

WALMATJARI: NOMINATIVE-ERGATIVE OR NOMINATIVE-ACCUSATIVE?

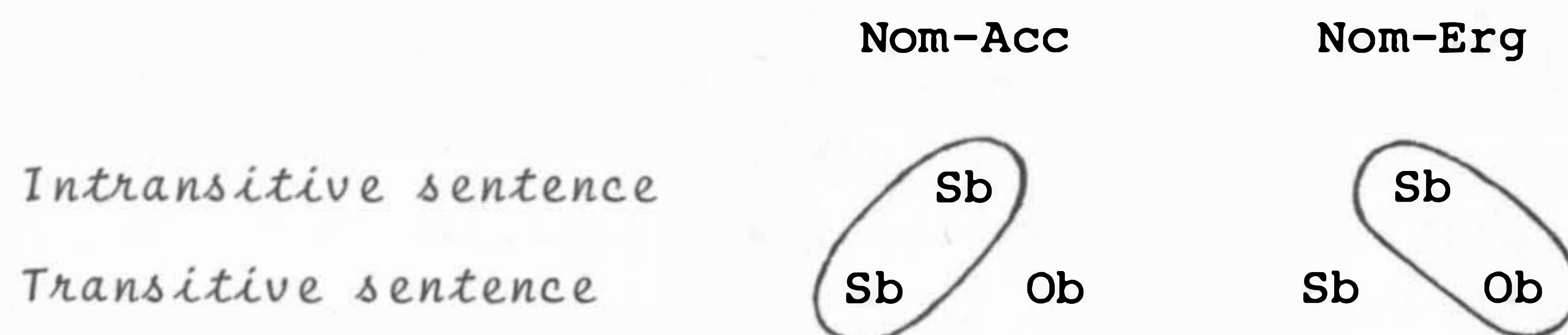
JOYCE HUDSON

0. INTRODUCTION

Nominative-ergative and nominative-accusative type languages have been much under discussion recently. The distinction is basic to this paper which consists of a discussion of the Walmatjari language in relation to these language types.¹

The nominative-accusative type distinguishes between nominative and accusative cases in the traditional terminology of subject and object. In these languages the subject of both a transitive and an intransitive sentence take the same case inflection (nominative) and the object of a transitive sentence has a different case inflection (accusative).

Nominative-ergative languages differ in having a single case inflection (nominative) for the subject of an intransitive and the object of a transitive sentence, and a different case (ergative) for the subject of a transitive sentence (Hockett 1958:234-5). The diagram shows the contrast of case groupings in the two systems.



Most of the Aboriginal languages of Australia can be divided into groups on the basis of the distinction given above. In many Australian languages case inflections of nouns follow a nominative-ergative system, while in a small number they follow a nominative-accusative system (Hale 1970:759). Those in which noun inflections are nominative-ergative usually have some features of nominative-accusative patterning

in the pronominal system (Glass & Hackett 1970:35). In languages in which both systems appear to operate in the surface structure, it is important to enquire whether the deep structure might follow a single system. Hale (1967-68, 1970) has suggested that some Australian languages, such as Walbiri, have nominative-accusative deep structure. Dixon (1973) has presented proof of the nominative-ergative deep structure of the Dyirbal language of North Queensland.

The Walmatjari language of Western Australia, while showing nominative-ergative inflection of both nouns and free pronouns in the surface structure, does not appear to have a nominative-ergative deep structure. It is the aim of this paper to present evidence of the case system in the deep structure of Walmatjari.

Section 1 demonstrates the nominative-ergative nature of Walmatjari surface morphology. Section 2 gives a nominative-accusative deep structure and formulates transformations in terms of this. In contrast, Sections 3 and 4 give two alternative types of nominative-ergative deep structure and state transforms in terms of rather different constituency trees that these entail.

1. THE NOMINATIVE-ERGATIVE CASE SYSTEM

On the surface, Walmatjari appears to be a nominative-ergative type language. Each noun phrase is inflected for case. The subject of a transitive sentence is inflected with the suffix *-!u* which has several alternants (ergative case) while the subject of an intransitive sentence and the object of a transitive sentence are both marked by zero inflection (nominative case). This is quite in line with the shape of morphemes in other nominative-ergative languages in Australia. Dixon (1972:9) says: "Nominative...is almost always realised by zero inflection....There are two common ergative inflections...-gu or -ngu... and -!u (with variant -!u in some languages)." It is corroborated by Hale (1970:758) who says that the ergative case is marked "normally by a suffix reflecting ancestral **-ŋku ~ -!u*" and the nominative case is "normally phonologically null".

The following examples illustrate the nominative-ergative system of case inflection in Walmatjari.

- (1) *ŋanpayi-∅ pa-∅ kiŋaŋani ŋuŋa-ŋa*
man-Nom AUX sitting camp-Loc
'The man was sitting in the camp.'
- (2) *kakatji-∅ pa-∅-∅ pinja ŋanpayi-!u*
goanna-Nom AUX hit man-Erg
'The man hit the goanna.'

- (3) nanpayi-Ø pa-Ø-Ø kakatji-!u patjanl
 man-Nom AUX goanna-Erg bit
'The goanna bit the man.'

- (4) kakatji-Ø pa-Ø !apaŋl
 goanna-Nom AUX ran
'The goanna ran.'

Note: The ergative inflection has several alternants. Those appearing in this paper are -!u on words of three or more syllables ending in a vowel and -ŋu on disyllabic words ending in a vowel.

Walmartjari differs from many Australian languages in that the pronominal system is also nominative-ergative. In nominative-ergative type languages of the continent "the most common situation is for nouns to inflect according to a nominative-ergative pattern, while pronouns at least superficially follow a nominative-accusative pattern" (Dixon 1972:4). Free pronouns in Walmartjari take exactly the same case inflections as do nouns.

- (5) natju-Ø ma-ŋa yanl
 I-Nom AUX went
'I went.'
- (6) kakatji-Ø ma-ŋa-Ø plnja natju-ŋu
 goanna-Nom AUX hit I-Erg
'I hit the goanna.'
- (7) natju-Ø pa-tja-Ø patjanl kakatji-!u
 me-Nom AUX bit goanna-Erg
'The goanna bit me.'

2. NOMINATIVE-ACCUSATIVE DEEP STRUCTURE RULES

Although the morphological evidence suggests an entirely nominative-ergative language, there are other factors which suggest that the deep structure may be nominative-accusative, and that the nominative-ergative case marking would be applied at a late stage of the grammar.

2.1 VERBAL AUXILIARY

The best evidence suggesting a nominative-accusative deep structure is the verbal auxiliary. This is an obligatory constituent which normally occurs as the second word in the sentence. The auxiliary root serves, together with certain verb inflections, to indicate the mood of the sentence. Suffixed to the auxiliary root are morphemes which show person and number agreement with the noun phrases of the sentence.

- (8) *yanl* *ma-ŋa-lu* *ŋanampa-Ø*
 went INDIC-Sb:l:ex-Sb:pl *we:ex-Nom*
 'We all (exclusive) went.'

Note: There are three auxiliary roots. The indicative root has the form *ma-* before nasals and *pa-* elsewhere. When *pa-* is immediately followed by a morpheme beginning with *p* the root *pa-* is deleted.

The auxiliary reveals the nominative-accusative system in that, while subject of transitive and intransitive sentences are marked differently in noun phrases, they are shown identically in the auxiliary. Also the object of transitive sentences and subject of intransitive sentences (nominative case) are marked identically in noun phrases but differently in the auxiliary.

- (9) *paŋi-tjaŋa-Ø* *pa-lu-pinja* *njanja* *maŋin-waŋti-lu*
 boy-du-Nom INDIC-Sb:pl-Ob:du *saw* *woman-pl-Erg*
 'The women saw the two boys.'
- (10) * *maŋin-waŋti-Ø* *pa-pila-nja* ² *njanja* *paŋi-tjaŋa-lu*
 woman-pl-Nom INDIC-Sb:du-Ob:pl *saw* *boy-du-Erg*
 'The two boys saw the women.'
- (11) *maŋin-waŋti-Ø* *pa-lu* *wuŋa* *yanl*
 woman-pl-Nom INDIC-Sb:pl *walkabout* *went*
 'The women went for a walk.'
- (12) * *paŋi-tjaŋa-Ø* *pa-pila* ² *wuŋa* *yanl*
 boy-du-Nom INDIC-Sb:du *walkabout* *went*
 'The two boys went for a walk.'

The morpheme *-lu* in the auxiliary of sentences (9) and (11) refer to the plural subject '*the women*'; *-nja* in (10) refers to '*the women*' as transitive object; *-pila* in (10) and (12) refers to the dual subject '*the two boys*' and *-pinja* in (9) refers to the dual object.

Only four types of noun phrases can be cross-indexed in the auxiliary; these are noun phrases in nominative, ergative, benefactive and accessory cases. In any single sentence the auxiliary usually cross-indexes only two of these noun phrases.³ One is always the subject noun phrase, the other is chosen according to the following order of preference:

accessory
 benefactive
 object.

That is, if an accessory noun phrase appears in the derivation of a sentence it will be cross-indexed in the auxiliary but benefactive and object will not. If accessory noun phrase does not appear but benefactive noun phrase does, then benefactive but not object will be cross-

indexed. Object noun phrase is only cross-indexed if neither benefactive nor accessory noun phrase appears. If a sentence does not include accessory, benefactive or object noun phrase then the auxiliary only cross-indexes the subject.

The low status of object noun phrase adds to the evidence that nominative-ergative case system has little importance for deep structure, while the high status of subject noun phrase (referring either to transitive subject marked by ergative case inflection or to an intransitive sentence marked by nominative case inflection) suggests that "subject" is an important deep structure concept.

2.2 PHRASE STRUCTURE RULES

Rules for generating nominative-accusative Phrase Markers include:⁴

- i. $S \rightarrow (S) + AUX + NP + VP + (S)$
- ii. $VP \rightarrow V + (NP_{Ob}) + (NP_{Bn}) + (NP_{Ac})$
- iii. $V \rightarrow \left\{ \begin{array}{l} v_{tr} \quad / \text{ -- } NP_{Ob} \\ v_{intr} \end{array} \right\}$

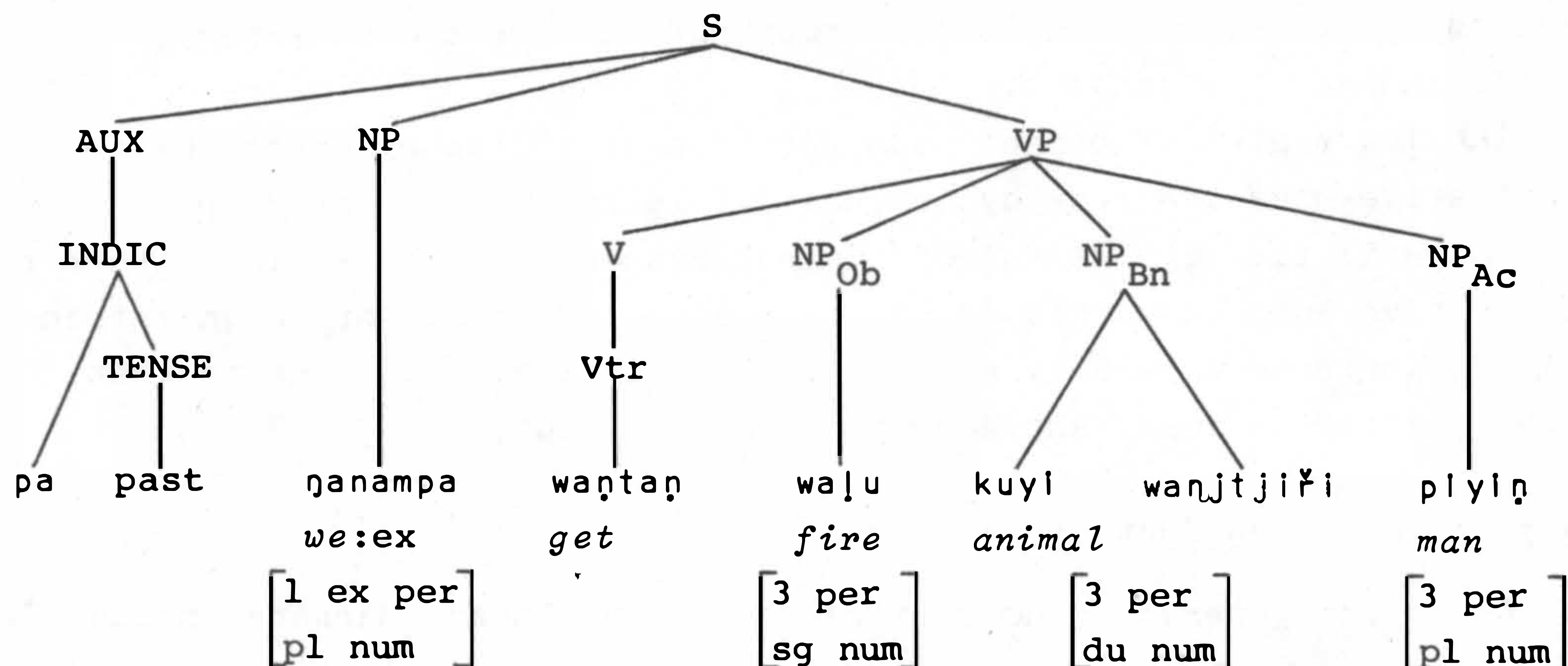
The noun phrase occurring in Rule i. is transitive or intransitive subject; the noun phrases occurring in Rule ii. are transitive object, benefactive and accessory.

Tree 1 shows the deep structure for sentence (13).

- (13) * waŋtaŋl ma-ŋa-Ø-njananɯ-lu-lɤ⁵ ŋanampa-lu
 got INDIC-Sb:1:ex-Ac:3-Ac:pl-Sb:pl-Ac we:ex-Erg
 piyiŋ-waŋti-lɤ wa-lu-Ø kuy-l-tjaʃa-wu wanjtjiʃi-tjaʃa-wu
 man-pl-Ac fire-Nom animal-du-Bn kangaroo-du-Bn
 'We got fire from the people for the two kangaroos (to cook them).'

(Tree 1 overleaf)

Tree 1



2.3 OBLIGATORY TRANSFORMATIONS

The obligatory transformational rules which are necessary to bring this sentence to the surface structure are Tense Movement, Case Indexing and NP_{Ob} Movement.

Tense Movement Rule

Tense Movement is a simple transformation moving the TENSE node from under the AUX and attaching it under the V node. This rule is not formally stated here.

Case Indexing Rule

Case Indexing copies the person and number features from the noun phrases as suffixes onto the auxiliary root. The rule is given below.

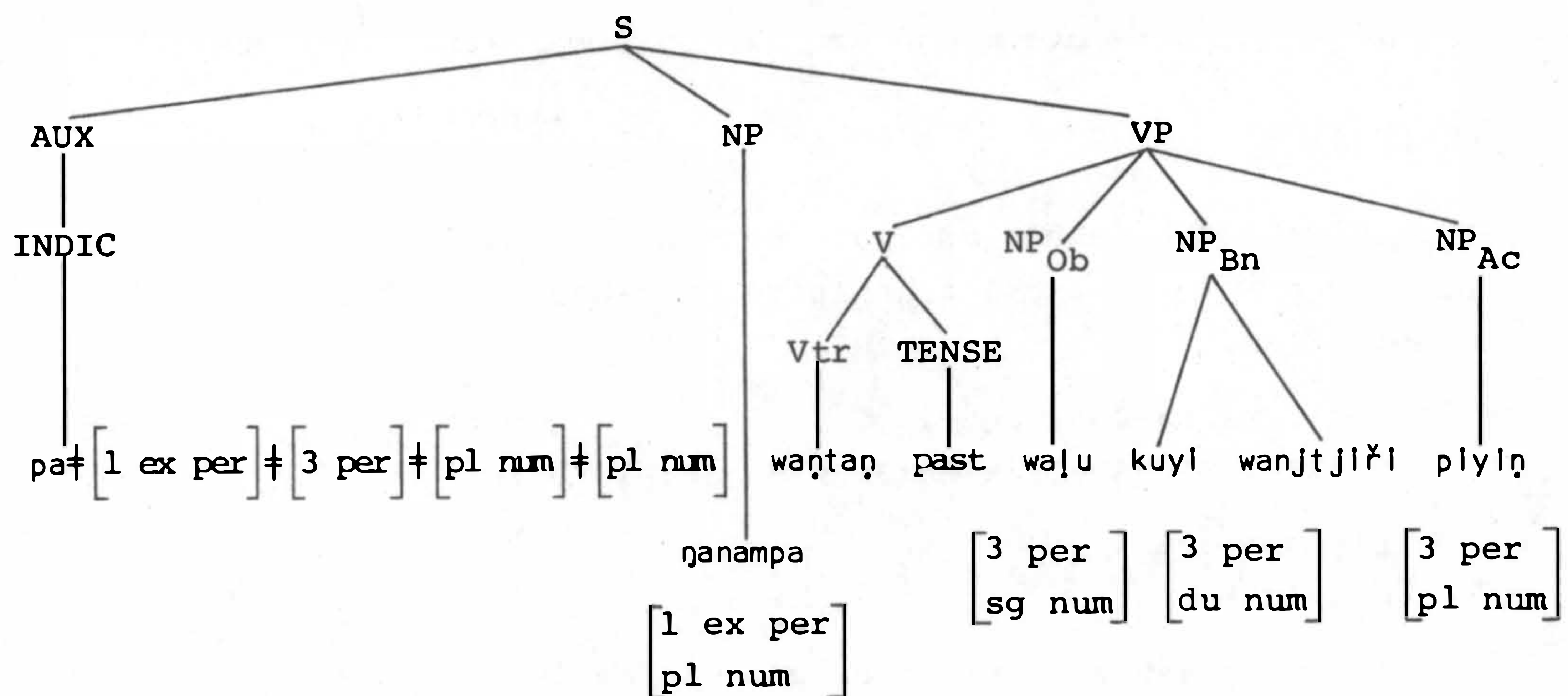
T. Rule (1) Case Indexing

$$\begin{array}{cccc}
 \text{SD} & \text{AUX} & + & \text{NP} + \left[\begin{array}{c} \text{X} + \text{NP} \\ \left[\begin{array}{c} \alpha_i \text{ per} \\ \beta_i \text{ num} \end{array} \right]_{\text{VP}} \left[\begin{array}{c} \alpha_{ii} \text{ per} \\ \beta_{ii} \text{ num} \end{array} \right]_{\text{VP}} \end{array} \right] \\
 & 1 & & 2 \quad 3 \quad 4 \\
 \text{SC} \Rightarrow & 1 \neq \left[\alpha_i \text{ per} \right] \neq \left[\alpha_{ii} \text{ per} \right] \neq \left[\beta_{ii} \text{ num} \right] \neq \left[\beta_i \text{ num} \right] & 2 & 3 \quad 4
 \end{array}$$

That is, the auxiliary root is followed by four morphemes which specify person and number of subject and accessory/benefactive/object. The first morpheme refers to the person of the subject, the second to the person of the accessory/benefactive/object; the third morpheme refers to the number of the accessory/benefactive/object and the fourth to the number of the subject.⁶

Applying Case Indexing and Tense Movement to Tree 1 we obtain:

Tree 2



As NP_{Ac} is the rightmost constituent dominated by VP in this example it is the one cross-indexed, along with the subject, onto AUX. If it were not present then the last NP dominated by VP would be cross-indexed, either NP_{Bn} or NP_{Ob}.

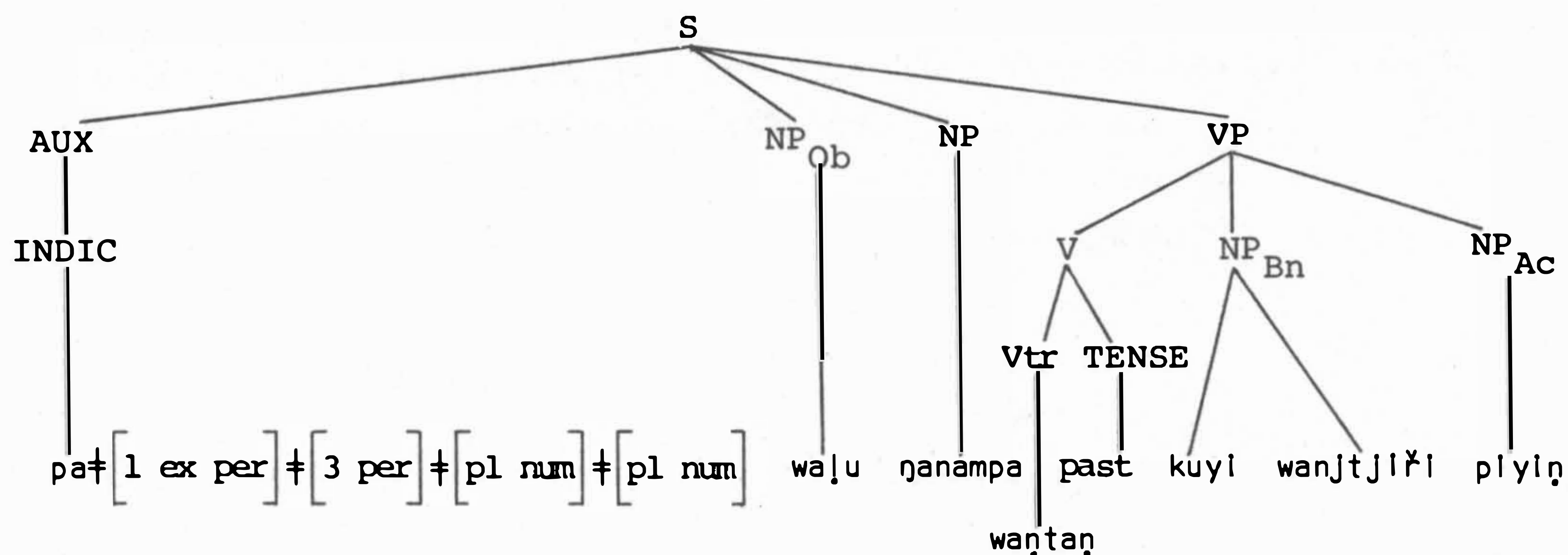
NP_{Ob} Movement Rule

NP_{Ob} Movement simply takes the object noun phrase from under VP and attaches it under S immediately after AUX. A formal statement of this rule is not given here.

Applying NP_{Ob} Movement to Tree 2 gives Tree 3.

(Tree 3 overleaf)

Tree 3

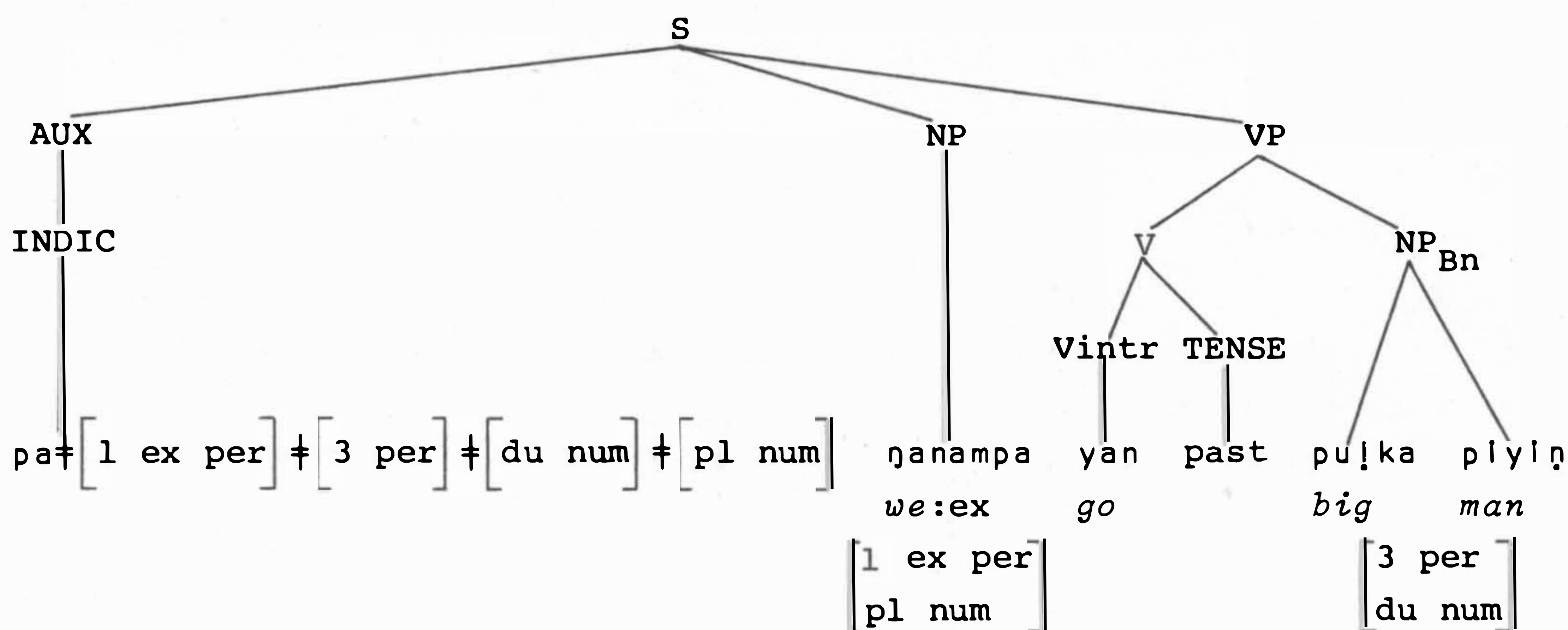


NP_{Ob} Movement does not apply to sentences containing intransitive verbs. Tree 4 shows the intransitive sentence (14) at this stage of the derivation.

- (14) * *yanl ma-na-Ø-pilaŋu-lu*⁵ *nanampa-Ø pu!ka-tjaʔa-wu*
went INDIC-Sb:1:ex-Bn:3-Bn:du-Sb:pl *we:ex-Nom big-du-Bn*
plyiŋ-tjaʔa-wu
man-du-Bn

'We (exclusive) went on behalf of the two bosses.'

Tree 4



2.4 CASE MARKING RULES

Trees 3 and 4 are now ready for Case Marking Rules to apply. They are:

1. Leftmost NP is given nominative case inflection.
- ii. Any other NP before VP is given ergative case inflection.
- iii. Noun phrases dominated by VP are given benefactive case inflection if marked NP_{Bn} and accessory case inflection if marked NP_{Ac} .

The above rules result in object of transitive and subject of intransitive sentences being identically marked for nominative case while subject of transitive sentences are marked for ergative case.

2.5 TRANSFORMATIONS INVOLVING TWO SENTENCES

Three transformations provide further evidence of a nominative-accusative deep structure. In the derivation of each there are two sentences and the same constraint applies to all three transformations. The constraint is that the subjects of the two sentences must be the same referent regardless of transitivity. It is the subject that is the important constituent in these transformations rather than nominative or ergative. The transformations are -u|a Insertion, -u Insertion and -tja: Insertion. Examples are given for -u|a Insertion to illustrate two of the combinations of transitivity in these dual sentence transformations.

-u|a Insertion Rule

The -u|a Insertion transformational rule is applied to the derivational string

S + AUX + NP + VP.

The action of the lower sentence chronologically precedes that of the VP. -u|a Insertion deletes all nodes except V in the lower sentence and suffixes -u|a to the verb. The rule is given below.

T. Rule (2) -u|a Insertion

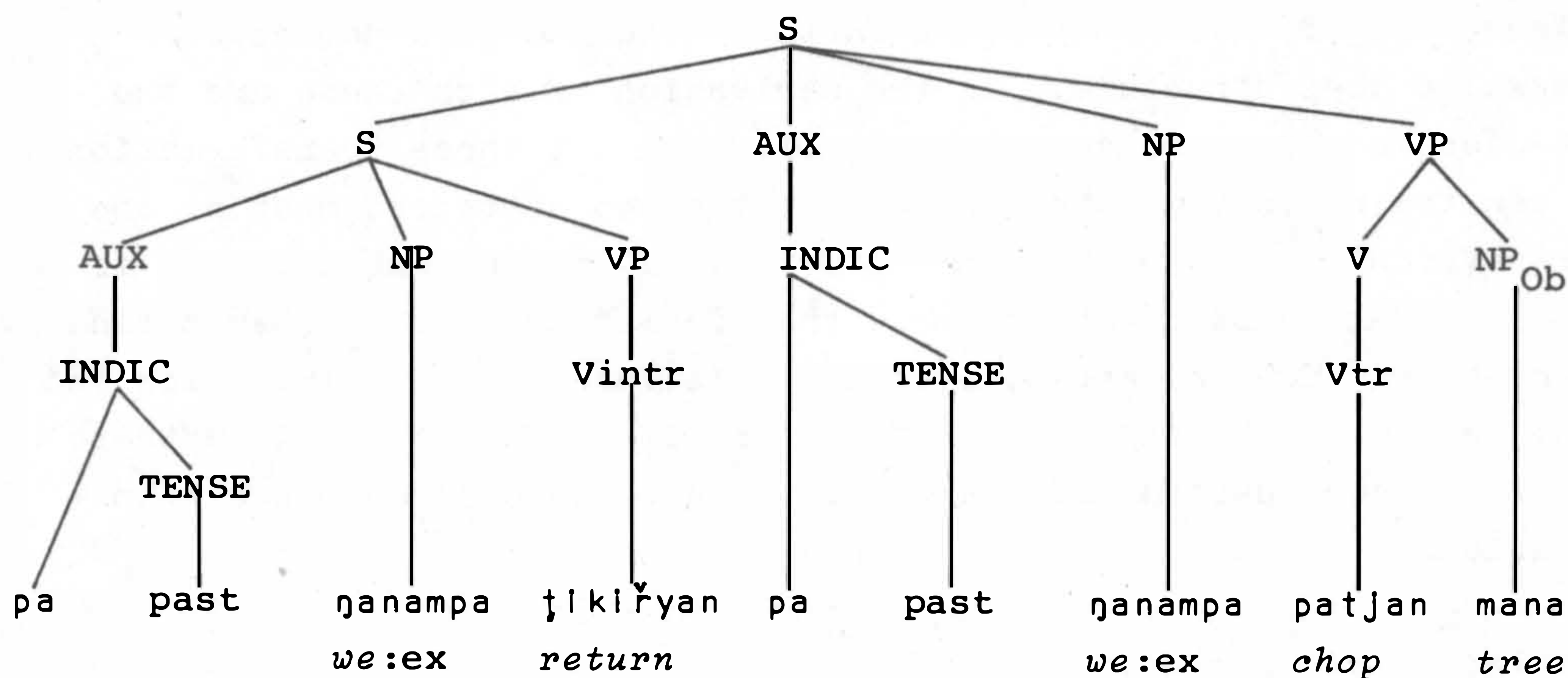
$$\begin{array}{c}
 \text{SD} \quad \left[\begin{array}{c} \left[\begin{array}{c} \text{AUX} + \text{NP} + \text{V} + \text{X} \\ \text{S} \end{array} \right] + \text{AUX} + \text{NP} + \text{VP} \\ \text{S} \end{array} \right]_{\text{S}} \\
 \\
 \begin{array}{ccccccc}
 & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\
 \text{SC} \implies & \emptyset & \emptyset & 3\text{u|a} & \emptyset & 5 & 6 & 7
 \end{array}
 \end{array}$$

Constraint 2 = 6 referentially

Sentences (15) and (16) are examples of the surface structure of sentences to which -u|a Insertion has applied. Trees 5 and 6 illustrate these before -u|a Insertion has applied.

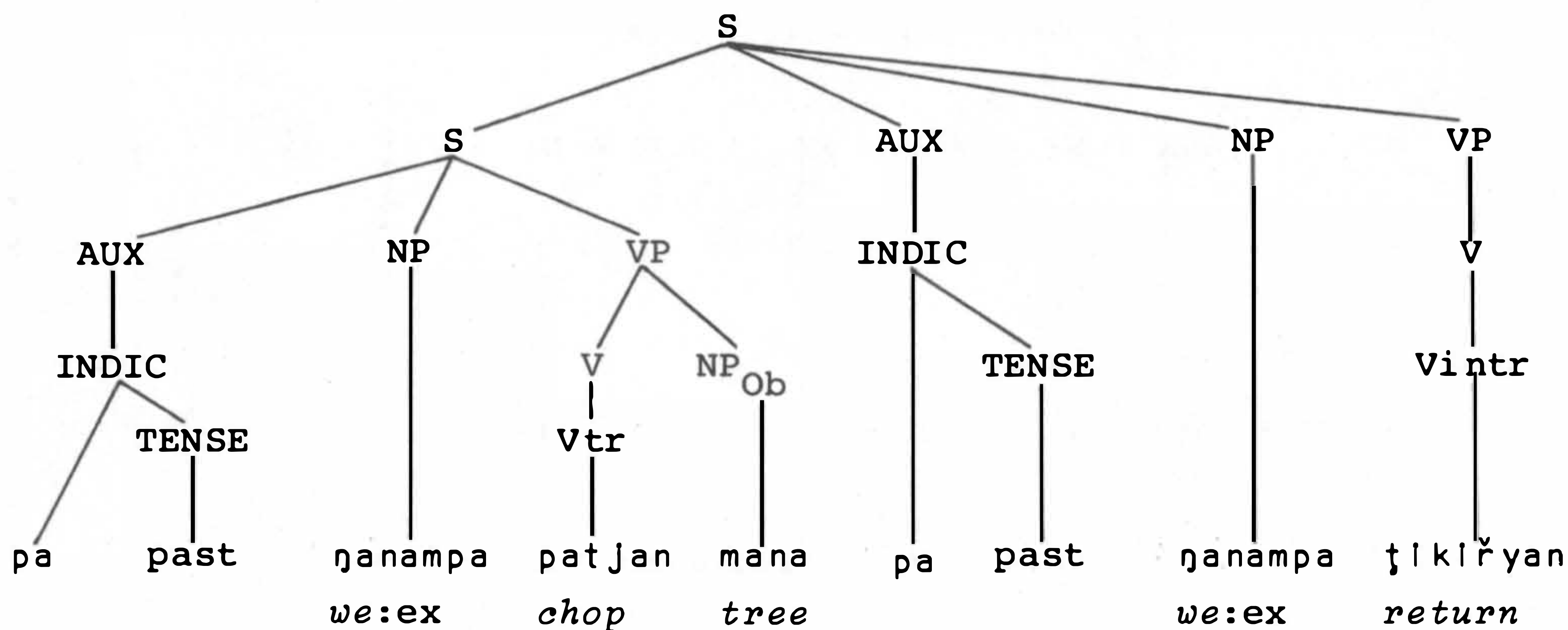
- (15) * ʔikiʔyan-u|a ma-ŋa-Ø-nja-lu⁵
return-after INDIC-Sb:1:ex-Ob:3-Ob:pl-Sb:pl
 mana-waŋtɪ-Ø patjanɪ
tree-pl-Nom chopped
'Having returned we chopped trees.'

Tree 5



- (16) patjan-u|a ma-ŋa-lu ʔikiʔyanɪ
chop-after INDIC-Sb:1:ex-Sb:pl returned
'Having chopped (it) we returned.'

Tree 6



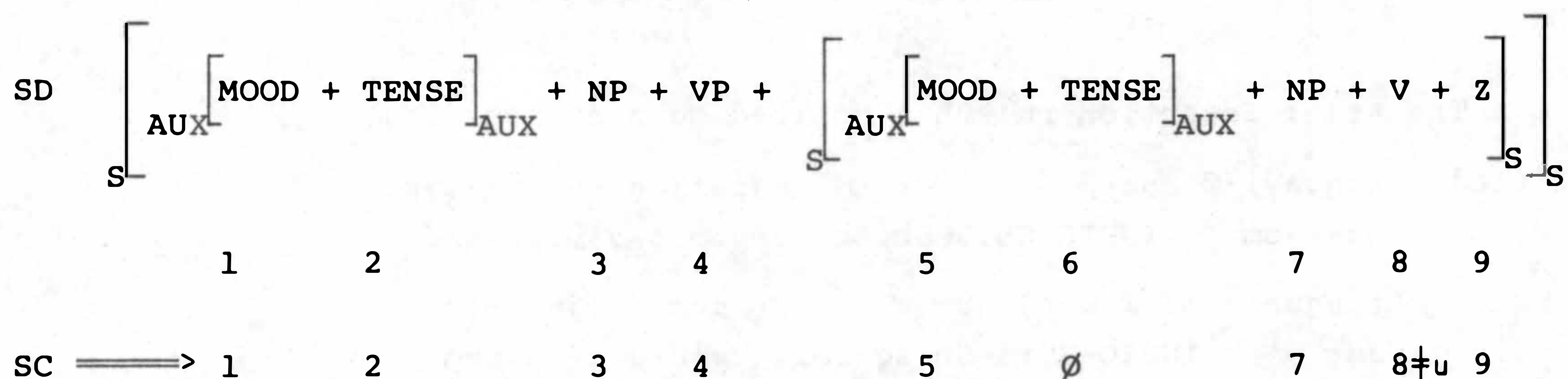
-u Insertion Rule

The **-u** Insertion transformational rule applies to the derivational string

AUX + NP + VP + S.

In this case the action of the lower sentence follows that of the VP but as well as being chronologically related the action of the lower sentence is purposive. This transformation deletes the TENSE node from under the AUX and suffixes -u to the verb of the lower sentence. The three constraints necessary for -u Insertion to apply are that mood, tense and subject of both sentences must be the same. The -u Insertion rule is given below.

T. Rule (3) -u Insertion



```

Constraint 1 = 5
           2 = 6
           3 = 7 referentially

```

Sentence (17) is an example of the surface structure of a sentence to which -u Insertion has applied.

(17) * payIntaʔi-ŋuʔa-Ø pa-Ø-lu yanku
Bieundurry-friends-Nom INDIC-Sb:3-Sb:pl *will:go*
 pikipiki-wu pa-Ø-Ø-lu⁵ mu:puŋ-u
pig-Bn INDIC-Sb:3-Bn:3-Bn:sg-Sb:pl *search-for*
'Bieundurry and his friends will go to look for pigs.'

-t.ja: Insertion Rule

-tja: Insertion is a conjoining rule. The derivational string to which it applies is

S + S.

The suffix -tja: means '*and*' and this rule only inserts -tja: between the two sentences. In order for -tja: Insertion to apply, both sentences

must have the same mood, tense (which are incorporated in the auxiliary) and subject. The rule is:

T. Rule (4) -tja: Insertion

$$SD \quad \left[\begin{array}{c} \text{AUX} + \text{NP} + \text{VP} \\ \text{S} \end{array} \right] + \left[\begin{array}{c} \text{AUX} + \text{NP} + \text{VP} \\ \text{S} \end{array} \right]$$

1 2 3 4 5 6

$$SC \Rightarrow 1 \quad 2 \quad 3 \dagger tja: \quad 4 \quad 5 \quad 6$$

Constraint 1 = 4

2 = 5 referentially

The -tja: Insertion rule has applied to sentence (18).

- (18) nanpayl- $\emptyset$ pa- $\emptyset$ - $\emptyset$ papatjani-njiřa-tja:
man-Nom INDIC-Sb:3-Sb:sg cry:out-always-and
 tjuṇani ma- $\emptyset$ - $\emptyset$ -njanu pamař-tjařl-lu
cut INDIC-Sb:3-Sb:sg-refl stone-with-Erg

'The man was always calling out and cutting himself with stones.'

2.6 IMPERATIVE TRANSFORMATION

The last evidence of nominative-accusative deep structure presented here is provided by the Imperative transformation. It applies to both transitive and intransitive sentences where AUX dominates IMPER (imperative mood). As with the transformations presented previously as evidence of a nominative-accusative deep structure, the subject is the important constituent in the Imperative Transformation. The Imperative rule is:

T. Rule (5) Imperative

$$SD \quad \left[\begin{array}{c} \emptyset \dagger [\alpha_1 \text{ per}] \dagger [\alpha_{11} \text{ per}] \dagger [\beta_{11} \text{ num}] \dagger [\beta_1 \text{ num}] \\ \text{IMPER} \end{array} \right] + X + \text{NP} + \text{V} + \text{Y}$$

1 2 3 4 5 6

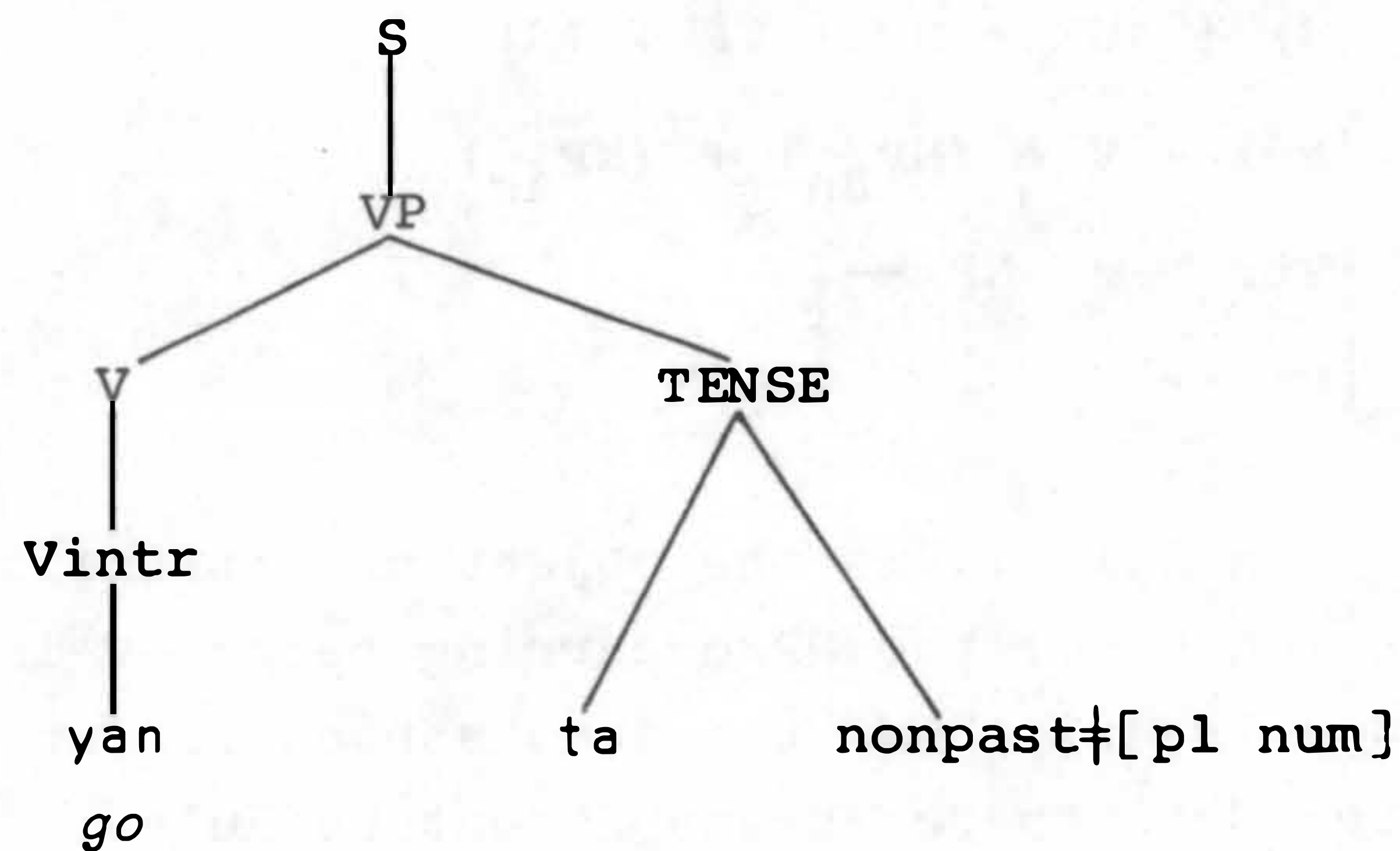
$$SC \Rightarrow \emptyset \quad \emptyset \quad 3 \quad \emptyset \quad 5 \dagger 2 \quad 6$$

There are three changes brought about by this transformation. Firstly the subject noun phrase is deleted. Secondly, the subject person morpheme [α , per] and the auxiliary root, which are dominated by IMPER, are deleted while the subject number morpheme [β , num] remains with other morphemes which have been cross-indexed onto the auxiliary. Thirdly, the remaining morphemes dominated by IMPER (accessory/benefactive/object person, accessory/benefactive/object number and subject number), are removed from the domination of AUX and attached as suffixes to the verb. The imperative sentence in surface structure often contains only one constituent, the verb. Other constituents such as object noun phrase and benefactive noun phrase are optional.

Trees 7 and 8 show sentences (19) and (20) after the Imperative rule has applied and before late rules optionally delete the object and benefactive noun phrases.

- (19) yanta-lu
go-Sb:pl
'You all go!'

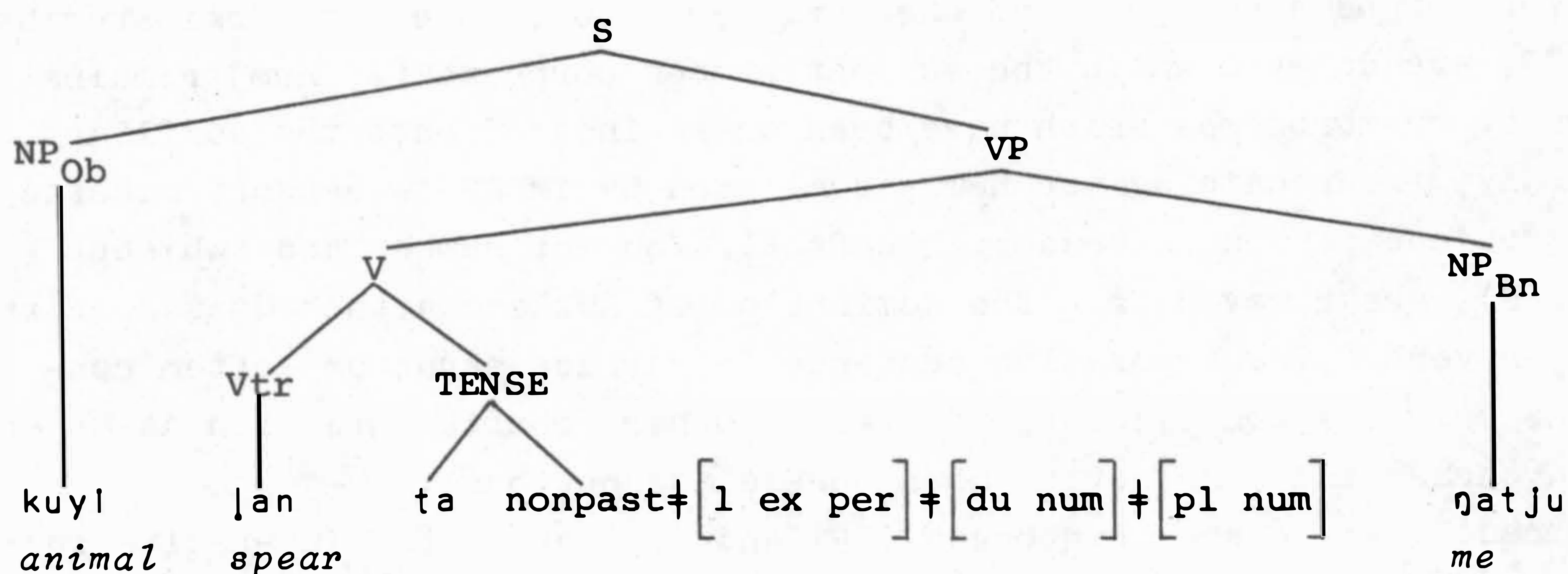
Tree 7



- (20) kuyl-Ø |anta-tjaʃa-ŋu-lu
animal-Nom spear-Bn:l:ex-Bn:du-Sb:pl
'You all spear an animal for us two (exclusive)!'

(Tree 8 overleaf)

Tree 8



3. NOMINATIVE-ERGATIVE DEEP STRUCTURE RULES TYPE 1

3.1 PHRASE STRUCTURE RULES

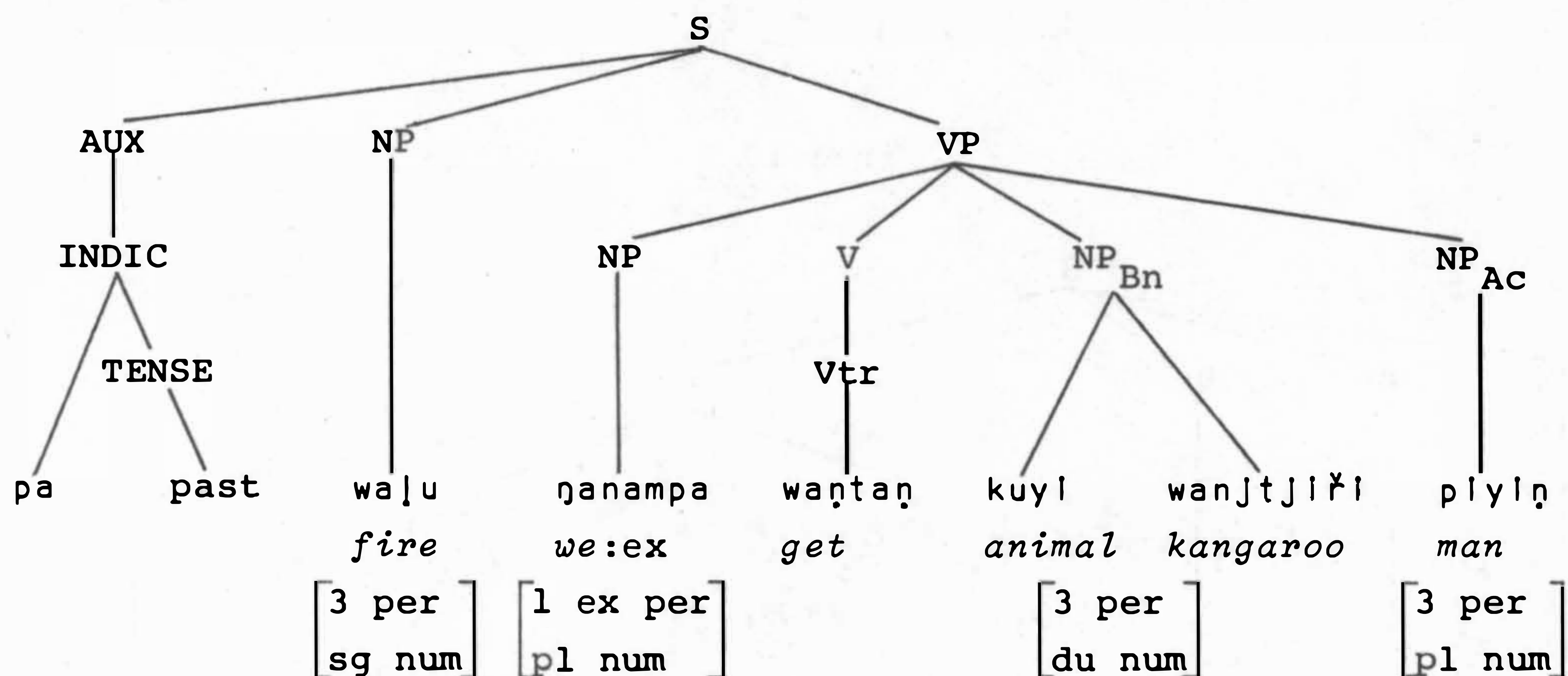
There are two types of nominative-ergative deep structure that could be suggested for Walmatjari. The first includes the following phrase structure rules.

- i. $S \rightarrow (S) + \text{AUX} + \text{NP} + \text{VP} + (S)$
- ii. $\text{VP} \rightarrow (\text{NP}) + \text{V} + (\text{NP}_{\text{Bn}}) + (\text{NP}_{\text{Ac}})$
- iii. $\text{V} \rightarrow \left[\begin{array}{l} \text{Vtr} \quad / \quad \text{NP} \text{ --} \\ \text{Vintr} \end{array} \right]$

The NP occurring in Rule i. is the object of a transitive or subject of an intransitive sentence; the NP occurring before V in Rule ii. is transitive subject. Tree 9 shows the deep structure for sentence (13) when it is generated from these Phrase Structure Rules.

(Tree 9 on next page)

Tree 9



3.2 OBLIGATORY TRANSFORMATIONS

A slightly different set of transformations is needed to bring the sentence from this derivation to the surface structure. They are Ergative NP Movement, Tense Movement, and Case Indexing transformations.

Ergative NP Movement Rule

Ergative NP Movement only applies to transitive sentences. It moves the ergative NP out from the domination of VP and attaches it to the S node immediately following the AUX node. This transformation is necessary so that the person and number of the ergative noun phrase in the transitive sentence (subject) can be cross-indexed onto the auxiliary along with the nominative noun phrase of the intransitive sentence (subject). The Ergative NP Movement Rule is given below.

T. Rule (6) Ergative NP Movement

SD	AUX	+	NP	+	$\text{VP} \left[\text{NP} + \text{X} \right]_{\text{VP}}$
	1		2		3 4
SC $\Rightarrow$	1	3	2		$\emptyset$ 4

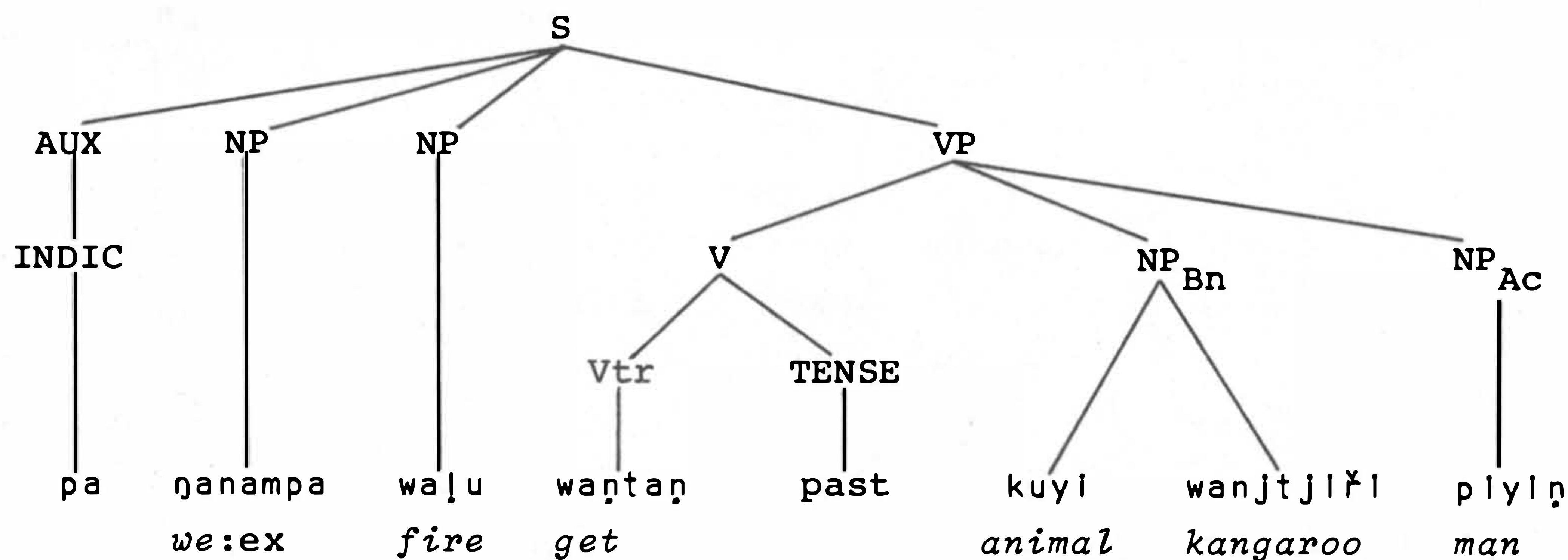
Tense Movement Rule

Tense Movement takes the TENSE node from under AUX and attaches it under the V node. This is the same as the Tense Movement transformation

described in Section 2.

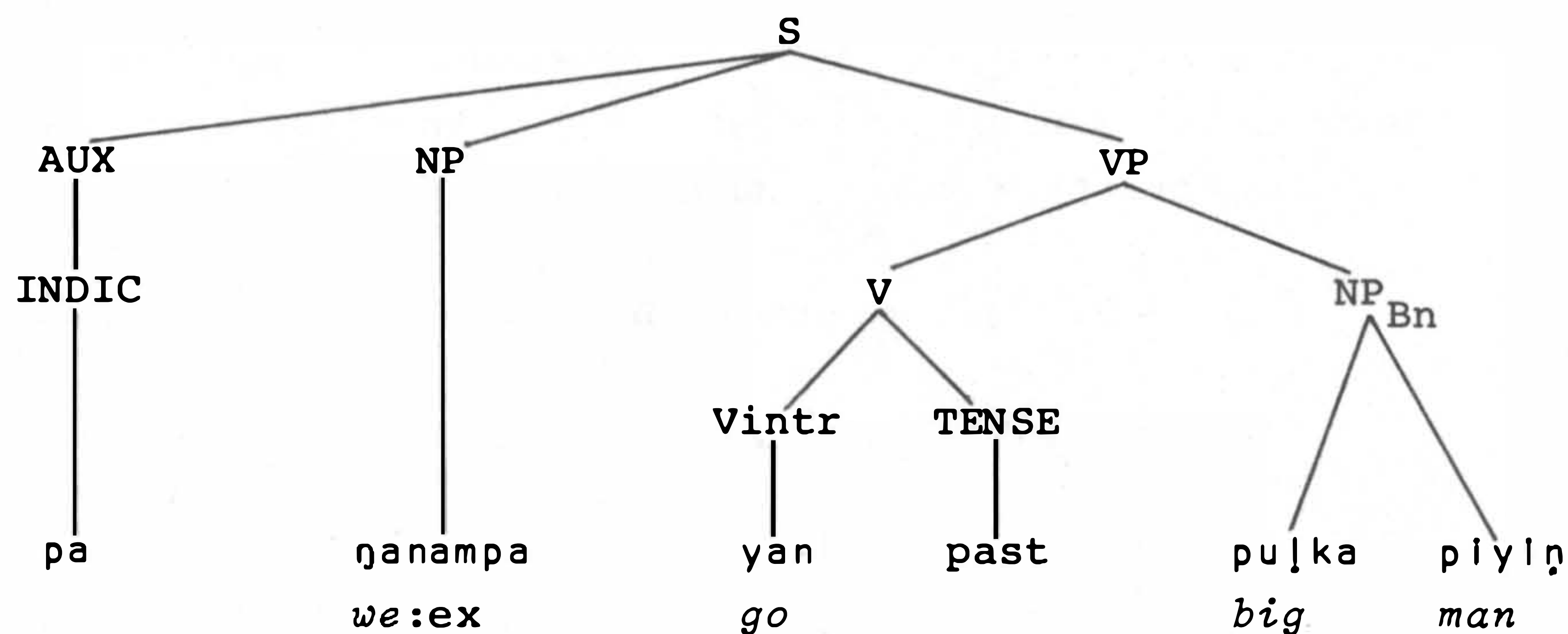
After applying Ergative NP Movement and Tense Movement to Tree 9 we obtain:

Tree 10



It may be helpful at this stage to look at the contrasting tree structure of an intransitive sentence. Note that the Phrase Marker for an intransitive sentence is the same in deep structure whether it be nominative-accusative or nominative-ergative. The example used is sentence (14).

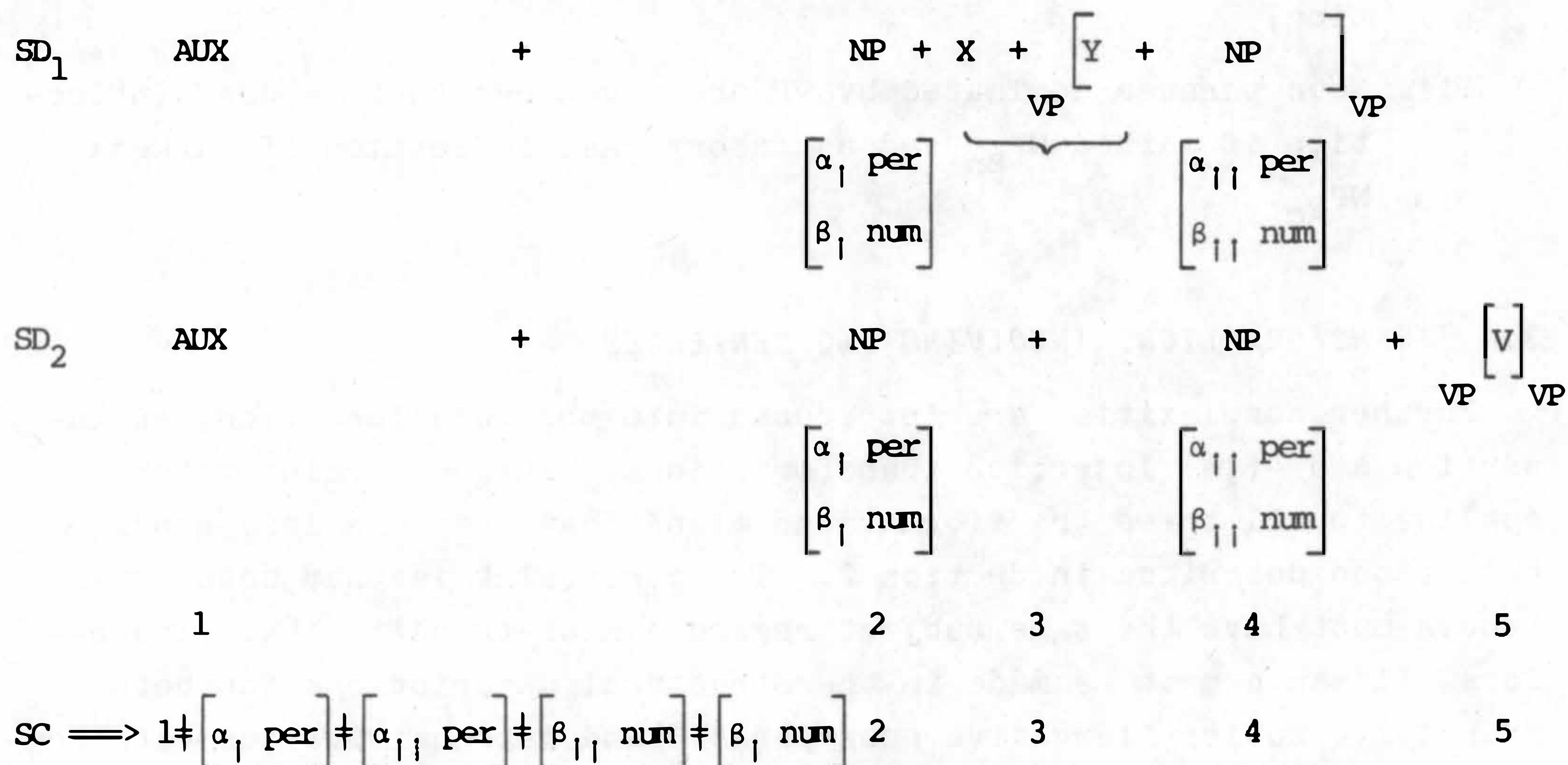
Tree 11



Case Indexing Rule

So far the nominative-ergative deep structure has proved no more complex than the nominative-accusative. It is the Case Indexing transformation which brings in the first complexity as it requires two structural descriptions.

T. Rule (7) Case Indexing



The two structural descriptions are necessary because one description cannot cover all the possibilities of both transitive and intransitive sentences. The first structural description deals with transitive and intransitive sentences in which benefactive noun phrase or accessory noun phrase appears. The second deals with transitive sentences in which no benefactive noun phrase or accessory noun phrase occurs.

In SD_1 the first NP cross-indexed will be ergative if Ergative NP Movement has applied, otherwise it will be nominative. The variable X would then be the nominative noun phrase. The NP dominated by VP which is cross-indexed is either NP_{Ac} or NP_{Bn} . This has allowed for the cross-indexing of subject (ergative NP in transitive sentences and nominative NP in intransitive sentences), benefactive and accessory noun phrases in both transitive and intransitive sentences, but it has made no allowance for the object noun phrase to be cross-indexed in a transitive sentence which has neither accessory nor benefactive noun phrase. SD_2 does this by cross-indexing both the ergative noun phrase (subject) and the nominative noun phrase (object).⁶

3.3 CASE MARKING RULES

The Case Marking Rules are:

1. The noun phrase immediately left of VP is given nominative case inflection.

- ii. Any other noun phrase left of VP is given ergative case inflection.
- iii. Noun phrases dominated by VP are given benefactive case inflection if marked NP_{Bn} and accessory case inflection if marked NP_{Ac} .

3.4 TRANSFORMATIONS INVOLVING TWO SENTENCES

Further complexities are introduced into the -u!a Insertion, -u Insertion and -tja: Insertion transformations. The constraint which applies to all three transformations means that they are less concise than those described in Section 2. The constraint is that both sentences must have the same subject regardless of transitivity. Therefore allowance must be made in the structural descriptions for both transitive subject (ergative noun phrase) and intransitive subject (nominative noun phrase). To do this extra variables are necessary in each rule.

T. Rule (8) -u!a Insertion

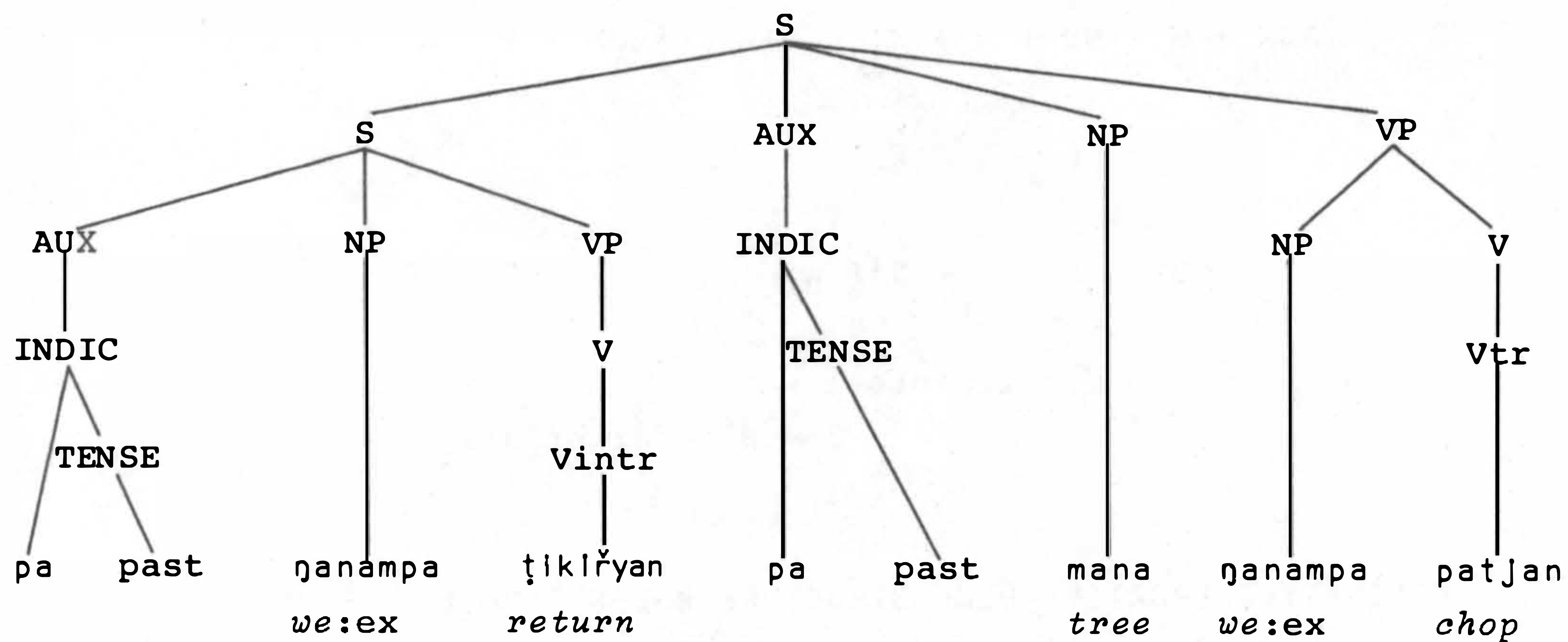
$$\begin{array}{c}
 \text{SD} \quad \left[\begin{array}{c} \left[\begin{array}{c} \text{AUX} + \text{W} + \text{NP} + \text{V} + \text{X} \\ \text{S} \end{array} \right] + \text{AUX} + \text{Y} + \text{NP} + \text{V} + \text{Z} \\ \text{S} \end{array} \right]_{\text{S}} \\
 \\
 \begin{array}{cccccccccccc}
 & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
 \text{SC} \implies & \emptyset & \emptyset & \emptyset & 4\text{-u!a} & \emptyset & 6 & 7 & 8 & 9 & 10
 \end{array}
 \end{array}$$

Constraint 3 = 8 referentially

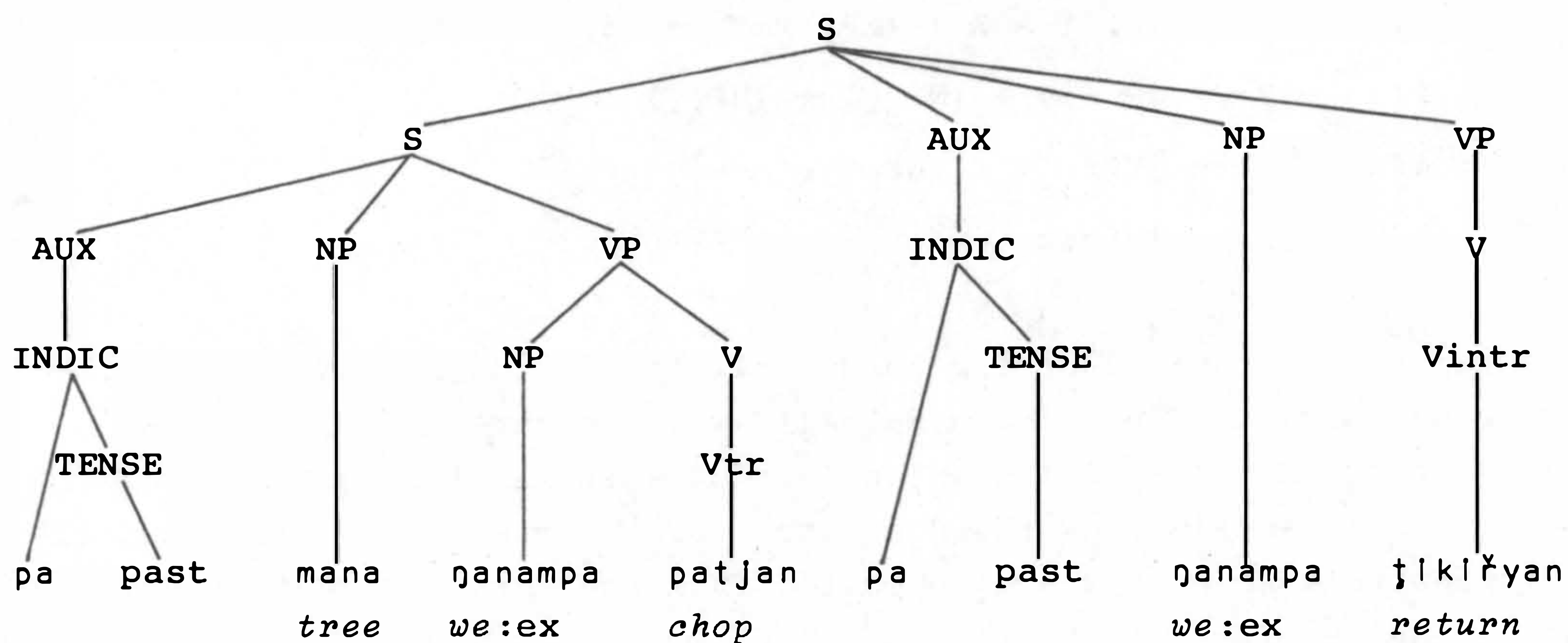
Trees 12 and 13 illustrate sentences (15) and (16) before -u!a Insertion has applied.

(Trees 12 and 13, and T. Rule (9) -
on next page)

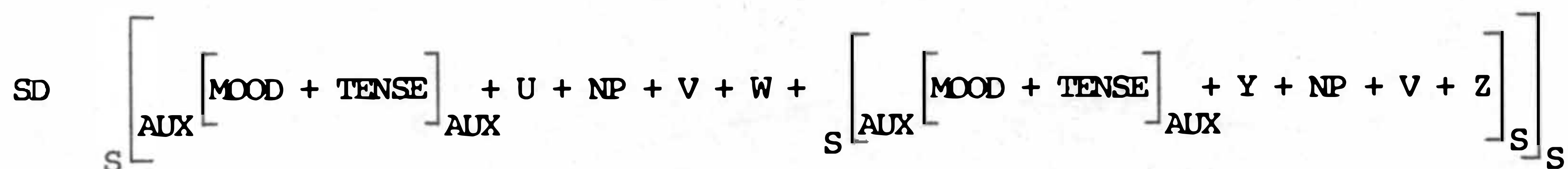
Tree 12



Tree 13



T. Rule (9) -u Insertion



	1	2	3	4	5	6	7	8	9	10	11	12
SC $\Rightarrow$	1	2	3	4	5	6	7	$\emptyset$	9	10	11	12

Constraints 1 = 7

2 = 8

4 = 10 referentially

T. Rule (10) -tja: Insertion

SD	$\left[\begin{array}{c} \text{AUX} + \text{W} + \text{NP} + \text{V} + \text{X} \\ \text{S} \end{array} \right]_{\text{S}}$					+	$\left[\begin{array}{c} \text{AUX} + \text{Y} + \text{NP} + \text{V} + \text{Z} \\ \text{S} \end{array} \right]_{\text{S}}$				
	1	2	3	4	5		6	7	8	9	10
SC $\Rightarrow$	1	2	3	4	5	-tja:	6	7	8	9	10

Constraints 1 = 6

3 = 8 referentially

4. NOMINATIVE-ERGATIVE DEEP STRUCTURE RULES TYPE 2

4.1 PHRASE STRUCTURE RULES

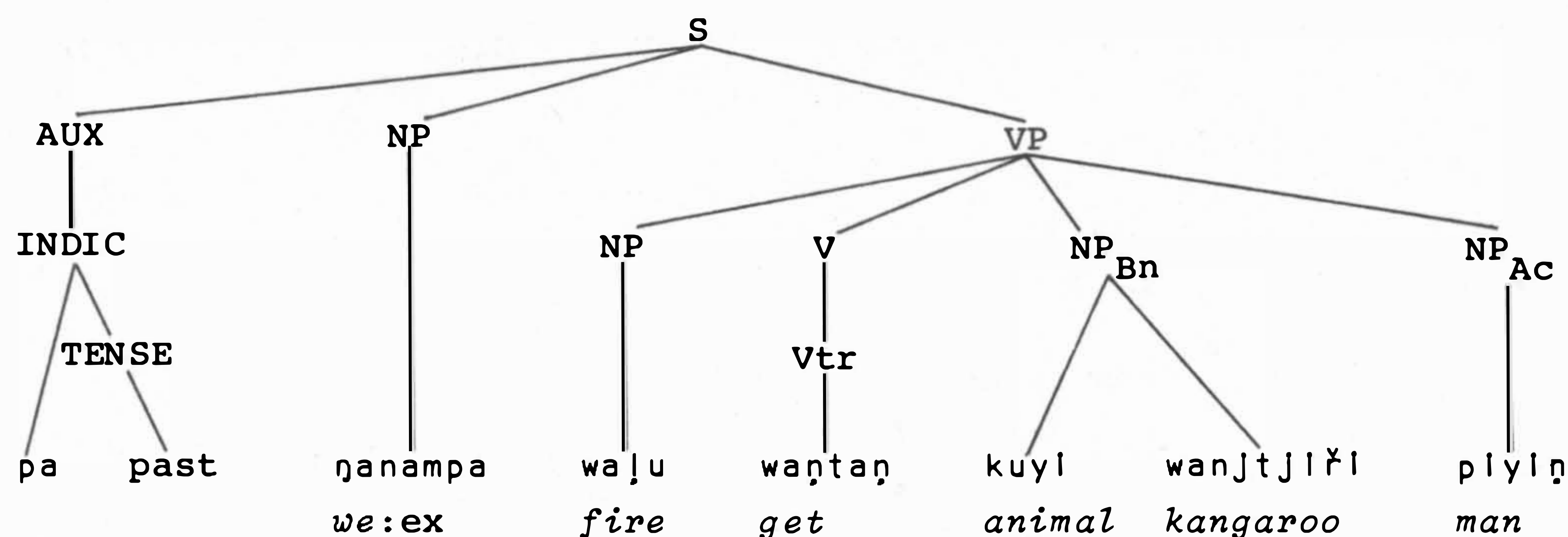
An alternative nominative-ergative type of deep structure would be generated by rules which include:

- i. $S \rightarrow (S) + \text{AUX} + (\text{NP}) + \text{VP} + (S)$
- ii. $\text{VP} \rightarrow \text{NP} + \text{V} + (\text{NP}_{\text{Bn}}) + (\text{NP}_{\text{Ac}})$
- iii. $\text{V} \rightarrow \left\{ \begin{array}{l} \text{Vtr} \quad / \quad \text{NP VP} \text{ ---} \\ \text{Vintr} \end{array} \right\}$

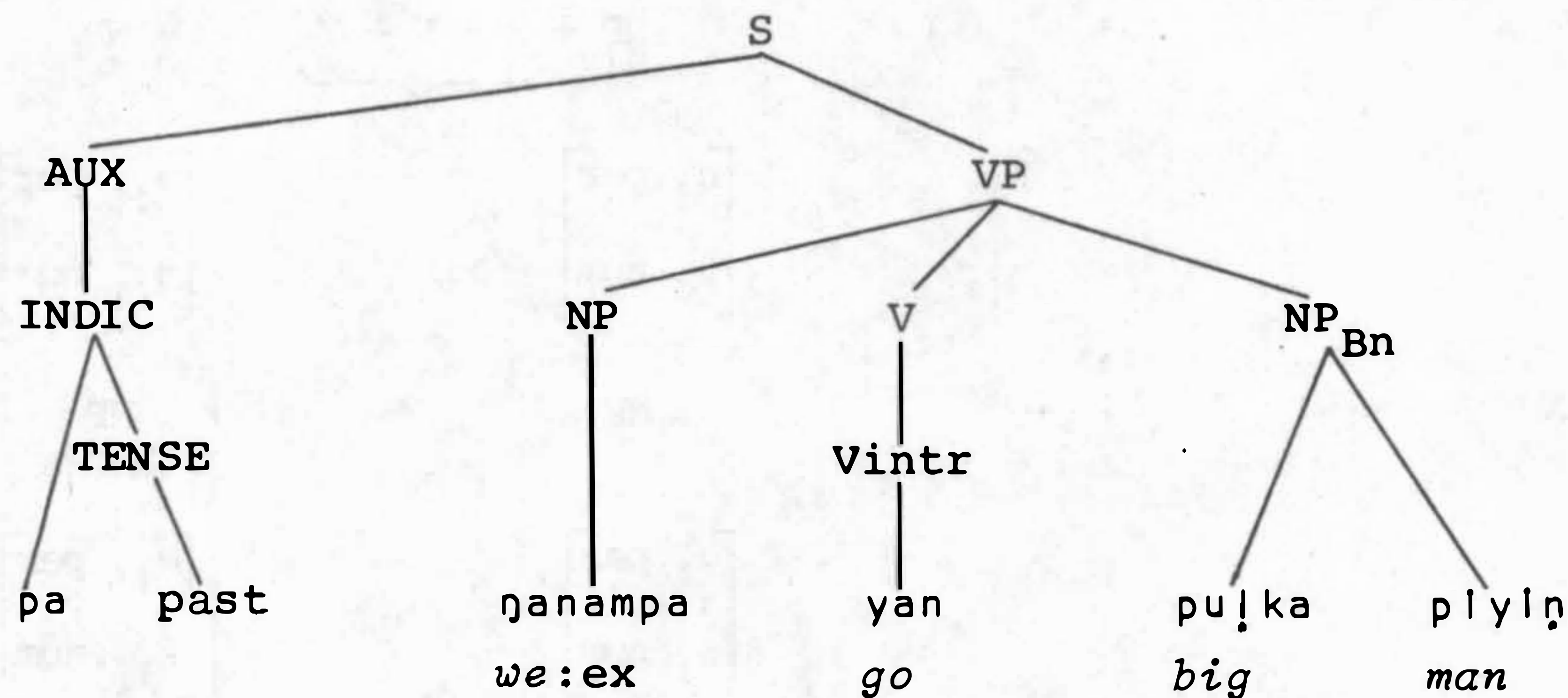
The noun phrase occurring in Rule i. is the subject of a transitive sentence; the noun phrase in Rule ii. which occurs before V is the subject of an intransitive and object of a transitive sentence.

Trees 14 and 15 show the deep structures for sentences (13) and (14) respectively when they are generated from the Phrase Structure Rules given above.

Tree 14



Tree 15



4.2 OBLIGATORY TRANSFORMATIONS

The obligatory transformational rules needed to bring sentences from this derivation to the surface structure are Tense Movement and Case Indexing. These two transformations as well as the Case Marking Rules, -u|a Insertion, -u Insertion and -tja: Insertion transformations are described here briefly, for comparison with Sections 2 and 3.

Tense Movement Rule

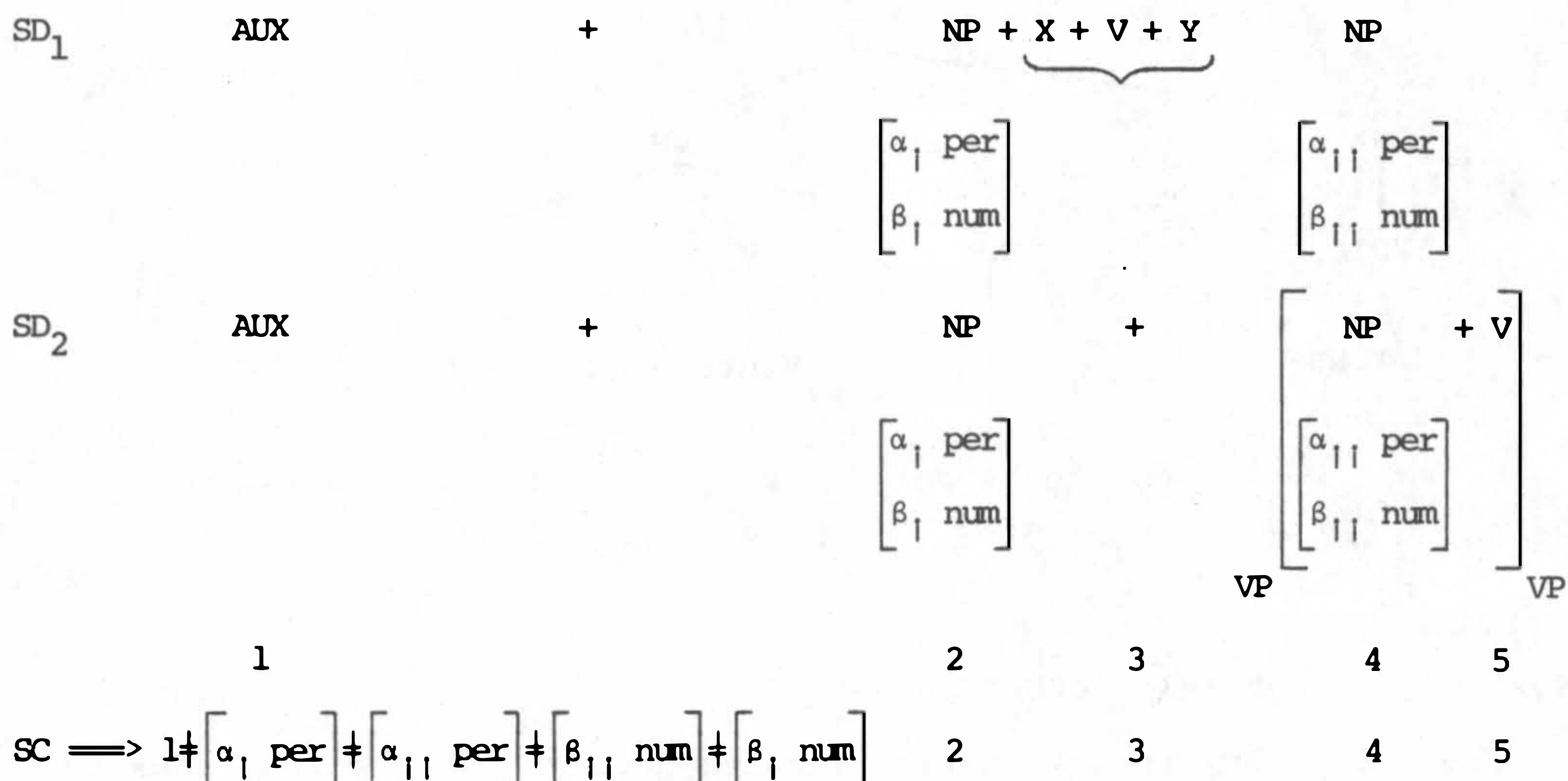
As with the Tense Movement transformation described in Sections 2 and 3 this takes the **TENSE** node from under **AUX** and attaches it under the **V** node.

Case Indexing Rule

A statement of two structural descriptions is needed for Case Indexing for nominative-ergative deep structure Type 2 as it was for Type 1.

In the first structural description the first noun phrase cross-indexed may be the subject of either transitive or intransitive sentences. If it is the subject of a transitive sentence (ergative noun phrase) the variable **X** will be the nominative noun phrase. The second noun phrase cross-indexed is the last in the sentence. If both benefactive and accessory noun phrases occur the variable **Y** will be the benefactive noun phrase. This has not allowed for the transitive sentence where the ergative noun phrase (subject) and the nominative noun phrase (object) are both cross-indexed because neither benefactive nor accessory noun phrase occurs. The second structural description is therefore necessary.⁶

T. Rule (11) Case Indexing



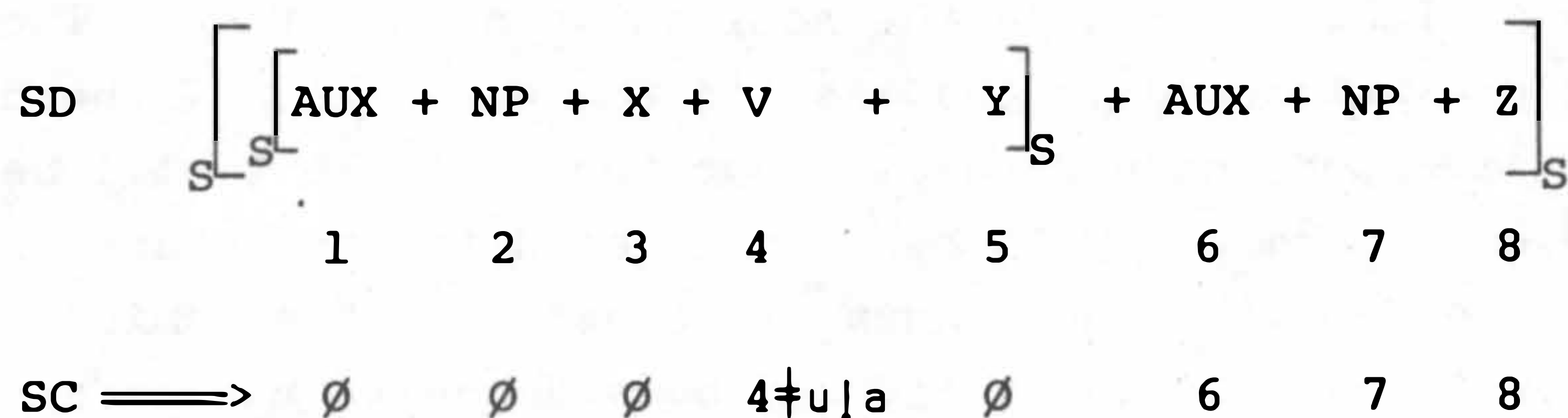
4.3 CASE MARKING RULES

The case marking rules for this second type of nominative-ergative deep structure are:

- i. The noun phrase left of V and dominated by VP is given nominative case inflection.
- ii. Any noun phrase directly dominated by S is given ergative case inflection.
- iii. Noun phrases dominated by VP are given benefactive case inflection if marked NP_{Bn} and accessory case inflection if marked NP_{Ac} .

4.4 TRANSFORMATIONS INVOLVING TWO SENTENCES

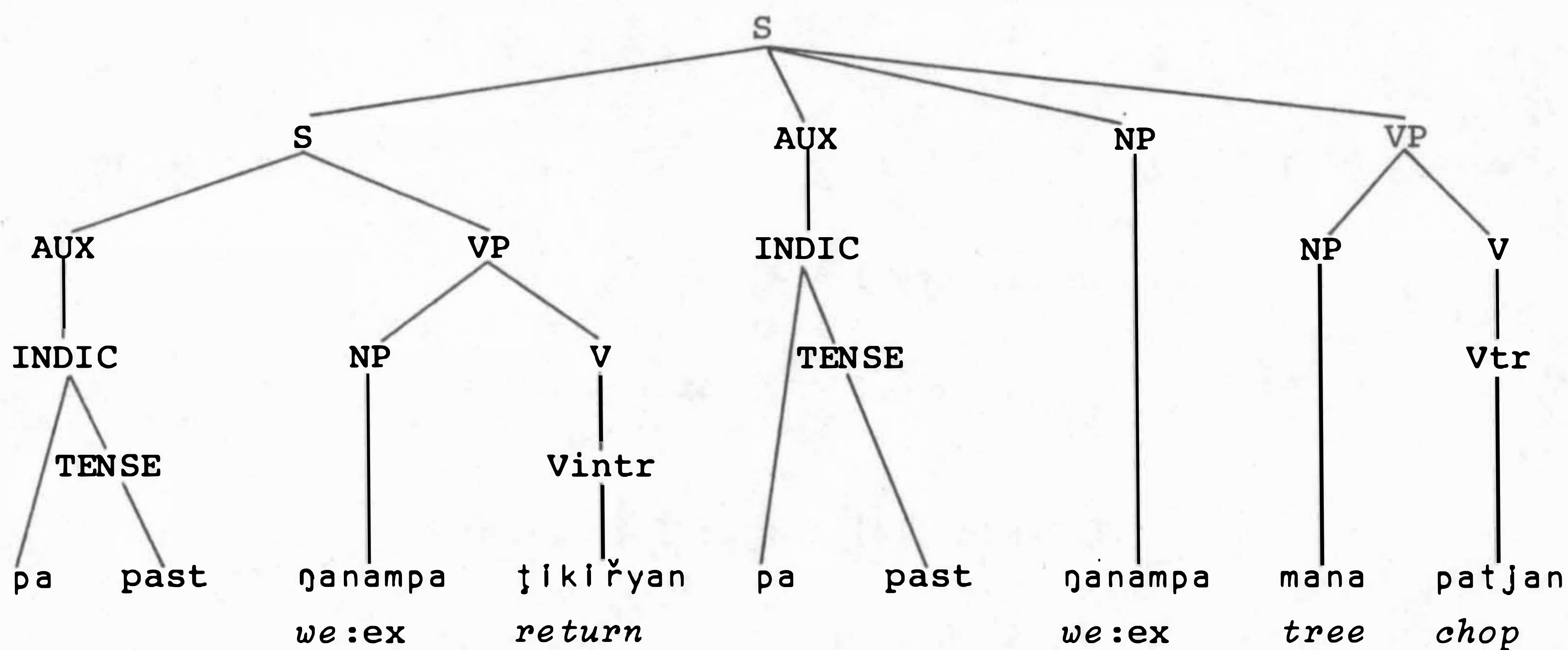
T. Rule (12) -u|a Insertion



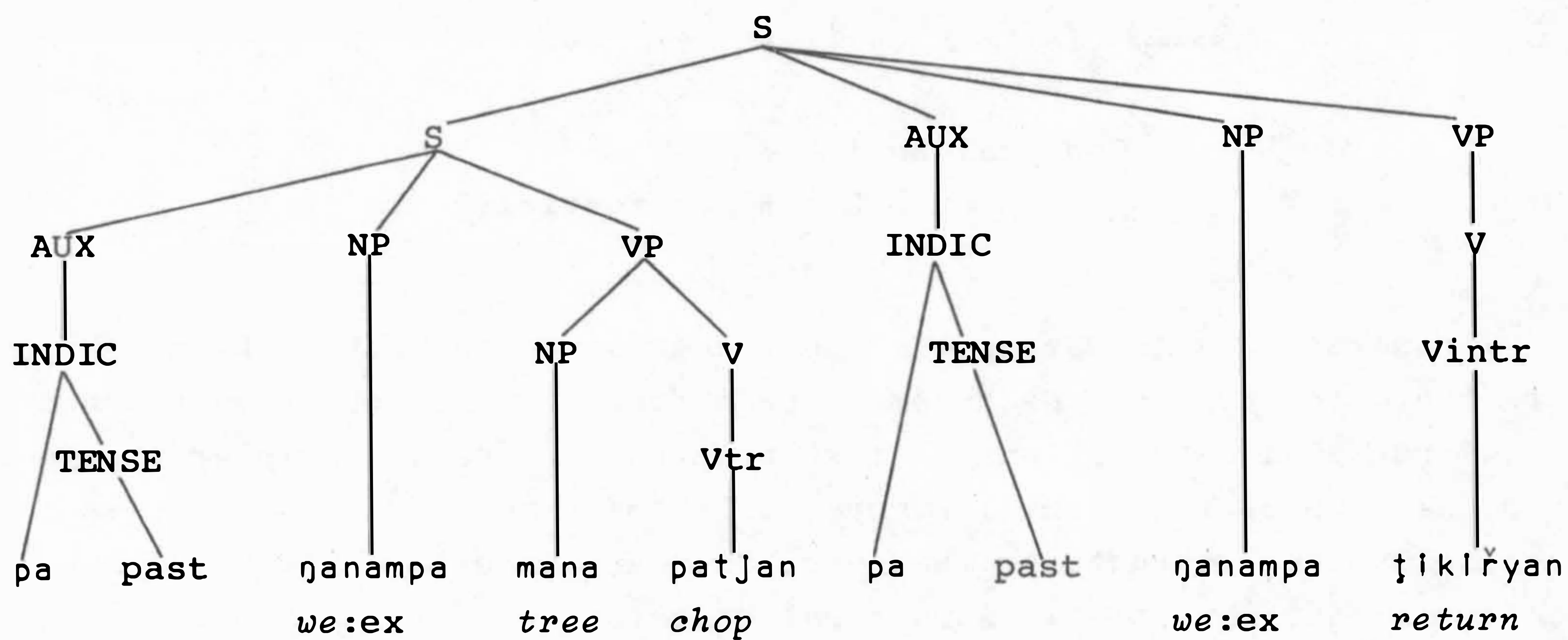
Constraint 2 = 7 referentially

Trees 16 and 17 illustrate sentences (15) and (16) before -u|a Insertion has applied.

Tree 16



Tree 17



T. Rules (13) and (14) overleaf.

T. Rule (13) -u Insertion

SD	$S \left[\begin{array}{c} \left[\begin{array}{c} \text{MOOD} + \text{TENSE} \\ \text{AUX} \end{array} \right] + \text{NP} + \text{W} + S \left[\begin{array}{c} \left[\begin{array}{c} \text{MOOD} + \text{TENSE} \\ \text{AUX} \end{array} \right] + \text{NP} + \text{Y} + \text{V} + \text{Z} \end{array} \right] \end{array} \right] S$									
	1	2	3	4	5	6	7	8	9	10
SC $\Rightarrow$	1	2	3	4	5	$\emptyset$	7	8	9 <u>u</u>	10

Constraints 1 = 5
 2 = 6
 3 = 7 referentially

T. Rule (14) -tja: Insertion

SD	$S \left[\begin{array}{c} \text{AUX} + \text{NP} + \text{X} \end{array} \right] S + S \left[\begin{array}{c} \text{AUX} + \text{NP} + \text{Y} \end{array} \right] S$					
	1	2	3	4	5	6
SC $\Rightarrow$	1	2	3 <u>tja</u> :	4	5	6

Constraints 1 = 4
 2 = 5 referentially

The advantages in favour of Type 2 deep structure rather than Type 1 are that, (a) Ergative NP Movement transformation is not necessary and (b) structural descriptions in most transformations are simpler though generally these still involve more variables than those in the nominative-accusative deep structure. However, the Case Indexing Rule still requires a statement of two structural descriptions.

CONCLUSION

Five transformations have been presented which require the subject of a transitive sentence (ergative case) and the subject of an intransitive sentence (nominative case) to function as a single constituent but no transformation has been found which requires the nominative noun phrase (subject of an intransitive sentence and object of a transitive sentence) to function as a single constituent.

A comparison of rules given in Section 2 with those in Sections 3 and 4 shows that the necessary transformational rules have a significantly simpler statement with a nominative-accusative base than with either type of nominative-ergative base. However, to bring the sentence from deep to surface structure one less transformation is necessary with nominative-ergative Type 2 base than with either of the others.

The evidence is perhaps insufficient to prove conclusively that the deep structure of Walmatjari is of the nominative-accusative type but a simpler description of the overall grammar is certainly possible if the deep structure is assumed to be nominative-accusative.

ABBREVIATIONS AND NOTATIONS

*	An ungrammatical sentence. Late phonological rules have yet to apply
‡	morpheme break
1	1st person
2	2nd person
3	3rd person
ex	exclusive
in	inclusive
per	person
num	number
sg	singular
du	dual
pl	plural
Sb	subject
Ob	object
Bn	benefactive
Ac	accessory
Nom	nominative
Erg	ergative
Acc	accusative
Loc	locative
INDIC	indicative
IMPER	imperative

refl	reflexive
AUX	auxiliary
S	sentence
NP	noun phrase
VP	verb phrase
V	verb
tr	transitive
intr	intransitive
TENSE	tense
SD	structural description
SC	structural change
T. Rule	transformational rule
Q	Variables - with X, Y and Z being used wherever possible and W, U and Q appearing only when more than three variables are needed.
U	
W	
X	
Y	
Z	

1

NOTES

1. Walmatjari is the main language spoken along the Fitzroy River in the north of Western Australia. Many of the speakers live on cattle stations along the Fitzroy River while others live in the towns of Fitzroy Crossing and Derby. Some live as far east as the Halls Creek district and a closely related dialect is spoken as far west as La Grange Mission.

The data for this paper was collected at Fitzroy Crossing under the auspices of the Summer Institute of Linguistics by the author and Miss Eirlys Richards between September 1967 and August 1971.

The enthusiastic help given by many of the Walmatjari-speaking people has been of prime importance in the collection of this data and has led to some very good and lasting friendships.

I also wish to acknowledge the generous help of Professor R.M.W. Dixon of the Linguistic Department of the Australian National University who has helped me in the understanding of the generative theory behind this analysis as well as in the actual analysis and writing of this paper.

This paper was prepared with the assistance of a concordance of 90-100 pages of text in Walmatjari produced by a joint project of the Oklahoma University Research Institute and the Summer Institute of Linguistics which was partially supported by Grant GS-1605 of the National Science Foundation.

2. This is not the final form of the sentence. A late phonological rule deletes the auxiliary root *pa-* when it is immediately followed by a morpheme beginning with the letter *p*. The final forms of the auxiliary in sentences (10) and (12) are therefore *pila-nja* and *pila* respectively.

3. As many as five morphemes can be suffixed to the auxiliary root. The first four specify the person and number of subject and accessory/benefactive/object. In more detail they are:

- 1st Order subject person
- 2nd Order accessory/benefactive/object person
- 3rd Order accessory/benefactive/object number
- 4th Order subject number.

The 3rd Order suffix has two paradigms, one which refers to benefactive number and another which refers to object number. When accessory noun phrase appears in the sentence it can choose either of these paradigms. To signal that this 3rd Order suffix is referring to accessory and not to benefactive or object a 5th Order suffix -|a is added. No attempt has been made in this paper to write rules covering the suffix -|a.

In clauses where only subject is cross-indexed, 1st and 4th Order suffixes only occur in the auxiliary.

4. The ditransitive verb is not included here as it does not bear on the issues considered in this paper. There is only one ditransitive verb root, *yun-* 'give', which shows a number of syntactic and morphological irregularities.

5. This is not the final form of the sentence. Late phonological rules applied to the auxiliary make certain morphological changes and alter the order of some of the morphemes. The factors causing these changes are not dealt with in this paper. For the sake of simplicity all examples in the paper are given with suffixes in the auxiliary in their deep structure orderings. The late rules will apply to the auxiliary in sentences (13), (14), (15) and (17) so that the surface forms will be:

- (13) *ma-ŋa-lu-njananu-|a*
- (14) *ma-ŋa-lu-pilaŋu*
- (15) *ma-ŋa-lu-nja*
- (17) *pa-lu-|a*

The auxiliary is preferred as second constituent of the sentence but otherwise word order is fairly free. This freedom of word order does not affect the meaning of the sentence.

6. In the intransitive sentence (8),

- yani* *ma-ŋa-lu* *ŋanampa-Ø*
- went* INDIC-Sb:l:ex-Sb:pl *we:ex-Nom*
- 'We all (exclusive) went.'*

the auxiliary root is followed by only two morphemes: person and number of the subject. This sentence type is not included in the Case Indexing Rule of any of the analyses presented since it does not affect the issues considered in this paper. The Case Indexing Rule, in each analysis, would require an extra structural description of AUX + NP + V_{intr}.

BIBLIOGRAPHY

Dixon, Robert M.

- 1972 *The Dyirbal Language of North Queensland*. Cambridge:
Cambridge University Press.

Glass, Anee and Dorothy Hackett

- 1970 *Pitjantjatjara Grammar*. Canberra: Australian Institute of
Aboriginal Studies.

Hale, Kenneth

- 1967 "Preliminary Remarks on Walbiri Grammar: I", unpublished
mimeo. Massachusetts: Massachusetts Institute of Technology.
- 1968 "Preliminary Remarks on Walbiri Grammar: II", unpublished
mimeo. Massachusetts: Massachusetts Institute of Technology.
- 1970 "The Passive and Ergative in Language Change; The Australian
Case", in *Pacific Linguistics*, C13, pp. 757-81. Canberra:
The Australian National University.

Hockett, Charles F.

- 1958 *A Course in Modern Linguistics*. New York: Macmillan.