

Domains in Warlpiri

Cathryn Donohue & Ivan A. Sag
Stanford University

October 21, 1999

1 Overview of the data

Warlpiri is a Pama-Nyungan language, spoken in Central Australia. It is renowned for its properties of ‘nonconfigurationality’ including free (pragmatically conditioned) word order, syntactically discontinuous expressions, and null anaphora. It also shows a split ergative case marking system and a conspicuous lack of constituent structure. (There is no evidence of the standard sort for a VP constituent, for example.) This section surveys some of the data that is essential for an understanding of the principles governing Warlpiri word order.

It is usually assumed that there are two main word classes in Warlpiri:¹ nouns and verbs. Modifiers of nominals are also nominals and may inflect for case just as their head noun would. So, an NP can be realised as a single noun, or as a string of Ns. Consider the following NP, ‘black snake’:²

- (1) a. Warna maru-ngku. *L89:324*
snake black-ERG
- b. Warna-ngku maru-ngku
snake-ERG black-ERG
- c. *Warna-ngku maru
snake-ERG black

In (1a) the ergative case marker is attached to the last word in the noun phrase – generally regarded as the head noun, whereas in (1b) case marking appears on both words. (1c) is bad

¹And Australian languages more generally.

²Examples are taken from a variety of sources. The actual source of a specific example is indicated by the letter of the surname, followed by the last two digits of the year and the page number at the end of the first line of the example. The glosses are the original glosses.

because *maru* does not have case, and the rightmost element in the NP – the head noun – must always carry case.

Case marking in noun-noun dependencies is correlated with the possibility of discontinuous constituency: only when case marking is present on each nominal element, is the discontinuous realization of the daughters of an NP possible, as in (2).

- (2) Kurdu-jarra-rlu **ka-pala** maliki wajili-pi-nyi wita-jarra-rlu. *S91:257*
 child-DUAL-ERG PRES-3DUSUB dog.ABS chase-NPAST small-DUAL-ERG
 ‘Two small children are chasing the dog.’ or ‘Two children are chasing the dog and they are small.’

NPs containing a caseless (i.e. an unmarked) modifier followed by a case-marked head noun do not allow discontinuous realization. Apart from this restriction, the word order is relatively free in Warlpiri.

The positioning of the auxiliary element is the key to understanding Warlpiri word order. This element carries person/number agreement for the subject and object, and some tense information. Warlpiri’s characteristic nonconfigurationality is illustrated in (3). All permutations that preserve the second position of the auxiliary (shown in boldface) are grammatical, and Hale (1980) reports that speakers spontaneously offer such word order permutations as repetitions of the same sentence.³

- (3) a. Karnta-ngku **ka** yarla karla-mi. *H92:64*
 woman-ERG PRES yam dig-NONPAST
 ‘The/a woman is digging yams.’
 b. Yarla **ka** karla-mi karnta-ngku.
 c. Karla-mi **ka** karnta-ngku yarla.
 d. Yarla **ka** karnta-ngku karla-mi.
 e. Karla-mi **ka** yarla karnta-ngku.

³The nature of the pragmatically conditioning which is said to influence the word order is that the pre-AUX position is claimed to be the position of focus in a sentence (Swartz (1988) and others). Elements such as question words which usually require focus must occur in this position. Consider the following question and answer. The response to the (a) question shown by the (b) sentence must have *yarla* in first position:

- a. Nyiya **ka** karla-mi karnta-ngku? *H92:67*
 what PRES dig-NONPAST woman-ERG
 ‘What is the woman digging?’
 b. Yarla **ka** karla-mi.
 yam PRES dig-NONPAST
 ‘She is digging yams.’

f. Karnta-ngku **ka** karla-mi yarla.

In Warlpiri, the lack of configurationality extends beyond the clause to include biclausal sentences, such that any permutation of the sentence shown in (4) which maintains the AUX-second condition is acceptable.

- (4) a. Kuyu **rna** purra-nja-rla nga-rnu ngajulu-rlu. *L89:322*
 meat ISG-PAST cook-INF-PRIORCOMP eat-PAST ISG-ERG
 ‘Having cooked (it) I ate (the) meat.’
- b. Purra-nja-rla **rna** kuyu nga-rnu ngajulu-rlu.
- c. Nga-rnu **rna** kuyu ngajulu-rlu purra-nja-rla.
- d. Ngajulu-rlu **rna** purra-nja-rla nga-rnu kuyu.
- e. Kuyu **rna** ngajulu-rlu nga-rnu purra-nja-rla.
- f. Purra-nja-rla **rna** nga-rnu kuyu ngajulu-rlu.
 ... etc.

When all nominals within an NP are case marked, each of them may become an element of the sentential domain, and in this case exactly one of them may precede the AUX, as in the well-formed example in (2). When an NP consists of a non-case-marked N and its head, these may precede the AUX, as in (5).

- (5) Kurdu wita-jarra-rlu **ka-pala** maliki wajili-pi-nyi. *S91:258*
 child small-DUAL-ERG PRES-3DUSUB dog.ABS chase-NPAST
 ‘The two small children are chasing the dog.’

However, crucially, discontinuous constituency is impossible when one of the nominals is not case-marked, as the following contrast illustrates:

- (6) a. Kurdu yalumpu-rlu **ka-jana** maliki-patu jiti-rni. *H93:188*
 child that-DUAL-ERG PRES-3PLOBJ dog-PL tease-NPAST
 ‘That child is teasing the dogs.’

b. *Kurdu **ka-jana** yalumpu-rlu maliki-patu jiti-rni

When both elements of the NP are case-marked and immediately adjacent to one another, while only marginally acceptable, they may appear together in pre-AUX position as shown in (7). However, Simpson (1991:258) argues that this is likely to be two pre-verbal constituents, one of which is topicalised.

- (7) Kurdu-jarra-lu wita-jarra-rlu **ka-pala** maliki wajili-pi-nyi. *S91:258-9*
 child-DUAL-ERG small-DUAL-ERG PRES-3DUSUB dog.ABS chase-NPAST
 ‘The two small children are chasing the dog.’

We follow Simpson in not regarding such examples as a normal Warlpiri word order pattern.

2 Further Data

2.1 Phonological restrictions

There are a few additional complexities that must be understood in order to gain a full understanding of the word order constraints in Warlpiri. These concern the placement of the AUX and the notion of ‘second position’.

First of all, it is not the case that every sentence has an auxiliary: there are some sentences headed by a nominal which do not contain an AUX. The AUX only appears in sentences with verbs, in which case its appearance is necessary. We will follow Austin and Bresnan (1996) in assuming that these are two distinct clause types. We will treat the AUX-less clauses as an unheaded ‘zero copula’ construction; the clauses headed by AUX, we will refer to, following most current discussions, as Inflectional Phrase (IP).

It has been claimed that the placement of the AUX is sensitive to phonological parameters (Nash 1980, Laughren 1989, Simpson 1991). More specifically, that the appearance of the AUX in second position in the syntax is a function of its need to be part of the ‘first phonological phrase of the phonological clause’ (Laughren 1989:322). Also, many of the auxiliaries we have seen in the data so far are monosyllabic, while a Warlpiri word must be minimally disyllabic. This is why the auxiliaries are often analysed as enclitics.

Hale (1983:8) summarizes the phonological constraints as follows: ‘if the portion of the auxiliary preceding the subject person marker is monosyllabic or phonologically null, then the auxiliary must insert and become enclitic to the word which immediately precedes it upon insertion. Otherwise, insertion is optional.’ Nash (1980:59) adds that while it can be a phonological word or a clitic, it can never host an enclitic, and that even when it is phonologically independent, it never constitutes a complete word. Also, that it has an internal structure unlike any other poly-morphemic word in Warlpiri – it is “flat”, not hierarchical in the way that all other complex words are.

Further evidence for the enclitic nature of the AUX and the phonologically determined placement principles can be found. Among these is that the vowel harmony processes which apply within the phonological phrase affect the AUX when it is in second position (Nash 1980). Also, AUXs with a disyllabic base (and thus minimally a phonological word) may appear in first position (where it bears primary stress) as shown in (8).

- (8) a. **Kala-rna** kuyu purra-nja-rla nga-rnu ngajulu-rlu. *L89:323*
PASTCOMP-ISG meat cook-INF-PRIORCOMP eat-PAST ISG-ERG
‘Having cooked (it) I used to eat meat.’
‘Having cooked meat I used to eat (it).’
- b. Kuyu **kala-rna** purra-nja-rla nga-rnu ngajulu-rlu.
‘Having cooked meat I used to eat (it).’

- c. Purra-nja-rlu **kala-rna** kuyu nga-rnu ngajulu-rlu.
'Having cooked (it) I used to eat the meat.'
- d. Ngajulu-rlu **kala-rna** purra-nja-rla kuyu nga-rnu.
'I used to eat meat having cooked (it).'
- e. **Kala-rna** nga-rnu kuyu purra-nja-rla ngajulu-rlu.
'I used to eat meat having cooked (it).'
- f. **Kala-rna** purra-nja-rla nga-rnu kuyu ngajulu-rlu.
'I used to eat meat having cooked (it).'
- ... etc.

In fact, though an AUX with a monosyllabic base ordinarily appears in second position, it can also appear in initial position in connected speech (Simpson 1991:69). That is, the enclitic can phonologically attach to the last phonological phrase of the preceding sentence. Thus the true generalization about Warlpiri AUXs is that they can appear in either first position or else in second position. In addition, the AUXs with a monosyllabic base must cliticize onto the preceding phonological unit. These two conditions seem independent.

Though some researchers have tried to offer a purely phonological account of AUX placement in Warlpiri, it appears that such treatments cannot be correct. The main argument against a purely phonological account of AUX placement is given by Austin and Bresnan as follows:

- (9) Austin and Bresnan, 1996:226:

...we cannot simply assume, as some researchers have, that the placement of the auxiliary is entirely determined phonologically, following the first phonological word or phrase (e.g. Laughren 1989). There are prosodically quite complex syntactic units that can appear before the Auxiliary, as in example (2) above. We assume that these syntactic phrases occupy the optional Specifier of IP position and that the final phonological word of this phrase provides a prosodic host for the Auxiliary.

The 'example (2)' referred to is reproduced here as (10).

- (10) Kardiya yurrkunu-rlu manu yapa-ngku turaka-rlu
whiteman policeman-ERG and Aboriginal-ERG tracker-ERG

kalaka-ngku-pala muru-pi-nyi.

ADMON-2SGOBJ-3DUSUB arrest-NPAST

'A white policeman and an Aboriginal tracker [police aide] can arrest you.'

This pre-AUX position is often argued to be a test for constituency (Simpson 1991, Austin and Bresnan 1996 among others). In this paper we will explore the idea that second position is properly characterized by linearization theory, i.e. by domains of the sort characterized by Reape, Kathol, Pollard and others. This allows us to treat the complex pre-AUX constituents such as the coordinated NPs in (10) as a single, compacted domain element – the subject NP – that precedes AUX on a domain list. Other examples that we have already seen will be treated in terms of liberated elements – a piece of the subject or of some other dependent – that precedes that AUX on the clause’s domain list.

2.2 Preverb-verb compounds

Simpson (1991:69) notes that a phonological treatment of AUX-second allows for a reasonable treatment of the word order possibilities for AUX with respect to preverbs and verbs.

Phonologically, preverbs compounded with verbs ‘act like parts of words, and not full words, since they do not have to obey the morphological structure constraint that all words in Warlpiri must end in a vowel’ (Simpson 1991:115). This, among other things, would suggest that the preverb-verb formation happens in the lexicon. However, this structure allows AUX to appear between the preverb and the verb as in (11).

- (11) *Rampalpa-rna-rla-jinta*-luwarnu marlu-ku.
 mistake-[1SG-SUBJ]-[3SG-DAT]-DD-shot kangaroo.DAT
 ‘I shot at a kangaroo and failed.’

In fact, the AUX may either follow the preverb, or else it may follow the preverb-verb sequence, as shown in (12).

- (12) *Rampal*-luwarnu-*rna-rla-jinta* marlu-ku.
 mistake-shot-[1SG-SUBJ]-[3SG-DAT]-DD kangaroo.DAT
 ‘I shot at a kangaroo and failed.’

From contrasts like this, due to Simpson, Austin and Bresnan conclude that their LFG analysis of Warlpiri must include prosodic inversion, a ‘last resort’ process that inserts the AUX into a word whose parts, they argue, ‘cannot otherwise be separated’. Indeed it is the ‘last resort’ nature of prosodic inversion that they use to explain the impossibility of examples like (6b) above. But this analysis runs afoul of Pollard’s locality principle (a prohibition on trans-structural constraints), which is highly desirable for linguistic theory to maintain.

However, it is not clear to us that prosodic inversion is required in order to account for Warlpiri second position. As the discussions in Simpson and Nash make plain, the preverbs in question here can be positioned after the verb, in which case multiple AUX positions are possible:

- (13) a. *Wuruly(pa)-ya-ni-rli* *N80:52*
 seclusion-go-NPAST-12(AUX)
 ‘Let’s go and hide.’
- b. *Wurulypa-rli-ya-ni*
 seclusion-12(AUX)-go-NPAST-12
 ‘Let’s go and hide.’
- c. *Ya-ni-rli-wurulypa*
 go-NPAST-12(AUX)-seclusion
 ‘Let’s go and hide.’

And while Simpson claims that no constituent other than AUX can intervene between the preverb and the verb, she also observes that certain preverbs can appear far from the verb, in which case they act as independent adverbials.’(Simpson 1991:117). So certain preverbs are known to be independent units.

Now Simpson also notes that ‘exactly where preverb-compounding takes place is a vexed question’. She suggests the possibility of there being two distinct analyses for each compound – one as a lexical unit; the other as a syntactic combination. This suggestion forms the basis of our approach to these examples. Our goal is to provide an account that makes reference to the independent encliticization property of AUXs with monosyllabic roots, but which makes no other appeal to devices such as ‘prosodic inversion’ (cf. Austin and Bresnan) to define the correct word orders.

3 Linearization Theory

We believe that Linearization Theory provides an important new tool for describing Australian rules word order and may well hold the secret for providing an empirically adequate account of Warlpiri second position. But what version of Linearization Theory should we apply? – it exists in at least three distinct forms in the published and unpublished literature: (1) the original formulation due to Reape; (2) the modified OSU version outlined only in the Pollard-Kasper-Levine NSF proposal (PKL), and (3) the version that underlies the topological field theory of Kathol and Pollard. All of these agree in endowing the HPSG sign with an additional list-valued feature called DOMAIN (DOM) and of distinguishing phrases in which domains are compacted from phrases in which domains are unioned, allowing elements to be liberated into higher syntactic domains.

The different versions of linearization theory differ, however, in terms of what kind of object the DOM values are lists of. Reape assumed they were lists of signs – daughters and all (and hence somewhat unwieldy); The PKL proposal introduced an object called a *node*, which had just the features PHON and SYNSEM. Kathol creates a special entity called a

domain-object, whose features overlap with those of the sign. All versions of linearization theory agree, however, in assuming a principle like (14), which puts the domain list of a sign and its phonology in one-to-one correspondence:

(14) Constituent Ordering Principle (Reape):

$$sign \Rightarrow \left[\begin{array}{l} \text{PHON} \quad \phi_1 \oplus, \dots, \oplus \phi_n \\ \text{DOM} \quad \left\langle \left[\text{PHON} \quad \phi_1 \right], \dots, \left[\text{PHON} \quad \phi_n \right] \right\rangle \end{array} \right]$$

Linear precedence rules thus function by constraining the order of elements on the DOMAIN list.

Here, we will assume the new construction theory of Sag (ms.), which will enable us to distinguish domain union from domain compaction without having to introduce any new entities. Signs will have the attributes shown in (15).

$$(15) \left[\begin{array}{l} sign \\ \text{PHON} \quad list(\textit{speech-segment}) \\ \text{SYNSEM} \quad \textit{synsem} \\ \text{DOMAIN} \quad list(sign) \end{array} \right]$$

Following Reape, the DOMAIN value is a list of signs, but our signs are slightly more compact than his, as they have no daughter features. The various DAUGHTERS attributes, as well as the attribute MOTHER, will be declared appropriate for constructions, not for signs.

Headed constructions, on this view, will have the feature geometry sketched in (16).

$$(16) \left[\begin{array}{l} hd-cx \\ \text{MOTHER} \quad sign \\ \text{HD-DTR} \quad sign \\ \text{NON-HD-DTRS} \quad list(sign) \end{array} \right]$$

They are in effect relations (among signs) that are reified as feature structures. The signs of a language are those sort-resolved, maximal feature structures that serve as the mother of some construction.

But back to Warlpiri. We will assume that there are two kinds of construction in Warlpiri: liberating and compacting. The former obey the constraint in (17).

$$(17) \textit{liberating-cx} \Rightarrow \left[\begin{array}{l} hd-cx \\ \text{MOTHER} \quad \left[\text{DOM} \quad \delta_0 \circ \dots \circ \delta_n \right] \\ \text{HD-DTR} \quad \left[\text{DOM} \quad \delta_0 \right] \\ \text{NON-HD-DTRS} \quad \left\langle \left[\text{DOM} \quad \delta_1 \right], \dots, \left[\text{DOM} \quad \delta_n \right] \right\rangle \end{array} \right]$$

In such constructions, the domain members of the daughters get included in the mother’s domain, which is simply defined as the sequence union (\circ) of the daughters’ domains. This creates the possibility of second or third generation scrambling – i.e. first or second cousins interspersing with one another on their grandmother’s DOMAIN list, as it were.

In contrast to liberating constructions, we have compacting constructions, which block liberation of the daughters’ DOMAIN elements. There are various kinds of compacting constructions in Warlpiri, not all of them headed, so only general constraint we can state governing all compacting constructions is the minimal one shown in (18).

$$(18) \textit{ compacting-cx} \Rightarrow \left[\text{MOTHER} \left[\begin{array}{l} \text{SYNSEM} \quad \boxed{1} \\ \text{DOM} \quad \left\langle \left[\text{SYNSEM} \quad \boxed{1} \right] \right\rangle \end{array} \right] \right]$$

The different varieties of *compac-cx* will place further conditions on the mother’s DOMAIN element, for example, requiring that its DOMAIN value be the concatenation of, or some shuffling of, the daughter signs.

The Constituent Ordering Principle functions as before, as a constraint on signs. Our DOM objects are thus signs, as in Reape’s theory, but they are somewhat more streamlined, though not quite as much as the domain objects of PKL and Kathol.

4 An Analysis of Warlpiri

4.1 Two NP Constructions

As we saw earlier, adnominal modifiers are (morphologically nondistinct from and hence) usually considered nominals in Warlpiri (Simpson 1991). But when inflection is absent on the modifier, the phrase becomes syntactically inert. Hence we may account for compacted NPs of this kind via the following modifier-head construction:

$$(19) \left[\begin{array}{l} \textit{compac-mod-nom-cx} \\ \text{MOTHER} \quad \left[\text{DOM} \quad \left\langle \left[\text{DOM} \quad \langle \boxed{1}, \boxed{2} \rangle \right] \right\rangle \right] \\ \text{NON-HD-DTRS} \quad \left\langle \left[\boxed{1} \text{CASE} \quad \textit{none} \right] \right\rangle \\ \text{HD-DTR} \quad \boxed{2} \end{array} \right]$$

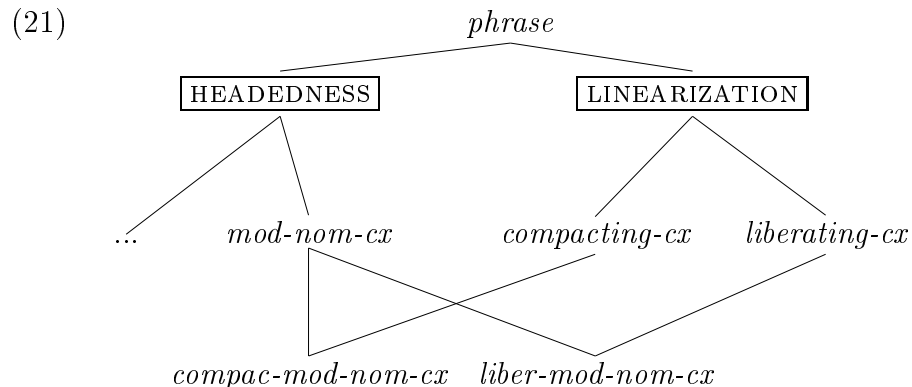
This construction is a subtype of the type *compacting-cx* and hence inherits the minimal constraints in (18). Note that (19) fixes the position of the head noun to be after the noun

that modifies it.⁴ The construction in (19) requires that the modifier be uninflected. Once such modifier/head-noun combinations are compacted, they form a single domain element that cannot be separated as larger phrases are constructed.

A superordinate type *mod-nom-cx* will provide the further constraints shown in (20).

$$(20) \left[\begin{array}{l} \textit{mod-nom-cx} \\ \text{MOTHER} \quad \left[\text{CONT} \quad \dots \right] \\ \text{NON-HD-DTRS} \quad \left\langle \left[\begin{array}{l} \text{INDEX} \quad i \\ \text{HEAD} \quad \textit{noun} \end{array} \right] \right\rangle \\ \text{HD-DTR} \quad \left[\begin{array}{l} \text{INDEX} \quad i \\ \text{HEAD} \quad \left[\begin{array}{l} \textit{noun} \\ \text{CASE} \quad \textit{case} \end{array} \right] \end{array} \right] \end{array} \right]$$

Thus by organizing the types as in (21), we can factor out all relevant generalizations about compacting and liberating nominal constructions in Warlpiri:



The last type shown in (21) – *liber-mod-nom-cx* – is minimally constrained as follows:

$$(22) \left[\begin{array}{l} \textit{liber-mod-nom-cx} \\ \text{NON-HD-DTRS} \quad \left\langle \left[\text{CASE} \quad \boxed{\text{I}} \right] \right\rangle \\ \text{HD-DTR} \quad \left[\text{CASE} \quad \boxed{\text{I}} \right] \end{array} \right]$$

⁴A more refined analysis might place this constraint on a superordinate type such as *headed-compacting phrase*. Alternatively the constraint might just say that the mother’s single domain element has a DOMAIN list that contains just these two elements, leaving their ordering to more general ordering principles.

Here case marking (as well as case identity) is enforced. And, because this type is a subtype of *liberating-cx*, the presence of case identity is correlated with the merging of the daughters' domains into the mother's DOMAIN list. Thus any list that includes all and only the elements of the daughters' DOMAIN lists is possible. These two phrasal constructions – one compacting; the other liberating – together ensure that only when all nominals within a phrase are case marked are those nominals available for liberation into the domains of larger constituents.

4.2 Aux and IP

As noted earlier, we will assume that AUX (a finite inflectional category) is the head of a phrasal category – IP. For simplicity, we also assume that AUX selects all its dependents as complements, though nothing hinges on either of these assumptions. We thus posit a clausal head-complement construction *ip-cl* that is constrained in the following way:

$$(23) \quad ip-cl \Rightarrow \left[\begin{array}{l} \text{MOTHER} \quad \left[\text{DOM} \left\langle \left[\text{DOM} \text{ order}(\underline{0}, \dots, \underline{n}) \right] \right\rangle \right] \\ \text{NON-HD-DTRS} \quad \left\langle \left[\underline{1} \text{SS} \quad \underline{s_1} \right], \dots, \left[\underline{n} \text{SS} \quad \underline{s_n} \right] \right\rangle \\ \text{HD-DTR} \quad \underline{0} \left[\begin{array}{l} \text{HEAD} \quad \textit{aux} \\ \text{COMPS} \quad \langle \underline{s_1}, \dots, \underline{s_n} \rangle \end{array} \right] \end{array} \right]$$

Since this construction is a subtype of *compacting-cx*, it allows the domain of the AUX and those of all the dependents selected by AUX to be merged into the domain of the IP's only DOMAIN element. Any ordering of the DOMAIN elements is permitted, as long as the Linear Precedence Rules in (24) are satisfied:

$$(24) \quad \text{LP1: AUX} \prec [\text{FOC} \ -]$$

$$\text{LP2: } [\text{FOC} \ +] \prec \text{X}$$

LP1 guarantees that no unfocussed element can precede an AUX. LP2 ensures that a focussed element precedes all others (and hence that there can be only one focussed element per domain). In consequence of these rules, it follows that AUX must either be in second position on the relevant DOMAIN list, following a focussed element, or else it must be the first DOMAIN element. Note that the relevant DOMAIN list is never that of the IP itself (that list is always singleton), but rather the DOMAIN list of the only member of the IP's DOMAIN list. The Constituent Ordering Principle in (14) ensures that the ordering of elements on the IP's PHONOLOGY list is identical to that of the member of its DOMAIN list, which is in turn determined by the order of elements on ITS DOMAIN list, which must obey the LP Constraints in (24).

This analysis of AUX-headed clauses interacts with the NP analysis above. When all nominals within an NP are case marked, each of them becomes an element of the domain of the IP's only DOMAIN member, and in this case exactly one of them may precede the AUX, as in the well-formed example in (2). When an NP consists of a non-case-marked N and its head, those elements must be compacted and hence the NP provides a single, multi-word sign that may precede AUX on the relevant DOM list, as in (25). Note that in both cases, the IP's PHONOLOGY value is identical to that of its single DOMAIN element.

- (25) Kurdu wita-jarra-rlu *ka-pala* maliki wajili-pi-nyi. *S91:258*
 child small-DUAL-ERG PRES-3DUSUB dog.ABS chase-NPAST
 'The two small children are chasing the dog.'

However, what is crucial is that discontinuous constituency is impossible when one of the nominals is not case-marked, as we saw earlier – example repeated in (26).

- (26) a. Kurdu yalumpu-rlu *ka-jana* maliki-patu jiti-rni. *H94:188*
 child that-DUAL-ERG PRES-3PLOBJ dog-PL tease-NPAST
 'That child is teasing the dogs.'

b. *Kurdu *ka-jana* yalumpu-rlu maliki-patu jiti-rni

This contrast is correctly predicted by our analysis – only a liberating NP construction (whose modifier must be case-marked) can provide a piece of an NP to precede the AUX on the DOM list of the IP's only DOM element. Since all IPs are constructed via a compacting construction, our analysis makes the further prediction that liberation (scrambling) of an element out of a domain headed by AUX is impossible. This is a correct prediction (Hale, Laughren and Simpson 1995, Simpson 1991) as Warlpiri has tensed clauses which are adjoined, rather than subordinate to the main clause, but scrambling out of these is impossible as examples like the following demonstrate:

- (27) a. Kurdu yula-ja, *jarntu-ngku yarlki-rninja-warnu*. *S91:106*
 child cry-PST dog-ERG bite-INF-ASSOC
 'The child cried because the dog bit him.'

b. *Kurdu *jarntu-ngku* yula-ja *yarlki-rninja-warnu*.

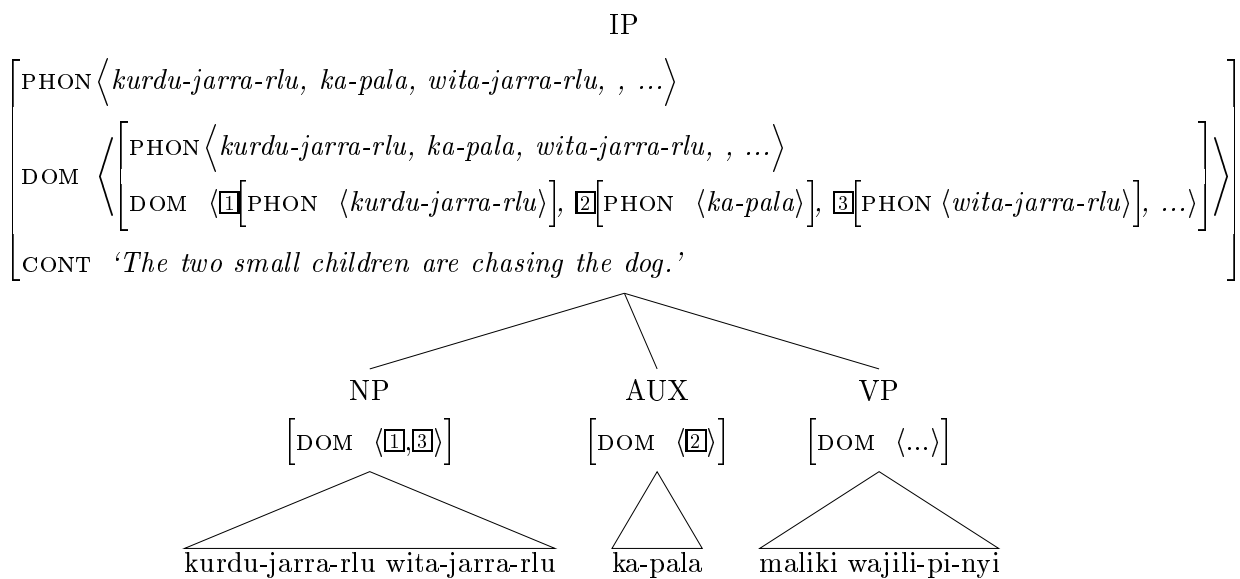
We provide example analyses of both liberating and compacting NPs as they occur in IP. The lexical entry for an AUX is shown in (28).

$$(28) \left[\begin{array}{l} \text{PHON } \boxed{1} \langle ka-pala \rangle \\ \text{SS } \boxed{2} \text{ LOC|CAT } \left[\begin{array}{l} \text{HEAD } aux \\ \text{COMPS } \langle [erg, 3rd, dual], VP \rangle \end{array} \right] \\ \text{DOM } \left\langle \begin{array}{l} \text{PHON } \boxed{1} \\ \text{SS } \boxed{2} \\ \text{DOM } \langle \rangle \end{array} \right\rangle \end{array} \right]$$

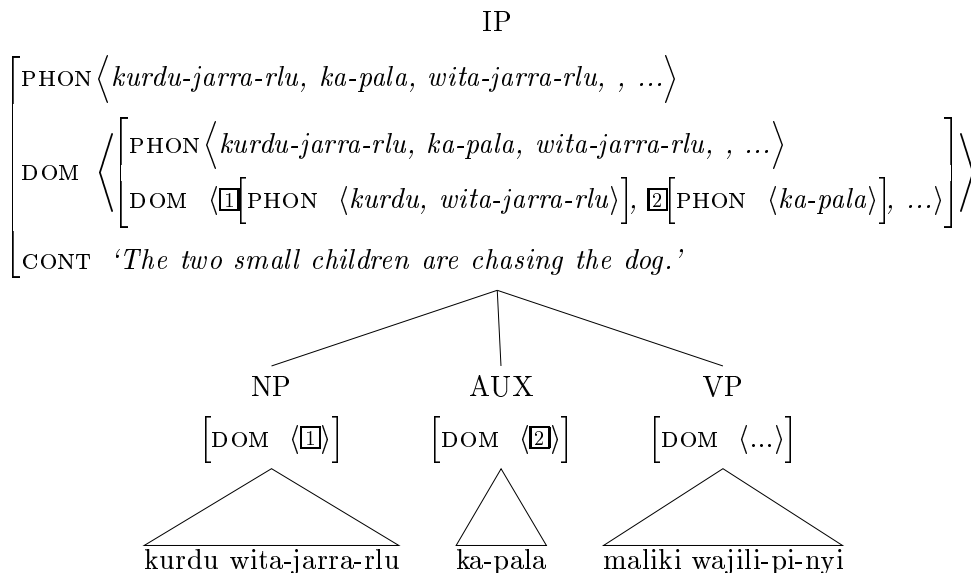
Note the empty domain list on the word's DOM element.

This gives rise to an IP with liberated subject NP via the analysis in (29).

(29) IP with Liberated Subject Nominals:



(30) IP with Compacted Subject NP

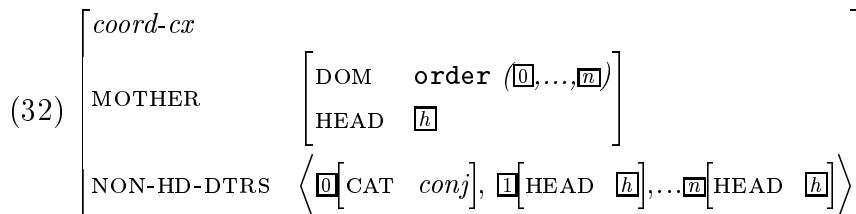


4.3 Coordination

At least NP-coordination must also involve compaction, in order to account for the examples noted above, e.g. (31), observed by Austin and Bresnan (1996). Here a coordinate NP precedes the AUX:

- (31) Kardiya yurrkunya-rlu manu yapa-ngku turaka-rlu
 whiteman policeman-ERG and Aboriginal-ERG tracker-ERG
kalaka-ngku-pala muru-pi-nyi.
 ADMON-2SGOBJ-3DUSUB arrest-NPAST
 ‘A white policeman and an Aboriginal tracker [police aide] can arrest you.’

The coordination construction we assume is sketched in (32).



This is a subtype of *compacting-cx*. Hence, because of inherited constraints, the mother's DOM here is singleton list whose only member has a DOM list where all the daughters appear. It follows that when a coordinate NP produced by this construction is embedded in an IP, all the elements of the coordinate NP form a single element on the IP's DOM element's DOM list, thus predicting examples like (31). Note that in this example, the first conjunct is the mother of a compacted NP construction, while the second conjunct is the mother of a liberated NP construction. Assuming there is no liberating coordination construction in Warlpiri, our analysis predicts that modifying nominals, though case-marked, are unliberable. They are trapped within the coordinate structure, so to speak.

5 Conclusion

It should be noted that nothing in our formal analysis provides a necessary connection between the presence of inflection and the possibility of liberation. Though people have tried to derive this correlation on formal grounds, in fact it is at most a tendency in the languages of Australia, indeed in the languages of the world. We would instead appeal to functional factors, most notably the ease of processing provided by morphological or positional clues, to explain this tendency of linguistic evolution. Not only are such accounts in general more explanatory, they shed insight into why the correlation between word order freedom and inflectional richness is imperfect.

To sum up, the analysis we have presented here uses only constructs proposed elsewhere in the HPSG literature. Hence, if our analysis can be maintained, it brings Warlpiri (and probably most of the other widely discussed Australian languages) within the scope of HPSG's approach to Universal Grammar. Despite the differences in outward form that languages like Warlpiri may exhibit, there is no need to bifurcate human language into two radically different types (e.g. configurational and nonconfigurational) with radically different properties. The relevant typological space is instead provided by the kinds of phenogrammatical realization of tectogrammatical structure made available by Linearization Theory, as developed by Reape, Kathol, Pollard and others.

References

- Austin, Peter, and Joan Bresnan. 1996. Non-configurationality in Australian Aboriginal languages. *Natural Language and Linguistic Theory* 14(1), 215–268.
- Hale, Ken. 1980. On the position of Warlpiri in a typology of the base. Bloomington, Indiana University Linguistics Club.
- Hale, Ken. 1983. Warlpiri and the grammar of non-configurational languages. *Natural Language and Linguistic Theory* 1(1), 5–47.

- Hale, Ken. 1992. Basic word order in two “free word order” languages. In Doris L. Payne (ed.), *Pragmatics of word order flexibility*, 63–82. Amsterdam/Philadelphia, John Benjamins.
- Hale, Ken. 1993. Core structure and adjunctions in Warlpiri syntax. In Norbert Corver and Henk van Riemsdijk (eds.), *Studies on scrambling movement and non-movement approaches to free word-order phenomena*, 185–219. Berlin, Mouton de Gruyter.
- Hale, Ken, Mary Laughren, and Jane Simpson. 1996. Warlpiri syntax. In Joachim Jacobs, Arnim von Stechow, Wolfgang Sternefeld, and Theo Vennemann (eds.), *Handbook of Syntax/Handbücher zur Sprach- und Kommunikationswissenschaft*, Vol. 2, 1430–1451. Walter de Gruyter.
- Kathol, Andreas. 1995. Verb-‘movement’ in German and topological fields. In *Proceedings of the CLS*, Vol. 31. Chicago Linguistic Society.
- Laughren, Mary. 1989. The configurationality parameter and Warlpiri. In Laszlo Marácz and Pieter Muysken (eds.), *Configurationality: the typology of asymmetries*, 319–353. Dordrecht, Foris.
- Nash, David G. 1980. *Topics in Warlpiri Grammar*. Doctoral dissertation, MIT.
- Pollard, Carl J. 1996. On head non-movement. In Harry Bunt and Arthur van Horck (eds.), *Discontinuous Constituency*, no. 6 in Natural language processing, 279–305. Mouton de Gruyter.
- Pollard, Carl J., Robert T. Kasper, and Robert Levine. 1993. Studies in constituent ordering: Toward a theory of linearisation in Head-Driven Phrase Structure Grammar. Grant Proposal to the National Science Foundation, Ohio State University.
- Reape, Mike. 1994. Domain union and word order variation in German. In John Nerbonne, Klaus Netter, and Carl J. Pollard (eds.), *German in Head-Driven Phrase Structure Grammar*, no. 46 in CSLI Lecture Notes, 151–197. CSLI Publications.
- Reape, Mike. 1996. Getting things in order. In Harry Bunt and Arthur van Horck (eds.), *Discontinuous Constituency*, no. 6 in Natural language processing, 209–253. Mouton de Gruyter.
- Sag, Ivan A. 1999. Deconstructing grammatical constructions. ms, Stanford University.
- Simpson, Jane. 1991. *Warlpiri Morpho-Syntax*. Dordrecht, Kluwer.
- Swartz, Stephen. 1988. Pragmatic structure and word order in Warlpiri. *Papers in Australian Linguistics* 151–166.