

On the Position of Walbiri in a Typology of the Base¹

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1. Introductory remarks.

I would like here to consider a conception of Walbiri base structure which is rather different from views I have heretofore held (as represented, for example, in Hale 1967-8, briefly in Hale 1973, and as revised in Hale, Jeanne, and Platero 1977). My primary concern here will be to come to grips with characteristics of Walbiri surface structures which place that language among the so-called "free word order" or "scrambling" languages of the world.

The relevant surface structure characteristics can be exemplified with sentences of the simplest conceivable sort. Thus, for example, a simple transitive sentence containing a verb; subject nominal, and an object nominal can be executed with any of the six possible arrangements of these elements:

(1) Kurdu-ngku ka maliki wajilipi-nyi.

(child-ERG AUX:pres dog chase-NONPAST)

Maliki ka kurdu-ngku wajilipi-nyi.

Maliki ka wajilipi-nyi kurdu-ngku.

Wajilipi-nyi ka kurdu-ngku maliki.

Wajilipi-nyi ka maliki kurdu-ngku.

Kurdu-ngku ka wajilipi-nyi maliki.

'The child is chasing the dog.'²

The only restriction here is on the position of the auxiliary element (AUX) -- if this has a monosyllabic base, as does the present tense auxiliary exemplified here, it must appear in "second position", sometimes called "Wackernagel's Position", i.e., following the first

non-auxiliary constituent in the sentence (see Hale 1973 for details).³

Of particular interest to the present discussion will be the fact that semantic expressions -- e.g., expressions corresponding to noun phrase constituents in more familiar languages -- may be discontinuous in Walbiri surface structures. That is to say, the words which jointly form a semantic expression, a modified nominal, or a determined nominal, for instance, may "scramble individually", so to speak:

- (2) Kurdu-jarra-rlu ka-pala maliki wajilipi-nyi wita-jarra-rlu.
(child-DUAL-ERG AUX:pres-du dog chase-NONPAST small-DUAL-ERG)
Maliki ka-pala kurdu-jarra-rlu wajilipi-nyi wita-jarra-rlu.
Wita-jarra-rlu ka-pala maliki wajilipi-nyi kurdu-jarra-rlu.
(etc., any order, with AUX in second position)
'The two small children are chasing the dog.'

Although it is not the sole interpretation which (2) can receive, a prominent one is that in which the two words /kurdu-jarra-rlu/ (child-DUAL-ERG) and /wita-jarra-rlu/ (small-DUAL-ERG) form a single semantic expression -- corresponding roughly to the English expression 'the two small children'. One can tell, of course, that /wita-jarra-rlu/ "goes with" /kurdu-jarra-rlu/ by the identity of number and case marking (/ -jarra-rlu/ (-DUAL-ERG)).

This "splitting" of semantic expressions is not limited to nominally based expressions, it is a general characteristic of Walbiri. Thus, for example, infinitival expressions can also be syntactically discontinuous, as in the following:

- (3) Karli-ngkajinta O-rna-ju paju-rnu jarnti-rninja-rlajinta.
(boomerang-REFLEX AUX:perf-1-1 cut-PAST trim-INF-REFLEX)
'I cut myself while trimming the boomerang.'

Here again, any ordering of the non-auxiliary constituents is possible, provided the auxiliary is in second position.⁴ In this sentence, the

two words marked with the reflexive complementizer (/ -ngka-jinta or -rla-jinta/) form a single semantic expression -- corresponding roughly to the English '... while trimming the boomerang'. The complementizer marking on the discontinuous elements indicates that they "go together". And I assume rules of semantic interpretation will link the nominal /karli/ 'boomerang' with the direct object position in the predicate argument structure of the transitive verb /jarnti-rni/ 'trim, shave, scratch'.⁵

With this brief background, it is possible to set forth in very preliminary form the proposal that I would like to make concerning Walbiri. I would like to entertain the possibility that there exist two distinct types of language in respect to the syntactic base. One type is that appropriately referred to as the X-Bar type, in which the basic syntactic structures are defined by means of a set of phrase structure rules which impose a hierarchical, or "configurational", organization upon syntactic expressions. English is an X-Bar type language, presumably. I would like to suggest, however, that Walbiri is not an X-Bar language. Rather, Walbiri belongs to what might be called the "W-Star" type. There are no phrase structure rules of the conventional sort, I suggest. To the extent that there is a rule, or rule schema, defining the basic syntactic structure of Walbiri sentences, it is of the following minimal sort:

$$(4) \quad E \longrightarrow W^*$$

That is to say, an expression (E) in Walbiri simply consists of a string of words (W), a string of arbitrary length. The words themselves are built by means of a set of word formation rules (possibly of the sort suggested in Nash 1979) belonging to a separate component of grammar, and they are "inserted" freely, in an arbitrary linear order,

to form an actual string of words. Mechanically, one can think of a "sentence" like (1) -- say, the first alternative rendered there -- as being formed in the following way. We start with a string of W-positions, as defined by the schema (4):

$$(4') \quad W_1 \quad W_2 \quad W_3 \quad W_4$$

Into each of these positions is inserted a word from the lexicon, randomly selected. One possible result is

$$(4'') \quad \begin{array}{cccc} \text{Kurdu-ngku} & \text{ka} & \text{maliki} & \text{wajilipi-nyi.} \\ W_1 & W_2 & W_3 & W_4 \end{array}$$

This is now subject to various principles of form and interpretation which determine its well-formedness and meaning.

It is important, I think (though I am not absolutely certain about this), not to misconstrue the schema (4) as a kind of phrase structure rule, defining some sort of "flat" phrase structure configuration. I think that the proper way to view (4) is as an equation stating simply that an expression consists of a string of words. There is, initially at least, no real structure to a sentence, apart from the linear arrangement of words.⁶

This is not all there is to Walbiri syntax, of course. A sentence is presumably understood as constituting some sort of entity. And, further, it is presumably understood as consisting of smaller expressions. There must, therefore, exist certain principles -- call them "parsing" principles -- which, so to speak, impose a labelled bracketing upon any string of words which constitutes a genuine expression in the language:

$$(4''') \quad ((\text{kurdu-ngku})^{[N, SG, ERG]} (\text{ka})^{[AUX]} (\text{maliki})^{[N, SG, ABS]} (\text{wajilipi-nyi})^{[V, NONPAST]})^{[S, PRES]}$$

These parsing principles are the cost associated with the W-Star grammar, which eliminates phrase structure rules.

If there exist parsing principles which impose a labelled bracketing on strings of words, thereby, in effect, defining a hierarchical organization of linguistic expressions not unlike that defined by phrase structure rules, then what is the empirical content of the typological contrast being proposed here? I will return to this question in the final section of this paper, but it is appropriate to mention here the essential difference between X-Bar and W-Star languages, wherein the empirical content of this proposal -- assuming that it has any -- will surely be found to lie. The difference is this. An X-Bar language has phrase structure rules. There is, therefore, the possibility that a phrase structure ^{rule} can be optional, so that a position in phrase structure can be unfilled. Thus, for example, an entity of the form

(5) [e]_{NP}

can exist in an X-Bar language. There can, for example, be an "empty noun phrase" in subject position, or object position, etc., simply by virtue of the optionality of the phrase structure rule which expands NP (or, properly speaking, N^{MAX}). In the conception of W-Star grammar which I wish to put forth here, this is an impossibility. There can be no such entity as (5) -- there are no phrase structure rules, and there is accordingly no way in which a phrase can be left unexpanded. Further, I would like to assert that there are no stipulated "positions" in W-Star grammar -- i.e., no positions like "subject position", "object position", "head position", "specifier position", or the like. The only notion of position that makes sense in a W-Star grammar is the relative linear position of words (and morphemes within words, of course) in strings which constitute genuine expressions of the language. Since there are no stipulated positions, no such position can be unfilled -- thus, the notion "gap" does not make sense in W-Star grammar.

2. Some additional observations in relation to Walbiri surface structure.

Before proceeding to flesh out the W-Star conception of Walbiri base structures more fully, and to address again the question of the empirical content of this proposal, I would like to introduce some observations that would seem to contradict the W-Star idea in rather essential ways -- namely, (1) the apparent existence of sub-clausal constituent structure in Walbiri, and (2) the possibility that there is a basic word order in Walbiri.

2.1. Apparent sub-clausal constituent structure.

In (2) above, and in (3) as well, it was seen that a semantic expression can be syntactically discontinuous in Walbiri. When the parts of a semantic expression are separated, it is nonetheless possible to tell that the parts "go together" by virtue of what I will call the categorial signature that they have in common. The categorial signature of a word can be determined from its part of speech (N, V, AUX, ...) and its inflection, or lack of inflection, as the case may be. Thus, the word /kurdu-jarra-rlu/ is a nominal (N) inflected for dual (DUAL) number and ergative (ERG) case. Its categorial signature can be expressed as in (6) below for our present purposes:

(6) [N,DUAL,ERG]

The terms of the signature -- i.e., N, DUAL, etc. -- should be understood as abbreviatory conveniences; presumably, the terms are actually feature complexes, though the elaboration of a feature system will not be a concern in this discussion (see Hale 1973; Hale, Jeanne, and Platero 1977; and Nash 1979 for some suggestions). The word /wita-jarra-rlu/ is also a nominal inflected for dual number and ergative case. Both words, therefore, share the same categorial signature -- namely, (6).

By virtue of this they can enter into a single semantic expression ('(the) two small children'), even if they are syntactically non-contiguous.

But this is not the only way in which separate words can enter into single semantic expressions. The following renditions of (2) and (3) illustrate an alternative method available to Walbiri:

(2') Kurdu wita-jarra-rlu ka-pala maliki wajilipi-nyi.
(child small-DUAL-ERG AUX:pres-du dog chase-NONPAST)
'The two small children are chasing the dog.'

(3') Karli jarnti-rninja-rlajinta O-rna-ju paju-rnu.
(boomerang trim-INF-REFLEX AUX:perf-1-1 cut-PAST)
'I cut myself while trimming the boomerang.'

In (2'), the nominal expression functioning as subject consists of an uninflected nominal word /kurdu/ 'child' followed by another nominal, modifying the first, inflected for dual number and ergative case. This illustrates the alternative method of "complex", or multi-word, expression formation utilized in Walbiri. Here, linear contiguity, together with the single, right-marginal, inflection of the expression as a whole serves to signal the fact that the words can be understood as "going together" as a unit. In fact, they must be so understood in (2'), since I have chosen a word order there which demands that interpretation. Recall that the auxiliary, if its base is monosyllabic (as it is here), must appear in second position -- in the preferred usage, at least. This does not mean, however, that it must follow the first word. The condition is satisfied if the string preceding the auxiliary constitutes a single expression. Thus, /kurdu wita-jarra-rlu/ must constitute a single expression in (2').

The circumstance represented by (3') is similar -- the two words preceding the auxiliary are understood as forming a semantic expression. The unmarked nominal preceding the infinitival verb bears the object relation to the latter. Here again, the overt marking -- i.e., the reflexive complementizer -- signals the right margin of an expression. And this signal is reinforced by the auxiliary, whose position reasserts, so to speak, that the two words preceding form a single expression.

In both (2') and (3'), and in general for situations of this sort, it would appear that sub-clausal constituent structure is involved. At least it is possible to argue, as I have in the past (see references above, and also Hale 1976), that facts such as those represented in (2', 3') constitute evidence for constituent structure in Walbiri. I would like to suggest, however, that these facts can be handled in a perfectly adequate manner within the W-Star conception of the Walbiri base, and I will make concrete suggestions later.

2.2. Apparent basic word order.

Sentence (2') illustrates another general fact of Walbiri surface structures. In complex nominal expressions which are overtly marked only once for inflectional category (e.g., case, number), the marked word must be final (right-most) within the string corresponding to the nominal expression. This condition is satisfied in (2'), but it is not satisfied in the otherwise theoretically possible (2'') below:

(2'') *Wita-jarra-rlu kurdu ka-pala maliki wajilipi-nyi.

Two general principles of Walbiri are in conflict here. The position of the auxiliary asserts that the string /wita-jarra-rlu kurdu/ forms an expression, but the principal of right-marginal marking asserts that it cannot be. Hence, the unacceptability of (2''). (It should perhaps

be mentioned here that there is a way of pronouncing (2") which allows the interpretation 'The two small ones are chasing the puppy' -- i.e., with /kurdu/ 'child, young of animal' construed with /maliki/. In this interpretation, the expression preceding the auxiliary is just /kurdu/, not the string /wita-jarra-rlu kurdu/. The word /wita-jarra-rlu/ is, in this case, set off intonationally as a topic. It must be admitted, however, that the intonational break, while normally very clearly audible, is sometimes extremely brief and possibly altogether absent physically.)

The principle that "the marked word must be right-most" is clearly a statement about relative linear ordering of words. However, it is unlikely that this could be used as evidence for a basic word order in Walbiri. There are many conceivable accounts of this fact -- an explanation in terms of a fixed basic word order is only one of several possibilities that readily come to mind. A much more interesting question is whether there are designated positions within complex nominal expressions. Is ^{it} the case, for example, that modifying, or restricting, nominals follow the nominal taken to be the "head" semantically? That is, is it the case, for example, that /kurdu wita-jarra-rlu/ (child small-DUAL-ERG) is correct, while the alternative /wita kurdu-jarra-rlu/ (small child-DUAL-ERG) is incorrect, where the semantic "head" is taken to be based on the nominal /kurdu/ 'child'? This is a rather difficult question, and one which I simply cannot answer; this is one of the many areas of Walbiri grammar where the growing number of Walbiri-speakers engaged in language scholarship will have to bear the main burden in providing answers to linguistic questions. In cases where I feel that I control the data well enough to say something myself, I must admit

that I do not have a very clear picture. For example, consider the position within a complex nominal expression (preceding the auxiliary and, therefore, necessarily taken as a unit) of a demonstrative, as in the following:

- (7) Kurdu yalumpu-rlu ka maliki wajilipi-nyi.
(child that-ERG AUX:pres dog chase-NONPAST)
'That child is chasing the dog.'

Here the demonstrative follows the nominal it restricts, and this is perhaps the most common usage. However, I have recorded the opposite order as well:

- (7') Yalumpu kurdu-ngku ka maliki wajilipi-nyi.
(that child-ERG AUX:pres dog chase-NONPAST)

At my level of knowledge, I simply cannot say anything which is at all sensitive about these alternative forms. In the case of possessive constructions, I have recorded the genitive (possessor) either before or after the "head" (possessed), with about equal frequency:

- (8) (a) Kurdu ngaju-nyangu-rlu ka maliki wajilipi-nyi.
(child I-GEN-ERG AUX:pres dog chase-NONPAST)
(b) Ngaju-nyangu kurdu-ngku ka maliki wajilipi-nyi.
(I-GEN child-ERG AUX:pres dog chase-NONPAST)
'My child is chasing the dog.'

Although I cannot state any firm conclusions about word order within complex nominal expressions, I doubt very much that a detailed investigation of them will result in the discovery of a basic word order, or in fact of anything which would seriously contradict the W-Star conception of Walbiri grammar. An account of the more secure observation concerning right-marginal marking will be offered shortly.

Infinitival constructions, like that in (3'), have fixed verb-final word order. That is to say, if an infinitival expression precedes the auxiliary, an unmarked nominal functioning as object of the infinitival verb must precede the latter. This condition is met in (3'), but not in (3'')

(3'') *Jarnti-rninja-rlajinta karli O-rna-ju paju-rnu.

(trim-INF-REFLEX boomerang AUX;perf-1-1 cut-PAST)

(As in the case of (2'') above, there is a weakly perceivable topicalization reading available for (3'') -- roughly, 'While trimming it, I cut my boomerang', or 'While trimming it, I cut myself a boomerang.' This reading is readily available if an intonation break separates the first word off. The sentence is, however, only weakly acceptable, for ^{independent} reasons having to do with the proper use of the reflexive complementizer.)

The deviance of (3''), on the relevant interpretation, can be subsumed under the principle already discussed in connection with (2') -- namely, the principle according to which an overt categorial signature defines a right-margin of an expression. This will account for the preferred verb-final word order in infinitivals, in view of the morphological fact that the infinitival verb must itself bear the complementizer which serves as the categorial signature of the construction as a whole.⁷

There are, however, exceptions to the prevailing verb-final word order of infinitivals. Some infinitival expressions are observed to "leak", allowing certain material belonging to the expression to appear after the infinitival verb. So far as I know, this never happens when the infinitival immediately precedes the auxiliary, but it has been observed

in cases where the infinitive appears at the end of a sentence, particularly where it is set off intonationally, as in the following utterance:

- (9) Nyanungu-rlu O-jana ngarru-rnu -- ngapa-puru --
ya-ninja-ku ngurra-kurra-lku.

(he-ERG AUX:perf-3pl tell-PAST -- rain-TEMPREL --
go-INF-JUSSIVE camp-ALL-then)

'He told them, since it was raining, to go to camp
(i.e., go home) then.'

Here, the allative complement of the verb /ya-ni/ 'go, walk' follows the infinitival form of the latter. The verb-final variant is, of course, also possible, and in fact more common:

- (9') Nyanungu-rlu O-jana ngarru-rnu -- ngapa-puru --
ngurra-kurra ya-ninja-ku-lku.

(... -- camp-ALL go-INF-JUSSIVE-then)⁸

Leaking infinitivals have also been observed in protasis, normally set off clearly by intonation and pause, as in:

- (10) Palka-ma-ninja-wangu-rla jalangu karli, ngula ka
ngaju-ku-pirdangka-rlu-lku palka-ma-ni jukurra-rlu.

(manifest-CAUSE-INF-NEG-COND today boomerang, then
AUX:pres I-DAT-COGEN-ERG-then manifest-CAUSE-NONPAST
tomorrow-ERG)

'If the/a boomerang is not found today, then my
brother will find it/one tomorrow.'

But it is rather rare to find a direct object following the infinitival verb, as in (10); pre-verbal position is vastly preferred for direct objects, as in the following closely similar sentence:

- (11) Karli palka-ma-ninja-wangu-rla jalangu, ngula ka-rna
jukurra-rlu karli palka-ma-ni.

(boomerang manifest-CAUSE-INF-NEG-COND today, then
AUX:pres-1 tomorrow-ERG boomerang manifest-CAUSE-NONPAST)

'If I don't find the/a boomerang today, then I will
find the/a boomerang tomorrow.'

In general, while some leakage is possible, verb-final word order is the rule for infinitival expressions. Before leaving this topic, however, I would like to mention one more fact relating to word order in infinitivals. This has to do with the relative order of arguments preceding the infinitive verb.

Although infinitivals are preferably short in Walbiri usage, only rarely displaying the full argument structure of the verb in overt form, it is possible to observe infinitivals in which both a subject and an object are expressed overtly by nominals. Many infinitivals are structures of obligatory control, in which the subject nominal is necessarily absent; but some infinitivals are not structures of obligatory control and, accordingly, allow overt nominal expression of the subject. One such construction is the obviative infinitival, utilizing the morphologically complex complementizer /-ngka-rni ~ -rla-rni/, as in the following sentence:

(12) Ngarrka-ngku ka karli jarnti-rni -- kurdu-ku maliki
wajilipi-nja-rlarni.

(man-ERG AUX:pres boomerang trim-NONPAST -- child-DAT
dog chase-INF-OBVIATIVE)

'The man is trimming the boomerang, while the child is chasing the dog.'

Here, the infinitival expression is set off from the main clause by means of intonation and pause (represented by the dash). The subject in these obviative expressions is marked dative (/ -ku/), rather than ergative, as it would otherwise be in such a transitive clause. So far as I am aware, the order of pre-verbal arguments is fixed here -- the subject precedes the object. And an ^{obviative} infinitival whose verb selects a ^{argument} dative in addition to the dative-marked subject is, by virtue of the subject-first word order requirement, unambiguous. Thus, in the following sentence, the

first dative is understood to be the subject, while the second is understood to be the indirect object:

- (13) Ngarrka-ngku ka karli jarnti-rni -- karnta-ku kurdu-ku miyi yi-nja-rlarni.

(man-ERG AUX:pres boomerang trim-NONPAST -- woman-DAT child-DAT food give-INF-OBVIATIVE)

'The man is trimming the boomerang, while the woman is giving food to the child.'

To my knowledge, there is no requirement that the indirect and direct objects appear in the order given in (13); the sole requirement is that the subject be first.

Assuming this ordering requirement to be a genuine fact of Walbiri grammar, it must be accommodated in the W-Star account, which denies the existence of a basic word order in the normally understood sense.

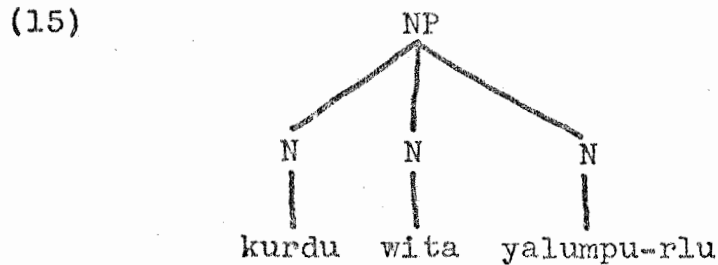
2.3. A "standard" analysis briefly considered.

The facts of Walbiri surface syntax are quite manageable in a standard analysis which posits a basic word order and a hierarchical constituent structure of the conventional sort.

Assuming that we can use the surface position of the auxiliary as a way of determining constituent structure, we have evidence within an X-Bar theory of Walbiri that a noun followed by a determiner, or a noun followed by modifier, or a noun followed by both of these, may constitute a single constituent in surface structure:

- (14) (a) Kurdu yalumpu-rlu ka maliki wajilipi-nyi.
(child that-ERG AUX:pres dog chase-NONPAST)
- (b) Kurdu wita-ngku ka maliki wajilipi-nyi.
(child small-ERG AUX:pres dog chase-NONPAST)
- (c) Kurdu wita yalumpu-rlu ka maliki wajilipi-nyi.
(child small that-ERG AUX:pres dog chase-NONPAST)

We may represent this observation formally by permitting more than one nominal to appear under a single NP (or, more exactly, N^{MAX}) node:



We might account for the possibility of having only a single, right-marginal, instance of the case inflection in the following way. Assume that the case features, corresponding in this instance to the ergative case, are associated with the NP node. The morphological component responsible for spelling out inflectional endings can, given enough power, be instructed in situations of the type represented by (15) above simply to spell out a single instance (in the appropriate alternant, of course) of the case inflection at the right-margin of the noun phrase.

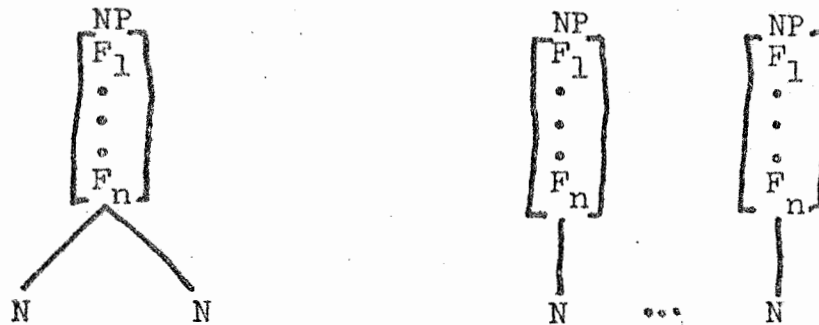
Now, to account for sentences like (16) below (cf. (14b) above), in which a noun phrase appears to be broken up, we can assume that a scrambling rule exists which simply reorders the words of a sentence, without regard for their membership in a larger subclausal constituent:

- (16) Kurdu-ngku ka maliki wajilipi-nyi wita-ngku.
(child-ERG AUX:pres dog chase-NONPAST small-ERG)
'The small child is chasing the dog.'

In some⁹ cases, scrambling might -- accidentally, as it were -- leave a subclausal constituent intact. But often, as in (16), constituents are broken up. We can assume that morphological spelling rules apply at the very surface -- after scrambling. And, in order to account for the fact that erstwhile sisters are identically inflected, we must assume that the scrambling operation does not erase the categorial node dominating a given scrambling word but, rather, splits the categorial node so that

the immediate domination of erstwhile sisters remains the same:

(17) before scrambling after scrambling



This is, at least, one conceivable scenario. Another might be to allow the inflectional features (represented informally as $F_1 \dots F_n$ above) to percolate down from the NP node to the N node -- optionally, say -- while the noun phrase is still intact. This would be another way to account for sentences like (16). Consistent with this second alternative is the possibility of sentences like (16') below, in which sister nominal words, presumably within a single subclausal constituent judging by the position of the auxiliary, are both inflected for case:

(16') Kurdu-ngku wita-ngku ka maliki wajilipi-nyi.

(child-ERG small-ERG AUX:pres dog chase-NONPAST)

These are much less frequent in actual usage than the alternatives (cf. (16) and (14b)), and I am not certain of their grammaticality. I will assume, however, that they are grammatical. Of course, if the noun phrase /kurdu-ngku wita-ngku/ in (16') is the source of the scrambled /kurdu-ngku ... wita-ngku/ of (16), and assuming further that the meaning of a sentence is determined prior to scrambling, then we must in some way or other ensure that the noun phrase /kurdu wita-ngku/ of (14b) does not give rise to a scrambled version /kurdu ... wita-ngku, wita-ngku ... kurdu/, for sentence (18) below cannot mean what (14b) means:

(18) (a) Kurdu ka maliki wājilipi-nyi wita-ngku.
 (child AUX:pres dog chase-NONPAST small-ERG)

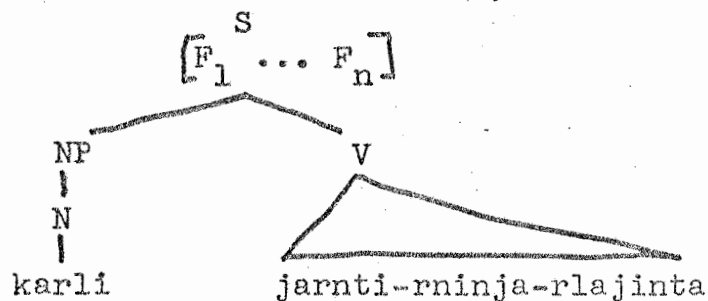
(b) Wita-ngku ka maliki wajilipi-nyi kurdu.
 (small-ERG AUX:pres dog chase-NONPAST child)

...

'The small one is chasing the puppy.'

The situation with infinitives is in some ways similar and in some ways different. Thus, one could propose that infinitives are tenseless embedded clauses underlyingly, and that an S-node dominating the words of an infinitival clause has associated with it the features which will be interpreted by the morphology as an appropriate infinitival complementizer (cf. (3') above):

(19)

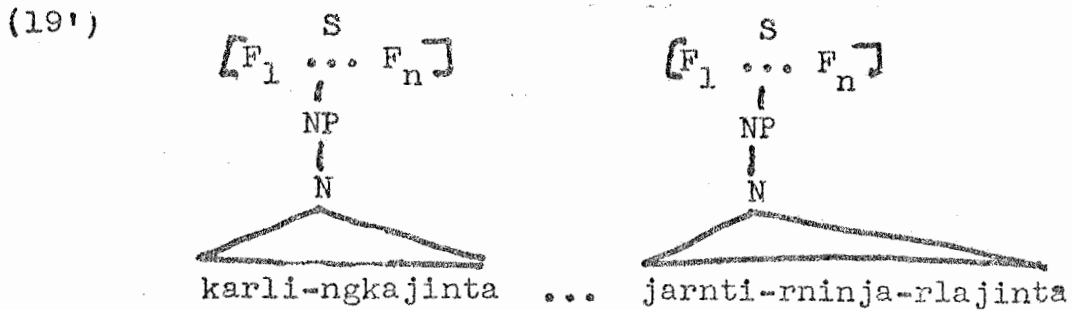


As in the case of noun phrase constituents, the morphology spells out a single instance of the categorial signature. In the case of infinitivals, however, this must appear on the "head" of the construction -- that is to say, the verb. Thus, some mechanism must be introduced to ensure that a "leaking infinitival" of the following utterly ungrammatical form is not produced:

(20) *jarnti-rninja karli-ngkajinta

Be this as it may, under the standard analysis we are considering here, we can assume that scrambled versions of infinitivals -- like that appearing in (3) above are produced in the same way as are scrambled noun phrases. As in the case of noun phrases, so also in the case of infinitivals, we could propose that the scrambling process splits the S-node

so that the erstwhile sister constituents of the infinitival construction remain identically dominated for the purposes of the morphological interpretation of inflectional endings. Under this proposal, (19) would be the intact version of the scrambled (19') (cf. sentence (3) above):



Of course, this is only one possible scenario. The percolation alternative, considered above in connection with noun phrase constructions, is also theoretically possible. But this alternative is weakened somewhat by the observation that sentences like (21) below are not found in ordinary speech:

(21) Karli-ngkajinta jarnti-rninja-rlajinta O-rna-ju paju-rnu.

This is supposed to be the percolated version of (3'). While percolated noun phrases, as in (16'), have been observed in spontaneous speech, four thousand pages of text does not yield a single instance of the pattern represented by (21). (This is not to say, of course, that the sequence /karli-ngkajinta jarnti-rninja-rlajinta/ cannot occur. It can, presumably as a "split infinitival" rather than as a single constituent. The crucial property of (21) is that the percolated infinitival is to be taken as a single, intonationally unitary, pre-auxiliary constituent of the matrix clause. It is that construction which is in question here.) Here again, the testimony of a Walbiri-speaking language scholar will be crucial. I cannot myself make any relevant comment on the grammaticality of (21), apart from the negative observational comment already made.

There is an additional complication associated with infinitivals, having to do with the inflection, by complementizer, of constituents

other than the infinitival verb itself. The split infinitival of (3) is perfectly well-formed. In that sentence, the nominal marked with the reflexive complementizer bears the direct object relation to the infinitival verb. And, in general, nominals bearing the direct object relation to a transitive infinitival verb, which would therefore be in the unmarked, or absolutive case in a finite clause or intact infinitival, can bear the complementizer when they are split away from the infinitival. But nominals which do not bear the direct object relation, and which bear a case inflection of their own (say one of the semantic cases, like locative, allative, or the like) do not accept the complementizer. Thus, sentence (22) below does not have a variant in which the locative argument appears separated from the infinitival and inflected with the objective complementizer /-kurra/:

(22) Kurdu ka-rna nya-nyi, pirli-ngka nyina-nja-kurra.

(child AUX:pres-1 see-NONPAST, stone-LOC sit-INF-OBJ)

'I see the child (while it is) sitting on the stone.'

One can have the locative "leaked past" the infinitival verb, as in

(22') Kurdu ka-rna nya-nyi, nyina-nja-kurra pirli-ngka.

(child AUX:pres-1 see-NONPAST, sit-INF-OBJ stone-LOC)

and one can even have what appears to be a genuine split infinitival, in which a locative argument is separated from an infinitive to which it can be said to relate, as in

(22'') Pirli-ngka ka-rna kurdu nya-nyi, nyina-nja-kurra.

(stone-LOC AUX:pres-1 child see-NONPAST, sit-INF-OBJ)

One could account for the failure of the locative expression here to take on the objective complementizer by organizing the morphological component in such a way that the fact -- which must be accommodated in any theory of Walbiri grammar -- that certain endings are simply mutually

exclusive.¹⁰ A word of the form /pirli-ngka-kurra/ (stone-LOC-OBJ) or /pirli-kirra-rla/ (stone-OBJ-LOC) is not well formed in Walbiri, evidently.

Within the scheme just outlined, the surface position of the auxiliary can be stated in quite simple terms. Let us assume that the auxiliary is initial in the underlying representation of Walbiri sentences (for one argument that this is the case, see Hale 1973). In some cases, the auxiliary may remain initial (i.e., if its base is disyllabic or longer), in others it must remain initial (i.e., if it contains the negative complementizer /kula-/ and the first non-auxiliary word in the sentence is the verb). If the base of the auxiliary is monosyllabic or null, the auxiliary as a whole must move into second position within the sentence -- where it cliticizes onto the word which precedes it. Otherwise, movement into second position is optional. The notion "second position", in the system we are assuming here, is defined simply as the position following the first non-auxiliary constituent of the sentence. This may be the first word, as in the variants listed in (1, 2, 3) above, or it may be longer than a single word, as in (2', 3', 7, 7', 8).¹¹ It simply depends upon what has happened in the derivation prior to insertion of the auxiliary, which we can assume to take place after scrambling.

All of this fits straightforwardly into the tripartite scheme for the interrelationships among the components of a grammar within the extended standard theory (as exemplified, for example, in Chomsky and Lasnik 1977, p. 431). In abbreviated form, the scheme is as follows:

(23)

Rules of the Base and Transformational Rules



Walbiri probably does not have transformational rules in the sense of the extended standard theory. On the theory just considered, however, we can assume that it has phrase structure rules -- i.e., rules which provide a constituent structure for sentences, along the lines suggested in this subsection. It also has rules of semantic interpretation, whose purposes are (among other things) to assign meanings to constituents, associate nominal expressions with argument positions in the functional structure of predicates, to determine anaphoric connections (control, etc.), and so on. Finally, rules of form operate to define the actual surface structure of sentences. I am assuming that scrambling is to be classified with the operations commonly referred to as "stylistic rules". Scrambling feeds the final surface adjustment which positions the auxiliary. This ordering is necessary, obviously, since the surface position of an inserted auxiliary (i.e., so-called "second position") cannot be defined for a given sentence except by reference to the final surface ordering of the non-auxiliary constituents.

Although problems of detail clearly abound in an X-Bar theory of Walbiri grammar, it seems to me very unlikely that such a theory could not be made to work. The more interesting question is whether such an analysis of the Walbiri data is at all indicated. Does it do any real work that could not be done in some other theory? Are there any counterindications?

While I doubt that the phrase structure theory of Walbiri grammar is unworkable for Walbiri, I do feel that there are certain counterindications. Certain indications that the phrase structure theory is not properly in the "spirit" of Walbiri. The extraordinary popularity of discontinuous expressions, like those in (2), is one indication that the conventional phrase structure grammar is somewhat out of step with

the language. But most disturbing -- that is, disturbing for a defender of a theory such as that presented in this section -- is the fact that syntactic or morpho-syntactic arguments which might otherwise be marshalled in support of a scrambling-rule analysis of discontinuous expressions typically fall through. There is, for instance, a potential argument in favor of a scrambling analysis of discontinuous infinitival arguments of the type represented in sentence (3), repeated here for convenience:

(3) Karli-ngkajinta O-rna-ju paju-rnu jarnti-rninja-rlajinta.

(boomerang-REFLEX AUX:perf-1-1 cut-PAST trim-INF-REFLEX)

'I cut myself while trimming the boomerang.'

If Walbiri were other than it actually is, one might argue that (3) is necessarily produced by scrambling, since otherwise, there would be no source for the nominal word /karli-ngkajinta/ (boomerang-REFLEX) -- that is to say, it must emanate from an infinitival, where it bears the direct object relation to the verb. But Walbiri does not permit one to make this argument, for the following sentence, with no infinitival verb present at all, is well formed:

(24) Karli-ngkajinta O-rna-ju paju-rnu.

(boomerang-REFLEX AUX:perf-1-1 cut-PAST)

'I cut myself while involved with the boomerang.'

This exemplifies what might be called the "vague predicational" use of complementized nominals in Walbiri. It is extremely common in actual speech, rivaling in abundance the corresponding infinitivals. Such complementized nominals receive an interpretation which resembles that of a full infinitival expression, but with the predicate left vague, or unspecified. This, of course, suggests an alternative proposal for sentences like (3) which contain discontinuous infinitival expressions. The alternative is simply to generate the sentence as

is, with two separate complementized words (one a nominal, the other an infinitive). There would be no scrambling rule at all. Rather, the discontinuous expression would be reassembled, so to speak, by rules of semantic interpretation. A quite general principle would operate on infinitivals of this sort to associate the complementized nominal with the direct object position in the functional structure of the infinitival verb (provided the two words are within the same domain, i.e., same larger sentential expression (see below)).

In general, this is the way things have proceeded, in my experience at least. Good arguments for a standard phrase structure analysis of Walbiri are not forthcoming. There are arguments, but there are always reasonable alternatives which require few of the standard assumptions.

I would like now to turn to a more ample, though still very preliminary, exposition of the W-Star conception of Walbiri grammar. In this view of Walbiri grammar, there will be no scrambling rule. Instead, the surface variety of word order simply follows from the fact that there are no stipulated positions in which words of particular categories must appear in the surface form of an actual sentence; and this follows in turn from the fact that there are no phrase structure rules in a W-Star grammar. The elimination of the scrambling rule is a definite merit, since the capabilities of the rule, as I have imagined it at least, are clearly excessive.¹²

3. A preliminary W-Star account of Walbiri.

It should be mentioned that the W-Star conception of Walbiri grammar is not to be viewed as a radical departure from standard theories of generative grammar. I wish to suggest merely that Walbiri, and other

languages belonging to the same type, lack the phrase structure rules which are the primary characteristic of X-Bar languages.¹³ In place of phrase structure rules, a W-Star language possesses a simple mechanism which produces concatenations of words drawn from the store of items created in the word-formation component of the base. Presumably, the word concatenator and the word-formation component belong to the "top part" of the overall scheme depicted at (23) above. I will assume that all derivation and inflection is accomplished in the word-formation component of the base.¹⁴ None of this is done transformationally. There are, however, certain rules of form (i.e., rules belonging to the "left side" of the grammar) which effect enclisis and, therefore, are involved in the creation of surface-structure words.¹⁵

The primary addition which a W-Star grammar requires consists in a system of parsing principles which determine the constituency and category of expressions present in a given concatenation of words. In effect, these parsing principles impose a labelled bracketing upon strings of words. I am not sure exactly where the parsing principles fit in the scheme of (23), but it is quite clear that they produce objects which are the input to rules of semantic interpretation (i.e., to rules on the "right side" of the grammar) -- I will assume, therefore, that the parsing principles form a part of the base, like word-formation and the concatenator.

In the following subsections, I will attempt to illustrate how the parts of a W-Star grammar would work. This will be extremely sketchy, since very little of the idea has been adequately developed at this stage.

3.1. Parsing.

The word concatenator is of no inherent interest, since it simply produces strings of words of arbitrary length. Our primary concern here is in the interpretation of strings. Let us imagine that the concatenator has produced the following string of words:

(25) maliki ka-pala wajilipi-nyi kurdu wita-jarra-rlu
(dog AUX:pres-3du chase-NONPAST child small-DUAL-ERG)

The success of the parsing principles, the rules of semantic interpretation, and the rules of form will determine whether or not this is a genuine expression in Walbiri. For illustrative purposes, I have chosen a variant of a sentence we have already discussed -- namely (2'). Sentence (25) differs from (2') only in the word order -- the meaning is the same: 'The two small children are chasing the dog.'

The most elementary operations in parsing a string of words consist in bracketing and labelling. I will be interested primarily in the parsing of certain "subclausal" expressions -- nominal expressions, in particular -- so I will pass rather quickly over other aspects of parsing. Let us assume, therefore, that the entire string of (25) is embraced by a single set of brackets -- i.e., that it constitutes an expression of some sort. Each expression is labelled in accordance with its constituency. Thus, for example, if an expression contains a tensed verb and an auxiliary, it is a "tensed sentence". The label constitutes the categorial signature of the expression. For present purposes, it is sufficient to label our sentence [S, PRES]. The bracketed and labelled version of (25) is therefore as follows:

(25') (maliki ka-pala wajilipi-nyi kurdu wita-jarra-rlu) [S, PRES]

The categorial signature here consists of two terms, one indicating the overall category of the expression (S), the other indicating the "inflectional" category to which it belongs (present tense). The symbolization

of these categorial terms is to be considered abbreviatory in the extreme, I repeat.

In general, the elementary parsing operations define what I will term the "syntactic expressions" present in a string of words -- these are the words themselves, and the words that can be bracketed together, by virtue of linear adjacency, into larger expressions. I turn now to a consideration of the subclausal parsing of (25'). For the sake of readability, I will suppress the outermost categorial label -- it is to be understood, however, that (25') is itself an expression, i.e., a tensed sentence.

3.1.1. Bracketing and labelling.

Each word constitutes an expression and is, accordingly, individually bracketed and labelled with a categorial signature.¹⁶ The categorial signature of a word is minimally the part of speech of the word base (N, V, AUX, ...).¹⁷ If the base is inflected, a complex categorial signature is constructed by copying the features associated with each layer of inflection (e.g., number, case) into the signature, following the term designating the part of speech, and in the order of inflectional layer (inner-to-outer). A complex categorial signature is, therefore, an ordered set of categorial terms.¹⁸

Subclausal labelling of (25') would be roughly as follows:

| | | | | | | |
|-------|----------|-----|------------------|----------------|----------------|-----|
| (25") | (maliki) | [N] | (ka-pala) | [AUX] | (wajilipi-nyi) | [V] |
| | (kurdu) | [N] | (wita-jarra-rlu) | [N, DUAL, ERG] | | |

I have given only minimal categorial signatures for the verb and the auxiliary, since I am primarily interested in the nominal expressions at this point.

The parsing indicated in (25") does not yet correspond to the meaning which I am assuming is to be associated with the sentence. In particular, there is no indication that the substring /kurdu wita-jarra-rlu/ forms a single nominal expression. In fact, in the parsing of (25"), the two words form separate expressions. An additional parsing operation is necessary in order to form larger nominal expressions under appropriate conditions of linear adjacency.

3.1.2. Incorporation.

A basic observation which I would like to capture here is that a categorial signature defines the right margin of an expression -- corresponding to the fact that the marked word is right-most in a singly marked nominal expression. I propose that there exists a parsing principle which, in effect, widens the scope of the bracketing on a marked nominal to embrace another nominal immediately preceding:

(26) Incorporation:

Bracket together with a nominally based word N' any immediately preceding nominally based expression N'' whose categorial signature is contained in that of N' (removing, in the process, the labelled brackets around N'').

This will permit the unmarked nominal /kurdu/ to enter into a single nominal expression with the immediately following /wita-jarra-rlu/, since the categorial signature of the former (i.e., [N]) is contained in that of the latter (i.e., [N, DUAL, ERG]). The resulting syntactic expression is as follows:

(27) (kurdu wita-jarra-rlu) [N, DUAL, ERG]

The provisions of (26) permit other incorporations as well, because all that is required of an expression in order for it to be incorporable ~~is that its categorial signature be contained~~ is that its categorial signature be contained in that of the word following. Containment, in the sense which appears

to be empirically correct, can be defined as follows:

(28) Containment:

Categorial signature a is contained in categorial signature b if it is not longer than b and if it matches, term-for-term, some portion of b.

Since each categorial signature begins with the term indicating part of speech (e.g., N, V), term-for-term matching must proceed from left to right. This permits the following incorporations

- (29) (a) [N][N,DUAL,ERG] → [N,DUAL,ERG]
- (b) [N,DUAL][N,DUAL,ERG] → [N,DUAL,ERG]
- (c) [N,DUAL,ERG][N,DUAL,ERG] → [N,DUAL,ERG]

but it disallows, among others, the following:

- (30) (a) [N,ERG][N,DUAL,ERG] → [N,DUAL,ERG]
- (b) [N,ERG][N] → [N,ERG], or [N]
- (c) [N,PL][N,DUAL,ERG] → [N,DUAL,ERG], or [N,PL,ERG]
- ...

Assuming this to be correct, the following syntactic expressions should be well-formed:

- (29') (a) (kurdu wita-jarra-rlu) [N,DUAL,ERG]
- (b) (kurdu-jarra wita-jarra-rlu) [N,DUAL,ERG]
- (c) (kurdu-jarra-rlu wita-jarra-rlu) [N,DUAL,ERG]

So far as I know, this is the case, though they are not all equally favored. By contrast, the following are ill-formed:

- (30') (a) *(kurdu-ngku wita-jarra-rlu) [N,DUAL,ERG]
- (b) *(kurdu-ngku wita) [N,ERG], [N]
- (c) *(kurdu-patu wita-jarra-rlu) [N,DUAL/PL,ERG]

The most interesting of these, of course, is (30'a). I am relatively certain that it is ungrammatical -- should it turn out to be grammatical, however, then a revision of the definition of containment would have to be made.

Incorporation must be defined as an optional parsing operation -- necessarily, since an unmarked nominal can always be interpreted as constituting part (or all) of an absolutive expression. In a transitive sentence, like (25), the absolutive nominal expression corresponds to the direct object of the verb. Although the incorporated interpretation of the substring /kurdu wita-jarra-rlu/ is the most readily available, an unincorporated interpretation, as in (25") is weakly available. On this unincorporated interpretation, the word /kurdu/ would be construed with its sister absolutive nominal /maliki/, rather than with the immediately following ergative expression. Given appropriate selection, a sequence of unmarked nominal followed by marked nominal readily receives the unincorporated interpretation. Thus, for example, the substring /maliki wita-jarra-rlu/ can readily be understood as constituting two separate nominal expressions (one absolutive, the other ergative) in the following sentence:

(31) Paka-rni ka-pala maliki wita-jarra-rlu.

(strike-NONPAST AUX:pres-3du dog small-DUAL-ERG)

'The two small ones (children, say) are striking the dog.'

In fact, the verb strongly favors this interpretation. But the same substring more readily receives the incorporated interpretation (i.e., 'two small dogs') in the following:

(32) Muku-nga-rnu O-pala maliki wita-jarra-rlu.

(all-eat-PAST AUX:perf-3du dog small-DUAL-ERG)

'The two small dogs ate it up.'

Of course, if anything intervenes between the unmarked nominal and the marked one, only the unincorporated interpretation is possible -- this is guaranteed by the stipulation in (26) that N" immediately precede N'. Thus,

- (33) (a) Maliki ka-pala wita-jarra-rlu paka-rni.
(dog AUX:pres-3du small-DUAL-ERG strike-NONPAST)
'The two small ones are striking the dog.'
- (b) Maliki O-pala wita-jarra-rlu muku-nga-rnu.
(dog AUX:perf-3du small-DUAL-ERG all-eat-PAST)
'The two small ones ate up the dog.'

The auxiliary is sufficient to break up the string and, therefore, to block incorporation.

If the relevant two-word sequence, unbroken by intonation, precedes the auxiliary, then the incorporated interpretation is the accepted one:

- (34) (a) Maliki wita-jarra-rlu ka-pala wajilipi-nyi.
(dog small-DUAL-ERG AUX:pres-3du chase-NONPAST)
'The two small dogs are chasing it.'
- (b) Maliki wita-jarra-rlu O-pala muku-nga-rnu.
(dog small-DUAL-ERG AUX:perf-3du all-eat-PAST)
'The two small dogs ate it up.'

This last fact is not accounted for by incorporation directly, since that is optional. An additional principle is at work here -- namely, the principle that a clause-^Sinternal string preceding the auxiliary must form a single expression within the clause. (This principle ~~belongs to what I will call the "punctuation" component of grammar.~~) This additional principle will define the sentence as ill-formed if incorporation has failed to apply in any case of the type represented by (34).

3.1.3. Completion of labelling.

In (25") above, the nominal /maliki/ is labelled simply [N]. This reflects the fact that it is uninflected for number and case -- that is, it is not overtly inflected for those categories. This lack of overt inflection, however, gives us partial information about what its full categorial signature should be. Since this information will be utilized by other components of the grammar, I will assume that categorial signatures should be complete. Thus, an uninflected, or partially inflected, nominal which escapes incorporation must have its categorial signature completed. Although I have severe doubts that this is the correct way to do it, I will assume for present purposes that the grammar includes a labelling procedure of approximately the following effect:

(35) Completion of labelling:

Any remaining incomplete nominal categorial signature is assigned (a) singular or (greater) plural number, arbitrarily, and (b) absolutive (ABS) case.

Walbiri nominal inflection recognizes four categories of number: singular, dual, paucal, and plural. Singular is unmarked; dual is marked by means of the suffix /-jarra/, and paucal (or lesser plural) is marked by means of the suffix /-patu/ (in the central and western dialects, at least). Plural number (i.e., greater plural number) is normally unmarked, like the singular, though some nominals can form a plural by reduplication. The noun /maliki/, uninflected for number, can be interpreted either as singular or as plural -- although, in a tensed clause, the auxiliary will indicate the number of any animate noun construed with subject or object person markers. Let us assume, for simplicity's sake, that the nominal /maliki/ of (25") is singular. By virtue of (35), its full categorial signature will be as follows:

(36) (maliki) [N, SG, ABS]

The completed subclausal parsing of sentence (25) is depicted in (25''') below:

(25''') (maliki) [N, SG, ABS] (ka-pala) [AUX] (wajilipi-nyi) [V]
(kurdu wita-jarra-rlu) [N, DUAL, ERG]

We have now completed the syntactic parsing of the word-string (25) -- that is to say, we have identified the syntactic expressions with it contains.

3.2. Prolegomena to semantic interpretation.

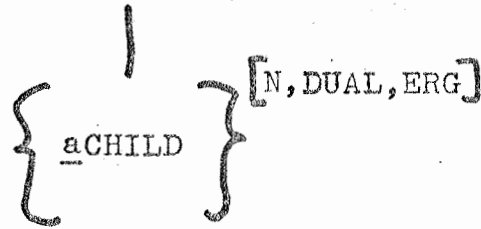
I will assume that each syntactic expression is associated with an elementary "semantic expression" of very roughly the following form:

(37) { ... } [...]

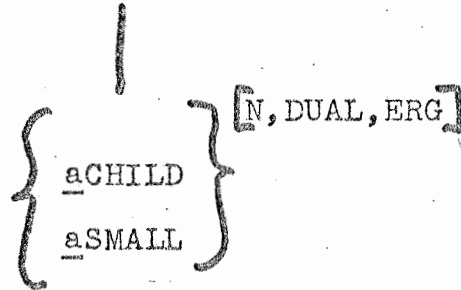
The braces in (37) contain the meaning(s) of the word base(s) corresponding to the part of speech term (i.e., N, V, ...) appearing in the categorial signature, and the square brackets contain the categorial signature itself (carried over wholesale from the syntactic expression). I will indicate the association between the syntactic expression and the semantic expression by means of a connecting line, as in the following examples:

(38) (a) (maliki) [N, SG, ABS]
 |
 { aDOG } [N, SG, ABS]

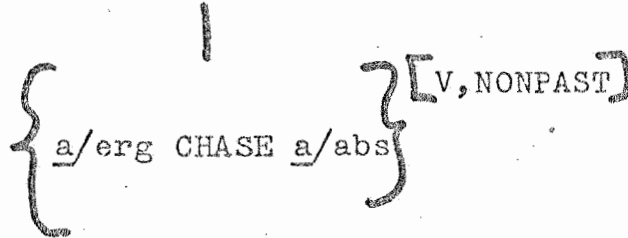
(b) (kurdu-jarra-rlu) [N, DUAL, ERG]



(c) (kurdu wita-jarra-rlu) [N, DUAL, ERG]



(d) (wajilipi-nyi) [V, NONPAST]



The meanings given here are highly abbreviatory. I am assuming that nominal expressions are predicates, ~~with the predicate~~ ~~meanings~~. The predicate meaning is indicated in caps, and the symbol a indicates the argument position which would, in a complete semantic analysis of a sentence, be associated with an entity of which the expression is predicated. The "complex" expression (38c) is given in the crudest form -- it merely shows that the two predicates are "gathered together" into a single expression. Ultimately, I assume, this would be remolded into a proper ^{semantic} expression (possibly something like ~~ix (xCHILD & xSMALL)~~, if indefinite, ~~ix (xCHILD & xSMALL)~~, if definite), but this is beyond the scope of the present discussion,

and it is beyond my range of competencies as well.

Verbal semantic expressions have somewhat more texture. Again, I give here the barest essentials; I imagine, however, that a fully elaborated system would be along the lines developed in detail by Bresnan (1978, 1979). In (38d) above, the predicate meaning is given in caps, and the argument positions are symbolized a (with subject position first, and object position second). In addition, however, the semantic expression associated with a verb contains a "linking register" indicating how the argument positions are related to other elements in the sentence.¹⁹ In (38d), the linking register indicates that the first argument is associated with ergative case and that the second argument is associated with absolutive case. The register will be utilized by rules of semantic interpretation and construal which (1) associate argument positions in verbal functional structures with overt nominal expressions, thereby evaluating the variables occupying those positions, and (2) relate the person-marking suffixes in the auxiliary to the verbal argument positions, thereby effecting subject and object "agreement" between the verb and the auxiliary. The register is probably also used in expressing the control relations which associate the subject argument positions of infinitivals of certain sorts with subject or object argument positions in the functional structures of matrix finite verbs.²⁰

The symbol a used in (38) is to be understood merely as a "place-holder" for the argument positions associated with predicate meanings. I assume that, in the actual semantic representation of a given sentence, the argument positions would be occupied by (alphabetically late) variable symbols -- x, y, x, Although I may be utterly incorrect in this, I suspect that these variable symbols are

not to be understood as having the function usually attributed to them logical notation but, rather, as being equivalent to the "anaphoric indeces" of Chomsky (1978 and elsewhere). Alphabetic identity symbolizes an anaphoric relationship and must, therefore, conform to conditions on binding.²¹ In addition to these anaphoric indeces, nominal expressions would presumably have associated with them "referential indeces", notated in some appropriate fashion.

3.2.1. Merger.

With this background, we can turn now to the question of how the phenomenon of "discontinuous expressions" is to be handled in the W-Star account of Walbiri grammar. The relevant example here is (2), repeated for convenience:

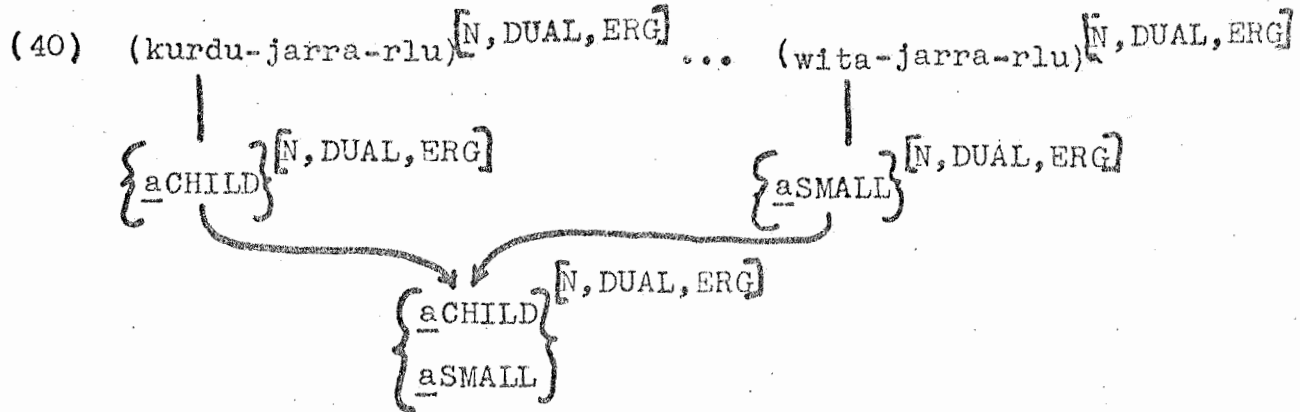
- (2) Kurdu-jarra-rlu ka-pala maliki wajilipi-nyl wita-jarra-rlu.
(child-DUAL-ERG AUX:pres-3du dog chase-NONPAST small-DUAL-ERG
'The two small children are chasing the dog.'

And the relevant interpretation is that coinciding with (2'). I wish to maintain that this interpretation is effected in the semantic component (right side of the grammar) by means of a special operation which I will call merger, applying to semantic expressions associated with syntactic expressions which are immediate sub-expressions of a sentence. The operation may be stated in the following rough form:

- (39) Semantic expressions sharing identical categorial signatures may be merged.

We may symbolize this by means of "merging" association lines, as in (40) below. In our example, merger simply creates a new semantic expression in which the word-base meanings of /kurdu-jarra-rlu/ and /wita-jarra-rlu/ are brought together into a single set of braces. The resulting semantic expression is identical to that associated

with the incorporated expression /kurdu wita-jarra-rlu/ (see (38c) above):

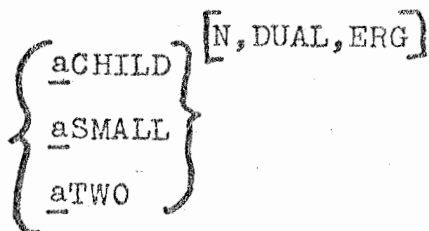


Merger must be considered optional, since there is an interpretation available for sentences like (2) in which the identically marked syntactic expressions are not merged into a single semantic expression. This unmerged interpretation corresponds roughly to coordination, as in the English sentence 'The two children are chasing the dog, and they (the children) are small', or the "afterthought" construction 'The two children are chasing the dog -- that is, the small ones are'.²²

3.2.2. Translation of categorial signatures.

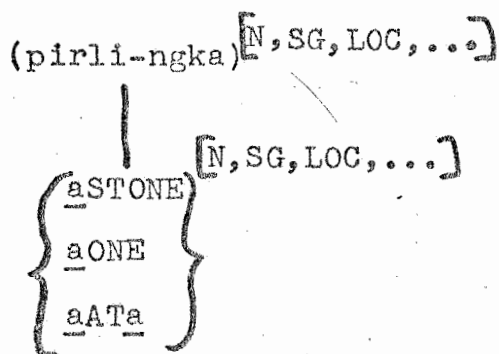
Categorial signatures contain terms of three types: (1) part-of-speech terms, like N, V, etc., (2) semantic categorial extensions, like number and the "semantic cases" (e.g., locative, allative), and (3) the grammatical cases. Terms of the second type contribute to the semantic content of expressions, and, although I will not attempt to formulate them here, I will assume that the semantic component of the grammar includes rules which "translate" these categorial terms into semantic expressions to be inserted into the pair of braces delimiting the expression as a whole. Thus, for example, the number term DUAL, I will assume, is translated into the predicate aTWO, so that the completed semantic expression in (40) is as follows:

(40')



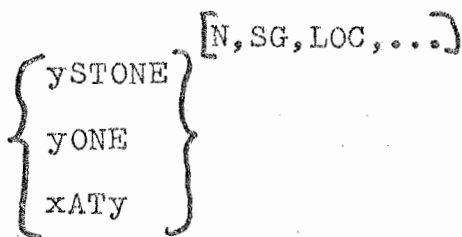
The translation of a semantic case term will be more complex. It seems reasonable to suggest that they are two-place predicates, semantically. Thus, the locative, for example might be translated approximately as aATa, as in the following²³

(41)



When the argument position "holder" a is replaced by alphabetic variables, it will be stipulated that the right-argument position of the semantic case term is bound to the left-argument position in the other predicates contained in the semantic expression:

(41')



The left-argument of the locative might be bound to an argument of the matrix verb, as in (42) below, where it is bound to the subject, or absolutely linked, argument position -- so that the locative expression is understood as denoting the location of the entity referred to by the nominal /kurdu/:²⁴

(42) Kurdu ka nyina-mi pirli-ngka.

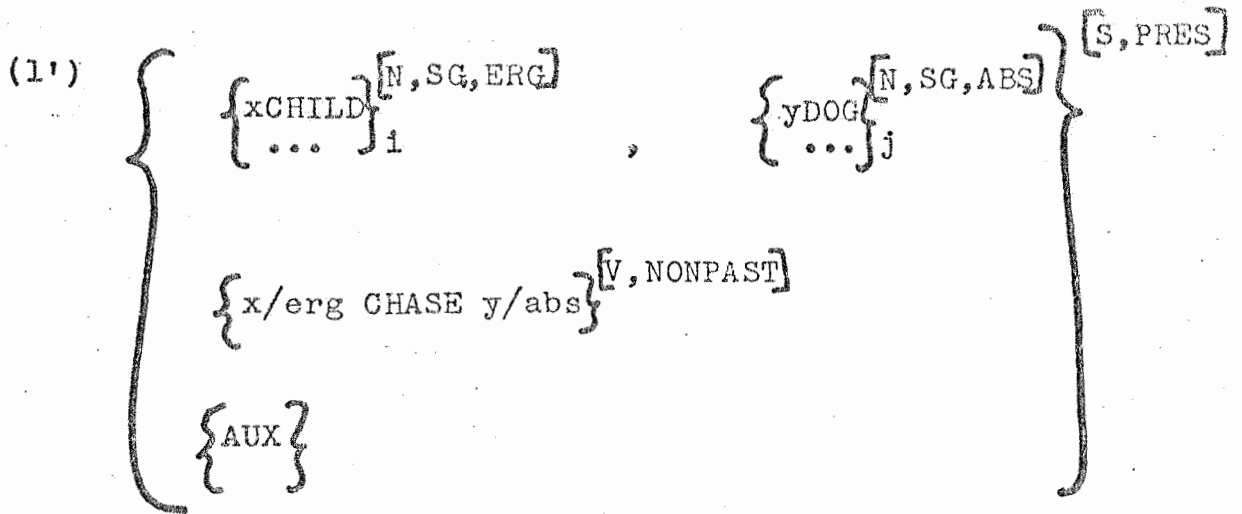
(child AUX:pres sit-NONPAST stone-LOC)
 'The child is sitting on the stone.'

Thus, so to speak, the nominal /kurdu/ 'child' corresponds to the subject, not only of the verb but of the locative expression as well. The nominal /pirli/ 'stone' corresponds to the object of the locative expression; it bears no direct relation to the verb, though the locative expression as a whole may be said to bear some sort of complement relation thereto.

Grammatical cases (ERG, ABS, DAT) receive no translation. They do not have an inherent meaning. Rather, they serve to mark certain overt nominal expressions for association with argument positions in the functional representation of a matrix predicate, in accordance with the linking register. Although I will not formulate the rules which achieve this effect, we might think of the nominal-verbal association at issue here as a case of local "binding" -- an ergatively marked nominal is bound to a verbal argument position marked a/erg, an unmarked (i.e., absolutive) nominal is bound to a/abs, and a dative nominal is bound to a/dat. We can symbolize this by alphabetic identity between a verbal argument position and the left-argument position(s) in the associated nominal. This is one way in which a variable in a predicate argument structure is evaluated -- i.e., by direct linking to an overt nominal expression. Sentence (1) can serve as an example:

- (1) Kurdu-ngku ka maliki wajilipi-nyi.
(child-ERG AUX:pres dog chase-NONPST)
'The child is chasing the dog.'

The linking may be portrayed as follows (the subscripts *i* and *j* are referential indices, assumed to be associated with any definitely referring expression):



This represents a sentence as comprising a semantic expression which contains smaller semantic expressions related in a certain way. In this case, the nominal expressions are related to the verbal expression through the linking principle.²⁵ Since the verb here is transitive, the ergative expression will bear the subject relation, and the absolutive expression will bear the object relation (see Hale, Jeanne, and Platero, 1977, section 5, for a discussion of the subject and object relations in Walbiri).

3.2.3. AUX-Verb agreement.

Following the base of the auxiliary, there are two person marking "slots", one for subject (symbolized here subj), the other for object (obj). While these positions may not be overtly occupied in a given sentence, because of the fact that third person^{singular} is signaled by absence of a person marker, we can assume that the auxiliary word in a tensed intransitive sentence is minimally of the form

base + subj

and that, in a transitive sentence, or any sentence including both subject and object arguments, it is minimally of the form

base + subj + obj .

(For details of person marking in Walbiri, see Hale 1973.) This is exemplified in the following sentences:

(43) (a) Ngaju ka-rna mata-jarri-mi.

(I AUX:pres-1 tired-INCHOATIVE-NONPAST)

'I am getting tired.'

(b) Ngajulu-rlu ka-rna-palangu maliki-jarra nya-nyi.

(I-ERG AUX:pres-1-3du dog-DUAL see-NONPAST)

'I see the two dogs.'

In these sentences, the person markers are overt. In (43a), the subj marker ^{/-rna/} indicates that the subject of the intransitive verb is first person singular; and in (43b), the same subj marker appears, but in addition an obj marker ^{/-palangu/} appears as well, indicating that the object of the transitive verb is third person dual.

It is usual to view the phenomenon illustrated by (43) as involving "agreement" between the subject (and object, if present) and the auxiliary. This is essentially correct, but I would like to alter the usual conception of this slightly. In particular, I would like to say that the central phenomenon here is a construal between the person markers in the auxiliaries and the argument positions in the functional representation of the verb. The relationship between the person markers and any overt nominal expressions is, therefore, an indirect one, mediated by the predicate argument positions. The principles of construal may be stated, informally, in terms of the linking registers, as follows:

(44) AUX-Verb construal:

(a) subj is construed with the ergative (erg) if there is one, otherwise, it is construed with the absolutive (abs);

(b) obj is construed with the dative (dat) if there is one, otherwise, it is construed with the absolutive.

Operationally, construal in the sense of (44) can be thought of as effecting a "partial evaluation" of the variable occupying the relevant argument position. Formally, this might be represented by attaching a copy of the person-number feature complex onto the appropriate variable in the predicate argument structure. Thus, the subject argument in ^{the verb} of (43a) would have attached to it the following feature complex:

(43a')
$$\begin{bmatrix} +I \\ -II \\ +sg \\ -pl \end{bmatrix},$$

where [I, II] designate the person features, and [sg, pl] designate the number features. And in (43b), the subject and object arguments have attached to them the following feature complexes:

(43b')

| | | |
|--|---|---|
| | subject | object |
| | $\begin{bmatrix} +I \\ -II \\ +sg \\ -pl \end{bmatrix}$ | $\begin{bmatrix} -I \\ -II \\ -sg \\ -pl \end{bmatrix}$ |

Recall that the subject argument in the functional structure of an intransitive verb is linked to the absolutive case; accordingly, it is marked a/abs. In the functional structure of a transitive verb, the subject argument position is marked a/erg and the object position is marked a/abs. The information contained in these linking registers is utilized by the construal principles to effect the correct attachments of person-number feature complexes.

In the surface structures of the sentences of (43), the subject and object arguments are represented not only by person markers in the auxiliary but by overt nominal expressions as well. These, of course, are bound to the argument positions in the verbal functional structures, in conformity with the linking registers (see the preceding subsection for some discussion of this). This establishes "agreement chains," so to speak, connecting the nominal expressions to the auxiliary via

the verb. In (43), the agreement chains are well-formed, since the person-number features inherent to the nominal expressions are consistent with those copied into the mediating verbal argument positions. By contrast, a failure of agreement on this account would arise if a nominal bound to the verbal argument position by virtue of the linking register had person-number features which were in conflict with those copied into the argument position from the auxiliary. Sentence (or rather, nonsentence) (45) below involves a failure of agreement in this sense, because the overt subject nominal expression is first plural inclusive, while the subject person marker in the auxiliary, and therefore, the feature complex copied into the mediating argument position in the verbal functional structure, is first person singular:

- (45) *Ngalipa-rlu ka-rna-jana maliki-patu nya-nyi.
(we:pl:incl-ERG AUX:pres-lsg-3pl dog-PL see-NONPAST)

The correct form here would be as follows:

- (46) Ngalipa-rlu ka-rlipa-jana maliki-patu nya-nyi.
(we:pl:incl-ERG AUX:pres-lpl:incl-3pl dog-PL see-NONPAST)
'We all (you included) see the several dogs.'

This, in general, is how agreement is handled in this system, though certain inessential details are left unmentioned here (see Hale 1973 for some of these). Notice, incidentally, that a non-overt subject or object marker, can count as a third person singular for the purposes of agreement. This accounts for the ill-formedness of (47a), as compared to the closely similar, but well-formed (47b):

- (47) (a) *Kurdu-jarra-rlu ka maliki wajilipi-nyi.
(child-DUAL-ERG AUX:pres dog chase-NONPAST)
(b) Kurdu-jarra-rlu ka-pala maliki wajilipi-nyi.
(child-DUAL-ERG AUX:pres-3du dog chase-NONPAST)
'The two children are chasing the dog.'

3.2.4. Conditions on rules.

In my discussion of parsing in the preceding section, I mentioned only one of the several operations which must be posited for creating syntactic expressions by bracketing together contiguous words -- namely, incorporation. Another important bracketing operation is that which defines infinitival expressions like that in (48):

(48) Karnta-ngku ka kurdu nya-nyi maliki wajilipi-nja-kurra.

(woman-ERG AUX:pres child see-NONPAST dog
chase-INF-OBJECTIVE)

'The women sees the child (while it is) chasing
the dog.'

In this sentence, the final two-word substring /maliki wajilipi-nja-kurra/ constitutes a single expression. It is an infinitival clause in which the nominal expression /maliki/ is linked to the direct object argument position in the functional structure of the verb. The subject of the infinitival verb is not overtly present in the infinitival clause but is controlled by the direct object of the finite verb, to which the nominal expression /kurdu/ is linked.

An extremely tentative bracketing principle for infinitivals is formulated prosaically in (49):

(49) Infinitival bracketing:

Bracket together with an infinitival verb any immediately preceding contiguous string of words.

This will account for the more usual, verb-final, type of infinitival expression, but it will not accommodate those (like (9) above) in which an element is "leaked" rightward past the verb. I will, for present purposes, be content with this formulation, however. If too much is incorporated into an infinitival by (49), independently necessary principles of grammar will presumably define the sentence as ungrammatical. Thus, for example, a supernumerary nominal will fail to link

to the infinitival verb, and hence the sentence will fail to be completely interpreted. Or, for example, if (49) inadvertently incorporated an auxiliary with the infinitival verb, there would be no way to interpret the base of the auxiliary, since that can only be interpreted in concert with the inflection on a sister finite verb.

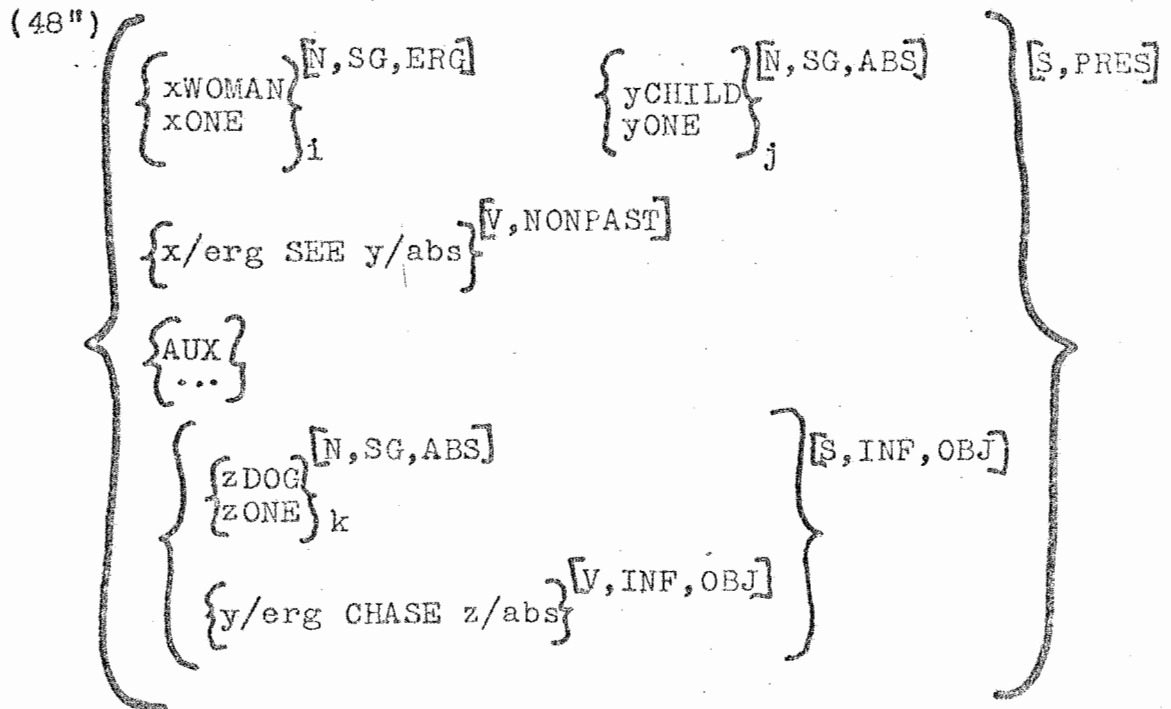
I will assume for our purposes here that an infinitival expression, like a finite one, is labelled S.²⁶ In addition, however, an infinitival is labelled INF and, further, in accordance with the complementizer which it bears (e.g., the objective complementizer seen in (48)).

The bracketing principle (49) differs from the incorporation rule embodied in (26) in that the words bracketed together with the verb do not lose their own labelled bracketing. The result, therefore, is a complex structure with embedded, independently labelled, syntactic expressions. Applied to (48), the various bracketing and labelling procedures give approximately the following:

(48') ((karnta-ngku)_[N, SG, ERG] (ka)_[AUX] (kurdu)_[N, SG, ABS]
 (nya-nyi)_[V, NONPAST] ((maliki)_[N, SG, ABS]
 (wajilipi-nja-kurra)_[V, INF, OBJ] _[S, INF, OBJ] _[S, PRES]

Corresponding to this complex syntactic construct is a semantic representation in which the labelled parentheses appear as labelled braces occupied by the meanings of the word bases contained in the syntactic expressions. The semantic representation corresponding

to (48') is, very approximately, as follows (with variables occupying the argument positions, and alphabetic identity there indicating binding relationships):



With this background, we can discuss certain conditions which must be imposed upon rules of semantic interpretation. Basically what is needed is a condition, or set of conditions, which resembles in its gross effects the "locality principles" discussed by Koster (1978). In particular, we need something closely similar in character to the "clause-mate principles" of Postal (1971, 1974).

Among the semantic principles which must be constrained are the following:

- (50) (a) merger (e.g., as in (40) above);
- (b) linking (i.e., the linking of a nominal expression to a verbal argument position, as discussed in 3.2.2 above); and
- (c) AUX-Verb construal (as in (44) above).

We must define a condition on these principles which will guarantee that they apply properly in complex semantic constructs like (48"). In essence, we need to ensure that expressions belonging to the "main clause" not be improperly related to expressions belonging to the "subordinate clause". With regard to merger, we must prevent the meanings of /kurdu/ 'child' and /maliki/ 'dog' from being merged (as they might be were they members of the same sentential expression); and linking must, among other things, be prevented from associating /kurdu/ 'child' with the object position in the functional structure of the infinitive verb, and from associating /maliki/ 'dog' with the object position in the functional structure of the finite verb; and, finally, AUX-Verb construal must construe the auxiliary with the finite verb, not the infinitive.

These requirements can be met if we impose a condition on (50a-c) to the effect that they, and rules in general unless otherwise specified, must only relate "sister" expressions. Let us understand "sisterhood" in the following way: Expressions A and B are sisters if there are no braces surrounding A which do not also surround B, and vice versa. The necessary condition can now be stated, informally, as follows:

(51) Sisterhood condition:

Unless it is expressly designed to do so, no rule may involve expressions A and B where A and B are not sisters.

This will achieve the desired effect. The unless-clause of (51) is included to exempt certain rules which expressly violate the sisterhood condition -- among these is, for example, the rule of control which binds the subject argument of the infinitive (marked objective (OBJ)) to the object argument position in the finite verb. ^{in (48) above} 27

3.3. Punctuation.

Unless it is intonationally partitioned to receive a topicalization reading ('As for the little ones, they are chasing the dog. '), the following sentence is ill-formed, because of the placement of the auxiliary in third, rather than second, position:

(52) *Wita-jarra-rlu maliki ka-pala wajilipi-nyi.

(small-DUAL-ERG dog AUX:pres-3du chase-NONPAST)

This observation is not accommodated by any of the mechanisms developed to this point. I would like to suggest that this is to be accounted for by means of a special rule[^] belonging to a component of grammar which, in effect, relates aspects of form (the "left side" of the grammar) to aspects of meaning (the "right side"). The rule involved in (52), and identifying it as ill-formed, might be stated informally as follows:

(53) AUX-second:

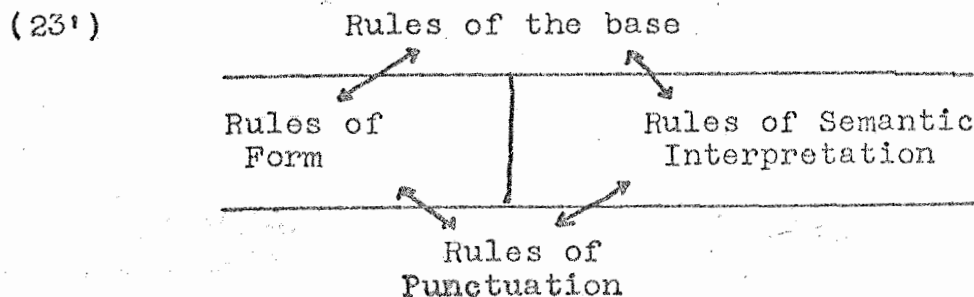
Any string which precedes the auxiliary within a sentence (i.e., within a larger expression bounded by braces labelled S) must constitute a single expression sister to the auxiliary.

This condition is not met by the string preceding the auxiliary in (52) above, since there is no way in which the sequence /wita-jarra-rlu maliki/ can be taken as a single nominal expression -- it must be taken as two separate expressions.

I will use the term punctuation to refer to the component of grammar which includes (53). Other concerns of the punctuation component, not to be dealt with here but perhaps more customarily associated with the term, are conditions on and interpretation of the various intonational and pausal phenomena -- e.g., the "comma" of protasis and topicalization (cf. (10, 11) above), the "dash" of hesitation and afterthought (cf. (9, 12) above), and the various

intonations of mood (interrogative, declarative, etc.). I suspect also that the rich vocabulary of enclitic particles (e.g., /-ju/ 'old information', /-nya/ 'focus', and many others) are to be handled within the punctuation component of Walbiri grammar, though I will not be able to explore this possibility here. Be this as it may, the phenomena which I suggest are included here will, I strongly suspect, be of a type whose accommodation will require reference to "both sides" of the grammar -- i.e., both to aspects of form and to aspects of meaning.

These considerations suggest the following modification of the scheme depicted in (23) above for the overall organization of the components of grammar (with arrows indicating avenues of reference):



I turn now to the last of the issues I will be able to discuss in this very brief account of W-Star grammar -- namely, the phenomenon of non-overt arguments.

3.4. Non-overt arguments in a W-Star grammar.

A sentence like (54) below, utterly devoid of nominal expressions, is perfectly well-formed in Walbiri:

(54) Wajilipi-nyi ka-pala.

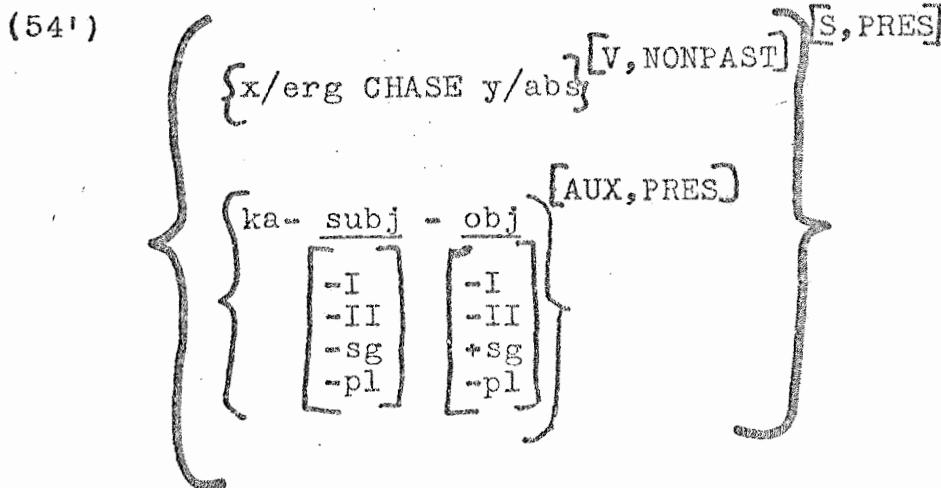
(chase-NONPAST AUX:pres-3du)

'They (two) are chasing it.'

The subject and object arguments in this sentence are not overtly represented by nominal expressions. There are various ways -- in principle, at least -- in which sentences like this might be accounted for. But one option is clearly closed to a W-Star language. One cannot assume that the non-overt arguments in such sentences are unexpanded noun phrases (cf. (5) above), because there are no phrase structure rules in a W-Star language.

There is one analysis of sentences like (54) which seems to me to be completely natural within a W-Star grammar -- namely, the analysis which holds that they are basically as they appear on the surface.

Let us assume that this is the case for (54). The initial semantic representation would be approximately as follows:



The auxiliary is given in more detail than heretofore. The subject position in the auxiliary is occupied by the element /-pala/, indicating that the subject is third person dual; object position is vacant, however, indicating that the object is third person singular. By means of the construal rule (44), the person-number features in the auxiliary will be copied into the functional structure of the verb, yielding the following partial evaluation of the subject and object argument

positions:

$$(54'') \left\{ \begin{array}{l} x / \text{erg} \text{ CHASE } y / \text{abs} \\ \begin{array}{l} -I \\ -II \\ -sg \\ -pl \end{array} \end{array} \right\} [V, \text{NONPAST}]$$

But this does not yet correspond to the meaning of the sentence -- at least it ^{does not} reflect the meaning which I understand to be the most natural one for (54), namely, that in which the subject and object are definite in reference.²⁸ I suggest that the definite reading corresponds to that in which the variables occupying the subject and object argument positions are associated with referential indices. And I propose that a referential index is automatically supplied to any variable (i.e., anaphoric index occupying an argument position) which remains unbound after all other rules of semantic interpretation have applied.²⁹ Using subscripts to notate this, the predicate of (54) is now as follows:

$$(54''') \left\{ \begin{array}{l} x_i / \text{erg} \text{ CHASE } y_j / \text{abs} \\ \begin{array}{l} -I \\ -II \\ -sg \\ -pl \end{array} \end{array} \right\} [V, \text{NONPAST}]$$

For our purposes, this completes the interpretation of the sentence (leaving aside the translation of the categorial signatures). The intent here is to arrive at a semantic representation analogous to the English rendition of (54), in which the subject and object arguments are represented by definitely referring pronouns. The English rendition is a close translation of the Walbiri--except for the gender^{of the object}, which English necessarily specifies (in singular third person pronouns); the Walbiri is necessarily inexplicit about gender.

positions:

(54'') $\left\{ \begin{array}{l} x \text{ /erg CHASE } y \text{ /abs} \\ \begin{array}{l} -I \\ -II \\ -sg \\ -pl \end{array} \end{array} \right\} [V, \text{NONPAST}]$

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In a finite clause like (54), the primary (i.e., subject, object) arguments of the verb are optionally non-overt. That is to say, the sentence is equally well-formed with or without overt nominals corresponding to the primary argument positions in the functional structure of the verb. And, in general, for any ^{non-reflexive} finite clause, the primary arguments may or may not be represented overtly by nominal expressions. This, of course, is entirely consistent with the W-Star conception of the Walbiri base, in which there are no stipulated positions which must be filled by syntactic phrases of specific types.

There are clauses in which a primary argument must be non-overt, however. Prominent among these are infinitivals which enter into structures of obligatory control -- such as that appearing, for instance, in sentence (48) above. In (48), the subject of the infinitival must not be represented by an overt nominal expression within the infinitival clause itself. (It is, of course, represented overtly by the object nominal /kurdu/ 'child' appearing in the matrix clause.)

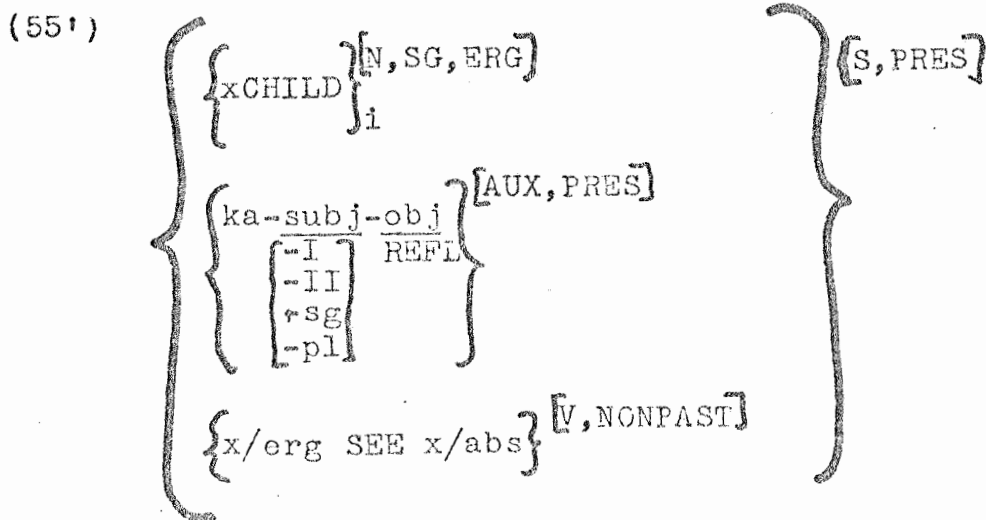
There is a natural way to accommodate this latter observation -- namely, by binding the relevant argument position, so that it cannot be "independently" evaluated. This is what control amounts to. In the case of (48), or of any infinitival marked with the objective complementizer, the subject argument in the functional structure of the infinitive is bound to the object argument in the functional structure of the finite verb (as indicated by alphabetic identity in (48") above). The subject position in the infinitival expression /wajilipi-nja-kurra/ of (48) cannot be directly linked to an overt nominal expression (say, /kurdu-ngku/ (child-ERG) or /nyanungu-rlu/ (he/she/it-ERG)) without violating the rule that the infinitival subject is bound to the object of the finite, as required for infinitivals marked objective (i.e.,

marked with the complementizer /-kurra/).

Another construction in which a primary argument must be non-overt is the reflexive-reciprocal, as exemplified by (55) below:

- (55) Kurdu-ngku ka-nyanu nya-nyi.
- (child-ERG AUX:pres-refl see-NONPAST)
- 'The child sees itself.'

Here, the subject is overtly represented by a nominal expression -- namely, /kurdu-ngku/ (child-ERG) -- but the object is not, and cannot be, so represented.³⁰ Again, I propose to use the binding relation to account for this. I suggest that when the obj slot in the auxiliary is occupied by a reflexive-reciprocal marker (as it is in (55), where the general reflexive-reciprocal element /-nyanu/ appears), a special rule applies to the functional structure of the verb to bind the object argument (i.e., the dative, if there is one, otherwise the absolutive) to the subject.³¹ This relation is represented by means of alphabetic identity in (55') below; since the object argument is bound to the subject, it cannot be independently linked to a nominal expression:³²



4. Some implications of the W-Star/X-Bar typology.

I would like now to turn to a very brief reconsideration of the question posed near the end of section 1 above -- namely, the question of the empirical content of the typological distinction drawn here between W-Star languages and X-Bar languages. The essential question is this: If the parsing principles of a W-Star grammar imposes an analysis on sentences which basically amounts to a labelled bracketing of the sort defined by the phrase structure rules of an X-Bar language, then how can one tell (e.g., how can a language learner tell) whether a particular language belongs to one type or to the other?

A serious attempt to answer this question may very well lead to the conclusion that there is, in fact, no empirical content to the proposal being advanced in this paper. It may be the case that there can be no linguistic distinction in language typology between W-Star and X-Bar languages. Whatever the outcome, I believe that answering this question will constitute an advance in our understanding of language. At the moment, however, I can only say that I am placing my bet on the side of the typological distinction. And I would like to discuss one consideration which inclines me so to wager.

There are certain readily observable phenomena which can be considered "earmarks" of the linguistic types contrasted in this proposal. They are earmarks in the sense that their presense in a particular language is most consistent with one or the other type of base structure. For example, extensive use of discontinuous expressions is in this sense an earmark of a W-Star language, i.e., of a grammar whose base rules do not necessarily gather together the words which enter into single subclausal expressions. By contrast, syntactic constituent structure -- in particular, constituent structure motivated by the ability of a constituent to act as a unit (to "move together" and the like) -- is an

earmark of the X-Bar type. Similarly, extensive use of "dummy noun phrases" (e.g., the English it, Danish der) whose function is to "fill" a certain phrase structure position is an earmark (in the strongest sense) of the X-Bar type; such entities make no sense at all in a language of the W-Star type (since phrase structure positions cannot exist there).³³ Such earmarks, however, often do not decide the issue in particular cases. Thus, if a language does not use dummy noun phrases, that fact does not necessarily exclude it from the X-Bar type (e.g., Spanish, almost certainly an X-Bar language, does not use them).

Another superficial aspect of syntax which might be considered criterial is the phenomenon known as "scrambling." Scrambling might well be thought to be most consistent with the W-Star type and quite out of the spirit of the X-Bar type. This is certainly a reasonable idea. I think, however, that the surface appearance of being a scrambling language is only weakly criterial -- perhaps more W-Star languages have "free word order" than X-Bar languages, but, if so, the difference is a statistical one rather than a linguistic one. Moreover, languages which, I am quite certain, constitute among the very best X-Bar candidates exhibit extraordinary variety in surface word order (e.g., Papago; see Hale, Jeanne, and Platero, 1977, for some discussion). And languages which are the epitome of the putative W-Star type -- e.g., Walbiri -- sometimes exhibit what appears to be "fixed word order" (cf. (12-13) above, together with accompanying discussion).

In fact, it would seem to me to be quite consistent with the W-Star type of grammar for a language to utilize the linear order of words in parsing a sentence and, therefore, to exhibit what is normally thought of as fixed word order. In this connection, I would like to

consider one fact which suggests that Navajo is a W-Star language, and at the same time one which makes use of the linear order of words as an important part of its grammar.³⁴ The fact of interest here is one which relates to the essential characteristic of a W-Star grammar -- i.e., the lack of phrase structure rules and consequent impossibility of "empty noun phrases" (i.e., of entities like (5) above). The discussion will depend heavily upon observations made by Platero in his recent dissertation (1978); certain relevant facts are also presented in Hale, Jeanne, and Platero (1977).

As in Walbiri, so also in Navajo, the principal arguments of a verb may or may not be overtly represented by nominals. In (56a) below, the subject and object are both represented by nominals; in (56b) only the object is; and in (56c) neither is:

- (56) (a) híí' dzaanééz yi-ztał.
(horse mule yi-kicked)
'The horse kicked the mule.'
- (b) Dzaanééz yi-ztał.
(mule yi-kicked)
'It kicked the mule.'
- (c) Yi-ztał.
(yi-kicked)
'It kicked it.' (or 'He kicked him', etc.)

These sentences are all equally well-formed -- just as their Walbiri analogues would be.

of Navajo grammar,
An extremely important principle operative in transitive sentences with third person subjects and objects, determines the grammatical relation which an overt nominal expression bears to the verb. Basically it is this: If the verb contains the object marker /yi-/ (as does

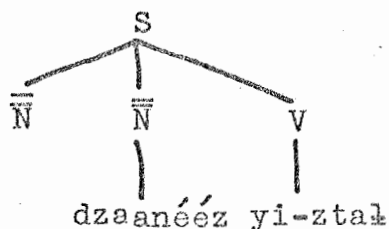
the verb in (56a-c)), then the nominal nearest the verb bears the object relation to it, and a nominal immediately preceding the object (if one in fact precedes) bears the subject relation; if the verb contains the object marker /bi-/, these grammatical relations are reversed. Notice that the nominals themselves are unmarked, their grammatical function being determined by their relative order position in concert with the object marking in the verb. By contrast, in Walbiri it is the nominals that are marked (in main clauses, at least), and their relative ordering has nothing to do with their grammatical function; instead, the case marking indicates how the nominals are to be related to the functional structure of the verb. Small wonder, then, that Navajo gives the appearance of having fixed word order vis à vis Walbiri.

Platero refers to the principle described in the preceding paragraph by means of the abbreviation IGR (standing for Interpretation of Grammatical Relations; see Platero, 1978, p. 137, for a more exact formulation of it). If Navajo is a W-Star language, then we can assume that the IGR will associate overt nominals with the subject and object argument positions in the functional structure of a transitive verb. And we can assume that, if an argument is not overtly represented by a nominal expression, the corresponding argument position is simply supplied with a referential index, as in Walbiri, thereby accounting for the definite reading associated with non-overt arguments in sentences like (56b-c). This would be entirely consistent with the general observation about Navajo that the effect of "pronominalization" is achieved by the use of non-overt arguments, as it is in languages which are said to employ "pronoun drop" to the same purpose.

But suppose Navajo is an X-Bar language. Then it ^{would} seem reasonable to suggest that non-overt arguments in Navajo are instances of $[e]_{NP}$ --

i.e., empty noun phrases. In fact, it would be virtually impossible to disallow this, given the optionality of phrase structure rules, except by fiat. The function of the IGR would be the same -- except that, now, it would assign grammatical relations not only to overt nominals, but to "empty" ones as well. The structure of sentence (56b), for example, would be as in (56b') below; and the first noun phrase there (i.e., the empty one) would be assigned the subject relation, while the second noun phrase (i.e., /dzaanééz/ 'mule') would be assigned the object relation:

(56b')



A number of problems with this account are discussed in Platero's work (particularly in relation to the necessity, inherent in this account, of constraining the appearance of empty noun phrases in certain surface structure positions in Navajo sentences; see especially chapter 3). These problems cast serious doubt on this analysis of Navajo, although its superficial effect would be approximately the same as that achieved in the W-Star account -- i.e., it would express the fact that Navajo uses non-overt arguments in "pronominalization." But there is at least one observation which makes this account virtually impossible to maintain. I will turn to this observation following a brief digression.

Where empty noun phrases are used as pronouns, it is reasonable to expect that they should obey the well known, and extensively studied,

constraints on coreference between noun phrases within a sentence (e.g., the non-coreference rule of Lasnik, 1976). In particular, it should not be possible for an empty noun phrase to be coreferential with an overt ^{non-pronominal} noun phrase which it both precedes and commands. Thus, for example, assuming that Spanish "pronoun drop" phenomena involve empty noun phrases (an assumption which seems reasonable, but may not in fact be true), the conditions on coreference would account for the fact that (57b) below cannot mean what (57a) means:

(57) (a) Juan dice que está cansado.

'John says that he/she is tired.'

(b) Dice que Juan está cansado.

'He/she says that John is tired.'

Coreference is possible in (57a), but not in (57b).

Now, let us assume further that the conditions on coreference between noun phrases are universal and cannot, therefore, be given up. In case of conflict -- between analysis and the conditions -- the former, not the latter, must yield. In so far as I understand its implications, the following sentence (cited by Platero, p. 166) shows that the "empty noun phrase analysis" is impossible for Navajo -- at least it is impossible without ad hoc, inelegant, revision:

(58) Adáádaá' ashkii at'ééd yi-yiiltsá(n)-éé yi-doots'os.

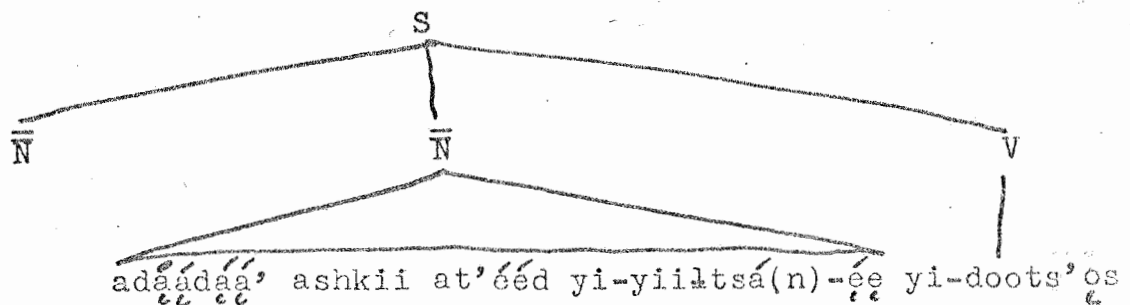
(yesterday boy girl yi-saw-REL yi-will:kiss)

'The boy will kiss the girl he saw yesterday.'

The English translation gives only one possible interpretation, but it is the relevant one for our purposes. The sentence involves a relative clause construction. Navajo uses the headless relative

clause (Platero, 1978, chapter 2), and in (58), the noun /at'ééd/, located within the embedded clause, corresponds logically to the "head" of the relative construction on the reading given. The relative clause is simply a nominalized sentence -- and I will assume here that, in the X-Bar account of Navajo, it is categorially a nominal (i.e., \bar{N}). Persisting with the X-Bar account, since the relative clause is understood as "modifying" the object of the main verb, on the reading at issue here, it must constitute the nominal closest to that verb-- at least it must if the sentence conforms to the otherwise perfectly consistent principle embodied in the IGR. But since the entire substring preceding the main verb belongs to the relative clause (the initial adverbial being semantically incompatible with the tense of the main verb), the main-clause subject must be non-overt. Now, if non-overt arguments are empty noun phrases, the structure of (58) must be as follows:

(58')



According to the meaning of the sentence, the subject of the main verb and the subject of the subordinate verb are identical. Yet the subject is represented overtly only in the subordinate clause, by the noun /ashkii/ 'boy'. Thus, (58') is in violation of the condition on coreference, since the main-clause subject precedes and commands an overt non-pronominal noun phrase with which it is coreferential. Therefore, this cannot be the correct analysis of non-overt arguments in Navajo.

To be sure, this does not prove that Navajo is not an X-Bar language. It merely shows that a certain analysis of non-overt arguments, consistent with and strongly suggested by the X-Bar system, is not a possible one for Navajo. In my judgment, this greatly strengthens the case for the W-Star conception of Navajo grammar.³⁵

Within the W-Star account of Navajo, no mechanisms apart from those required by any theory of Navajo are necessary to accommodate facts of coreference like those illustrated by (58). Platero shows that the IGR applies non-locally, as well as locally. Thus, if overt nominals do not directly precede a verb, the latter may, so to speak, seek farther to the left to find possible overt arguments. And if, in this search, a transitive verb encounters two nominals in a row, it must assign grammatical relations to them in accordance with the IGR (see Platero, p. 146, for a possible formulation of the IGR which will achieve the desired effect). From this point of view, then, sentence (58), on the reading given, simply does not involve non-overt arguments. The subject and object of both verbs are overtly represented by /ashkii/ 'boy' and /at'ééd/ 'girl' respectively. This analysis, it seems to me, resonates perfectly with the W-Star view of Navajo, and Platero (chapters 3 and 4) gives other facts of coreference and non-coreference which are also extremely suggestive for this view.

In conclusion, I would like to contemplate briefly the question of how fundamental the typological distinction drawn here is, assuming it to be linguistically real. How different is a W-Star language from an X-Bar language?

Although the distinction might appear to be a fundamental one, I do not think it really is. It is a matter of whether the initial syntactic structure of sentences is assigned by means of phrase structure rules (as constrained by X-Bar theory) or by parsing rules which impose a labelled bracketing upon linear concatenations of words. While there are, in principle at least, clear empirical differences between the two types -- linguistic phenomena which are, for example, unlikely to appear, or even impossible, in one type, but very likely, or even required, in the other -- a given language may, through the bulk of data available to a language learner, present itself as highly ambiguous with respect to its typological position. I would not, therefore, be at all surprised to encounter evidence within a single language community that some speakers of the language use the W-Star base, while other speakers use the X-Bar base. In a language like Walbiri, I think the evidence which a language learner would confront is overwhelmingly biased in favor of the W-Star theory. But I do not think the evidence is at all clear for Navajo. And it would not surprise me if, for example, some speakers, perhaps very many speakers, cannot accept (58) on the reading given but must, rather, express that meaning with the alternative (59), which places the overt subject outside the domain of the relative clause expression:

(59) Ashkii adáá'dáá' at'ééd yi-yiiktsá(n)-éé yi-doots'os.

(boy yesterday girl yi-saw-BEL yi-will:kiss)

'The boy will kiss the girl he saw yesterday.'

Such speakers, if they exist, might have learned Navajo as an X-Bar language, while those accepting (58) might have learned it as a W-Star language.

Footnotes

1. This work has been supported in part by the National Institutes of Mental Health, Grant Number 5 P01 MH13390-13.

I wish to thank Morris Halle, Ann Lekach, David Nash, Jane Simpson, Jean-Roger Vergnaud, and Edwin Williams for having the patience to allow me to discuss some of these ideas with them.

And I wish to dedicate this paper to Frits Staal, who (longer ago than I would like to admit) first tried to persuade me that my "standard" analysis of word order in Walbiri was, if not entirely misguided, at least contrary to the spirit of the language. I hope he will forgive me for being so slow in coming to grips with the problem. Of course, he is not to be blamed for the ^{particular} way in which I have tried to handle it.

2. Walbiri examples are written in the orthography now in use in the Walbiri (or, more correctly now, Warlpiri) community in Central Australia.

The English translations provided for the examples are only approximate. In particular, the use of the English definite article is to be regarded as a convention, not really a part of the translation, since the Walbiri is ^{non-committal} non-committal with respect to definiteness in the majority of sentences used illustratively here.

3. And for a detailed discussion of "second position" see Steele 1973; and for related observations concerning the auxiliary category, see Akmajian, Steele, and Wasow 1979.

4. The base of a Walbiri auxiliary may be phonologically null. This null base is represented 0 in the examples. An auxiliary whose base is null, like those with monosyllabic bases, must appear in second position in the surface form of sentences.

5. Verbs are cited in their nonpast form, by convention, simply to reveal their conjugation membership. The verb /jarnti-rni/, like all other di- and poly-syllabic verbs taking the nonpast alternant /-rni/, belongs to the second conjugation (cf. Hale, 1973, footnote 3).

For a detailed theory in which predicate argument structures play a central role, see Bresnan, 1978.

6. There are, of course, many other ways in which one could look at this. W-Star grammar might, for example, have two schemata, rather than one, say

$$\begin{array}{l} E \longrightarrow E^* \\ E \longrightarrow W^*, \end{array}$$

and these might be thought of as producing a hierarchical, but "unlabelled" phrase structure. The task of the parsing principles (see 3.1 below) would then be to "discover" the bracketing produced in the base and to label the brackets.

7. It is, of course, relevant to the issue of expression-internal word order variability to ask whether the following is grammatical:

Jarnti-rninja-rlajinta karli-ngkajinta O-rna-ju paju-rnu.

(trim-INF-REFLEX boomerang-REFLEX AUX:perf-1-1 cut-PAST)

This would be an instance of "complementizer percolation", marking both constituents of the infinitival with the reflexive complementizer (see 2.3 below for a discussion of percolation in the "standard" analysis). I do not know the status of the sentence cited in this footnote.

8. The position of the enclitic particle /-lku/ is almost entirely free, except that it cannot attach to the auxiliary. I suspect that its use is governed by scopal factors, and I suspect further that its grammar is properly defined within the "punctuation" component (see 3.3 below). Its appearance in (9, 9') is not essential to the analysis which these sentences are being used to illustrate.

9. The breaking up of a constituent would be constrained by the Tensed Sentence Condition, presumably. Thus, while an infinitival expression could be broken up, a subordinate tensed clause could not (cf. Hale, Jeanne, and Platero, 1977, for some relevant remarks within a "standard" conception of Walbiri syntax).

10. But one must, on this account, also explain why the locative, and not the objective complementizer surfaces on the nominal in (22"). And this in turn raises the question of the status of a sentence like

(22'') Pirlī-kirra ka-rna kurdu nya-nyi, nyina-nja-kurra.
(stone-OBJ AUX:pres-1 child see-PAST, sit-INF-OBJ)

This sentence is grammatical, with the "vague predicational" reading of the objectively marked nominal (see (24) below, and accompanying text). However, in a brief survey of Walbiri grammar conducted by Robin Japanangka Granites, David Odling-Smee, and myself in 1976, Granites expressed some doubt that the type represented by (22'') should really be regarded as an alternative to the type represented by (22). The same doubt could, however, be raised in regard to (22"), though it is a close paraphrase of (22).

11. There are some exceptions to the definition of *AUX* position given here. The most interesting of these is the case in which an auxiliary appears to be inserted into a complex verbal word, as in

Kulu-O-lu-nganpa-jarri-ja.

(anger-AUX:perf-3pl-1pl:excl-INCHOATIVE-PAST)

'The got angry at us.'

The verbal theme here /kulu-jarri-mi/ 'become angry!', though complex, is a single word (cf. the alternative sentence /kulu-jarri-ja O-lu-nganpa/, in which the complex verb theme is uninterrupted).

12. The scrambling rule is either enormously complex, with many subrules mentioning all possible constituents and all possible surface orders, or else it is a rule of excessive power, capable of ^{referring} to the notions "immediate constituent of S" and "word". In any event, such a scrambling rule would be of a special type -- not strictly a transformation, nor a stylistic rule in the usual sense (like extraposition, for example).

For an explicit account of scrambling in Latin, see Ross, 1967, section 3.1.2, and Lapointe, in preparation.

13. I think that the W-Star type of base, properly conceived, would also preclude the possibility of transformations. That is, X-Bar syntax and transformations go together. I suspect that this follows from the definition of transformations as structurally dependent movement rules. Some care must be exercised here, for it is possible to conceive of a model of the base, superficially similar to the W-Star model, in which transformations are perfectly natural. Thus, care must be taken in defining the W-Star conception of the base in such a way as to make it clear one way or the other whether the notion of transformations is, or is not, possible in a W-Star language. I have not done this, primarily because I am simply not competent to do so.

Care must also be taken in judging surface syntactic facts in specific languages. Some facts might appear, falsely, to support the view that transformations exist. Thus, for example, ^{Walbiri} questions (i.e., content questions) typically have the question word in initial position. But, crucially, it is not possible to "extract" a question word out of a subordinate tensed clause (cf. Hale, Jeanne, and Platero, 1977, section 5) as it ^{me} might be if the "move alpha" rule of Chomsky (in his Pisa lectures, for example) were involved.

The fact that Walbiri has the question word in initial position, in sentences interpreted as content questions, can be accommodated simply in the W-Star view of grammar. Since any non-auxiliary word can appear in any position, all question-word-initial sentences are automatically accommodated^{syntactically}. The interrogative interpretation can be assigned^{by some rule of semantics} to a sentence in which the question word is first -- this, I suspect, is^{actually} a concern of the "punctuation" component (see 3.3), since questions of scope, making reference both to form and to meaning, are involved.

14. To say that Walbiri is a W-Star language is, I should hasten to say, a comment about its syntax, not its morphology. The recent suggestion, by Harris (1979), that word morphology can be integrated into an X-Bar theory is extremely suggestive. Nash (1979) has begun to develop an X-Bar theory of Walbiri word morphology which shows great promise. I see no reason why Walbiri could not have hierarchically structured words, which it almost certainly does, and, at the same time, employ a W-Star syntactic base. One might be tempted to argue that all languages use the X-Bar or hierarchical organization in word morphology. But I think this is incorrect. Thus, for example, Navajo gives little evidence of hierarchical structure internal to the word. The traditional "morpheme order chart" is a perfectly adequate, and extremely natural, model for the internal organization of the most complex words of Navajo, i.e., the verbs, which have from 9 to 19 relative order positions^(of prefixes) preceding the stem (depending upon the method of counting). Walbiri words are prevailingly hierarchical in their internal structure, but the auxiliary is internally flat, giving no evidence of hierarchical organization.

15. An auxiliary whose base is monosyllabic or null must appear in second position, and certain ones of these -- e.g., null-base auxiliaries -- encliticize to the word immediately preceding them. An enclitic auxiliary and the entity to which it is attached form a single word for the purposes of stress assignment and certain other phonological processes (e.g., vowel harmony). Clearly, therefore, a rule of enclisis must be involved. See also footnote 11 above for evidence of a rule which can insert an auxiliary into certain morphologically complex verb words.

16. It is possible, of course, that words are labelled automatically -- i.e., as a part of their formal entry in the lexicon or in the process of word formation. And perhaps this is the most natural thing to assume.

17. The principle parts of speech in Walbiri are nominals and verbs. The latter correspond primarily to active verbs in languages like English. Walbiri nominals correspond to English nouns, adjectives, many stative verbs, adverbs, and determiners. Another important lexical resource, possibly also basically nominal in category, and rivaling ~~them~~ ^{pure nominals} in abundance, are the preverbs -- these are normally prefixed to verb stems and express an extraordinary range of meanings, often somewhat obscure, but equally often quite straightforward. In addition to these categories, Walbiri has an auxiliary, consisting of a base (expressing aspectual, modal, and/or temporal categories, in concert with verbal inflections) to which may be prefixed certain complementizers (the negative, the relative) and following which appear suffixes indicating the person and number of the principal arguments of the verb (see 3.2.3 below). An impressive inventory of enclitic particles also exists and should, perhaps, be accorded the status of a minor part of speech.

18. There are some problems concerning the notion "categorial signature", having to do primarily with the question of how "deeply" the signature should analyse the word. The problems arise mainly in connection with the elements belonging to the class which might appropriately be called "derivational cases". These are case like elements which also function to derive new stems. One such element is the propriative (sometimes called comitative) suffix /-kurlu/ (cf. the extensive discussion of this element, in many Australian languages, in Dixon 1976). The problem relates to the scopal ambiguity which exists for expressions of the form $N_1 N_2$ -kurlu. These can mean either " N_1 possessed of N_2 " or "entity possessed of X denoted by the expression $N_1 N_2$ " -- e.g., /kurdu wita-kurlu/ can mean either "child with something small" or "entity (say, a woman) who has a small child". I am not sure, as yet, how best to handle this -- though it is almost certainly to be done as a part of the procedure which translates categorial signatures (see 3.2.2 below).

This footnote is completely wrong and will be redone in the next version of the paper.

19. The linking register for a given verb is defined by means of a set of "linking rules" (cf. Carter, 1976, and 1976-7, and Ostler, 1978 and in preparation) which relate semantic roles to syntactically defined arguments -- e.g., agent of causation to the ergative case, theme or patient to absolutive case, and so on. A theory of linking has not been elaborated ^{for Walbiri} as yet, but research is currently being done on it by several people at MIT.

20. The controlee can clearly be defined in terms of the linking register, since it is always the subject (i.e., the ergative argument position, if there is one, otherwise the absolutive), but it is not clear that the controller can be so defined. Proximate infinitivals (in /-karra/ and in /-rla/) are controlled by subjects, clearly,

but the objective infinitival (in /-kurra/) and the obviative (in /-rla-rni~ -ngka-rni/) are problematic. The objective appears to be controlled by the semantic role sometimes referred to as "theme" or "patient"; and the obviative, normally not a structure of obligatory control, can sometimes be controlled by an "adjunct" dative argument (e.g., a benefactive, a dative of indirect causation, an adversative dative, or the like), and the dative objects of Walbiri verbal expressions corresponding roughly to English wait for can control the obviative. In short, the facts of control in Walbiri are not well understood, this being another of the many areas which will require the attention of Walbiri-speaking language scholars.

21. It is an interesting question the extent to which such notions as "subjacency", "opacity", etc. play a role in W-Star syntax. I suspect that such concepts do make sense in W-Star syntax, but that they are relevant not so much to syntactic objects but rather to semantic structures -- see footnotes 21 and 27 below. For discussions of subjacency and opacity, see for example Chomsky 1973, 1978, and Chomsky and Lasnik 1977.

22. The two expressions are "connected" -- necessarily, since the shared case marking indicates that they are. The connection here, I suspect, is to be regarded as a special sort of "control", like that connecting an infinitival with an argument of a sister finite verb.

23. The ellipses in the categorial signatures of (41, 41') are included to reflect the fact that semantic cases are morphologically extendible by grammatical cases -- i.e., a locative can be extended by an ergative (to indicate that the locative is "connected", in the sense of footnote 22 above, with the ergative, or subject, argument in a transitive sentence), as in the following sentence:

Ngarrka-ngku O-palangu yankirri-jarra luwa-rnu ngapa-ngka-rlu.
(man-ERG AUX:perf-3du emu-DUAL shoot-PAST water-LOC-ERG)

'The man shot the two emus at the water hole.'

In this sentence, the locative expression is construed with the subject -- it is necessary for truthful use of this sentence that the person denoted by the subject nominal be located at the water hole at the time of the event which the sentence depicts. Again, this is probably to be viewed as involving "control"; the case marking serves to indicate which argument in the functional structure of the verb is to be taken as the controller.

24. There is another interpretation possible here, and quite generally where a locative is either unmarked for grammatical case or else agrees in grammatical case with the subject.

The alternative interpretation is that in which the locative is predicated not of a participant in the event depicted by the verb but rather of the event itself. This is a particularly natural interpretation in sentences whose verb describes an activity, rather than a positional relation holding between some entity and a place -- e.g., in the following:

Yurntumu-rla ka-lu Warlpiri wangka-mi.

(Yuendumu-LOC AUX:pres-3pl Walbiri speak-NONPAST)

'At Yuendumu they speak Walbiri.'

25. In a formalized version of the grammar, the case designations in the verbal linking register and in the nominal categorial signatures might be entities of the same sort -- e.g., feature complexes. And the linking of an overt nominal expression to an argument position in a verb might simply be a well-formedness condition whereby a nominal may be bound to an argument position only if the two entities "agree" in case.

26. The label S is merely a convenience, of course. Properly, I imagine, expressions should derive their labels from their "heads". A sentence is headed by a verb, and is therefore a verbal expression (and labelled V, presumably). It is not clear, however, how the notion "head" is to be captured in the W-Star scheme.

27. Presumably, control is subject to a constraint involving a relationship akin to subjacency (cf., Chomsky, 1973). Assuming that the binding of a locative expression to an argument position is a case of control (see footnotes 22-3 above), a subjacency condition would block the following sentence, in which the locative expression is taken to be inside the proximate infinitival expression:

*Ngarrka-ngku ka karli jarnti-rni, $\{\{\text{ngurra-ngka-rlu}\}^{[N, LOC, ERG]}\}$
 nyina-nja-karra-rlu $\}^{[S, INF, PROX, ERG]}$
 (man-ERG AUX:pres boomerang trim-NONPAST, $\{\{\text{camp-LOC-ERG}\}$
 sit-INF-PROX-ERG $\}$)

'The man is trimming the boomerang while sitting in camp.'

The sentence would be well-formed if the locative expression were not marked ergative, in which case it could be controlled by the subject of the infinitive verb (which is intransitive and, therefore, has an absolutive subject). The sentence would also be well-formed if the ergatively marked locative expression could be taken to be outside the infinitive ('The man is trimming the boomerang in camp, while sitting.').

If these observations are correct, then subjacency must be definable in W-Star grammar. Perhaps the definition could be stated as follows: A is subjacent to B, where A is contained in braces not containing B, and no more than one (left- or right-)brace intervenes between A and B.

This definition is stated in terms of semantic representations, of course, since it is there that control relationships are defined. (The illustrative starred sentence is given in a mixed syntactic-semantic notation, for the sake of convenience only.)

Assuming that the sentence cited in this footnote, on the relevant interpretation, is indeed ill-formed, it is important to realise that the explanation of its ill-formedness is somewhat indirect. There is nothing wrong with the binding chain which links the locative to the subject of the finite verb, since it is mediated by the subject of the infinitival itself (which, being marked proximate (and ergative as well) must link to the subject of the finite). The problem is this. Since the locative is marked ergative, it cannot be controlled by the infinitival subject, because, according to the linking register for that intransitive verb, the subject argument is absolutive. The only hope for the locative, therefore, is to link directly to the subject of the finite verb, which is transitive. But that relationship is blocked by the subjacency condition. At least, this is the structure of the argument.

28. Non-overt arguments are normally understood as definite and specific (like English definite specific pronouns, he, she, they, ...). Occasionally, however, an indefinite nonspecific usage is observed, particularly in ethnographic commentaries or definitions in potential or nomic form. For example,

Kajika pankiji-piya-rlu-yijala yarlki-rni -- kajika-rla
marlaja-purntuny-pardi pankiji-piya-ku-yijala -- rdarri-ki-ji.

(AUX:potential pankiji-LIKE-ERG-ALSO bite-NONPAST --
AUX:potential-dat causal-swelling-arise(-NONPAST)
pankiji-LIKE-DAT-ALSO -- rdarri-DAT-OLDINFO)

'It (the rdarri ant) can bite one just like the pankiji (another ant sp.) does -- one can swell up because of it, just as (one can) because of the pankiji -- that is, (one can swell up) from the rdarri.'

Here the object of /yarlki-rni/ 'bite' and the subject of /marlaja-purntuny-pardi-mi/ 'swell up because of' are non-overt. And I am assuming the indefinite nonspecific reading to be correct, for I was not able to locate an antecedent in the larger context of the descriptive essay in which this sentence appears.

29. An indefinite interpretation might involve binding by the existential quantifier. I do not know logic, however, and ~~therefore~~ therefore ^{cannot} explore the implications of this.

30. The following sentence -- extracted from an oral essay on the meaning of the verb /wamu-wanti-mi/ 'enshroud (of fog)' -- would appear to be an exception to this statement:

Kula-lpa-rlipa-nyanu yapa nya-ngkarla.

(NEG-AUX:imperf-lpl:incl-refl person see-IRREALIS)

'We cannot see one another (when enshrouded by fog).'

Here the nominal /yapa/ 'person' is in the absolutive and is therefore linked to the object argument. One possible explanation for this, and for similar sentences, is that the nominal is merely predicated of the object, i.e., 'We cannot see one another bodily, as person-shapes', or the like. Predicational use of nominals is extremely prevalent in Walbiri; it is, in fact, one of the primary means of incorporating multiple predications into single clauses.

31. This is probably an obviation rule (cf. Jeanne, 1978, chapters 3 and 4). Reflexive obj is [+proximate] (necessarily coreferential with the subject), while non-reflexive obj is [-proximate] (necessarily non-coreferential with the subject). The object is alpha-bound to the subject if obj is alpha-proximate.

It is sometimes possible for ^{distinct but} coreferential arguments ^{of the same verb} to be represented overtly by nominals. Thus, for example, the following is possible:

Jakamarra-rlu O--nyanu makiti ma-nu nyanungu-ku.

(Jakamarra-ERG AUX:perf-refl gun get-PAST him-DAT)

'Jakamarra got a gun for himself.'

This is possible only for "adjunct" datives (benefactives, etc.), the semantic case constructions, and the possessive construction. It seems to me quite reasonable to suggest that an opacity condition (cf. Chomsky, 1978) operates to permit coreference here. The benefactive dative is very probably a two-place predicate, roughly

aFORa.

In the above sentence, the left-argument position of the benefactive is bound to the direct object of the verb (i.e., it is linked to /makiti/ 'gun'); the beneficiary, represented by the overt third person pronominal /nyanungu/, is linked to the right-argument position of the benefactive predicate (i.e., the "object" position). I think it is reasonable to propose that the overt pronominal is, so to speak, in an "opaque" domain, into which binding cannot penetrate. Since the "object" of the benefactive predicate cannot be bound to the arguments of the verb, it is free to be independently evaluated. This, in fact, permits coreference between /nyanungu/ and /Jakamarra/, but, of course, it is not an anaphoric connection involving binding.

32. Of course, there is the problem of determining which of the two arguments is to be taken as the "bound" one and, therefore, incapable of independent evaluation. In Walbiri, evidently, precedence (defined ^θ over the functional structure) decides the issue -- the subject binds the object, not the reverse. Empirically, this means that

the ergative, rather than the absolutive, will be capable of overt nominal expression. Thus,

Kurdu-ngku O-nyanu paju-rnu.

(child-ERG AUX:perf-refl cut-PAST)

'The child cut itself.'

and not

*Kurdu O-nyanu paju-rnu.

(child AUX:perf-refl cut-PAST)

except, possibly, in the reading according to which /kurdu/ is simply predicated of the subject argument (see footnote 30 above).

If precedence is the correct principle, it may have to be regarded as language specific in systems of this sort, for in Nyangumarda (cf. O'Grady, 1964), closely related to Walbiri and almost certainly of the same linguistic type, it is the absolutive, not the ergative, which may be overt in a reflexive sentence.

33. There are, of course, positions in the sense of linear order positions. Thus, the auxiliary, under appropriate conditions, appears in "second position"; the question word in a content question appears in "initial position". But these are not positions which can be stipulated for particular categories in a basic phrase structure.

34. If Navajo is a W-Star language, then one must be able to explain the existence of the phenomena described by Kaufman (1974). Kaufman presents as good a case for transformations in Navajo as any I have ever seen. If transformations are impossible in W-Star grammar, then either Navajo is not a W-Star language, or else there must be a natural non-transformational account of the Navajo facts. I am inclined to hope very much for the latter result, but I have nothing at all to show at this point. In any event, Kaufman's analysis is clear and detailed, providing an excellent basis upon which to work.

35. Given sufficient powers of persuasion, I would attempt to argue that this does in fact prove that Navajo is not an X-Bar language. To do this, it would be sufficient in my judgment to show that there is no way, consistent with X-Bar theory, to account for (38) on the relevant reading. This, in turn, would require one to show that other methods of providing for the non-overt expression of an argument (e.g., "pronoun drop", or the optionality parens in phrase structure rules) is contrary to the essential "meaning" of phrase structure rules. I have no concrete suggestions to make, but I strongly suspect that the typological distinction is real and that it will ultimately be possible to define precisely what is and what is not ^{inherently} possible in each of the two linguistic types.

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