MISSING NOUN PHRASES IN NAVAJO

by

PAUL RANDOLPH PLATERO

Brigham Young University

M.S., Massachusetts Institute of Technology

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Signature of Author.......................................
Department of Linguistics and Philosophy
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Certified by......................................
Thesis Supervisor

Accepted by...   ......
Chairman, Department Committee

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by

PAUL RANDOLPH PLATERO

ABSTRACT

This dissertation deals with two areas of Navajo grammar
which involve problems traditionally subsumed under the rubric
of "coreference." These are relativization and pronominali-
zation. In both of these areas of grammar, situations arise
in which there would appear to be a coreference relationship
holding between an overt noun phrase argument and some
distinct noun phrase position (elsewhere in the same sentence)
which is "empty" in the sense that it is not overtly occupied
by a phonologically constituted element (pronoun or lexical
noun phrase). It is to this situation that the expression
"missing noun phrase", included in the dissertation title,
alludes.

The first chapter reviews earlier work on Navajo which
treats missing noun phrases as arising through the action of
a deletion rule generalized so as to effect the derivation of
relative clauses as well as cases which constitute the Navajo
analogue to "pronominalization", so familiar in the study of
English and other Indo-European languages. This chapter also
introduces the Second Noun Phrase Constraint, whose purpose
is to insure that surface structures with missing noun phrases
correlate properly with deep structures expressing the gram-
matical relations which arguments bear to verbs. The burden
of the rest of the work is to demonstrate that this constraint
is unnecessary in the grammar of Navajo, once a proper under-
standing of the missing noun phrase phenomenon is achieved.

The second chapter takes issue with the idea that
relativization and pronominalization are the same grammatical
process in Navajo, thereby weakening the position which holds
that the Second Noun Phrase Constraint is a condition on a
rule of Navajo grammar. Several contrasts are drawn between
relativization and pronominalization, and it becomes
questionable whether deletion is involved in either process.
In addition, it is suggested that the headless relative
clause--i.e., the favored form in surface structures, for all
Navajo speakers--is the basic form in underlying structures,
the more marginal right-headed structure being derived by
means of a movement rule.   ·

Chapter Three develops a Navajo analogue to the theory
of pronominalization according to which pronouns are
generated in the base. According to this Navajo analogue,

NP
|
PRO

for purposes of exposition. This chapter also argues that there is in fact no need for any special rule of pronominalization. No mechanisms beyond Lasnik's Non-Coreference Rule (appropriately extended to apply in the Navajo situation) are needed. This position is referred to as "the best possible theory" of Navajo pronominalization, since it requires no special rules. A potential counter-argument to this best possible theory is introduced at the end of the chapter when the now defunct Second Noun Phrase Constraint is reformulated as a surface structure condition enabling the revised theory of Navajo grammar to match surface strings with the correct deep structures.

The fourth and final chapter, after reviewing certain fundamental assumptions upon which the analysis offered in Chapter Three is based, presents evidence against a special constraint which requires coreference between an overt noun phrase and an immediately following PRO. Subsequent to this, a revised conception of Navajo coreference interprecations is offered. This revised conception of the problem makes use of an interpretive strategy employed by Navajo speakers in understanding sentences. The interpretive strategy is in effect a principle for the Interpretation of Grammatical Relations, and it is abbreviated IGR. The force of the IGR, it is argued, makes unnecessary the constraints on surface structures to which the Second Noun Phrase Constraint of Chapter One was ancestral. At the end of the chapter, the contrast between relativization and pronominalization is formalized by proposing a tentative theory of the right-headed relative clause which employs a mechanism utterly distinct from any mechanism involved in pronominalization. And finally, an alternative to the framework of Chapter Three--addressed to certain remaining problems--is briefly considered. In this alternative, missing noun phrases are "truly missing" in deep structures. That is to say, for example, a missing argument does not correspond to an unexpanded NP-node in the deep structure phrase marker; rather, the NP-node is itself missing in deep structure.

Thesis Supervisor: Kenneth Hale

Title: Professor of Linguistics

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Ałk'idą́ą́' tseebíí nááhaídą́ą́' níléí Tséghahoodzánídi
Kenneth Hale bił ałhéíhosiszįįd. Áádóó k'ad kojį' haashį́į́
néiląą́'góó shíká eelwod. Díí kǫǫ naanish yii'a'ígíí
dooshį́į́ ałtso hasht'eedzaadadoo nít'éé' doo shíká
análwo'gógo; binitsékees dóó binahat'á dóó índa bee
ajooba' yee shíká eelwod. Díí biniinaa ííyisíí
aghánáhóó'áadi ahéhee' bidishní. Ken bits'ą́ądóó saad
naalkaah bił haz'ą́ąjí íhooł'ą́ą́'.

Áádóó haashį́į́ jinéelą́ą̨'go ałdó' łahdóó adajiizhjéé';
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Yee shíká adahaaswodígíí éí łahgóó daasdzohgo át'é díí
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yádaałti'ígíí dóó shí bee yáshti'ígíí ał'ąą át'ée łeh,

jó ałk'idą́ą́' nihizází ałts'ą́daaznánée bee át'é--
Tóhajiileehdę́ę́' éí naashá. Áłká anáhi'niilchéehgo, saad
bee yáti' díí naaltsoos bii' naashkaahígíí hazhó'ó
hasht'eilyaa. Áłahjį' díí naaltsoos baa naashnish
biniinaa sha'áłchíní baa náyoosh'nah nít'ę́ę́' lá. Nineez
daazlį́į'go daats'í bił béé dahodoozį́į́ł--doo t'áá ákóshłéehgo
ásht'į́įda.

T'áá ániid, neeznáá nááhaiídą́ą́', T'áá Diné bizaak'ehjí
ak'e'elchí bínáhoo'aahgo baa ní'diildee'ę́ę dííshjį́įgóó
íiyisíí yéego dóó tsxíiłgo nooyééł. Niha'áłchíní (dóó
t'áá sáanii dóó hastói da ałdó') t'áá nihí nihik'ehjí
ak'e'elchí yídahooł'aahígíí éí binahjį' ólta' bidiishkaal
nít'ę́ę́'--éí bits'ą́ą́dóó shijéí dóó shinitsékees doo hasht'e'
ádólzingóó nahashzhiizh, háálá ts'ídá ákót'éego t'éiyá
náásgóó Diné hóló̜ó̜doo. Tsélkéí dóó ch'ikéí dííshjį́įgóó
bá da'ólta'; T'óó ahayói saad ahą̨ah sinilgo bá da'ólta'.
Kót'éego óhoo'aah bił haz'ánígíí binahjį' díí naaltsoos
t'áá tsxį́įłigo hadilyaa. Éí dó' ahéhee' bi'di'ní.

CHAPTER ONE

INTRODUCTION TO NAVAJO

RELATIVIZATION AND PRONOMINALIZATION

1.0 Introduction

In recent times, one of the more interesting topics discussed by linguists has been that of coreference. The study of the Navajo language is not exceptional in its ability to reveal new facts concerning this topic of coreference. In the present study, I will briefly review recent accounts dealing with different aspects of Navajo anaphora--concentrating initially on the relative clause and so-called "zero pronominalization"--and I will propose a new departure that appears to achieve greater descriptive adequacy.

1.1 The Relative Clause

The Navajo relative clause appears in two forms. The first of these is common in verb-final languages the world over. It is the type in which a "head" noun phrase follows the relative clause and in which the "relative" noun phrase--i.e., the shared noun phrase in the subordinate clause--appears to be simply deleted. For example, consider sentence (1.1):

(1.1)   Dahneeshjídę́ę̨ hastiin yidloh.

(jump:REL   man   laugh)[1]

The man who jumped is laughing.

which, according to previous works (cf. Platero 1974), is
derived from an underlying structure of the following form:

(1.2)

```
                                        S
                              NP                V
                     S              NP
                S        REL
          NP        V
          |         |        |        |         |
        hastiin  dahneeshjííd  -ę́ę   hastiin   yidloh

         man      jump        -REL    man       laugh
```
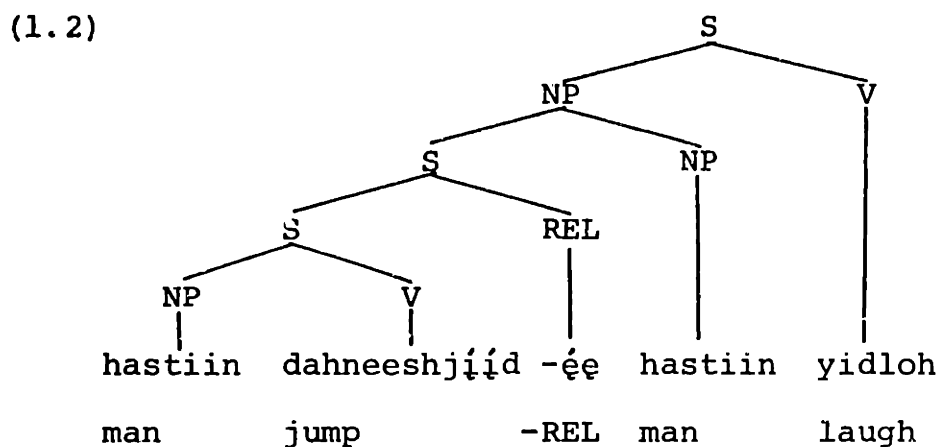
Let us refer to the theory in which (1.1) is derived from
(1.2) as the "Deletion Theory" of Navajo relative clauses.
In this theory, the deletion is accomplished by means of a
rule of roughly the form given in (1.3) below:

(1.3)   X $[_{NP}$ $[_S$ Y NP Z$]_S$ NP$]_{NP}$ W

           1   2 3 4   5   6 $\Longrightarrow$

           1   2 0 4   5   6

                    Condition.   3 = 5

It was demonstrated in Platero (1974), that this "backward
deletion"—i.e., deletion of the identical noun phrase in
the subordinate clause—applies over a true variable. That
is to say, there is no apparent limit in terms of the
distance which can separate the trigger and target noun
phrases. This sort of apparent backward deletion is familiar
enough, being well documented in such verb-final languages
as Japanese (Kuno 1973), Turkish (Knecht and Hankamer 1976),

and Basque (deRijk 1972).

But what is of special interest here is the fact that Navajo apparently also allows "forward deletion"--not allowed in the more familiar verb-final languages. This apparent forward deletion results in a structure in which the head noun phrase is missing--it results in the so-called "headless" relative clause. That is to say, the relative noun phrase is present while the head noun phrase is missing. This second alternative--i.e., the headless relative clause--is vastly preferred over the type represented by sentence (1.1). It is exemplified in (1.4) below.

(1.4) Hastiin dahneeshjídę́ę yidloh.

(man   jump:REL   laugh)

According to the deletion theory, this sentence is also derived from the underlying structure (1.2), but by deletion of the <u>head</u> noun phrase rather than by deletion of the relative noun phrase. The deletion is accomplished by a rule of the following form:

$$(1.5) \qquad X \quad [_{NP} \; [_{S} \; Y \; NP \; Z]_{S} \; NP]_{NP} \; W$$

$$1 \qquad\qquad 2 \; 3 \; 4 \quad 5 \qquad 6 \implies$$

$$1 \qquad\qquad 2 \; 3 \; 4 \quad 0 \qquad 6$$

$$\text{Condition:} \quad 3 = 5$$

Note that the structural description of this rule is identical to that of (1.3), only the structural change is different-- rule (1.3) effects a backward deletion, while rule (1.5)

effects a forward deletion.

It is perhaps not evident as yet that the relative noun

phrase /hastiin/ in (1.4) is in fact located within the

embedded clause, rather than, say, outside of it and to its

left. But I can establish that it is indeed internal to the

relative clause by arranging matters so as to "surround" the

relative noun phrase with material which clearly belongs to

the embedding. For example, consider (1.6):

> (1.6) Adą́ą́dą́ą́' dahneeshjídę́ę hastiin yidloh.
>
> (yesterday jump:REL   man   laugh)
>
> The man who jumped yesterday is laughing.

where, by backward deletion, the relative noun phrase is

missing. But forward deletion will remove the head noun

phrase, leaving the relative noun phrase in the very position

it occupied in the underlying structure--i.e., forward

deletion gives (1.7) which is directly underlain by (1.8):

> (1.7) Adą́ą́dą́ą́' hastiin dahneeshjídę́ę yidloh.
>
> (yesterday man   jump:REL   laugh)

(1.8)
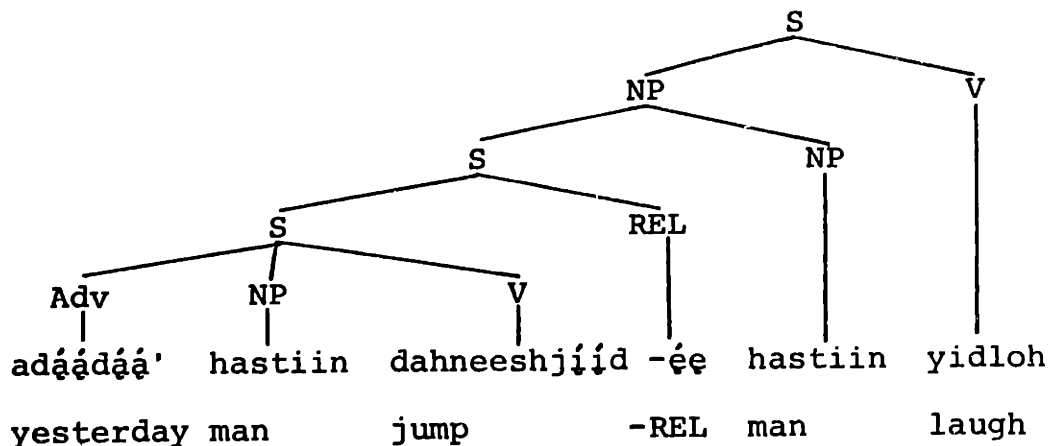
It is clearly the case here that the relative noun phrase /hastiin/ is within the embedded clause, since it is preceded and followed by material belonging to that embedded sentence.

Notice the similarities of rules (1.3) and (1.5). Although they are distinct in terms of the direction of the deletion, their structural descriptions are identical. It is possible to collapse the two rules with respect to their structural descriptions into a combined rule of the following form:

$$(1.9) \quad X \; [_{NP} \; [_S \; Y \; NP \; Z]_S \; NP]_{NP} \; W$$

$$\begin{array}{cccccc} & 1 & 2 & 3 & 4 & 5 & 6 \implies \\ (a) & 1 & 2 & 0 & 4 & 5 & 6 \\ (b) & 1 & 2 & 3 & 4 & 0 & 6 \end{array}$$

$$\text{Condition:} \quad 3 = 5$$

This rule (1.9) is capable of deriving headed relative clauses by applying the structural change given in subpart (a). This is, in fact, the structural change of rule (1.3). Similarly, subpart (b) has exactly the same effect as the structural change in (1.5) above--it results in the headless relative clause.

1.2 Pronominalization

Apparent forward deletion, similar in its overall effect to that used in relative clauses, is apparently involved in the derivation of sentences like (1.10) below. For the sake of familiarity, let us refer to this process as

"pronominalization."

    (1.10)   Hastiin deezghal dóó nídii'na'.

           (man   awaken   and get:up)

           The man awoke and got up.

According to the deletion theory, this sentence has roughly the following underlying structure:

    (1.11)

```
                              S
            _____/_____|_____
           S̄                  |              S̄
        /     \               |           /     \
      NP       V              |         NP        V
       |       |              |          |        |
   hastiin  deezghal        dóó      hastiin   nídii'na'

    man      awaken         and       man      get:up
```
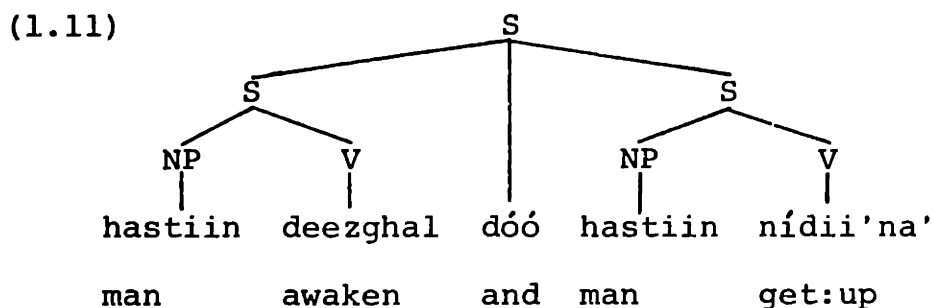
The surface sentence (1.10) is derived by deleting the second occurrence of the noun phrase /hastiin/. But as in English, so also in Navajo, backward deletion is not possible in (1.11). Backward deletion is possible into a subordinate clause only. Thus, in a structure of the following form, either forward or backward deletion is possible:

    (1.12)

```
                                   S
                 _____/__|_____
               Adv                NP        V
            /        \             |         |
          S           COMP         |         |
       /     \          |          |         |
     NP       V         |          |         |
      |       |         |          |         |
  hastiin  deezghal    -go      hastiin   nídii'na'

   man      awaken    -COMP      man      get:up
```
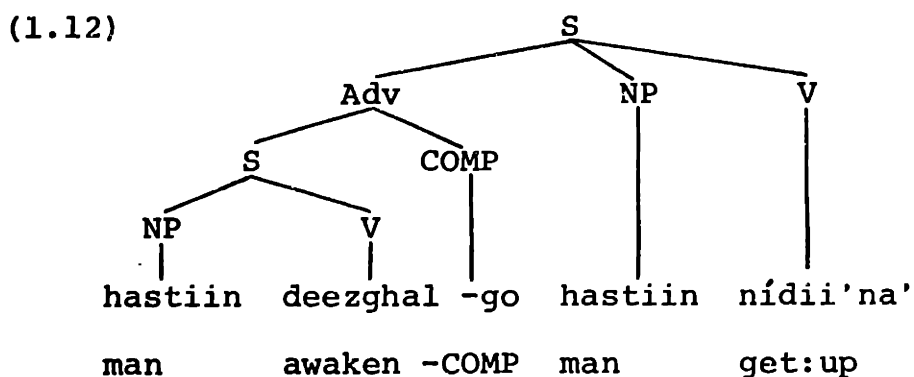
Forward deletion would give

(1.13) Hastiin deezghalgo nídii'na'.

(man   awaken:COMP get:up)

When the man awoke, he got up.

And backward deletion would give

(1.14) Deezghalgo hastiin nídii'na'.

(awaken:COMP man   get:up)

When he awoke, the man got up.

In the deletion theory, we must insure that backward deletion
is allowable only into a subordinate clause. Notice that
precisely the same is true in relative clauses--i.e., by
virtue of the structure assigned to a relative clause, back-
ward relativization (deletion) is, in fact, into a
subordinate clause.

1.3 Deletion Process Generalized

Under the assumption that deletion is involved both in
relative clause formation and in pronominalization, there is
an obvious similarity between the two processes: the deletion
is bidirectional in both, and backward deletion is identically
constrained in both. In previous work on Navajo anaphora
(e.g., Platero 1974), this similarity led to the proposal that
a single deletion operation was involved in the derivation of
relative clauses and pronominalization. Formally, this
identification of the two processes is achieved by simply
deleting the labelled bracketing from the structural descrip-
tion of rule (1.9) and appending a condition to the effect

that the structural change involving backward deletion is possible only where the noun phrase to be deleted is in a subordinate clause. The combined process of deletion can be expressed as follows:

(1.15)   Identical Noun Phrase Deletion

$$X - NP - Y - NP - Z$$
$$1 \quad 2 \quad 3 \quad 4 \quad 5 \implies$$

(a)   1   2   3   0   5

(b)   1   0   3   4   5

Conditions: (1)   2 = 4

                 (2)   (b) only if 2 is in subordinate clause

This rule will apply alike to the structures assumed to underly relative clauses--e.g., (1.2) and (1.8)--and to structures which underly pronominalization--e.g., (1.11) and (1.12).

1.4 An Apparent Constraint on Deletion

Let us for the time being leave matters as they are and, continuing to assume the deletion theory, let us consider the operation of (1.15) into subordinate clauses more carefully. In our examples heretofore, only intransitive sentences were used to exemplify deletion of a noun phrase from a subordinate clause. It is possible, of course, to have a transitive sentence embedded as a relative clause, as in the following pre-deletion structure:

(1.16)

```
                                         S
                            _____
                           NP                          V
                    _____
                   S               NP
            _____
           S               REL
     _____
    NP     NP      V
    |      |       |        |        |        |
  ashkii at'ééd yí'dísooł  -ę́ę     ashkii  deezgo'

  boy    girl  whistle    -REL     boy      fall
```
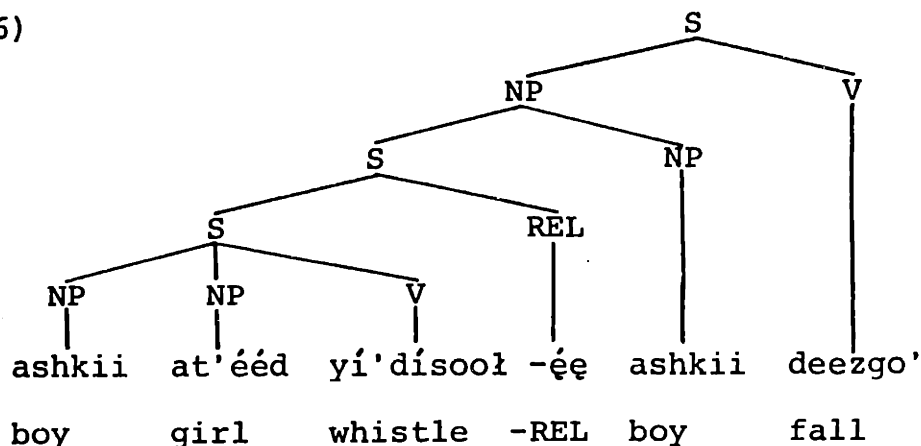
By rule (1.15a), sentence (1.17) is derived:

> (1.17) Ashkii at'ééd yí'dísoołę́ę deezgo'.
>
> (boy   girl   whistle:REL fall)
>
> The boy who was whistling at the girl
>
> (tripped and) fell.
>
> The girl that the boy was whistling at
>
> (tripped and) fell.

This sentence is ambiguous with respect to the question of which of the two remaining noun phrases is to be understood as the subject of the main verb. This ambiguity, which is a common property of certain headless relative clauses in Navajo, will be taken up at a later point. Our interest now is in backward deletion, which can also apply to (1.16). Its application will yield the following:

> (1.18) At'ééd yí'dísoołę́ę ashkii deezgo'
>
> (girl   whistle:REL boy   fall)
>
> The boy who was whistling at the girl
>
> (tripped and) fell.

Of special interest is the fact that this sentence is
unambiguous with respect to the grammatical function of the
noun phrase /at'ééd/ in relation to the embedded verb. The
point is that it bears the same relation to the verb
/yí'dísool/ in (1.18) as it does in the simple sentence

> (1.19)   Ashkii at'ééd yí'dísool.
>
> (boy   girl   whistle)
>
> The boy whistles at the girl.

This sentence conforms to the SOV pattern of Navajo
transitive sentences containing third person noun phrases.
That is to say, the first noun phrase is the subject and the
second is the object (there is also a morphologically distinct
OSV pattern for transitive sentences which will be discussed
later). Notice that sentence (1.19) has precisely the form
of the embedded sentence in (1.16).

The lack of ambiguity in (1.18) creates a problem for
the deletion rule as stated in (1.15). The problem is this:
Why couldn't (1.18) have a reading corresponding to the
underlying structure (1.20)?

(1.20)


```
          at'ééd  ashkii  yí'dísool  -ęę  ashkii  deezgo'
          girl    boy     whistle    -REL boy     fall
```
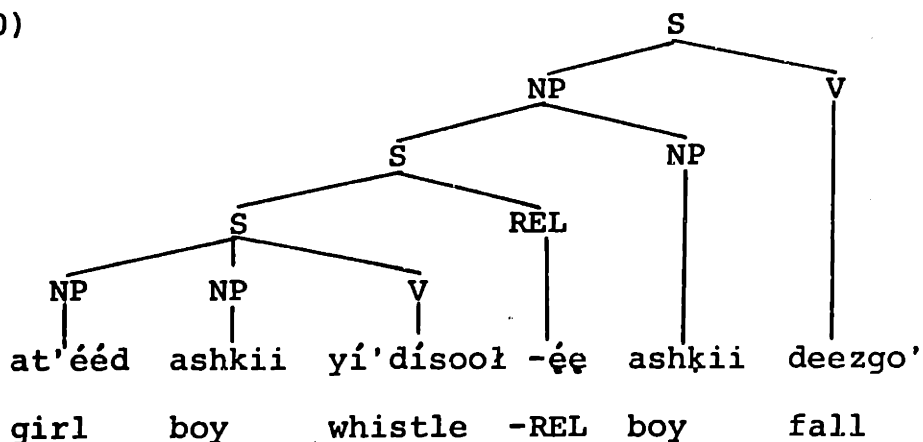
In this structure the noun phrase /at'ééd/ corresponds to the subject rather than the object, as in the perfectly well-formed simple sentence (1.21)

(1.21)   At'ééd ashkii yí'dísooł.

(girl   boy   whistle)

The girl is whistling at the boy.

Rule (1.15), as stated, will apply to (1.20) producing a string identical to (1.18). However, that string cannot be understood to have the meaning in (1.20). Notice that there is nothing semantically odd about (1.20) because forward deletion produces the perfectly well-formed sentence

(1.22)   At'ééd ashkii yí'dísoołéę deezgo'.

(girl   boy   whistle:REL fall)

(a)   The girl who was whistling at the boy

(tripped and) fell.

(b)   The boy who the girl was whistling at

(tripped and) fell.

one of whose readings--i.e., subpart (b)--corresponds to the meaning represented in the structure (1.20). But it is precisely that reading which is not available for (1.18). One move which can be made in the deletion theory in order to account for the lack of ambiguity in (1.18) is to place an additional constraint upon the deletion rule. This is the move I made in my study of Navajo relative clauses in 1974. The constraint can be stated in roughly the following form:

(1.23)   <u>Second Noun Phrase Constraint</u>

In transitive sentences of the form

...NP NP V,

only the first NP may be deleted.

(Actually, I argued in my earlier study that this applies only to cases in which the two NPs are third person. In fact, however, constraints on interpretation involving the linear order of noun phrases are enforced <u>only</u> in cases where the noun phrases are third person. Therefore, in my continuing discussion wherever the category NP is referred to, it can be assumed that the noun phrase is a third person).

The constraint (1.23) will prevent backward deletion-- i.e., case (b) of (1.15)--from applying to (1.20). That is, the constraint will prevent the derivation of the string (1.18) from the structure (1.20), thereby accounting for the lack of ambiguity of (1.18).

Notice that (1.23) will not only constrain backward deletion but also forward deletion in so-called pronominalization. Consider, for example, the structure

(1.24)

```
                            S
              _____|_____
             S                |                S
          ___|___             |          _____|_____
         NP      V            |         NP     NP      V
         |       |            |         |      |       |
      ashkii  yah'iiyá       dóó     ashkii  at'ééd  yí'déésóól

       boy     enter         and      boy    girl    whistle
```
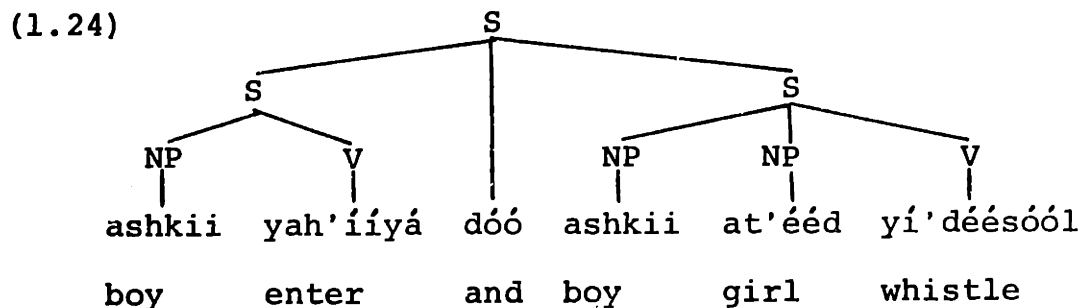
Since this is a conjoined structure, only forward deletion--

i.e., case (a) of (1.15)--can apply, yielding

(1.25)   Ashkii yah'ííyá dóó at'ééd yí'déésóól.

(boy   enter   and girl   whistle)

The boy entered and whistled at the girl.

Like the relative clause in (1.18), the second conjunct
in (1.24) is unambiguous. Specifically the noun phrase
/at'ééd/ is understood as the object of the verb /yí'déésóól/
just as it is in the simple sentence (1.26) below:

(1.26)   Ashkii at'ééd yí'déésóól.

(boy   girl   whistle)

The boy whistled at the girl.

The prohibition against deleting the second noun phrase in
a structure of the form NP NP V --i.e., constraint (1.23)--
will account for the lack of ambiguity of (1.25). That is
to say, the constraint will guarantee that (1.25) is not
derived from

(1.27)
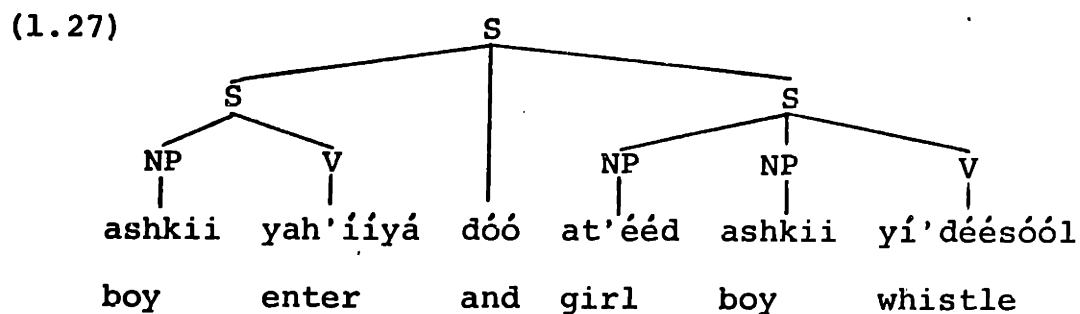
In general, constraint (1.23) accounts for the fact
that no sequence of the form

(1.28)   NP V

which derives from a transitive sentence of the form

    (1.29)   NP NP V

has the interpretation according to which the deletion site immediately precedes the verb. If we represent the deletion site with the symbol GAP, a derived structure of the form (1.28), will correspond in its interpretation to

    (1.30)   GAP NP V

rather than

    (1.31)   NP GAP V

Thus, in the sentences that we have been considering, the GAP corresponds to the position of the subject noun phrase rather than the object noun phrase, since the examples we have chosen involve transitive sentences conforming to the SOV pattern.

It is perhaps appropiate at this point to introduce the OSV pattern which Navajo transitive sentences, involving third person subject and object, may adopt. Consider the sentence

    (1.32) Ashkii at'ééd yizts'ǫs.

          (boy   girl   kiss)

          The boy kissed the girl.

This represents the SOV pattern. There is an alternative form, cognitively synonymous with (1.32), to wit:

(1.33)   At'ééd ashkii bizts'ǫs.

(girl boy   bi:kiss)

The girl was kissed by the boy.

In this form of the sentence, the object precedes the
subject.   That is to say, the sentence conforms to the
pattern OSV.   In addition to the difference in the linear
order of the noun phrases, (1.32) and (1.33) exhibit a
morphological difference in the verb word.   Specifically,
in the SOV pattern, the third person object prefix is
represented by the morph /yi-/, while in the OSV pattern,
it is represented by the morph /bi-/.   It has been assumed
(Hale (1973), Creamer (1974), Frishberg (1972), Witherspoon
(1977), and myself (1974)) that the OSV pattern is derived
by means of a transformation called subject-object-inversion
(SOI).   I do not wish to commit myself as to the existence
of this rule as a genuine transformation.   I will simply
assume it here for expository purposes.   The rule might be
expressed in very abbreviated form, as follows:

(1.34)   NP - NP - yi-V

          1   2   3 4 ⟹

          2   1   bi 4

In actual fact this formulation masks a large number of
details, particularly in relation to terms 3 and 4 in the
structural description.   The prefix /yi-/ is actually a
part of the verb word and may or may not be initial in it.

In addition to the morphological details, there are
conditions on the application of SOI relating to semantic
content of the noun phrases (see references for discussion).
What is relevant here is the interpretation of the noun
phrases appearing in the two alternative patterns. The
The interpretation conforms to the following principles
(from Hale, Jeanne, and Platero 1976):

(1.35)   <u>Interpretation of Grammatical Relations</u>

NP is

(a)   Object / __yi-V

Subject/ __bi-V

(b)   Subject/ __NP yi-V

Object / __NP bi-V

By these principles, sentences of the form

(1.36)   NP NP yi-V

will be assigned the functional profile

(1.36')   S O V

while sentences of the form

(1.37)   NP NP bi-V

will be assigned the functional profile

(1.37')   O S V

Now let us return to a reconsideration of the Second
Noun Phrase Constraint--i.e., (1.23) above. If (1.23) is
correct as stated then it should also pertain to cases in

which the target for deletion appears in an inverted
sentence like (1.33). Consider, for example, the
following structure

(1.38)

```
                        S
          ┌─────────────┼─────────────┐
          S             │             S
       ┌──┴──┐          │      ┌───────┼───────┐
      NP     V          │      NP     NP        V
       │     │          │      │      │         │
    at'ééd yah'iiyá    dóó  at'ééd  ashkii   bizts'ǫs

    girl   enter       and   girl    boy      bi:kiss
```
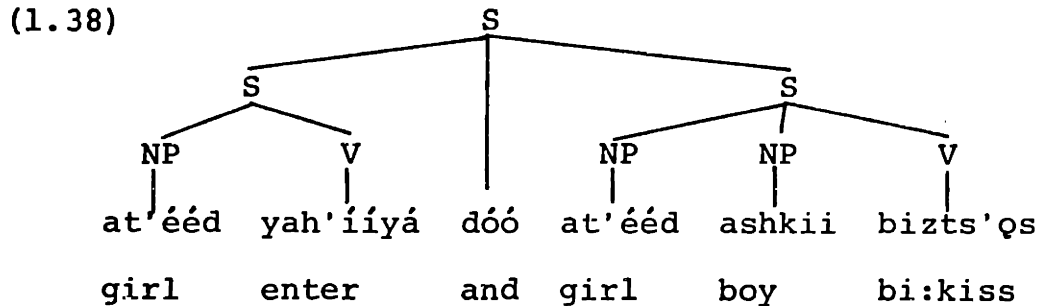
Forward deletion in this instance derives

(1.39)   At'ééd yah'iiyá dóó ashkii bizts'ǫs.

         (girl   enter   and boy   bi:kiss)

         The girl entered and was kissed by the boy.

The second conjunct in this sentence is in fact, unambiguous
and receives only the interpretation corresponding to (1.33).
Thus, it appears that the Second Noun Phrase Constraint
gives the correct result since it guarantees that the
deletion site in (1.39) precedes the noun phrase /ashkii/
and therefore, that the surface string would not come from
the following structure:

(1.40)

```
                        S
          ┌─────────────┼─────────────┐
          S             │             S
       ┌──┴──┐          │      ┌───────┼───────┐
      NP     V          │      NP     NP        V
       │     │          │      │      │         │
    at'ééd yah'iiyá    dóó   ashkii at'ééd   bizts'ǫs

    girl   enter       and   boy     girl     bi:kiss
```
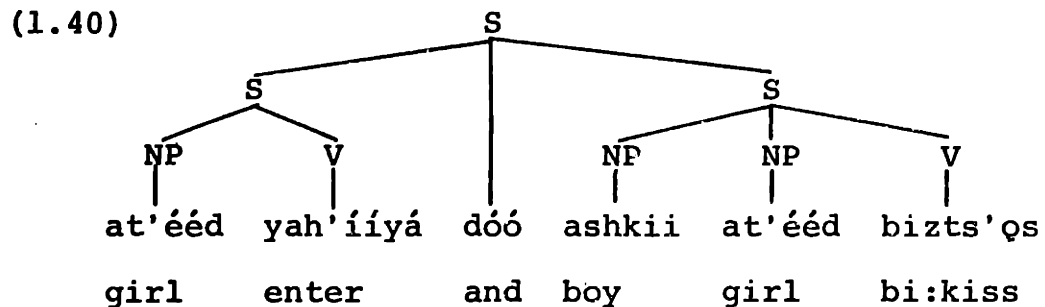
Sentence (1.39) illustrates forward deletion into an

inverted sentence. The following sentence illustrates backward deletion into an inverted sentence:

(1.41) Ashkii bizts'ǫsę́ę at'ééd hadoolghaazh.

(boy   bi:kiss:REL girl   scream)

The girl that was kissed by the boy screamed.

Here again (1.23) correctly predicts that the sentence is unambiguous. Under the deletion hypothesis, the sentence must come from

(1.42)

```
                                          V
                              NP                   V
                        S           NP
                  S           REL
           NP    NP    V       |      |      |
           |     |     |       |      |      |
         at'ééd ashkii bizts'ǫs -ę́ę  at'ééd hadoolghaazh

          girl   boy   bi:kiss -REL  girl    scream
```

and not from

(1.43)
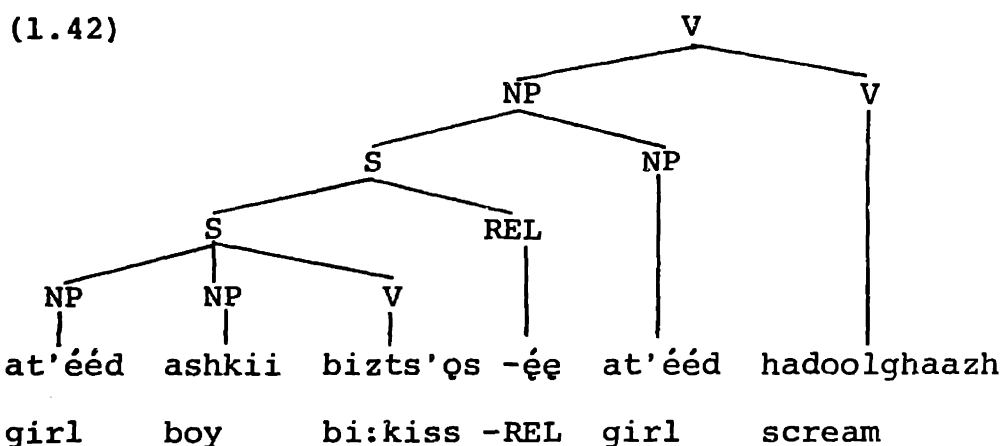
```
                                          S
                              NP                   V
                        NP          NP
                  S           REL
           NP    NP    V       |      |      |
           |     |     |       |      |      |
         ashkii at'ééd bizts'ǫs -ę́ę  at'ééd hadoolghaazh

          boy    girl  bi:kiss -REL  girl    scream
```
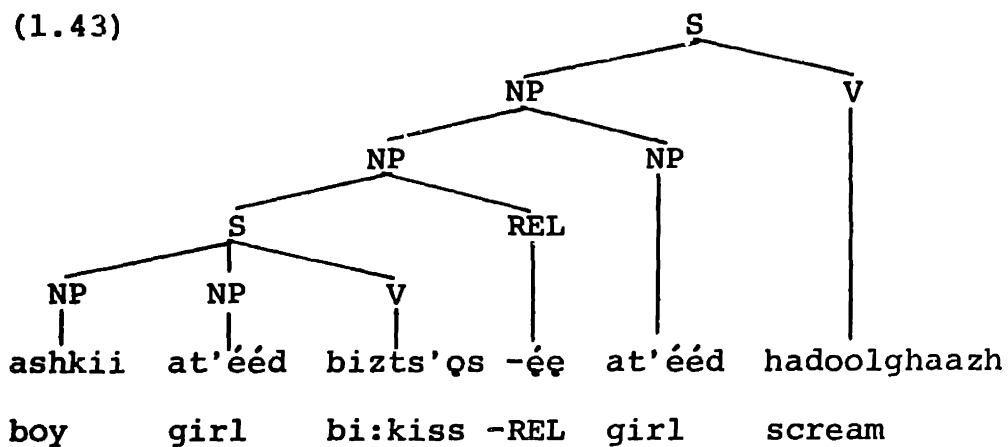
1.5 An Additional Constraint

The constraint expressed in (1.23) has basically the following effect: It prevents deletion of the object noun phrase in sentences with the functional profile SOV, and it prevents deletion of subject noun phrase in sentences with the functional profile OSV. For the cases we have considered so far, this is sufficient to predict the observed facts concerning the interpretation of surface strings resulting from deletion. It is not sufficient, in general, however, as we shall see presently. Consider the following structure:

(1.44)

```
                              S
         NP                          NP              V
          |                    S            NP       |
          |              S        REL        |       |
          |          NP  NP   V    |         |       |
          |          |   |    |    |         |       |
     hastiin  ashkii at'ééd yiyiiltsa(n) -ę́ę ashkii yí'dísool
     man      boy    girl   see        -REL   boy    whistle
```
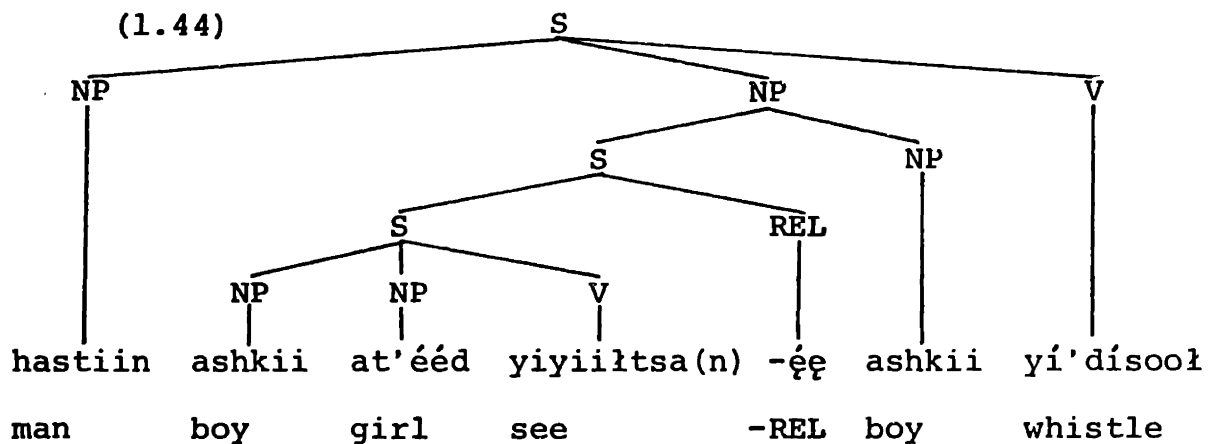
Backward deletion in (1.44)--applying in conformity with (1.23)--gives rise to the following surface string:

(1.45) Hastiin at'ééd yiyiiltsánę́ę ashkii yí'dísool.

    (man   girl   see:REL   boy   whistle)

≠ (a) The man is whistling at the boy who saw the girl.

(b) The man who saw the girl is whistling at the boy.

(c) The girl that the man saw is whistling at the boy.

We would expect sentence (1.45) to be semantically consis-
tent with the structure it presumably came from--i.e., to
have reading (a) above. However, the meaning of (1.45)
differs from that embodied in (1.44)--specifically, it has
either the interpretation (b), as if it derived from (1.46)
below:

(1.46)

```
                                          S
                         NP                      NP        V
                  S            NP                 |        |
             S         REL      |                 |        |
        NP  NP   V      |       |                 |        |
        |   |    |      |       |                 |        |
    hastiin at'ééd yiyiiłtsą(n) -ęę hastiin     ashkii  yí'dísooł
    man     girl   see         -REL man         boy     whistle
```
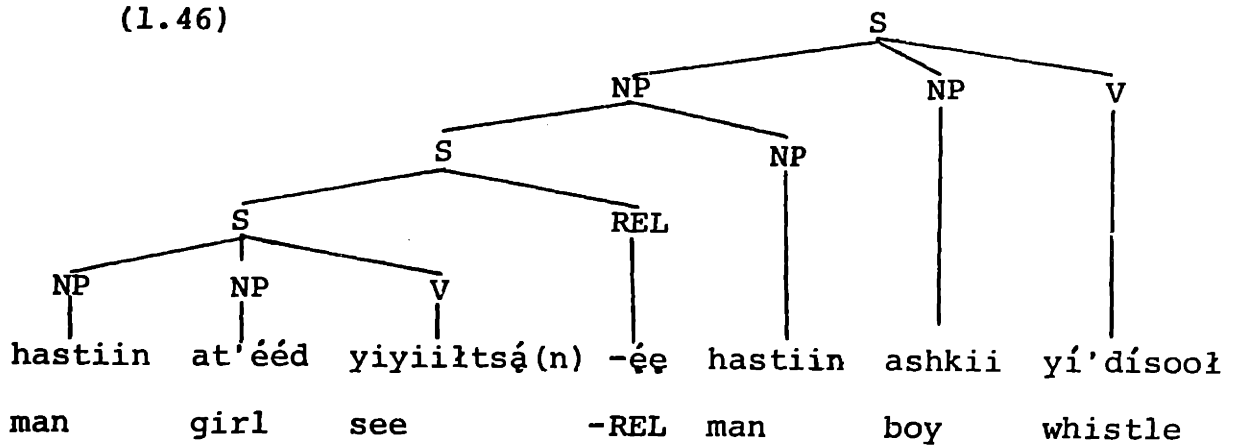
or the interpretation (c), identical to (1.46) but with
/at'ééd/ in head position. Because backward deletion
applied to (1.44) does not violate condition (1.23), it is
apparent that the constraint is not sufficient. Notice
that backward deletion in the substructure (1.47), contained
within (1.44), must be allowed:

(1.47)

```
                                 NP
                         NP            NP
                  S           REL       |
             NP  NP   V        |        |
             |   |    |        |        |
        ashkii at'ééd yiyiiłtsą(n) -ęę ashkii
        boy    girl   see         -REL boy
```
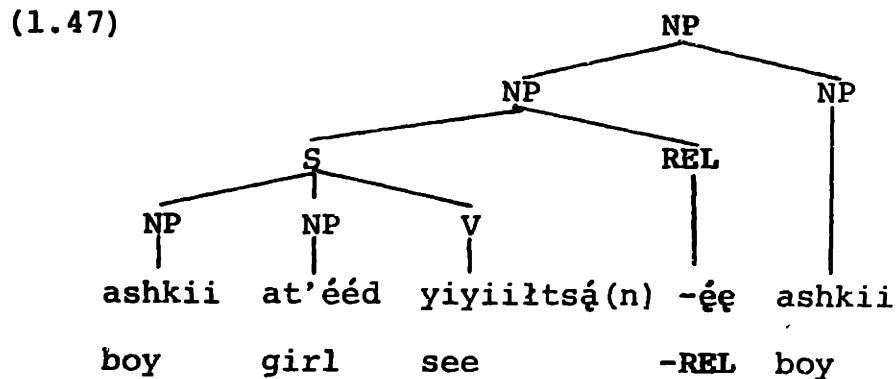
This follows, since (1.48) is perfectly well-formed:

(1.48)   At'ééd yiyiiłtsánę́ę ashkii yidloh.

(girl   see:REL   boy   laugh)

The boy who saw the girl is laughing.

The special property of structure (1.44) which is relevant to backward deletion relates to the fact that the complex noun phrase is in object position rather than subject position. Because of this, the complex noun phrase is itself preceded by a noun phrase belonging to the main clause. Evidently, this is what is responsible for the interpretations which result. To correct for this, we might propose a constraint in addition to the one already embodied in (1.23) which would prevent deletion from applying even to the first noun phrase where that is immediately preceded by a noun phrase in the main clause. This constraint may be formulated as follows:

(1.49)   In a structure of the form

$$X \; NP_1 \; [_S \; NP_2 \; Y]_S \; Z$$

NP_2 may not be deleted.

This additional constraint will guarantee that sentence (1.45) will not be derived from (1.44) It will, however, permit (1.48) to be derived by backward deletion, since in that sentence, the target noun phrase is not preceded by a noun phrase in the main clause.

The constraint expressed in (1.49) evidently also applies in the case of forward deletion. In this connection consider

sentence (1.50)

> (1.50) At'ééd yah'ííyáago ashkii awéé' yaa'áhályán̨ę̨
>
> (girl enter:COMP boy   baby care:for:REL
>
> yich'ahóóshkeed.
>
> scold)
>
> When the girl entered, she scolded the boy who
>
> was taking care of the baby.

The meaning that I have provided here corresponds to the
following:

(1.51)
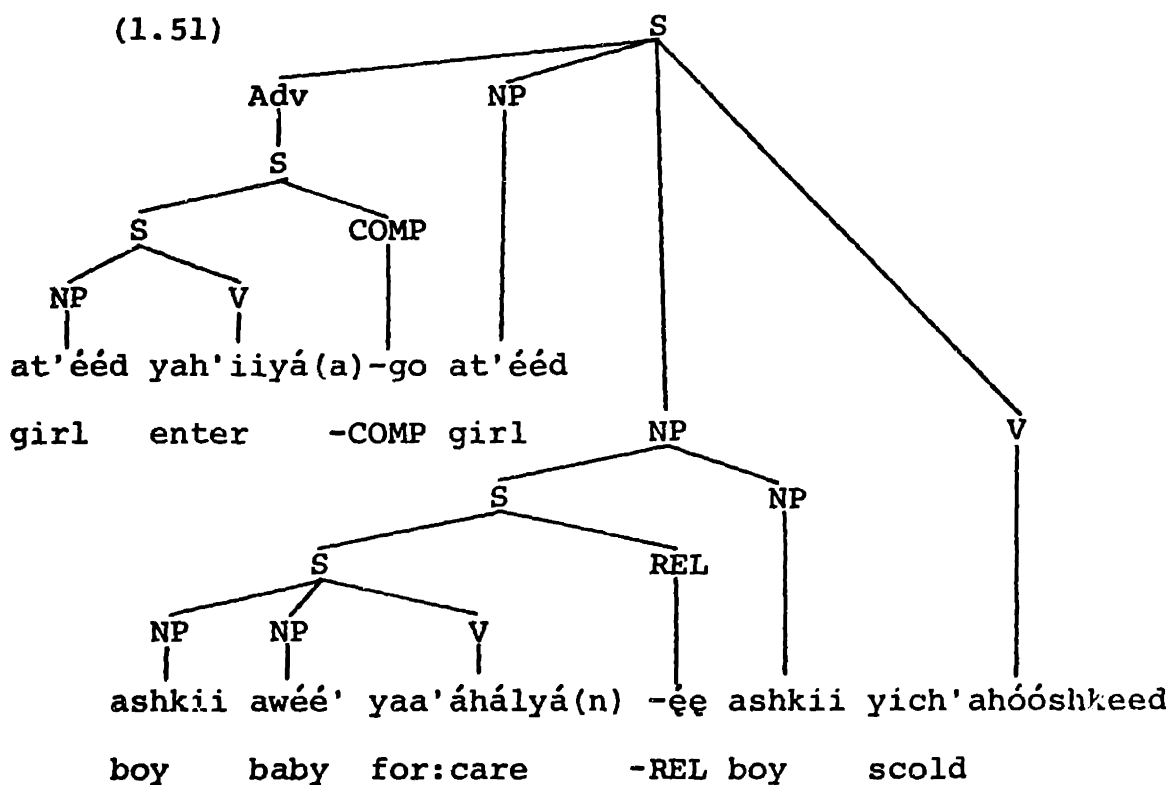
The deletions which derived (1.50) from (1.51) do not violate
either of the constraints (1.23) or (1.49). It is not
possible to interpret (1.50) as coming from (1.52) below.[2]

(1.52)

```
                                    S
              Adv              NP
               |
               S
         S         COMP
      NP    V
  at'ééd yah'iiyá(a)  -go  ashkii
  girl   enter       -COMP boy      NP
                                 S         NP
                              S      REL
                          NP  NP   V
                      at'ééd awéé' yaa'áhályá(n) -ęę at'ééd yich'ahóóshkeed
                      girl   baby  for:care      -REL girl   scold
```
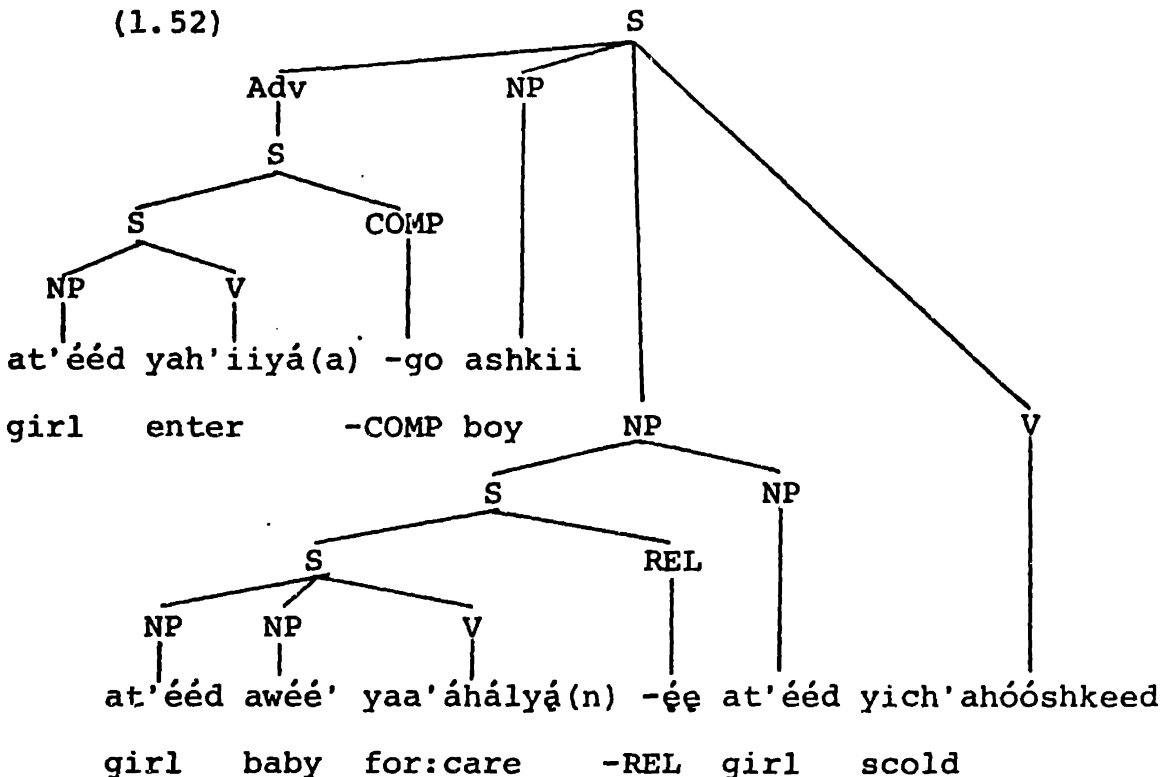
In theory, according to the deletion hypothesis we are now
considering, sentence (1.51) <u>could</u> be derived from (1.52) by
first allowing deletion to apply in the complex noun phrase
(deleting /at'ééd/ from head position) and then, at the root
sentence level, permitting forward deletion to apply again
deleting /at'ééd/ from the relative clause itself. The latter
deletion, however, would be in violation of (1.49). The fact
that the reading corresponding to structure (1.52) is
impossible to get shows that (1.49) operates to block forward
deletion in relevant cases, just as it blocks backward dele-
tion in cases like (1.44).

1.6 A Generalization of the Constraints

The reader will notice, no doubt, that constraints (1.23)
and (1.49) are virtually identical in global perspective; both

of them have the effect of blocking the deletion of the second of two noun phrases in sequence. Constraint (1.23) is formulated so as to apply <u>within</u> a clause, while (1.49) is formulated to apply <u>across a clause boundary</u>. Clearly, therefore, the two constraints can be collapsed into the more general formulation (1.53) by simply removing the term V from (1.23) and the bracket from (1.49):

> (1.53) <u>Second Noun Phrase Constraint (Revised)</u>
> The second NP may not be deleted from a structure of the form
>
> X - NP - NP -Y .

Formulated in this way, the Second Noun Phrase Constraint will block deletion in all of the relevant cases. There is, however, one additional refinement which must be added to the constraint, in order to account for the interpretation of sentences like (1.54) below.
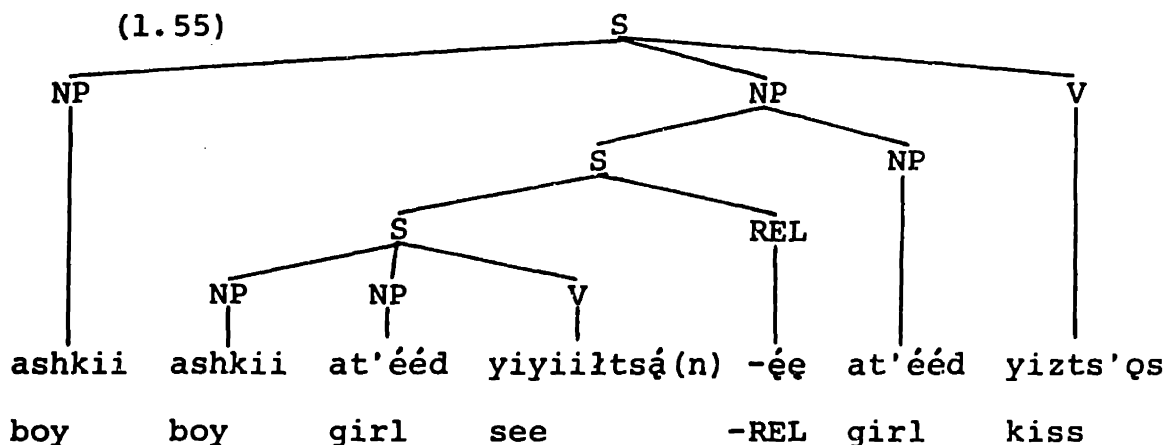
> (1.54) Ashkii at'ééd yiyiiłtsánée yizts'os.
>
> (boy   girl   see:REL   kiss)
>
> The boy kissed the girl he saw.

Presumably, under the deletion hypothesis, this sentence derives from the structure (1.55):

(1.55)

```
                              S
        ┌─────────────────────┼────────────────────────┐
       NP                     NP                        V
        │           ┌─────────┴────────┐                │
        │           S                  NP               │
        │     ┌─────┴──────┐           │                │
        │     S           REL          │                │
        │  ┌──┼────┐       │           │                │
        │ NP  NP   V       │           │                │
        │  │   │   │       │           │                │
     ashkii ashkii at'ééd yiyiiłtsą(n) -ę́ę at'ééd   yizts'ǫs

     boy    boy   girl  see          -REL  girl     kiss
```

Assuming that the second occurance of /ashkii/ is deleted
from this structure, sentence (154) clearly involves a case
in which the second of two adjacent noun phrases is deleted.
In this instance, however, the first of the two noun phrases
is actually the trigger of the deletion. We must, therefore,
append to our revised constraint an exception clause to the
effect that deletion is allowed where the first noun phrase
triggers the deletion. The final revision will look some-
thing like the following:

(1.56)   Second Noun Phrase Constraint (Final Revision)
          The second noun phrase may not be deleted from
          a structure of the form

                    X - NP - NP - Y ,

          except where the first noun phrase triggers
          the deletion.

This revision, of course, hinges on the assumption that the
second occurence of /ashkii/ in (1.55) rather than the first
is deleted. In other words, we assume deletions cannot apply
upwards and backwards.

The constraint embodied in (1.56) will account for an observation pertaining to simple sentences as well as the observations concerning the interpretation of complex sentences of the type we have been considering heretofore. Consider the following simple sentence:

(1.57)   Ashkii bizhé'é yiyiiłtsą́.

(boy   his:father see)

(a)   The boy saw his father.

(b)≠ The boy's father saw him.

The relevant interpretation of this sentence is the one which, according to the deletion theory, corresponds to a structure of the following form:

(1.58)

```
                        S
          _____/ _____
        NP           NP             V
        |         /      \          |
        |       NP         N        |
        |       |          |        |
      ashkii  ashkii   bi-zhé'é   yiyiiłtsą́

       boy     boy     his-father   see
```
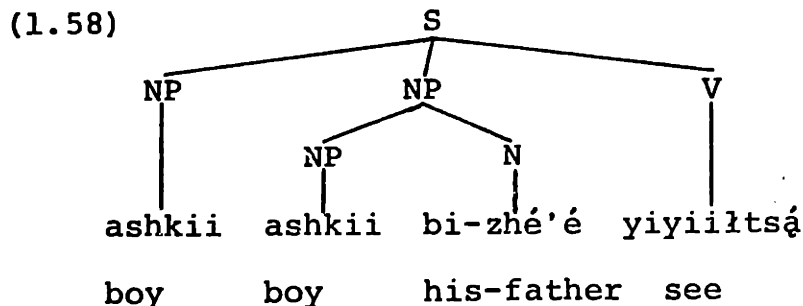
Actually, sentence (1.57) is ambiguous but the immediately relevant fact is that it cannot have the meaning which would correspond to the following structural description:

(1.59)

```
                      S
          _____/ _____
        NP           NP         V
      /    \         |          |
    NP      N        |          |
    |       |        |          |
  ashkii  bi-zhé'é  ashkii   yiyiiłtsą́

   boy    his-father  boy      see
```
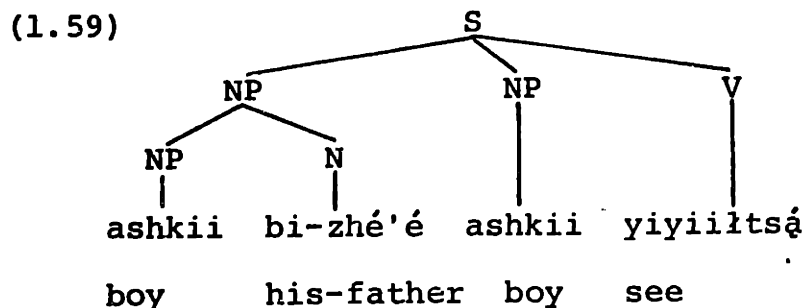
That is to say, (1.57) cannot have the meaning (b). Notice
that the structural description of (1.59) is well-formed
from a strictly structural point of view, since, except for
the actual lexical items present, it is matched by the well-
formed structure (1.60).

(1.60)

```
                          S
        _____|_____
       NP                  NP          V
    ___|___                |           |
   NP      N               |           |
   |       |               |           |
ashkii  bi-zhé'é        at'ééd      yiyiiłtsá
 boy     his-father      girl         see
```
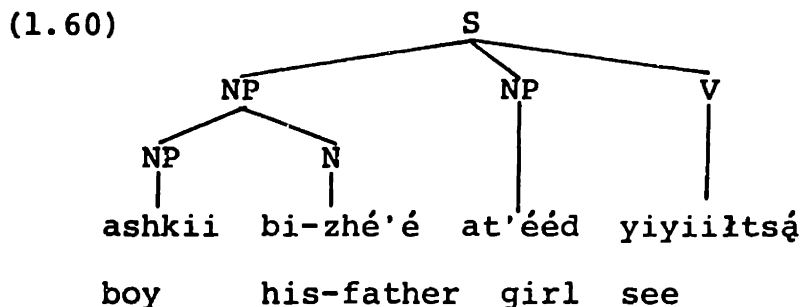
which directly underlies (1.61) below.

    (1.61)   Ashkii bizhé'é at'ééd yiyiiłtsá.

           (boy   his:father girl see)

           The boy's father saw the girl.

The fact that (1.57) cannot be derived from (1.59) follows
from the Second Noun Phrase Constraint forbidding the deletion
of the second of two successive noun phrases, and the fact
that (1.57) can have the (a) reading follows from the fact
that deletion is allowed in (1.58) by virtue of the exception
clause appended to the Second Noun Phrase Constraint. Thus,
the fact that (1.57) cannot have the (b) reading can be
explained in the same way as the fact that the second clause
of sentence (1.62) below cannot have the meaning associated
with (1.60).

(1.62)   At'ééd yah'ííyá dóó ashkii bizhé'é yiyiiłtsá.

(girl   enter   and boy   his:father   see)

(a)   The girl entered and saw the boy's father.

(b) ≠The girl entered and the boy's father saw her.

That is to say, sentence (1.62) cannot have the (b) reading
since that would imply a deletion site between the noun phrase
/ashkii bizhé'é/ and the verb-word /yiyiiłtsá/. The Second
Noun Phrase Constraint is specifically designed to prevent
that situation. It is, of course, possible for Navajo to
express the (b) meanings cited under (1.57) and (1.62) by
resorting to the inverted--i.e., O S bi-V--forms of transitive
sentences. Thus, for example, the (b) meaning cited under
(1.57) can be expressed as follows:

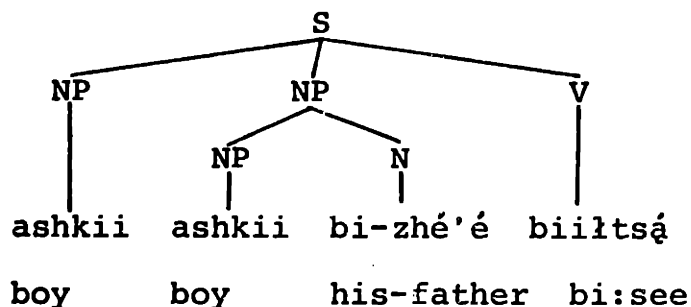(1.63)   Ashkii bizhé'é biiłtsá.

(boy   his:father   bi:see)

(a)   The boy was seen by his father.

(b) ≠The boy's father was seen by him.

According to the deletion theory as constrained by (1.56),
the (a) reading of (1.63) must come from:

(1.64)

The constraint is formulated in such a way as to insure that

(1.63) cannot derive from (1.65).

(1.65)

```
                            S
              NP            NP          V
         NP        N        |           |
         |         |        |           |
       ashkii  bi-zhé'é   ashkii     biiłtsą́

       boy      his-father  boy       bi:see
```
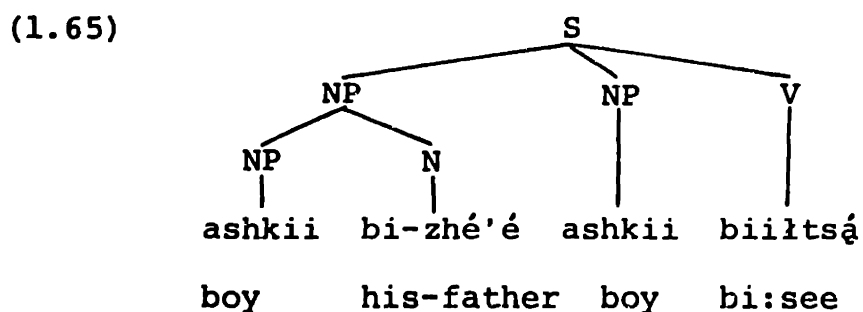
and therefore cannot have the reading (1.63b). Precisely
analogous observations can be made concerning the following
sentence in which an inverted version of (1.60) underlies the
second clause:

(1.66)   At'ééd yah'ííyá dóó ashkii bizhé'é biiłtsą́.

          (girl   enter   and boy   his:father bi:see)

  (a)   The girl entered and was seen by the boy's
        father.

  (b)   ≠The girl entered and the boy's father was
        seen by her.

FOOTNOTES

1. Where relevant, the internal structure of Navajo verbs is indicated by hyphenation, both in the Navajo sentence and in the parenthetic glossing. If the Navajo is not hyphenated, the glossing employs a colon to separate meaningful elements. Navajo verbs are glossed by means of the English bare infinitive--i.e., without tense. The actual tense is reflected in the free translations, however.

2. In Hale and Platero, 1974, there was equivocation on this issue in connection with a similar sentence. I am convinced now that (1.50) cannot in fact be understood as deriving from (1.52) and that this observation is correct for all cases of this type.

CHAPTER TWO

CONTRAST BETWEEN

RELATIVIZATION AND PRONOMINALIZATION

2.0 Introduction

My discussion so far has been concentrated on the problem
of constraining the putative deletion rule so that the sentences
which are produced by its application are matched with the
proper underlying structures. This is in keeping with the
assumption that the meaning implied by the underlying
representation of a particular sentence should survive as a
reading of the sentence itself. In other words, the purpose
of the Second Noun Phrase Constraint (1.56) is to insure that
an observed reading of the sentence be relatable to a deep
structure that expresses that meaning.

Before I go on to indicate certain empirical problems
with the Second Noun Phrase Constraint itself, and with this
approach in general, I wish to address myself briefly to another
aspect of the analysis of relative clauses and so-called
pronominalization--i.e., the assumption that a single rule
is involved, an assumption based primarily on the two obser-
vations: (a) that forward and backward deletion are used
for both processes, and (b) that the deletion is evidently
similarly constrained, by (1.56), in both cases.

If the assumption of a single rule is false, then (1.56)
is not properly a condition on a rule but rather a more
general principle involved in the recovery of underlying

.structures in Navajo.

2.1 Extrasentential Reference in Pronominalization

The assumption that relativization and pronominalization are the same rule was challenged in Hale and Platero (1974), but the distinction between the two processes can be much more forcefully drawn than in that paper.

Whether or not deletion is actually involved in relative clause formation, it is very unlikely that pronominalization actually involves deletion under identity as implied by rule (1.15). Consider, for example, (1.13) and (1.14), repeated here for convenience:

> (1.13)   Hastiin deezghalgo nídii'na'.
>
> (man   awake:COMP get:up)
>
> When the man awoke, he got up.

> (1.14)   Deezghalgo hastiin nídii'na'.
>
> (awake:COMP   man   get:up)
>
> When he awoke, the man got up.

In my original discussion of these sentences, I considered only the readings according to which the overt noun phrases and the missing noun phrases were coreferential. However, both sentences have an interpretation in which that is not the case. In other words, (1.13) can mean

> When the man$_i$ awoke, he/she$_j$ got up.

and (1.14) can mean

When he/she$_i$ awoke, the man$_j$ got up.

In sentence (1.13), the subject argument in the main verb /nídii'na'/ is not overtly present--i.e., it is a "missing noun phrase". If its absence were due solely to the action of rule (1.15), then the sentence could not be ambiguous in the way that it in fact is. Similarly, in sentence (1.14), the subject argument of the subordinate verb /deezghal/ is missing and the sentence has a reading which would not be available if rule (1.15) were responsible for the gap.

Let us now contrast this behavior with that of relative clauses. Consider, for example, the relative clauses in the following sentences which, in the relevant sense, contrast minimally with the pronominalization cases illustrated by (1.13) and (1.14).

> (2.1) (a) Hastiin deezghaléé nídii'na'.
>
> (man awake:REL get:up)
>
> The man who awoke got up.
>
> (b) Deezghaléé hastiin nídii'na'.
>
> (awake:REL man get:up)
>
> The man who awoke got up.

These sentences are not ambiguous in the way (1.13) and (1.14) are. The subject arguments of the main and subordinate verbs must be understood as coreferential.

This contrast between the relative clause and the

pronominalization cases is paralleled by an additional
contrast. For any sentence in which a noun phrase is missing
from a particular position by virtue of pronominalization,
there is an equally grammatical sentence in which that
position is occupied by an overt noun phrase. Thus, for
example, the following sentences are fully grammatical.

(2.2) (a) Hastiin deezghalgo asdzáán nídii'na'.

(man awake:COMP woman get:up)

When the man awoke, the woman got up.

(b) Asdzáán deezghalgo hastiin nídii'na'.

(woman awake:COMP man get:up)

When the woman awoke, the man got up.

These sentences are as grammatical as (1.13) and (1.14).
However, the corresponding situation is not true for
relative clauses. Thus, the following are ungrammatical.

(2.3) (a) *Hastiin deezghaléę asdzáán nídii'na'.

(man awake:REL woman get:up)

(b) *Asdzáán deezghaléę hastiin nídii'na'.

(woman awake:REL man get:up)

2.2 The Headless Relative Clause and Right Dislocation

The observations just made about relative clauses in
contrast to pronominalization could, in the deletion theory,
be expressed (a) by imposing the condition that the head of
the relative clause be identical to some noun phrase in the

relative clause, and (b) by requiring that either the head or the relative noun phrase be deleted. However, I would like to suggest an alternative proposal for relative clauses which will achieve the same observational effect. This proposal is similar in spirit to the one briefly explored in Hale and Platero (1974). The proposal is this: Relative clauses are basically headless in underlying representation. The headed version of a relative clause is produced by moving a noun phrase (the relative NP) into the head position following the relative clause marker. This will have the effect of creating a gap in the relative clause itself just as the deletion operation did. Now, the constraint on the removal of a noun phrase in this way will be the same as that embodied in (1.56). Thus, only an initial noun phrase will be allowed to move. By adopting a movement analysis of relative clauses, together with the headless underlying structure, we account very simply for the properties which distinguish relative clauses from the cases of so-called pronominalization. Thus, the non-ambiguity of the sentences of (2.1) and the ungrammaticality of (2.3) follow from the fact that there is only one position in which a lexical noun phrase may appear in the underlying representations of (2.1)--i.e., in the subject argument position of the subordinate verb /deezghal/ 'he/she awoke'.

It is interesting to observe that Navajo possesses another construction, not readily accepted by speakers as a

part of the core of Navajo grammar, which exhibits certain similarities to the headed relative clause, which itself is the least favored of the relative clause types. This additional construction involves post-posing a noun phrase to sentence final position in main clauses. I will refer to this process as right dislocation. It is responsible for sentences of the following type:

(2.4)   At'ééd yizts'ǫs ashkii.

        (girl kiss   boy)

        He kissed the girl, the boy.

This construction is similar to headed relative clauses in that the right dislocated noun phrase is necessarily construed with a gap in the sentence itself. Furthermore, the position of the gap is subject to the same constraint as in the case of the headed relative clause. Thus, just as in the relative clause

(2.5)   At'ééd yizts'ǫsę́ę́ ashkii.

        (girl kiss:REL   boy)

/at'ééd/ must be understood as the object of /yizts'ǫs/, so also in the right dislocation structure of (2.4) /at'ééd/ must be understood as object. This similarity carries over to more complicated cases as well. Thus, for example, consider the relative clause in the following sentence:

(2.6) Ashkii adzáán at'ééd yizts'ǫs nínée hadoolghaazh.

(boy   woman girl   kiss   say:REL scream)

(a) The boy who said that the woman kissed the

girl screamed.

(b) The woman who the boy said kissed the girl

screamed.

(c) The girl who the boy said the woman kissed

screamed.

This sentence is ambiguous in the ways expected by virtue of
the complex headless relative clause structure. However, the
following sentence employing the headed relative clause is
unambiguous.

(2.7) Asdzáán at'ééd yizts'ǫs nínée ashkii hadoolghaazh.

(woman girl   kiss   say:REL boy   scream)

The boy who said that the woman kissed the

girl screamed.

This sentence is unambiguous, receiving only the interpreta-
tion according to which the boy is understood as the subject
of the verb /ní/ 'he said'. That is, /ashkii/ is construed
with an initial gap, and therefore, with the position which
it occupies in the headless relative clause of (2.6).

Now consider the right dislocation structure (2.8) below

(2.8) Asdzáán at'ééd yizts'ǫs ní ashkii.

(woman girl   kiss   say boy)

He$_i$ said the woman kissed the girl, the boy$_i$.

This sentence is unambiguous and receives the interpretation according to which the right dislocated noun phrase /ashkii/ is understood as the subject of /ní/, as it is overtly in (2.9) below:

> (2.9) Ashkii asdzáán at'ééd yizts'ǫs ní.
>
>   (boy   woman   girl   kiss   say)
>
>   The boy said the woman kissed the girl.

It should be pointed out that the non-ambiguity of (2.7) and (2.9) is not due simply to the inability of a noun phrase to extract out of an embedded clause but rather due to the constraint against moving the second of two noun phrases in sequence. Let us assume for the moment that movement is, in fact, involved in developing the headed relative clause and in right dislocation. That a noun phrase can extract from a subordinate clause can be shown by the following sentences, in which /ashkii/ is extracted from the complement of the verb /dishní/ 'I said'.

> (2.10) (a)   (At'ééd yizts'ǫs) dishnínée ashkii hadoolghaazh.
>
>   (girl   kiss   I:say:REL boy   scream)
>
>   The boy that I said kissed the girl screamed.
>
>   (b)   (At'ééd yizts'ǫs) dishní ashkii.
>
>   (girl   kiss   I:say boy)
>
>   I said he$_i$ kissed the girl, the boy$_i$.

These sentences receive the interpretation according to which the noun phrase /ashkii/ is the subject of the verb /yizts'ǫs/.

In other words, the relation which the noun phrase /ashkii/ bears to /yizts'ǫs/ is the same as in the following restored versions of (2.10).

(2.11) (a)   (Ashkii at'ééd yizts'ǫs) dishnínée

(boy   girl   kiss   I:say:REL

hadooghaazh.

scream)

(b)   (Ashkii at'ééd yizts'ǫs) dishní.

(boy   girl   kiss   I:say)

The point of this digression has been to suggest an alternative conception of relative clause formation and to compare it to another construction that involves the creation of a gap. I do not wish to commit myself at this point to the details of a movement analysis for the headed relative clause. However, it is clear that the features which distinguish relative clauses from pronominalization could be reflected in the grammar by an analysis of this nature. It is clear also, that if the headed relative clause is actually produced by movement, some constraint akin to (1.56) would have to be involved in order to insure that the output structure be relatable to the correct underlying representation. Thus, for example, the relative clause (2.5) must, under the movement analysis, derive from the structure

(2.12)

```
                              NP
                               |
                               S
                        _____|_____
                       S                 REL
              _____|_____          |
             NP       NP        V          |
              |        |        |          |
           ashkii   at'ééd   yizts'ǫs    -éé

            boy      girl     kiss       -REL
```
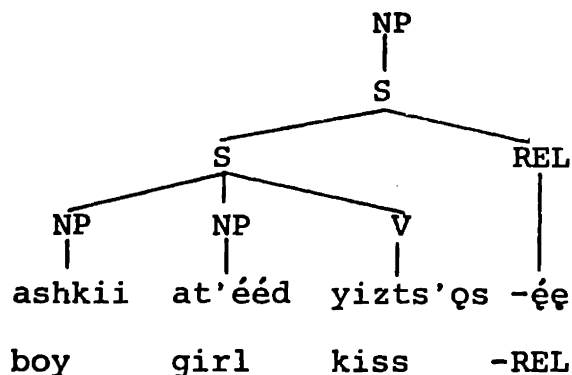
and not from the structure

(2.13)

```
                              NP
                               |
                               S
                        _____|_____
                       S                 REL
              _____|_____          |
             NP       NP        V          |
              |        |        |          |
           at'ééd   ashkii   yizts'ǫs    -éé

            girl      boy     kiss       -REL
```
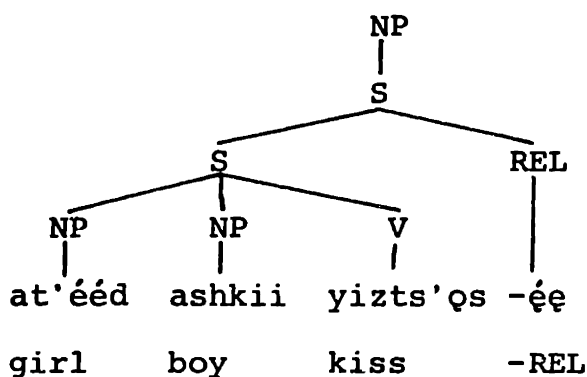
Of course, the proper constraint is more global in nature, since it is not enough to make reference to the more local structure which constitutes the domain of the putative move- ment rule itself--i.e., the complex noun phrase structure. Thus, just as in the deletion theory, so in the movement theory, we must avoid deriving sentence (1.45) from a structure analogous to (1.44). Clearly, this cannot be done if the constraint is permitted to refer solely to material contained within the complex noun phrase structure to which the rule itself applies--that is to say, the constraint must have a more inclusive view of the total phrase marker than the more limited substructure which defines the domain of the rule.

Under the movement analysis we are considering, the
underlying structure corresponding to (1.44) would be roughly
the following:

(2.14)

```
                                S
        _____|_____
       NP                       NP                   V
       |                        |                    |
       |                        S                    |
       |              _____|_____          |
       |             S                   REL         |
       |        _____|_____                |          |
       |       NP   NP    V                |          |
       |       |    |     |                |          |
    hastiin ashkii at'ééd yiyiiłtsą́(n)   -ę́ę   yí'dísooł
     man     boy   girl   see            -REL   whistle
```
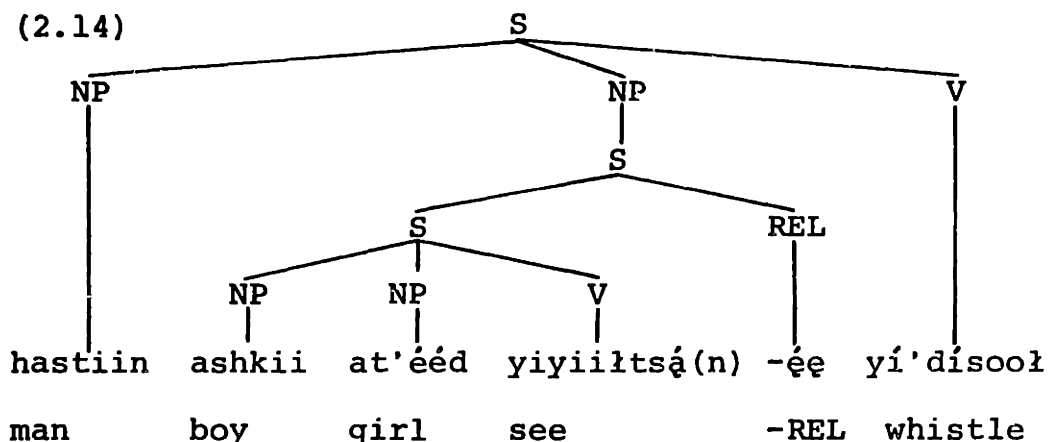
That is to say, the complex noun phrase would be as in (1.44)
but without the head noun phrase. The domain of the movement
rule, presumably, is the complex noun phrase, or perhaps the
structure containing the embedded sentence and the relative
clause marker REL. But in order to achieve the effect of
(1.56), the rule must be prevented from applying in (2.14).
However, the constraint which would prevent application here
must have reference to the matrix sentence in order to take
into consideration the noun phrase /hastiin/, which is not a
part of the domain of the movement rule. This observation is
consistent with the growing awareness that the effect which
(1.56) has attempted to produce relates to a more general
problem in the interpretation of sentences. The problem is
not specific to a particular rule of grammar but, rather,
relates to certain properties of surface structures regard-
less of the processes involved in their derivations. So, for

example, while it is perfectly possible to compose an analogue to (1.56) for the movement analysis of the headed relative clause, say, the following:

(2.15)   The second noun phrase may not be moved

from a structure of the form

X - NP - NP - Y ,

the effect which is desired is not properly viewed in terms of rules, but in terms of surface structures and their interpretations. The point is this, a surface string of the form X - NP - X does not receive an interpretation according to which a "gap" immediately follows the noun phrase--where by "gap" we mean a noun phrase-argument position not occupied by an overt noun phrase.

2.3   Number Agreement

Let us return now to the contrast between the behavior of relativization and pronominalization. Consider first the following sentence, which evidently involves a case of pronominalization:

(2.16)   Ashkii at'ééd yizts'ǫsgo dahdii'áázh.

(boy   girl   kiss:COMP   leave:dual)

When the boy kissed the girl, they left.

The main verb here has the property that its subject, when overt, must be capable of referring to two entities--i.e., it requires either an explicitly dual subject or else a non-singular subject, as in

(2.17) (a)   Ashkii dóó at'ééd dahdii'áázh.

            (boy   and girl   leave:dual)
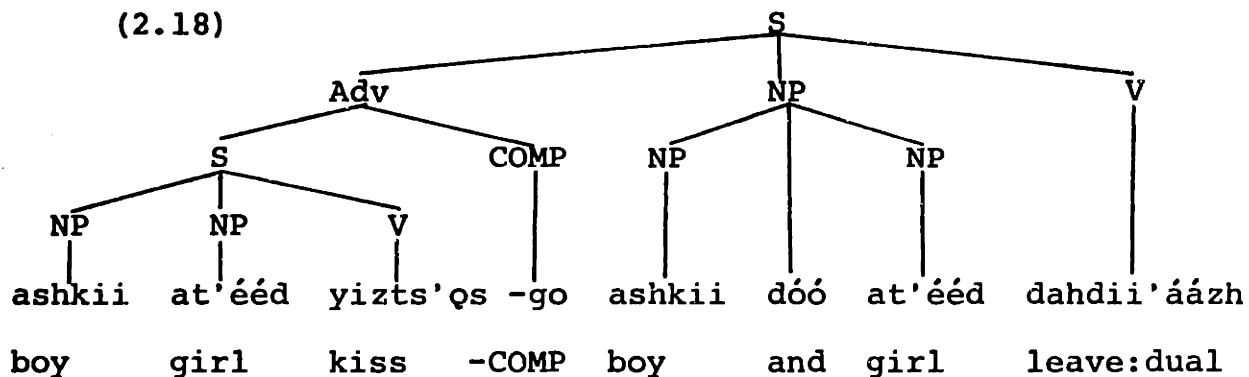
            The boy and girl left.

      (b)   Ashiiké dahdii'áázh.

            (boys   leave:dual)

            The boys left.

In (2.17a) the subject is a compound noun phrase, consisting
of two singular conjuncts, and is therefore exactly dual in
number. In (2.17b), the subject is a non-singular capable
of referring to two or more entities, and is therefore
compatible with the dual verb /dahdii'áázh/. Returning
now to sentence (2.16), the subject of the main verb in
that sentence is not overtly present--i.e., it is not present
as a full noun phrase in the subject position for the main
verb. Nonetheless, the subject of the main verb is under-
stood as dual in number reference, as can be determined by
the form of the verb. While sentence (2.16) is ambiguous,
it admits the reading according to which the subject of
/dahdii'áázh/ is understood as referring to the two
individuals mentioned in the subordinate clause--i.e., the
subordinate subject /ashkii/ and the subordinate object
/at'ééd/. It is clear that rule (1.15), alone and as it
stands, cannot account for this reading of (2.16). The
only plausible fully specified source structure for (2.16),
under the deletion theory of pronominalization, is something
like the following:

(2.18)

```
                                        S
              Adv                       NP              V
         S          COMP          NP         NP
    NP    NP    V
 ashkii at'ééd yizts'os -go    ashkii  dóó  at'ééd  dahdii'áázh
 boy    girl   kiss    -COMP   boy     and  girl    leave:dual
```

In fact, this structure is well-formed in Navajo and directly
underlies the sentence

> (2.19) Ashkii at'ééd yizts'osgo ashkii dóó at'ééd
>
> (boy   girl   kiss:COMP boy   and girl
>
> dahdii'áázh.
>
> leave:dual)

which can be interpreted in a way which corresponds to the
reading of (2.16) with which we are now concerned. There-
fore, semantically, (2.18) would appear to be an appropriate
source for (2.16). The problem, however, is this: There
is in (2.18) no appropriate noun phrase antecedent to effect
the deletion of the compound subject of the main verb--the
understood subject of the main verb has what is commonly
referred to as a "split antecedent" in the subordinate
clause. It is quite evident that deletion is an inappropriate
mechanism to account for the facts of (2.16)--at least it is
inappropriate under the assumption that (2.18) is the source,
and that is the only plausible assumption under the deletion
theory. If deletion were, in fact, applicable in (2.18),

then there is no reason to rule out the backward deletion
which rule (1.15) allows. However, if we permit the com-
pound noun phrases in the main clause of (2.18) to delete
the subject and object in the subordinate clause, we obtain

(2.20)   Yizts'ǫsgo ashkii dóó at'ééd dahdii'áázh.

  (kiss:COMP boy   and girl   leave:dual)

(a)   When he$_i$ kissed her$_j$, the boy$_m$ and the
          girl$_n$ left.

(b)   When she$_i$ kissed him$_j$, the boy$_m$ and the
          girl$_n$ left.

(c)   When they$_i$ kissed (him/her)$_j$, (the boy
          and girl)$_i$ left.

In Navajo this sentence does not receive the interpretation
corresponding to the meaning embodied in (2.18).

The foregoing is consistant with the possibility that
deletion is not in fact involved in the process to which
we have been referring by the term "pronominalization."
Our immediate concern, however, is not to determine the
exact nature of "pronominalization"--we will address that
question shortly--but rather to contrast it with relativi-
zation. Consider now sentence (2.21), containing a relative
clause, but otherwise constructed in close imitation of
sentence (2.16):

(2.21)   *Ashkii at'ééd yizts'ǫséę dahdii'áázh.

  (boy   girl   kiss:REL   leave:dual)

This sentence is ungrammatical. The complex noun phrase subject of (2.21) cannot be interpreted as referring to two entities--i.e., as being dual in number--despite the fact that two singular noun phrases appear in the subordinate clause, which is identical to the subordinate clause in the grammatical sentence (2.16). Obviously, therefore, it cannot be the case that relative clause formation and pronominalization are identical processes. At least, it is quite certain that both cannot be special cases of the deletion rule (1.15).

The deletion analysis could, of course, account for the ungrammaticality of (2.21). Thus, if we insisted that exactly rule (1.15)--in its forward application--were responsible for the headless form of the relative clause in Navajo, and if, furthermore, we assume that selection-- in this case number selection--were determined by the head, then the ungrammaticality of (2.21) would follow automatically from the fact that the only possible sources of relative clauses in (2.21) would be (2.22a,b), with singular heads:

(2.22) (a) Ashkii at'ééd yizts'ǫséę ashkii....

(boy   girl   kiss:REL   boy ....)

(b) Ashkii at'ééd yizts'ǫséę at'ééd....

(boy   girl   kiss:REL   girl...)

Only these would serve as appropiate inputs to rule (1.15) and their singular heads are in conflict with the inherent

dual numbers of the verb /dahdii'áázh/; this constitutes a
selectional violation, just as do the simple sentences of
(2.23)

(2.23) (a)   *Ashkii dahdii'áázh.

(boy   leave:dual)

(b)   *At'ééd dahdii'áázh.

(girl   leave:dual)

and the complex sentence (2.24) containing the headed
relative clause corresponding to (2.22a):

(2.24)   *At'ééd yizts'ǫsę́ę ashkii dahdii'áázh.

(girl kiss:REL   boy   leave:dual)

However, while the deletion theory, under the assumption
just outlined, can account for the ungrammaticality of
(2.21), the grammaticality of (2.16), under the relevant
reading, poses a dilemma for the theory which holds that
the selfsame deletion process constitutes the central core of
 relative clause formation and pronominalization.

2.4 Additional Remarks on the Relative Clause

I have suggested an alternative to the deletion
theory for relative clauses. In particular, I have suggested
that the headless relative clause may be the basic form in
underlying structure. If so, then no deletion whatsoever
is involved in producing such sentence as the grammatical
(2.25) below:

(2.25) Ashkii at'ééd yí'déésol̨ę̨ę deezgo'.

(boy   girl   whistle:REL fall)

(a) The boy who whistled at the girl (tripped

and) fell.

(b) The girl who the boy whistled at (tripped

and) fell.

In introducing this conception of the headless relative

clause, I did not specify any mechanism for its interpreta-

tion. Specifically, I did not indicate how the complex

noun phrase as a whole is to be interpreted as coreferential

with a relative noun phrase--i.e., a noun phrase contained

within the subordinate clause. I will adopt here the

practice followed by Fauconnier (1971), according to which

the interpretation of a relative clause--at least the

restrictive relative clause of the type with which we are

concerned here--is indicated by coindexing the superordi-

nate noun phrase node with a noun phrase in the sentence

which it dominates. In Navajo, evidently, this is all that

is required to account for the headless relative clause.

That is to say, there is, strickly speaking, no transforma-

tional process of relativization. There is simply the

interpretability condition that the complex noun phrase as a

whole be capable of referring to the same entity as does

some noun phrase in the subordinate clause. I will follow

Fauconnier in symbolizing this capability by means of co-

indexing in underlying phrase markers. Thus, for example,

to the (a) reading of (2.25) will be attributed the
following representation:

(2.25')

ashkii$_i$ at'ééd yí'déésóól -ę́ę deezgo'
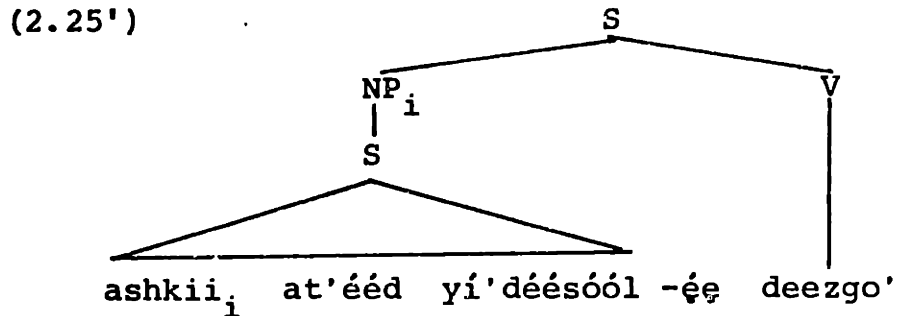
And to the (b) reading will be attributed roughly the
following representation:

(2.25'')

ashkii at'ééd$_i$ yí'déésóól -ę́ę deezgo'
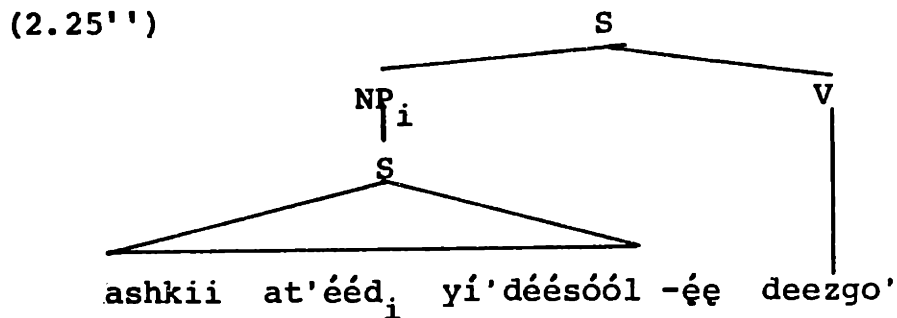
In these representations I intend to be vague about the
exact structure which should be attributed to the relative
clause. In particular, I wish to remain vague about the
precise structural position of the relativizing element
/-ę́ę/.

Properly worked out, this conception of the relative
clause will account automatically for the ill-formedness
of (2.21). The structure of (2.21) would be roughly of
the following form:

(2.21')

```
                              S
                  _____
                 NP                        V
                  |                         |
                  S                         |
          _____                  |
         /_____\                 |
    ashkii   at'ééd   yizts'os -ée   dahdii'áázh
    boy      girl     kiss     -REL  leave:dual
```

The complex noun phrase is in the structural position
appropiate to the subjéct of the main verb. In order to
be well-formed this relative clause expression must be
capable of referring to two entities since the main verb
requires a dual subject. However, the expression as a
whole cannot, in fact, refer to two entities since there
is no noun phrase in the subordinate clause which can so
refer. There are, to be sure, two noun phrases which
jointly refer to two entities, but there is no one noun
phrase which can, and this latter is the requirement, namely,
that coreference be possible between the relative clause
expression as a whole and some noun phrase in the subordi-
nate clause--the sequence /ashkii at'ééd/, although it
refers to two entities, is not a noun phrase. Just as in
the deletion theory, so in the headless base theory, the
grammaticality of (2.21) is attributable to conflicting
number selection. Thus, the subject of /dahdii'áázh/ must
be dual, but the relative clause expression cannot, in
fact, be dual.

A proper formulation of the interpretation of relative

(2.21')

```
                              S
                   _____
              NP                             V
              |                              |
              S                              |
          _____                  |
    ashkii    at'ééd    yizts'os  -ée   dahdii'áázh
    boy       girl      kiss      -REL  leave:dual
```
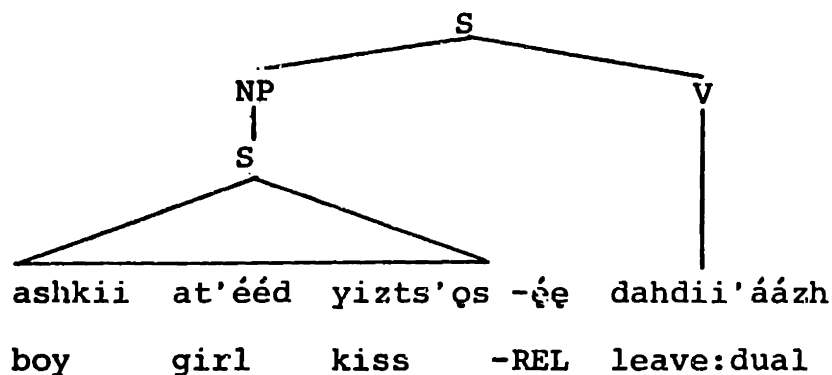
The complex noun phrase is in the structural position
appropiate to the subjéct of the main verb. In order to
be well-formed this relative clause expression must be
capable of referring to two entities since the main verb
requires a dual subject. However, the expression as a
whole cannot, in fact, refer to two entities since there
is no noun phrase in the subordinate clause which can so
refer. There are, to be sure, two noun phrases which
jointly refer to two entities, but there is no one noun
phrase which can, and this latter is the requirement, namely,
that coreference be possible between the relative clause
expression as a whole and some noun phrase in the subordi-
nate clause--the sequence /ashkii at'ééd/, although it
refers to two entities, is not a noun phrase. Just as in
the deletion theory, so in the headless base theory, the
grammaticality of (2.21) is attributable to conflicting
number selection. Thus, the subject of /dahdii'áázh/ must
be dual, but the relative clause expression cannot, in
fact, be dual.

A proper formulation of the interpretation of relative

clauses must be capable of accounting for the well-
formedness of (2.26a) and the ill-formedness of (2.26b),
in both of which no noun phrase is overtly present in the
subordinate clause:

    (2.26) (a)   Yááłti'ę̄ę̄ dahdii'áázh

                    (speak:REL   leave:dual)

        (b)   *Yílwodę̄ę̄ dahdii'áázh.

                    (arrive:sg:REL   leave:dual)

Although no noun phrases appear overtly in the subordinate
clauses of these sentences, the subject of the subordinate
sentence in (2.26a) can be understood as dual since the
verb form /yááłti'/ 'he/she/they spoke' permits either
singular or dual subject. Therefore, the relative clause
/yááłti'ę̄ę̄/ may refer to two entities as is required by the
main verb /dahdii'áázh/. Sentence (2.26b) on the other
hand is ill-formed precisely because the relative clause
expression /yílwodę̄ę̄/ cannot refer to two entities. This
follows from the fact that the verb form /yílwod/ 'arrived
running (sg)' requires a singular subject. I would like
to formulate the principle for interpreting relative
clauses in terms of the notion "argument" rather than in
terms of the notion NP. The principle might be expressed
as follows:

(2.27)   The Interpretation of Relative Clauses

A relative clause expression $[_{NP}$ S $]_{NP}$
refers to an entity which is the referent
of one of the arguments within S.

It may, of course, be the case that the notion "argument"
coincides exactly with an element represented in phrase
markers as NP—but that depends, ultimately, upon the
theory adopted for "missing noun phrases" (see, for
example, Chapter Four below). In any event, the term
"argument" is to be understood as including such notions
as 'subject of verb', 'object of verb', 'object of post-
position', and so on. It is not necessary that an argument
be overtly represented by a noun phrase. Thus, for example,
in sentence (2.26), the subject argument of the subordinate
verb /yááłti'/ is not overt. It is nonetheless correct to
say that the verb has a subject argument—an "understood
subject", if you will. Moreover, that subject argument is
capable of referring to two entities. The relative clause
expression, therefore, can have dual number reference as
required by the main verb /dahdii'áázh/. Hence, (2.26a)
is well-formed. The relative clause expression in (2.26b),
by contrast, fails to conform to the constraint embodied in
(2.27), since the main verb requires that it have dual
reference while the subordinate verb requires that its sole
argument, i.e., its subject, have singular reference. The
expression as a whole cannot, therefore, be coreferential

with an argument in the subordinate clause.

2.5 Ambiguity of Relative Clause Expressions and the First
Noun Phrase Principle in Pronominalization

Returning again to the contrast between relativization
and pronominalization, let us consider the ambiguity
observed in connection with sentence (2.25). The essential
fact is this: Headless relative clauses formed upon
transitive clauses of the uninverted (or S O yi-V) form
are ambiguous with respect to the identity of the relative
noun phrase--i.e., the noun phrase in the embedded clause
whose referent conincides with that of the relative clause
expression as a whole. That is to say, they admit two
interpretations--one according to which the subject is
understood as being modified by the relative clause
expression and another according to which it is the object
that is being modified. This ambiguity is present in (2.25)
where either /ashkii/ or /at'ééd/ may be understood as the
subject of the main verb /deezgo'/.

Under the deletion theory of relative clause formation,
this ambiguity is accounted for by positing distinct under-
lying structures--differing in the choice of head noun
phrase. Thus, in the case of (2.25), the noun phrase
/ashkii/ appears in head position for the (a) reading,
while the noun phrase /at'ééd/ appears in head position for
the (b) reading.

(2.28) (a)

```
                                                  S
                                                 / \
                                            NP        V
                                           /  \
                                        S        NP
                                       / \
                                    S      REL
                                  / | \      |
                                NP  NP  V
                                |   |   |    |      |         |
                             ashkii at'ééd yí'déésol -ęę  ashkii  deezgo'

                             boy    girl  whistle   -REL  boy     fall
```

(b)

```
                                                  S
                                                 / \
                                            NP        V
                                           /  \
                                        S        NP
                                       / \
                                    S  •   REL
                                  / | \      |
                                NP  NP  V
                                |   |   |    |      |        |
                             ashkii at'ééd yí'déésol -ęę  at'ééd  deezgo'

                             boy    girl  whistle   -REL  girl    fall
```
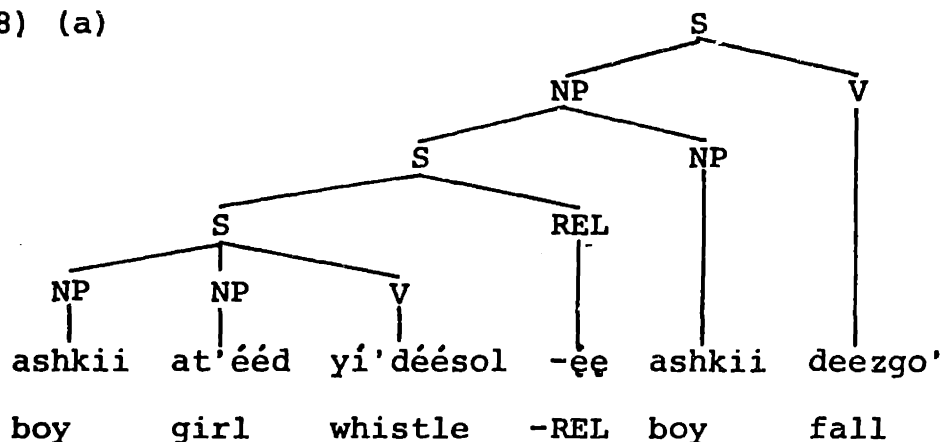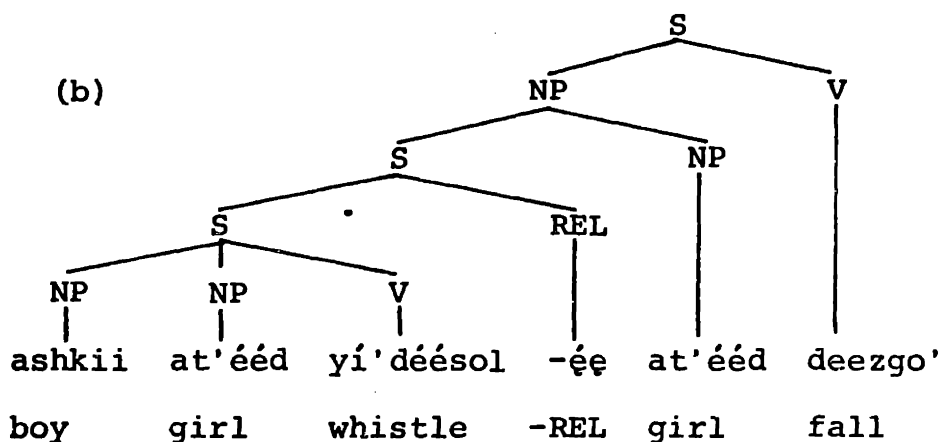
And, in general under the deletion theory, the ambiguity
of headless relative clauses formed on S O yi-V sentences
is due to the effect of forward application of rule (1.15)
which deletes the head and thereby obliterates from sur-
face structure the information which would permit the
assignment of a unique interpretation.

On the alternative theory, according to which relative
clauses are basically headless, the ambiguity of (2.25)
would be accounted for simply by virtue of the fact that
the form of a relative clause does not, in and of itself,
determine which of two (or more) noun phrases in the sub-
ordinate clause is the relative noun phrase. Relative

clauses are simply subject to interpretation in accordance
with the principle expressed in (2.27), which, in the case
of (2.25), allows either of the two interpretations repre-
sented in (2.25', 2'25''), above.

Whichever theory of the headless relative clause is
ultimately determined to be correct, it will be necessary
in one way or another to account for the fact that the
ambiguity present in (2.25) is absent from the parallel
case of pronominalization presented in (2.29) below:

  (2.29) Ashkii at'ééd yí'déésolgo deezgo'.

     (boy girl whistle:COMP fall)

     When the boy whistled at the girl, he

      (tripped and) fell.

The sentence is unambiguous with respect to the question of
which of the two noun phrases in the subordinate clause, if
either, is understood as the subject of the main verb.
Although there exists a reading according to which neither
of those noun phrase is the subject of /deezgo'/, if either
is so interpreted, it must be the first, not the second.

  Evidently, it is a general principle in Navajo that,
in cases of so-called pronominalization, if two adjacent
noun phrases are potential antecedents for an understood,
or "missing" noun phrase to the right, only the first of
the two may be interpreted as the actual antecedent. This
principle can also be observed in a coordinate sentence like
the following in which only /ashkii/ is understood as the

subject of the verb in the second conjunct.

> (2.30) Ashkii at'ééd yí'déésol dóó deezgo'.
>
> (boy girl whistle and fall)
>
> The boy whistled at the girl and he (tripped
>
> and) fell.

The effect of this principle extends through an indefinite
number of missing noun phrases, as can be seen by such
sentences as the following:

> (2.31) Ashkii at'ééd yí'déésol dóó deezgo' dóó
>
> (boy girl whistle and fall and
>
> háácha dóó nídii'na' dóó yaaltáál dóó
>
> cry and get:up and run and
>
> náádeezgo'.
>
> fall:again)
>
> The boy whistled at the girl and he fell and
>
> he started to cry and he got up and
>
> he started to run and he fell again.

In this sentence, of the two overt noun phrases, only the
first (i.e., /ashkii/) may be understood as the antecedent
of the missing subjects in the non-initial conjuncts. How-
ever, the effect of the principle is cancelled if an overt
noun phrase candidate antecedent intervenes between the
NP NP sequence and a gap farther to the right. Thus, in
the following sentences, any of the overtly present noun
phrases may be understood as antecedent for the missing

subject of the final conjunct:

(2.32) (a) Ashkii at'ééd yí'déésol dóó asdzáán

(boy   girl   whistle   and woman

yah'ííyá dóó deezgo'.

enter   and fall)

The boy$_i$ whistled at the girl, the woman

entered, and he$_i$ (tripped and) fell.

The boy whistled at the girl$_i$, the woman

entered, and she$_i$ (tripped and) fell.

The boy whistled at the girl, the woman$_i$

entered, and she$_i$ (tripped and) fell.

The boy$_i$ whistled at the girl$_j$, the woman$_k$

entered, and (he/she)$_l$ (tripped

and) fell.

(b) Ashkii at'ééd yí'déésol dóó hastiin

(boy   girl   whistle   and man

yiyiiłtsą dóó deezgo'.

see   and fall)

The boy$_i$ whistled at the girl, he$_i$ saw the

man, and he$_i$ (tripped and) fell.

The boy$_i$ whistled at the girl$_j$, he$_i$ saw the

man, and she$_j$ (tripped and) fell.

The boy$_i$ whistled at the girl, he$_i$ saw the

man$_j$, and he$_j$ (tripped and) fell.

The boy$_i$ whistled at the girl$_j$, he$_i$ saw the

man$_k$, and (he/she)$_l$ (tripped and) fell.

Notice, incidently, that while the subject of the final

conjunct may be understood as being coreferential with any

of the overt noun phrases present in the sentence, such is

not the case for the medial conjunct /...hastiin yiyiiłtsą́/

'...saw the man'. The subject of that conjunct, if found

in the sentence at all, must be /ashkii/ not /at'ééd/.

This follows from the principle, because it is enforced

from the medial conjunct leftwards.

It should be mentioned also that the principle is in

full force only where the gap corresponding to the missing

noun phrase is to the right of the NP NP sequence. Thus,

in the following case of "backward pronominalization", while

the favored reading is that in which /ashkii/ is understood

as the subject of the subordinate verb, the reading

according to which /at'ééd/ is the subject of that verb is

also available.

> (2.33) Yah'ííyáago ashkii at'ééd yí'déésol.
>
> (enter:COMP boy   girl   whistle)
>
> (a) When he entered, the boy whistled at the girl.
>
> (b) When she entered, the boy whistled at the girl.

There is also, of course, a reading in which neither of the

overt noun phrases in the main clause is understood as

coreferential with the subject of the subordinate verb.

Since the principle just described plays a role in

later discussions, I attempt a tentative prose formulation

of it in (2.34) below:

(2.34)   First Noun Phrase Principle

Given a string of the form

$$NP_1 \ NP_2 \ldots GAP,$$

in which GAP corresponds to a

"missing noun phrase", NP_1,

but nct NP_2, may be understood as

the antecedent of the missing noun

phrase. This is so, however, only

if the ellipsis contains no noun

phrase which could serve as

antecedent.

In the examples of the operation of the First Noun
Phrase Principle so far adduced, the NP NP sequences have
consistently been subject and object, in that order, of the
verb of their clause. The principle operates also in the
case where the NP NP sequence are object-subject--i.e.,
where their clause is of the inverted type. Thus, in the
following sentence, /at'ééd/, the logical object of the
subordinate clause, is understood to be the antecedent of
the missing subject in the main clause:

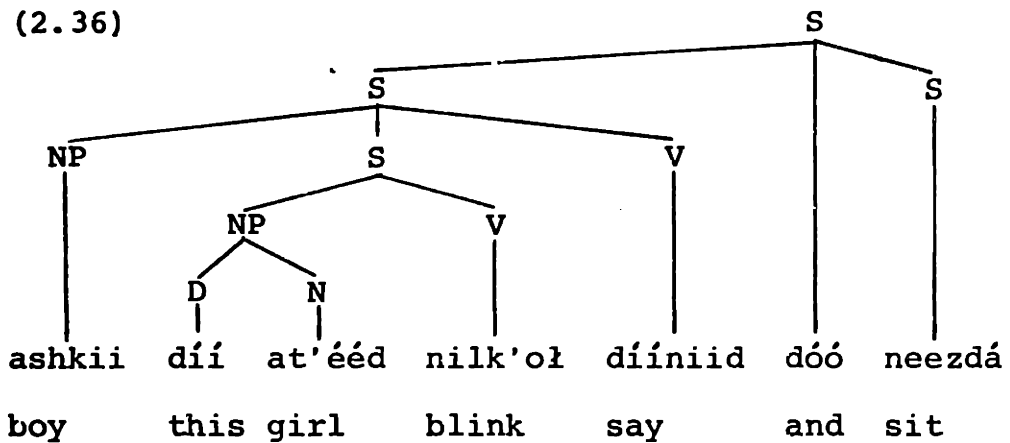(2.35)   At'ééd ashkii bí'déésolgo deezgo'.

(girl boy   bi:whistle:COMP fall)

When the girl was whistled at by the boy,

she (tripped and) fell.

It is natural to ask whether the two consecutive noun
phrases referred to in the First Noun Phrase Principle must

be co-arguments within the same clause. In other words,
is the principle operative where a clause boundry inter-
venes between the two noun phrases? Consider, for example,
the following surface structure:

(2.36)

```
                                                   S
                                    _____/────┴──\
                            S                          S
               _____/─┴──\─────\
           NP              S          V
           │        ___/───┴──\
           │       NP          V
           │      /─┴─\        │
           │     D     N       │
           │     │     │       │      │       │      │
        ashkii  díí at'ééd  nilk'oł dííniid  dóó  neezdá

         boy    this girl   blink    say     and   sit
```

This structure directly underlies the following sentence:

    (2.37)   Ashkii díí at'ééd nilk'oł dííniid dóó neezdá.

            (boy   this girl blink   say   and sit)

    (a)   The boy said "this girl blinks" and he sat
         down.

    (b) ?The boy said "this girl blinks" and she sat
         down.

The question, of course, is whether /díí at'ééd/ 'this girl'
can be understood as the antecedent of the missing subject
in the second conjunct--i.e., whether, the (b) reading is
possible for (2.37). While it is not particularly easy to
come to a clear decision in this regard, I feel that it is
possible, with considerable difficulty, to attribute the
(b) reading to (2.37), although the (a) reading is much
preferred. I am not sure what property of (2.37) is

responsible for the weakening of the First Noun Phrase
Principle, so I will not attempt to add any further
refinement to it.   It should, in any event, be borne in
mind that the principle is not iron-clad.   It is possible
to weaken the force of the principle in a variety of ways
by altering the situation being described in a particular
sentence.   Consider, for example, the following:

(2.38)   At'ééd łįį' yiztałgo deesgeed.

   (girl   horse spur:COMP buck)

   When the girl spurred the horse, it started

   bucking.

Here, the overwhelmingly favored interpretation is that in
which the noun phrase /łįį'/--i.e., the second of the two
consecutive noun phrases--is understood as antecedent for
the missing subject of the main verb /deesgeed/ 'started
to buck'.   Only in a very special circumstance could the
alternative interpretation be attributed to this sentence--
e.g., where the girl is pretending to be a mare, say, and
the entity referred to by /łįį'/ is, say, a stuffed animal,
and, moreover, /yiztał/ is understood to mean 'kicked'
rather than 'spurred'.

   The above qualifications do not alter the basic point
concerning the contrast between relative clauses and
pronominalization.   A semantically uncomplicated sentence
like (2.29) conforms clearly to the First Noun Phrase
Principle, and is unambiguous with respect to the choice

of antecedents in a NP NP sequence. The closely parallel

relative clause (2.25), however, is ambiguous with respect

to the identity of the relative noun phrase.

2.6 Coreference Between Overt Noun Phrases

In concluding this chapter, I wish to mention one

final contrast between "pronominalization" and relative

clause formation. Consider the following sentence:

(2.39) Hastiin deezghalgo hastiin nídii'na'.

(man   awake:COMP man   get:up)

This is identical to (1.13) cited above, except that the

noun phrase /hastiin/ appears overtly both as subject of

the subordinate verb and the subject of the main verb.

This sentence is somewhat awkward but it is possible, and

moreover it is ambiguous according to whether or not the

two instances of /hastiin/ are understood as coreferential.

The co-reference reading is aided somewhat by employing the

suffix /-(y)ée̜/ 'aforementioned definite (DEF)' appended to

the second instance.

(2.40) Hastiin deezghalgo hastiinée̜ nídii'na'.

(man   awake:COMP man:DEF   get:up)

When the man awoke, that same man got up.

Under the deletion theory of pronominalization, one could

account for the possibility of coreference in (2.39) and

(2.40) by stipulating that pronominalization is optional.

However, if relativization is also by deletion, then the

deletion rule must be obligatory when it is used to form relative clauses because the hypothetical deletionless relative clause parallel to (2.39) and (2.40) is completely ungrammatical.

(2.41) *Hastiin deezghaléę hastiin(éę) nídii'na'.

(man   awake:REL man:(DEF)   get:up)

The ungrammaticality of (2.41) would, of course, follow automatically from the alternative conception of relative clauses according to which they are basically headless.

The purpose of this chapter has been primarily that of contrasting "pronominalization" and "relativization". In the next chapter I will present a preliminary hypothesis concerning the nature of so-called pronominalization and will make a preliminary attempt to explain the contrasts described in this chapter and the similarity described in the first chapter, i.e., apparent conformity of both phenomena to the Second Noun Phrase Constraint (1.56).

CHAPTER THREE

AN ELEMENTARY THEORY OF

NAVAJO PRONOMINALIZATION

3.0 Introduction

I would like now to turn to the question of an
appropriate conception of so-called pronominalization
in Navajo.

I will assume that it is correct in the Navajo case
to devise a unified account of the "missing noun phrase"
phenomena illustrated by the two readings of a sentence
like:

(3.1) Ashkii deezgo'go háácha.

(boy   fall:COMP   cry)

(a) When the boy$_i$ (tripped and) fell, he$_i$ cried out.

(b) When the boy$_i$ (tripped and) fell, (he/she)$_j$

cried out.

And, in general, I will assume that a single mechanism is
responsible for the gap representing a missing noun phrase,
in cases subsumed under so-called pronominalization, regard-
less of whether or not the missing noun phrase in a parti-
cular instance finds its antecedent within or outside of the
sentence in which the gap appears. This seems a reasonable
position to take, since in both cases the superficial effect
is the same--an argument, known to be "semantically present"
by virtue of the meanings of words overtly present in the

sentence, is "physically" absent, i.e., not overtly present as a phonologically constituted noun phrase. However, if this position is adopted, then it is quite clear that the deletion rule (1.15) cannot be responsible for the missing noun phrases of Navajo "pronominalization." This follows, since the deletion rule requires that any missing noun phrase (i.e., gap created by deletion) have an overt antecedent in the linguistic context.

It has been recognized for some time that third person pronouns in English cannot all be due to a process of pronominalization--i.e., a process which converts a full noun phrase into a pronoun under identity with an ante-cedent. Thus, for example, Postal (1966) pointed out that for sentences like

(3.2)   She dances well.

in which the pronoun she is without an antecedent in the linguistic context, it is "...quite sufficient to indicate precisely that such [pronominal] forms refer to object-types whose particular referents are assumed by the speaker to be known to the person spoken to" (Postal 1966, footnote 3). The consequence of this observation, of course, is that at least some English pronouns are present in the basic or underlying representations of sentences.

It has also been pointed out--see, for example, Lasnik's excellent discussion (1976)--that even in cases of sentence-internal coreference, there is no advantage in positing a

pronominalization rule for English. The fact that <u>he</u> and
<u>the</u> <u>boy</u> can co-refer in

 (3.3) When the boy fell, he cried out.

is adequately provided for by the rules of pronominal usage
implied by Postal's observation. The expression <u>the</u> <u>boy</u>
designates an object-type appropiately referred to by the
pronoun <u>he</u>. Moreover, if the addressee knows the referent
of <u>the</u> <u>boy</u>, then the speaker of (3.3) can reasonably assume
that the referent of both the full noun phrase and the
pronoun, under the coreference reading, is known to the
addressee. Thus, even where the pronoun has an overt ante-
in the linguistic environment, there is no reason to assume
that the pronoun is produced by a rule of pronominalization.
Independently necessary base-generated pronouns will serve
to provide all antecedent-pronoun connections in the
language.

 Viewed in this way, the problem of pronominalization
becomes not one of <u>producing</u> pronouns in appropiate places
but, rather, one of determining conditions under which noun
phrases (whether pronouns or full noun phrases) can, must,
or must not be coreferential. In English, for example, the
grammar must account for such coreference facts as those
illustrated in the following sentences:

 (3.4) (a) *Oscar$_i$ finally realized that Oscar$_i$ is
       unpopular.

   (b) *He$_i$ finally realized that Oscar$_i$ is unpopular.

    (c)   He$_i$ finally realized that he$_i$ is unpopular.

    (d)   Oscar$_i$ finally realized that he$_i$ is unpopular.

    (e)   Oscar$_i$ took the book with him$_i$.

    (f) *Oscar$_i$ took the book with him$_j$.

Recent work on coreference in English has advanced consider-ably our understanding of these issues (e.g., Dougherty 1969, Jackendoff 1972, Wasow 1972, Lasnik 1976, Reinhart 1976). By and large there is now agreement on the question of the basic status of pronouns, both those which do and those which do not enter into sentence-internal coreference relationships.

3.1 A Navajo Analogue to a Base-Generated Pronoun

In view of the observations I have made regarding "pronominalization" in Navajo, it seems reasonable to adopt for that language a treatment of missing noun phrases which is analogous in certain respects to analyses of English according to which all pronouns appearing in the surface representations of sentences. The Navajo analogue, in very superficial terms, would be an analysis according to which noun phrases "missing" in surface representations are also "missing" in the base. The exact nature of the analogue, however, is open to question. In the present chapter, I will consider one conception of missing noun phrases, and I will very briefly consider another in the next chapter.

First, I will consider an analysis in which missing noun phrases are in fact present as noun phrases in the

structural representations of sentences--i.e., as NP nodes which dominate the phonologically null element PRO in the phrase marker corresponding to actual sentences. According to this analysis the phrase marker corresponding to (3.1) above is roughly as follows:

(3.5)

```
                              S
              _____/___/_____
         Adv                    NP        V
     ___/_____                |        |
    S          COMP              |        |
  _/_\_          |               |        |
 NP   V          |               |        |
 |    |          |               |        |
ashkii deezgo' -go            PRO     háácha
boy    fall    -COMP          PRO     cry
```
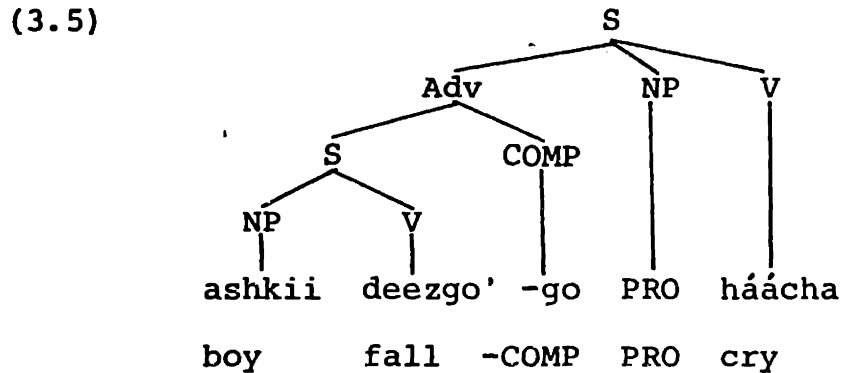
I will not commit myself here as to the exact nature of the NP-over-PRO substructure. In particular, I will not concern myself very much about the status of the symbol PRO; it is not relevant, so far as I can see, to the broader issues surrounding the missing noun phrase phenomenon in Navajo. The essential property of the proposal is that the "missing" noun phrase corresponds to an actual NP-node in the phrase marker--it is "missing" only in the phonological sense. It is perhaps reasonable to view this structure as arising by virtue of the optionality of phrase structure expansion rules (cf. the treatment of certain phonologically null noun phrase structures in Chomsky and Lasnik (1977)). That is to say, it is possible to think of the NP-over-PRO substructure as an unexpanded NP phrase. On this view, the entity PRO is, in fact, the identity element e. I will

continue, however, to refer to the element as PRO, for mnemonic convenience.

I should mention, before proceeding, that I have briefly considered, and rejected, the alternative according to which Navajo missing noun phrases are underlyingly the third person pronoun /bí/ 'he/she/they' deleted from surface structure by means of a rule similar in its effect to "pronoun drop" seen in such languages as Japanese and Turkish (cf. Perlmutter, 1972). Although this is a possibility, it is somewhat perverse from the semantic point of view in Navajo, since in a sentence like

(3.6) Ashkii deezgo'go bí háácha.

(boy   fall:COMP he/she/they cry)

which would, under the pronoun-drop hypothesis, be the source of (3.1), only with considerable difficulty could the pronoun /bí/ be taken as coreferential with /ashkii/. By contrast, the phonologically null PRO very readily accepts /ashkii/ as its antecedent.

Returning then to the theory in which (3.5) is the basic representation of (3.1), we can characterize the problem of "pronominalization" in Navajo. As in the case of English pronouns, the problem in Navajo is to determine the conditions under which the PRO element may, may not, or must be understood as coreferential with an overt noun phrase in the same sentence. In (3.1) (=(3.5)), PRO may be understood as coreferential with the overt noun

phrase /ashkii/. But it may also be understood as not
coreferential with that noun phrase. In the latter case,
it is understood in the same way as a free pronoun is in
English--i.e., it falls under the principle of usage
articulated by Postal in his discussion of (3.2). Thus, it
is perfectly appropriate to use (3.1) with PRO referring
outside the sentence, provided the speaker assumes that its
referent (or referents) is (are) known to the addressee. In
fact, this latter condition--the "principle of cooperation"
as Lasnik (1976, p.2) calls it--is required for certain
uses of (3.1) with sentence-internal coreference as well.
That sentence is appropriate only where the speaker assumes
that the addressee knows the referent of /ashkii/ 'the boy',
at least this is so on the definite reading of that noun
phrase (the reading which would be the sole one available
if the suffix /-(y)éẹ/ 'the aforementioned' were appended to
the noun phrase).

In the following structures, PRO must have external
reference--in (3.7a) because there is no overt noun phrase
to serve as antecedent, and in (3.7b) because the sole
overt noun phrase is not in an appropriate position to serve
as antecedent:

(3.7) (a)

```
                    S
              _____/_____
            NP              V
            |               |
           PRO           deezgo'
```

he/she   (trip and) fall

(b)

```
                           S
                ┌──────────┼──────────┐
                S          │          S
             ┌──┴──┐       │       ┌──┴──┐
            NP     V       │      NP     V
             │     │       │       │     │
            PRO  deezgo'  dóó   ashkii  háácha

          he/she  fall    and   boy    cry
```
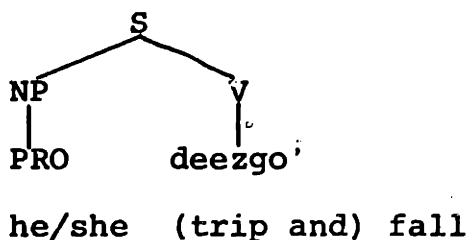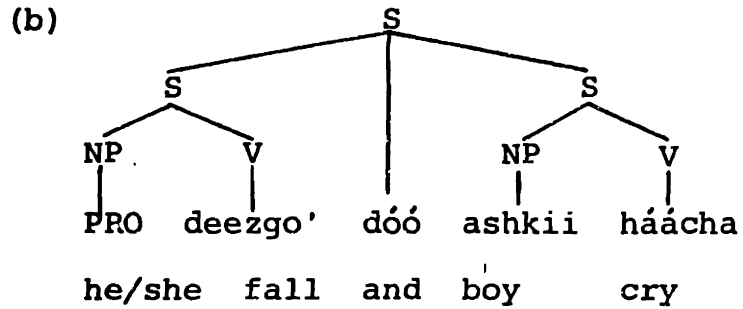
In (3.7b) coreference is impossible because PRO precedes
/ashkii/ but is not in a subordinate clause. Notice that
this failure of coreference would, under the deletion
hypothesis, be accounted for by placing a condition on
backward deletion (i.e., condition (2) of rule (1.15)).

We may assume also, following accepted belief con-
cerning well-formed anaphoric connections, that the
following structures would likewise require sentence-
external reference of the PRO element.

(3.8)

```
                        S
            ┌───────────┼───────────┐
           NP          NP           V
            │        ┌──┴──┐        │
            │       NP     N        │
            │        │     │        │
           PRO    ashkii bizhé'é yiyiiłtsą

          he/she  boy  his:father  see

          He/she_i saw the boy's_j father.
```

(3.9)

```
                            S
          ┌─────────────────┼─────────────────────┐
         NP               NP                        V
          │                │                        │
          │                S                        │
          │        ┌───────┼───────┐                │
          │       NP      NP       V                │
          │        │       │       │                │
         PRO    ashkii  at'ééd  yiyiiłtsą(n) -ę́ę  yizts'ǫs
       he/she    boy     girl    see         -REL  kiss
```

He/she$_i$ kissed the boy$_j$ who saw the girl$_k$.

He/she$_i$ kissed the girl$_j$ that the boy$_k$ saw.
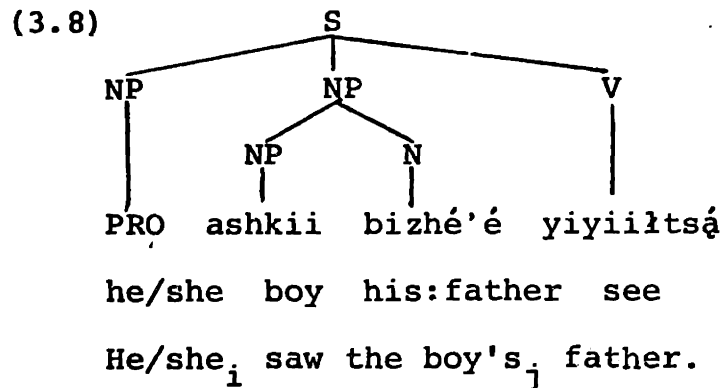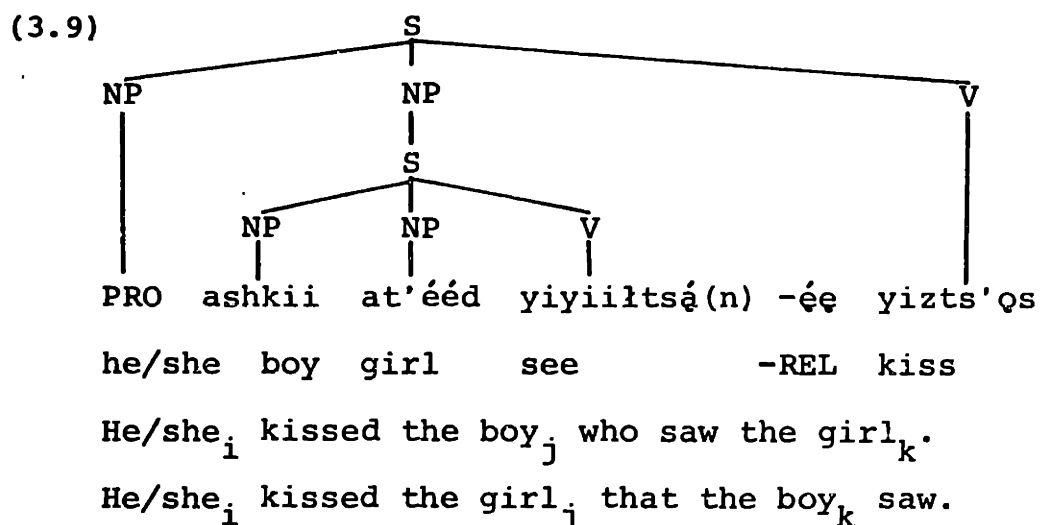
Assuming, as I will, that the PRO element behaves like a pronoun with respect to coreference, it seems reasonable to suggest that sentence-internal coreference in (3.8-9) is impossible because of the fact that PRO both precedes and commands the overt lexical noun phrase. Notice that the phonologically constituted terminal strings appearing in (3.8-9) are in fact ambiguous, permitting a reading according to which the subject of the main verb has sentence-external reference and in addition, a reading according to which the subject of the main verb is understood as being coreferential with the noun phrase /ashkii/. Now, if we assume that the PRO in (3.8-9) must have sentence-external reference, then these phrase markers are not the correct ones for these alternative interpretations of the terminal strings. The interpretations according to which /ashkii/ is understood as the subject of the main verb correspond to the following structures, in which coreference between PRO and /ashkii/ is perfectly possible:

(3.10)

```
                        S
         ┌──────────────┼──────────┐
        NP             NP          V
         │          ┌───┴───┐      │
         │         NP       N      │
         │          │       │      │
       ashkii      PRO   bizhé'é  yiyiiłtsą

        boy         PRO   his:father  see
```

The boy$_i$ saw his$_i$ father.

(3.11)

```
                        S
         ┌──────────────┼──────────────────────┐
        NP             NP                       V
         │              │                       │
         │              S                       │
         │        ┌─────┼─────┐                 │
         │       NP    NP     V                 │
         │        │     │      │                │
       ashkii    PRO  at'ééd  yiyiiłtsą(n) -ę́ę  yizts'ǫs

        boy       PRO  girl    see          -REL  kiss
```

The boy$_i$ kissed the girl he$_i$ saw.
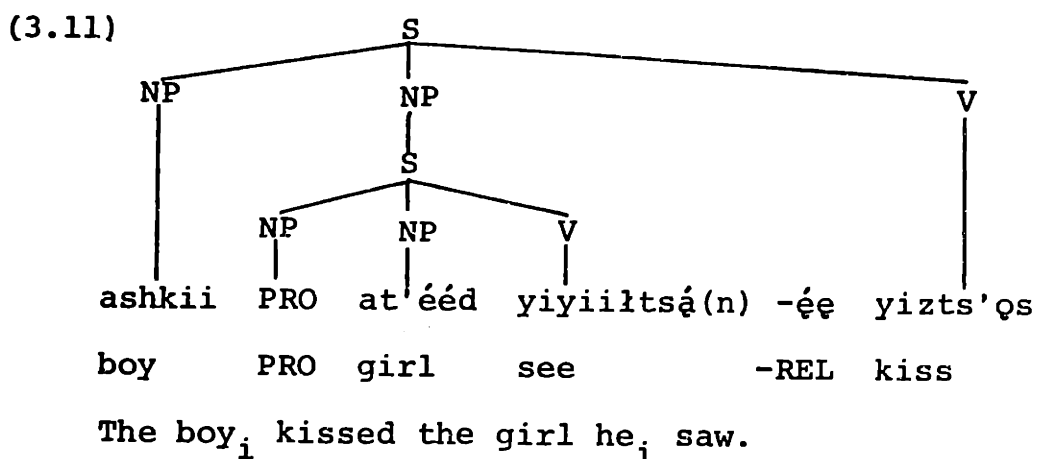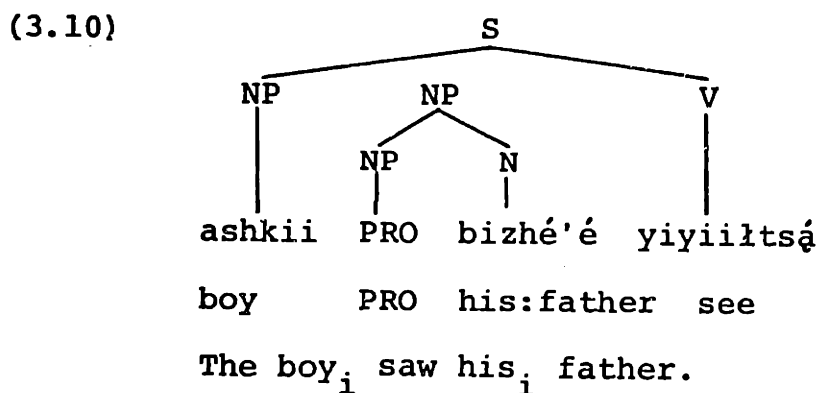
Coreference is possible in (3.10-11), I assume, because the lexical noun phrase precedes and commands the PRO element. According to this conception of the phenomenon, the strings (3.12-13) below are structurally ambiguous, depending upon the location of the PRO element--for the (a) readings, PRO precedes and commands /ashkii/ (as in (3.8-9)), and for the (b) readings,/ashkii/ precedes and commands the PRO element (as in (3.10-11)):

(3.12) Ashkii bizhé'é yiyiiłtsą.

(boy   his:father   see)

(a)   He/she$_i$ saw the boy$_j$'s father.

(b)   The boy$_i$ saw his$_i$ father.

(3.13) Ashkii at'ééd yiyiiłtsánéę yizts'ǫs.

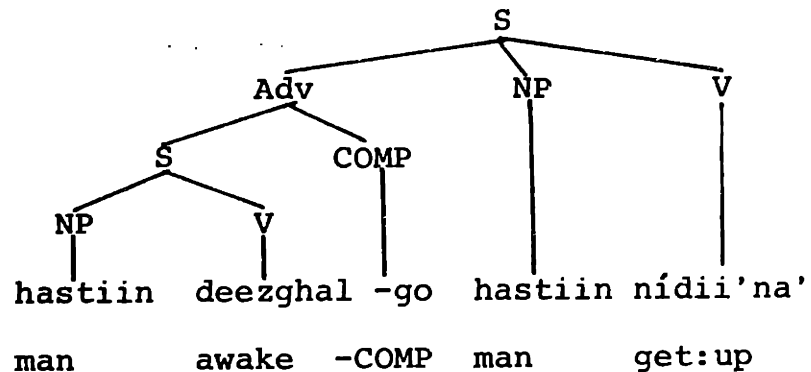(a) He/she$_i$ kissed the boy$_j$ who saw the girl$_k$.

He/she$_i$ kissed the girl$_j$ who the boy saw.

(b) The boy$_i$ kissed the girl$_j$ he$_i$ saw.
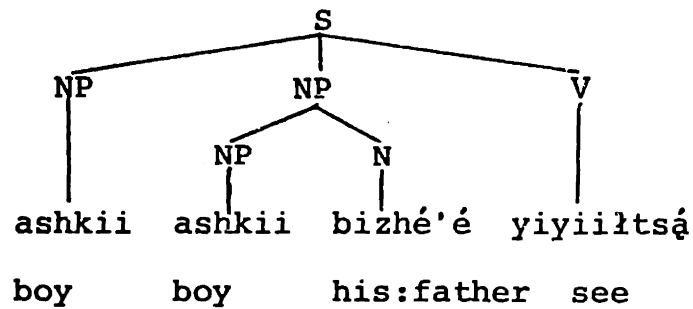
3.2 Non-Coreference Rule of Lasnik

It is relevant to notice that the lack of coreference between PRO and /ashkii/ in (3.8-9) is, in fact, a special case of a much more general coreference fact in Navajo. Recall that coreference is possible between the two instances of /hastiin/ 'the man' in (2.39)--repeated here, with its phrase marker, as (3.14):

(3.14)


```
                                    S
                    _____/____|_____
                  Adv               NP         V
              ___/___|___            |          |
             S        COMP           |          |
          __/__        |             |          |
        NP     V       |             |          |
        |      |       |             |          |
     hastiin deezghal -go         hastiin   nídii'na'
      man     awake  -COMP         man       get:up
```
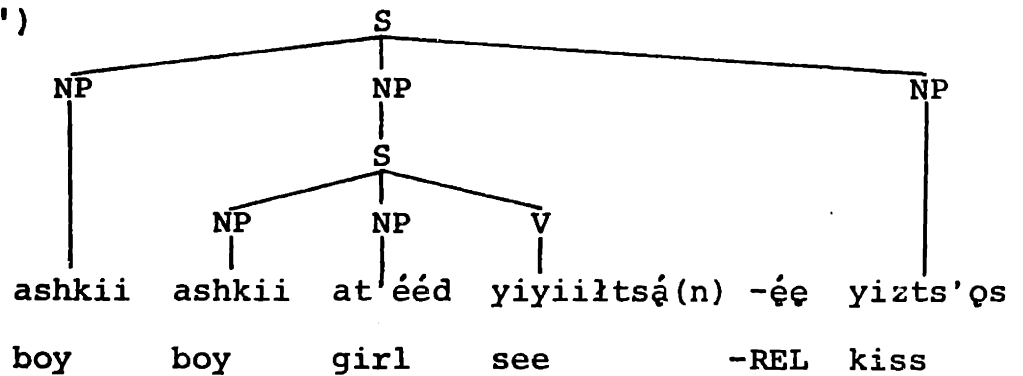
Moreover, if PRO is substituted for either instance of /hastiin/, coreference is still possible. Notice that in (3.14), the first noun phrase does not command the second, although it precedes it. Now let us consider the structures corresponding to (3.8-9) in which the noun phrase /ashkii/ appears in place of PRO.

(3.8')

```
                              S
          ┌───────────────────┼───────────────────┐
          NP                  NP                   V
          │              ┌────┴────┐               │
          │              NP        N               │
          │              │         │               │
        ashkii        ashkii    bizhé'é        yiyiiłtsą́

         boy           boy      his:father        see
```

(3.9')

```
                              S
      ┌───────────────────────┼───────────────────────────┐
      NP                      NP                           NP
      │                       │                            │
      │                       S                            │
      │            ┌──────────┼──────────┐                 │
      │            NP         NP         V                 │
      │            │          │          │                 │
    ashkii      ashkii     at'ééd   yiyiiłtsą́(n) -ę́ę   yizts'ǫs

      boy         boy        girl      see        -REL    kiss
```

Just as in (3.8-9), so also in (3.8'-9'), coreference is
impossible between the first two noun phrases. This sug-
gests strongly that a general principle is involved. I
will assume that a version of Lasnik's Non-Coreference Rule
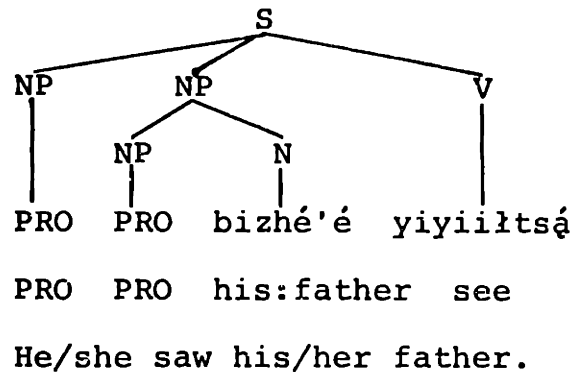is the appropiate principle:

(3.15)   The Non-Coreference Rule

          If NP_1 precedes and commands NP_2,

          and NP_2 is not a pronoun [or PRO,

          in the Navajo case], NP_1 and NP_2 are

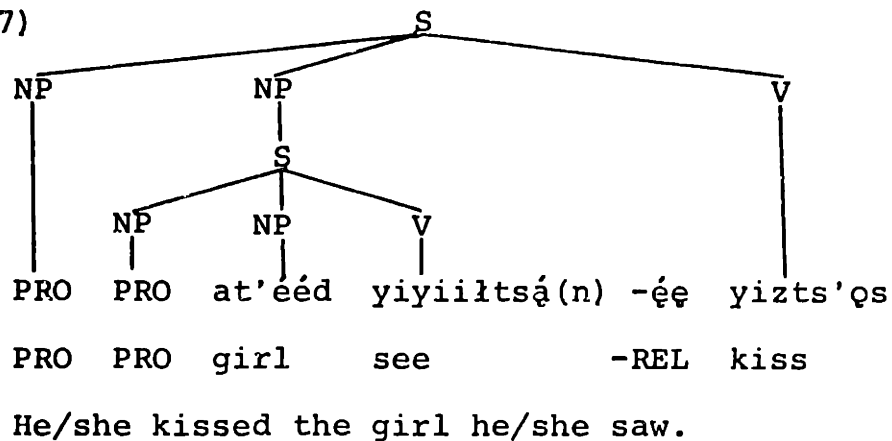   non-coreferential. [Lasnik 1976, p. 6]

This simultaneously accounts for the non-coreference

observed in (3.8-9) and that observed in (3.8'-9')--in

those structures, the second noun phrase is not a pronoun

and is commanded by the first; hence the Non-Coreference

Rule correctly blocks coreference. The Non-Coreference
rule, on the other hand, will permit coreference in (3.10-11),
since the second noun phrase is PRO, and it permits co-
reference in (3.14) because neither noun phrase both precedes
and commands the other. The Non-Coreference Rule will also
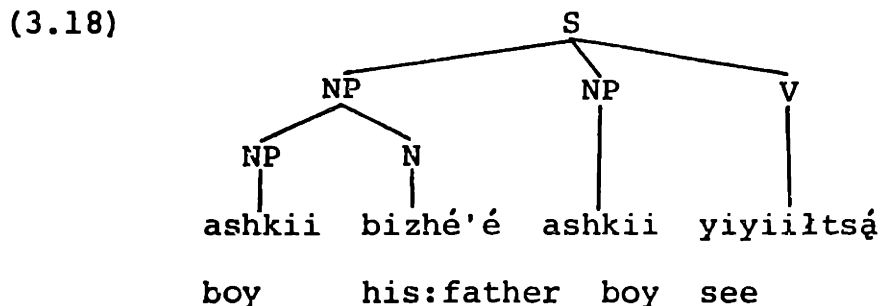permit coreference in the following cases:

(3.16)

```
                          S
        NP         NP              V
         |        /  \             |
         |      NP     N           |
         |      |      |           |
        PRO    PRO  bizhé'é    yiyiiłtsá

        PRO    PRO  his:father   see
```

He/she saw his/her father.

(3.17)

```
                              S
      NP            NP                    V
       |            |                     |
       |            S                     |
       |       /    |    \                |
       |     NP    NP     V               |
       |     |     |      |               |
      PRO   PRO  at'ééd  yiyiiłtsá(n) -ę́ę̀  yizts'os

      PRO   PRO  girl    see          -REL  kiss
```
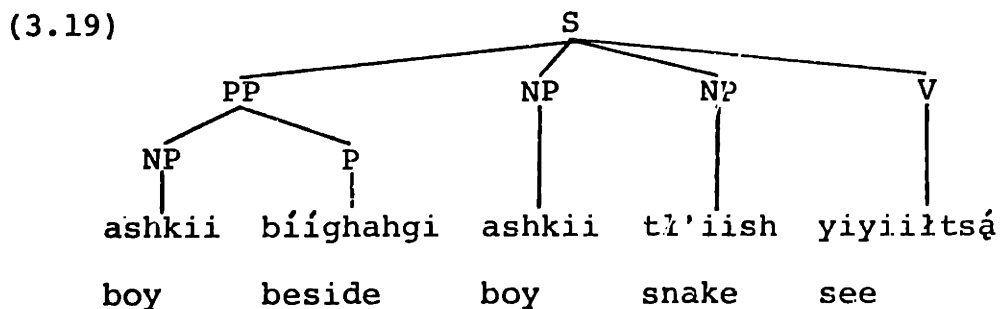
He/she kissed the girl he/she saw.

As in (3.10-11), coreference is possible here by default,
so to speak. That is to say, the Non-Coreference Rule does
not block coreference, since the relevant noun phrase--i.e.,
the second--is a pronoun. As Lasnik did for English, I
must also for Navajo assume that the notion command is to
be extended at least to the extent of subsuming the
Wasow-Lasnik notion "Kommand" (Lasnik, 1976, p. 15) in

which not only S but also NP serve as defining nodes. Thus,
consider the following in which a coreference interpreta-
tion linking the two instances of /ashkii/ is available:

(3.18)

```
                         S
            NP          NP          V
        NP       N       |           |
        |        |       |           |
      ashkii  bizhé'é  ashkii    yiyiiltsą
       boy    his:father boy      see
```

Since coreference is possible here, we must assume that the
first instance of the noun phrase /ashkii/ does not command
the second. Therefore, NP, as well as S, must be relevant
to the definition of command in Navajo. It is in fact
possible that the proper definition of command for Navajo
must be more general than this, since certain postpositional
phrase (PP) nodes also permit coreference in the relevant
configurations. Thus, for example, in the now famous
structure of (3.19) coreference between the two instances
of /ashkii/ is possible:

(3.19)

```
                           S
          PP            NP      NP       V
      NP        P       |        |        |
      |         |       |        |        |
    ashkii  bííghahgi  ashkii  tł'iish  yiyiiltsą
     boy     beside     boy    snake     see
```

Presumably, coreference is possible here, as in (3.18),
because the first instance of /ashkii/ does not command

the second. Notice, however, that coreference is impossible if the postpositional phrase as a whole appears to the right of the subject:

(3.20) Ashkii [ashkii bííghahgi] tł'iish yiyiiłtsá.

(boy   boy   beside   snake   see

In the case of (3.20), the Non-Coreference Rule, properly formulated, will block coreference here because the first instance of /ashkii/ precedes and commands the second. In view of (3.19), it is possible that the appropiate notion of command for Navajo is the notion "constituent command" defined by Reinhart, and quoted here as (3.21):

(3.21)   Constituent Command

          Node A c(onstituent)-commands node B if

          neither A nor B dominates the other and

          the first branching node which dominates

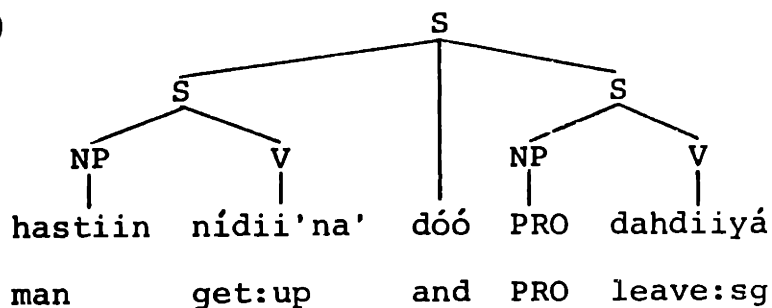   A dominates B.   [Reinhart 1976, p. 32]

With this conception of command, the Non-Coreference Rule (3.15) will account for facts of coreference I have discussed here.

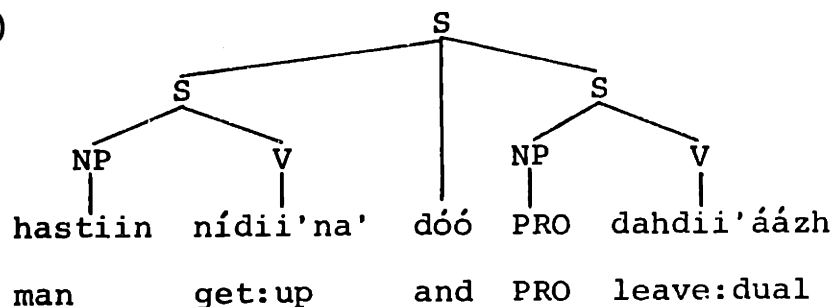3.3 The Best Possible Theory of Navajo Pronominalization

     I will assume that the "best possible" theory of Navajo "pronominalization" would be quite closely analoguous to Lasnik's theory of English in that it would not, in fact, have a rule of pronominalization assigning coreference between noun phrases. Rather, it would have the Non-

Coreference Rule which blocks coreference in certain
cases--a rule which is needed independently to handle cases
which do not involve a pronoun (or PRO in the Navajo
analogue) at all. Cases of possible coreference would,
in this view, simply be cases which are not blocked by the
Non-Coreference Rule. Instances of NP-PRO pairs which pass
this filter, so to speak, would be coreferential or non-
coreferential freely. Coreference would be allowed
provided it did not conflict with other principles of
grammar, such as, for example, the number agreement which
permits coreference in (3.22a) but not in (3.22b):

(3.22) (a)

```
                              S
            S                 |              S
        NP      V             |          NP      V
        |       |             |          |       |
     hastiin  nídii'na'      dóó        PRO   dahdiiyá

       man      get:up       and        PRO   leave:sg
```

(b)

```
                              S
            S                 |              S
        NP      V             |          NP      V
        |       |             |          |       |
     hastiin  nídii'na'      dóó        PRO   dahdii'áázh

       man      get:up       and        PRO   leave:dual
```

Coreference is not possible in the second of these
structures because the subject of the first conjunct,
being explicitly singular in form, cannot be construed
with the subject of the second conjunct, which, although

it is a PRO and therefore not itself explicitly dual in
form, must be understood as dual because of the verb form.
The coreference possibilities in (3.22a-b) are precisely
the same as in the following sentences (3.22a'-b'), where
overt singular /hastiin/ and non-singular /hastói/ appear
in place of PRO:

(3.22) (a') Hastiin nídii'na' dóó hastiin dahdiiyá.

(man   get:up   and man   leave)
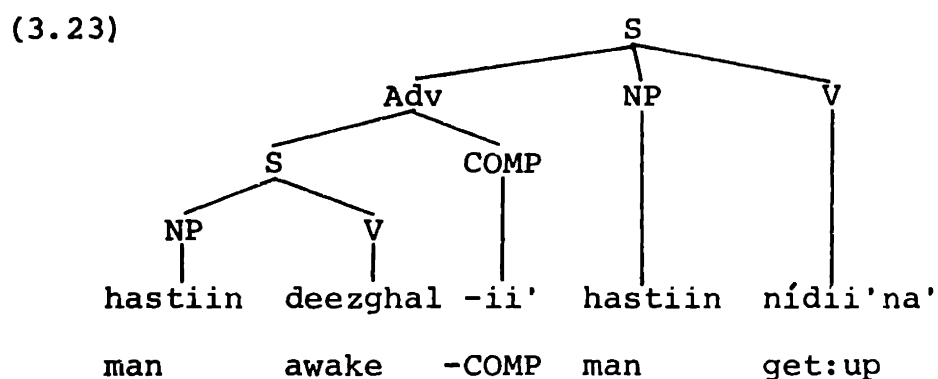
The man got up and the man left.

(b') Hastiin nídii'na' dóó hastói dahdii'áázh.

(man   get:up   and men   leave:dual)

The man got up and the men left.

The essential point is this: The best possible theory
of Navajo "pronominal" coreference would require no
mechanism beyond the independently necessary Non-co-
reference Rule and very general principles of compatability,
such as number consistency. But this best possible theory
will be observationally correct only if there are no cases
in which coreference must be positively stipulated for
Navajo. There are, however, such cases. One of these is,
in fact, not a serious problem because it involves a
principle which is needed independently of NP-PRO
coreference cases. I will describe this non-problematic
type of positive coreference immediately below, and I will
discuss another, more problematic, type toward the end of

this chapter in connection with a revised conception of the
Second Noun Phrase Constraint (1.56) of Chapter One.

3.4 The "Proximate" Conjunction /-ii'/

In structure (3.14) above, the subordinate clause is
marked by the suffixal element /-go/, which I have glossed
COMP. This element functions as a subordinating conjunction.
Exactly parallel to (3.14) is the following structure, in
which the conjunction /-ii'/ appears in place of /-go/:

(3.23)

```
                                   S
              _____/ | _____
           Adv                    NP              V
          /  \___                  |              |
         S      COMP               |              |
       /  \      |                 |              |
      NP   V     |                 |              |
      |    |     |                 |              |
   hastiin deezghal -ii'       hastiin       nídii'na'

   man     awake   -COMP        man          get:up
```

And corresponding to this structure, there also exist the
sentences in which PRO appears in place of one, or the other,
or both of the lexical noun phrases:

(3.23') (a) Hastiin deezghalii' PRO nídii'na'.

              (man   awake:COMP PRO get:up)

         (b) PRO deezghalii' hastiin nídii'na'.

              (PRO awake:COMP man   get:up)

         (c) PRO deezghalii' PRO nídii'na'.

              (PRO awake:COMP PRO get:up)

The terminal string of (3.23) and the sentences of (3.23')

are unambiguous--they require the interpretation according
to which the subject of the subordinate clause is corefer-
ential with that of the main clause. The following
sentence is not grammatical, since two principles of Navajo
grammar come into direct conflict:

(3.24) *Hastiin nídii'na'ii' PRO dahdii'áázh.

      (man   get:up:COMP PRO leave:dual)

The point is this: The conjunction /-ii'/ requires corefer-
ence between the subjects of the subordinate and main clauses.
But the subject of the subordinate clause in (3.24) is
explicitly singular while the subject of the main clause
must be understood as dual, in conformity with the ex-
plicitly dual verb.

This is clearly a case in which coreference must be
positively stipulated. It is, however, not restricted to
NP-PRO pairs since the same necessary positive coreference
is to be observed in (3.23), with lexical noun phrases in
both subject positions, and in (3.23'c) where PRO appears
in both positions. Moreover, the behavior of (3.23) and
(3.23') is not really part of the general phenomenon of
pronominal coreference, but rather a matter specific to the
subordinating conjunction /-ii'/. The phenomenon which
these sentences illustrate is widespread among languages of
Southwest, although it has not, to my knowledge, been
reported for Southern Athabascan languages prior to this.
The grammatical principle involved here has in recent years

come to be referred to by the algonguianist term "obvia-
tion". In Uto-Aztecan languages, for example, it refers to
the situation in which a clause is overtly marked to reflect
either "proximate" or else "obviative" coreference (Grimes
1967, Hale 1969, Jeanne 1978, and see also Helke 1971 for
a discussion of bound anaphora, which constitutes an English
manifestation of the "proximate" situation). Proximate
coreference in the Uto-Aztecan usage refers to the case in
which the subjects of two syntactically related clauses
are necessarily coreferential; obviative coreference refers
to the opposite circumstance, i.e., necessary disjoint
reference between the subjects of syntactically related
clauses. Navajo, evidently, exhibits one side of the
obviative principle--i.e., its subordinating conjunction
/-ii'/ signals proximate coreference.

3.5 A Review of Contrasts Between Relative Clause and
     NP-PRO Coreference

Let us assume that the conception of missing noun
phrases just outlined for Navajo is the correct one--i.e.,
that the Navajo analogue of pronouns, to wit phonologically
empty noun phrases, are present in the basic representations
of sentences and that an appropriately modified version of
Lasnik's Non-Coreference Rule is at work in determining
possible coreference relationships among noun phrases. And
let us assume further that the alternative conception of
Navajo relative clauses briefly outlined in Chapter Two is

also correct--specifically, relative clauses which are
"headless" at surface structure are likewise headless in
the base, and the interpretation of a relative clause involves
associating, as coreferential, the complex noun phrase
expression as a whole with an argument appearing in the
embedded clause (symbolized by co-indexing the super-
ordinate NP node and an NP functioning as an argument of a
subordinate verb). With this model, the contrast between
"relativization" and "pronominalization" observed in Chapter
Two finds rather natural explanation.

Consider again the contrast in coreference relationships
between (1.13) and (2.1a)--repeated here as (2.25a-b):

> (2.25) (a) Hastiin deezghalgo PRO nídii'na'.
>
>   (man   awake:COMP PRO get:up)
>
>   When the man$_i$ awoke, he$_i$ got up.
>
>   When the man$_i$ awoke, he/she$_j$ got up.
>
>   (b) Hastiin deezghaléé nídii'na'.
>
>   (man   awake:REL get:up)
>
>   The man who awoke got up.

The first of these contains an NP-PRO pair, according to the
view we are now considering, and since there is nothing in
the sentence which requires that the noun phrase and the PRO
be coreferential, and since the sentence does not represent
a structure in which coreference would be blocked by the
Non-Coreference Rule, the sentence is open to the two
interpretations indicated in translation. By contrast,

sentence (3.25b), representing the relative clause, is not

ambiguous. This follows from two facts: (1) the complex

noun phrase as a whole is necessarily understood as the

subject of the main verb, since that verb is intransitive

and the complex noun phrase is in subject position with

respect to it; and (2), the relative clause is formed from

an intransitive sentence, whose single argument, /hastiin/,

is the sole candidate for identification as the relative

noun phrase.

The curious ambiguity situation--noted in Chapter Two

in connection with sentences (2.29) and (2.25), repeated

here as (3.26a-b)--also finds a natural explanation in this

framework:

(3.26) (a)   Ashkii at'ééd yí'déésolgo deezgo'.

           (boy   girl   whistle:COMP   fall)

           When the boy whistled at the girl, he

              (tripped and) fell.

       (b)   Ashkii at'ééd yí'déésolée deezgo'.

           (boy   girl   whistle:REL fall)

           The boy who whistled at the girl (tripped

              and) fell.

           The girl who the boy whistled at (tripped

              and) fell.

Although (3.26a) is ambiguous, allowing both sentence-

internal and sentence-external coreference for the PRO

element, the point which is relevant here is the fact that

on the sentence-internal coreference reading, PRO is
necessarily coreferential with the first overt noun phrase--
i.e., with /ashkii/ 'the boy'. This is due, I have suggested,
to the operation of the First Noun Phrase Principle, which
governs the selection of an antecedent from a sequence of
two adjacent noun phrases appearing to the left of the gap
corresponding to the position of the PRO element. This
principle simply does not enter into the coreference
relationships involved in well-formed headless relative
clauses, since the latter do not involve coreference between
an NP and a PRO. The ambiguity of (3.26b) follows naturally
from my account of the headless relative clause, in as much
as the subordinate clause, being transitive and in the
uninverted (S O yi-V) form, presents two possible candidates
for identification as the relative noun phrase. As expected,
however, sentence (3.26b), unlike (3.26a), is unambiguous
with respect to the choice of sentence-internal versus
sentence-external location of the subject of the main verb.
The complex noun phrase in (3.26b) is necessarily the
syntactic subject of /deezgo'/ and it follows from the
principle of relative clause interpretation (2.27) that the
"semantic" subject of /deezgo'/ must be an argument internal
to the relative clause. The observed ambiguity in (3.26b)
has to do with the identification of the relative noun
phtase and it is, therefore, only indirectly related to the
identification of the subject of the main verb.

Finally, let us turn to the contrast observed, in connection with sentences (2.16) and (2.21)--repeated here as (3.27a-b):

(3.27) (a) Ashkii at'ééd yizts'ǫsgo dahdii'áázh.

(boy girl kiss:COMP leave)

When the boy kissed the girl, they left.

(b) *Ashkii at'ééd yizts'ǫsę́ę dahdii'áázh

(boy girl kiss:REL leave)

These two sentences contrast straightforwardly in terms of grammaticality. In Chapter Two, I attempted to present a conception of headless relative clauses which would explain the ungrammaticality of (3.27b)--essentially, it involves a conflict between two principles of grammar: (1) The requirement that the subject of the main verb /dahdii'áázh/ 'they (dual) left' be capable of having dual number reference, and (2) the necessary singular number reference of the complex noun phrase, which follows from the fact that each of the two candidates for identification as the relative noun phrase is explicitly singular in form. (Actually, this latter follows only under the assumption, which I adopt, that the two noun phrases cannot jointly function as the relative noun phrase, since they do not jointly constitute a single argument within the subordinate clause). By contrast, the grammaticality of (3.27a), under either the sentence-internal or the sentence-external coreference reading, is perfectly consistent with the

conception of NP-PRO coreference relationships I have described in this chapter. Sentence-external coreference is, of course, no problem--Lasnik's "cooperation" principle would simply require that the speaker believe the unmentioned referents to be known to the addressee, just as the speaker would in cooperatively using the simple sentence:

(3.28)   Dahdii'áázh.

They (dual) left.

I assume the sentence-internal coreference in (3.27a) follows similar principles. Since the structure of (3.27a) does not preclude sentence-internal coreference, there is nothing to prevent PRO from receiving an interpretation according to which it refers to the two-membered set comprising the two individuals mentioned in the subordinate clause.

3.6   A Revised Conception of the Second Noun Phrase Constraint

The contrast between relativization and NP-PRO coreference seems to me to be substantial enough to justify distinct analyses of the two phenomena along the lines suggested above. On the other hand, the burden of Chapter One was precisely to reveal a certain similarity between the phenomena. This similarity resided in the fact that both appear to be subject to an identical constraint--to wit, the Second Noun Phrase Constraint, which I repeat here as (3.29):

(3.29)   The Second Noun Phrase Constraint

The second noun phrase may not be deleted

from a structure of the form

X - NP - NP - Y

except where the first noun phrase

triggers the deletion.

In connection with relativization, in the context of
the theory assumed in Chapter One, this constraint is
relevant only to the formation of the headed relative
clause--and then it is only partially so since the
exception clause is completely irrelevant, inasmuch as the
trigger (in the deletion theory) is to the right, not the
left, of the deletee. Let us assume here without dis-
cussion--since it is immaterial in any event--that the
headed relative clause is in fact formed by moving an NP
into right-head position. As pointed out in Chapter Two,
the appropiate formulation of the Second Noun Phrase
Constraint for the headed relative clause would be roughly
as follows:

(3.30)   The second noun phrase may not be moved
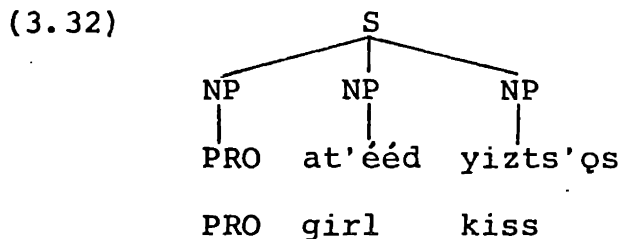
from a structure of the form

X - NP - NP - Y .

This will correctly prevent the undesired derivations in
the formulation of headed relative clauses (e.g., (1.18)
from (1.20)) and, assuming that movement is also involved

in "right dislocation", it will prevent undesired right
dislocation as well--e.g., it will prevent moving the
second or third noun phrase in (2.9). I pointed out also
that, in the case of the formation of headed relative
clauses, the constraint must be capable of taking a global
view of the sentence, since in certain cases, the relevant
NP NP sequence is not properly within the domain of the
rule--the first noun phrase being in a higher clause. This
hints already that the constraint is not properly a con-
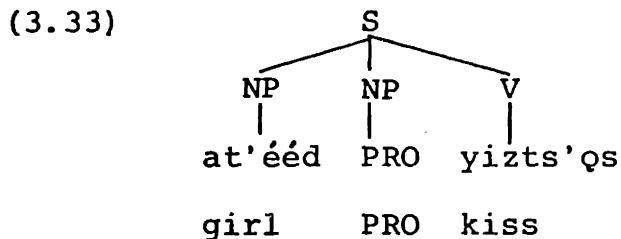straint on a rule but rather a more general principle of
some sort.

   Turning now to NP-PRO coreference, it becomes quite
evident that (3.29) will not serve as it stands, since
deletion is apparently not involved in the Navajo analogue
to pronominalization. Nonetheless, it is necessary in one
way or another to "constrain" the appearance of PRO in
structures in order to account for the observations which
motivated the Second Noun Phrase Constraint in the deletion
theory--assuming, of course, that the grammar of Navajo
should relate surface strings to phrase markers which express
configurationally the logical relations (subject, object)
which arguments bear to their verbs. Under this assumption,
for example, a "fragmentary" transitive sentence such as
that appearing in

(3.31)   ...(dóó) at'ééd yizts'ǫs.

          ((and) girl   kiss)

    (a)   ...(and) he/she k :sed the girl.

    (b) ≠...(and) the girl kissed him/her.

should in our current view of "missing noun phrases" in
Navajo, be related to a phrase marker of the form

(3.32)

```
                    S
         ┌──────────┼──────────┐
        NP         NP         NP
         │          │          │
        PRO      at'ééd     yizts'ǫs

        PRO       girl        kiss
```

and not to a phrase marker of the form

(3.33)

```
                    S
         ┌──────────┼──────────┐
        NP         NP          V
         │          │          │
       at'ééd      PRO      yizts'ǫs

        girl       PRO        kiss
```

This follows, since, in the type of sentence we have been
considering, the NP V string in (3.31) receives unambiguously
the (a) reading and not the (b) reading. The requirement
that PRO precede rather than follow the overt noun phrase is
identical in its effect to the prohibition, in the deletion
theory, against deleting the second of two consecutive noun
phrases. In essence the intended effect is to insure that
the actual surface string not be related to a structure in
which a gap--in the sense of a noun phrase argument position
not occupied by a phonologically constitued noun phrase--

directly follows an overt noun phrase.

It is, of course, a relatively straight-forward matter
to translate the Second Noun Phrase Constraint into a form
which will achieve the desired effect in terms of NP-PRO
coreference. Considering (3.29) without the exception
clause, the appropiate translation would be very approxi-
mately as follows:

(3.34)   Identify as ill-formed any structure

          in which PRO immediately follows an

          overt noun phrase.

This will correctly rule out structures like (3.33) above
and, therefore, insure that only (3.32)--with PRO preceding
the overt noun phrase--will be available as a structural
description for the fragmentary transitive sentence in
(3.31).

This new version of the Seccnd Noun Phrase Constraint
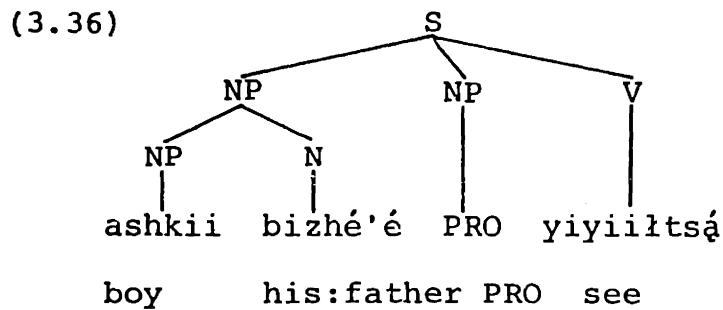will also guarantee that the sentence

(3.35)   Ashkii bizhé'é yiyiiłtsą́.

         (boy   his:father   see)
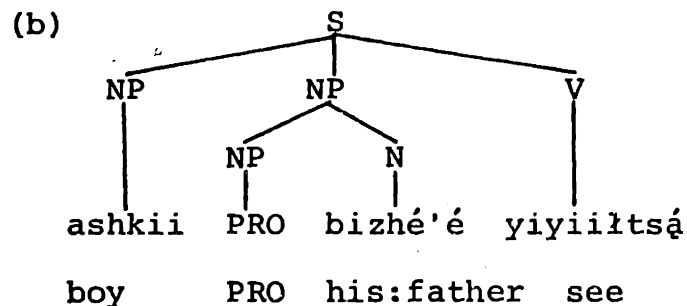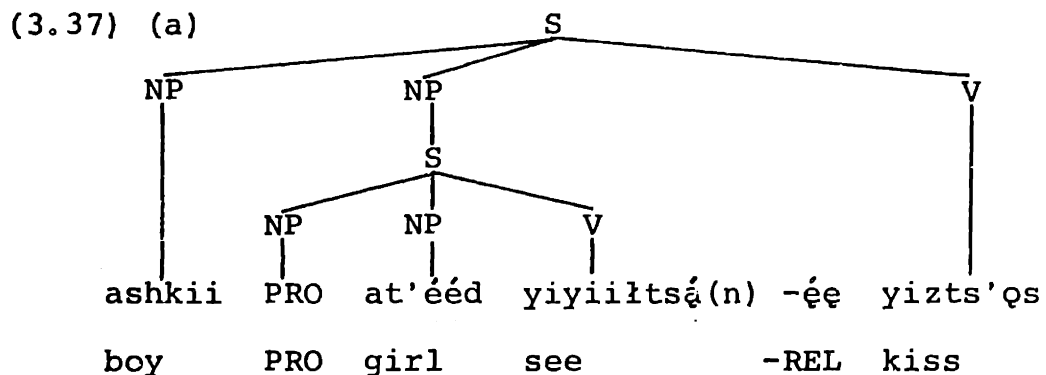
   (a)   The boy saw his father.

   (b)   ≠The boy's father saw him.

not be related to the following structure:

(3.36)

```
                              S
                  _____/___|_____
                 NP          NP         V
              __/__|          |         |
            NP     N          |         |
             |     |          |         |
          ashkii bizhé'é     PRO    yiyiiłtsą

           boy   his:father  PRO      see
```

It thereby accounts for the observation that (3.35) cannot

have the (b) reading. The constraint will also handle much

more complicated cases like that represented by (1.50).

The constraint as reformulated in (3.34) does not,

however, incorporate the exception clause of the deletion

theory version of (3.29). As a result, it will incorrectly

define as ill-formed the following structures:

(3.37) (a)

```
                                    S
              _____/__|_____
             NP               NP                           V
             |                 |                           |
             |                 S                           |
             |          ____/__|____                       |
             |        NP    NP      V                      |
             |         |     |      |                      |
          ashkii     PRO  at'ééd  yiyiiłtsą(n) -ę́ę    yizts'ǫs

           boy       PRO  girl    see         -REL    kiss
```

(b)

```
                         S
               _____/__|_____
              NP        NP         V
              |      __/__|__      |
              |    NP      N       |
              |     |      |       |
           ashkii  PRO  bizhé'é  yiyiiłtsą

            boy    PRO  his:father  see
```

Under our current conception of the problem, (3.37a) directly

underlies the perfectly grammatical sentence

(3.38) Ashkii at'ééd yiyiiłtsánę́ę yizts'ǫs.

(boy girl see:REL kiss)

The boy kissed the girl he saw.

and (3.37b) directly underlies (3.35) with the (a) reading. The exception clause in (3.29) was included to permit a gap to follow an overt noun phrase provided it was construed therewith--as is possible in the structures of (3.37). We can translate this exception clause into our current frame-work quite simply as follows:

(3.39) ...except where PRO is coreferential
with that NP.

It is quite obvious, however, that when (3.39) is integrated into (3.34), the combined effect is the same as the following formulation:

(3.40) The NP-PRO Constraint

If PRO immediately follows an overt

noun phrase NP', it must be coreferential

with NP'.

This formulation will accomplish the tasks for which (3.29) was designed in the context of the deletion theory.

3.7 An Aside on the Reflexive and the Disjoint Reference

Principle

It happens that the sentences we have so-far considered in our study of NP-PRO coreference have all had the property that the NP and the PRO in which we were interested were not

arguments of the same verb--specifically, we have not looked
at the simplest case of an NP-PRO pair, such as that
appearing in (3.41) below, where the NP and the PRO are,
respectively, the subject and the object of the same
transitive verb:

(3.41)

```
                    S
         _____|_____
        NP        NP           V
        |         |            |
     ashkii      PRO       yiyiiłtsá

      boy        PRO         see
```
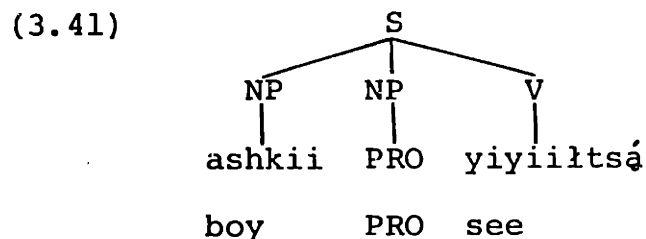
Notice that the constraint embodied in (3.40) would preclude
this structure, except where PRO is coreferential with
/ashkii/. But (3.40) would allow the structure under the
latter interpretation--this would, of course, be the
reflexive reading: "the boy saw himself." It happens,
however, that (3.41) cannot receive this reading. I suspect
that the fact that disjoint reference is necessary in (3.41)
is, again, a _general_ fact of Navajo, and not just a fact
concerning NP-PRO pairs. Notice, for example, that while
(3.42) is perfectly grammatical, it cannot have a reading
according to which the set denoted by the mon-singular
object noun phrase /ashkii/ 'the boy' includes as one of its
members the individual denoted by the subject noun phrase
/Kii/ 'Kee' (a boy's name):

(3.42) Kii ashiiké yiyiiłtsá.

(Kee boys see)

Kee saw the boys.

Similarly, although the object prefix /nihi-/ is ordinarily
ambiguous--allowing either first or second person non-
singular reference, as it does in

   (3.43)   Ashkii nihiiłtsą́.

        (boy   nihi:see)

        The boy saw us.

        The boy saw you (non-sg).

--it is unambiguous in each of the following:

   (3.44) (a) Niheesh'į́

          (< /nihi-ghi-sh-'į́/)

          I see you (non-sg).

      (b) Nihííní'į́

          (< /nihi-ghí-ni-'į́/)

          You see us.

That is to say, the sentences of (3.44) do not allow an
interpretation in which the set denoted by the object pre-
fix /nihi-/ includes the individual denoted by the subject
prefix--thus, the otherwise ambiguous object prefix /nihi-/
has only second person reference in (3.44a), where the
subject prefix is the first singular /sh-/; and /nihi-/ has
only first person reference in (3.44b), where the subject
prefix is the second singular /ni-/. I assume that the
prohibition against over-lapping reference observed in the
interpretation of (3.42) and (3.44a-b) is also responsible
for the impossibility of coreference between subject and

object in (3.45a-b) below. In this case, the prohibition

against over-lapping reference results in ill-formedness.

(3.45) (a) *Sheesh'į́.

(< /shi-ghi-sh-'į́/)

I see me.

(b) *Nííní'į́.

(< /ní-ghí-ni-'į́/)

You (sg) see you (sg).

In each of these forms, the subject and object prefixes are

identical in person and number--/shi-/ '1st singular object'

and /sh-/ '1st singular subject' in (3.45a); and /ni-/ '2nd

singular object' and /ni-/ '2nd singular subject' in (3.45b).

The principle involved here is the "Inclusion Con-

straint" of Postal (1974, mentioned originally, but not

under this name, in Postal 1966), which gave rise to what is

now known as the Disjoint Reference Rule (cf. the "rule of

interpretation" of Chomsky, 1973, p. 241). This principle

will, in English for example, preclude coreference between

the subject and object in

(3.46) John saw him.

and, at the same time, it will prevent an interpretation

according to which the set denoted by the object noun

phrases in (3.47a-b) includes the individuals denoted by

the subject noun phrases.

(3.47) (a) John saw them.

(3.47) (a)   John saw them.

       (b)   John saw the students.

In addition, for many speakers at least, this principle
renders unacceptable the following English sentences.

(3.48) (a) *I see us.

       (b) *You see you (all).

and it renders unambiguously exclusive in interpretation
the 1st person plural pronoun in the following.

(3.49)   Do you see us?

I will assume that Navajo, like English, has a Disjoint
Reference Rule precluding over-lapping reference, whether
total or partial, in sentences like (3.41-2, 3.44-5). I
am not sure how the rule should be formulated and I will
not attempt to formulate it here--hopefully it will be
extremely general (as, for example, in Chomsky 1973, p. 24)
and subject only to general constraints on rules of grammar.
I will simply assume here that Disjoint Reference is a
genuine principle of Navajo grammar and that it will, at
the very least, block over-lapping reference between clause-
mate subject and object noun phrases and/or pronominal pre-
fixes.

To be sure, Navajo has a way of expressing the situation
in which the logical subject and object are coreferential--it
uses a special reflexive form for this purpose. The
reflexives corresponding to (3.41) and (3.45) above are as

follows:

>(3.50) (a) Ashkii ádiiltsą́.
>
>> (boy   self:he:see)
>>
>> The boy saw himself.
>
>(b) Ádeesht'į́.
>
>> (self:I:see)
>>
>> I see myself.
>
>(c) Ádíínít'į́.
>
>> (self:you:see)
>>
>> You see yourself.

The Navajo reflexive is open to a variety of analyses. I
will, more or less arbitrarily for present purposes, adopt
the position that the reflexive element /'á-di-/ (actually,
a sequence of prefixes) renders a transitive verb intran-
sitive--i.e., no longer capable of taking an object noun
phrase--and that the reflexivized verb simply receives the
interpretation according to which the entity denoted by the
subject acts upon itself. Navajo also possesses a
reciprocal form--requiring a non-singular subject--as in

>(3.51) (a) Ashiiké ahiiltsą́.
>
>> (boys RECIP:they:see)
>>
>> The boys saw each other.
>
>(b) Ahiit'į́.
>
>> (RECIP:we:see)
>>
>> We see each other.

Again I will assume that the reciprocal is developed
directly in the lexicon as a special sort of "detransi-
tivized" verb form which receives the reciprocal inter-
pretation (Navajo postpositions, like verbs, have reflexive
and reciprocal forms whose use is governed by essentially
the same principles).

3.8   The Combined Effect of Disjoint Reference and the
      NP-PRO Constraint.

The combined effect of the Disjoint Reference principle
and the NP-PRO Constraint embodied in (3.40) above can be
seen most clearly in the following sentence where they
result in unacceptability:

(3.52)   *At'ééké taahníídee' dóó ashkii yisdáyíínil.

         (girls   into:water:fall and boy save:non-sg)

In this sentence, the transitive verb of the second conjunct
has the property that it requires a non-singular object.
There is, however, only one overt noun phrase in the clause.
The question is, where is the PRO? If it followed the overt
noun phrase /ashkii/, it would have to be coreferential with
it, according to (3.40), but that would violate the Disjoint
Reference principle which precludes over-lapping reference
between clausemate subject and object noun phrases. There-
fore, PRO must precede the overt noun phrase, thereby
forcing the interpretation according to which /ashkii/ is
the object of the non-singular-object verb /yisdáyíínil/

'saved (non-singular)'. However, /ashkii/ is explicitly
singular in form. Hence, the sentence is unacceptable--it
violates a general principle of number consistency in
Navajo grammar.

Notice incidently that the corresponding structure, in
which the second conjunct is in the inverted (or O S bi-V)
form is perfectly well-formed:

(3.53)   At'ééké taahníídee' dóó ashkii yisdábíínil.

         (girls into:water:fall and boy bi:save)

         The girls fell into the water and they were

         saved by the boy.

Under the hypothesis that we are now considering the
structure of (3.53) is quite obviously (3.54) below, a
structure which is perfectly well-formed in terms of its
relationship to the NP-PRO Constraint expressed in (3.40):

(3.54)

    at'ééké   taahníídee'   dóó PRO ashkii   yisdábíínil

    girls   into:water:fall and PRO   boy   bi:save
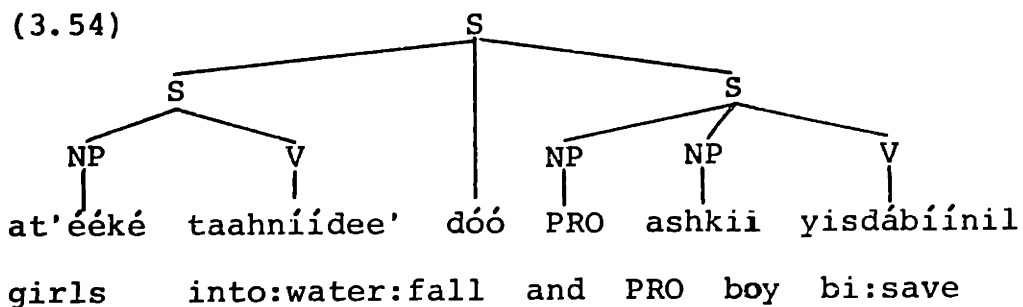
Sentence (3.52) is ill-formed for the same reason that
(3.55) below is ill-formed:

(3.55) *Hastóí ashkii yisdáyíínil.

         (men   boy   save:dual)

The singular noun phrase /ashkii/, is necessarily the
object noun phrase, by virtue of its linear position in
relation to the verb in this uninverted (S O yi-V)
sentence. But the verb requires a non-singular object, as
it in fact has in (3.56) below:

    (3.56)   Hastói ashiiké yisdáyíínil.

           (men   boys   save:non-sg)

           The men saved the boys.

With a singular object, the verb form would be as in (3.57)

    (3.57)   Hastói ashkii yisdáyííłtį́.

           (men   boy   save:sg)

           The men saved the boy.

In the framework under consideration here, the
constraint embodied in (3.40) operates correctly to contri-
bute to the identification of (3.52) as ill-formed. By
requiring that PRO precede rather than follow /ashkii/ it
forces the interpretation according to which that noun
phrase is understood as the object; a Navajo principle of
number consistency is thus violated and the sentence is
identified as ill-formed, as it is in fact. This is the
desired result, and to that extent it confirms the existence
of some principle of Navajo grammar having the effect of
(3.40). The question of whether (3.40) is itself the
correct principle is an issue with which we will have to
come to grips shortly.

3.9   A Unified Conception of Noun Phrase Gaps

If I am correct in my view that "relativization" and "pronominalization" are distinct processes --particularly if they are distinct in the way I have suggested--then it is rather clear that the constraints embodied in (3.30) and (3.40) must be reconsidered jointly, since they have an identical effect.

The effect they have in common is that of precluding the occurence of a gap immediately after an overt noun phrase--whether that gap is produced by movement (or even deletion) or is merely the position occupied by a phonologically empty noun phrase constituent. Elevating the term GAP to the status of a technical term, and using it in the generalized sense of a phonologically vacuous noun phrase argument position, we can formulate prosaically the following constraint which can be understood as applying to strings resulting from either circumstance of grammar--i.e., NP-removal or NP-over-PRO:

(3.58)   <u>NP-GAP Constraint</u>

Identify as ill-formed any structure

of the form

X - NP - GAP - X ,

in which NP does not "bind" the GAP.

The final clause of this constraint is included to permit the case where the GAP corresponds to a PRO which is coreferential with the immediately preceding noun phrase.

Clearly, the constraint we now have is not a constraint on

rules but rather a condition on surface structures. This is

an advance, since it now permits us to remove a condition or

constraint from whatever rules are involved in forming

headed relative clauses and in producing right dislocated

structures. And it is also an advance in that it brings us

a step closer to a true understanding of the nature of the

problems involved in dealing with "missing noun phrases in

Navajo.

However, from another perspective, the NP-GAP Constraint

represents a loss in our over-all conception of Navajo

grammar. In my discussion of the "best possible theory" of

Navajo "pronominalization", I expressed the hope that the

grammar would require only the appropiate version of Lasnik's

Non-Coreference Rule (3.15) and that in no case would

necessary coreference between NP and PRO have to be stipulated

in the grammar. The constraint embodied in (3.58) is just

such a stipulation, however, since, like the more specific

version (3.40), it has the effect of requiring coreference

in any sequence of the form NP PRO.

In the next chapter, I will present evidence which goes

against the NP-GAP Constraint and, more generally, I will

discuss certain considerations which bring into question a

certain basic assumption underlying the NP-over-PRO hypo-

thesis which I have developed in this chapter--specifically

the assumption that the grammar of Navajo must relate surface

structures to deep structure phrase markers which express

configurationally the argument structure of verbal clauses.

CHAPTER FOUR

SURFACE INTERPRETATION OF

GRAMMATICAL RELATIONS

4.0 Introduction

At the end of the previous chapter, I arrived at a

prose formulation (3.58) of a constraint on the appearance

of gaps in surface structure. Implicit within this formu-

lation is a special condition on the appearance of the PRO

element to the effect that if PRO immediately follows an

overt NP, it must be coreferential with the overt NP. That

condition was expressed as (3.40) in Chapter Three, and it

is repeated here as (4.1).

> (4.1)   The NP-PRO Constraint
>
> If PRO immediately follows an
>
> overt noun phrase NP', it must
>
> be coreferential with NP'.

As I pointed out in the previous chapter, this represents a

loss in our overall conception of "pronominalization" in

Navajo, since it constitutes a case in which positive

coreference must be stipulated between a PRO and an overt

NP antecedent. If it were not for (4.1) it would be possible

to "get by" with the Non-Coreference Rule of Lasnik, together

with other independently justified principles of grammar

not specific to PRO--e.g., the obviation principle illustrated

by (3.23) and (3.23') and the principle of Disjoint Reference

illustrated by (3.42-45).

In this chapter, I will present and discuss certain direct counterexamples to (4.1), and I will suggest an alternative conception of the problem according to which (4.1) plays no role in the grammar of Navajo.

Before I embark on the study of counterexamples to (4.1), I would like briefly to repeat and hopefully clarify certain fundamental assumptions which have underlain my discussion up to this point.
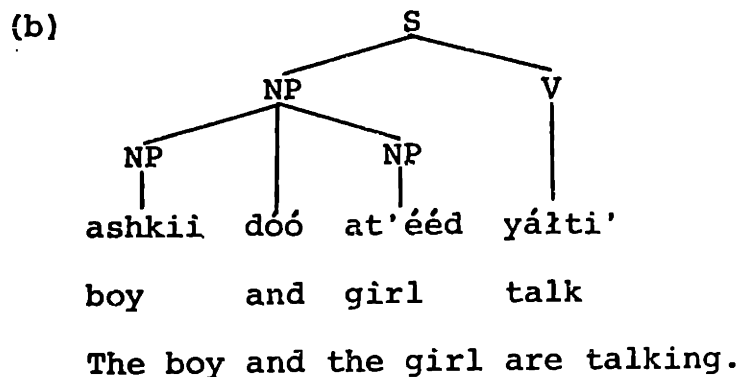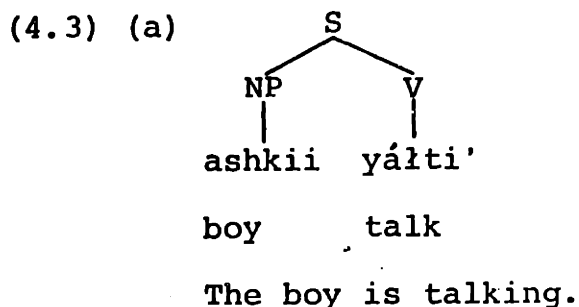
I have been assuming that certain verbs, postpositions, and nominal forms are subcategorized to appear with one or more obligatory noun phrase arguments and, moreover, that it is a condition on their appearance in phrase structures that their full complement of noun phrase arguments be actually present in the phrase marker in which they are inserted. Thus, I have been assuming a condition on lexical insertion roughly like that suggested by Chomsky (1965, p. 110 and elsewhere). I have also assumed that each noun phrase argument has a fixed position within the phrase headed by the nuclear element (i.e., verb, postposition, or noun) which selects it. This is relevant to the present discussion in the following way. If an obligatory noun phrase argument is not phonologically realized in its appropiate position in the surface representation of a particular phrase, we must assume (i) it was removed (say, by right dislocation or by the process creating headed
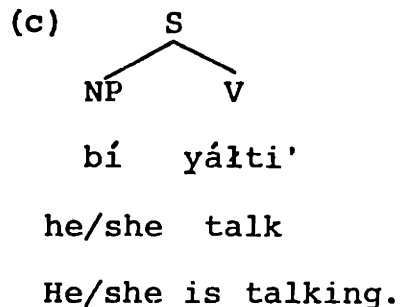
relative clauses), or else (ii) it is an instance of
NP-over-PRO. For the present purposes, I am interested in
the second of these cases.

Consider, for example, an intransitive third person
verb form like /yálti'/ 'he/she is talking'. I assume that
this form is subcategorized to take an obligatory noun
phrase argument, functioning as its subject. Navajo is verb-
final, and we have no particular evidence to assume that
there is a verb phrase. Therefore, the minimum phrase
marker in which this intransitive verb form may appear is
as follows:

(4.2)

```
        S
       / \
     NP    V
```
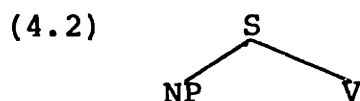
And it in fact appears with overt NPs in such sentences
as (4.3)

(4.3) (a)

```
         S
        / \
      NP    V
      |     |
   ashkii  yálti'
    boy     talk
```

The boy is talking.

(b)

```
              S
           __/ \
         NP      V
        /|\      |
      NP | NP   yálti'
      |  |  |
  ashkii dóó at'ééd
   boy   and  girl   talk
```

The boy and the girl are talking.

(c)
```
          S
        /   \
      NP      V
```
bí    yáłti'

he/she   talk

He/she is talking.

But, as should now be clear, in Navajo, such a verb form as
this can appear in an equally well-formed sentence without
an overt NP.  Thus, the following is a perfectly good
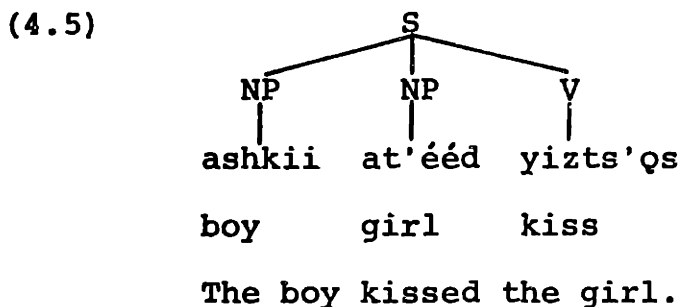sentence in Navajo:

(4.4)  Yáłti'.

He/she/they is (are) talking.

My assumption is, however, that the phrase marker associated
with this sentence has an NP (actually an NP-over-PRO) in
subject position as follows:

(4.4')
```
              S
           /   \
         NP   V
         | |
        PRO   yáłti'
```
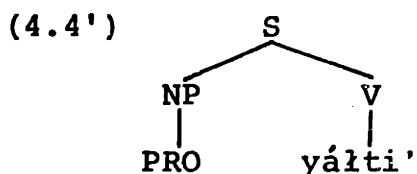
Similarly, a third person transitive form like /yizts'ǫs/ is
subcategorized to take two NP arguments, as it does overtly
in the sentence

(4.5)
```
                    S
               / | \
             NP   NP   V
             | | |
           ashkii at'ééd yizts'ǫs

           boy   girl   kiss
```
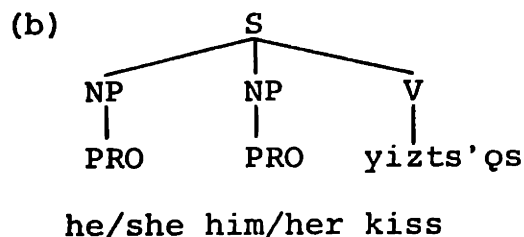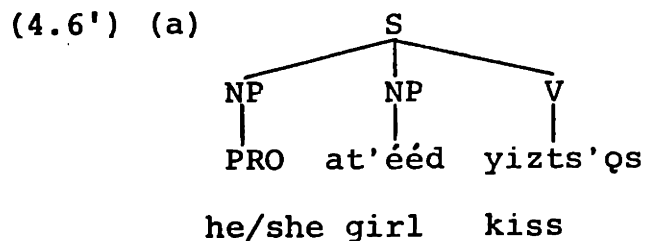The boy kissed the girl.

The verb is in the "yi-form", so the first and second NPs are understood to function, respectively, as subject and object.

This verb form may also appear with one or both of its arguments missing--i.e., not phonologically overt as in

    (4.6) (a)   At'ééd yizts'ǫs.

            (girl  kiss)

            He/she kissed the girl.
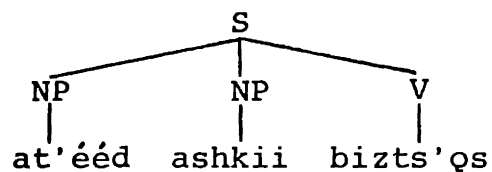
       (b)   Yizts'ǫs.

            He/she kissed him/her.

Again, my assumption is that the missing NPs are instances of NP-over-PRO:

(4.6') (a)

```
                 S
        ┌────────┼────────┐
       NP       NP        V
        │        │        │
      PRO     at'ééd   yizts'ǫs

     he/she    girl      kiss
```

    (b)

```
                 S
        ┌────────┼────────┐
       NP       NP        V
        │        │        │
      PRO      PRO     yizts'ǫs

     he/she  him/her    kiss
```

And here again the arguments are arranged in the order subject-object, as required by the yi-form of the verb. If the verb were in a bi-form--i.e., /bizts'ǫs/ 'he/she was kissed by him/her'--the arguments would be understood to be in the order object-subject (see Chapter One, (1.32-3),
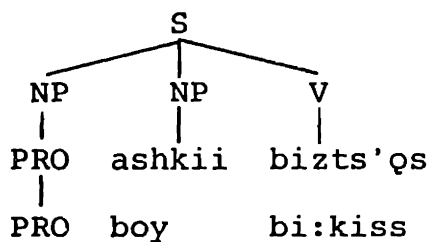
et passim), as in

(4.7) (a)

```
              S
       ┌──────┼──────┐
      NP     NP      V
       │      │      │
    at'ééd  ashkii  bizts'ǫs

     girl    boy    bi:kiss
```

The girl was kissed by the boy.

(b)

```
              S
       ┌──────┼──────┐
      NP     NP      V
       │      │      │
     PRO    ashkii  bizts'ǫs
       │
     PRO    boy     bi:kiss
```

He/she was kissed by the boy.

(c)
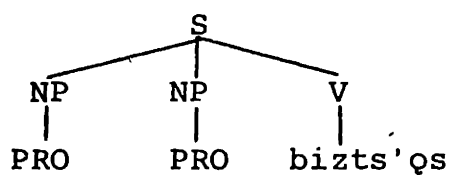
```
              S
       ┌──────┼──────┐
      NP     NP      V
       │      │      │
     PRO    PRO    bizts'ǫs

   he/she  him/her  bi:kiss
```
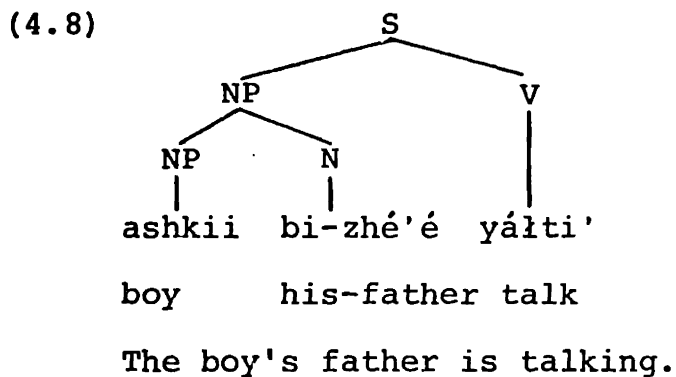
He/she was kissed by him/her.

This line of reasoning extends to other nuclear categories as well. Thus, the nominal form /bi-zhé'é/ 'his/her-father'—is said to require an NP argument functioning as possessor. And it appears with an overt possessor in (4.8) below:
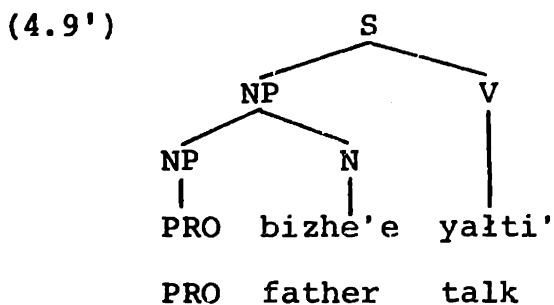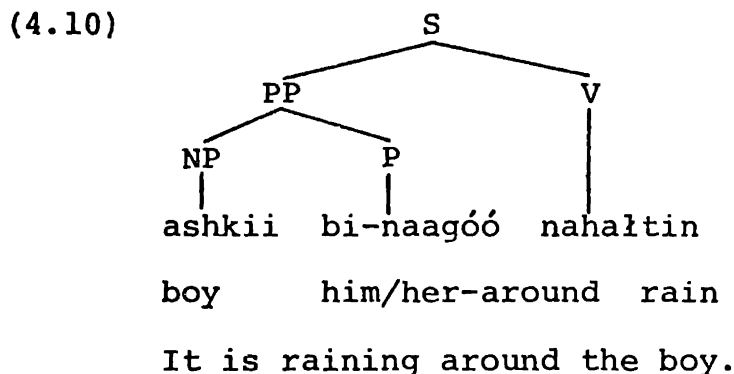
(4.8)

```
                    S
            _____
          NP                    V
       _____
     NP       N                 |
      |        |                |
   ashkii  bi-zhé'é          yálti'

    boy     his-father        talk
```

The boy's father is talking.

Expectably, however, the possessor argument may be non-overt phonologically, as in the perfectly well-formed sentence

(4.9)   Bizhé'é yálti'.

(his/her:father talk)

His/her father is talking.
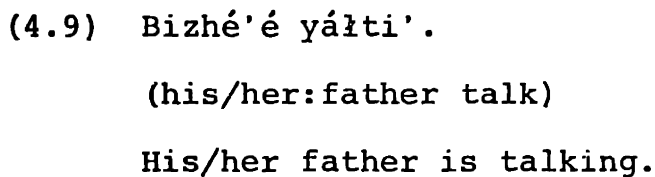
In line with my general approach here, I assume the possessor argument in (4.9) to be another instance of NP-over-PRO. Thus, the phrase marker for (4.9) is as follows:

(4.9')

```
                    S
            _____
          NP                V
       _____
     NP       N             |
      |        |            |
    PRO    bizhe'e        yalti'

    PRO    father          talk
```

Finally, a postpositional form like /binaagóó/ 'around him/her' is said to require an NP argument functioning as its object, as in

(4.10)

```
                        S
              PP                 V
         NP        P             |
         |         |             |
       ashkii   bi-naagóó    nahaltin

         boy     him/her-around  rain
```

It is raining around the boy.

where this object argument is not phonologically overt, I
assume it to be present as NP-over-PRO in the phrase
markers. Thus, parallel to (4.10) above we have (4.10'):

(4.10')

```
                        S
              PP                 V
         NP        P             |
         |         |             |
        PRO    bi-naagóó     nahaltin

        PRO    him/her-around  rain
```

It is raining around him/her.
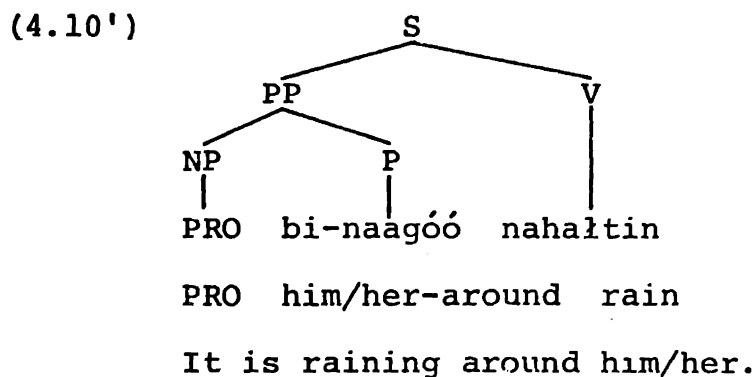
In general then, I am assuming that the phrase marker
for a particular clause or phrase matches the subcategori-
zational properties of the nucleus. This assumption is
crucial to what follows, since only under this assumption
is it possible to posit a PRO element in structural positions
which might violate the condition expressed in (4.1).

4.1 Ellipsis in Discourse

I will first mention a class of counterexamples to
(4.1) which is of relatively minor interest. I mention
this type here primarily to "get it out of the way", so to
speak, since the fact that it represents is very clearly

one relating to the well-formedness of a particular type
of discourse.

In answering an information question, it is customary
to answer with the word or phrase which in fact constitutes
the answer. All or a part of the presupposed portion of
the question may be suppressed. Thus, for example, the
question

(4.11)   Háí lá at'ééd yizts'ǫs?

(who Q girl   kiss)

Who kissed the girl?

can be answered simply,

(4.12)   Ashkii.

(boy)

The boy (did).

with ellipsis of all but the portion which answers the
question. Alternatively, it can be answered more fully as
follows:

(4.13)   Ashkii at'ééd yizts'ǫs.
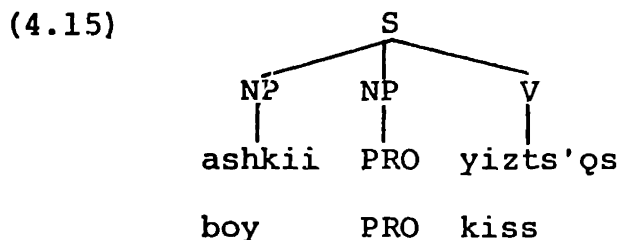
(boy   girl   kiss)

The boy kissed the girl.

But it is also possible to answer as follows:

(4.14)   Ashkii yizts'ǫs.

(boy   kiss)

The boy kissed her.

This is a perfectly well-formed response, and, in the question-answer discourse context, it is readily understood as having the meaning according to which the noun phrase /ashkii/ is the subject. But, with this meaning, and if the missing noun phrase is actually present as PRO, given my assumptions, the phrase markers for (4.14) must be (4.15) below:

(4.15)

```
                    S
         _____|_____
        /           |           \
       NP          NP            V
        |           |            |
     ashkii        PRO        yizts'os

      boy          PRO          kiss
```

This is in direct violation of (4.1) since PRO follows an overt NP with which it is not coreferential (and, incidently, could not be, due to the Disjoint Reference principle).

There are several ways to view this problem. One way is simply to allow the configuration (4.15)--with sentence external reference for PRO--under the special circumstance of a question-answer exchange. Another way--possibly the correct way--is to assume that the missing NP in (4.14) is not really a case of NP-over-PRO, but rather a genuine case of ellipsis--simply a less thorough ellipsis than (4.12). Under this interpretation, (4.14) would not be in violation of (4.1) since there would be no PRO present in the structure at all. In any event, I maintain that the use of (4.15) in response to (4.11) is a matter belonging to the study of discourse and is not properly within the range of topics

with which I am attempting to deal. Henceforth, therefore,

I will leave this class of apparent counterexamples to
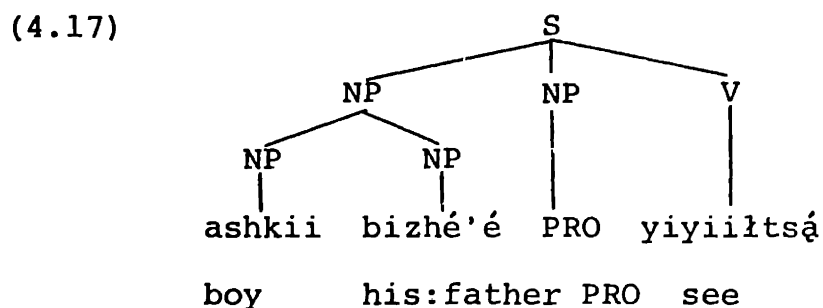
(4.1) out of consideration altogether.

4.2 PRO as Possessor

A more interesting class of counterexamples to (4.1)

involves possessive constructions of the type represented

by (1.57), repeated here as (4.16):

> (4.16) Ashkii bizhé'é yiyiiłtsá.
>
> (boy   his:father   see)

The point which such sentences were used to illustrate in

Chapter One was the fact that they cannot be associated

with a structure in which a gap appears immediately before

the verb. In our current framework, this means that (4.16)
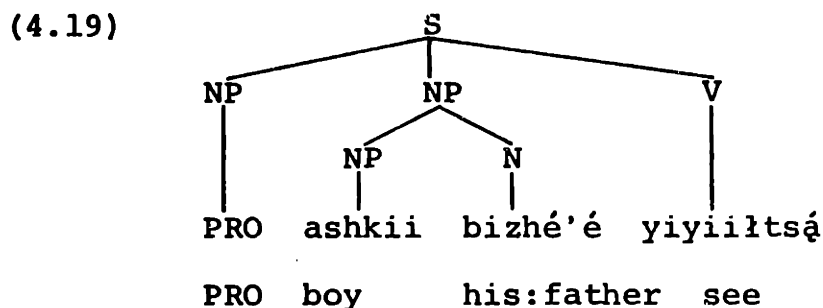
cannot correspond to (4.17) below:

(4.17)

```
                              S
                    _____/|_____
                   /          |          \
                 NP          NP           V
                / \           |           |
              NP   NP         |           |
              |    |          |           |
           ashkii bizhé'é    PRO       yiyiiłtsá
           boy    his:father PRO        see
```

This is exactly correct since (4.16) cannot receive an

interpretation according to which the possessive construc-

tion /ashkii bizhé'é/ 'the boy's father' is the subject of

the verb /yiyiiłtsá/ 'he/she saw him/her'. Thus, (4.16)

cannot mean either (a) or (b) below:

(4.18) (a) The boy's$_i$ father saw him$_i$.

     (b) The boy's$_i$ father saw him/her$_j$.

This, of course, is consistant with (4.1). On the other hand if (4.17) were allowed, it would be in direct conflict with (4.1).

It is possible, of course, to have an interpretation of (4.16) according to which the possessive construction is the object of the sentence, as depicted in (4.19) below:
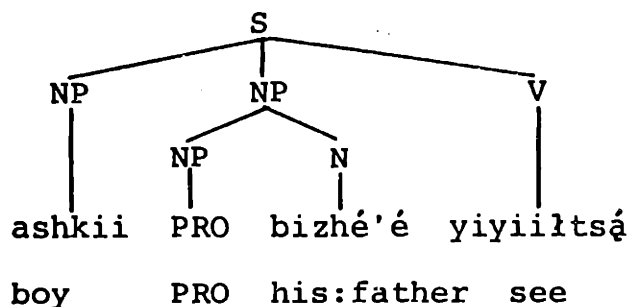
(4.19)

```
                         S
              _____|_____
             /           |           \
            NP           NP            V
            |          /    \          |
            |        NP      N         |
            |        |       |         |
           PRO     ashkii  bizhé'é   yiyiiltsá

           PRO       boy    his:father  see
```

This corresponds to the reading (4.20)

(4.20) He/she saw the boy's father

And again this is consistant with (4.1).

It is also possible for (4.16) to receive an interpretation according to which /ashkii/ is the subject and in which /bizhé'é/ constitutes the overt portion of the object. Under the assumption mentioned in the introduction of this chapter, the structure in this instance could be as illustrated in (4.21) below:

(4.21)

```
                        S
           ┌────────────┼───────────┐
          NP           NP           V
           │        ┌───┴───┐       │
           │       NP       N        │
           │        │       │        │
        ashkii    PRO    bizhé'é  yiyiiłtsą́
         boy      PRO    his:father  see
```

This is consistant with (4.1), so that this construction may receive the interpretation (4.22) below:

(4.22) The boy$_i$ saw his$_i$ father.

In fact, this is precisely the interpretation <u>required</u> by (4.1)--i.e., it is the interpretation in which PRO is coreferential with the immediately preceding NP.

What we did not mention in Chapter One, however, is the fact that (4.16) can also receive an interpretation in which PRO refers outside the sentence, as in the reading (4.23) below:

(4.23) The boy$_i$ saw his/her$_j$ father.

And, of course, it may be understood as coreferential with a noun phrase appearing farther to the left but still within the same (more complex) sentence, as in the (b) reading of (4.24) below:

(4.24) At'ééd yah'ííyáago ashkii bizhé'é yiyiiłtsą́.

(girl   enter:COMP   boy   his:her:father see)

(a) When the girl entered, the boy$_i$ saw his$_i$ father.

(b) When the girl$_i$ entered, the boy saw her$_i$ father.

This is in direct violation of (4.1). But notice that it is exactly what one would expect in the "best possible theory" of Navajo pronominalization which contained only Lasnik's Non-Coreference Rule together with the various general principles of grammar briefly described in the preceding chapter.

This observation certainly casts doubt on the validity of (4.1), increasing the chances that a more general--"best possible"--theory of Navajo pronominalization is the correct one. We must, of course, explain the fact that still remains--namely, the fact that (4.16) <u>cannot</u> receive the interpretation corresponding to (4.17). I will delay my attempt to do this until after I have considered another class of counterexamples to (4.1).

4.3 PRO Following Relative Clauses

A somewhat more intricate case involves sentences containing relative clauses built upon transitive sentences, such as the following:

(4.25)   Hastiin łį́į́' yizlohę́ę yí'diiłid.
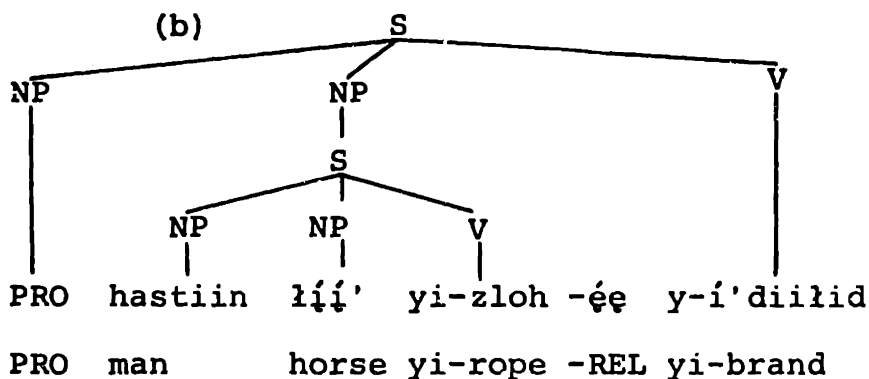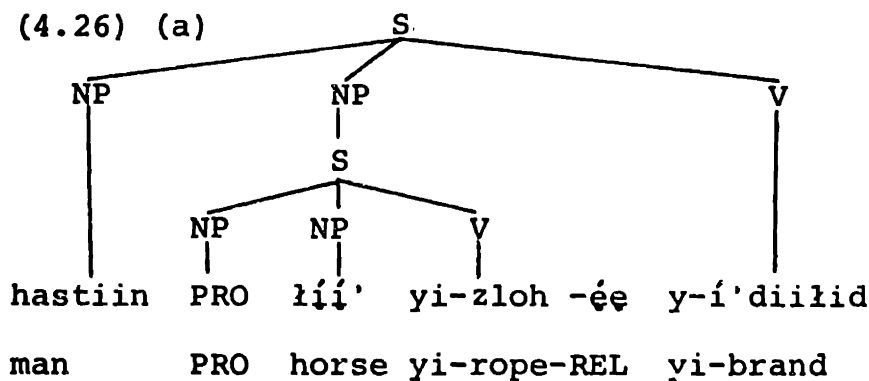
(man   horse rope:REL brand)

(a)   The man$_i$ branded the horse he$_i$ roped.

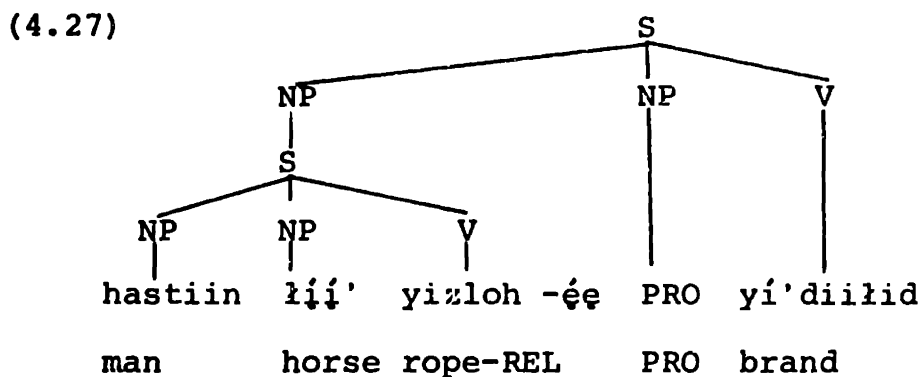(b)   He/she branded the horse that the man roped.

....

The interpretations (a) and (b) are perfectly consistant with (4.1). They correspond, respectively, ·to the structures below:

(4.26) (a)

```
                        S
        ┌───────────────┼───────────────┐
       NP              NP                V
        │               │                │
        │               S                │
        │        ┌──────┼──────┐         │
        │       NP     NP      V         │
        │        │      │      │         │
     hastiin    PRO   łį́į́'  yi-zloh -ę́ę  y-í'diiłid

     man        PRO   horse yi-rope-REL  yi-brand
```

(b)

```
                        S
        ┌───────────────┼───────────────┐
       NP              NP                V
        │               │                │
        │               S                │
        │        ┌──────┼──────┐         │
        │       NP     NP      V         │
        │        │      │      │         │
      PRO     hastiin  łį́į́'  yi-zloh -ę́ę  y-í'diiłid

      PRO     man        horse yi-rope -REL yi-brand
```

Interpretation (4.25a) corresponds to that in which PRO is

coreferential with the immediately preceding noun phrase

/hastiin/--as required by (4.1). And here (4.1) is

supported further by the fact that PRO in (4.26a) cannot

refer outside the sentence. Interpretation (4.25b), if

associated with structure (4.26b), is also consistant with

(4.1), since PRO is not preceded by a noun phrase at all,

and therefore does not even come under the purview of (4.1).

The constraint embodied in (4.1) predicts that sentence

(4.25) cannot have an interpretation according to which the

expression /hastiin łį́į́' yizlohę́ę/ 'the man who roped the

horse' (or 'the horse that the man roped') appears in

subject position, with PRO in object position:

(4.27)

```
                                S
          NP                    NP        V
          |
          S
      NP   NP      V            |         |
      |    |       |            |         |
   hastiin łįį' yizloh -ę́ę     PRO     yí'diiłid

    man       horse rope-REL    PRO     brand
```

Thus, for example, (4.1) predicts that (4.25) cannot mean

(4.28) The man who roped the horse$_i$ branded it$_j$.

This is observationally correct. However, (4.1) makes a
false prediction also. While it correctly predicts that PRO
in a configuration like (4.27) cannot refer outside the
sentence, it fails to allow an interpretation according to
which PRO in such a configuration is coreferential with one
of the two NPs <u>within</u> the relative clause. In fact, (4.1),
in conjunction with the Disjoint Reference principle, would
rule (4.27) out altogether--(4.1) requires coreference
between PRO and the immediately preceding NP, but since
that NP is the subject in (4.27), and therefore a clause-
mate with PRO, Disjoint Reference would preclude coreference,
thereby rendering (4.27) uninterpretable. The fact is,
however, there <u>is</u> an interpretation of (4.25) which, under
our assumptions, corresponds precisely to the structure

(4.27). This interpretation is the one in which the relative
clause is understood as "modifying" /hastiin/, and in which
PRO is coreferential with /łįį'/:

(4.29)   The man who roped the horse$_i$ branded it$_i$.

Under our assumptions, this interpretation constitutes a

counterexample to (4.1). That is to say, this interpretation

corresponds to the configuration (4.27), in which PRO appears

in object position following an overt noun phrase. Again,

doubt is cast on the validity of the NP-PRO Constraint

expressed in (4.1). This is an especially interesting

example for another reason--namely, PRO is evidently allowed

to appear in object position in (4.27), but it cannot refer

<u>outside</u> the sentence. This fact must eventually be explained.

Before proceeding to explain the observations we have

made here and in the previous subsection, I should point

out a certain fact concerning sentence (4.25) and its various

readings. The critical reading--i.e., (4.29), which

constitutes a counterexample to (4.1)--is somewhat difficult

to get, and I have had some difficulty in convincing other

Navajo speakers that it exists. The judgements are somewhat

delicate, since the difference between the favored reading

(4.25a) and our critical reading (4.29) is not one of "truth

value", but rather one of "modification" or "restriction"

by the relative clause. In (4.25a), the relative clause

modifies /łį́į́'/ 'the horse', while in (4.27) it modifies

/hastiin/ 'the man'. It is perfectly understandable that

these two readings should in fact exist, since, as we have

seen, headless relative clauses formed on transitive

sentences in the yi-form are ambiguous with respect to the

identity of the relative noun phrase. However, in the case

of (4.25), there is a very natural parsing of this string

which separates /hastiin/ from the substring /łį́į́' yizloh-ę́ę/,

thereby favoring the reading according to which the

relativized verb /yizloh-ę́ę/ is associated with /łį́į́'/ 'the

horse'. I am referring, of course, to the parsing which

corresponds to the structure (4.26a).

To show that an interpretation corresponding to (4.27)

is in fact possible, it is sufficient to choose NPs in the

subordinate clause in such a way as to disfavor the

interpretation according to which the object NP is the

relative noun phrase. For example, if the object of the

embedded verb uniquely refers--or is "referentially

restrictive" in some sense--the subject is more readily

understood as being modified by the relative clause. Thus,

for example, the following sentence readily receives an

interpretation according to which it is the <u>subject</u> of the

embedded verb that is modified by the relative clause:

(4.30) Asdzáán Kii ya'níłtsoodę́ę yich'ahóóshkeed.

      (woman Kee feed:REL   scold)

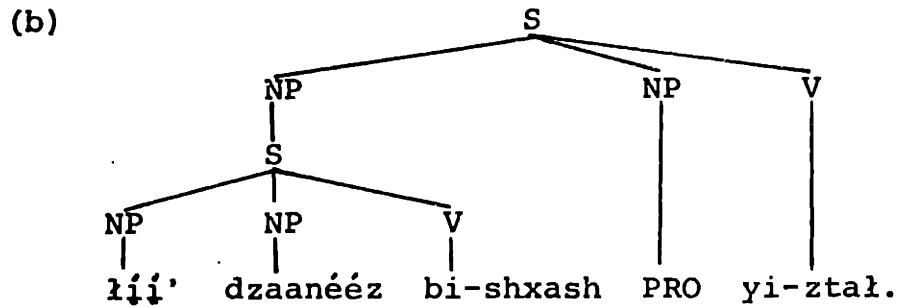   The woman who fed Kee scolded him.

In fact, it is almost impossible here to get the interpretation

according to which the proper noun /Kii/ 'Kee' functions as

the relative noun phrase. Therefore, sentence (4.30) clearly

establishes the possibility of a configuration parallel to

(4.27)--i.e., the following:

(4.31)

```
                                    S
                                    |
        NP                          NP              V
        |                           |               |
        S                           |               |
        |                           |               |
   NP   NP    V                    PRO         yich'ahóóshkeed
   |    |     |
asdzáán Kii ya'niłtsood-ę́ę        PRO            scold
woman  Kee  feed-REL
```
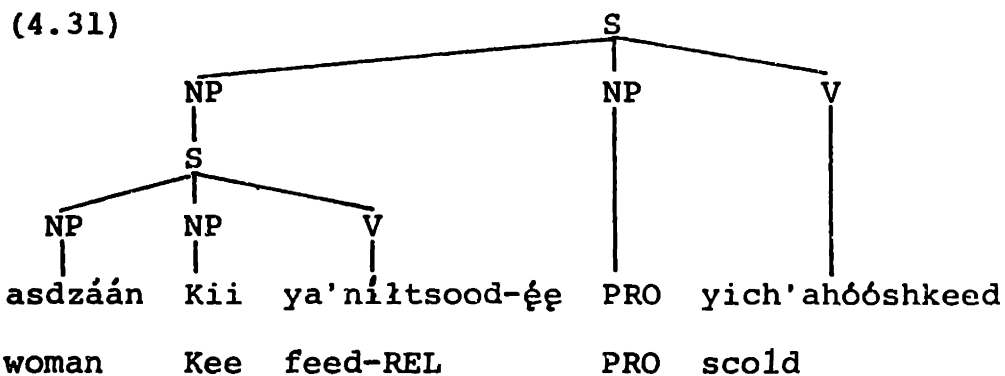
I take this to mean that (4.1) is in serious trouble. But
this is somewhat encouraging, because if (4.1) can be
eliminated, there is some hope that the maximally general
conception of Navajo pronominalization is correct. To
substantiate this, however, it is necessary to explain all
of the instances in which (4.1) appears to apply.

Another way in which an interpretation corresponding
structurally to (4.31) can be brought out is to form the
relative clause upon the inverted (or O S bi-V form) of a
sentence in which the subject and object are equal in rank
(e.g., both human, or both animal). In this case, the
relative clause will be unambiguous with respect to the
identity of the relative NP--it is regularly the initial NP
in such cases. Thus, the sentence (4.32a) readily receives
the interpretation corresponding to (4.32b):

(4.32) (a) Łį́į́' dzaanééz bi-shxash-ę́ę yi-ztał.

            (horse mule   bi-bite-REL yi-kick)

            'The horse which was bitten by the mule

            kicked it.'

(b)

```
                              S
           NP                      NP      V
            |                       |      |
            S
      NP    NP      V
       |     |      |               |      |
     łį́į́'  dzaanééz bi-shxash     PRO  yi-ztał.
```

The string (4.32a) can, to be sure, be interpreted in other
ways, but the point I wish to make is that it readily
receives the interpretation embodied in (4.32b)--since
relative clauses formed upon inverted sentences (with equal-
ranking subject and object) are unambiguous. (It should be
pointed out, incidentally, that Hale, Jeanne, and Platero,
1976 p. 403, asserted erroneously, that such relative
clauses were ambiguous. This error was an unfortunate
accident arising from the complex logistics involved in
composing that paper by correspondence.)

4.4 Discussion: The Interpretation of Sentences

 I will now attempt to show that a constraint like (4.1)
is unnecessary in the grammar of Navajo.

Heretofore, I have left completely out of consideration
the possible role which might be played by quite general
principles employed by speakers of Navajo in understanding
Navajo sentences. I hope to show that such principles are
intimately involved in explaining many of the coreference
phenomena described in the first three chapters. In
particular, I will be concerned with principles which
speakers might reasonably be assumed to employ in assigning

"grammatical relations" (subject, object) to overt noun

phrases in transitive clauses.

Let us consider the simplest possible case, namely a

transitive clause in which both subject and object are

represented overtly by noun phrases:

    (4.33) (a) Ashkii at'ééd yi-zts'ǫs.

           (boy girl yi-kiss)

        (b) Ashkii at'ééd bi-zts'ǫs.

           (boy girl bi-kiss)

As should be quite clear by now, the grammatical relations

borne by the noun phrases in these sentences correlate with

the morphology of the verb word in accordance with the

principle expressed in (1.35), which is repeated here as

(4.34):

    (4.34) <u>Interpretation of Grammatical Relations</u>

        NP is

           (a) Object /__yi-V

               Subject /__bi-V

           (b) Subject /__NP yi-V

               Object /__NP bi-V

In these formulae, the expressions "yi-V" and "bi-V" are to

be understood as abreviations for "a verb word in which the

object prefix is /yi-/ or /bi-/". In effect, what (4.34)

says is that the NP nearest the verb is object if the

object person marker is /yi-/, but it is subject if the

object person marker is /bi-/; and it says that the left-
most of two NPs is subject if the object person marker is
/yi-/, and it is object if the object person marker is
/bi-/. Notice that these principles of interpretation, by
themselves, will account for the readings assigned to
transitive clauses in which one of the noun phrases is
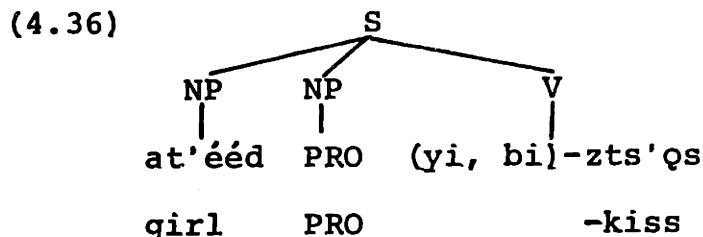missing--i.e., clauses like

> (4.35) (a)   At'ééd yi-zts'ǫs.
>
>   (girl yi-kiss)
>
>   (b)   At'ééd bi-zts'ǫs.
>
>   (girl bi-kiss)

By virtue of (4.34), the sole overt NP argument in (4.35a)
must be understood as the object; and, similarly, the sole
overt NP argument in (4.35b) must be understood as the
subject. Thus, these principles of interpretation are all
that is needed to account for the fact that sentences like
those in (4.35) cannot be associated with a structure in
which a gap--whether the gap is PRO or a "removal site"--
immediately precedes the verb. These principles, therefore,
preclude association of (4.35) with a structure of the
following form:

> (4.36)
>
> ```
>                          S
>             NP       NP           V
>             |        |            |
>           at'ééd    PRO     (yi, bi)-zts'ǫs
>           girl      PRO            -kiss
> ```

Now it is my contention that this makes (4.1) completely

unnecessary in Navajo grammar. Moreover, I contend that

interpretive principles of the type expressed in (4.34) are

independently needed in any fully adequate description of

Navajo linguistic competence. If they in fact render (4.1)

unnecessary, then we can assume that the maximally general,

"best possible", theory of Navajo pronominalization is

correct. My job is not finished, however, since it remains

for me to show that principles like (4.34) do in fact account

for the various observations made in previous chapters.

Before continuing, however, I would like to pause

briefly in order to devise a somewhat more streamlined

formulation of (4.34), by collapsing the strictly structural

description included in it.

(4.37) <u>Interpretation of Grammatical Relations</u>
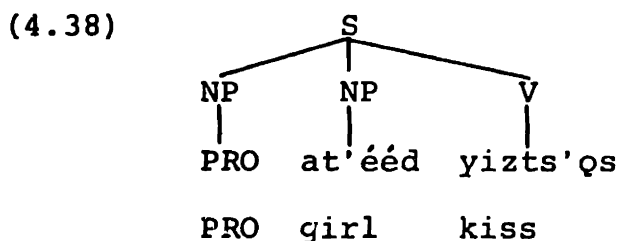
In an overt string of the form

$$(NP_b) \; NP_a \; V$$

(i) NP_a is [α obj] if the object marker

in the verb word is [α yi], and

(ii) NP_b is [α obj] if the object marker

is [$-\alpha$ yi]. (Where: [+obj] = the

grammatical relation "object", and [-obj] =

the grammatical relation "subject"; and
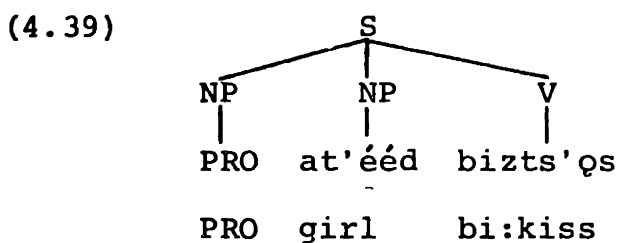
[+yi] = /yi-/, and [-yi] = /bi-/.)

These principles, of course, come into play only in the

interpretation of transitive clauses in which both the

subject and object are third person. And I will restrict
my attention here to those cases, since they are the ones
which are responsible for the observations with which I have
been concerned in this study. Notice that the revised
formulation of the Interpretation of Grammatical Relations
(hereafter IGR) employs parentheses in order to accommodate
transitive clauses in which one of the arguments is not
overtly expressed by an NP. We can think of the structural
description in (4.37) as applying in much the same way as
does a phonological expression collapsing disjunctively
ordered rules (e.g., Chomsky and Halle, 1968 p.30). Thus,
the maximum expansion of (4.37) applies only where both the
subject and the object are overt. The shorter expansion
applies where only one of the arguments is overt. We are,
of course, immediately interested in cases where the shorter
expansion applies--as for example, in the sentences of (4.35)
above. The structural description in (4.37) will correctly
identify the sole overt argument in (4.35a-b) as NP_a and
will interpret its grammatical relation in accordance with
principle (i). Notice, that the IGR applies to overt
strings; it does not itself take into consideration any PRO
elements which might be present in the actual structure of
which the overt string is a part. However, given the
interpretations assigned by (4.37) together with the
assumptions outlined in the introduction to this chapter,
it is possible to deduce the position of the PRO element in

"missing NP" cases. Thus, for example, (4.37) assigns the object relation to the overt noun phrase /at'ééd/ in (4.35a). The object is nearest the verb where the verb is in the yi-form, as it is in (4.35a), therefore, the PRO must precede the overt NP, as illustrated in (4.38) below:

(4.38)

```
                    S
          ┌─────────┼─────────┐
         NP        NP          V
          │         │          │
         PRO     at'ééd     yizts'ǫs

         PRO      girl        kiss
```

An exactly parallel line of reasong leads us to assign structure (4.39) to (4.35b):

(4.39)

```
                    S
          ┌─────────┼─────────┐
         NP        NP          V
          │         │          │
         PRO     at'ééd     bizts'ǫs

         PRO      girl       bi:kiss
```

Given the IGR, there is no way in which structure (4.36)-- with PRO following /at'ééd/--could be associated with either of the sentences in (4.35a-b). This is precisely the result we want. And notice also that this account gives no role whatsoever to our supposed NP-PRO Constraint (4.1). This is also a desired result.

4.5 Possessive Construction Reconsidered

Let us turn now to a consideration of sentences of the type represented by (4.16) above. The overt string in such a sentence as (4.16) can be "parsed" in two ways--as

indicated below:

(4.40) (a) $(_{NP}$Ashkii$)_{NP}$ $(_{NP}$bi-zhé'é$)_{NP}$ yiyiiłtsą́.

(b) $(_{NP}$Ashkii bi-zhé'é$)_{NP}$ yiyiiłtsą́.

That is to say, it is possible to view the sentence as having

two overt arguments for the transitive verb /yiyiiłtsą́/

'he/she saw him/her'--as in (a)--or it is possible to view

it as having only one overt argument for the transitive

verb--as in (b). Now in the first case the IGR principle

of (4.37) will assign the object relation to the noun phrase

represented by the possessive construction /bizhé'é/ 'his/

her father', and it will assign the subject relation to the

initial overt noun phrase /ashkii/ 'the boy'. This corre-

sponds to the reading

(4.41) The boy saw his/her father.

Given our assumptions about the underlying representations

of phrases in Navajo, we must assume that there is a PRO

in possessor position within the second noun phrase of this

sentence, under the (a) parsing. This is depicted in

(4.21) above. In accordance with the maximally general

conception of Navajo pronominalization, this PRO element may

be understood as referring to any entity properly subsumed

under the category "third person", including the overt noun

phrase which immediately precedes and c-commands it in the

sentence--i.e., /ashkii/ 'the boy'. If (4.1) does not exist

as a principle of Navajo grammar--as I claim it does not--

there is no necessity that PRO in (4.21) be coreferential with /ashkii/. This is, in fact, the case, since the possessor in the noun phrase represented overtly by /bi-zhé'é/ may be an individual not represented by any overt noun phrase in the sentence. That is to say, it is possible to by-pass the noun phrase /ashkii/ in searching for the referent of the possessor. The possessor may be located in the linguistic environment, further to the left, as in (4.24) above; or the possessor may be simply understood from the extra-linguistic context. This is totally consistant with the view of pronominalization represented by Lasnik's Non-Coreference Rule and with the Navajo analogue to this view which I sketched out in Chapter Three. The facts here seem to indicate quite clearly that (4.1) is not a genuine principle of Navajo grammar.

Turning now to the (b) parsing indicated in (4.40) above, the IGR principle will interpret the noun phrase /ashkii bizhé'é/ 'the boy's father' as bearing the object relation to the verb /yiyiiłtsą́/. This corresponds to the reading

(4.42) He/she sees the boy's father.

And we can deduce from this that the PRO element is initial in the sentence--as depicted in (4.19) above. Since the IGR itself precludes associating the sentence with (4.17)-- i.e., where PRO follows the overt NP--there is no reason

to invoke (4.1) to achieve this effect. Again the role of (4.1) is eliminated as a principle of relevance to the understanding of Navajo coreference phenomena.

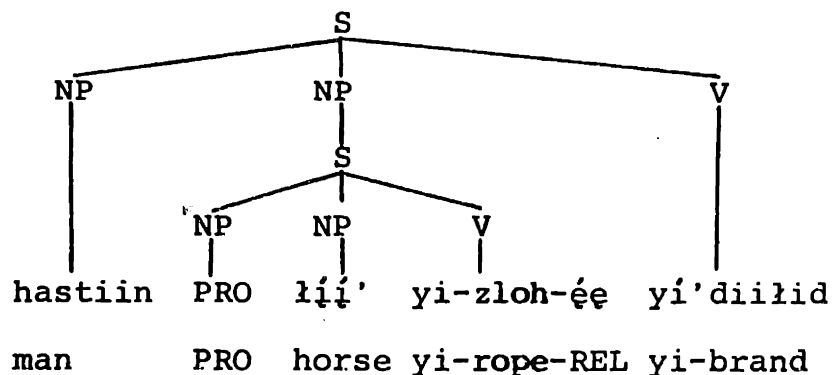## 4.6 The Relative Clause Case Reconsidered

I will consider now the various observations concerning coreference in sentences of the general form represented by (4.25) above.

First I will deal with the observation that (4.25) cannot be associated with a structure of the form illustrated in (4.26a) in which PRO refers outside the sentence--rather, PRO in (4.26a) must refer to the immediately preceding noun phrase. Notice that this observation is quite consistent with (4.1). If we are to eliminate (4.1), we must explain these coreference facts in some other way.

It is quite obvious, that the IGR will account for the fact just noted. Recall that the IGR is oblivious to PROs. The task of the IGR is simply to relate <u>overt</u> NPs to verbs. Now, if we consider the overt string of (4.25), we see that the embedded verb /yizloh/ 'he/she roped him/her/it' is immediately preceded by two noun phrases--namely, /hastiin/ 'the man' and /łį́į́'/ 'the horse'. The IGR analyzes these as NP_b and NP_a respectively. Since the verb is in the yi-form, the IGR assigns the object relation to NP_a (i.e., /łį́į́'/) and it assigns the subject relation to NP_b (i.e., /hastiin/). Now notice that this is sufficient to account for the coreference facts. Let us consider the analysis of

(4.25) embodied in the phrase marker (4.26a)--repeated
here for convenience:

(4.26) (a)

```
                              S
        ┌─────────────────────┼──────────────┐
        NP                    NP              V
        │                     │               │
        │                     S               │
        │              ┌──────┼──────┐        │
        │             'NP     NP     V         │
        │              │      │      │         │
     hastiin          PRO    łį́į́'  yi-zloh-ę́ę̖  yí'diiłid
       man            PRO   horse  yi-rope-REL yi-brand
```

Notice that the noun phrase /hastiin/ appears in the
position appropriate to the subject relation with respect
to the main verb--and it will be assigned that relation by
the IGR. We see, therefore, that the IGR interprets
/hastiin/ as subject of both verbs in the sentence. Now
the PRO which appears in the embedded sentence must also be
the subject of the embedded verb--this follows, by default,
so to speak, since /łį́į́'/ 'the horse' has been assigned
the object relation. Notice incidently, that PRO is not
assigned a grammatical relation by IGR directly, since PRO
is invisible to the IGR. We deduce the grammatical relation
borne by PRO from that assigned to its overt neighbor noun
phrase--the PRO bears the grammatical relation "comple-
mentary" to that of its neighbor; we may assume that this
is by some sort of general convention. Now if PRO and
/hastiin/ are both assigned the subject relation with
respect to the embedded verb /yizloh/ 'he/she roped him/her/
it', then it follows that /hastiin/ and PRO must be

coreferential. And this follows from principles quite
independent of (4.1). Moreover, there is no need to directly
specify coreference between PRO and /hastiin/ in (4.26a)--
the coreference follows automatically from independent
principles.

In addition to the interpretations just discussed,
(4.25) receives two other interpretations which are relevant
to our argumentation against the NP-PRO Constraint (4.1).
However, one of these additional interpretations is also a
problem for the IGR, as now stated. But let us consider
the easy case first.

Sentence (4.25) may be parsed in such a way as to group
all of the overt string preceding the main verb into a single
noun phrase constituent, as follows:

(4.43)   NP(Hastiin łį́į́' yizloh-ę́ę)NP yi'diiłid.

Applied to the embedded clause, the IGR assigns grammatical
relations in a perfectly straight-forward way--assigning
the object relation to /łį́į́'/ and the subject relation to
/hastiin/. From the point of view of the main verb, under
the parsing of (4.43), the IGR as currently stated will
assign the object relation to the complex noun phrase
expression /hastiin łį́į́' yizloh-ę́ę/. And in accordance
with our assumptions, this locates the PRO in initial
position, as depicted in the structural description (4.26b)
above. And the PRO is assigned the subject relation by the

"complementarity" convention alluded to earlier. This is all very fine, since sentence (4.25) does in fact receive this interpretation--namely

(4.44) He/she branded the horse that the

man roped (=(4.25b)).

However, as I pointed out in subsection 4.3 above, sentence (4.25) is open to another interpretation as well, an interpretation which we adduced as a counterexample to (4.1). This is the interpretation according to which the relative noun phrase is /hastiin/ rather than /łįį'/ and in which /łįį'/ is understood as the object of the main verb /yí'diiłid/ 'he/she branded it':

(4.45) The man who roped the horse$_i$

branded it$_i$ (=(4.29)).

In accordance with our assumptions concerning phrase structure in Navajo transitive sentences, this interpretation corresponds to the structural configuration (4.27), in which PRO follows an overt noun phrase:

(4.27)

hastiin łįį' yi-zloh-ée PRO y-í'diiłid

man horse yi-rope-REL PRO yi-brand
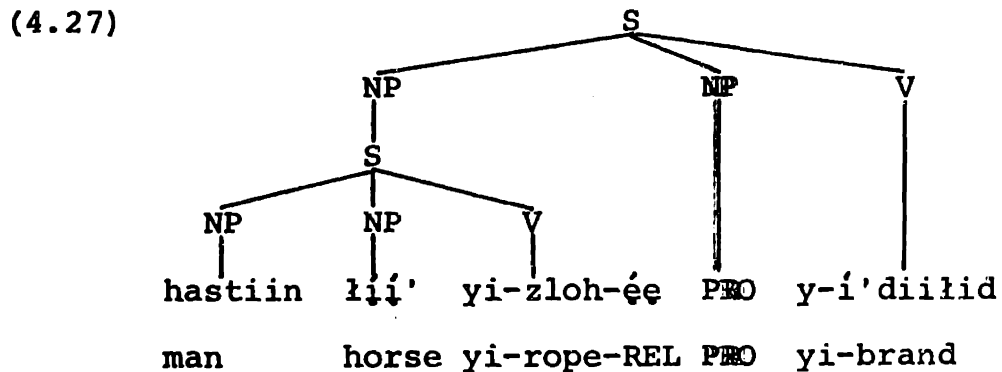
This counterexemplifies (4.1), to be sure, but it also presents a problem for the IGR as stated in (4.37) above. This follows since PRO is invisible to the IGR, and the overt NP--namely the complex nominal expression under the parsing of (4.43)--must necessarily be interpreted as object by the IGR. Thus, it would appear, we now face a counter-example not only to (4.1), which is desirable, but also to (4.37), which is regrettable.

I contend that the apparent problem is not a problem with the approach that I am suggesting, but merely with the conception of the IGR implied by the formulation in (4.37). I neglected there to point out that the interpretive principles must be capable of ignoring certain material which intervenes between the transitive verb and the noun phrases whose grammatical relations are being assigned. It is clear that some sort of "variable" must be included in the structural description of the IGR. This is indicated in (4.46) below:

(4.46)   IGR (Structural Description Reformulated)

$$(NP_b) \quad NP_a \quad X \quad V$$

That a variable must be included can be seen even in such simplex examples as the following, in which the entire parenthesized substring is overlooked in assigning grammatical relations to the underlined noun phrases:

47) <u>Hastiin</u> <u>asdzáán</u> (at'ééd ashkii yił yi-ch'į') niinílǫ́ǫ́z (</ni-yi-nílǫ́ǫ́z).

    (<u>man</u>   <u>woman</u>   (girl   boy   him:with her-to) yi-lead)

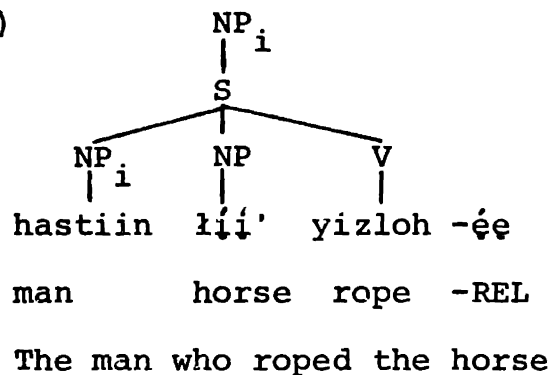The man led the woman up to the girl with the boy.

Let us assume that when the IGR assigns grammatical relations with respect to a main verb, it may apply either the longer expansions, according to which the variable is non-null, or else it can apply the shorter expansion, according to which the variable is null. In the first case, applied to (4.25), the noun phrases /hastiin/ and /łį́į́'/ are directly associated with the main verb /yí'diiłid/, as depicted in the following analysis:

(4.48) Hastiin | łį́į́' | yizlohę́ę | yí'diiłid.
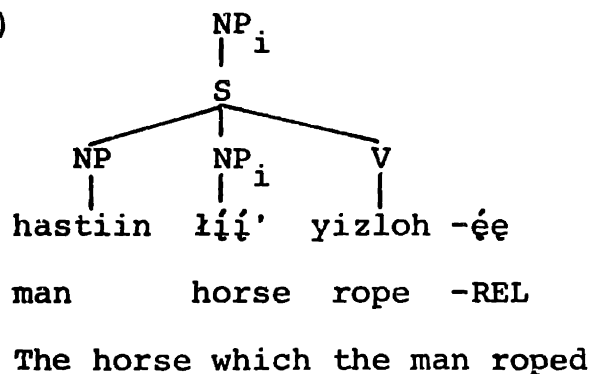
NP$_b$ | NP$_a$ | X | V

Now notice that the overt string (4.25) can be parsed as in (4.43)--or better said, the phrase structure of Navajo provides an analysis of the sentence according to which the substring /hastiin łį́į́' yizlohę́ę/ is a noun phrase constituent--i.e., it is a relative clause. If we recall that relative clauses built upon yi-form transitive sentences are ambiguous with respect to the identification of the relative noun phrase, we can see immediately how (4.25) can receive the interpretation (4.29 = 4.45). When the IGR applies as depicted in (4.48), it does not actually assign a grammatical relation to the complex nominal expression--rather it assigns grammatical relations directly to the embedded noun phrases. It is because of the ambiguity of the relative clause that (4.25) can receive the interpretation (4.29 =4.45). To clarify this,

let us use Fauconnier's indexing convention, mentioned in
Chapter Two, to indicate the interpretation of relative
clauses. The relative clause in (4.25), under the parsing
indicated in (4.43), may receive either of the following
two interpretations:

(4.49) (a)

$$NP_i$$

S

NP_i NP   V

hastiin   łįį'   yizloh -ę́ę

man   horse   rope   -REL

The man who roped the horse

(b)

$$NP_i$$

S

NP NP_i V

hastiin   łįį'   yizloh -ę́ę

man   horse   rope   -REL

The horse which the man roped

The first of these corresponds to the relative clause
reading in (4.29 =4.45) which, according to our assumptions,
is to be associated with the phrase marker (4.27). The
second corresponds to the relative clause reading in
(4.25b = 4.44) which, according to our assumptions, is to
be associated with the phrase marker (4.26b).

One final fact about the possible interpretations of
(4.25) should be mentioned here, since it lends further

support to our current conception of the IGR. Despite the selectional properties inherent in (4.25), that sentence can have the meaning (4.50) below as well as all of the meanings mentioned heretofore:

(4.50) He/she branded the man who roped the horse.

This follows automatically from the ambiguity of yi-form relative clauses. Recall that the IGR may use the "empty" value of the X variable. This, combined with the parsing indicated in (4.43), gives the following analysis:

(4.51) Hastiin łį́į́' yizloh-ę́ę | Ø | yíʼdiiłid.

NP$_a$ X   V

Now the relative clause is interpretable as either (4.49a) or (4.49b)--the first of these is the meaning in (4.50), and the second is the meaning in (4.25b).

4.7 Some Final Remarks Concerning the IGR and Certain Other Issues

The precise formulation of the IGR is a matter which is still under investigation. In particular, the <u>domain</u> to which it applies in a given instance, and the precise way in which the X variable works are matters which are not as yet completely understood. These issues are currently being studied by Ellavina Tsosie Perkins, at the University of Arizona, in the context of a general investigation of the yi/bi- alternation in Navajo sentences involving third person subjects together with third person

objects (of verbs and postpositions). The formulation of
the structural description embodied in (4.46) must be
understood as approximate. It is sufficient for our
purposes, however. What I intend to claim, essentially,
is that a principle of this general sort is unquestionably
involved in the interpretation, by Navajo speakers, of both
simple and complex sentences. Moreover, I claim that the
coreference interpretations which have led to the formulation
of the Second Noun Phrase Constraint (1.56), within the
deletion theory of pronominalization, and the NP-PRO
Constraint (4.1), within our present treatment of Navajo
pronominalization, are natural consequences of the IGR
principles; the special provisions represented by (1.56) or
(4.1) are, therefore, unnecessary in the grammar of Navajo.

While I will not attempt in this work to develop a
final formulation of the IGR, since that is, in essence,
being done as a part of Perkin's dissertation on yi/bi-, I
should point out here one fact of relevance to the domain
to which the structural description of the IGR applies.
With respect to the main verb in a sentence like (4.52)
below, the structural description (4.46) must be understood
as being able to apply in such a way that the IGR _fails_ to
assign a grammatical relation to any of the overt noun
phrases.

(4.52)   ($_{Adv}$Ashkii at'ééd yi-deelchid-go)$_{Adv}$ yi-zts'ǫs.
          (boy   girl   yi-touch-COMP   yi-kiss)

Thus, the structural description of the IGR must permit an
analysis in which the adverbial clause as a whole is taken
as a unit--so that the IGR will in fact <u>fail to apply</u> with
respect to the main verb:

(4.53)

$(_\text{Adv}$Ashkii at'ééd yideelchidgo$)_\text{Adv}$ PRO PRO$\Big|$yizts'ǫs.

$\qquad\qquad\quad$ X $\qquad\qquad\qquad\qquad\qquad\qquad$ V

On this analysis, the IGR simply fails to find overt
arguments for the verb /yi-zts'ǫs/ (yi-kiss)--so that verb
must be interpreted as it would be in the totally NP-less
sentence:

(4.54) Yizts'ǫs.

He/she kissed him/her.

That is to say, (4.46) must be allowed to fail to apply to
sentence (4.52) in order to account for the fact that it
can have the meaning given in (4.55) below:

(4.55) When the boy$_i$ touched the girl$_j$, he/she$_k$
kissed him/her$_l$.

This sentence has a variety of other interpretations as
well. Notice that since the PROs in (4.53) are free,
there is no reason why they cannot in fact be coreferential
with the overt noun phrases in the adverbial clause--and
they can. Thus (4.53) can also mean

(4.56) (a)   When the boy$_i$ touched the girl$_j$ he$_i$

kissed her$_j$

(b)   When the boy$_i$ touched the girl$_j$ he$_i$

kissed him/her$_k$.

It cannot, however, ~~ ~~ive the interpretation according to which the gramm~~~~ical relations borne by /ashkii/ and /at'ééd/ are inverted in the main clause. That is, (4.53) <u>cannot</u> mean

(4.57)   When the boy$_i$ touched the girl$_j$ she$_j$

kissed him$_i$.

This reading is presumably precluded by the First Noun Phrase principle of Chapter Two, or by an appropriate modification thereof.

Notice, incidently, that the IGR <u>cannot</u> fail to apply in the parallel relative clause case since, under any mode of application, at least one overt noun phrase argument will be located for the main verb. If we assume that the X variable of (4.46) cannot correspond to an overt noun phrase--a necessary assumption for the simplest possible case in Navajo (i.e., any NP NP V sentence)--a sentence like (4.25) above will always present an overt noun phrase to the main verb. Thus, (4.25) will be analyzed either as (4.48) or else as (4.51).

It should be obvious by now that if I am correct in

assuming that the IGR exists as a genuine principle
employed by Navajo speakers in understanding Navajo
sentences, then not only is the NP-PRO Constraint (4.1)
unnecessary in Navajo grammar but the more embracing NP-GAP
Constraint on surface structures (3.58) is also unnecessary.
The NP-GAP Constraint is repeated here for convenience as
(4.58):

(4.58) NP-GAP Constraint

Identify as ill-formed any structure
of the form

X - NP - GAP - X

in which NP does not "bind" the GAP.

You will recall that this is intended to cover not only the
NP-PRO situation but also the situation in which an NP has
been moved rightward, either to create the relative clause
or to effect right dislocation. Thus, it is intended that
(4.58) prevent association of the string
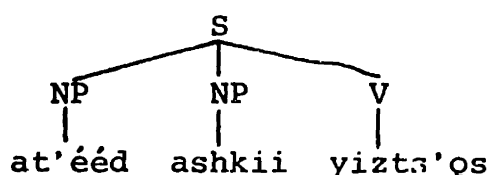
(4.59) At'ééd yizts'ǫs(-ę́ę) ashkii

(girl kiss (-REL) boy)

(a) The boy who kissed the girl (with /-ę́ę/)

(b) He$_i$ kissed the girl, i.e., the boy$_i$ did (as
a root sentence)

with an underlying structure according to which the noun
phrase /ashkii/ 'the boy' is in immediate preverbal
position:

(4.60)

```
                    S
           _____|_____
          |        |        |
          NP       NP       V
          |        |        |
        at'ééd   ashkii  yiztʌ'ǫs
```

But the NP-GAP Constraint is itself completely unnecessary to achieve this effect, given the IGR. The structural description of the IGR will insure that the noun phrase /at'ééd/ in (4.59) is analyzed as NP_a and, in accordance with the object marking of the verb, that it is assigned the object relation. Thus, the only conceivable position to which /ashkii/ can be related is the initial, or NP_b, position. To interpret the sentence, therefore, we must, so to speak, "restore" the dislocated noun phrase to its normal NP_b position--by, say, locating its trace and assigning to it the appropriate grammatical relation (see Fiengo 1977, for a detailed discussion of trace theory).

Precisely the same conclusion is reached when one considers more complicated cases of this apparent rightward movement of noun phrases. Consider, therefore, the sentence (1.46), repeated here as (4.61):

(4.61) Hastiin at'ééd yiyiiłtsánée ashkii yí'dísooł.

        (man   girl   see:REL   boy   whistle)

    (a) The man who saw the girl is whistling at the boy.

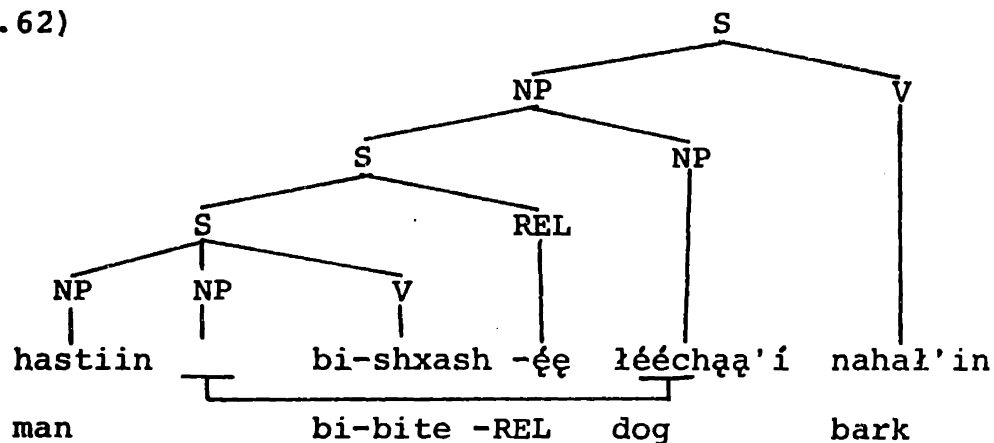   (b) The girl who the man saw is whistling at the boy.

    ≠ (c) The man is whistling at the boy who saw the girl.

The fact that (4.61) cannot receive the (c)-reading follows

automatically from the IGR. Notice that the substring

/hastiin at'ééd yiyiiłtsą́/ must be analyzed such that

/hastiin/ 'the man' and /at'ééd/ 'the girl' are respectively

NP$_b$ and NP$_a$ with respect to the embedded verb /yiyiiłtsą́/.

This totally prevents any understanding of the sentence

according to which /ashkii/ is the subject of the embedded

verb. There is clearly no need to appeal to the NP-GAP

Constraint to account for the range of interpretations

assignable to (4.61).

There is in fact more to be said about the irrelevance

of the NP-GAP Constraint in relation to these apparent

rightward movement cases. There must be some principle or

other involved in the interpretation of these structures

which, in effect, restores the normal position of the

dislocated noun phrase. Without attempting here to

formulate such a principle, I will simply designate it the

Restoration Strategy. Evidently, given enough supportive

information, it is possible for the Restoration Strategy to

relocate a noun phrase in NP$_a$ position, following an overt

NP$_b$, in direct violation of the NP-GAP Constraint and,

incidently, in defiance of the normally extremely powerful

IGR principles. Thus, for example, the selectional

properties inherent in the following sentence permit the

hearer to deduce that the right-head of the relative clause

comes from NP$_a$ position, not NP$_b$ position:

(4.62)

```
                                    S
                          NP                    V
                  S                NP            |
          S              REL        |            |
    NP    NP    V         |         |            |
    |     |     |         |         |            |
  hastiin    bi-shxash  -ęę   łééchąą'í    nahał'in
   _____|_____|
  man        bi-bite -REL     dog         bark
```

The dog which the man was bitten by is barking.

With some difficulty, to be sure, this sentence can be
understood as having the same cognitive meaning as (4.63)
below, in which the NP /łééchąą'í/ 'the dog' appears in its
normal (NP$_a$) position:

(4.63)

```
                                S
                    NP                  V
                    |                   |
                    S                   |
            S              REL          |
    NP      NP      V       |           |
    |       |       |       |           |
  hastiin łééchąą'í bi-shxash -ęę    nahał'in

  man      dog     bi-bite -REL      bark
```
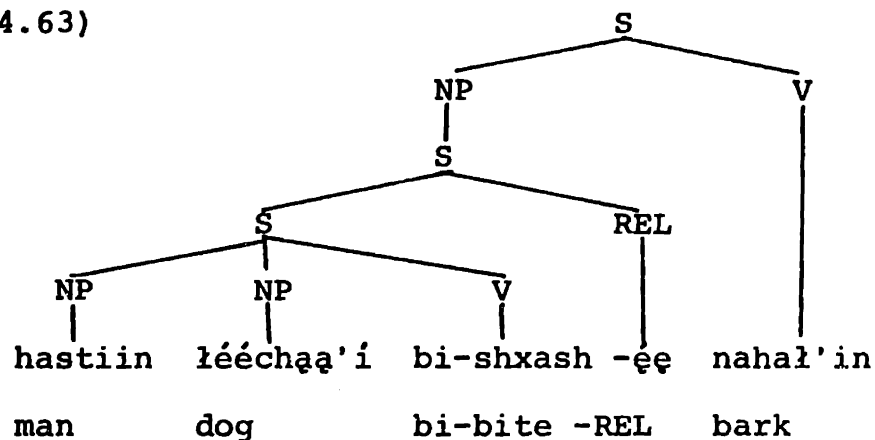
The dog which the man was bitten by is barking.

The reason why (4.62) can correspond in its interpretation
to (4.63) has to do partly with the greater likelihood that
a dog would bite a man than the reverse and partly with the
specific Navajo fact that if the embedded sentence were
"restored" to one in which /łééchąą'í/ 'the dog' appeared

in NP_b position, it would violate a principle according to which the higher ranking of two unequal nominal concepts is placed first in transitive sentences of this type (cf. Hale 1973, Creamer 1974, Witherspoon 1977). In accordance with the hierarchy principle, the inverted sentence (4.64) below is an unacceptable way to describe the situation in which a man bites a dog:

(4.64) *Łééchąą'í hastiin bi-shxash.

        (dog   man   bi-bite)

        The dog was bitten by the man.

This situation must be described using the uninverted yi-form, as follows:

(4.65) Hastiin łééchąą'í yi-shxash.

        (man   dog   yi-bite)

        The man bit the dog.

These selectional considerations allow recovery of the meaning of (4.63) from (4.62) in violation of the NP-GAP Constraint and in defiance of the IGR.

It is interesting to note, incidently, that rightward movement and pronominalization are utterly different in this respect. The exactly parallel pronominalization structure in (4.66) below does not permit an interpretation according to which PRO is in NP_a position, despite the selectional facts inherent in the subordinate clause.

(4.66) ?Hastiin bi-shxash-go łééchąą'í nahas'in.

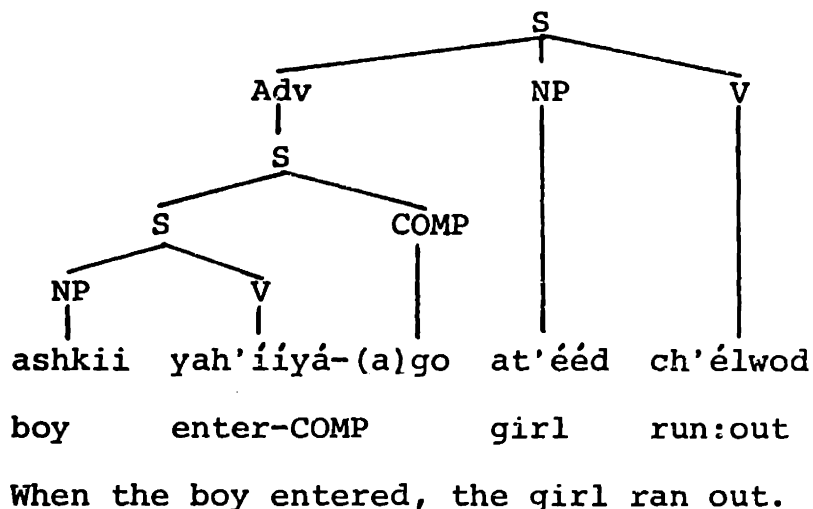(man   bi-bite-COMP dog   bark)

When it was bitten by the man, the dog barked.

I do not know why this particular distinction between

relativization and pronominalization exists. However, it

seems reasonable to assume, as I have, that a special

interpretative procedure--in addition to the IGR--is applied

in rightward movement cases and that this Restoration

Strategy can overturn the interpretation imposed by the IGR.

4.8 An Aside on Rightward Movement

I feel that it is not out of place here to offer a

suggestion concerning the so-called headed relative clause.

In Chapter Two, I proposed that the headless relative clause

is a basic form and that the headed relative clause might be

derived by rightward movement of a noun phrase into the head

position--directly following the nominalizing complementizer

(/-ígíí, -ę́ę/). I also pointed out that another apparent

rightward movement process exists--i.e., that which produces

the right dislocation structures. I intended to hint that

these two processes may in fact be the same. I now think

that this is indeed correct. At least, it is almost certain

that no special provisions are necessary just for the headed

relative clause, since a right dislocation process applies

quite generally in Navajo. It even applies in the case of

embedded adverbial clauses, producing from a structure like

(4.67)

```
                              S
                 ┌────────────┼──────────┐
                Adv          NP          V
                 │            │           │
                 S            │           │
            ┌────┴────┐       │           │
            S        COMP     │           │
         ┌──┴──┐      │       │           │
        NP     V      │       │           │
         │     │      │       │           │
      ashkii yah'ííyá-(a)go at'ééd    ch'élwod

      boy    enter-COMP     girl      run:out
```

When the boy entered, the girl ran out.

the sentence

> (4.68) Yah'ííyáago ashkii at'ééd ch'élwod.
>
> (enter:COMP boy   girl   ran:out)
>
> When he$_i$ entered, i.e., the boy$_i$, the girl
>
> ran out.

In linear form, at least, the adverbial expression in (4.68) closely mimics the headed relative clause. I suggest that exactly the same rule is involved in all such cases. The use of this rule is somewhat marginal in Navajo and its exact status is not altogether clear. It is not unreasonable to assume that the rule is of the most general form--i.e., roughly as formulated in (4.69) below:

> (4.69) <u>NP Extraposition</u>
>
> X - NP - YV
>
> 1   2   3 $\Longrightarrow$
>
> 1   0   3 2

This is evidently a rule belonging properly to the stylistic

realm in Navajo grammar. It is apparently capable of

extracting an NP any distance to the right and, moreover,

it can extract a noun phrase out of a subordinate clause

of the direct discourse type (cf. (2.10) above, and also

Platero, 1974, for other examples, and see also Kaufman

1974, for a detailed discussion of direct and indirect

discourse in Navajo). The term V in (4.69) must be under-

stood as subsuming not only a verb word of the type

appearing in main clauses but also the sort of verb word

which appears in desentential adverbial clauses and in

relative clauses--i.e., a verb form together with a suffixed

adverbial complementizer (/-go, -ii'/ glossed COMP) or

nominalizing complementizer (/-ígíí, -éé/ glossed REL).

Thus, the extraposed noun phrase appears to the right of

any such subordinating element. The precise point of

attachment of an extraposed NP in derived structure is not

clear to me at this moment, but it is probable that the

application of the rule is governed by quite general

constraints on possible "landing sites", constraints of the

type currently being studied by Mark Baltin (1978).

4.9 Concluding Remarks

In this chapter, I have suggested that the IGR

principles--whose existence seems warranted on the basis

of even the simplest sort of transitive sentences in Navajo--

make unnecessary certain initially plausible conditions on

structures in which a noun phrase is "missing" from a "basic"

argument position relative to a verb. I have not referred
to the IGR as a "rule" of Navajo grammar, but rather as a
"principle" involved in the on-line processing of sentences.
I will leave this question open, in fact. My guess is that
the IGR is best viewed as a perceptual strategy employed by
Navajo speakers in determining the grammatical relations
which overt noun phrases bear to verbs in a given sentence.
This conception of the IGR is consistent with the observation
that it can penetrate into a "subordinated" clause--i.e., a
clause overtly marked as subordinate by means of one or
another of the complementizers (/-go, -ii', -ígíí, -ę́ę/)--
and this is normally impossible for established rules of
Navajo core grammar (e.g., Kaufman's Spatial Enclitic
Movement, 1974). A subordinated clause in this sense (i.e.,
marked as subordinate), may well constitute the Navajo
realization of the "Propositional Island" (Chomsky, 1977).
The direct discourse embedding (without complementizer,
cf. (2.10)), by contrast, is certainly not a Propositional
Island (cf. Kaufman, 1974; but see also evidence adduced by
Kaufman which raise serious questions about the proper
identification of islands in Navajo).

Given this general conception of Navajo grammar, we
must now face the question of the status of a structure
like (4.70) which, given our assumptions, is a proper
underlying structure produced by the rules of the base
component:

(4.70)

```
              S
           ___|___
          /   |   \
        NP   NP    V
         |    |    |
      ashkii PRO yi-zts'ǫs
```
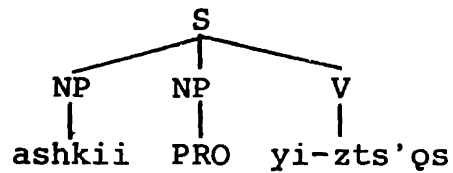
This structure has /ashkii/ in subject position, yet the
IGR must interpret that noun phrase as bearing the object
relation--this follows, since /ashkii/ is necessarily NP_a.
What, then, is the status in Navajo of (4.70)? Given what
precedes in my discussion, I must assume that (4.70) is a
grammatical structure in Navajo. The overt string which it
dominates, however, cannot be understood to have the meaning
logically associated with the structure, since the IGR
simply makes it impossible for that meaning to shine through.
I think that this position is correct, given my overall
framework. My position then forces me to the conclusion
that the sentence

(4.71) Ashkii yi-zts'ǫs.

(boy   yi-kissed)

is "structurally ambiguous". It receives only one interpre-
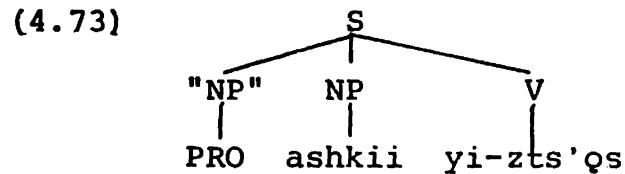tation, however, due to the extraordinary strength of the
IGR principles.

There is an alternative to this position suggested by
Hale (class, Fall Semester 1977, cf. also Hale and Platero,
in preparation), which I will briefly discuss here, without
developing it fully. According to this alternative, the
rules of the Navajo base do not produce structures of the

type (4.70) at all. Instead, the basic structure for (4.71)
is simply

(4.72)

$$
\begin{array}{c}
\text{S} \\
\diagup\ \diagdown \\
\text{NP}\qquad\text{V} \\
|\qquad\quad| \\
\text{ashkii}\quad\text{yi-zts'\d{o}s}
\end{array}
$$
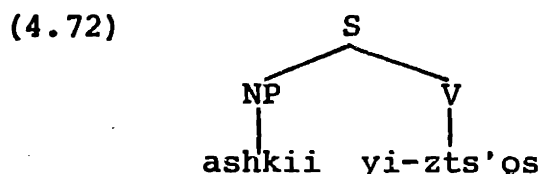
And, in general, there are no NP-over-PRO structures in
Navajo. Missing noun phrases are missing by virtue of the
phrase structure rules, which have optionality parentheses
around all occurences of NP on the right hand side of
expansion rules. This, of course, requires us to abandon
our basic assumption of this chapter—namely, that the
diathesis (or "argument structure") of a nuclear element
(verb, postposition, etc.) must be matched by the phrase
marker into which it is inserted. That is, we must give
up the condition on the insertion of lexical items. The
lexical entry of a verb (or other nuclear element) will, of
course, specify its diathesis—either as a part of the
semantic representation of the lexical entry or by means of
some notation similar in appearance to the strict subcate-
gorization frames employed in the standard theory of
transformational grammar (Chomsky, 1965). Thus, the verb
form /yi-zts'\d{o}s/ 'he/she kissed him/her' will be identified
as taking a subject and an object (further identifiable as
third person by virtue of the verbal morphology). The
interpretative component will, then, have two tasks. First,
it will assign grammatical relations to overt noun phrases

in the sentence--using essentially the IGR principles. And

it will insert "dummy NPs"--dummy NP-over-PRO structures,

if you will--into missing noun phrase positions in the

phrase marker. Thus, in the case, of (4.72), the IGR will

identify the overt noun phrase as NP_a and, by virtue of the

verbal morphology, it will assign to that noun phrase the

object relation. The "structure building" portion of the

interpretive procedure will insert a dummy NP in initial,

or NP_b, position. One might think of the second interpretive

process as one which "builds up" a structure which can be

interpreted (or mapped onto logical form) in the most

straightforward way--i.e., in accordance with the self-same

principles which would operate in a "fully specified" phrase

marker, that is, a phrase marker with all of the arguments

overtly present as noun phrases. This is roughly the approach

suggested in Hale, Jeanne, and Platero (1977). The dummy

noun phrases inserted in this way are assigned their

grammatical relations in some way--it is reasonable to suggest

that this is by a reapplication of the IGR--and furthermore,

they are interpreted as definite and, of course, are candi-

dates for free coreference or anaphora in conformity with

the general framework developed in Chapter Three. Thus, the

"structure building" procedure just outlined would apply to

(4.72) to derive the "logical" structure in (4.73) below:

(4.73)

```
              S
         ___/ | \___
        /     |      \
     "NP"    NP        V
       |      |        |
      PRO  ashkii   yi-zts'ǫs
```

The inserted "NP" would be assigned the subject relation and it would be interpreted as definite--just as the English pronouns which translate it are definite:

(4.74) He/she kissed the boy.

The inserted "NP" is, of course, open to an interpretation according to which it is coreferential with an overt noun phrase--say, in an earlier clause, as in

(4.75)   At'ééd yah'ííyáago ashkii yizts'ǫs.

            (girl   enter:COMP boy   kiss)

      (a)   When the girl$_i$ entered, she$_i$ kissed the boy.

      (b)   When the girl$_i$ entered, he/she$_j$ kissed the boy.

Notice that this analysis avoids the necessity of saying that (4.71) is structurally ambiguous while being understood unambiguously.

There is another possible advantage to this approach. Consider, the following sentence.

(4.76)   Adą́ą́dą́ą́' ashkii at'ééd yi-yiiłtsą́(n)-ę́ę

         (yesterday boy girl   yi-saw-REL

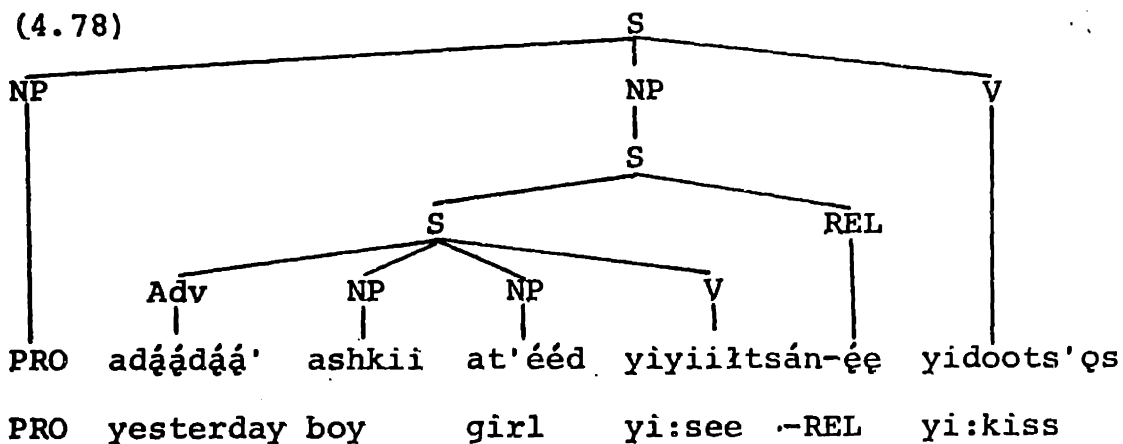   yi-doots'ǫs.

         yi-will:kiss)

         The boy will kiss the girl he saw yesterday.

Notice that the adverb /adą́ądą́ą'/ 'yesterday' belongs to
the embedded clause since it must go with the perfective
verb /yiyiiłtsą́/ 'he/she saw him/her'--it would be incom-
patible with the future tense of the main verb /yidoots'ǫs/
'he/she will kiss him/her'. This means that the sentence
must be parsed as follows:

(4.77)

($_{NP}$Adą́ądą́ą' ashkii at'ééd yiyiiłtsánée)$_{NP}$ yidoots'ǫs.

Notice further that the relative clause is understood as
modifying /at'ééd/ 'the girl'. It <u>could</u> alternatively be
understood to modify /ashkii/ 'the boy', but the fact that
it can--and most readily does--modify /at'ééd/ indicates
that the complex relative expression is in object position.
If this is so, then under our NP-over-PRO theory of Chapter
Three, which we have maintained heretofore in this chapter
as well, we must have an NP-over-PRO in subject position
with respect to the main verb /yidoots'ǫs/, as indicated in
the following phrase marker:

(4.78)

```
                                  S
                                  |
   NP                             NP                    V
   |                              |                      |
   |                              S                      |
   |                    _____|_____            |
   |                   S                    REL          |
   |          _____|_____            |           |
   |        Adv    NP    NP      V           |           |
   |         |      |     |      |           |           |
  PRO    adą́ądą́ą'  ashkii at'ééd yiyiiłtsán-ę́ę      yidoots'ǫs
  PRO    yesterday boy    girl   yi:see    -REL       yi:kiss
```

But the subject of the main verb can be readily understood
as being coreferential with that of the embedded verb--as
in the translation given in (4.76). That is to say, the
PRO can be coreferential with an overt noun phrase which
it both precedes and commands. This is in direct violation
of Lasnik's Non-Coreference Rule (3.15), which otherwise
works perfectly and is moreover necessary in the grammar of
Navajo. Notice, incidently, that we cannot assume that the
underlying structure of (4.76) has /ashkii/ <u>outside</u> the
relative clause and that the adverb has simply "scrambled"
forward from the position it occupies in the well-formed
alternative

    (4.79)   Ashkii adą́ą́dą́ą́' at'ééd yiyiiłtsánée yidoots'ǫs.
This sort of scrambling is not allowed in Navajo. Thus,
from

    (4.80)   Ashkii adą́ą́dą́ą́' at'ééd deeztłizhę́ę yidoots'ǫs.

             (boy   yesterday girl trip:fall:REL kiss)

             The boy will kiss the girl who fell down yesterday.

one cannot get:

    (4.81) *Adą́ą́dą́ą́' ashkii at'ééd deezhtłizhę́ę yidoots'ǫs.

    The alternative proposal--i.e., that which does not
posit underlying NP-over-PRO structures--does not have to
face the dilemma brought about by (4.76). According to this
alternative, the structure of (4.76) would be the same as
(4.78), but without the NP-over-PRO--i.e., it would be

(4.82)

```
                                    S
                          ┌─────────┴────────┐
                          NP                  V
                          │                   │
                          S                   │
                 ┌────────┴──────────┐        │
                 S                   REL       │
        ┌──────┬─────┬────────┐      │         │
       Adv    NP    NP        V      │         │
        │      │     │        │      │         │
   adą́ą́dą́ą́'  ashkii at'ééd  yiyiiłtsą́ -ę́ę  yidoots'ǫs

   yesterday  boy    girl   see-REL        kiss
```

This would receive the interpretation of interest here--i.e.,

(4.83) The boy will kiss the girl he saw yesterday.

--by direct application of the IGR. Nor would any dummy
NP-over-PRO have to be inserted at an intermediate
interpretive stage in this structure, since the IGR will
succeed in locating overt noun phrase arguments for both
the subordinate verb and the main verb. In the latter case,
the analysis would be as follows:

(4.84) Adą́ą́dą́ą́' | ashkii | at'ééd | yiyiiłtsánée | yidoots'ǫs.

| | NP_b | NP_a | X | V |

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         Universe, University of Michigan Press, Ann Arbor,
         Michigan.

BIOGRAPHICAL SKETCH

The author was born in New Mexico on the Navajo Reservation, and spent his formative years there and in Albuquerque. He attended Brigham Young University intermittenly from 1962 to 1971. He attended MIT from 1971 to 1978 and received the M.S. from that institution in 1973.

The author taught Navajo at the Rough Rock Demonstration School (1966-68) and the then new Navajo Community College (1968-70) both of which are located on the Navajo Reservation in Arizona.

.He was appointed by President Gerald R. Ford to the National Advisory Council on Indian Education in 1976 for a two-year term.

He is founder and President of the Navajo Linguistic Society with headquarters in Window Rock, Arizona, which publishes the journal, Diné Bizaad Nánil'įįh/The Navajo Language Review.

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