MATERIALS - I

STRUCTURE OF NAVAJO

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Navajo - Lecture 1
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1) Łį́į́' dzaanéézˊ yiztał 'The horse kicked the mule.'
horse mule kicked

2) Tł'ízí dibé yizgoh 'The goat butted the sheep.'
goat sheep butted

3) Ashkii at'ééd yizts'ǫs 'The boy kissed the girl.'
boy girl kissed

4) Łéechąą'i másí yishxash 'The dog bit the cat.'
dog cat bit

5) Hastiin asdzání yiyiiłtsą́ 'The man saw the woman.'
man woman saw

6) Hastiin ashkii yizloh 'The man roped the boy.'
man boy roped

7) Mą'ii dibé yiyiisxį́ 'The coyote killed the sheep.'
coyote sheep killed

8) Másí łéechąą'í yizghas 'The cat scratched the dog.'
cat dog scratched

NOTE: These sentences are all of the type N_s N_o Yi-V, where N_s is the subject, N_o is the object and V is the verb.

1') Dzaanéézˊ łį́į́' biztał 'The mule was kicked by the horse.'
mule horse kicked

2') Dibé tł'ízí bizgoh 'The sheep was butted by the goat.'

3') At'ééd ashkii bizts'ǫs 'The girl was kissed by the boy.'

4') Másí łéechąą'í bishxash 'The cat was bitten by the dog.'

5') Asdzání hastiin biiłts'ą́ 'The woman was seen by the man.'

6') Ashkii hastiin bizloh 'The boy was roped by the man.'

7') Dibé mą'ii biisxį́ 'The sheep was killed by the coyote.'

8') Łéechąą'í másí bishxash 'The dog was scratched by the cat.'

NOTE: The 'primed' sentences are hypothesized to be variants of the unprimed sentences (1-8). We derive the primed sentences by a transformation called subject-object-inversion.

Subject-Object-Inversion (SOI): Given any sequence of the form N N yi-V, invert the order of the N's and changed yi to bi.

More formally, we use the following statement:

N	N	yi-V		
1	2	3	4	⇒
2	1	bi-4		

The next sentences force us to state SOI more precisely.

9) Łį́į́' tsé yiztał
horse rock kicked

10) Másí abe' yiłch'al
cat milk is lapping

11) Łéechąą'í łeets'aa' yiłnaad
dog dish/plate lick

12) Másí naaltsoos yizghas
cat paper scratch

13) Dibé tł'oh yiłchozh
sheep grass eat(browse on greens)

14) Ashkii naaltsoos yizhjih
boy book/letter grabbed, siezed

NOTE: The primed versions of sentences 9-14 are unacceptable to Navajo speakers. An unacceptable (ungrammatical) sentence is marked with an asterisk (*).

9') *Tsé łį́į́ biztał

10') *Abe' másí biłch'al

11') *Leets'aa' łéechąą'í biłnaad

12') *Naaltsoos másí bizghas

13') *Tł'oh dibé biłchozh

14') Naaltsoos ashkii bizhjih

NOTE: A means for blocking the unallowed sentences are conditions of the following type.

Condition 1: If the object is inanimate, don't apply SOI.

or

Condition 1': Only apply SOI if the second N is animate.

N N yi-V
[+an]

NOTE: The following set of sentences will allow us to sharpen the formulation of SOI.

15) Ashkii tsé'édǫ́'ii yik'idiiltáál
boy fly stepped on

16) Ashkii bį́į́h yiskah
the boy deer shoot(with an arrow)
shafted

17) At'ééd dibé yizloh
girl sheep roped

18) Ashkii gah yisił
boy rabbit caught

15') *Tsé'édǫ́'ii ashkii bik'idiiltáál

16') *Bį́į́h hastiin biskah

17') *Dibé at'ééd bizloh

18') *Gah ashkii bisił

NOTE: At this point we might assume that Navajo nouns are ranked into the following hierarchy

Ranking

Human
Animal
Thing

Condition (Improved): If the object noun is lower in the hierarchy than the subject N, don't apply SOI.

The next sentence will now require some additional adjustments in our analysis.

19') *Tsah asdzání yishish

needle woman stuck (pricked)
(O.K. is Tsah is someone's name.)

19') Asdzání tsah bishish

(Sentence not good unless tsah is flying around.)

19) Corrected to: *Tsah asdzání yaa'ííjil ← (like an insect?

needle woman stick

19') Asdzání tsah baa'ííjil

20) *Béésh ashkii yizhgish

knife(metal)boy cut

20') Ashkii béésh bizhgish

boy knife cut

21) *Wóláchíí hastiin yishish

red ant man stung

21') Hastiin wóláchíí' bishish

22) *Ts'í'ii łį́į́' yiyiits'ǫ́ǫ́z

mosquito horse sucked on

22') Łį́į́' ts'í'ii bíits'ǫ́ǫ́z

NOTE: At this point it appears that even more steps in the hierarchy must be made. Before the categories 'insect' and inanimate object are added some additional sentences must be considered.

23) *Dichin dibé yiyiisxį́

hunger sheep

23') Dibé dichin biisxį́

24) *Dikos awéé' yidoolna'

dough baby affected

24') Awéé' dikos bidoolna'

NOTE: For the time being we shall assume that the hierarchy has two poles, human and abstraction. We can fill in the categories at a later time. This would be a good research topic for a Navajo speaker.

Additional fact:

[personification of objects puts them on an equal status with humans]

NOTE: There are now (at least) two methods to handle the yi/bi alternations.

1) SOI applies freely (all the time). The sentences are then subject to the following output constraint:

Output Constraint - Star any sentence in which the second noun outranks the first (rule as ungrammatical).

2) Subject-Object-Inversion:

Given a sentence of the form N N yi-V, invert the order of the Ns and change the yi to bi.

SOI

Condition: (a) Optional if the subject and object are equal in the hierarchy.

(b) Blocked if subject outranks object.

(c) Oblig. if object outranks subject.

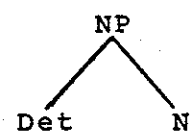
We next consider some simple syntactic properties of some Navajo sentences.

Łį́į́' dzaanéézˊ yiztałˊ → Dzaanéézˊ łį́į́' biztałˊ

Díí łį́į́' níléí dzaanéézˊ yiztałˊ → Níléí dzaanéézˊ díí łį́į́' biztałˊ

This horse that mule

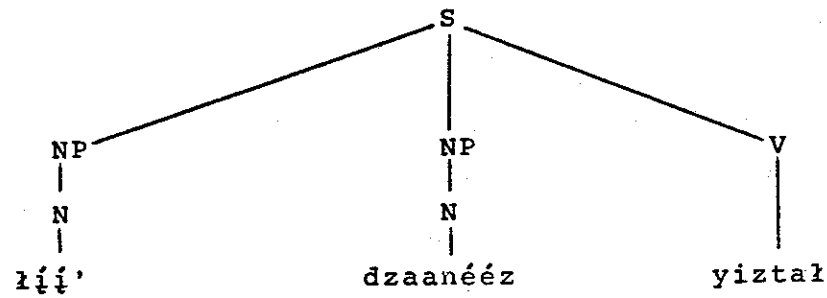
NOTE: The sequences Díí łį́į́', and níléí dzaanéézˊ move as units. We label a sequence of Det(erminer) + noun as a noun phrase. A noun phrase will have at least the following structures.

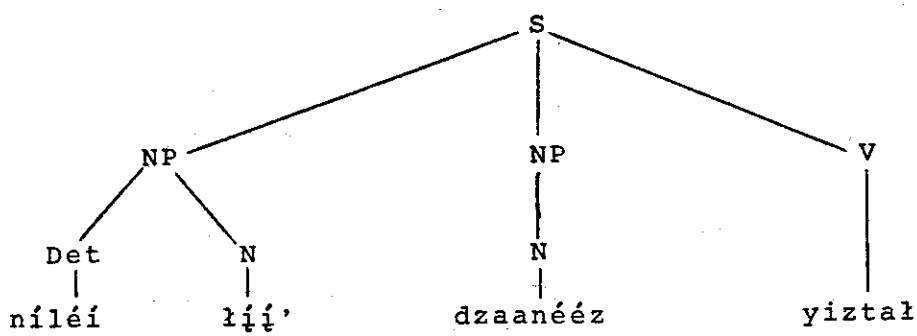


Determiners

díí - 'this', eii łį́į́ - 'that' (close to you, near addressee), níléí - 'that' (distant, but visible), naghái - 'that' (approximate), éí - 'that' (distant, referential, evocative).

For sentences, we assume the following minimal structures.





There are other possibilities for the expansion of the NP.

$NP \rightarrow NP\ (dóó\ NP)^n$

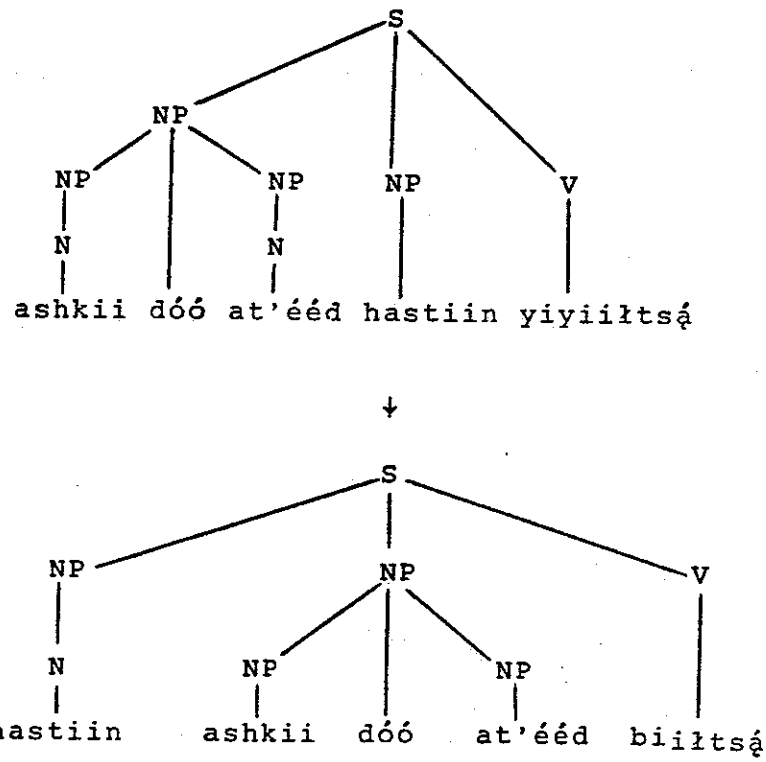
This structure satisfies our test as a constituent since it moves in one piece.

A) Ashkii dóó at'ééd hastiin yiyiiłtsą́
boy and girl man saw

B) Hastiin ashkii dóó at'ééd biiłtsą́

NOTE: The change between (A) and (B) can also be shown as a change in sentence structure.

(A)



Carl's Question: Can dóó conjoin NP's of unequal rank, and if so, how do you apply SOI?

Test Sentences:

Asdzání hastiin dóó łį́į́' yiyiiłtsą́ (O.K.)
woman man and horse saw

25) Hastiin ashkii dóó łę́ę́'chąą'í yinoołchéél
man boy and dog is chasing

25') Ashkii dóó łę́ę́'chąą'i hastiin binoołchéél (O.K.)

26') *Hastiin łéechąą'í dóó ashkii yinoołchéél

For 26', the violation is in the order *łéechąą'í dóó ashkii.

This is shown more easily with the following sentence:
*Łéechąą'í dóó ashkii ahinoolchéél
dog and boy are running

Thus there is now prima facie evidence for the first treatment of the yi/bi alternation. Let SOI apply freely, but then have a condition which blockes cases in which NP's in construction violate the hierarchy. This condition will have to be studied in more detail because of the apparent grammaticality of 25'.

It looks like linear order is what's crucial.

Navajo - Lecture 2
2 September 1976
Kenneth Hale/Ellavina Perkins

I Internal Structure of the Navajo Verb
Complex forms exhibiting the yi-/bi- alternation.

(1) a. Ashkii at'ééd yizts'ǫs
The boy kissed the girl.

b. At'ééd ashkii bizts'ǫs
The girl was kissed by the boy.

(2) a. Ashiiké at'ééd yizts'ǫs
The boys kissed the girl.

b. Ashiiké ndilt'éego at'ééd yizts'ǫs
The boys being-two the girl kissed.

(3) a. Ashiiké at'eed deizts'ǫs
The boys the girl kissed (pl.)

b. At'ééd ashiiké dabizts'ǫs
The girl (by)the boys (was) kissed.

NOTE: The plural is indicated with the prefix da in 3b. One would then hypothesize that dei in 3a results from a parallel sequence of da + yi. Some additional examples follow in (4) and (5).

(4) a. Hastiin ashkii yiłhozh
The man is tickling the boy.

b. Hastóí ashkii deiłhozh
The men are tickling the boy.

a'. Ashkii hastiin biłhozh
The boy is being tickled by the man.

b'. Ashkii hastóí dabiłhozh
The boy is being tickled by the men.

(5) a. Hastiin łį́į́' yizloh
The man roped the horse.

b. Hastóí łį́į́' deizloh
The men roped the horse.

(5) a'. At'ééd ashkii bizloh

The girl was roped by the boy.

b'. At'ééd ashiiké dabizloh

The girl was roped by the boys.

NOTE: Hypothesizing a uniform morphology, a plural da may be added to verbs exhibiting the yi-/bi- alternation. The next step is to account for the resulting sequences dei from underlying da + yi.

First alternative:

a) y drops between vowels (da + yi → da + i)

b) a becomes e before i (da + i → de + i)

* (but yiyiisxį 'he killed it' occurs)

Second alternative:

a) a becomes e before y (da + yi → de + yi)

b) y drops between vowels (de + yi → de + i)

Third alternative:

a) ay → e (da + yi → de + i)

The next set of examples (6-10) will illustrate the iterative form of the verb.

(6) a. Hastiin ashkii yiłhozh

The man is tickling the boy.

b. Hastiin ashkii néíłhosh

The man usually tickled / tickles the boy.

a'. Ashkii hastiin biłhozh

The boy is being tickled by the man.

b'. Ashkii hastiin nábíłhosh

The boy was usually tickled by the man.

(7) a. Béhé dibé yiłt'o'

The lamb is suckling on the sheep.

b. Béhé dibé néíłt'o'

The lamb usually suckles on the sheep.

(7) a'. Dibé béhé biłt'o'.

b'. Dibé béhé nábíłt'o'.

(8) a. Asdzání hastiin yiłtlah.
The woman is anointing the man.

b. Asdzání hastiin néíłtlah.

a'. Hastiin asdzání biłtlah.

b'. Hastiin asdzání nábíłtlah

(9) a. Hastiin ashkii néíłhosh
The man usually tickled the boy.

b. Hastóí ashkii nídeiłhosh.

a'. Ashkii hastiin nábíłhosh.

b'. Ashkii hastóí nídabiłhosh.

(10) a. Asdzání hastiin néíłtlah
The woman usually anoints the man.

b. Sáanii hastiin nídeiłtlah
The women

a'. Hastiin asdzání nábíłtlah

b'. Asdzání hastiin nídabiłtlah

NOTE: From the preceding example sentence we establish the following order of constituents in the Navajo verb.

Iterative	Plural		
ná	da	yi bi	Stem

We now hypothesize the following set of informally stated phonological rules.

a) Tone Raising: A prefix immediately between the stem and a preceding high tone becomes high tone.

b) y-dropping: y drops (is elided) between two short vowels.

c) a-fronting: a becomes e before i

d) ná becomes ní before da (more specifically, before prefixes beginning with d, n, j and s). The sequence ní is an orthographic convention for a syllabic nasal (n̨).

The next examples illustrate the adverbial prefix yisdá ('safety').

(11) a. Hastiin ashkii yisdéíłteeh
The man carries the boy to safety.

b. Hastóí ashkii yisdádeiłteeh

a'. Ashkii hastiin yisdábíłteeh

b'. Ashkii hastóí yisdádabiłteeh

Sample derivation for verb in (11a).

yisdá+yi+łteeh
yisdá+yí+łteeh (by Tone Raising)
yisdá+í+łteeh (by y-dropping)
yisdé+í+łteeh (by a-fronting)

(12) a. Hastiin at'ééd yisdéílóós
The man lead the girl to safety.

b. Hastóí at'ééd yisdádeilóós

a'. At'ééd hastiin yisdábílóós

b'. At'ééd hastóí yisdádabilóós

The following sentences illustrate the relative positions of the adverbial yisdá-, the iterative ná-, and the plural da-:

Hastiin at'ééd yisdánéíłtééh
yisdá+ ná + yi + łtééh
adv + iterative + yi + stem
Hastóí at'ééd yisdánídeiłtééh
yisdá + ná + da + yi + łtééh
adv + iterative + plural + yi + stem

The following sentences introduce an additional iterative prefix náá(ná)-:

(13) a. Ashkii at'ééd yizts'ǫs
The boy kissed the girl.

b. Ashkii at'ééd náánéízts'ǫs
The boy kissed the girl again.

(13) a'. At'ééd ashkii bizts'ǫs.

b'. At'ééd ashkii náábízts'ǫs

(14) Hastóí at'ééd yisdánáánídeiłtééh

Hastóí at'ééd yisdánínáádeiłtééh

The man usually saves the girl and is doing it again.

There are two forms for the iterative náá(ná):

náháná before vowels and/or the stem

náá before a prefix that begins in a consonant

SUMMARY CHART:

Adverbial	Iterative	Plural			STEM
yisdá-	ná- náháná-	da-	yi- bi-	. . .	

Navajo - Lecture 3
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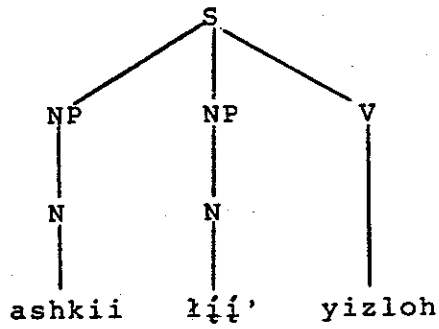
Kenneth Hale/Ellavina Perkins

The Organization of the Verb

Navajo Sentence Types

Transitives: Ashkii łį́į́' yizloh
The boy roped the horse.



Intransitives:

Hastiin naalnish
The man is working

Ashkii hataał
The boy is singing

At'eed yáłti'
The girl is speaking

Hastiin Na'nízhoozhídi naalnish
The man in Gallup works

Ashkii tsékooh góyaa (h)adáátlizh
boy canyon down into fell down

At'éédKinłánígóó naayá
girl Flagstaff to went

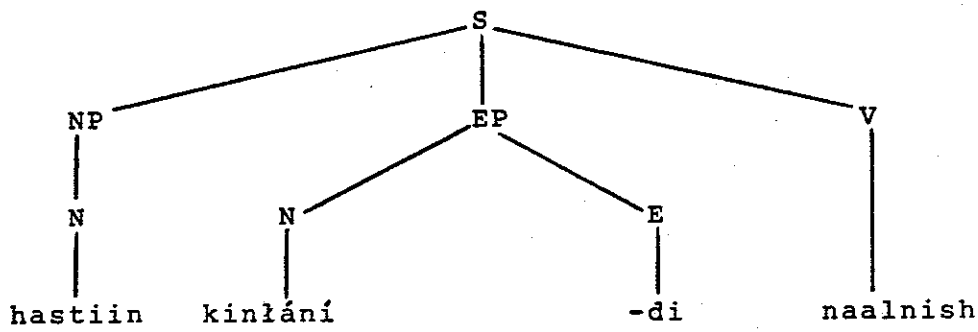
NOTE: The last 3 sentences contain enclitic phrases. These particular phrases contain a noun which refers to a place and an attached particle.

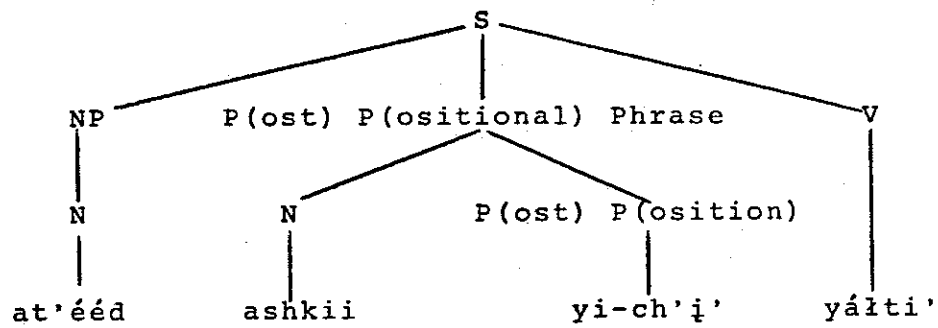
-di 'at, in'

-góó 'to'

-góyaa 'down into'

NOTE: We distinguish enclitic phrases from post positional phrases and assign the following different structures.





NOTE: Two reasons for the difference can be given now.

1) There is a closer physical attachment between the enclitic particle and the noun.

2) A post position can be stranded. The following sentences are related by Subject Object Inversion.

At'eed ashkii yich'į' yáłti

The girl is speaking to the boy.

Ashkii at'eed bich'į' yałti

The boy is being spoken to by the girl.

The alternation is demonstrated by the contrast between sentences (a-c) and sentences a'-c').

a. Ashkii hastiin yá naalnish

The boy is working for the man.

b. At'ééd ashkii yich'į' yałti'

The girl is speaking to the boy.

c. Ashkii asdzání yíighahgi sizį́

The boy is standing by the woman.

a'. Hastiin ashkii bá naalnish

b'. Ashkii at'ééd bich'į' yáłti'

c'. Asdzání ashkii bíighahgi sizį́

The following is a sentence with a true post positional phrase.

Ashkii łį́į' tl'óół yee yizloh
boy horse rope with roped

We turn now to the study of the verb particles in the positions in front of the stem.

In the last session the following positions were established:

Adv.-	Iterative	Plural		Stem
yisdá 'into safety'	ná	da	yi bi	. . . .
ha 'up & out'	náá(ná)			

The following sentences show surface forms of verbs with attached prefixes.

Hastiin ashkii yisdéíłteeh (< yisdá+yi...ł-teeh)
man boy carry to safety

Hastiin ashkii ch'ííłteeh (<ch'í-yi-ł-teeh)
man boy carrying out horizontally

Ashkii hastiin ch'íbíłteeh (<ch'í-bi-ł-teeh)

Hastiin ashkii heiłteeh (<ha+yi+ł-teeh)
man boy up & out is carrying

Ashkii hastiin habiłteeh (<ha+bi+ł-teeh)

To test whether ha- is an adverb we make the verb iterative. This leads to an abstract structure like the following:

ha+ná+yi+ł+téέh (high tone added to root when iterative)

The resulting surface form is:

hanéíłtéέh

The bi form is as one would predict.

hanábíłtéέh

With the ch'í- prefix one has the next forms:

yi-form: ch'ínéíɬtéé́h
'repeatedly carry out horizontally'

bi-form: ch'ínábíɬtéé́h

Hastiin ashkii yisdéílóós
The man is leading the boy to safety.

Hastiin ashkii ch'íílóós
The man is leading the boy out horizontally.

Ashkii hastiin ch'íbilóós
The boy is being lead out horizontally by the man

Ashkii ɬį́į́' hailóós (heilóós)
The boy leads the horse up and out.

*Ɬį́į́' ashkii habilóós (The bi-form violates the hierarchy.)

The next sentence contains the iterative prefix.

Ashkii ɬį́į́' hanéídlóós
The boy usually lead the horse up and out.

A na- prefix also occurs with the meaning 'around'.

yi-form: Hastiin ashkii neiɬté
The man is carrying the boy around.

plural yi-form: Hastóí ashkii ndeiɬté (<na+da+yi+l-té)

bi-form: Ashkii hastiin nabiɬté

plural bi-form: Ashkii hastóí ndabiɬté (<na+da+bi+ɬ-te)

Questions: What does a verb look like that contains both the iterative ná and the na meaning 'around'?

The man usually carries the boy around.

ninéíɬteeh (<na+ná+yi+ɬteeh)

The form ninéíɬteeh establishes the initial position of the prefix na-.

Examples of Prefixes on Intransitives:

Ɬį́į́' naalgeed
The horse is bucking around.

Łį́į́' ch'ílgéédd

The horse is bucking out (like out of a chute).

Łį́į́' haalgéédd

The horse is bucking up and out.

Łį́į́' ch'ínágo'

The horse usually bucks out.

Łį́į́' <u>ninál</u>go' (<na+ná+lgo')

The horse usually bucks around.

Rule: An adverbial or plural prefix with a low tone will lenthen its vowel if no prefix containing a vowel appears between it and the stem.

Taking the stems as a starting point we now try to discover the properties of the slots immediately to the left of the stem.

Ashkii naané	The boy is playing.
Ashkii naalnish	The boy is working.
Ashkii naałchid	The boy is gesturing.
Ashkii naa'na'	The boy is crawling.

We now consider the iterative and plural forms of these sentences:

<u>Iterative</u>	Ashkii niná'neeh
	Ashkii ninálnish
	Ashkii ninálchi'
	Ashkii niná'nah
<u>Plural</u>	Ashkii ndaané
	or Ashiiké ndaané
	Ashiiké ndaalnish
	Ashiiké ndaałchid
	Ashiiké ndaa'na'
<u>Interative & Plural</u>	Ashiiké ninádaa'neeh
	Ashiiké ninádaalnish
	Ashiiké ninádaałchi'
	Ashiiké ninádaa'nah

These sentences exhibit the four verb classifiers of Navajo. The classifiers no longer have productive semantic significance. They are merely part of the verb. They are:

-Ø-

-ł-

-l-

-d-

na-Ø-né

na-l-nish

na-ł-chid

na-d-na' (The effect of the 'd' is to glottalize the following n.)

yimas — 'he is rolling along'

yii'mas — 'we are rolling around' (The underlying 'd' causes the glottalization of the following nasal.)

naa'na' — 'crawling around' (<na+d+na')

niná'nah

naniná — 'You are walking around.' (<na+ni+ná)

At one time the classifier system was used to mark transitivity. Navajo still preserves some relics of this process.

tó yibéézh — The water is boiling.

tó yiłbéézh — He is boiling water.

Ashkii niiltlah — The boy stopped.

Hastiin ashkii niiniłtlah — The man stopped the boy.

We turn now to the non-third person pronouns.

Subject Pronouns

shí — 'I' 1st person singular

ni — you 2nd person singular

shí dóó ashkii
ni dóó ashkii
shí dóó ashiiké
} nihí First or Second Non-singular

The following are sentences with 1st & 2nd person subjects.

Shí naashné	I play.
Ni naniné	You play.
Shí dóó ashkii neii'né	I and the boy play.
Ni dóó ashkii naahné (naohné)	You and the boy play.
Shí dóó ashiiké ndeii'né	I and the boys play.

An analysis of the preceding verbs isolates the following items.

na-sh-né

na-ni-né

na-iid-né

na-oh-né

na-da-iid-né

The following rules are necessary.

d+n → ʔn

a+o → a+a (in the speech of some people)

We thus establish the following subject markers:

-sh-	1st sing.
-ni-	2nd sing.
-iid-	1st non-sing.
-oh-	2nd non-sing.

With the verb 'work' we have the following forms.

Shí naashnish (<na+sh+nish)

Ni nanilnish (<na+ni+l+nish)

{shí dóó ashkii / nihí} neiilnish (<na+iid+l+nish)

{ni dóó ashkii / nihí} naołnish (na+oh+l+nish)
naałnish

To account for the above surface forms, the following rules are necessary.

h+l → h+ł

h+ł+c → ł+c

d+l+c → l+c

sh+l+c → sh+c (where c stands for any consonant)

These rules will be refined and shown to be more general in the course of our study.

We turn now to the forms of the verb meaning 'to gesture'.

shí/na+sh+ł+chid/ becomes naashchid

ni /na+ni+ł+chid/ becomes naniłchid

{shí dóó ashkii / nihí} /na+iid+ł+chid/ becomes neiilchid

ni dóó /na+oh+ł+chid/ becomes naołchid

Some addition rules can now be (informally) stated:

ł → l / d—

d + ł + c → d + l + c

Devoicing: $\begin{bmatrix} c \\ -voic \end{bmatrix}$ + l → c + ł [-voic]

na+sh+l+nish
na+sh+ł+nish
sh+ł+c → sh+c

The devoicing rule has significant effects in Navajo words.

(Devoicing) Shí tl'óół naashłé I'm carrying a rope around.

Ni tl'óół nanilé You are carrying a rope around.

Shí dóó ashkii tl'óół neiidlé (</na+iid+lé)

Ni dóó ashkii tl'óół /na+oh+łe/ becomes na+oh+łe
(naahłé)

(Devoicing) Ashkii tl'óół /na+yi_le/ becomes neilé

In the 3rd person a-gh- can be added at the hiatus of 2 vowels.

Ashkii naaghá (</na+á/ The boy is walking around.

Shi naashá /na+sh+á/ I am walking around.

-á means 'to walk singularly'

Navajo - Lecture 4
16 September 1976
Kenneth Hale/Ellavina Perkins

1. Review of Prefix Positions in the Verb

Prefix Chart:

ADVERBIAL	IT	PL	OBJ	. . .	SUBJ	CL	STEM
yisdá- 'to safety'	ná 'iterative'	da	1st shi		sh	ł	
na- 'around, about'			2nd ni		ni	l	
ch'í- 'out horizontally'	náá(ná)		1st & 2nd nihi		iid	d	
ha- 'up and out'	'again'		3rd yi/bi		oh	Ø	
					Ø		

The following example sentences serve to review the analysis of verb forms:

(1) Ashkii dibé neiłté
The boy is carrying the sheep about.

na - yi - ł - té
ADV OBJ CL STEM

na - i - ł - té by Y-dropping: y→Ø/V__iC

ne - i - ł - té by A-fronting: a→e/__i

(2) Ashkii dibé neijaah
The boy is carrying the sheep (PL) about.

na - yi - Ø - jaah (jaah = suppletive stem for plural object)
ADV OBJ CL STEM

na - i - Ø - jaah by Y-deletion

ne - i - Ø - jaah by A-fronting

(3) Shí dibé naashté
I am carrying a sheep about.

na - sh - ł - té
ADV SUBJ CL STEM

naa - sh - ł - té by Lengthening: Ca→Caa/__Co Stem

naa - sh - Ø - té by CL-deletion: ł→Ø/sh__C

(4) Shí dibé naashjaah

I am carrying sheep (PL) about.

na - sh - Ø - jaah

ADV SUBJ CL STEM

When the subject is non-third person, the object markers yi and bi do not appear in the verb.

(5) Ni dibé naniłté

You are carrying the sheep (SG) about.

na - ni - ł - té

ADV SUBJ CL STEM

(6) Ni dibé nanijaah

You are carrying sheep (PL) about.

na - ni - Ø - jaah

ADV SUBJ CL STEM

(7) Nihí dibé neiilté

We (2) are carrying the sheep (SG) about.

na - iid - ł - té

ADV SUBJ CL STEM

ne - iid - ł - té by A-fronting

ne - iid - l - té by CL-Voicing: ł→l/d__C

ne - ii - l - té by D-deletion: d→Ø/__C

(8) Nihí dibé neiijaah

We (2) are carrying the sheep (PL) about.

na - iid - Ø - jaah

ADV SUBJ CL STEM

ne - iid - Ø - jaah by A-Fronting

ne - ii - Ø - jaah by D-deletion

(9) Nihí dibé naołté

You (du.) are carrying the sheep (SG) about.

na - oh - ł - té

ADV SUBJ CL STEM

na - o - ł - té by H-deletion: h→Ø/__łC

(10) Nihí dibé naohjaah

You (du.) are carrying sheep (PL) about.

na - oh - Ø - jaah

ADV SUBJ CL STEM

(11) Ashiiké dibé ndeiłté

The boys are carrying a sheep about.

na - da - yi - ł - té

ADV PL OBJ CL STEM

na - da - i - ł - té by Y-deletion

na - de - i - ł - té by A-fronting

ni - de - i - ł - té by Na-reduction: na→ni/__dV

NOTE: reduced ni stands for a syllabic nasal

(12) Ashiiké dibé ndeijaah

The boys are carrying sheep (PL) about.

na - da - yi - Ø - Ø - jaah

ADV PL OBJ SUBJ CL STEM

NOTE: recall that the subject marker for 3rd person subjects is Ø

(13) Ashkii shí naashté

I am carrying the boy about.

na - sh - ł - té

ADV SUBJ CL STEM

(14) Shí ashkii nashiłté

The boy is carrying me about.

na - shi - ł - té

ADV OBJ CL STEM

(15) Shí ni nanishté

I am carrying you about.

na - ni - sh - ł - té

ADV OBJ SUBJ CL STEM

(16) Ashkii ni naniłté

The boy is carrying you about.

na - ni - ł - té

ADV OBJ CL STEM

NOTE: the form naniłté can also mean 'You are carrying him about':

na - Ø - ni - ł - té

ADV OBJ SUBJ CL STEM

Recall that the object markers yi/bi do not appear when the subject is non-3rd person.

(17) Ashkii nihí nanihijaah

The boy is carrying about more than one of us.

na - nihi - Ø - jaah

ADV OBJ CL STEM

(18) Ashiiké shí ndashiłté

The boys are carrying me around.

na - da - shi - ł - té

ADV PL OBJ CL STEM

(19) Shí ni nanishté

I am carrying you about.

na - ni - sh - ł - té

ADV OBJ SUBJ CL STEM

(20) Shí nihí nanihishjaah

I am carrying you (PL) about.

na - nihi - sh = Ø - jaah

ADV OBJ SUBJ CL STEM

(21) Nihí shí nashołté

You (du.) are carrying me about.

na - shi - oh - ł - té

ADV OBJ SUBJ CL STEM

na - sh - oh - ł - té by Vowel-deletion: V→Ø/__+V

na - sh - o · ł - té by H-deletion

NOTE: In general, the boundaries from OBJ position to the right are "tighter" than which separates OBJ position from positions to the left of OBJ.

(22) Nihí ni naniilté

We (2) are carrying you (SG) about.

na - ni - iid - ł - té

ADV OBJ SUBJ CL STEM

(23) Nihí nihí nanihohjaah

You (2) are carrying us (2) about.

na - nihi - oh - Ø - jaah

ADV OBJ SUBJ CL STEM

(24) Nihí nihí nanihiijaah

We (2) are carrying you (2) around.

na - nihi - iid - Ø - jaah

ADV OBJ SUBJ CL STEM

(25) Ni shí nashíłté

You (SG) are carrying me about.

na - shi - ni - ł - té

ADV OBJ SUBJ CL STEM

na - shí - Ø - ł - té by the rule of Ni-absorption:
Ci+ni→Cí/__CoStem

The prefix ni deletes, leaving a high tone on the previous i.

(26) Ni nihí nanihíjaah

You (SG) are carrying us (2) about.

na - nihi - ni - Ø - jaah

ADV OBJ SUBJ CL STEM

na - nihí - Ø - Ø - jaah by Ni-Absorption

2. Discovering New Prefix Positions

(27) Ashkii dibé neiniłkaad

The boy is herding sheep.

The rules we already have will give us the surface form of the verb from the following underlying structure:

na - yi - ni - ł - kaad
ADV OBJ ? CL STEM

na - i - ni - ł - kaad

ne - i - ni - ł - kaad

What is the prefix ni occurring between OBJ yi and the classifier? Since the sentence has a 3rd person subject, we know that ni is not a 2nd person subject marker.

We begin by trying to determine where the new ni occurs with respect to subject markers. Examine the following:

(28) Shí dibé nanishkaad
I am herding the sheep.

Our rules allow us to derive the surface verb form from the following underlying structure:

na - ni - sh - ł - kaad
ADV ? SUBJ CL STEM

The examples (27-(28) show that the new ni occurs in a slot in between object markers and subject markers. Other confirming examples:

(29) Ni dibé naníłkaad
You are herding sheep.

na - ni - ni - ł - kaad
ADV ? SUBJ CL STEM

na - ní - Ø - ł - kaad by Ni-absorption

(30) Nihí dibé nanołkaad
You (2) are herding sheep.

na - ni - oh - ł - kaad
ADV ? SUBJ CL STEM

Both H-deletion and Vowel-deletion apply:

na - ni - o - ł - kaad

na - n - o - ł - kaad

The examples (27-(30) lead us to postulate a new prefix position, in between the OBJ & SUBJ slots. This position has traditionally been referred to as the "ASPECT" position:

ADV - IT - PL - OBJ - "ASPECT" - SUBJ - EL -STEM

Now consider a new verb set to analyse:

(31) 'to shout'

		?-SUBJ-CL-STEM	
1st:	shí dishwosh	di-sh - l-wosh	
2nd:	ni dílwosh	di-ni - l-wosh	(Ni-absorption)
3rd:	ashkii dilwosh	di- Ø - l-wosh	
1st:	nihí(2) diilwosh	di-iid- l-wosh	
2nd:	nihí(2) dołwosh	di- oh- l-wosh	

What is the new prefix di? We know it is positioned to the left of the subject slot, but we don't know where to the left of the subject it belongs. The following shows its position with respect to plural da:

(32) Ashiiké dadilwosh

The boys are shouting.

da - di - Ø - l - wosh

PL ? SUBJ CL STEM

The new di shows up in between the PL slot and SUBJ slot, it turns out that di is also in the "ASPECT" slot and shows up in verbs of 'vocal sounds'.

Notice now the "inceptive" form of the verb 'to work':

(33) 'to start working' (note stem change to níish)

		? - SUBJ - CL - STEM
1st:	dishníish	di - sh - l - níish
2nd:	dílníish	di - ni - l - níish
3rd:	dilníish	di - Ø - l - níish
1st:	(2)diilníish	di - iid - l - níish
2nd:	(2)dołníish	di - oh - l - níish
3rd:	(PL)dadilníish	da-di - Ø - l - níish

Example (33) illustrates the "inceptive" di, which also occurs in the "ASPECT" column:

. . . OBJ	ASPECT	SUBJ . . .
	ni- ?	
	di- 'inceptive'	
	di- 'vocal sounds'	

The examples in (34) show that inceptive di follows object markers:

(34) 'to start weaving it'

		OBJ-ASP-SUBJ-CL-STEM
1st:	dishtl'óóh	Ø - di- sh - Ø-tl'óóh
2nd:	dítl'óóh	Ø - di- ni - Ø-tl'óóh
3rd:	yiditl'óóh	yi - di- Ø - Ø-tl'óóh
1st:	(2)diitl'óóh	Ø - di-iid - Ø-tl'óóh
2nd:	(2)dohtl'óóh	Ø - di- oh - Ø-tl'óóh

PROBLEM: consider the following data:

(35)	Shí ashkii yishxozh	'I am tickling the boy.'
	Ni ashkii nił̨hozh	'You are tickling the boy.'
	Hastiin ashkii yił̨hozh	
	Nihí(us) ashkii yiilwozh	
	Nihí(you) ashkii woł̨hozh	
	Ashkii shí shił̨hozh	'The boy is tickling me.'
	Ashkii ni nił̨hozh	
	Ashkii nihí nihił̨hozh	
	Shí ni nishhozh	'I am tickling you.'
	Ni shí shíł̨hozh	'You are tickling me.'
	Nihí(2) ni niilwozh	'We are tickling you.'
	Nihí(2) shi shoł̨hozh	'You (du) are tickling me.'

Based on the examples we have dealt with so far, give an analysis of the following verb forms:

(a) yishxozh

(b) yiilwozh

(c) woł̨hozh

Navajo - Lecture 5
23 September 1976
Kenneth Hale/Ellavina Perkins

1. Motivation for and discussion of Navajo phonological rules.

We have so far established the following verb slots:

ADV	IT	PL	OBJ	ASP	MODE	SUBJ	CL	STEM
na	ná	da	shi	ni	(See 2. of	sh	ł	
ha	nááná		ni	di	this hand-	ni	l	
ch'í			nihi	hi	out.)	iid	d	
			yi	ii		oh	ø	
			bi					

We begin with the following paradigm of the imperfective of the verb meaning 'tickle'.

yishhozh	I tickled him.
niłhozh	You tickled him.
yiłhozh	He tickled him.
Yiilwozh	We tickled him.
Wołhozh	You tickled him.

Under our current analytical procedures we end up with the following underlying structure.

(yi) - sh - ł - hozh

ni - ł - hozh

? yi - - ł - hozh

(yi) - iid - ł - hozh

(w) - oh - ł - hozh

The yi- which is present in the 1st singular conflicts with an earlier 'observation'. The yi objective marker for the 3rd person appeared to be mutually exclusive with the 1st and 2nd person subject markers.

We hypothesize that the yi's in the non-third person forms result from the following prosthetic rules.

$\emptyset \rightarrow w \; / \; \#\# \_\_\_ o$

$\emptyset \rightarrow y \; / \; \#\# \_\_\_ i$

$\emptyset \rightarrow yi \; / \; \#\# \_\_\_ C_o$ Stem

These rules lead to the prediction that the 'yi's' will not occur in the iterative. The 'real' yi- will leave its effect in the 3rd person. This prediction is borne out in the next forms.

náshhosh	(The yi doesn't appear here.)
nánílhosh	
néílhosh	
néiilwosh	
náólhosh ~ náálhosh	

The appearance of the $\emptyset \rightarrow$ yi rule may be the result of a principle that Navajo verbs must be at least disyllabic.

Another verb whose surface forms are consistent with this principle is -cha 'cry'.

yishcha	I cry.	</ sh-cha /
nicha	You cry.	</ ni-cha /
yicha	He cries.	</ -cha /
yiicha	We cry.	</ iid-cha /
wohcha	You cry.	</ oh-cha /

As before, the iterative is further evidence for the 'phonological' nature of certain 'yi's'. In this case a yi does not occur in the 3rd person because the verb is intransitive.

<u>Iterative</u>

náshchah	I usually cry.
nanínchah	
náchah	
néiichah	
náóhchah	

The following forms exhibit an alternation between gh and h in the stem. They differ phonetically only in terms of voicing (gh is voiced, h is voiceless).

yishhéád	</ sh-ghéád /	I shake it.
nighéád	</ ni-ghéád /	You shake it.
yighéád	</ yi-ghéád /	He shakes it.

The change from gh to h is the result of the devoicing rule.

Devoicing: [Segment] → [Voiceless] / [Voiceless]

In the 1st non-singular form the gh becomes g by the d-effect. (See rule handout.)

/-iid-ghéád/

g (by the d-effect)

yiigéád (by a prosthesis rule)

The 2nd person non-singular has the following derivation.

oh-ghéád

woh-ghéád (prosthesis)

woh-héád (devoicing)

2. Items in the 'mode' position. (Label 'mode' is merely classificatory and is not descriptive).

Types of modes: imperfective, perfect, progressive (really an aspect), optative

Items that fill mode slot:

Ø:	(zero perfective)
ni:	imperfective
ni-í:	perfective
si-(í):	perfective
ghi-í:	(this is called yi-perfective)
ó:	optative

The future is a combination of di from the 'aspect' slot and ghi- from the 'mode'.

Some examples of the optative paradigm:

Woshcha	Oh, let me cry.
Wóócha	Oh, let you cry.
Wócha	
Woocha	
Wohcha	
or	
Woshcha lágo	I hope I don't cry.

NOTE: Items from the mode slot are mutually exclusive with ná from the iterative slot.

3. Using the Young and Morgan dictionary (The Navaho Language) example verb 'to eat separable, isolatable objects'. Verb will be listed alphabetically under the future stem.

dił- 'to eat separable isolatable ojects'

Example listing

F. (future) deesh-dił (dííl, yidool, jidool, etc.) The first person form is given first, other persons in parentheses.

C.I. (continuous imperfective) yish-deeł (nil, etc.)

P. (perfective)

R. (repetitive, term used instead of iterative)

O. (optative)

4. Exercise to acquaint student with Young and Morgan dictionary.

Goal: To locate another position in the Navajo verb. Locate the element which is sometimes referred to as the 4th person. The pronoun form hó has a prefix ji in the Navajo verb.

Example of ji- in a verb:

doo tin ji'aał da One doesn't chew ice.

The ji- can appear as -zh- if a vowel precedes and an n or d follows.

Hint: Look at imperfective and iterative forms.

Additional Tasks

Analyze (Get underlying forms):

(1) The continuous imperfective and iterative form verb meaning to talk, to speak p. 206.

(2) The imperfective and repetitive 'to break it up' p. 206. This will introduce a new prefix, whose behavior we haven't seen yet -hi- (add some rules if necessary).

(3) Do the C.I. and R. of 'to coach him', 'to give him instructions' (p. 209-10).

(4) Imp. & R. forms to stop or finish weaving it (p. 124), rule must be added.

5. Linguistics-One of the central goals of the field is to discover a theory which will represent the native speaker's ability to construct and understand the sentences of his language.

The following novel sentence is understood by any Navajo speaker although it is highly unlikely they have heard it before.

Chį́įh yee' idilohii shił yíldloozh

I have just arrived by elephant.

Question to be covered: What is the nature of the evidence that a classifier is 'present' in verbs which don't show it in their phonetic forms?

For example, the verb naashnish 'I work' has been analyzed as being basically: na-sh-l-nish. The l must be removed by a classifier deletion rule. Thus, the cost of the underlying regularity is a phonological rule.

An alternative theory for the presence of classifier may use the following statement.

Don't use a classifier in the 1st person singular of any verb.

To choose between these theories one consults additional data:

yishhá́á́d

nighá́á́d

yishłéél	I become.
nileeh	You become.
K'i'dishłé	I plant it.
K'idíłe	You plant it.
Dishshah	I am spitting.
Dizhah	You are spitting.
Dissééh	I am belching.
Dizééh	You are belching.

These forms exhibit the following alternations.

z → s	The change is caused by the devoicing rule.
zh → sh	
l → ł	
gh → h	

To eat meat.

nilghał	You eat meat. (The voiced form appears after voiced segments.)

Some 2nd person non-singular forms of the above are listed next.

wohhád

wohłeeh

k'i'dohłé

dohshah

dohséél

The 'w' is a voiced velar continuant (fricative) with rounding.

Note the following alternations between w and h. The 'h' follows voiceless segments.

Awéé' yiwozh	The baby is ticklish.
Ashkii awéé' yiłhozh	The boy tickles the baby.
yiilwozh	We tickle him.

We now turn to some apparent counter examples to the devoicing rule.

First Person Singular Forms		Second Singular Forms
naashzheeh	I am hunting.	nanilzheeh
sodiszin	I am praying.	sodílzin
yishghał	I am eating meat.	nilghał
ádíshzhéęh	I am trimming my hair.	ádílzhéęh
ádíshzhóǫh	I am combing myself.	ádílzhóǫh

To account for the failure of devoicing to apply to the stem initial consonant we must make some additional hypothesis. From the second person forms we see that the classifier is l. The underlying form for the 1st singular of hunt would thus be:

na - sh - l - zheeh

There are two rules which are applicable to the medial consonantal cluster. Fricative devoicing and classifier deletion. The rules must apply in the above order, otherwise the wrong surface form will result.

na - sh - l - zheeh

Classifier deletion: na - sh - zheeh

Fricative Devoicing: *na - sh - Sheeh

The other order for these two rules will generate the correct surface form provided that fricative devoicing only apply once. That is, the devoiced l (ł) cannot in turn act as the environment for an additional application of fricative devoicing.

Assignment: For the following paradigms provide an explanation for the alternations in the stem initial consonant. Try to maintain the following hypothesis:

ALL STEM INITIAL CONSONANTS ARE BASICALLY VOICED.

'to break a horse'	'to blow on it'
yishshǫǫh	yisoł
nishǫǫh	nisoł
yishǫǫh	yisoł
yiilzhǫǫh	yiilzoł
wohshǫǫh	wohsoł

Navajo - Lecture 6
30 September 1976
Kenneth Hale/Ellavina Perkins

Conclusion of discussion of the Navajo verb prefixal morphology.

1. In the last lecture two hypotheses were proposed

   A) All stem initial fricatives are voiced in underlying representation

   B) The fricative devoicing rule accounts for all cases of stem initial devoicing.

   Fricative Devoicing: [fricative] → [-voice] / [-voice]____

   Forms which appear to contradict these hypotheses are the following:

yishshéé́h	I cut hair	yissoł	I blow on it
nishéé́h	you cut hair	nisoł	you blow on it
yishéé́h	he cuts hair	yisoł	he blows on it
yiilzhéé́h	we cut hair	yiilzoł	we blow on it
wohshéé́h	you cut hair	wohsoł	you blow on it

   The problem is in the 2nd person singular. A devoiced segment appears in stem initial position. This is an apparent counter example. A clue to this problem is to be found in the 1st person plural forms. An l appears. This then suggests that the verb has a classifier ɬ, which is deleted in certain environments.

   Classifier Deletion: $ɬ \rightarrow \emptyset \; / \; — \; \left\{ \begin{matrix} sh \\ s \end{matrix} \right\}$

   The derivation of the 1st plural form is:

iid - ɬ - zhéé́h	
iid - l - zhéé́h	Classifier Voicing
iil - zhéé́h	D-deletion
yiil - zhéé́h	Prosthesis

   With the classifier deletion rule the lack of the classifier is accounted for.

2. Determining the relative position of the 4th person marker.

   The first form considered is

   ni jihi tíí́h 'someone is breaking it up'

This form demonstrates that the ji morpheme is the right of the adverbial slot. We next test for the relative position of the ji with the plural form of the verb nish 'to work'

ndajilnish < na+da+ji+l+nish

The question remains as to the relative position of the ji and object morphemes. This is decided with the form which means 'someone is tickling me'

shijiłhozh < shi+ji+ł+hozh

Four items which occur in this deictic position are

Deictic

ji-	4th person subject
'i-	indefinite object
ho-	4th person object
ho-	area (concord)

Examples of the 'i- indefinite

'i-ʔa in some environments, so

'i-sh-ą́-'ashą́ 'I am eating something'

The complete paradigm is

'ashą́	<	'i-sh-ą́	'I am eating'
'íyą́	<	'i-ni-yą́	'you are eating'(ni-absorption)
'ayą́	<	'i-yą́	'you are eating'
'iidą́	<	'i-iid-ą́	'you are eating'
'ohsą́	<	'i-oh-są́	'you are eating'

The 'i can show up merely as a glottal stop.

shi'niiłhį́ 'I am being killed' (Someone is killing me.)

shi'diiltsą 'I was seen' (Someone saw me.)

The ho morpheme may show up as hw as the following form demonstrates.

Meksigo t'ahdoo hwiistséeh da

↓

agreement with area

The shape of the ho is determined by the following rules

ho remains / — CV C_o Stem

ho becomes ha / — C_o Stem

ho becomes hó / in Ni-absorption

The lexical entry for 'sing' is ho . . . Ø-taał. The verb has a zero classifier,

hashtaał	<	/ ho-sh-taał /	'I sing'
hótaał	<	/ ho+ni-taał /	'you sing'
hataał	<	/ ho+taał /	'he sings'
hwiitaał	<	/ ho+iid+taał /	'we sing'
hohtaał	<	/ ho+oh+taał /	'you sing'

The ji morpheme became zh under certain conditions.

ji→zh/V—CV . . . C_o Stem

di-ji-di-ł-jeeh→dizhdiłjeeh

di-i'-di-ł-jeeh→dizh'diłjeeh

What is the analysis of the following verbal paradigm?

	PRINCIPLE RULES WHICH APPLY	
ninishtł'óóh		'I stop weaving it'
nínítł'óóh	(Ni-absorption)	'you stop weaving it'
niyítł'óóh	(Ni-absorption)	'he stops weaving it'
nijítł'óóh	(Ni-absorption)	'one stops weaving it'
niniidtł'óóh	(V-deletion, D-deletion)	'we stop weaving it'
ninohtł'óóh	(V-deletion)	'you stop weaving it'

The above paradigm is displayed below with its constituents in underlying representation.

ADV	OBJ	MODE	SUB	CL	STEM
ni		ni	sh		tł'óóh
ni		ni	ni		tł'óóh
ni	yi	ni			tł'óóh
ni	ji	ni			tł'óóh
ni		ni	oiid		tł'óóh
ni		ni	oh		tł'óóh

SOME PHONOLOGICAL RULES OF NAVAJO

Devoicing: $l \rightarrow \text{ɬ} / [\text{voiceless}]\_\_\_$ (generalized in notes of 9/23

Classifier deletion: $\text{ɬ} \rightarrow \emptyset$ / sh___C

h-Deletion: $h \rightarrow \emptyset$ / ___ɬC

Classifier voicing: $\text{ɬ} \rightarrow l$ / d___C

na-Reduction: $na \rightarrow ni$ / ___dV, nV

Tone assimilation: $V \rightarrow \acute{V}$ / $\acute{V}C$___C_oStem

y-Deletion: $y \rightarrow \emptyset$ / V___iC

a-Fronting: $a \rightarrow e$ / ___i

Lengthening: $Ca \rightarrow Caa$ / ___C_oStem

The "d-Effect":

$d + n \rightarrow$ 'n

$d + m \rightarrow$ 'm

$d + ' \rightarrow$ t'

$d + z \rightarrow$ dz

$d + zh \rightarrow$ j

$d + l \rightarrow$ dl

$d + gh \rightarrow$ g

d-Deletion: $d \rightarrow \emptyset$ / ___C

d from -iid 1st Pers Nom Sg
-d- classifier

V-deletion: $V \rightarrow \emptyset$ / ___+V

ni-Absorption: $Ci + ni \rightarrow C\acute{i}$ / ___C_oStem

Prosthesis: $\emptyset \rightarrow yi$ / ##___C_oStem

$\emptyset \rightarrow y$ / ##___i

$\emptyset \rightarrow w$ / ##___o

REGULAR VERB PARADIGMS IN NAVAJO

(1) 0-Imperfective

Initial	Conjunct	ii-Conjunct	Disjunct	
yish-	CVsh-	-iish-	CVVsh-,	CV́sh-
ni-	CV́-	-ii-	CVni-,	CV́ní-
yi-	CV-	-ii-	CVV-,	CV́-
yiid-	Ciid-	-iid-	CViid-,	CV́iid-
woh-	Coh-	-ooh-	CVoh-,	CV́́oh-

(2) ni-Imperfective

Initial	Conjunct	Disjunct	
nish-	CVnish-	CVnish-,	CV́nish-
ní-	CVní-	CVní-,	CV́ní-
yí-	Cee- (CV́-)	CVV-,	CV́-
niid-	CVniid-	CVniid-,	CV́niid-
noh-	CVnoh-	CVnoh,	CV́noh-

NOTES:

(a) Conjunct forms are those in which a OBJ, DEIC, or ASP prefix immediately precedes the mode. Where OBJ or DEIC conjunct forms differ from ASP conjunct forms, they are given in parentheses.

(b) Disjunct forms are those in which a ADV, IT, or PL prefix immediately precedes the mode. The first column gives the forms in which the disjunct prefix has basic low tone, the second those in which the disjunct prefix has basic high tone.

(c) Initial forms are those in which no prefix precedes the mode.

(d) In perfective paradigms, given on the following pages, the classifier plays a role in determining prefixal forms. One set of forms occurs with ł- and 0-, while a slightly different set occurs with l- and d-.

(3) yi-Perfective

Initial		Conjunct		ii-Conjunct	
ɬ/0	l/d	ɬ/0	l/d	ɬ/0	l/d
yí-	yish-	Cíí-	Ceesh-	-ii-	-iish-
yíní-	yíní-	Cííní-	Cííní-	-ini-	-ini-
yí-	yi-	Cíí-	Coo-	-ii-	-ii-
yiid-	yiid-	Ciid-	Ciid-	-iid-	-iid-
woo-	wooh-	Coo-	Cooh-	-oo-	-ooh-

Disjunct

ɬ/0		l/d	
CV́V́-,	CV́V-	CVVsh-,	CV́V́sh-
CV́íní-,	CVíní-	CV́íní-,	CVíní-
CV́V́-,	CV́V-	CVV-,	CV́V-
CViid-	CV́iid-	CViid-,	CV́iid-
CVoo-	CV́oo-	CVooh-,	CV́ooh-

(4) ni-Perfective

Initial		Conjunct	
ɬ/0	l/d	ɬ/0	l/d
ní-	nish-	CVní-	CVnish-
yíní-	yíní-	Cííní-	Cííní-
ní-	yi-	Cee- (CVní-)	Cee- (CV́-)
niid-	niid-	CVniid-	CVniid-
noo-	nooh-	CVnoo-	CVnooh-

Disjunct

±/0		1/d	
CVní-,	CV́ní-	CVnish-,	CV́nish-
CV́íní-,	CV́íní-	CV́íní-,	CV́íní-
CVní-,	CV́ní-	CVV-,	CV́-
CVniid-,	CV́niid-	CVniid-,	CV́niid-
CVnoo-,	CV́noo-	CVnooh-,	CV́nooh-

(5) si-Perfective

Initial

±/0	1/d
sé-	sis-
síní-	síní-
si-	yis-
siid-	siid-
soo-	sooh-

Conjunct

±/0	1/d
Cé- (CVsé-)	Césh- (CVsis-)
Cíní- (CVsíní-)	Cíní- (CVsíní-)
Cees/z- (CVs/z-)	Ceos- (CVs-)
Ceed- (CVsiid-)	Ceed- (CVsiid-)
CVsoo- ~ siCoo-	CVsooh- ~ siCooh-

Disjunct

±/0		1/d	
CVsé-,	CV́sé-	CVsis-,	CV́sis-
CVsíní-,	CV́síní-	CVsíní-,	CV́síní-
CVVs/z-,	CV́s/z-	CVVs-,	CV́s-
CVsiid-,	CV́siid-	CVsiid-,	CV́siid-
CVsoo-,	CV́soo-	CVsooh-,	CV́sooh-

(6) Optative

Initial	Conjunct	ii-Conjunct	Disjunct	
wósh-	Cósh-	-oosh-	CVosh-,	CV́osh-
wóó-	Cóó-	-óó-	CVóó-,	CV́oó-
wó-	Có-	-oo-	CVoo-,	CV́o-
wood-	Cood-	-ood-	CVood-,	CV́ood-
wooh-	Cooh-	-ooh-	CVooh-,	CV́ooh-

(7) Progressive

Initial	Conjunct	Disjunct	
yish-	Ceesh-	CVVsh-,	CV́V́sh-
yí-	Cíí-	CV́V́-,	CV́V́-
yi-	Coo-	CVV-,	CV́V́-
yiid-	Ciid-	CViid-,	CV́iid-
wo(o)h-	Cooh-	CVoh-,	CV́oh-

(8) Future

The future is identical to the progressive conjunct formed with the ASP prefix di-. Hence: deesh-, díí-, doo-, diid-, dooh-. However, when the ASP prefix ni- also appears, it follows di- and a high tone appears on di-. This high tone carries over to the following vowel. Hence: dínéesh-, dínií-, dínóo-, díníid-, dínóoh-.

(9) Iterative

The Iterative is formed by using ná- in IT position together with the O-Imperfective.

RELATIVE ORDER OF PREFIX POSITIONS:

ADV	IT	PL	OBJ	DEIC	ASP	MODE	SUBJ	CL	STEM
yisdá-	ná-	da-	shi-	ji-	di-	O-Imperf	sh-	ł-	
na-	naaná-		ni-	'i-	ni-	ni-Imperf	ni-	l-	
ha-			nihi-	ho-	hi-	yi-Perf	iid-	d-	
ch'í-			yi-		ii-	ni-Perf	oh-		
ni-			bi-		...	si-Perf			
...						Optative			
						Progressive			

Disjunct prefixes

Conjunct prefixes

The following are words containing (1) the first person singular possessive prefix /shi-/, and (2) the verbal prefix /si-/ (appearing in the neuter forms of verbs derived from s-perfectives). Assume that the underlying forms of these prefixes are /shi-/ and /si-/ respectively. Notice, however, that the possessive prefix /shi-/ sometimes appear phonetically as [si-] and that the verbal prefix /si-/ sometimes appears phonetically as [shi-]. Study the examples and attempt to state the principle which governs the alternations you observe:

possessive-

shi-má 'my mother'

shi-bééẓh 'my knife'

si-ziiz 'my belt'

shi-taa' 'my father'

shi-gaan 'my arm'

si-k'is 'my friend/brother'

si-dziil 'my strength'

si-tsiits'iin 'my head'

si- tse' 'my stone'

shi-cheii 'my grandfather'(Maternal)

shi-doh 'my muscle'

shi-tl'izh 'my ~~snake~~ gall'

si-tsii' 'my hair'

shi-bid 'my stomach'

shi-da' 'my uncle/nephew'

si-wos 'my shoulder'

shi-ch'íí' 'my intestine'

si-k'os 'my cloud'

shi-lah 'my sister/brother'

shi-tǫg - clavicle

ši-zid 'throat'

si-zii 'hen'

si-zéé

s-perfective verb form

si-dá 'he sits'

si-gan 'It is dry'

shi-jaa' 'they are lying (plural granular objects)'

si-tį 'it is lying (animate)'

shi-jéé' 'they are lying plural animate)'

shi-tééẓh 'they are lying (dual animate)'

si-ł-tsooz 'It is lying (flat flexible object)'

shi-bééẓh 'it boiled'.

si-do 'it is hot'

si-k'az 'it is cold'

si-ts'il 'it shattered, broke'

si-zį 'it stands erect'

si-tą 'it lies (slender stiff object)'

si-'eez 'I stepped on it'

possessive

si-tsóí 'my grandchild (maternal)'

s-perfective verb form

si-t'é 'cooked, baked'

si-tɬéé' 'object at rest (mushy matter)'

si-kǫ́ 'object at rest (plural in an open container)'

si-lá 'object at rest (slender flexible object)'

si-síí' 'to be piquant'

si-'ǫ́ 'object at rest (bulky hard object)'

si-yį́ 'object at rest (anything bundled or loaded together)'

shi-jool 'object at rest (non-compact matter)'

shi-zhoozh 'object at rest (slender objects in parallel position)'

shi-jizh 'it crushed'

shi-zhah 'to be bent (horse-shoe like)'

Navajo - Lecture 7
7 October 1976
Kenneth Hale/Ellavina Perkins

1. Establishing the Phrase Structure Rules of Navajo.

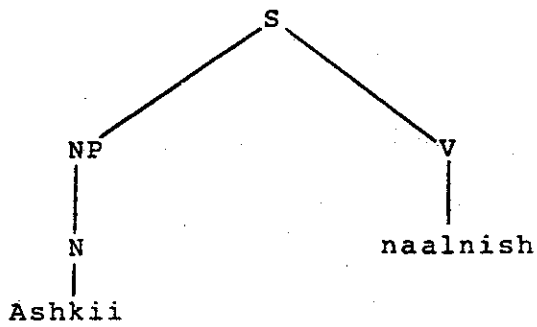
Ashkii naalnish 'The boy is working.'

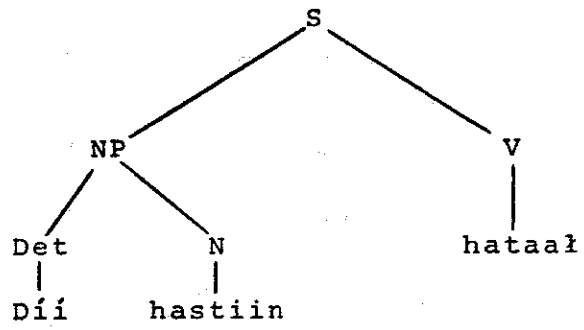
Dii hastiin hataał 'This man is singing.'

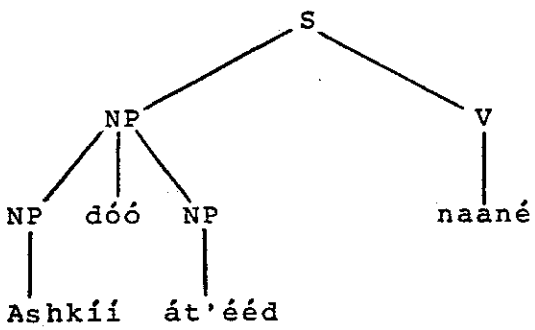
Ashkii dóó át'ééd naané 'The boy and the girl are playing.'

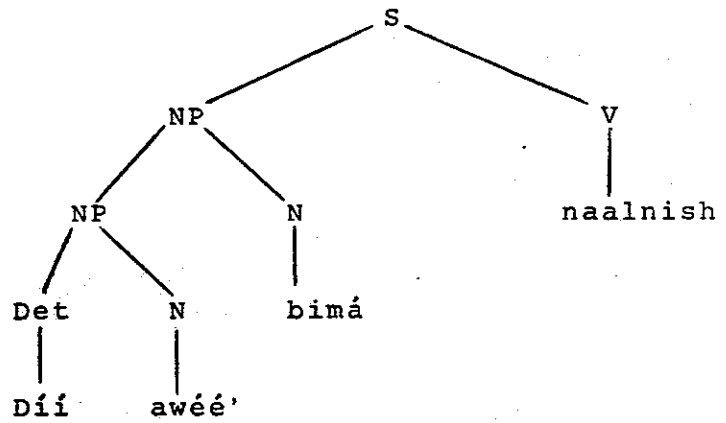
Díí awéé'bimá naalnish 'This baby's mother is working.'

We begin by hypothesizing that the above sentences consist of a subject and a verb. The above sentences can be associated with the following structures.



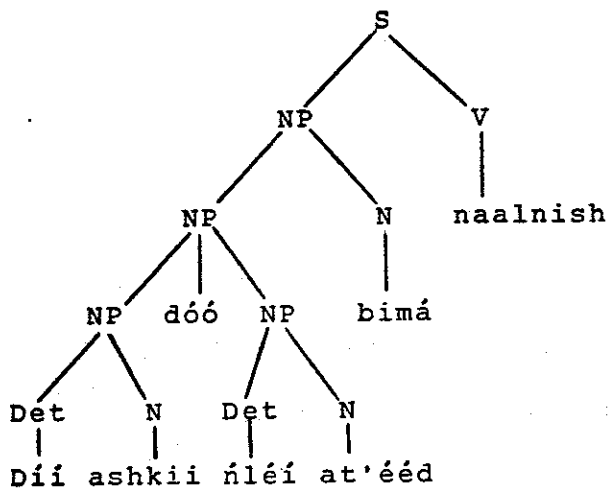


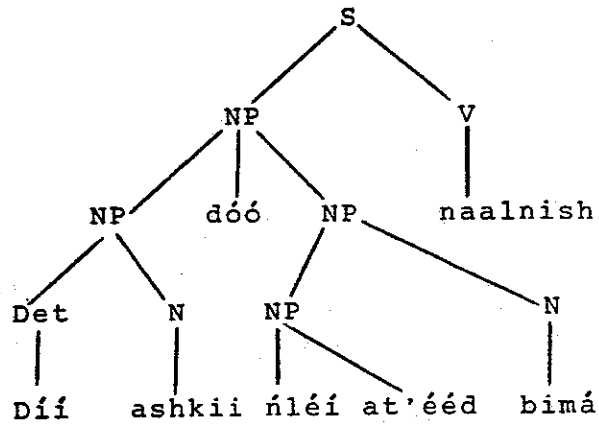




Even more complex trees are possible. The following string is ambiguous. The ambiguity is made explicit by the fact that it represents two different phrase markers.

Díí ashkii dóó ńléí at'ééd bimá naalnish.

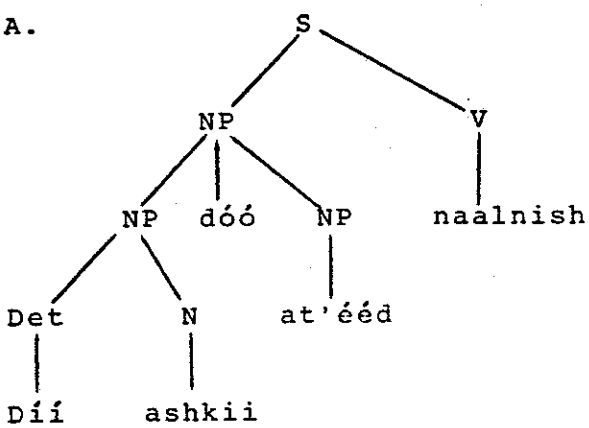




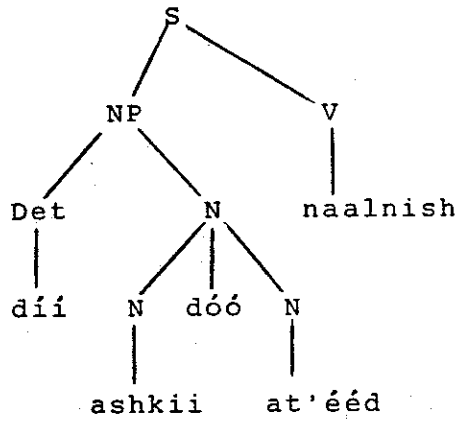
Two NP structures are theoretically possible for the next sentence.

Díí ashkii dóó at'ééd naalnish. 'This boy and girl are working.'

A.



B.



Ellavina's interpretation favors structure A. Thus one concludes that one can conjoin noun phrases in Navajo, but not nouns.

To generate the previous structures the following phrase structure rules are required. These generate phrase markers (or trees).

Phrase Structure Rules

S → NP V

NP → NP (dóó NP)^{n}

NP → NP N

NP → Det N

NP → N

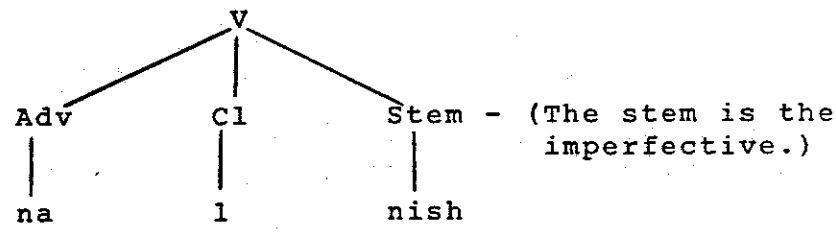
The second rule is needed because an indefinite number of conjoined NP can occur in Navajo sentences.

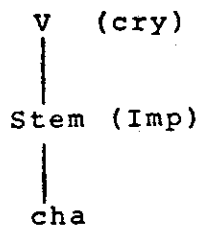
Díí ashkii dóó níléí at'ééd dóó nagháí hastiin . . .

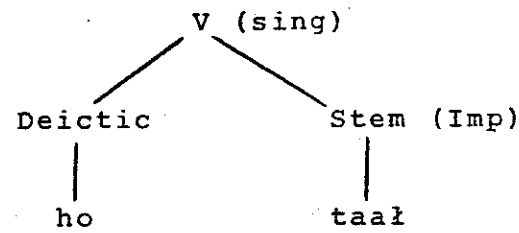
2. Properties of the Lexicon.

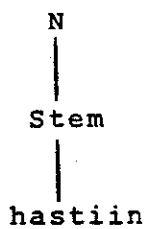
In addition to rules which create structures, we also require a lexicon (list of the words).

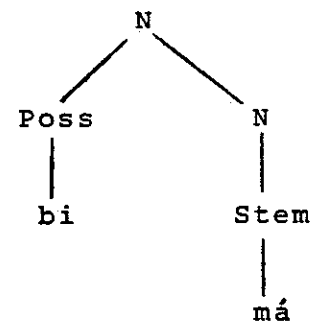
The following words indicate the type of information contained in lexical items.











To fill in phrase markers use the following lexical rule.

Lexical Rule

Replace the terminal symbols in phrase markers by corresponding lexical items.

An important question is whether yi is part of the lexical representation, or could possibly be inserted in certain transitive sentences.

Ashkii dibé neiniłkaad 'The boy is herding sheep.'

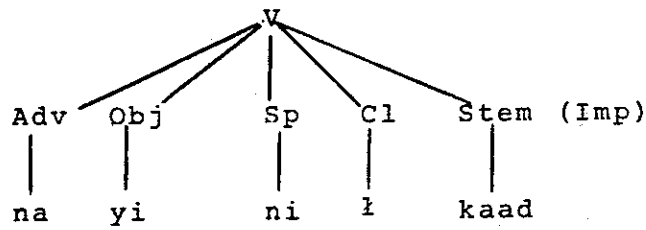
Níléí hastiin díí ashkii bilį́į́ yizloh 'That man roped this boy's horse.'

Díí ashkii níléí at'ééd yizts'ǫs 'This boy kissed that girl.'

Níléí asdzání biyáázh díí hastiin bitsi' yizts'ǫs
'That woman's son kissed this man's daughter.'

Ashkii dóó at'ééd dibé dóó tł'ízí neiniłkaad
'The boys and the girls are herding sheep and goats.'

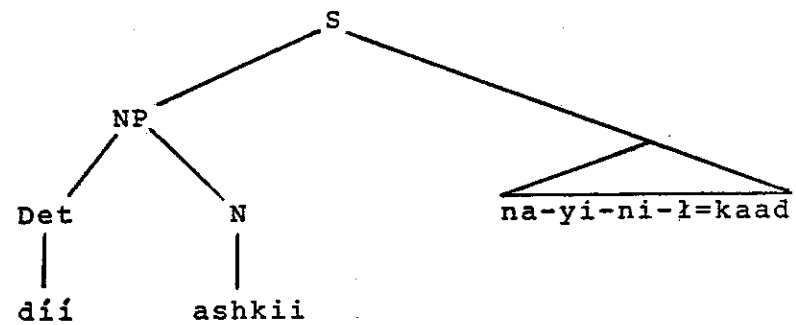
If the -yi- is part of the lexical representation, then the following lexical structure will be necessary for 'to herd'.



Our next problem is to block the following sentence.

*Ashkii at'ééd naalnish 'The boy is working the girl.'

(but, Ashkii at'ééd yinaalnish 'The boy is working on the girl.'



In order to insert lexical items properly, the local environment of the phrase another must be considered. This is done by the strict subcategorization of lexical items.

A transitive verb will require that at least 2 NPs appear to the left. This is written as follows: NP NP ——

Nouns may be marked as NP ——— or (Det)———.

3. The Postpositional Phrase.

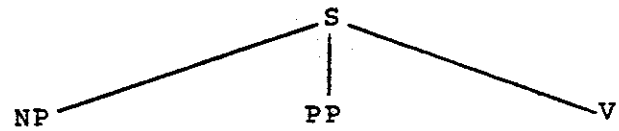
Ashkii hastiin yá naalnish. 'The boy is working for the man.'

Hastiin asdzání yich'į' yáłti 'The man is talking to the woman.'

Ashkii hastiin yił naalnish 'The boy is working with the man.'

Ashkii hastiin yíighah yigááł 'The boy is walking beside the man.'

Ashkii hastl'ish yiih yitlizh 'The boy fell into the mud.'

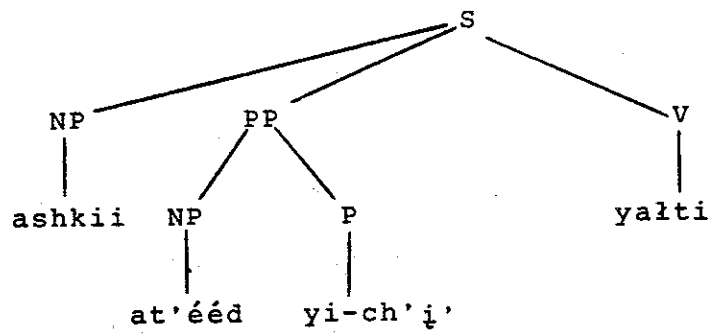


This requires a new set of P.S. rules.

PP → NP - P

P → Obj - Stem

An important property of the postpositional phrase is that it reflects the same yi-/bi- alternation found in transitive verbs. A natural hypothesis is that the yi-/bi- alternation arises from the SOI rule.



=> at'ééd ashkii bich'į' yałti'

If it can be shown that PP is a separate constituent and not part of the verb, then this will support the existence of the SOI rule. An alternative analysis would require that the postpositions have both yi and bi prefixed in the lexicon, and the proper insertion of the yi- or bi- form would require knowledge of the 'logical subject'. A preferred analysis would be one in which a bi- replaces a yi- whenever the subject and object shifts. This single process avoids the duplication of information in both the verb and postposition.

Navajo - Lecture 8
October 14, 1976
Kenneth Hale/Ellavina Perkins

52

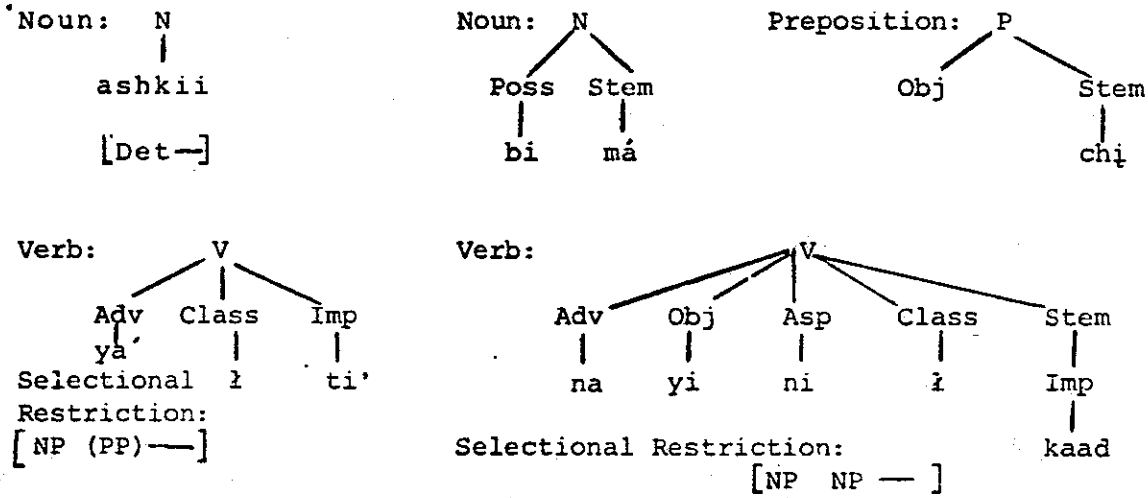
1. Review of last time.

A. Phrase Structure Rules

S → NP (NP) (PP) V
PP → NP P
NP → NP (dóó NP)^{n}
NP → $\left\{ \begin{matrix} \text{NP} \\ \text{Det} \end{matrix} \right\}$ N

B. Lexicon

Examples of lexical entries.



2. Da-Plural Agreement.

Consider the following sentences:

Ashkii naalnish 'The boy is working.'

Ashiiké naalnish 'The boys (DU) are working.'

Ashiiké ndaalnish 'The boys (PL) are working.'

Ashkii dóó at'ééd naalnish 'The boy and the girl are working.'

*Ashkii dóó at'ééd ndaalnish 'The boy and the girl are working.'

Ashiiké dóó at'éékéé ndaalnish 'The boys and the girls are working.'

*Ashiiké dóó at'éékéé naalnish 'The boys and the girls are working.'

Ashkii dóó at'éékéé ndaalnish 'The boy and the girls are working.'

At'éékéé dóó ashkii ndaalnish 'The boy and the girls are working.'

*Ashkii dóó at'ééké naalnish 'The boy and the girls are working.'

Ashkii dibé neiniłkaad 'The boy is herding the sheep.'

Ashkii dibé dóó tł'ízí neiniłkaad 'The boy is herding the sheep and the goats.'

Ashkii at'ééké yoo'į 'The boy sees the girl.'

*Ashkii at'ééké dayoo'į 'The boys sees the girl.'

Ashiiké dibé { ndeiniłkaad } 'The boys (PL) are herding sheep.'
{ neiniłkaad } 'The boys (DU) are herding sheep.'

Ashiiké dóó at'ééké dibé ndeiniłkaad 'The boy and the girl are herding sheep.'

*Ashiiké dóó at'ééké dibé neiniłkaad 'The boy and the girl are herding sheep.'

Ashkii hastiin yá naalnish 'The boy is working for the man.'

Ashiiké hastiin yá { ndaalnish } 'The boys(PL) are working for the man.'
{ naalnish } 'The boys(DU) are working for the man.'

Ashkii hastiin yá naalnish 'The boy is working for the man.'

*Ashkii hastóí ya ndaalnish 'The boy is working for the man.'

Ashkii bilah naalnish 'The boy's sister is working.'

Ashkii bilahkéí naalnish 'The boy's sisters (DU) are working.'

Ashkii bilahkéí ndaalnish 'The boy's sisters (PL) are working.'

Ashiiké bilah naalnish 'The boys' sister is working.'

*Ashiiké bilah ndaalnish 'The boys' sister is working.'

The above sentences lead us to posit the following verb agreement rule.

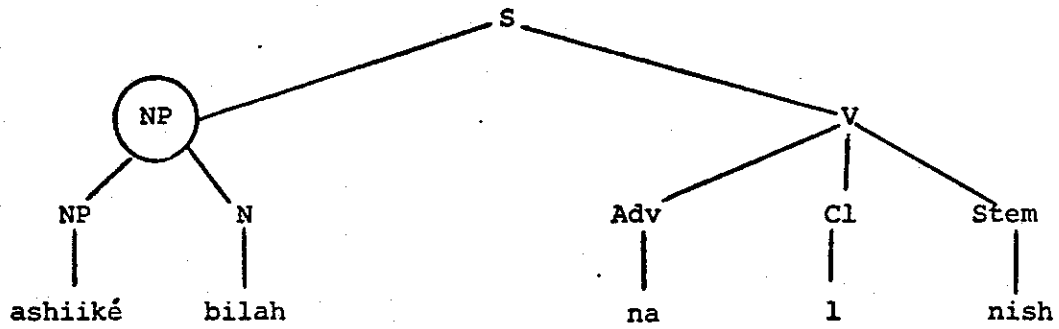
Plural Agreement Rule: If the first noun phrase is plural (more than 2), then the verb will have da in it. If the verb has da-, then the first noun phrase is plural.

The plural agreement rule is immediately violated by the following sentence.

*Ashiiké bilah ndaalnish

This we cannot say that the first NP determines plurality.

We will now refer to the 'first and highest NP' instead of just the 'first NP'. This will be a general principle. In analyzing a string, always take the highest node of a particular category. Thus, in the structure below, the circled NP will be the domain of the rule and not the NP underneath it.



To account for the S: *ashiiké bilah ndaalnish we will require the additional principle that the head noun determines the number of the highest NP. Thus, the number of the circled NP is determined by bilah.

A more formal statement of da-plural agreement is

$$\underbrace{\overbrace{[+PL]\ X\ (It)}^{NP}}_{1}\ \underbrace{(Obj)\ Y\ Stem}_{2}\ \Rightarrow\ 1,\ da,\ 2$$

The 'highest NP principle' (also called the A-over-A principle) ensures that a sequence such as ashkii dóó at'ééké will always occur with a plural form of the verb.

The next set of forms shows that we will require additional assumptions to account for da-plural agreement.

Ashiiké at'ééd dayoo'ı́	'The boys see the girl.'
At'ééd ashiiké daboo'ı́	'The boys see the girl.' (The girl is seen by the boys.)
Ashkii at'ééké yoo'ı́	'The boy see the girls.'
*Ashkii at'ééké dayoo'ı́	'The boy sees the girls.'
At'ééké ashkii boo'ı́	'The girls are seen by the boy.'
*At'ééké ashkii daboo'ı́	'The girls are seen by the boy.'

The current form of da-plural agreement can be 'salvaged' if SOI were to precede da-plural agreement.

The next set of sentences show yet another violation of da-plural agreement.

*Ashkii hastóí yá ndaalnish 'The boy is working for the men.'

*Ashkii hastóí yich'į' yádaalti' 'The boy is speaking to the men.'

*Ashkii hastóí yiláahgo ndaalnsih 'The boy is working more than the men.'

*Ashkii hastóí yikéédęęę ndaalnish 'The boy is working behind the men.'

*Ashkii hastóí yiląąji' ndaalnish 'The boy is working in front of the men.'

Ashkii hastóí yił ndaalnish 'The boy is working with the men.'

The final sentence here violates our principle, since the second NP helps to determine da-plural agreement in the verb.

Plural agreement has another wrinkle in Navajo. A number of verbs have suppletive forms for the singular, dual and plural number. (No da- need occur in the plural in such cases.)

Ashkii yigáát 'The boy is walking along.'

Ashiiké yi'ash 'The boys (DU) are walking along.'

Ashiiké yikah 'The boys (PL) are walking along.'

At'éédnidaah 'The girl is seating herself.'

At'éédsidá 'The girl is seated.'

At'ééké nikeeh 'The girls (DU) are sitting down.'

At'ééké siké 'The girls (DU) are in a sitting position.'

At'ééké nibɬɬh 'The girls (PL) are sitting down.'

At'ééké naháaztą 'The girls (PL) are in a sitting position.'

(Awéé' naaghá 'The baby is walking.'

Ashkii awéé' nayiiłá 'The boy is walking the baby.')

*Ashiiké yigáát 'The boys (are) walking along.'

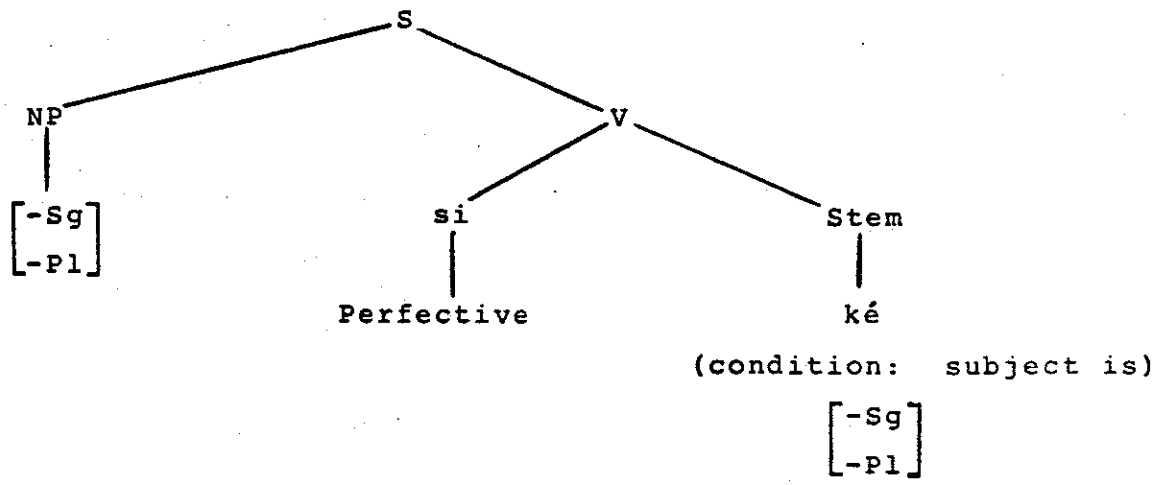
*Ashiiké nidaah 'The boys are seating themselves.'

*Ashkii yi'ash	'The boy (are) walking along.'
*Ashkii yikah	'The boy (are) walking along.'
*Ashkii nibɨɨh	'The boy are sitting down.'

The suppletive stem selection is a general feature of Navajo. Different stems may occur with different spatial configurations of the subject.

Ashkii sidá	'The boy is sitting.'
Ashkii sitɨ	'The boy is lying.'
Ashkii si'zɨ́	'The boy is standing.'
Tł'óół silá	'The rope is 'situated'.'
Beeldléí si'ą́	'The blanket is in position.'
Beeldléí sikaad	'The blanket is lying spread out.'
Beeldléí shijool	'The blanket is heaped.'
Beeldléí siłtsooz	'The blanket is lying flat.'
Beeldléí sighɨ́	'The blanket is bundled.'

The verb number suppletion is handled by stem selection in the base. The verb will be inserted in the tree if its number features match those of the subject.



Ashkii at'ééd yíighah yigááł 'The boy is walking beside the girl.'

*_____ yi'ash

Ashkii at'ééd yiląąjį'yigááł 'The boy is walking in front of the girl.'

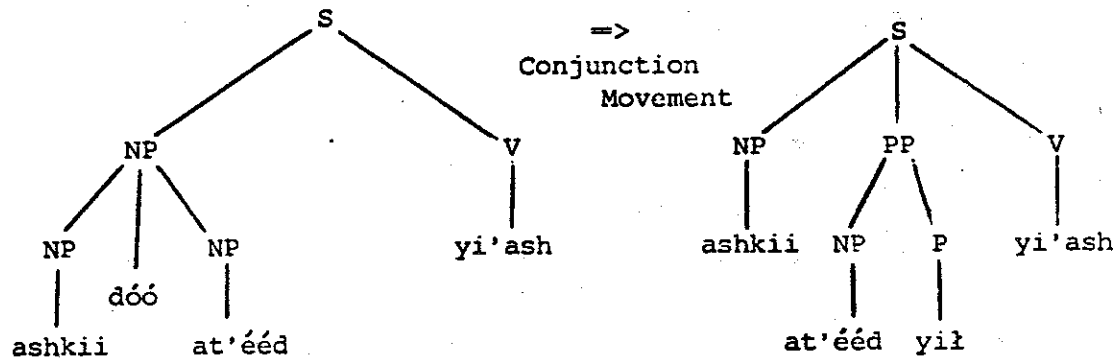
*_____ yi'ash

Ashkii at'ééd yił yi'ash 'The boy is walking with the girl.'

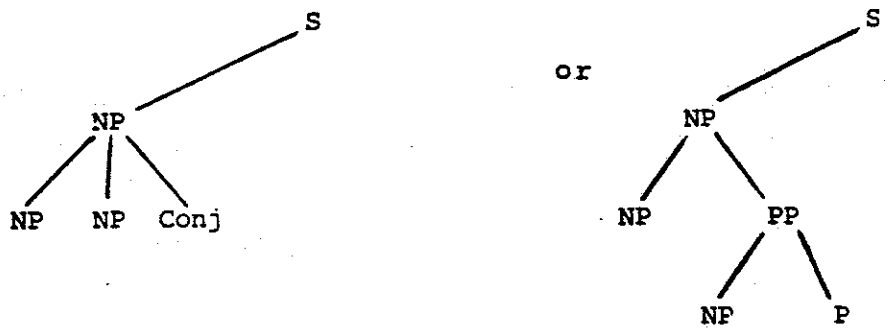
Ashkii at'ééd yił yigááł 'The boy is walking with girl.' (the girl is not walking)

There are three types of theories which can be proposed to account for the interpretation of the last two sentences.

(1) The sentences with the dual stem may have a more abstract source. Namely the comitative PP's come from conjoined expressions.



(2) Comitative phrases are compounds of a type. NP → NP NP yił



(3) Stem selection and da-plural are governed by strictly semantic considerations. What matters is how may entities participate in the action of the verb.

The da-plural can show a distributive object or subject.

Ashkii hastóí yiláahgo ndaalnish 'The boy is working more than the men.'

Ashkii hastóí yił ndaalnish 'The boy is working with the men.'

Besides number agreement there is person agreement.

Shí naashnish

Shí dibé nanishkaad

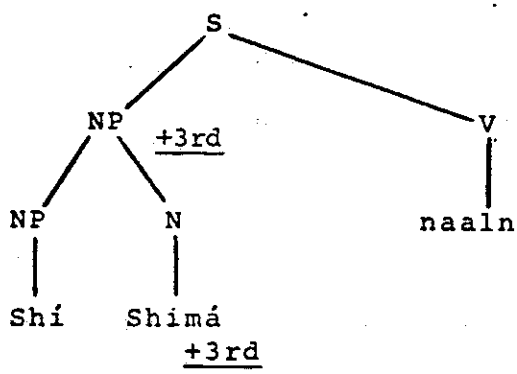
Shí hastiin bich'į'yáshti'

*Shí nanilnish

Shí dóó ashkii neiilnish

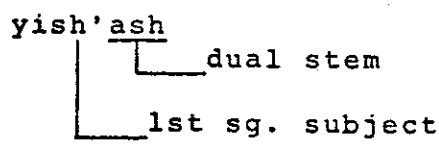
Subject Person Agreement Rule

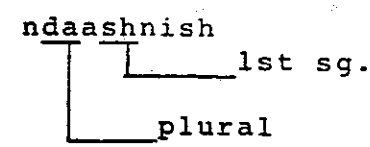
$$\begin{bmatrix}\text{NP}\\ \text{x-person}\\ \text{y-number}\end{bmatrix}_1 \quad \underline{\text{X}} \; - \; \underline{\text{(Cl) Stem}}_{2} \quad \Rightarrow \quad 1, \begin{bmatrix}\text{x-person}\\ \text{y-number}\end{bmatrix}, 2$$



(It can't be naashnish. Thus, the person features of the head are copied onto the highest NP.)

Our present theory predicts that verbs will be 'bad' is there is a conflict between the person or the subject and the person of the stem.





*Shí ndaashnish

*Shí yish'ash

*Shí yishkah

*Shí séké

*Shi nishkeeh

*Shí nishbį́į́h

But such verb forms occur.

(Shí) ashkii bił yish'ash 'I am walking along with the boy.'

(Shí) ashiiké bił yishkah 'I am walking along with the boys.'

(Shí) at'ééd bił séké 'I am sitting with the girls.'

Shí hastóí bił ndaashnish

The last set of sentences show that theory two cannot be correct. If the features of the highest NP were an amalgation of the feature of the lower constituents there would be no way to select both the proper subject maker and the correct verb stem.

Navajo - Lecture 9
October 21, 1976
Ken Hale/Ellavina Perkins

60

1. Conclusion of Discussion of Agreement Rules in Navajo.

Conditions on well-formedness of structures. If a S does not conform to the following rules (i.e. (a-e) below), assign a star to it.

(a) Da-plural agreement. If and only if V contains the prefix da, it appears in a structure of the form

$$\underset{[+pl]}{NP} \quad X \quad V$$

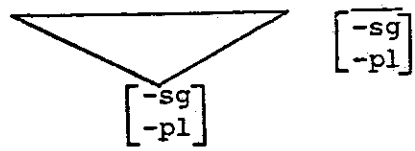
(Exception: unless V is intransitive and its stem is marked [+pl].)

(b) Intransitive Stem Selection. If the stem of an intransitive verb is marked $\begin{bmatrix}\alpha sg\\ \beta pl\end{bmatrix}$, then V appears in a structure of the form $\underset{\begin{bmatrix}\alpha sg\\ \beta pl\end{bmatrix}}{NP} \quad X \quad V$

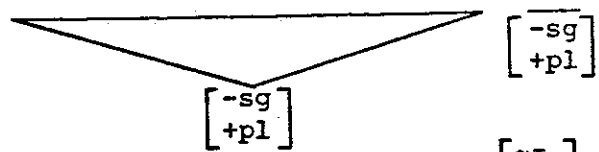
Examples:

Singular: Ashkii $\begin{bmatrix}+sg\\ -pl\end{bmatrix}$ yigáá́ł $\begin{bmatrix}+sg\\ -pl\end{bmatrix}$

Dual: Ashkii dóó at'ééd yi'ash



Plural: Ashkii dóó at'ééd dóó hastiin yikah

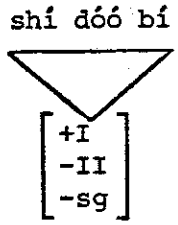


(c) Subject Person Agreement. If V contains an $\begin{bmatrix}\alpha I\\ \beta II\\ \gamma sg\end{bmatrix}$ subject person marker, then V appears in a structure of the form $\underset{\begin{bmatrix}\alpha I\\ \beta II\\ \gamma sg\end{bmatrix}}{NP} \quad X \quad V$

I = first person
II = second person
sg = singular

/sh-/ = [+I, -II, +sg]
/ni-/ = [-I, -II, +sg]
/iid-/ = [+I, -II, -sg]
/oh-/ = [-I, +II, -sg]

These features are assigned to noun phrases as well, of course:



(Note: +I in any conjunct dominates.)

Example: Shí dóó díí ashkii...diit'ash.
'I and this boy...are walking.'

(d) Transitive Stem Selection (depends on object). If the stem of a transitive verb is marked $\begin{bmatrix}\alpha sg\\ \beta pl\end{bmatrix}$, then V appears in a structure of the form:

NP	NP	X	V
	$\begin{bmatrix}\alpha sg\\ \beta pl\end{bmatrix}$		

Examples:

Hastóí / Hastiin } ashkii [+sg] neiłté. [+sg]

'The men are / 'The man is } carrying the boy around.'

Hastiin ashkii yisdá yíílóóz.
[+sg] [+sg]

'The man carried the boy to safety.'

Hastiin ashiiké neijaah.
[-sg] [-sg]

'The man is carrying the boys around.'

Hastiin ashiiké yísdáyíí'eezh.
[-sg] [-sg] (ashiiké can be either dual or plural)

'The man carried the boys to safety.'

Certain transitive stems (which derive from intransitive stems) do reflect a dual:

Singular form: Shí awéé' nabiishłá.
[+sg]

'I am walking the baby around.'

(cf. awéé' naaghá 'The baby is walking around.')

[+sg]

na	bi	(i)sh	ł	á
adv	object marker	1st	cl	stem(sg)

Dual form: Shí awéé' nabiish'aash

[-sg, -pl]

'I am walking two babies around.'

(e) Object Person Agreement. If V contains a [αI, βII, γsg] object person marker, then V appears in a structure of the form:

NP NP X V

[αI, βII, γsg]

Example: Níléí hastiin shí dóó sitsilí yisdánihidoo'ish.

[+I, -II, -sg]

'That man will lead me and my brother to safety.'

General condition on the application of rules: When a rule mentions a particular phrasal category, it must apply to the maximal analysis of such a category. (Chomsky's A-over-A.)

2. Refining Navajo Agreement Rules. The following sentences will force us to revise da-plural agreement (DPA). Given the above rules certain predictions on grammaticality are made. These predictions are matched with the actual judgments.

(a) DPA and SOI

		Da-Plural Agreement	
		Predicted	Actual
1.	ashiiké at'ééd dayoo'ı́ [+pl] [+sg] see	OK	OK
2.	at'eed ashiiké daboo'ı́ [+sg] [+pl]	*	OK

DPA and SOI	Da-Plural Agreement	
	Predicted	Actual
3. ashkii at'ééké yoo'ɨ́ [+sg] [+pl]	OK	OK
4. at'ééké ashkii boo'ɨ́	*	OK
5. ashkii at'ééké dayoo'ɨ́	*	*
6. at'ééké ashkii daboo'ɨ́	OK	*

The incorrect prediction of DPA results from ordering SOI then DPA' but if order is DPA then SOI, the correct stars are assigned. Further, if the DPA rule is a condition on lexical insertion then we would automatically get the right ordering, i.e. SOI would automatically follow DPA, assuming that it is a transformational rule.

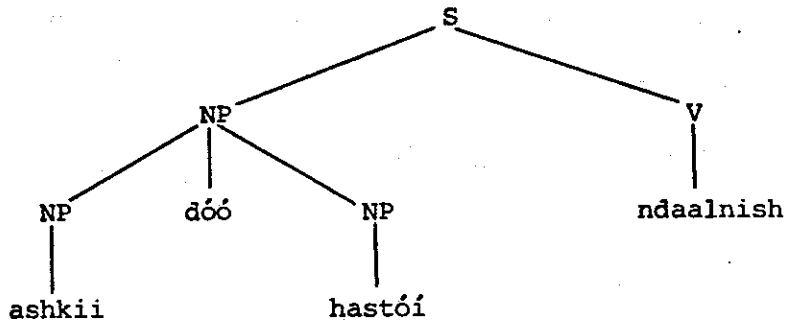
(b) Transitive Stem Selection and SOI	Predicted		Actual
	SOI TSS	TSS SOI	
1. Hastiin ashkii neiłté [+sg] [+sg]	OK	OK	OK
2. Hastiin ashiiké neijaah [-sg] [-sg]	OK	OK	OK
3. Ashkii hastiin nabiłté [+sg] [+sg]	OK	OK	OK
4. Ashiiké hastiin nabijaah [+sg] [-sg]	*	OK	OK
5. Hastóí ashkii neiłté [+sg] [+sg]	OK	OK	OK
6. Ashkii hastóí nabiłté [-sg] [+sg]	*	OK	OK

If TSS ordered before SOI the correct grammaticality predictions are made. If TSS is a condition on lexical insertion, then SOI (if it is a transformation) would automatically follow TSS.

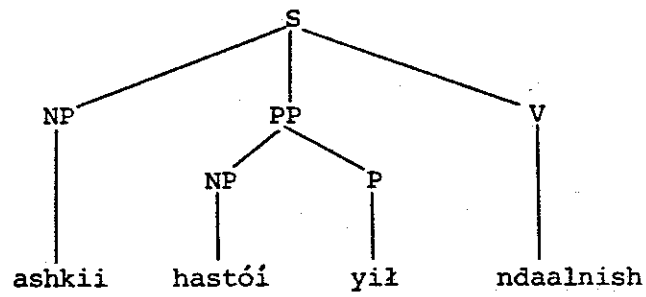
(c) DPA and Conjunct Movement	Predicted	Fact
1. Ashkii hastóí ya naalnish.	OK	OK
2. Ashkii hastóí yił ndaalnish	*	OK

DPA and Conjunct Movement	Predicted	Fact
3. Shi hastóí bá naashnish.	OK	OK
4. Shí hastóí bił ndaashnish.	*	OK
5. Shí ashkii bił yishááł.	OK	OK
6. Hastiin ashkii bił yi'ash	*	OK
7. Hastiin ashkii yił yigááł	OK	OK
8. Hastiin ashkii yił yi'ash	*	OK

The incorrectly starred sentences could be reanalyzed such that the deep structure (using (2) as an example) is:



and assuming that this structure undergoes a rule--call it Conjunct Movement (CM)--which derives the following surface structure:

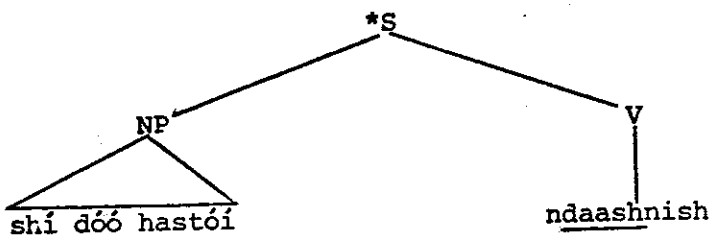


Da-Plural Agreement applies to the DS and then Conjunct Movement applies--i.e. the ordering is as follows:

Da-Plural Assignment

Conjunct Movement

But if (4) is reanalyzed in that fashion, there is a problem.



The appearance of the subject marker /sh-/ is bad, theoretically. The sentence is, however, correct in regard to the appearance of /da-/. The expected person agreement would be as follows:

Shí dóó hastóí ndeiilnish.
[+I -sg] [+I -sg]

Rule ordering can solve this problem. The ordering

Da-Plural Agreement
Conjunct Movement
Subject Person Agreement

will give the correct result. Thus, evidently, Subject Person Agreement differs from DPA in that /sh-/ agrees with shí and /da-/ agrees with /shí hastóí bił/ (< shí dóó hastóí).

We can now consider how Subject Person Agreement interacts with stem selection. Consider the sentence

Shí ashkii bił yish'ash
dual

'I am walking with the boy.'

This sentence will be correctly generated with the following rule ordering:

ISS (Intransitive Stem Selection)

CM (Conjunct Movement)

SPA (Subject Person Agreement)

Can we get nonsingular subject marking with a singular stem?

Nihí na'nízhoozhígóó diit'ash 'We (2) are going to Gallup.'

Nihí na'nízhoozhígóó diikah 'We (pl) are going to Gallup.'

Nihí na'nízhoozhígóó *diidáá'ł 'We (sg) are going to Gallup.'

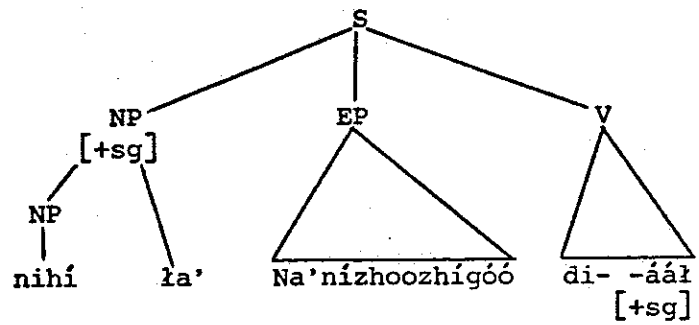
Evidently not. However, the verb form /diidááł/ can occur in grammatical sentences, for example:

Nihí ła' Na'nízhoozhígóó diidááł.
[-sg]

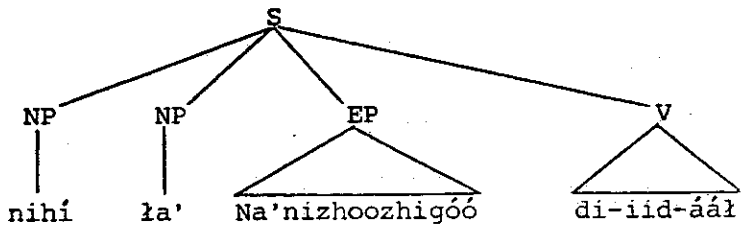
'One of us will go to Gallup.'

Our rules predict that this sentence is ungrammatical. We could save the rule by assuming a rule of Quantifier Floating (Q-Float), which derives (b) below from (a):

(a)



(b)



The deep structure (a) would allow the correct stem selection, and the derived structure following Q-Float (i.e. (b) above) would allow the correct subject agreement. We thus have the following rule ordering

Stem Selection

Q-Float

Subject Person Agreement.

The same facts can be constructed with transitive verb stem selection.

Hastiin nihí ła' yisdánihilóós.
object [-sg][+sg]

'The man is leading one of us to safety.'

We now have three blocks of ordered rules

A. { Da-Plural Agreement (DPA)
Intransitive Stem Selection (ISS)
Transitive Stem Selection (TSS) }

B. { Subject-Object Inversion (SOI)
Conjunct Movement (CM)
Quantifier Float (QF) }

C. { Subject Person Marking (SPM)
Object Person Marking (OPM) }

Summary

1. Person agreement behaves differently from number agreement. Number agreement is early, while person agreement is late.
2. It appears that number agreement is selectional, i.e. a condition on lexical insertion, while person agreement is a late transformational rule.

An alternative conception of these facts holds that the two types of rules consistently look at different things.

(a) Person Agreement is, in fact, structurally governed, while

(b) Number Agreement, on the other hand, is concerned with aspects of meaning.

Navajo - Lecture 10
28 October 1976
Kenneth Hale/Ellavina Perkins

Conclusion of Discussion of Agreement in Navajo:

In the previous lecture a theory was proposed to account for sentences such as the following:

(A) (Shí) hastiin bił yish'ash. 'I am walking with the man.'

(B) (Shí) hastóí bił ndaashnish. 'I am working with the men.'

The theory which accounted for these sentences used ordered transformational rules.

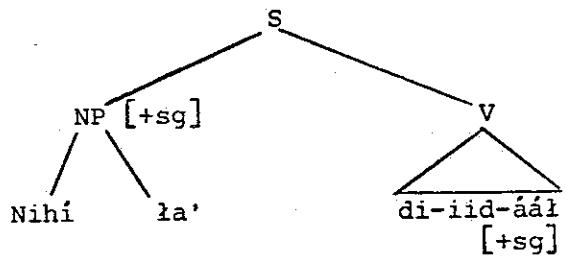
(A) DPA, ISS, TSS (Da-Plural Agreement, ...)

(B) QF, CM (Quantifier Float, ...)

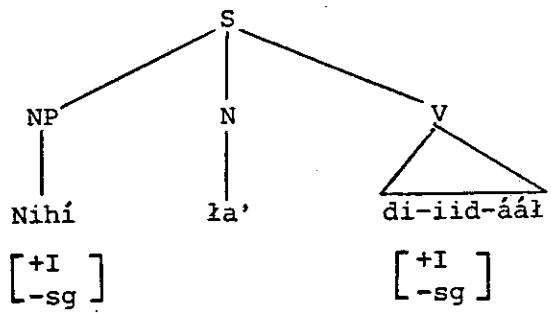
(C) SPA, OPA (Subject Person Agreement, ...)

1. Structural change associated with Quantifier Float. The source of the sentence /Nihí ła' diidááł/ is (a); the resulting structure is (b):

(a)

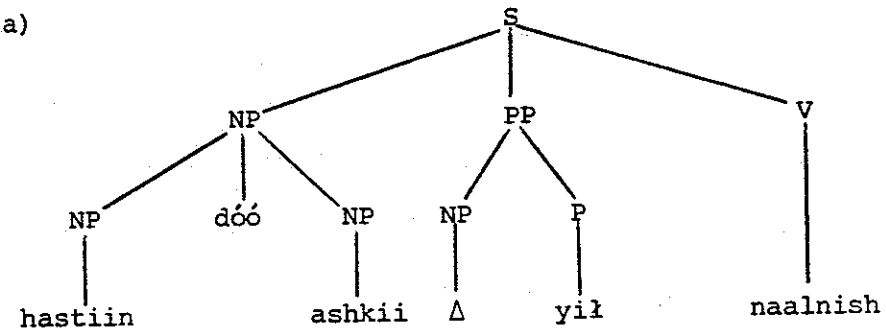


(b)

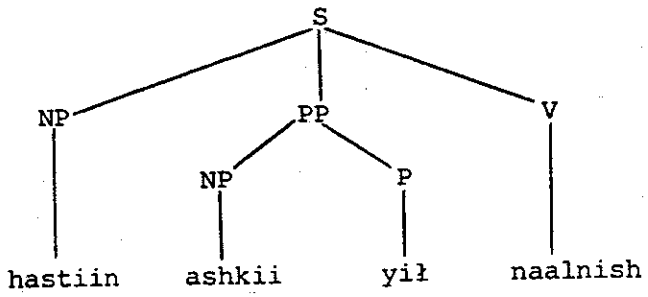


2. Structural change associated with conjunct movement. The source of sentence /Hastiin ashkii yił naalnish/ is (a), the resulting structure is (b):

(a)



(b)



Statement of Conjunct Movement Transformation.

NP	-	dóó	NP	-	Δ	-	yił	-	X →
1,		2,	3,		4,		5,		6
1,		ø,	ø,		3,		5,		6

The rules of CM and QF are motivated by the two separate agreement processes. The next set of sentences will be problematic for the above theory. We will eventually formulate agreement in terms of the logical form of sentences.

Ashkii tó dilchxoshí bił łikan	'The boy likes soda pop.'
(Shí) tó dilchxoshí shił łikan.	'Soda pop is sweet to me.'
Ashkii at'ééd bił nizhóní.	'The boy regards the girl as pretty.'
At'ééd (shí) shił nizhóní.	'The girls are pretty to me.'
*(Shí) ashkii bił nishzhóní.	'The boy likes me.' 'I am pretty to the boy.'
*Łinishkan.	'I am sweet.'
Yá'ánísht'ééh.	'I am good.'
Ashkii at'ééd bił nizhóní	'The boy likes the girl.' 'The girl is pretty to the boy.'

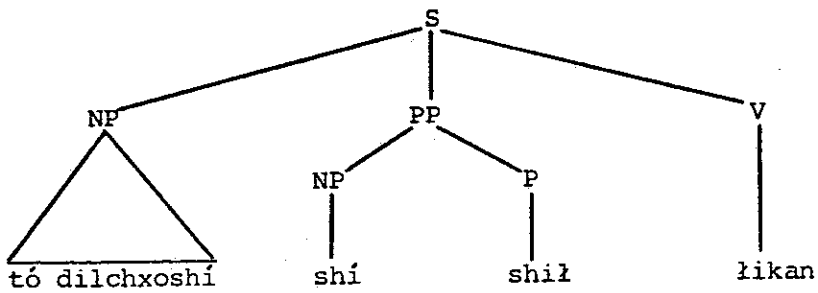
'Affection' verbs always occur with the 'bi-forms' of the postposition.

*At'ééd ashkii yił nizhóní. 'The boy likes the girl.'

The semantic object of affection verbs must be third person.

*Ashkii bił yá'ánísht'ééh. 'That boy likes me.'

However, the semantic object is evidently the subject, in structural terms. The structure of /tó dilchxoshí (shí) shił łikan/ is, presumably:



Consider now the plural forms:

A. Ashiiké tó dilchxoshí bił daalkan. 'The boys like soda pop.'

Tó dilchxoshí nihił daalkan. 'We like soda pop.'

Ashiiké at'ééd bił danizhóní. 'The boys like the girl.'

B. Sentences with 'locative subjects' have ho-agreement in the verb.

Tucson-di yá'áhoot'ééh. 'It is good in Tucson.'

Tucson-di hózhóní. 'It is pretty in Tucson.'

(Shí) Tucson-di shił yá'áhoot'ééh. 'I like it in Tucson.'

(Nihí) Tucson-di nihił yá'ádahoot'ééh. 'We like it in Tucson.'

The verb agrees with locative subject, but also has da-agreement with the object of the postposition.

Nił yá'áhoot'ééh. 'You like it (place).'

Is /nił/ part of the verb? The placement of the interrogative enclitic /-ísh/ indicates that /nił/ is a separate constituent:

Nił ish yá'áhoot'ééh. 'Do you like it (place)?'

The agreement with da in the following sentence is problematic--at least it is so, if /ashiiké/ is the grammatical object of the postposition:

Ashiiké tó dilchxoshí bił daalkan. 'The boys like soda pop.'

For the (A.) sentences above, how is agreement taking place? Agreement with subject, object, or both (coordinated)? Note that with a dual noun in first position da doesn't occur.

*Ashkii dóó at'éédad tó dilchxoshí bił daalkan.

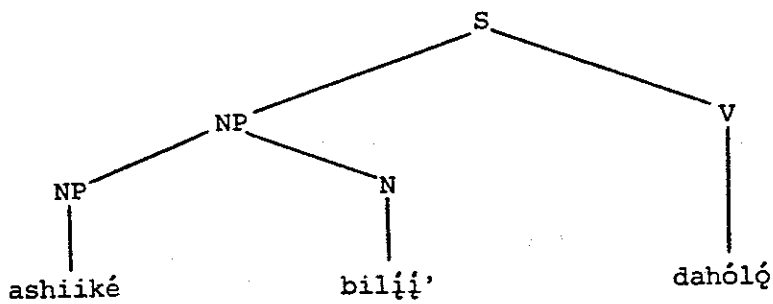
'The boy and the girl like soda pop.'

Thus one cannot sum up the dual subject plus the object and get a plural. These sentences thus cast doubt on the current (structural) formulation of DPA.

The following problematic sentences also exist:

Ashkii biłį́į́' hóló. boy his-horse exists	'The boy has a horse.'
(Shí) shiłį́į́' hóló.	'I have a horse.'
Honishłó.	'I exist.'
Honíló.	'You exist.'
Ashiiké biłį́į́' dahóló.	'The boys have a horse.'

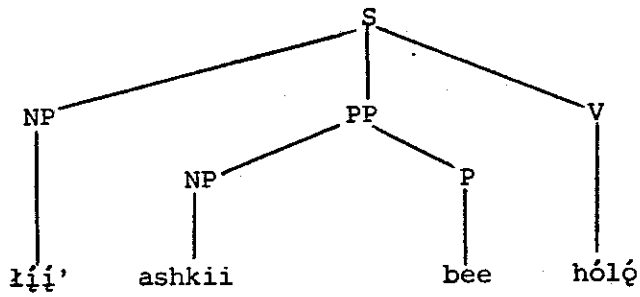
The last sentence apparently has the following structure:



One would expect that /biłį́į́'/ would determine the plurality of the subject; but here, evidently, the possessor /ashiiké/ is responsible for the appearance of /da-/.

Ashkii łį́į́' bee hóló. 'The boy has horse(s).'

The underlying phrase marker for this sentence is presumably the following:



SOI
⟹ Ashkii łį́į́' bee hóló.

(with)

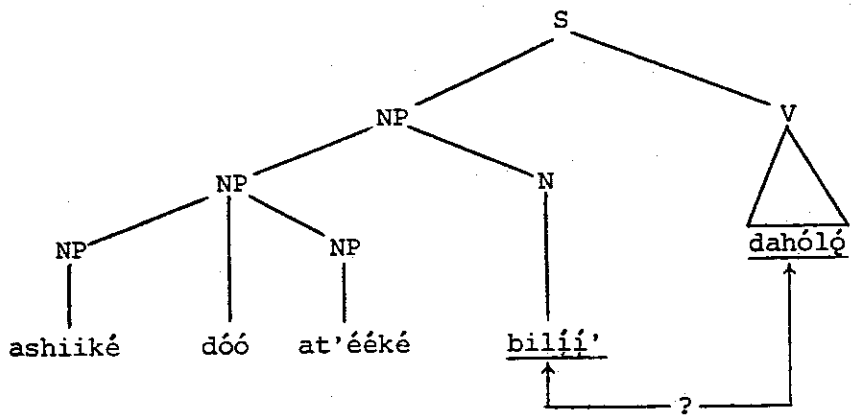
from which SOI derives /ashkii łį́į́' bee hóló/. The following sentence, however, is ungrammatical: *Shiłį́į́ dahóló. 'I have horses.' The noun /łį́į́'/, which could have a plural meaning, should be able to take /da-/ in the verb, but it does not here. Similarly, the sentence

Łį́į́' shee hóló.

is ambiguous, according to the number of horses possessed. Now consider the following sentence

Ashiiké dóó at'ééké biłį́į́' dahóló. 'The boys and girls have (one) horse.'

Although the head is potentially singular, the verb must show da-plural agreement.



The following sentences also show this discrepancy with da-plural agreement.

T'áá'áníit'é nihiłį́į́' dahóló. 'All of us have horses.'

'Each of us has a horse.'

T'áá' áníit'é nihiłį́į' t'ááłá'í dahółǫ́. 'Each one of us has one horse.'

This sentence is bad without /da-/.

How do we get plural agreement on sentences such as the follow?

Ashiiké dóó at'ééké biłį́į' dahółǫ́.

Maybe /biłį́į'/ is an object, and not 'a head'. But /hółǫ́/ is not transitive, so that is unlikely. Consider also:

Ashiiké łį́į' bee dahółǫ́.

Łį́į' nihee dahółǫ́.

Ashkii łį́į' bee hółǫ́.

Łį́į' shee hółǫ́.

To account for the problems of DPA, a new theory will be proposed--roughly:

> Assume that all verb forms are generated in the base. If V contains /da-/, then its subject in logical form must be capable of referring to a plurality.
>
> New Version of Stem Selection:
> If V is intransitive (bzw. transitive) and contains an $\begin{bmatrix}\alpha sg\\ \beta pl\end{bmatrix}$ stem, then the subject (bzw. object) in logical form must be capable of referring to a cardinality of $\begin{bmatrix}\alpha sg\\ \beta pl\end{bmatrix}$.

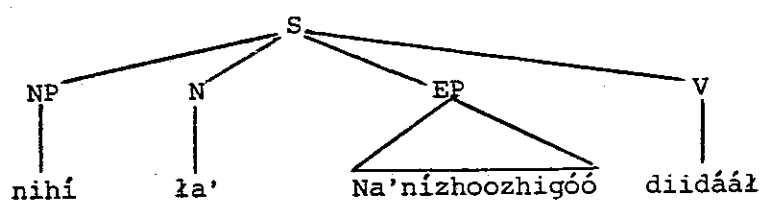
Example of formalism expressing logical form:

Ashkii naalnish: (ashkii, λx (x naalnish))

Ashkii at'ééd yizts'ǫs: (ashkii, λx (at'ééd, λy (x, y, yizts'ǫs)))

The logical form of /at'ééd bi'dizts'ǫs/ is the same as contained in the inner parentheses of the above expression, i.e. (at'ééd, λy (x, y, yizts'ǫs)) where x is not bound.

Nihí ła' Na'nízhoozhigóó diidááł. 'One of us is going to Gallup.'



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Stem selection will be determined by the subject in logical form (ła')

ła', λx (x Na'nízhoozhigóó.....áá́ł) dóó ła', x (x nihitah nilį́)

ła', λx (x Na'nízhoozhigóó doogáá́ł dóó x nihitah nilį́)

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Navajo Problem I

Consider the following sentences.

(1) (a) (shí) ashkii nanishtin 'I am instructing the boy.'

(b) Ashkii (shí) nashinitin 'The boy is instructing me.'

(c) Shí dóó ashkii na'ahiniitin 'I and the boy are instructing each other.'

(2) (a) (Shí) ashkii yiiltsą 'I saw the boy.'

(b) Ashkii (shí) shiiłtsą 'The boy saw me.'

(c) Shí dóó ashkii ahiiltsą 'The boy and I saw each other.'

(3) (a) (Shí) ashkii bééhosésį̨į̨d 'I got to know the boy.'

(b) Ashkii (shí) shéédhoossį̨į̨d 'The boy got to know me.'

(c) Shí dóó ashkii ahéédhosiilzį̨į̨d 'I and the boy got to know each other.'

In the (c) sentences of (1-3), the reciprocal prefix (/ahi-/ appears in object position. This prefix can appear in a transitive verb provided that the subject is nonsingular. Now consider the following.

(4) (a) *Shí na'ahinishtin '*I am instructing each other.'

(b) *(Shí) ahiistsą '*I saw each other.'

(c) *(Shí) ahéédhosiszį̨į̨d '*I got to know each other.'

The verb forms in (4) a-c are internally inconsistent. The presence of the reciprocal prefix implies that the subject is nonsingular, but the subject prefix is 1st person singular. Now consider the following grammatical sentences, in which precisely these same internally inconsistent forms appear.

(5) (a) (Shí) ashkii bił na'ahinistin '*I am instructing each other with the boy.'

(b) (Shí) ashkii bił ahiistsą '*I saw each other with the boy.'

(c) Shí ashkii bił ahéédhosiszį̨į̨d '*I got to know each other with the boy.'

Devise a theory of reciprocals which explains the ill-formedness of (4) a-c and the well-formedness of (5) a-c. NOTE: /ahi-/ with ł classifier verb, ł → l, /ahi-/ with ø classifier verb, ø → d

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November 4, 1976
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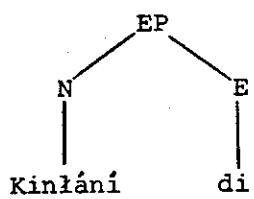
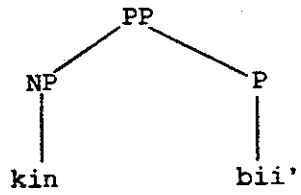
1. Enclitics.

S → NP (NP) ($\left\{\begin{matrix}PP\\EP\end{matrix}\right\}$)

PP → NP P

EP → N E





Differences between postpositional phrases and enclitic phrases.

(A) Postpositions take NP, enclitics take N

(B) Postpositions take object prefixes

(C) Object of Postpositions can be ripped out (moved by transformations)

(D) Enclitic phrases refer to places.

Examples:

Shizhé'é Kinłánídi naalnish.	'My father works in Flagstaff.'
*Shizhé'é Kinłánígóó naalnish.	'My father is working in the direction of Flagstaff.'
Shizhé'é Kinłánígóó deeyá.	'My father is going to Flagstaff.'
Shizhé'é shínaaí naalnishígóó deeyá.	'My father is going to where my brother works.'

2. Sentence Negation. (doo...da)

Shizhé'é <u>doo</u> yałti' <u>da</u>.	'My father is not speaking.'

The favorite place for <u>doo</u> is second position.

Shizhé'é doo ɬį́į́' yizloh da.	'My father didn't rope the horse.'
Ashkii doo at'ééd yizts'ǫs da.	'The boy didn't kiss the girl.'
At'ééd doo ashkii bizts'ǫs da.	'The girl wasn't kissed by the boy.'
Shizhé'é bichidí yíchxǫ'.	'My father's car broke down.'

Shizhé'é bichidí doo yíchxǫ' da. 'My father's car didn't break down.'

Doo shizhé'é yáłti' da. 'It's not my father who's speaking.'

(Shí) doo chidí nahideeshnih da. 'I'm not going to buy the car.'

The position of /doo/ can be a focusing device. The 'negative' element /hanii/ can have the same function.

At'ééd bich'į' yáshti'.

Doo at'ééd bich'į' yáshti' da.

At'ééd bich'į' doo yáshti' da.

The second element /da/ does not appear when the relative marker /-ígíí/ appears:

Łį́į doo naalgeedígíí shił ndooldlosh.

(Horse not buck-rel me-with around-future-walk)

'The horse that's not bucking will walk around with me.'

A possible hypothesis is that only the doo part appears in the base representation of Navajo sentences:

S → (doo) NP (NP) ... etc.

The da is then inserted by a transformation (da-insertion):

doo	-	X-V	→	doo	-	X V	+ da
1		2		1		2+da	

The surface position of doo is then effected by 'doo-movement':

doo	-	X	-	NP	-	Y	→
1		2		3		4	
ø		2		3	1	4	

3. Question Words and Indefinites in Navajo.

a. (Who) Hastiin yáłti'. 'The man is speaking.'

Háíshį́į yáłti'. 'Someone is speaking.'

Háíshą' yáłti'. 'Who is speaking?'

Háísh yáłti'. 'Who is speaking?'

Háílá yáłti'. 'Who is speaking?'

} These 3 are synonymous.

b. (What) Ha'át'íí-shįį shishxash. 'Something bit me.'

Ha'át'íísh shishxash. 'What bit me?'

Ha'át'íí-shą' shishxash. 'What bit me?'

Ha'át'íí-lá shishxash. 'What bit me?'

c. (Where) Háá-góó-sh díníyá. 'Where are you going?'

Háadish nanilnish. 'Where do you work?'

Háá-dęę́-sh naniná. 'Where did you come from?'

The interrogatives and indefinites can be introduced by phrase structure rules.

NP → {hái / ha'át'íí} {-sh / -shįį}

EP → háá + E {-sh / -shįį}

Shizhé'é háágóóshįį deeyá. 'My father is going somewhere.'
(háágóóshįį = háá-E-shįį)

4. Indefinite Negatives.

Háíshįį yáłti'. 'Someone is speaking.'

Dóó háída yáłti' da. 'No one is speaking.'

Dóó háída yádoołtih da. 'No one will speak.'

In forming these, apparently /da/ replaces /-shįį/:

Da-Suffixation:	Doo	- X Q	(E)-shįį	- Y
	1	2	3	4
	1	2	+da	4

Háíshįį yáłti'. 'Someone is talking.'

Doo háída yáłti' da. 'No one is talking.'

Háíshįį at'ééd yizts'ǫs. 'Someone kissed the girl.'

Doo háída at'ééd yizts'ǫs da. 'No one kissed the girl.'

Ashkii háíshįį yizts'ǫs. 'The boy kissed someone.'

Ashkii doo háída yizts'ǫs da. 'The boy didn't kiss anyone.'

At'ééd háíshįį́ bizts'ǫs. 'The girl was kissed by someone.'

At'ééd doo háída bizts'ǫs da. 'The girl was not kissed by anyone.'

Háíshįį́ ashkii bizts'ǫs. 'The boy kissed someone.'

Doo háída ashkii bizts'ǫs da. 'The boy kissed no one.'

Ashkii háíshįį́ yich'į' yáłti'. 'The boy is speaking to someone.'

Ashkii doo háída yich'į' yáłti' da. 'The boy is speaking to no one.'

Shizhé'é háágóóshįį́ deeyá. 'My father is going somewhere.'

Shizhé'é doo háágóóda deeyáa da. 'My father is not going anywhere.'

(Phonological rules involving /da/ added to verb stems: CV́ + da → CV́Vda
CV́V́C + da → CV́VCda)

Doo-attraction:	doo	-	X	-	Q E	da	-	Y	
	1		2		3			4	==>
	0		2		1 3			4	

5. Direct Discourse Embedded Sentences in Navajo:

a. Example Sentences

(Shí) chidí nahideeshnih. 'I will buy a car.'

Shizhé'é chidí neidiyoołnih. 'My father will buy a car.'

Shizhé'é chidí nahideeshnih nízin. 'My father wants to buy a car.'

(Shí) Na'nízhoozhígóó deeshááł. 'I will go to Gallup.'

Shizhé'é Na'nízhoozhígóó doogááł. 'My father will go to Gallup.'

Shizhé'é Na'nízhoozhígóó deeshááł nízin. 'My father wants to go to Gallup.'

Shí chidí nahideeshnih nisin. 'I want to buy a car.'

nisin < (ni + sh + zin)

b. Embedded Sentences:

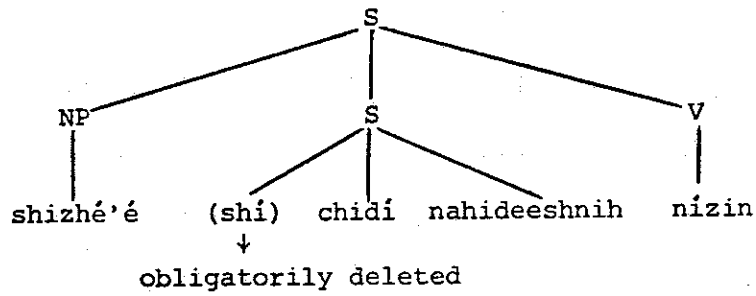
Just a few verbs take bare tensed S complements:

dishní 'I say'

nisin 'I think, want'

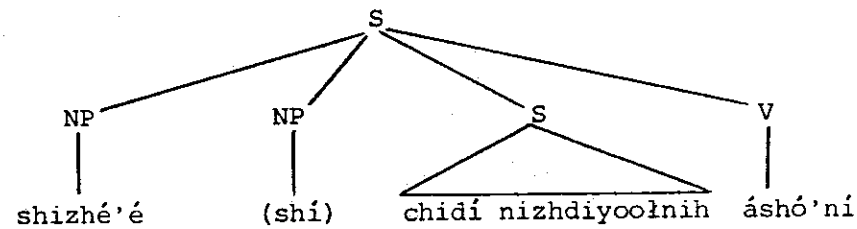
Shizhé'é chidí nahideeshnih nízin. 'My father {wants to / thinks he'll} buy a car.'

(literally: "My father thinks, 'I'll buy a car'.")



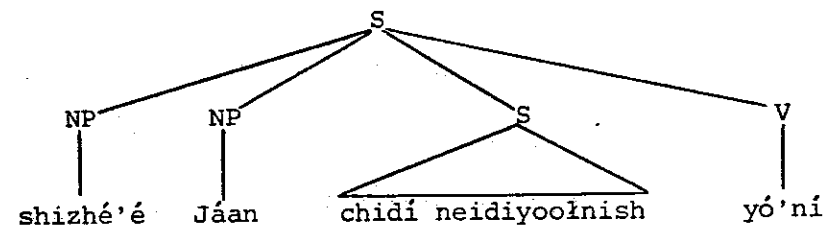
Shizhé'é (shí) chidí nizhdiyoołnih áshó'ní. 'My father {expects me / thinks I'm going} to buy a car.'

4th person, refers to 1st person



Shizhé'é Jáan chidí neidiyoołnih yó'ní. 'My father thinks John is going to buy a car.'

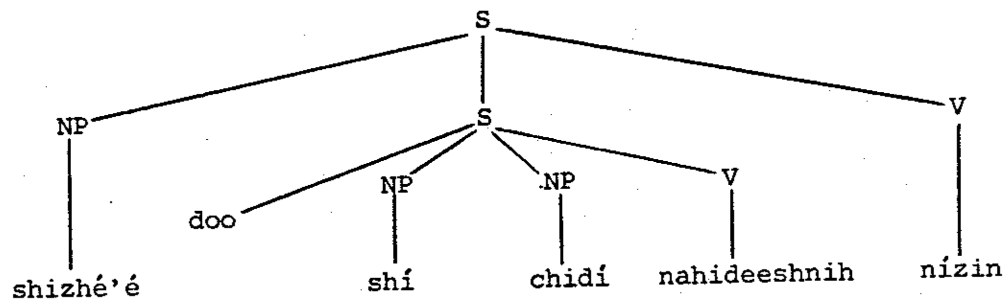
With John in the main clause binding the 3rd person in the embedded clause.



6. Embedded Negative Sentences.

Shizhé'é doo chidí nahideeshnih da nízin. 'My father doesn't want to buy a car.'

(literally: '...wants not to buy a car', "...thinks 'I will not buy a car'.")



If /doo/ is in first position, the sentence is ungrammatical when /da/ is on the embedded verb.

*Doo shizhé'é chidí nahideeshnih da nízin.

Note the following variant sentence in which a prefix /íi-/ appears.

? Shizhé'é íinízin doo chidí nahideeshnih da.

'My father {thinks he won't / wants not to} buy the car.'

Now consider the case in which the main verb is negated:

Shizhé'é doo chidí nahideeshnih nízin da.

Doo shizhé'é chidí nahideeshnih nízin da.

?Shizhé'é chidí doo nahideeshnih nízin da.

Movement of elements is restricted, however. ła' cannot move into a position before an embedded verb.

Ashiiké ła' Na'nízhoozhígóó deesháál nízin.
(* ła' → before deesháál)

'One of the boys wants to go to Gallup.'

Shizhé'é doo shínaaí bilį́į́' deeshłoh nízin da.

'My father doesn't {think he'll / want to} rope his older brother's horse.'

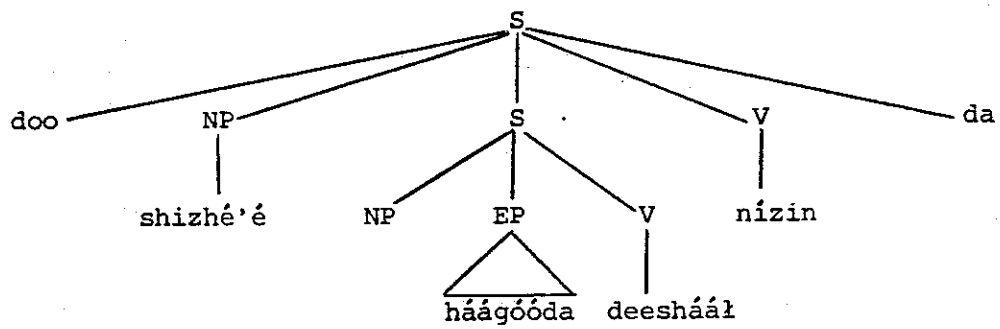
?Shizhé'é shínaaí doo bilį́į́ deeshłoh nízin da.

Note the occurrences of da in the following sentences:

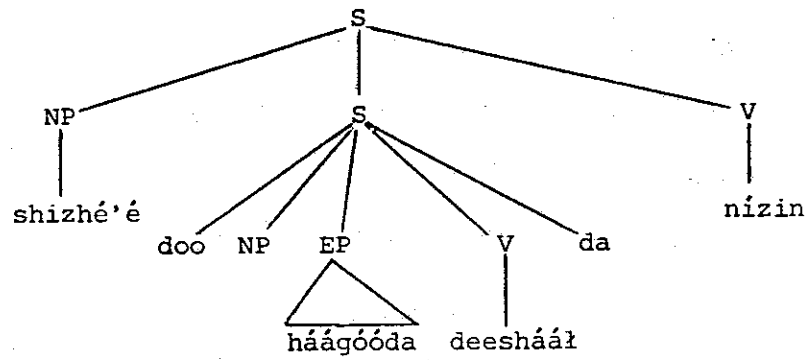
Shizhé'é doo háágóóda deesháál nízin da. 'My father doesn't want to go anywhere.'

Shizhé'é doo háágóóda deesháál da nízin. 'My father thinks he won't go anywhere.'

The first S has the Deep Structure:



While the second has the following structure:



Navajo Problem #2

onsider the following sentences:

1) (a) Háíshíí yáłti'. 'Someone is speaking.'

(b) Doo háída yáłti'da. 'No one is speaking.'

(c) Doo yáłti'ída.

2) (a) Háíshíí at'ééd yizts'os. 'Someone kissed the girl.'

(b) Doo háída at'ééd yizts'osda. 'No one kissed the girl.'

(c) Doo at'ééd yizts'osída.

3) (a) Ashkii háíshíí yizts'os. 'The boy kissed someone.'

(b) Ashkii doo háída yizts'osda. 'The boy didn't kiss anyone.'

(c) Ashkii doo yizts'osída.

4) (a) At'ééd háíshíí bizts'os. 'The girl was kissed by someone.'

(b) At'ééd doo háída bizts'osda. The girl wasn't kissed by anyone.'

(c) At'ééd doo bizts'osída.

5) (a) Háíshíí ashkii bizts'os. 'Some one was kissed by the boy.'

(b) Doo háída ashkii bizts'osda. 'No one was kissed by the boy.'

(c) Doo ashkii bizts'osída.

(6) (a) Ashkii háíshíí yich'i' yáłti'. 'The boy is speaking to someone.'

(b) Ashkii doo háída yich'i' yáłti'da. 'The boy is not speaking to anyone.'

(c) Ashkii doo yich'i' yáłti'ída.

(7) (a) Hastiin háágóóshíí deeyá. 'The man is going somewhere.'

(b) Hastiin doo háágóóda deeyáada. 'The man is not going anywhere.'

(c) Hastiin doo deeyáhígóóda.

(8) (a) Shizhé'é ha'át'ííshíí nahideeshnih nízin. 'My father thinks he will buy something.'

(b) Shizhé'é doo ha'át'íída nahideeshnihda nízin. 'My father thinks he won't buy anything.'

(c) Shizhé'é doo nahideeshnihída nízin.

(9) (a) Shizhé'é ha'át'íishíí nahideeshnih nízin. 'My father thinks he will buy something.'

(b) Shizhé'é doo ha'át'íída nahideeshnih nízinda. 'My father doesn't think he will buy anything.'

(c) Shizhé'é doo nahideeshnih nízinída.

(10) (a) Shizhé'é háíshíí bich'į' yádeeshtih nízin. 'My father thinks he will talk to someone.'

(b) Shizhé'é doo háída bich'į' yádeeshtihda nízin. 'My father thinks he won't talk to anyone.'

(c) Shizhé'é doo bich'į' yádeeshtihída nízin.

(11) (a) Shizhé'é háíshíí bich'į' yádeeshtih nízin. 'My father thinks he will talk to someone.'

(b) Shizhé'é doo háída bich'į' yádeeshtih nízinda. 'My father doesn't think he will talk to anyone.'

(c) Shizhé'é doo bich'į' yádeeshtih nízinída.

(12) (a) Shizhé'é haágóóshíí deeshááł nízin. 'My father thinks he will go somewhere.'

(b) Shizhé'é doo háágóóda deeshááłda nízin. 'My father thinks he won't go anywhere.'

(c) Shizhé'é doo deeshálígóóda nízin.

(13) (a) Shizhé'é haágóóshíí deeshááł nízin. 'My father thinks he will go somewhere.'

(b) Shizhé'é doo háágóóda deeshááł nízinda. 'My father doesn't think he will go anywhere.'

(c) Shizhé'é doo deeshááł nízinígóóda.

Problems:

A. In the above sets, the (c)-sentences are synonymous with the (b)-sentences. The problem is to incorporate the (c)-sentences into our analysis of Navajo. Let us assume that the (c)-sentences are produced by means of a transformational rule which moves an element from some prefinal position into the position between the verb and the final enclitic -da. Your task is to provide arguments -- as many as you can think of -- in favor of this Transformational Hypothesis, as opposed to a Base Hypothesis according to which the (c)-sentences are produced directly by phrase structure rules.

B. Show how the Transformational Hypothesis would explain the ill-formedness of sentences (14-19) below, and how a competing Base Hypothesis could do so only with considerable loss of generality.

(14) *Doo yáshti'ída.

(15) *Ashkii doo yáłti'ída.

(16) *Shizhé'é doo shił hozhída.

(17) *Ashkii doo at'éed yizts'ǫsída.

(18) *Shizhé'é doo naalnishígóóda. (Cf. *Shizhé'é doo Kinłánígóó naalnishda.)

(19) *Shizhé'é doo Kinłánígóó deeshąął nízinígóóda.

C. Show how the Transformational Hypothesis can, more easily than the Base Hypothesis, explain the meanings of tha following sentences.

(20) (a) Ashkii doo yizts'ǫsída. 'The boy didn't kiss anyone.'

(b) Doo ashkii yizts'ǫsída. 'No one kissed the boy.'

(c) Ashkii doo bizts'ǫsída. 'The boy wasn't kissed by anyone.'

(d) Doo ashkii bizts'ǫsída. 'No one was kissed by the boy.'

Navajo - Lecture 12
18 November 1976
Ken Hale/Ellavina Perkins

1. Problem #2 handed out. Hints for working on Problem #2.

A. Assume that all (c) sentences have an <u>í</u> as part of their structure. This <u>í</u> can be moved to the right by a rule (which also moves enclitics).

X - doo - <u>í (E)</u> - Y - da ⟹ 1 2 0 4 3 5

Example:

Doo í yáłti' da. Doo yáłti' í da.

'No one is speaking.'

(There is an alternative analysis. An interrogative pronoun (which we abbreviate H) may be turned into an <u>í</u> when moved to the right:

X - doo - H (E) da - Y - da ⟹ X - doo - Y í (E) - da

Example:

Doo háída yáłti' da. Doo yáłti' í da.)

B. Additional sentences

(14') Yáshti'. 'I am speaking.'

(15') Ashkii yáłti'. 'The boy is speaking.'

(16') Shizhé'é doo shiłhozh da. 'My father is not tickling me.'

(17') Ashkii at'ééd yizts'ǫs. 'The boy is kissing the girl.'

(18') *Shizhé'é doo Kinłánígóó naalnish da. 'My father doesn't work to Flagstaff.'

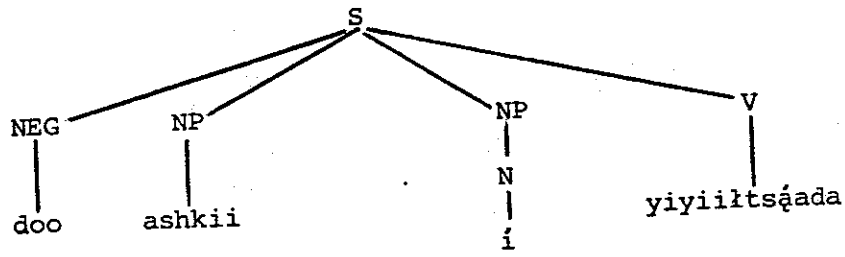
(18'') Shizhé'é Kinłánígóó deeyá. 'My father is going to Flagstaff.'

(18''') Shizhé'é doo Kinłánígóó deeshąął nízin da.

'My father doesn't think he'll go to Flagstaff.'

(Hypothesis: í is a pronoun without a person marker, unlike /shí/ which has the person marker /sh-/--shí < sh + í.)

C. Example of a negative sentence with <u>í</u> in the deep structure.



The rule applying to this structure actually generalizes to sentences besides negatives.

X - doo - A - Y - da (where A is a cover symbol for NP and EP)

1 2 3 4 4 ⟹ 1 2 0 4 3 5

D. Examples where <u>í</u> occurs in sentences which are not negatives.

Shizhé'é deesháá́ł nízinígóósh nił bééhózin?

'Do you know where my father wants to go?'

Shizhé'é deesháá́ł nízinígóó doo shił bééhózin da.

'I don't know where my father wants to go.'

It is also used in negative commands, though the source of <u>í</u> here is not well understood:

T'áadoo yáníłti'í. 'Don't speak.'

2. Relative Clauses.

A. Relativized sentence without a head noun.

Ashkii deezhtlizhé(ę) yicha. 'The boy that fell down is crying.'

This sentence appears to be a combination of two sentences.

Ashkii deezhtlizh. 'The boy fell down.'

Ashkii yicha. 'The boy is crying.'

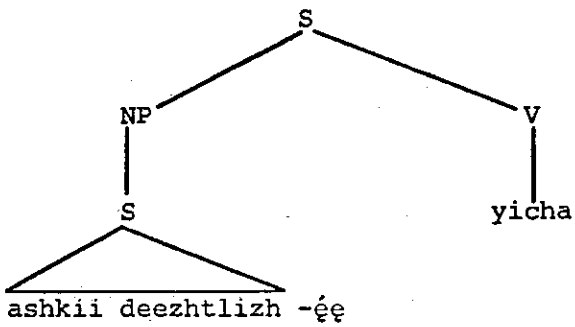
Ashkii łéechą́ą'í bishxashę́ę nahał'in. 'The dog that the boy was bitten by is barking.'

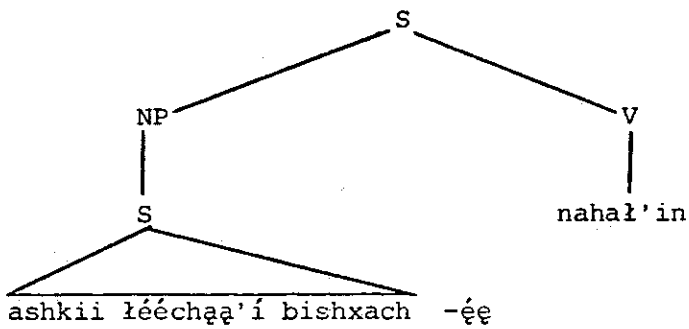
As above, two sentences appear to underlie this sentence.

Ashkii łéęchąą'í bishxash. 'The boy was bitten by the dog.'

Łéęchąą'í nahał'in. 'The dog is barking.'

Hypothesizing a /-ęę/ relativizer, the following phrase markers can be assigned to the above complex sentences:





Properties of the relativizer.

(a) ęę can become ąą by assimilation.

(b) The form ęę is used if the tense (not aspect) refers to past time.

(c) If the tense is the same as that of speech act, -ígíí is used.

The relativizer (ígíí, ęę) is a type of nominalizer. It also serves as a 'definite' determiner.

Examples:

Kinęę. 'The house I mentioned before.'

Ashkii naalnishígíí. 'The boy who is working.'

'The fact the boy is working.'

í + tense element = ée

í + gíí = ígíí (gíí makes it more specific)

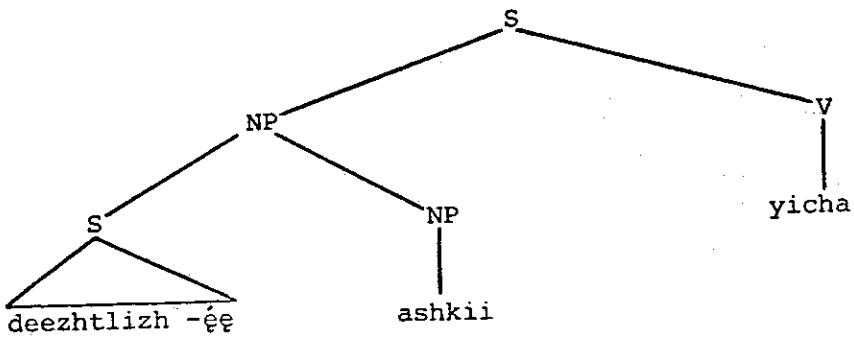
azéé'íił'íní 'doctor' (medicine maker)

azéé'íił'ínígíí 'the particular one who is making medicine'

A relativized sentence is therefore a nominalized sentence.

B. Relative sentences with head but without the 'relative noun phrase' (i.e. without coreferential NP in the subordinate clause):

Deezhtlizhée ashkii yicha. 'The boy that fell down is crying.'



Question from class: How does one know that the NP ashkii in the sentence

Ashkii deezhtlizhée yicha.

is in the embedded sentence and not in the matrix sentence?

Answer: The position of sentence adverbs can show position of NP's.

Tl'éédąą' ashkii deezhtlizhée k'ad yicha.
Last night boy fell down-rel now cry

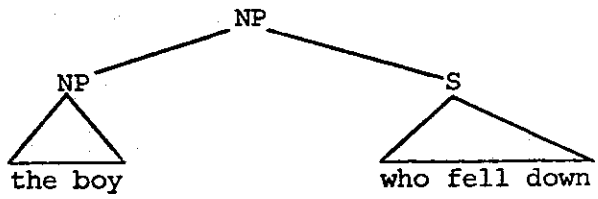
'The boy who fell down last night is crying now.'

If 'ashkii' were in the matrix sentence, /tl'éédąą'/ would be the second element in the sentence, not the first. This argument is not absolute because Navajo may have an adverb fronting rule which could move /tl'éédąą'/ into initial position.

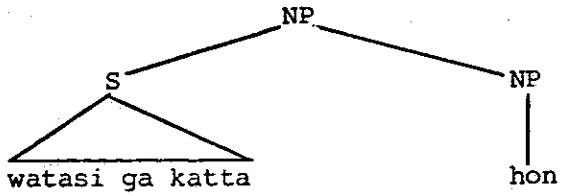
C. An account of sentences in both (A) and (B) above. It is typical in languages that relative clauses have head nouns, although the head noun

may appear to the right or left of the relative clause.

English (head on left)



Japanese (head on right)

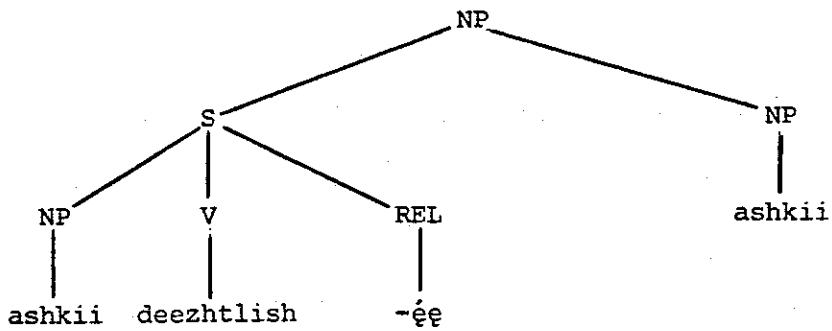


I bought:t book

'the book I bought'

Hypothesis for Navajo (cf. P. Platero, IJAL 40.3 (202-246) 1974. 'The Navajo Relative Clause.')

All relative clauses are headed in the deep structure of Navajo. Navajo will thus have a d.s. similar to Japanese, but with the difference that either coreferential NP can be deleted. (For an alternative analysis in which the headed type of relative clause is formed from the headless see Hale and Platero in Navajo Language Review 1.1 (9-28) 1974.):

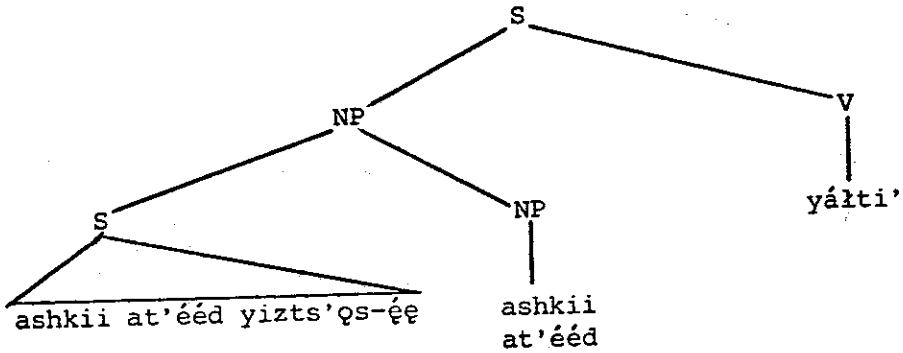


Either of the ashkíí's can be deleted and will thus leave 'a gap'.

Consider the following sentence:

Ashkii at'ééd yits'ǫsę́ę́ yáłti'.

For this sentence there should be two interpretations: 'The boy that kissed the girl is speaking.' and 'The girl that the boy kissed is speaking.'



These two interpretations are available and are thus consistent with the hypothesis that the head noun can be deleted under identity with the relative noun.

For the headed variety, however, only one interpretation is available.

At'ééd yizts'ǫsę́ę́ ashkii yáłti'.

'The boy that kissed the girl is speaking.'

(*'The boy that the girl kissed is speaking.')

This fact about the interpretation suggests that there may be a <u>constraint on backwards deletion</u>.

<u>Constraint on Backwards Deletion</u>: Delete the first NP only.

Further evidence for the Backward Deletion Constriant is found in the next sentence.

At'ééd bizts'ǫsę́ę́ ashkii yáłti'.

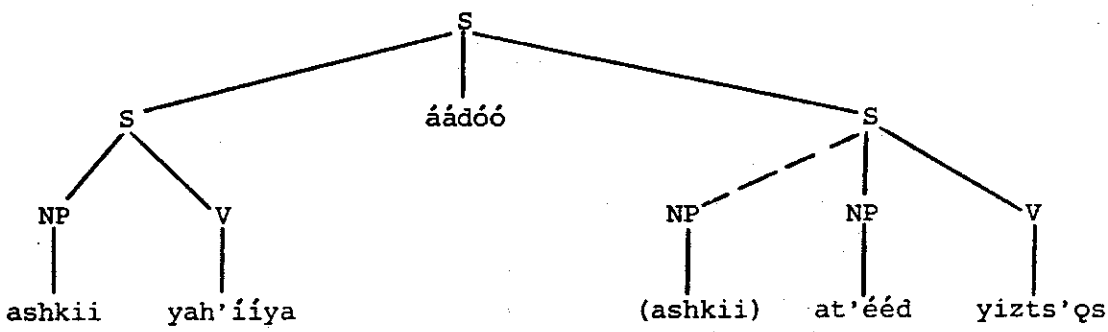
'The boy that the girl kissed is speaking.'

After SOI, <u>at'ééd</u> will be in initial position. The <u>ashkii</u> in first position is deleted under identity to the head. There are other cases of deletion not involving relative clauses. All involve deletion of initial noun phrases.

Forward Deletion:

Ashkii yah'ííya áádóó at'ééd yizts'ǫs.
boy walked in and the girl kissed

'The boy walked in and kissed the girl.'



Backwards Deletion:

(A) At'ééd yizts'ǫs áádóó ashkii dahdiiyá (some speaker * this)
(he) girl kissed and then the boy left

or Backwards and Downwards Deletion:

At'ééd yizts'ǫsgo ashkii dahdiiyá.

'Having kissed the girl, the boy left.'

C. An alternative theory for understanding relative clauses.

Let us consider first the following two independent sentences.

a. Shí bį́į́h bił adéłdooh. 'I shot a deer.'
I deer shot

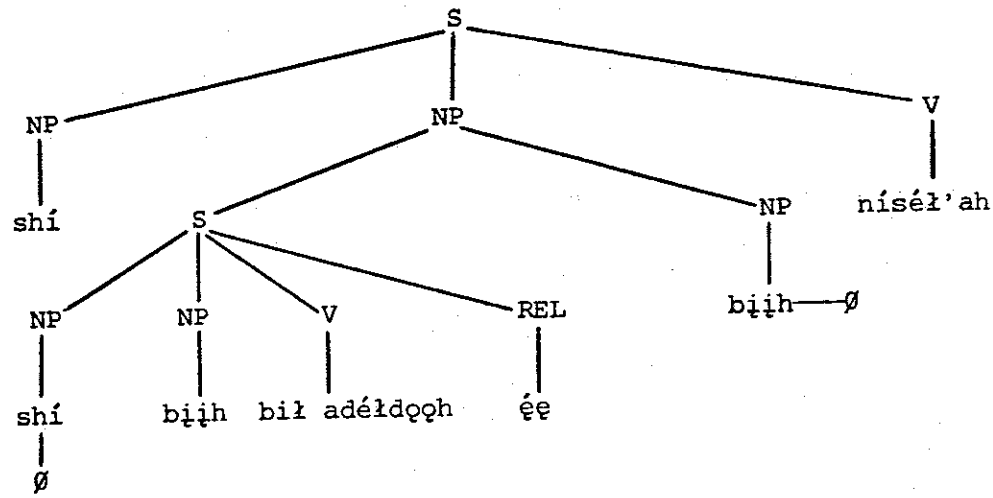
b. Shí bį́į́h níséł'ah. 'I butchered a deer.'

These can be combined to form the following complex sentence.

(Shí) bį́į́h bił adéłdǫǫhę́ę níséł'ah.

'I butchered the deer I shot.'

Or, in our presumed deep structure:



The headed form of the relative clause, '(Shí) bił adełdǫǫhę́ę bi̧i̧h níséł'ah', is not possible.

The next sentence will shoot down the first NP Backwards Deletion Constraint as well as a theory that holds only subjects can be deleted under Backwards Deletion.

Shí bił adéłdǫǫhgo bi̧i̧h dahdiilwod.

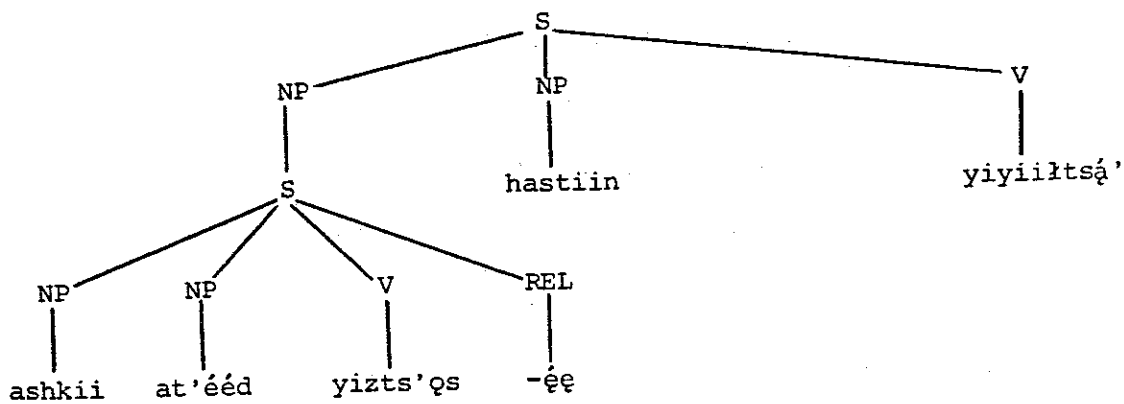
'When I shot it, the deer fled.'

Now consider the following cases:

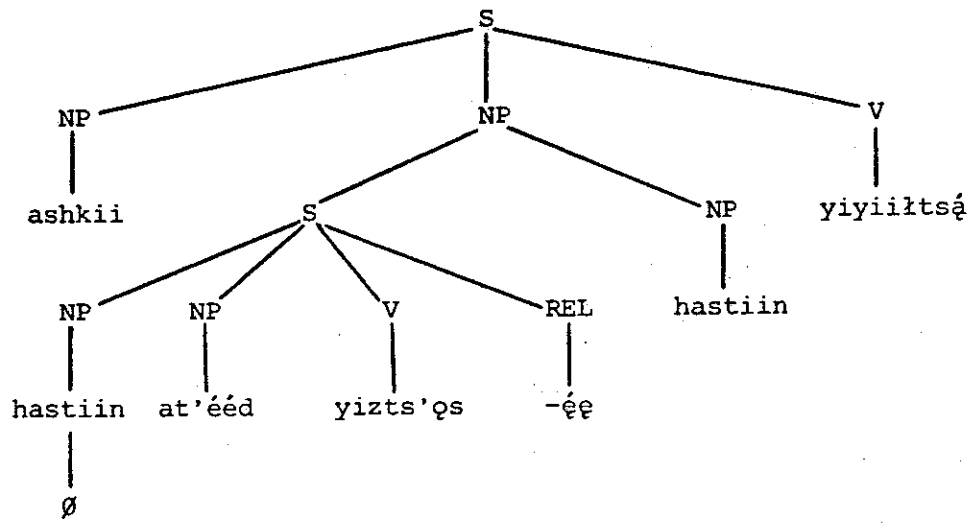
Ashkii at'ééd yizts'ǫsę́ę hastiin yiyiiłtsą́'.

'The boy who kissed the girl saw the man.'

'The girl whom the boy kissed saw the man.'



A possible meaning for the sentence /Ashkii at'ééd yizts'ǫsę́ę hastiin yiyiiłtsą́/ might be thought to be '*The boy saw the man that kissed the girl.' This interpretation is not possible, although a deep structure is available which is consistent with current assumptions about deletion which could yield this interpretation.



If the relative NP 'hastiin' were deleted, the sentence /Ashkii at'ééd yizts'ǫsę́ę hastiin yiyiiłtsą́/ would be generated. But the deep structure meaning is not available so some other account must be given. The problem is, then given a sentence of Navajo, how is an interpretation assigned to it?

Consider the following sentence:

Ashkii at'ééd yiyiiłtsą́nę́ę yizts'ǫs.

(a) 'He kissed the girl that the boy saw.'

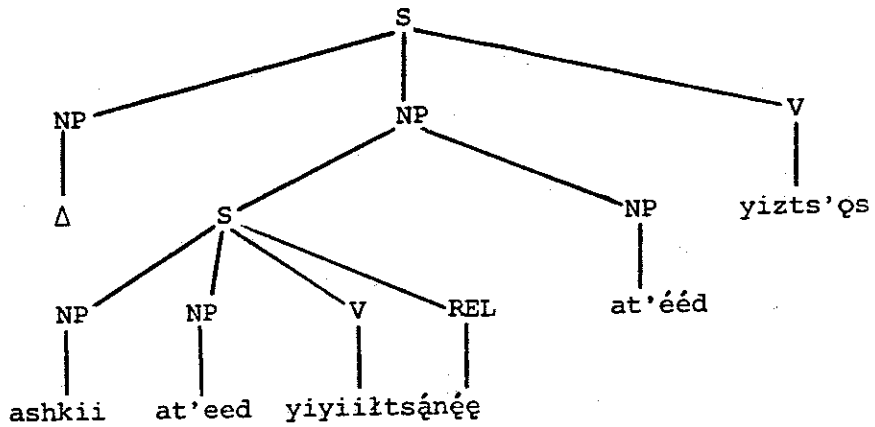
(b) 'The boy kissed the girl that he saw.'

(c) 'He/She kissed the boy who saw the girl.'

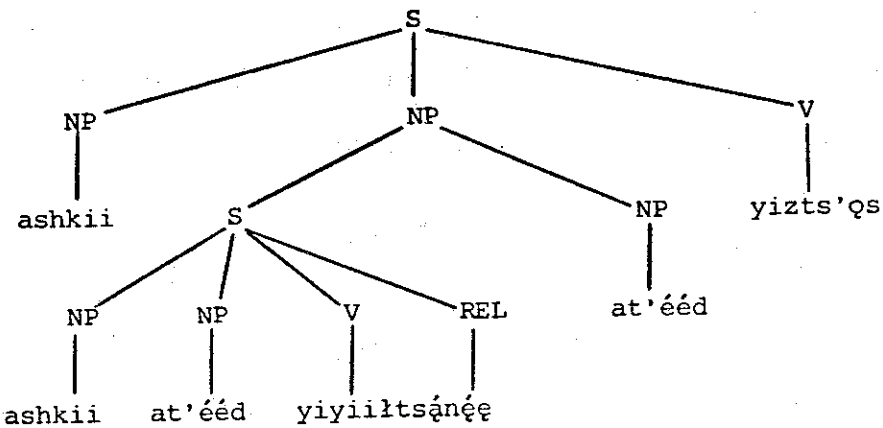
But not (d) 'The boy kissed the one who saw the girl.'

Now consider the structures that underlie these interpretations:

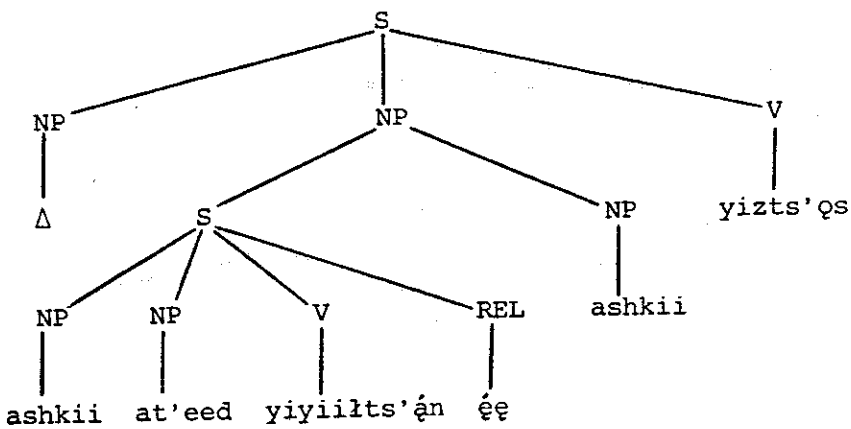
(a)


S
NP
NP
V
Δ
S
NP
yizts'ǫs
NP
NP
V
REL
at'ééd
ashkii
at'eed
yiyiiłtsą́né́ę́

(b)

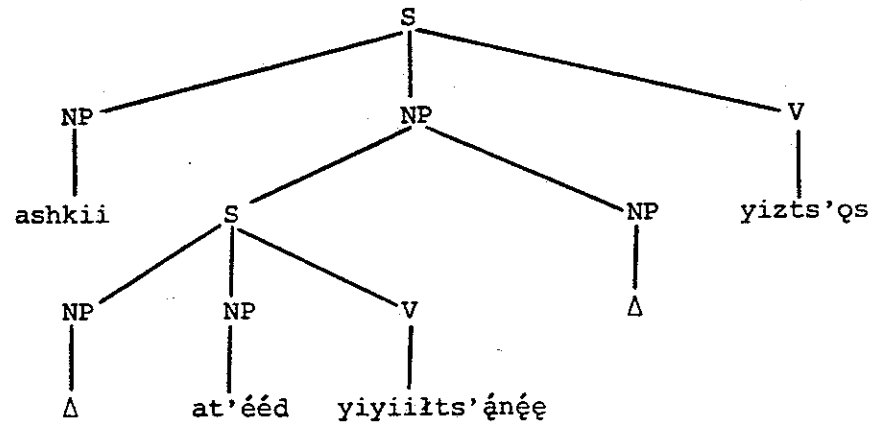

S
NP
NP
V
ashkii
S
NP
yizts'ǫs
NP
NP
V
REL
at'ééd
ashkii
at'ééd
yiyiiłtsą́né́ę́

(c)


S
NP
NP
V
Δ
S
NP
yizts'ǫs
NP
NP
V
REL
ashkii
ashkii
at'eed
yiyiiłts'ą́n
é́ę́

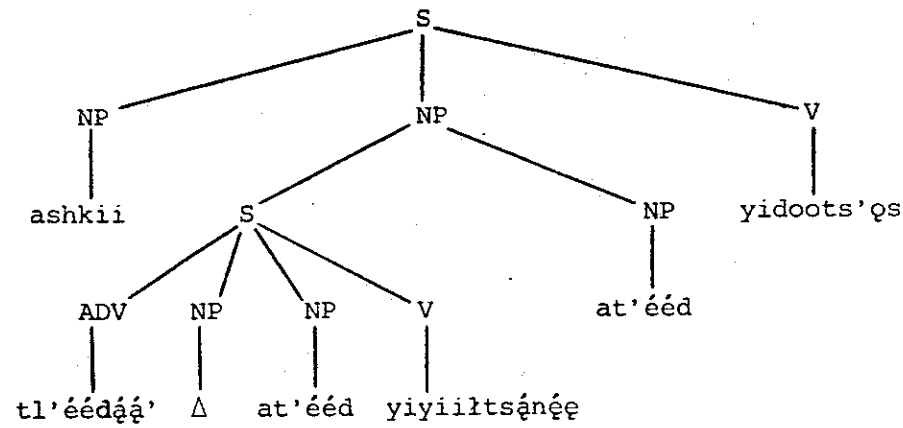
214 9b

(d)

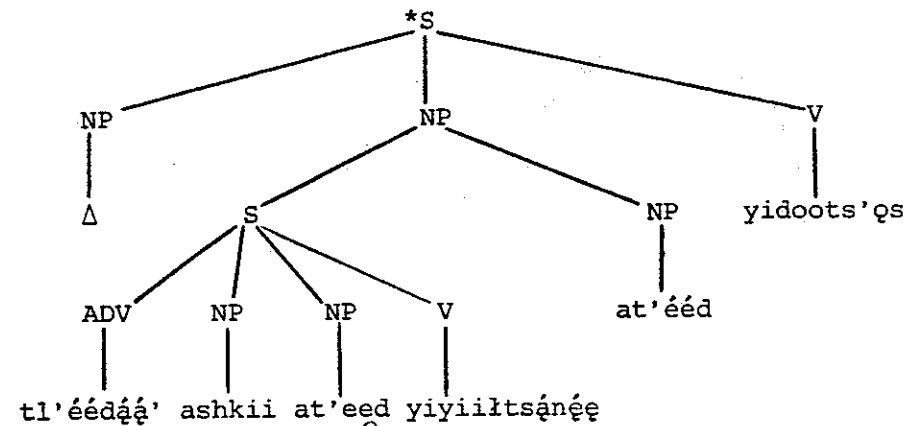


There is no way to block sentence (d) from being generated by the phrase structure rules. Thus some principle must be established to rule out these structures. Some additional sentences will help clarify the issue.

(e)



(f)



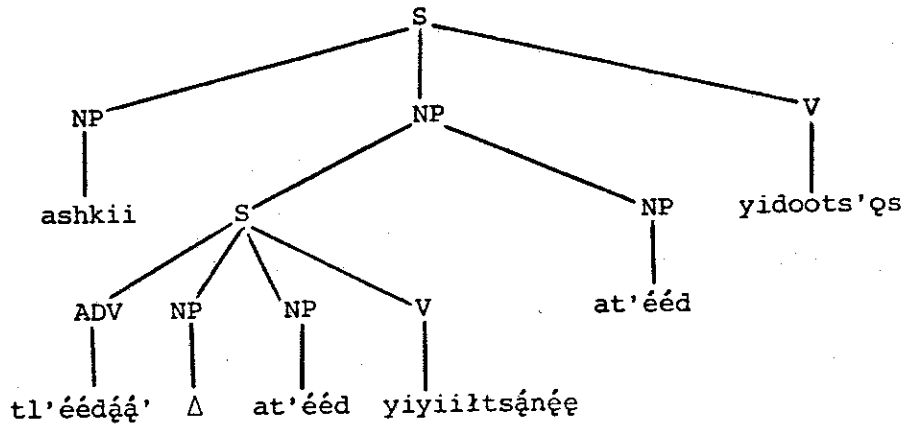
Linear string of (f) can receive the same interpretation as (e) — argument against empty Δ in PS structure of S.

97

The /ashkii/ in the embedded sentence cannot be coreferential with the commanding Δ of the matrix sentence.

Ashkii tl'éédą́ą́' at'ééd yiyiiłtsą́nę́ę yidoots'ǫs.

'The boy will kiss the girl he saw last night.'



In sentence (f) /ashkii/ may be coreferential with the Δ subject of yiyiiłtsą́nę́ę. To handle all of the above facts we will introduce an interpretive theory of gaps.

Conditions on the Appearance of a Gap.

(a) Suppose we know there's a gap. In a string of the form X - NP - Δ - Y, then Δ must be coreferential with NP.

(b) Scan the string, if there is a violation of X - NP - Δ - Y, then star the sentence.

Interpretation of Grammatical Relations.

(I) (A) 'Object'/ ---- yi-verb

(B) 'Subject'/ ---- bi-verb

(II) (A) 'Subject'/ ---- NP yi-verb

(B) 'Object'/ ---- NP bi-verb

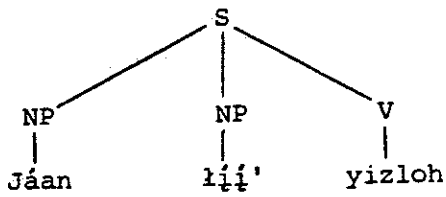
If (II) does not apply, insert a 'gap' and apply the above conditions on the appearance of a gap. We now can correctly interpret sentences (a-f).

NAVAJO - Lecture 13
2 December 1976
Kenneth Hale/Ellavina Perkins

Extraposition in Navajo. A study of extraposition in Navajo and how this study bears on certain claims which have resulted based on a study of extraposition in English.

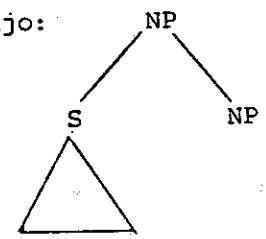
1. Introduction. Navajo is basic SOV.

Jáan łį́į́' yizloh = John - horse - roped
S O V

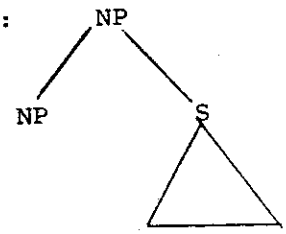


The head of a relative clause is basically on the right in Navajo, on the left in English.

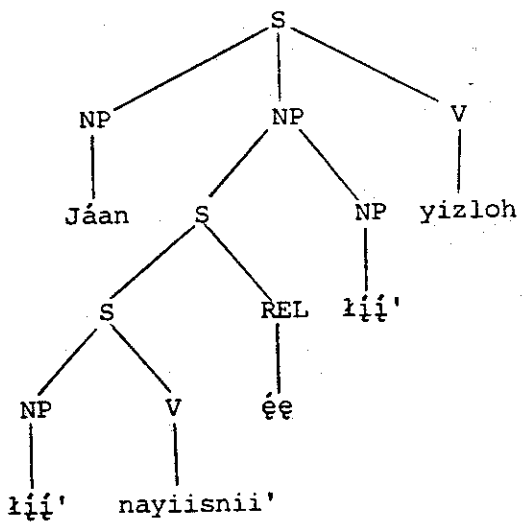
Navajo:



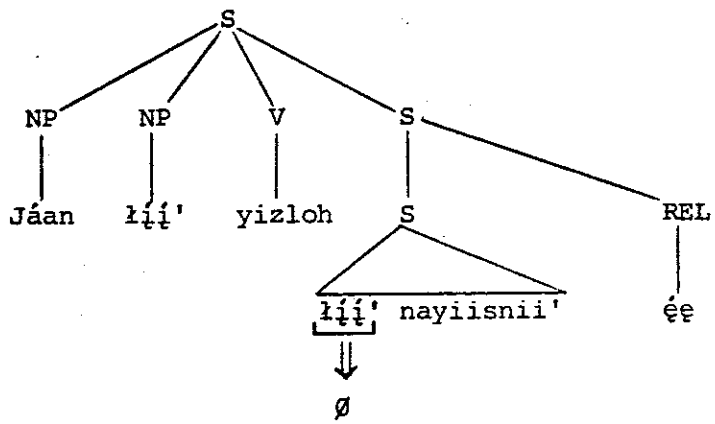
English:



Example: Jáan łį́į́' nayiisnii'ęę yizloh 'John roped the horse he bought'



After extraposition we have the following structure.



Principle: After extraposition, one always deletes the relative noun.

The above structural transformation can be accomplished by a rule of extraposition.

The Extraposition Rule: $X \text{ —— } [_{NP}\ S\ NP\ ]_{NP} \text{ —— } Y$

$1 \qquad 2\ 3 \qquad 4$

$\Rightarrow \quad 1 \qquad \text{ø}\ 3 \qquad 4\ 2$

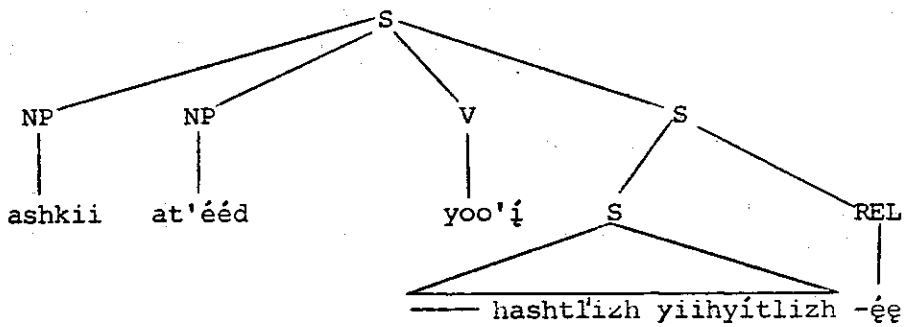
2. Additional facts relating to extraposition in Navajo.

Extraposition can take place out of either subject or object position. After the relative noun in the extraposed is deleted, ambiguity may arise.

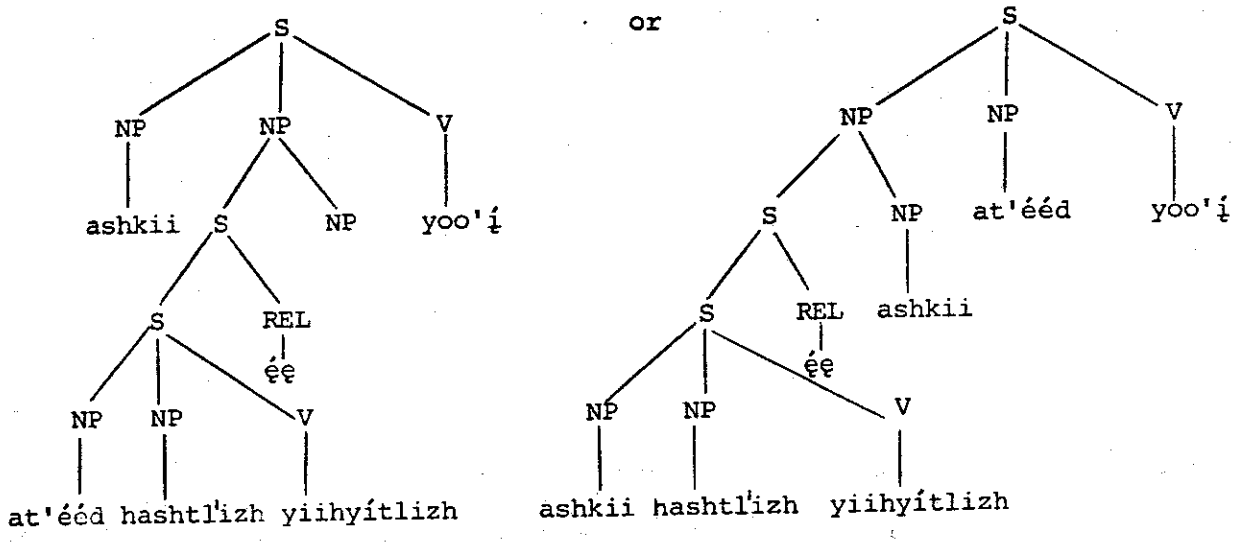
Ashkii at'ééd yoo'į́ hashtl'izh yiihyítlizhęę
boy - girl sees in the mud fell

'The boy sees the girl who fell in the mud' or 'The boy who fell in the mud sees the girl'

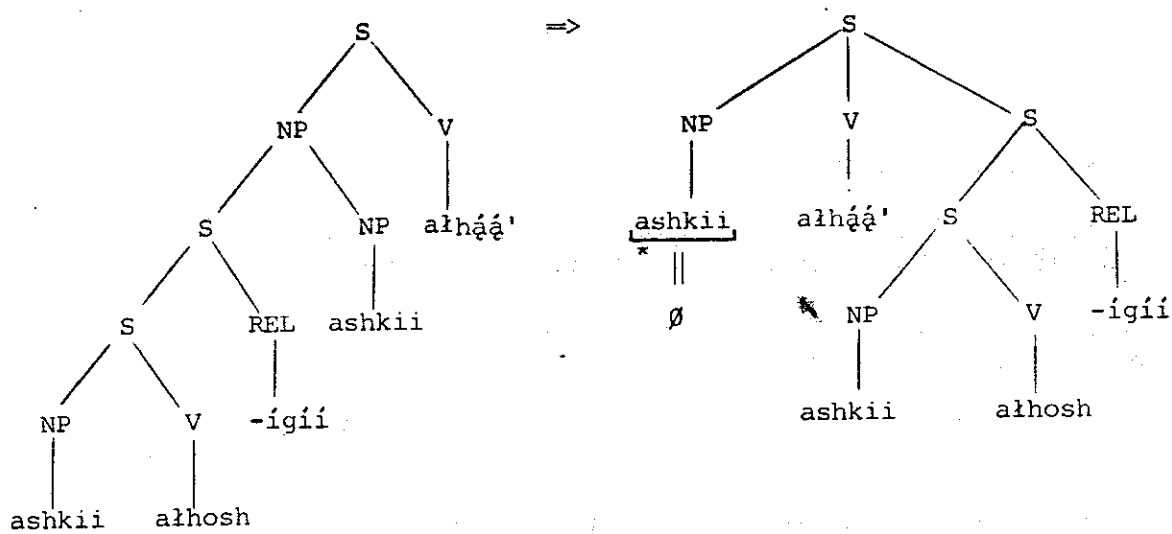
The structure of this sentence is the following:



Two different structures can underlie this phrase marker.



Question: For intransitive verbs, can either the relative NP or the head NP be deleted?



* ałhą́ą́' ashkii ałhoshígíí. For Ellavina, backwards, and upwards deletion is blocked. Some dialects (Paul Platero's) allow such sentences.

(*) ałhą́ą́' ashkii
(*) ałhą́ą́' ashkii ałhoshígíí

For dialects in which the above sentences are acceptable, the source of the 'headless relative clauses' may be a noun phrase postposition rule.

3. Verbs with three arguments.

Ashkii jooł at'éed yeiní'ą hashtl'izh yiihyítlizhée
boy - ball - girl gave in the mud (which) fell

Based on earlier sentences we might guess that the above sentence would have three readings.

a) 'The boy gave the ball that fell in the mud to the girl'

b) 'The boy who fell in the mud gave the ball to the girl'

c) 'The boy gave the ball to the girl who fell in the mud'

Only the (b) and (c) sentences are available as readings since the verb yiihyítlizhęę requires an animate subject. Thus the (a) sentence is ruled out by the selectional restrictions on the verb.

The (a) reading is provided by the following sentence.

Ashkii jooł at'ééd yeini 'ą hashtl'izh biihyiłts'idęę

Thus selectional restrictions on the verb restrict the possible readings on extraposed sentences.

Ashkii tł'óół neidiilá hashtl'izh biihyídelęę

'The boy picked up the rope that fell in the mud'

The verb stem requires something rope like.

Consider next the following sentence with three NP arguments.

Ashkii at'ééd łį́į' yeinílóóz ba'niłtsoodęę

boy girl horse led to one I fed

'The boy led the horse that I fed to the girl'
'The boy led the horse to the girl I fed'
'The boy I fed led the horse to the girl'

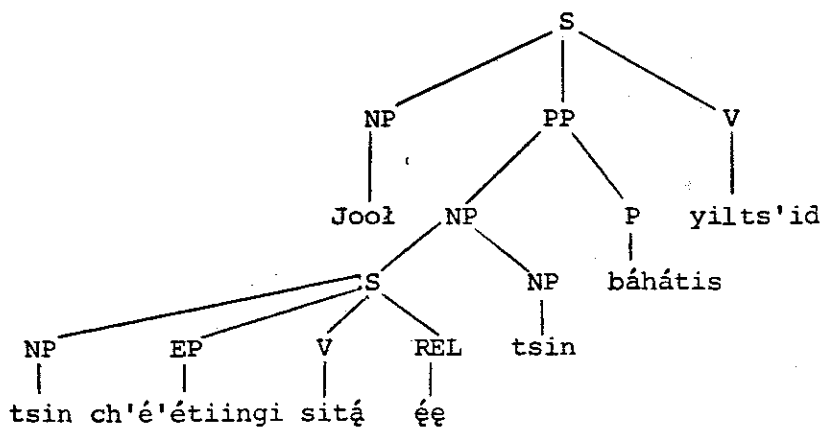
All are good. One can therefore extrapose out of all three NP positions.

4. Extraposition out of a postpositional phrase.
The sentential object of the postpositional phrase in the following sentence can be extraposed to the right.

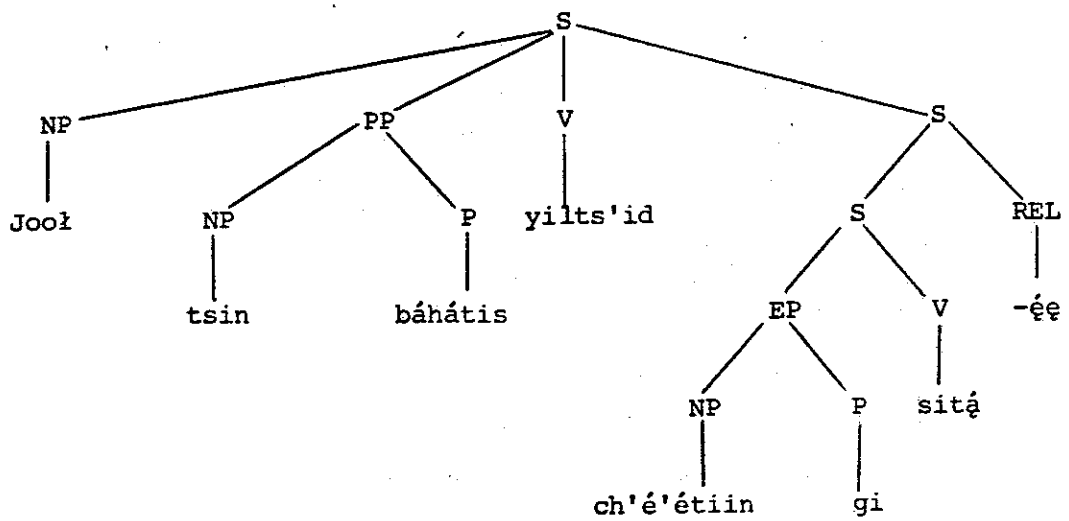
Jooł tsin ch'é'étiingi sitánęę báhátis yílts'id

ball log in the doorway it was lying over it it fell

'The ball fell over the log lying in the doorway'



⇓ Extraposition



5. Navajo and the Island Constraints.

A. Coordinate Structure Constraint:

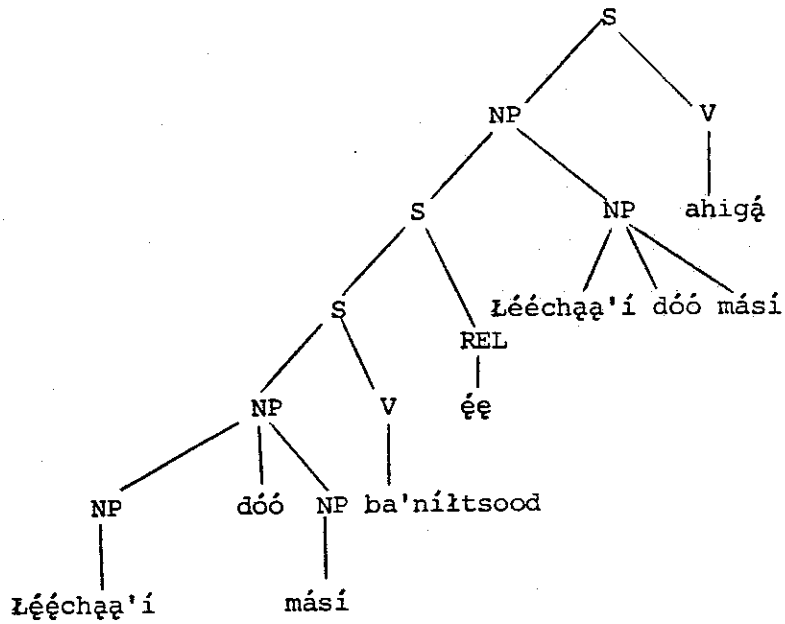
In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct.

This constraint forces a particular reading on the following sentence.

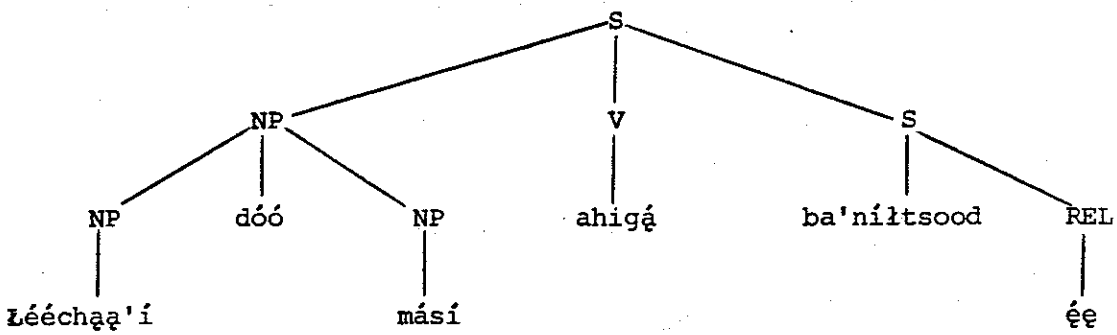
Łééchąą'í dóó másí ba'níłtsoodęę ahigą

'The boy and the cat which I fed are both fighting'

The only reading which is available is one in which the coordinate structure Łééchąą'í dóó másí is the head.



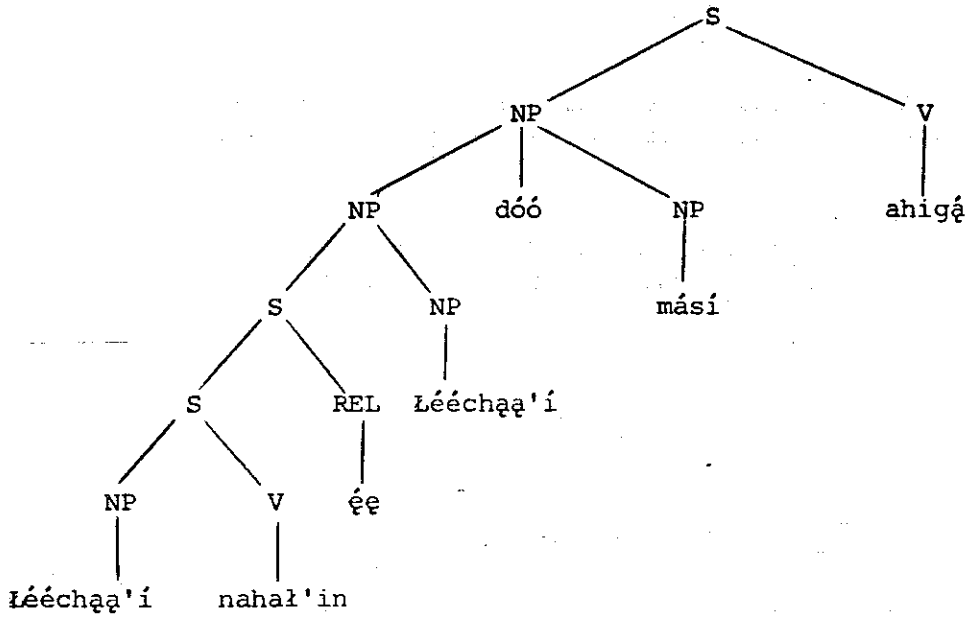
⇓ Extraposition



Under the hypothesis that a relative clause could not be ripped out of one of the coordinated NPs the unique reading is explained.

*Łéechąą'í dóó másí ahigą́ nahał'inę́ę

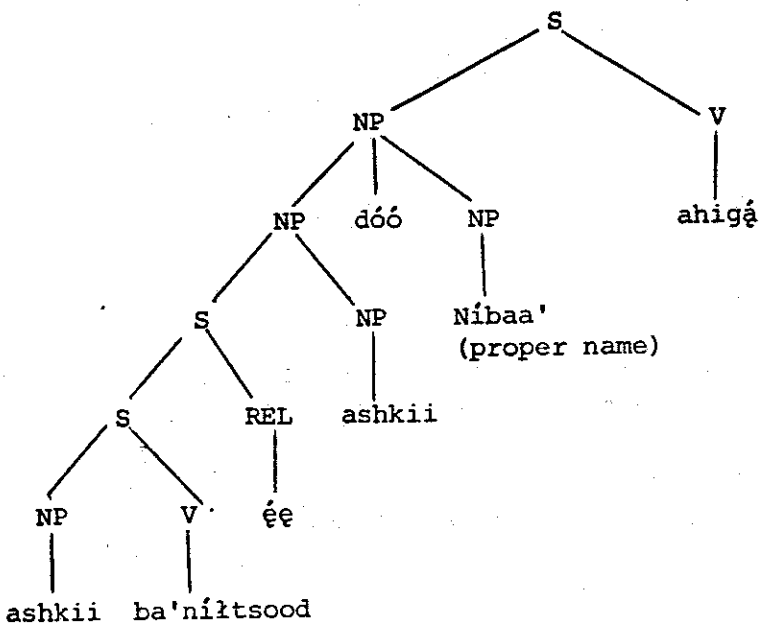
(* The dog and the cat were fighting which was barking)



The extraposition of the embedded sentence violates the coordinate structure constraint. The correct reading requires that másí be part of the head. But this reading violates the selectional restrictions of nahał'in 'bark'.

The next sentence is also ungrammatical.

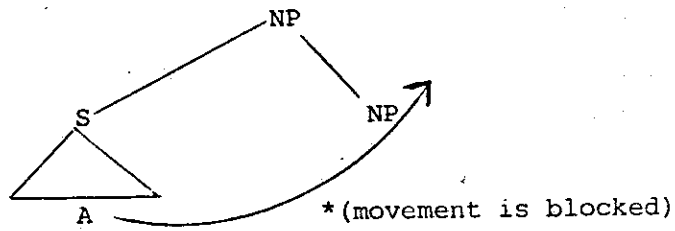
*Ashkii dóó Níbaa' ahigą́ ba'niłtsoodę́ę



Because the extraposed relative clause must refer to the entire subject conjunct, and because proper nouns cannot be heads, the sentence is ungrammatical.

B. Complex NP Constraint.

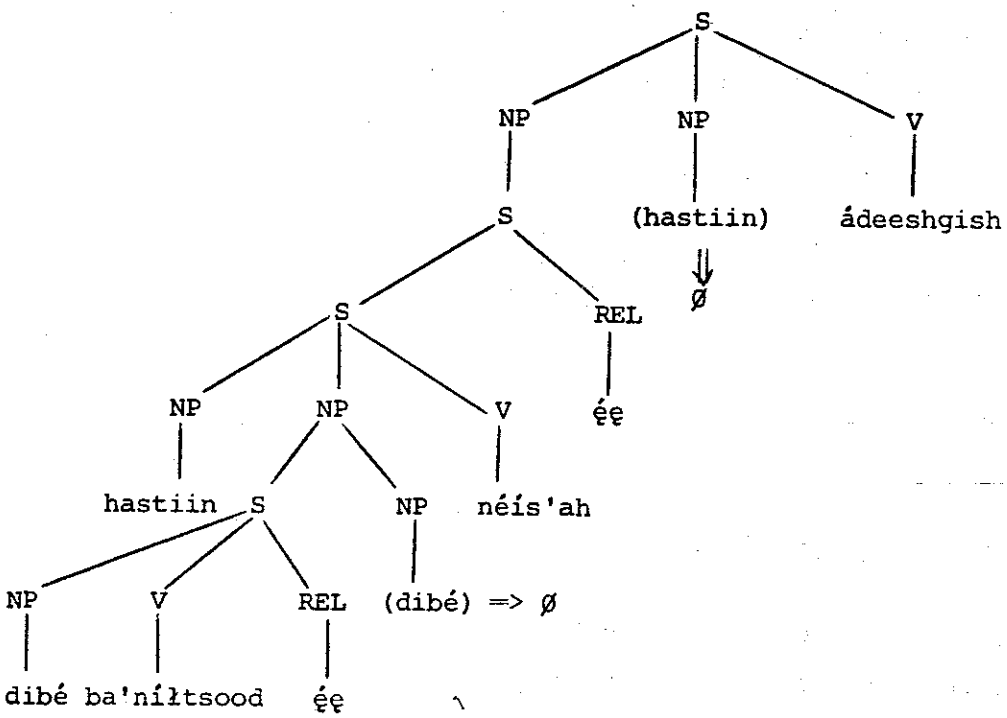
No element contained in a sentence dominated by a noun phrase with a lexical head noun may be moved out of that NP by a transformation.



Consider the following sentence.

Hastiin dibé ba'niłtsoodęę néís'ahęę ádeeshgish

'The man who butchered the sheep I fed cut himself'



The embedded S, when moved out of the complex NP forms an ungrammatical sentence:

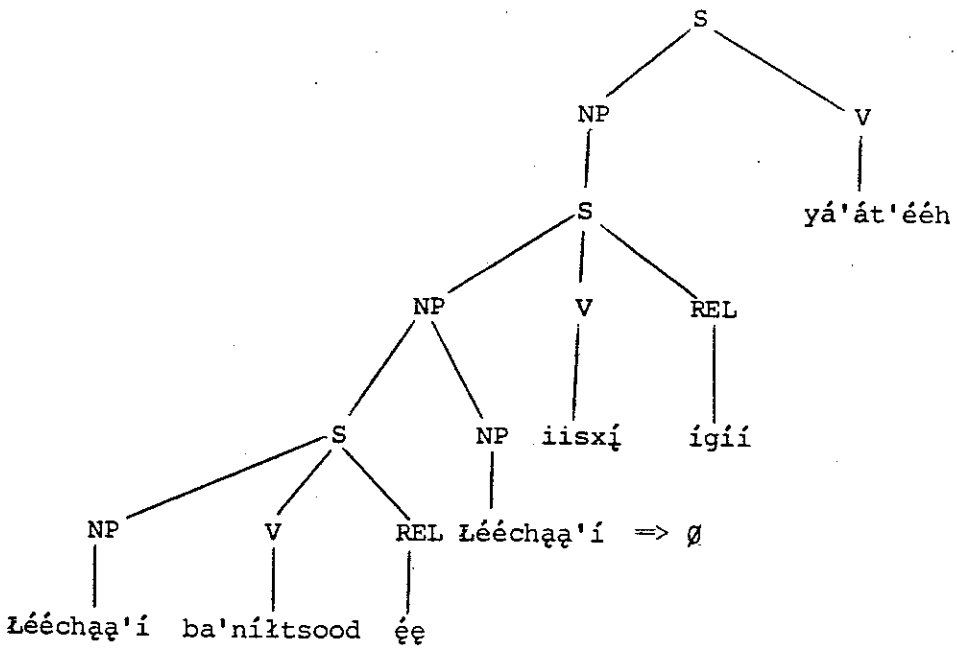
*Hastiin dibé néís'anęę ádeeshgish ba'níłtsoodęę

C. Sentential Subject Constraint.

This constraint does not appear to be obeyed in Navajo. Extraposition can take place out of the following sentence.

Łééchąą'í ba'níłtsodęę iisxínígíí yá'át'ééh

'The fact that the dog I fed killed something is good'



The extraposed form of this S is good.

Łéęchąą'í iisxínígíí yá'át'ééh ba'niłtsoodęę and also

Łéęchąą'í tl'ízí yiyiisxínígíí doo yá[illegible]a adąądąą' sizgohąą

'It is terrible (not good) that the d[illegible]ed the goat that butted me yesterday'

Compare the ungrammaticality of the following English sentence.

*'That the dog killed the goat is terrible butted me yesterday'

6. The actual source of 'extraposed' sentences.

Consider the following grammatical sentences of Navajo.

Łéęchąą'í másí yinoołchéél ahigąnęę
reciprocal

*'The dog is chasing the cat which were fighting (each other)' or

Ashkii at'éed yizts'ǫs Na'nízhoozhigóó naazh'ázhąą

*'The boy (sg) kissed the girl (sg) who (dual) were going to Gallup'

There is no possible embedded relative clause source for these sentences. In the last sentence, both the subject and object are singular. Thus, the above structures must be base generated. Since such structures must be based generated in any case there is no longer any support for an extraposition transformation in Navajo.