thus the preverb would not be able to serve as an independent host for the clitics. For the non-lexical analysis of morphology assumed in this paper, this type of explanation is suspect. We propose that the lexical preverb undergoes string vacuous Local Dislocation (in the sense of Embick & Noyer 2001), morphologically combining with V to form a single terminal node. This is a natural interpretation of the lexical nature of these preverbs in this framework, and explains why the clitics cannot suffix to the lexical preverbs.

## 5. Conclusion

This paper has addressed two questions: (i) what are the properties of Warlpiri second position clitics that may further our understanding of the phenomenon crosslinguistically; (ii) how should these properties be analysed. In answer to the first question, we have found a number of interesting properties of Warlpiri second position clitics that must be accounted for under any analysis:

- clitics do not occupy a uniform syntactic position
- clitics can never interrupt syntactically intact DPs/PPs
- clitics can interrupt certain preverb and verb units that cannot be separated syntactically
- complementizers appear in either initial or second position, but are not clitics
- the position of the complementizers has semantic consequences
- initial verbs can be followed by the complementizer+clitics, a unit which can appear initially
- second position is not uniformly observed; for example evidentials may trigger clitic third
- there is significant optionality of clitic placement: the cluster of the complementizer+clitics may appear initially (in the absence of an evidential), in second position, or in third position (when an evidential is initial); the clitics may appear in second position, or in third position (when an evidential is initial); the clitics may appear either following a preverb+verb, or may intervene between the preverb and the verb

To answer the second question, we have developed an analysis whereby primary clitic placement is achieved through syntactic head-movement to high functional projections. The surface position of the clitics is non-unique, dependent on the functional projections present in the clause. In addition, limited morphological reordering was posited, through an operation affixing morphological terminals to a host within the same complex head. This provided a simple explanation for certain verb-initial and preverb-initial clauses.

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