The Syntactic Function of the Yi-/Bi- Alternation in Jicarilla Apache

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0. Introduction

In this paper I will be concerned with the syntax and semantics of the yi-/bi- alternation in Jicarilla Apache. A good introduction to some of the questions that arise concerning this construction can be found in the following passage from Chomsky (1981, pp. 120-121):

'. . . consider the passive like construction in Navajo, with such examples as (10):<119>

(10)  (i) horse mule yi-kicked ('the horse kicked the mule')
     (ii) horse mule bi-kicked ('the horse was kicked by the mule')
     (iii) man horse yi-kicked ('the man kicked the horse')
     (iv) man horse bi-kicked ('the man was kicked by the horse')

The bi-forms look like lexical passives, but a curious pattern of unacceptability and ungrammaticality appears in other cases. Thus the sentences of (11) are unacceptable and while (12) is grammatical, (13) is completely ungrammatical:

(11)  (i) horse man yi-kicked ('the horse kicked the man')
     (ii) horse man bi-kicked ('the horse was kicked by the man')
(12)  girl water yi-drink ('the girl drank the water')
(13)  water girl bi-drink ('the water was drunk by the girl')

Hale offered an explanation of these properties in terms of a hierarchy of nouns based on such features as human and animate, which determines word order. Witherspoon (1977) suggests a rather different interpretation. He argues that a more correct translation of (10i) would be something like 'the horse exercised its power over mules by kicking the mule,' and that (10ii) means approximately: 'the horse let the mule kick it.' Similarly, (10iii), (10iv). But horses are not supposed to have greater intelligence than men, accounting for the unacceptability of (11), and since the water cannot let the girl drink it, (13) is ruled out completely. Assuming something like this to be the case, shall we understand the bi-forms as passive? The question
makes sense if 'passive' is a natural class, though it is unclear what the answer should be. The question does not arise if we simply assume that languages have various ways to avoid focusing the 'logical subject' or to avoid expressing one at all, while still observing the syntactic requirement that a subject NP be present. . . . In short, it is not obvious that the notion 'passive' refers to a unitary phenomenon, still less one that can serve as a foundation stone or even guiding intuition for a theory of syntax.'

I will not discuss here the question of a 'hierarchy of nouns' in Jicarilla. Such a ranking undoubtedly is present; a sentence such as

(1) ?Kó ch'ekéé maadlí
   water girl bi-dränk
   'The water was drank by the girl.'

is just as unacceptable in Jicarilla as it is in Navajo, and has the same suggestion that 'the water let the girl drink it.' Animacy and volition seem to be the semantic features that make some sentence like (1) culturally unacceptable. As a Jicarilla, my intuition is that such sentences are grammatically acceptable, but culturally not, and I will not deal with this question here.

What I want to examine here is the grammaticality of sentences with yi- and bi-, and the meaning changes that go along with the alternation. In the passage quoted above, Chomsky calls the bi- construction 'passive-like.' I will show here that like the English passive, the bi- construction makes the 'logical' object of a transitive verb the subject of the sentence; but it is unlike the English passive in that it is a transitive construction.

The yi-/bi- contrast is found only in sentences with all third person arguments. Throughout this paper I will refer to it as the bi- construction; however, in Jicarilla m- is often used instead of bi-. Some words sound better with bi- and some sound better with m-; for some, apparently it doesn't matter. I have no explanation for this variation at present. Older Jicarilla speakers seem to use bi- more than younger ones.

Jicarilla seems to have the same kind of yi-/bi- alternation that has been described in Navajo by Hale (1973), Perkins (1978), Creamer (1974), et al. These writers claim that in sentences like the following

(2) a. Vdzáneez yiztal
   horse mule yi-kicked
   'The horse kicked the mule.'

b. Vdzaanéez biztal
   horse mule bi-kicked
   'The horse was kicked by the mule.'
the yi-/bi- alternation marks a change in the SUBJECT/OBJECT relations, as shown in the following diagram:

(3) \[ \begin{array}{ccc}
S & O & yi-V \\
0 & S & bi-V \\
\end{array} \]

Perkins also discusses ditransitive verbs, and claims that the following changes in grammatical relations occur with the yi-/bi- contrast:

(4) \[ \begin{array}{ccc}
S & IO & 0 & yi-V \\
IO & S & 0 & bi-V \\
\end{array} \]

I will present here a new and very different analysis of the yi-/bi- alternation, based on the following:

a. A definition of the syntactic function of nominals in Apachean not as verbal arguments but as ad-argumental adjuncts. Here I am following the work of Jelinek and Demers (1982), and Jelinek (1984).

b. I will show that the yi-/bi- alternation does not involve a change in the grammatical relations of nominals, since nominals are not verbal arguments, but are optional ad-argumental adjuncts; instead the yi-/bi alternation involves different rules for the coindexing of nominals and the verbal arguments they are adjuncts to.

c. I will show that the yi-/bi- alternation involves a change in the grammatical relations of the pronominal verbal arguments, such that in the bi- construction, an argument with the \( \Theta \)-role of patient or goal has the grammatical relation of SUBJECT.

d. I will show further that the bi- construction is nonetheless not a passive. It is a transitive construction with two direct arguments, and is an ergative construction.

I will extend the analysis to show the role of the yi-/bi alternation in two important sentence types previously not considered, comparatives and relationals.

In order to show how the yi-/bi alternation works, I will need to begin first with a demonstration of the syntactic functions of nominals in Apachean.
1. Person Marking Verbal Prefixes as Verbal Arguments in Apachean

In this section, I will show that a crucial feature of Apachean syntax is that the inflected verb alone constitutes a finite sentence. There are no non-finite verb forms; no verb forms that do not have person markers included. These person markers carry grammatical relations and are, in fact, the arguments of the verb. I will now show why I do not regard these person markers as 'agreement' with nominals that serve as verbal arguments. Jelinek and Demers (1982) and Jelinek (1984) have shown that nominals are always optional adjuncts to the finite sentence in Lummi and Walpiri, and I will show that this is also the case in Apachean.

Jicarilla, like Navajo, is a verb-final language, and there are no sentences without a verb. There is a copula:

(5) Abáachi nli
    Apache 3s-is

'He is a (Jicarilla) Apache.'

(6) Abáachi nnshí
    Apache 1s-is

'I am a (Jicarilla) Apache.'

A locative verb:

(7) Koghe'ee sidá
    house-at 3s-sits

'He is at home.'

And an existential verb:

(8) Weet'án goni
    bread 3s-exists

'There is bread.'

Many adjectives in English correspond to stative verbs in Jicarilla Apache:

(9) Nshó
    1s-good

'I am good.'

(10) ndees
    3s-tall

'He is tall.'

Next, I will illustrate an intransitive verb, 'to swim', inflected for all persons:
The paradigm given in (11) shows the subject as 1st, 2nd or 3rd person; and singular, dual, or plural in number. There are homophonic forms for the 3rd person singular and dual subject. The following is an example of a transitive verb with two arguments, the verb 'to see':

(12) a. Singular Dual Plural

<table>
<thead>
<tr>
<th>1st person</th>
<th>2nd person</th>
<th>3rd person</th>
</tr>
</thead>
<tbody>
<tr>
<td>na'iškóh</td>
<td>na'iškóh</td>
<td>na'iškóh</td>
</tr>
<tr>
<td>I swim</td>
<td>we (2) swim</td>
<td>we (3+) swim</td>
</tr>
<tr>
<td>I am swimming</td>
<td>We (2) are swimming</td>
<td>We (3+) are swimming</td>
</tr>
</tbody>
</table>

| na'alkóh   | na'alkóh   | nada'alkóh   |
| you swim   | you (2) swim| you (3+) swim|
| You are swimming | You (2) are swimming | You (3+) are swimming |

| na'ilikóh   | na'ilikóh   | nada'ilikóh   |
| 3. swims    | they (2) swim| they (3+) swim|
| He is swimming | They (2) are swimming | They (3+) are swimming |

The paradigm given in (12a) shows the subject as 1st, 2nd, or 3rd person; and singular, dual, and plural in number. The object is third person singular, or may be a group, referred to...
collectively--one group.

The next paradigm (12b) shows the same range of subjects as in (12a), but the object is first person plural:

(12) b. Singular | Dual | Plural
---|---|---
1st person | --- | --- | ---
2nd person | nahì'ì | naha'ì | daanaha'ì
You see us | You (2) see us | You (3+) see us
3rd person | nahaa'ì | nahaa'ì | daanahaa'ì
He sees us | They (2) see us | They (3+) see us

The first person subjects do not occur in this paradigm. Again, third person singular and dual subject forms are the same. This paradigm shows more distinctions than in paradigms with both subject and object third person:

(12) c. Singular | Plural
---|---
1st person | daahish'ì | daahijit'ì
I see them | We see them
2nd person | daahì'ì | daahah'ì
You see them | You see them
3rd person | daayaa'ì | daayaa'ì
He sees them | They see them

Paradigm (12c) shows that when the object is plural, there is no distinction between dual and plural subjects. In the third person, there is no contrast between singular and plural subjects with plural objects. As noted above, the forms in (12a) can also be used when speaking of a group; the forms in (12c) are used only when the objects are taken separately or individually.

Objects are never marked dual; either the singular or the plural forms are used.

I will not give a morphological analysis of the person
marking prefixes of the inflected verb here. Generally it is agreed that in Apachean, the object prefix precedes the subject prefix. In some paradigms, the 3s-object is phonologically zero. There is considerable fusion and phonological change in sequences of the person marking prefixes, and my analysis of these forms is not complete at present.

Next, I would like to illustrate a ditransitive verb with three arguments:

<table>
<thead>
<tr>
<th>(13)</th>
<th>Singular</th>
<th>Dual</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st person</td>
<td>maa né'q</td>
<td>maa nnt'á</td>
<td>madaa'nnt'á</td>
</tr>
<tr>
<td>I gave it to him</td>
<td>We (2) gave it to him</td>
<td>We (3+) gave it to him</td>
<td></td>
</tr>
<tr>
<td>2nd person</td>
<td>maa'nnt'á</td>
<td>maa na'q</td>
<td>madaa'na'q</td>
</tr>
<tr>
<td>You gave it to him</td>
<td>You (2) gave it to him</td>
<td>You (3+) gave it to him</td>
<td></td>
</tr>
<tr>
<td>3rd person</td>
<td>yaa yinń'á</td>
<td>yaa yinń'á</td>
<td>yadeinń'á</td>
</tr>
<tr>
<td>He gave it to him</td>
<td>They (2) gave it to him</td>
<td>They (3+) gave it to him</td>
<td></td>
</tr>
</tbody>
</table>

In (13), the singular and dual forms with 1st and 2nd person subjects are composed of two words: A postposition -aa ("to") and the prefix m- (third person object) followed by the verb -'á marked for subject. This verb can only be used with singular direct object arguments. That is, it can only be used in speaking of single round bulky objects (ball, rock, etc.). Therefore, the number and person of the direct object argument are specified.

In the third person plural subject form in (13), the inflected postposition and the inflected verb have been fused into a single word. (The third person subject forms in (13) begin with y- rather than m-; this is an example of the yi-/bi-alternation, and I postpone discussion of it until later.)

If the direct object of a verb meaning 'give' is plural, the verb stem is different; -jei is used to speak of more than two objects. Therefore, the number and person of the direct object argument are again specified.

Although my analysis of the underlying forms of the pronominal verbal arguments is not complete, and I cannot at this time give the rules that show how these person markers are combined and fused, I have shown that there are certain verb forms associated with certain combinations of person and number for each verbal argument. Dual is not marked in some forms, and plural in the object may not be specified. However, there may be
changes in the stem according to the number of the object, as noted in the discussion of the paradigm given in (13) above.

Evidence that nominals are adjuncts, not verbal arguments, will now be given. There are independent pronouns in Jicarilla, but they have a special function, namely, emphatic or constrastive reference. For example, with the verb form, 'I see you':

(14) O-S-V

Niish'

2s-1s-see

'I see you'

We can add the pronoun shf (I) to the above and we get:

(15) shf niish'

NOM O-S-V

ADJT

1 2s-1s-see

I you-I-see

'I am the one that sees you' or 'I myself see you'

The independent pronoun shf (I) is used in sentence (15) for emphatic contrast, whereas (14) is the normal sentence with no special emphasis on the subject. Since the independent pronoun has this special purpose in languages where the verbal arguments are pronominal affixes, there are some verbs that cannot take independent pronouns, for example:

(16) a. naagoTkič

b. *éí naagoTkič

S-V S-V

3s-rain that one 3s-rain

'It is raining' *'That one, it is raining'

The verb 'to rain' has a third person subject marked on the verb, and an independent pronoun cannot be added. This follows from the specialized use of independent pronouns for emphatic contrast. Independent pronouns thus resemble other nominals in being optional additions to the sentence that clarify or emphasize who or what is being talked about. The person-marking prefix in (16) is not 'agreement' with an NP subject, because an NP adjunct is excluded here . . . the prefix is the subject. Jicarilla nominals have no case-marking; this is consistent with the fact that they are not arguments. This applies to the independent pronouns also. In contrast, the fixed order of the
pronominal prefixes shows their grammatical relations.

Jelinek (1984) argues that what have been called 'pro-drop' languages are better analyzed as showing nominal adjunction since some verbs in these languages (weather verbs, etc.) don't permit 'independent' subjects. This means that there are no 'pleonastic' subjects in these languages. Another example of a stative verb that excludes a nominal adjunct is:

(17) a. 'ił's'a
   It's late
   (A long time has passed.)

   b. 'is'a
   It will be long
   (A long time will pass.)

Nominals (as distinct from pronouns) are not marked for number in Jicarilla.

(18) a. Ch'ekéé na'ilkóh
   girl 3s swim
   'The girl is swimming.'

   b. Ch'ekéé nada'ilkóh
   girl 3p1 swim
   'The girls are swimming.'

(19) a. Ch'ekéé hish'í
   girl 1s see
   'I see the girl.'

   b. Ch'ekéé daahish'í
   girl 3p1-1s-see
   'I see the girls.'

These examples show that the verbal person markers show number, but the nominal does not, just as it does not show case. In Navajo there are a half-dozen words referring to humans that are plural. I can think of only one in Jicarilla:\<2\>

(20) ts'ilkéé
    teen-aged boys or young men
I conclude that 'agreement' does not suffice to explain the relation between the verb and nominals in Jicarilla, and that optional adjunction is a better explanation for these constructions.

The structure I am proposing for Jicarilla sentences with nominals in as follows:

(21) $S \rightarrow \text{(NOM)} S$

Example:

(22) $S$

```
  NOM
  \| ADJT
     \|
     Ch'ekéé
     girl

  S
  \| V1
     nada'iłkóh
     3pl-swim
```

'The girls are swimming.'

I do not call the structure with the adjoined nominal $S'$ because the nominal is not in COMP, nor is it a topic. There are topic-like constructions in Jicarilla:

(23) Ch'ekéé'\text{í}, nada'iłkóh

DET-girl / 3pl swim

'The girls, they are swimming.'

(24) Ch'ekéé'\text{á}, nada'iłkóh

girl-about / 3pl swim

'As for the girls, they are swimming.'

Optional pauses may appear after any nominal. In the topic-like constructions shown in (23) and (24) the pauses are longer. I will come back to the relationship between pauses and constituency in Section 7 below.

In my work with text analysis, I have seen that sentences without nominals are the most frequent; and in discourse, nominals are added only when it is necessary to make clear what the referents of the pronominal verbal arguments are. The following is from a recording I made of a narrative told by my mother, Margarita Sandoval (Sandoval, 1983b, p. 1):
Gaat'ígo nahá anlé náíni daayílni
When it is light for us you make possibly they said to him ná
that's how it is told
Doo___da daabílñi ná
No-o-o-o he told them that's how it is told
dooda daabílñinda daaykaahgo yanaada'ilt'éigo
no even though he when they were when they repeatedly
told them begging him supplicated him
díî'íshdi silígo aoo biiñi ná
four times when it became yes he said to them that's how it is told

The problem that I will focus on in this paper will be the yi/bi
alternation in Apachean. It will be seen that an analysis in
terms of optional nominal adjunction and a recognition of the
non-argumental status of nominals will make it possible to give a
clear and straightforward account on how the yi/bi alternation
functions in Apachean. On this analysis, we will not need to
speak of 'gaps' or 'missing' nominals, nor will we need to
postulate PRO or pro and other empty categories in the language.
(See discussion in Chomsky (1981, 1982).)
In the next section we will see how different types of verbs
permit different sets of nominal adjuncts.

2. Subcategorization of the Verb

In the preceding section, paradigms were given for an
intransitive, a transitive, and a ditransitive verb. This section
gives more information about these verb types, and about
subgroups within them. Jicarilla verbs may be classified as
follows:

(25) 1. Intransitive (1 argument)

Yáálkí V₁
3s-spoke
'He spoke'

X
2. Transitive (2 arguments)
   a. Yijltsá V₂
      3s-3s-saw
      'He saw him'
      X Y
   b. Yich'í yáljklí V₂ (V₁ + PP)
      3s-to 3s-spoke
      'He spoke to him'
      X Y

3. Ditransitive (3 arguments)
   a. Yá ayijlāa V₃ (V₂ + PP)
      3s-for 3s-3s-made
      'He made it for him'
      X Y Z
   b. Yá yich'í yáljklí V₃ (V₁ + PP + PP)
      3-for 3-to 3 spoke
      'He spoke to him for him.'
      X Y Z

V' = V + postposition; V'' = V + 2 postpositions.
Except for verbs like 'rain', optional nominal adjuncts can be added to a sentence if the speaker wishes to, to give more information on the things that he is talking about (the referents of the pronominal verbal arguments). The number of adjuncts permitted depends on the verb type, as shown in the subscript. I will now describe each type.

2.1 Intransitive verbs

Stative verbs and other intransitive verbs have only one argument, and therefore permit only one nominal adjunct.

The following example shows an intransitive verb with one nominal adjunct:
(26) Ch'ekéé na'iIkóh
    girl         swims
    NOM ADJT 3s -- swim
    'The girl swims' or
    'The girl is swimming'

In example (26), the single nominal is co-referential with the single verbal argument; since the verb has only one argument, only one nominal can be adjoined.

2.2 Transitive verbs

There are two kinds of transitive verbs: simple and complex. A complex transitive verb is composed of an intransitive verb and an adjoined postpositional phrase.

An example of a simple transitive verb paradigm, the verb 'to see' was given above in (12). Such verbs permit two nominal adjuncts:

(27) Ishkiyí ch'ekéé yaa'
    boy      girl      3s.-3s.-sees
    'The boy sees the girl'

Word order is significant in Jicarilla. In sentence (27), the first NP is coindexed with the agent verbal argument, while the second NP is coindexed with the patient verbal argument. The following examples show that word order is not free.

(28) Ch'ekéé ishkiyí yaa'
    girl      boy      3s.-3s.-sees
    'The girl sees the boy'

Both (27) and (28) can appear with bi- (m-) instead of yi-, and the coindexing of the verbal arguments and nominal adjuncts is reversed:

(29) Ishkiyí ch'ekéé maa'
    boy      girl      3s-3s-sees
    'The girl sees the boy'
The boy sees the girl

Since both 'boy' and 'girl' are of equal rank, either the yi- or bi- construction is acceptable here.

An example of a complex transitive verb is the following:

The boy "spoke to" the girl

(advised or reprimanded her)

Without the postpositional phrase yich', the verb yagaki is intransitive and permits only one nominal adjunct. I analyze yich' yagaki as a complex transitive verb, rather than an intransitive verb with an oblique or indirect object, since it acts just like other transitive verbs with the yi-/bi-alternation. Compare:

I assume, then, that only transitive constructions permit the yi-/bi-alternation and that all postposition + verb constructions (V' or V'') are transitive, and therefore unlike the English passive. Compare also:

The awkward English translation given for (35) is intended
to show how the (postpositional) argument with the θ-role of 'goal' is in focus or given prominence in this bi-construction. It is thus comparable to English sentences like

(36) Bill was run over by Sam.

(37) Bill was made fun of by Sam.

and other passive constructions that are related to transitive sentences with a verb + preposition. Examples (34) and (35) show that complex transitive verbs (V + postposition = V') in Jicarilla permit two nominal adjuncts, just as simple transitive verbs do. In examples (34) and (35), the nominals are adjuncts to the sentence, not under a PP node, as would be the case if the construction were intransitive. Proof that this is the case may be drawn from the fact that problems of constituency arise if we assume that a nominal is under a PP node. Compare the following:

(38) Ishkiyifch' ekéé yidashฟ yalkฟ
boy girl 3s-front-from 3s-talk
'The boy is talking back to the girl'

(39) Ishkiyifch' ekéé bidashฟ yalkฟ
boy girl
'The girl is talking back to the boy'

The following structures for these examples are incorrect:

(40)
In (40), the NP 'girl' and the postpositional phrase are shown as one constituent. By analogy, in (41), the bi-construction glossed 'The girl is talking back to the boy', the NP 'boy' should be in the same constituent as the postpositional phrase -- but these elements are not adjacent. The postpositional phrase literally means 'in front of 3s', and in (41), it is the girl who is talking 'in front of the boy'. Therefore, the correct structure is as shown in (42):

\[
\begin{align*}
\text{(42)} & \quad \text{S} \\
& \quad \text{NP} \quad \text{NP} \\
& \quad \text{isht'édin} \quad \text{yalkí} \\
& \quad \text{V'2} \\
& \quad \text{V} \\
& \quad \text{yi-/bi-} \quad \text{PP'} \\
& \quad \text{PP} \\
& \quad \text{yalkí} \\
& \quad \text{3s-talk} \\
& \quad \text{3s-front-from}
\end{align*}
\]

the boy 'talks back' to girl yi-/ 
the girl 'talks back' to boy bi-

The V' is a complex verb comparable to the English expression 'talk back to'. The postposition + verb, together, form a complex transitive verb, a single constituent, and the yi-/bi-alternation functions with these complex verbs just as it does with simple transitive verbs. The advantage of the structure shown in (42) is that neither NP is under the PP node, and either one may be coindexed with the agent verbal argument, according to the yi-/bi-alternation.

In sentences (38) and (39) above, the complex verb yi-/bi-dashí yalkí was illustrated. If the postpositional phrase is not adjacent to the verb, then the construction is no longer a
complex verb, but a verb plus a locative postpositional phrase; then the meaning is different and the yi-/bi- contrast serves a different semantic function, in an intransitive sentence:

(43) Ishkiytyidash, isht'edin yalkf
boy 'in the presence of' girl 3s-talk
'The girl is talking in the presence of the boy'

(44) Ishkiybidash, isht'edin yalkf
boy 'in the presence of' girl 3s-talk
'The girl is talking in the presence of the boy'
(a particular boy)

For these sentences, the following structure is proposed:

(45)
```
S
   PP
   NP
   isht'edin
   boy
   yi-/bi-
   dashT
   girl
   3s-talk
```

Here the nominal ishkiy ('boy') is ('Chomsky') adjoined to the postpositional phrase yi-/bi-dashT, and there is no change in the coindexing of nominals associated with the yi-/bi- contrast. Instead, the contrast is 'in the presence of the boy' vs. 'in the presence of the particular (known) boy'. I will not deal further with this use of the yi-/bi- contrast here. For further examples, see Sandoval (1983a). Perkins (1978) mentions similar contrasts in Navajo.

2.3 Ditransitive verbs

Ditransitive verbs have three arguments and permit three nominal adjuncts. They always have a postpositional phrase. There are two kinds: Those consisting of a V2, (a simple transitive verb) plus a postposition, = V'3; and those consisting of a V'2 plus a postposition, = V"3. Both V'3 and V"3 show the yi-/bi- alternation. First, the V'3:
(46) Bill Sam yá 'ayílla
for-3s 3s-3s-made
'Bill made it for Sam'

(47) Bill Sam má 'ayílla
for-3s 3s-3s-made
'Sam made it for Bill' ('Bill was "made it" by Sam.')

Note that in the bi-construction, the postpositional argument
with the 0-role of goal is the SUBJECT. We could add a third
nominal such as kih ("house") to (46) and (47) to show what 'it'
refers to:

(48) Bill Sam kih yá 'ayílla
house for-3s 3s-3s-made
'Bill made (built) a house for Sam.'

The following example shows a V"3, an intransitive verb plus
two postpositional phrases:

(49) Bill Sam yá yich'ק yá±álk'
for-3s to-3s 3s-spoke
'Bill spoke to Sam for X, or Bill spoke to X for Sam'

(50) Bill Sam má yich'ק yá±álk'
for-3s to-3s 3s-spoke
'Sam spoke to Bill for X, or Sam spoke to X for Bill'

Sentences with a V"3 and three nominal adjuncts are very
difficult, or impossible, to process; there is too much ambiguity,
for reasons I will explain below.

In the next section, I will describe the linking rules that
determine which nominal adjuncts are coreferential with which
verbal arguments. These linking rules make it possible to
interpret the sentence.

3. Linking Rules and Nominal Adjunction

We have seen what nominal adjuncts each verb type permits.
Now we will state the rules that cover these facts:
(51) **Adjunction Rule**

A verb permits (a maximum of) as many nominal adjuncts as it has arguments.

That is:

\[ V_1 \text{ permits } 1 \text{ NOM ADJT} \]
\[ V_2, V'_2 \text{ permit } 2 \text{ NOM ADJT} \]
\[ V'_3, V''_3 \text{ permit } 3 \text{ NOM ADJT} \]

The Coindexing Rules for Jicarilla nominal adjuncts in simple (one clause) sentences are as follows:

(52) **V₁ Coindexing Rule**

Coindex the single NOM ADJT with the single verbal argument.

An example of a V₁ (intransitive) construction with a single nominal adjunct is (26) above, repeated here:

(26) Ch'ekée 'aalkọ₁

girl 3s-swims

'The girl is swimming'

Since nominal adjuncts are optional, a transitive verb may have two, one, or no adjuncts. Coindexing is as follows:

(53) 1. **V₂:** One NOM ADJT

a. **Y₁-construction**

Coindex the NOM ADJT with the patient verbal argument (first position person-marking prefix).

b. **B₁-construction**

Coindex the NOM ADJT with the agent verbal argument (second position person marking prefix).
2. \( V_2 \): Two NOM ADJT
   a. \textbf{Yi-construction}

   1. Coindex the first NOM ADJT with the verbal argument that has the \( \Theta \)-role agent. (second position person-marking prefix).

   2. Coindex the second NOM ADJT with the verbal argument that has the \( \Theta \)-role patient. (first position person-marking prefix).

   \textbf{b. Bi-construction}

   Reverse coindexing of the verbal arguments and NOM ADJT.

An example of a \( V_2 \) with one nominal adjunct is as follows:

\begin{align*}
\text{(54) a. & ch'ekéé yaa'q} \\
& \text{girl} \quad 3s-3s\text{-see} \\
& \text{'X sees the girl.'} \\
\text{b. & ch'ekéé maa'q} \\
& \text{girl} \quad 3s-3s\text{-see} \\
& \text{'The girl sees X.'}
\end{align*}

Examples of a \( V_2 \) with two nominal adjuncts include (27) through (30) above; a \( V_2 \) with two nominal adjuncts is illustrated (31), (33), and (34, 35) above. Recall that in \( V'_2 \), the object the postposition, as in examples (31) and (33) above, has the role patient, in a transitive construction. This is in contrast to example (43), which is an intransitive construction with a postpositional phrase, where the \( yi-/bi- \) has a different function.

With the \( V_3 \) constructions, many ambiguities arise. I will begin with the coindexing rules for the easiest case, with least ambiguities, where all three optional nominal adjuncts present:

\begin{align*}
\text{(55) \( V'_3 \): Three NOM ADJT} \\
\text{a. Yi-construction}

1. Coindex the first NOM ADJT with the last
verbal argument, with the θ-role agent.

2. Coindex the second NOM ADJT with the argument that precedes the postposition, the 'first' object.

3. Coindex the third NOM ADJT with the intermediate argument, the 'second' object.

b. Bi-construction

Reverse the coindexing stated in (1) and (2); coindexing in (3) remains unchanged.

Examples:

(56) John Henry dibé yeinñlkį
    sheep 3-3-3 gave
    yi-

'John gave Henry a sheep.'

(57) John Henry dibé meinñlkį
    3-3-3 gave
    bi-

'John was given a sheep by Henry.'

I will state the coindexing of V'₃ with less than the maximum number of optional nominal adjuncts very informally. In essence, if example (56) had only one proper name and the NP dibé, we could not be sure if the proper name was coindexed with the agent or the 'first' object, in either the yi- or the bi- construction. For pragmatic reasons, dibé would be interpreted as coindexed with the 'second' object. If the only ADJT present is a proper name, the same ambiguity is present, and the 'second' object is interpreted as having no adjunct. If only dibé is adjoined, the agent and 'first' object are interpreted as without adjuncts, again for pragmatic reasons. All these ambiguities follow from the fact that the V'₃ is a complete sentence, meaning '3s gave 3s (a) 3s' and the NOM ADJT have no case marking. If all three of the permitted ADJT are present, there is no ambiguity, because of the coindexing rules; if only one or two ADJT are present, ambiguities are unavoidable. This is because the ADJT to the 'second' object intervenes between the other possible ADJT and the inflected verb, and we cannot say that a NOM ADJT immediately preceding the verb is coindexed with either the agent or the patient argument according to the yi-/bi- alternation, as we can with a V₂, when only one object argument is present. These ambiguities are resolved in context.

Now we can explain why a sentence with a V''₃ (V₁ + PP + PP) has so many ambiguities with respect to coindexing the optional adjuncts. These sentences have two arguments with the θ-role
Example (49) above, '3s spoke to 3s for 3s' has two postpositional objects, and either one may be taken as the 'first' object. There is no fixed order of the NOM ADJT that may be coindexed with these objects. And if all three ADJT are proper names, as 'John, Bill, Sam, he spoke to him for him', there are no pragmatic clues as to which ADJT is to be coindexed with the 'second' object. Note that these ambiguities lend support to the claim that nominals are not verbal arguments, but adjuncts to them. There is no ambiguity with respect to the pronominal arguments themselves, and sentences with so many nominal adjuncts are quite infrequent in actual usage.

This analysis, where we show that the prefixes are the verbal arguments, while NPs are optional adjuncts, permits us to explain the contrast between

(58) a. $\text{yi} \text{ats}^G$ 'He saw him'

b. $\text{bi} \text{ats}^G$ 'He was seen by X' (approximately)

without reference to 'gaps', 'empty categories', movement rules, etc. Instead, the analysis rests on the adjunction and coindexing rules.

It was mentioned above that the $\text{yi-}/\text{bi-}$ contrast occurs only when all the arguments are third personting here, I have picked arguments where the nominals adjoined are of equal rank ('boy' vs. 'girl', 'Sam' vs. 'Bill', etc.) so that both the $\text{yi-}$ and $\text{bi-}$ constructions are culturally acceptable.

However, two sentences with the following structure do not mean exactly the same:

(59) $X \ Y \ yi - V$

(60) $Y \ X \ bi - V$

They have the same truth conditions, but the $\text{bi-}$ construction seems 'fancy', or needlessly indirect, when both referents of the pronominal arguments are of the same rank, and you don't have to use the $\text{bi-}$ construction.

The $\text{bi-}$ construction is the marked one. A situation in which it seems natural to use the $\text{bi-}$ construction would be as follows: Suppose $X$ killed $Y$. If someone asks 'What did $X$ do?' a good answer would be:

(61) $((X) \ Y) \ yi - killed$

However, if the question is: 'What happened to $Y$?' a good answer is:

(62) $((Y) \ X) \ bi - killed$

Therefore, the passive is often the 'best available' translation in English. In this context, I turn now to the problem of case assignment.
4. Case Assignment in the bi- Construction

It was noted earlier that nominals never have case marking. Pronominal prefixes can be assigned case by their position or relative order.

Case assignment in the yi- construction poses no problems:

(63) Ch'ekéé ishkiyíí yijítsé

girl       boy       3s-3s-saw

ACC NOM

(patient) (agent)

I assume that NOM case marks the SUBJECT grammatical relation in the yi- construction.

In the bi- construction, what cases are we to assign to the verbal arguments? The facts on word order and focus, as shown in the best available translation (i.e. the passive) suggest that the patient is the SUBJECT.

Suppose we assign NOMINATIVE case to the patient. Then we have the problem of what case to assign to the agent -- the other direct argument of the verb in this transitive construction. The solution proposed here is to classify the bi- construction as ergative, so that case assignment is as follows:

(64) Ch'ekéé ishkiyíí biíjítsé

girl       boy       bi-saw

3s-3s-saw

ABS ERG

(patient) (agent)

The yi-/bi- alternation is limited to the third person; this means that Navajo and Apache are 'ergative split' languages. Most 'ergative split' languages show NOM/ACC case in the first and second persons, and ERG/ABS case in the third person (see Jelinek and Demers (1983), and Jelinek (1984). In several Native American language families (Eskimo, Salish), ERGATIVE and POSSESSIVE case marking is the same. In Navajo and Apache, bi- appears in third person POSS and ERG constructions; this seems highly suggestive. But Southern Athabascan would be an example of a new kind of 'ergative split' -- one in which the speaker selects either the yi- construction (ACC) or the bi- construction (ERG) within the third person -- according to the focus. The bi- construction, like passives, and like ergatives, makes a patient argument the SUBJECT. In the terms used by Chomsky (cited in the Introduction above), the bi- construction is one of the various ways used by languages to avoid focusing the 'logical subject' -- i.e., the agent in a transitive construction.
5. Comparatives

Comparative sentences have not been studied previously with respect to the yi-/bi alternation. The comparative is a transitive construction, a complex verb in which the yi-/bi-alternation serves the same function of switching the agent and patient θ-roles. In the case of comparatives, there seems to be only one postpositional phrase that is employed: yi-/bi-ayé ('beyond', 'more than').

(65) Bill Sam yí'ayé ndees
    3s-beyond 3s-tall
    'Bill is taller than Sam'

(66) Sam Bill bi'ayé ndees
    3s-beyond 3s-tall
    'Bill is taller than Sam'

When we apply the discontinuous negative, doo...da, it covers both the V₁ and the postposition that make up the complex verb.

(67) Bill Sam doo yí'ayé ndees da
    NEG 3s-beyond 3s-tall NEG
    'Bill is not taller than Sam'

(68) Sam Bill doo bi'ayé ndees da
    NEG 3s-beyond 3s-tall NEG
    'Bill is not taller than Sam'

The structure of comparatives, a V₂ with a postpositional phrase and a stative verb, is illustrated below:
Another example of a comparative complex verb is a possessive sentence with 3 NPs. Here, the yi-/bi- alternation serves, as in other comparatives, to change agent/patient \( \theta \)-roles.

(70) Sam Bill zháal yi'áayé neijei
money 3-beyond 3s-3pl-has
'Sam has more money than Bill'

(71) Sam Bill zháal bi'áayé neijei
money 3-beyond 3s-3pl-has
'Bill has more money than Sam'

His has the following structure:
6. Relational Sentences

There is an interesting sentence type in Jicarilla (and Navajo also) where a noun is combined with the copular verb nlf to make a derived transitive verb, V2. (There is no postpositional phrase in these sentences, so I do not call them V'2). The yi-/bi- contrast is present, just as in any other transitive sentence.

(73) Sam Bill yi'ff-nlf
     3s-son 3s-is
     'Sam is Bill's son'

(74) Sam Bill biy'-nlf
     3s-son 3s-is
     'Bill is Sam's son'

This sentence has the structure shown in the following tree:
In these relational sentences, not just any NP can be incorporated into the V₂. It has to be a nominal that refers to some relationship: kinship terms, and others like

(76) Bill Sam yideké - nl₁
    3s-friend 3-is
    'Bill is Sam's friend'

(77) Bill Sam yinant'án - nl₁
    3s-leader 3-is
    'Bill is Sam's leader'

Nominals can also be incorporated into possessive sentences like the one shown in the previous section. Compare (70) above with the following, where the word order is different, and the nominal žháál has been incorporated into the V'₃:

(78) Bill Sam yf'áayé žháál - neijeì
    3s-beyond money 3s-3pl-has
    'Bill has more money than Sam'

(79) Bill Sam bí'áayé žháál - neijeì
    3s-beyond money 3s-3pl-has
    'Sam has more money than Bill'

The structure of the sentence would be:
There is a slight difference in meaning between the following:

(81) Bill Sam zháal yí'áayé neijei
(82) Bill Sam yí'áayé zháal neijei

In the first, the emphasis is on the 'money'; in the second, the emphasis is on 'having more'.

Jicarilla, like many other languages, shows many unusual sentence types with verbs meaning 'have' and 'be' as we have seen in these comparative and relational constructions.

7. The yi-/bi- Alternation and Subordination

There are two kinds of subordinate clauses in Jicarilla: Those ending in -f (-A), and those ending in -go. I will call the first kind nominalizations, and the second commitive clauses. These subordinate clauses may include nominal adjuncts, so that coindexing between a verbal argument and a nominal may occur within a subordinate clause; or there may be coindexing across clause boundaries, as will be seen in examples to follow.

Subordinate clauses in Apachean are never embedded; they are adjoined to a main clause. That is, they do not serve as verbal arguments, but are coindexed with the pronominal arguments marked in the verb + PP complex. (See Hale (1976) on adjoined clauses in Australia, and Jelinek and Demers (1982).) I will describe each subordinate clause type and the role of the yi-/bi-alternation with each.
7.1 Nominalizations

Nominals in Jicarilla include the following:

(83) a. G6oldi
c. nant'án
(name) leader
b. shi'máá
d. 1ő
(my-mother horse

Nominalizations end with one of the suffixes -i or -ii. These determiners or nominalizers can be used to build relative clauses.

(84) 'aałk6l'i
'one (that is) swimming'; 'his swimming' (person or event)

The DET -ii is used to form agentive terms and to specify a particular referent:

(85) a. na'ilḳ6h'ii
b. 'aałk6l'i
'the particular one that is swimming' or 'the particular one that is swimming' 'the swimmer'

A verb can have a simple nominal adjunct, a nominalized clause as an adjunct, or both:

(86) a. Ch'ekée 'aałk6l'i hish'
[girl the one swimming] 3s-1s-see
'I see the girl who is swimming'

b. 'aałk6l'i hish'
[one-swimming] 3s-1s-see
'I see the one who is swimming'

Example (86b) shows what has been called a 'headless' relative clause (see Platero, 1978).

(86) c. Ch'ekée hish'
girl 1s-3s-see
'I see the girl'
The structure for (86a) is:

\[(87)\]

```
NP  
|   |   |
|   |   |
| NP | NOM |
| ch'ekée | S | DET |
| girl | V₁ | -֛ |
| 'aalkol | 3s-swim |
```

'I see the girl who is swimming'

Here the NP 'girl' is coindexed with the verbal argument in the subordinate nominalized clause; this coindexing is within the subordinate clause. The resulting complex nominal is then coindexed within the main clause, to the third person object argument of the matrix verb.

Nominalizations with -֛ can refer to an event as well as a person:

\[(88)\]

a. John Bill na'ilkéh'֛ dayegósí
   his swimming 3-3-knows
   'John knows that Bill is swimming'

b. John Bill na'ilkéh'֛ damegósí
   his swimming 3-3-knows
   'Bill knows that John is swimming'

The structure here is as follows:
Here, as always, the yi-/bi- alternation determines which of two NPs is coindexed with the agent argument of the main clause verb. The patient argument of the main clause verb is coindexed with the event ('his swimming') described in the subordinate nominalized clause. The other NP is then interpreted as coindexed with the single argument of the verb in the nominalized clause, since this verb also permits a nominal adjunct; and because of the operation of the yi-/bi alternation an NP need not be adjacent to the subordinate clause to which it is adjoined. In the bi- (m-) construction, the first NP ('John') is coindexed across a clause boundary when it is coindexed with the (subject) argument of the subordinate verb.

### 7.2 Commitative clauses

Subordinate clauses that end in the conjunction -go ('and', 'when', 'as', 'with') can have a temporal meaning:

(90) Bill ha'din'a-go, Sam bikê' ha'din'a_3-s-sing-when, after 3s-3s-sang

'When Bill sang it, then Sam sang it'

or a conditional meaning:

(91) Bill ha'di'ai-go-ná Sam ha'di'ai_3-s-sing-if-only, 3s-3s-sing

'Only if Bill sings it, Sam sings it'

The yi-/bi- alternation can appear in sentences with -go clauses as follows:
Commitative subordinate clauses are adjoined to the finite sentence. These subordinate clauses may include nominal adjuncts. Apache sentences often have different interpretations depending on where the speaker pauses in a sentence; these pauses show that the syntactic structures are quite different, even though the order of the words is the same. Specifically, a pause may be employed to show whether a nominal is adjoined to a main or a subordinate clause.

In example (94), there is a temporal clause introduced by the conjunction -go, and the focus is on the person. The first NP is coindexed with the 3rd person agent argument of the main clause verb, and the sentence means 'John saw Bill, and when this happened, he was riding a horse'. The sentence is ambiguous; either John or Bill may be interpreted as riding the horse. Here the temporal clause is adjoined to the sentence as shown in
The vertical lines shown in (94) indicate that pauses can occur after each NP and after the -go clause, reflecting the constituent structure shown in (94). Now compare the following:

(96) John | Bill | naabiyégo | yijítsá

(97) 

\[
\begin{array}{c}
\text{S} \\
\text{NP} \\
\text{S} \\
\text{CONJ} \\
\end{array}
\]

'John, when Bill was riding a horse, he saw it' (the event)

Sentence (96) means: 'John saw some event happen: Bill riding a horse.' Since there is no pause in this sentence after 'Bill', the NP 'Bill' is interpreted as being coindexed with the patient 3rd person argument of the subordinate clause verb 'to carry'. The difference in meaning between sentences (94) and (96) is marked by the pause after 'Bill' in (94) which separates it from the -go clause, whereas in sentence (96) there is no such pause and 'Bill' is interpreted as being within the -go clause. Since 'Bill' is within the -go clause, the sentence is not ambiguous, as in (94), where either person may be riding the horse.

The bi- construction is shown in the following example where the bi- prefix means that the second NP is coindexed with the agent, while the first NP is coindexed with the patient argument of the main verb.

(98) John | Bill | li naabiyégo | bijítsá
Sentence (98), with the bi-form, is ambiguous like sentence (94), with the vi-form, since in both instances there is a pause after 'Bill' as well as after 'John'. In contrast, in sentence (97) since 'Bill' is within the -go clause, the clause can only mean 'when Bill was riding the horse'.

Now compare sentence (96) with sentence (100) below:

(100) \[ \text{John I Bill I naabiyé go I bijItšá} \]

(101) \[ \text{John I Bill I naabiyé I -go I 3s-3s-saw} \]

'John was seen by him, when he (Bill) was riding a horse'
Here the event cannot be an argument of the verb see, because although events can be seen, they cannot see. In example (100), there is no pause after 'Bill'; therefore, 'Bill' must be within the -go clause, and only Bill can be interpreted as riding the horse. Therefore, the structure of (100) is parallel to (96), except for the bi-. These examples show that a pause can occur at a major sentential constituent boundary and not in the middle of a sentential constituent.

8. Conclusions

In this paper I have given a new analysis of the yi-/bi- alternation in Southern Athabascan, based on the work of Hale on adjoined clauses in Australia and on the work of Jelinek and Demers on adjoined nominals in other language families. I have shown that in Jicarilla, the pronominal prefixes, not the nominal adjuncts, carry grammatical relations.

I have explained the differences in the interpretation of the yi-/bi- constructions without reference to 'gaps', 'empty categories' or movement rules. I have pointed out the role of the yi-/bi- constructions in comparative and relational sentences, and in sentences with subordinate clauses. I have stated the adjunction and coindexing rules that account for possible interpretations of the sentences, and explained why certain ambiguities occur. Finally, I have suggested that the bi- construction is ergative, and that the Apachean languages are 'ergative split' languages. Ergativity has not been suggested before for these languages.
Footnotes

1. I thank Eloise Jelinek for her encouragement and help, and for the many long hours we worked on the analysis given here. Danaha jís'a'ee! I also thank Dick Demers for his advice and help, especially on the prosodic features. I am grateful also to Adrienne Lehrer, Susan Steele, Dick Oehrle, Ann Farmer, and the late Adrian Akmajian for suggestions on the analysis of Jicarilla morphology and syntax.

2. It is possible to mark a noun plural (distributive) when the thing(s) spoken of are scattered about widely, and you want to emphasize this face:

   i) zas
       'snow'

   ii) daazas
       'snow spread all over, everywhere'

3. There is a lexical passive in Apachean (see discussion in Young and Morgan, 1980). This lexical passive is an intransitive, and permits only one nominal adjunct. The single verbal argument has the θ-role theme. An example in Jicarilla is:

   i) shi'deeshchɁɁ
       ls-born-PASSIVE
       'I was born'

Like many lexical passives across languages, this construction does not permit an agent to be stated. This intransitive is very different from the bi- construction, which is transitive and requires that an agent be stated.
References


