Object Marking and Agentivity in Navajo Causatives*

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0. Introduction

The syntactic and semantic analysis of complex predicates is a topic that has received much attention in recent literature (e.g. Alsina, Bresnan, and Sells 1997). This paper aims to contribute to the debate by examining the relation between argument structure and morphology in one type of complex predicate in Navajo: the causative construction.¹

Morphological causatives in Navajo fall into two types:²

- a) unaccusative verbs, which are causativized by adding the *u*-classifier prefix; and
- b) unergative verbs, which, in addition to *tt*-, also require a *y* prefix, as well as an object marker representing the "causee".

We will mainly focus on the unergative verbs because the object marking in causativized unergatives is unusual: the 3rd person prefix bi- is used with 1st/2nd person subjects, rather than the expected zero marking, and bi- also appears with 3rd person subjects, instead of the expected yi-. We will see how these peculiar facts fall out from the general principles of object marking in Navajo, rather than being peculiar to the causative construction. In addition, this analysis lends support to the notion of argument sharing in complex predicates.

The remainder of section 0 presents relevant background information on the verbal morphology of Navajo. Section 1 presents the causative data, with previous analyses discussed in section 2. The analysis will be outlined in section 3, and section 4 summarizes the findings.

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¹Navajo is a language of the Apachean subgroup of Athapaskan, spoken in the southwestern United States.

²Navajo also exhibits syntactic causatives which are formed on transitive verbs, but these types of causatives are beyond the scope of this paper.

0.2. Navajo verb morphology

Athapaskan morphology is heavily prefixing. Verbs consist of a stem (root plus suffix, if any) that is generally monosyllabic, to which several prefixes may be added. Traditionally, in the Athapaskan literature, verbs have been represented using a template model.³ The template for Navajo is shown in (1).

(1) Navajo verb template (Young and Morgan 1992)

disjunct conjunct stem

prefixes prefixes

0-1-2-3- 4-5-6-7-8-9- stem

0: pronominal (object of a postposition or the possessor of a verb-prefixed noun)

- 1: postpositional, adverbial-thematic, nominal; reflexive; reversionary; semeliterative
- 2: iterative
- 3: distributive plural

4: direct object pronouns

- 5: subject pronouns (only 3rd person impersonal, spatial or indefinite)
- 6: thematic and adverbial elements
- 7: modal-conjugation markers
- 8: subject pronouns (1st/2nd/3rd persons singular and duoplural)
- 9: classifiers (voice/valence markers)

Of the many prefixes, the two that will concern us the most are the bi- 3rd person object prefix (in position 4) and the μ - classifier or valency prefix (in position 9). Word order in Navajo is SOV, but subject and object NPs are often absent, with the verb alone forming a grammatical sentence.

1. Causative data

In Navajo, causatives and all other transitivized intransitive verbs are formed by the addition of the transitivizing u- classifier prefix. Causatives are sensitive to

³More recently, non-templatic models of the verb have been proposed (see McDonough 1990, Hale 1997 and Rice 2000a).

⁴The term "classifier" is a misnomer in that the classifiers do not perform a classificatory function; rather, they mark voice and valency.

the unaccusative (subject=agent)/unergative (subject=agent) distinction.⁵ Examples (2)-(5) illustrate causativization of unaccusative intransitives.⁶

(2)	a.	Tu'óóu k'í-ní-dláád. rope k'í-NPF:3-break:PERF 'The rope broke.'	(Hale and Platero 1996:4)
	b.	Tu'óóu k'í-i-ní-u-dláád. rope k'í-3-NPF:3-u-break:PERF 'He broke the rope.'	(Hale and Platero 1996:4)
(3)	a.	Tóshjeeh si-ts'il. barrel SPF:3-shatter:PERF 'The barrel shattered, broke to pieces.'	(Hale 1997:50)
	b.	ueets'aa' sé-u-ts'il. dish SPF:3:1s-u-shatter:PERF 'I shattered the dish.'	(Hale 1997:50)
(4)	a.	Tin yí-yıədıəd'. ice YPF:3-melt:PERF (<-ghiədiəd') 'The ice melted.'	(Hale 1997:50)
	b.	Yas yí-u-hiəqiəq'(<-ghiəqiəq') snow 3:YPF:1s-u-melt:PERF 'I melted the snow.'	(Hale 1997:50)
(5)	a.	Kõ' n-eez-tsiz. fire n-SPF:3-extinguish:PERF 'The fire went out.'	(Hale and Platero 1996:3)
	b.	Kõ' n-é-u-tsiz. fire 3:n-SPF:1s-u-extinguish:PERF 'I put the fire out.'	(Hale and Platero 1996:4)

Forming a causative from unergative verbs likewise involves addition of the u-classifier. However, in addition to the classifier, a prefix y- and a set of object markers representing the "causee" are also required. This is shown in the following pairs of intransitive-causative sentences in (6)-(7).

⁵Rice (2000b) points out that while analyses of Slave (Rice 1991) and Navajo (Hale and Platero 1996) have argued that the causative construction with the *t*- classifier provides a diagnostic for unaccusativity/unergativity, the same is not true of all Athapaskan languages. She shows that in Ahtna, both unergative and unaccusative verbs can enter into this construction.

⁶Although Hale and Platero (1996) and Hale (1997) do not provide a list of abbreviations used, we are assuming the following: NPF= *ni*- perfective prefix, PERF= perfective stem, SPF= *si*-perfective prefix, YPF= *yi*-(=*ghi*-) perfective prefix, IMP= imperfective (zero-marked) prefix, CI= continuative imperfective stem, and PROG= progressive prefix or stem.

(6) a. 'Awéé' naa-ghá (Hale and Platero 1996:4) baby na-IMP:3-walk:sg:CI 'The baby is walking around.'

b. 'Awéé' na-b-ii-sh-u-á (Hale and Platero 1996:4) baby na-**3-y**-IMP:1s-u-walk:sg:CI 'I am walking the baby around (i.e. making it walk).'

(7) a. 'Awéé' d-ee-za' (Hale and Platero 1996:4) baby d-SPF:3-belch:PERF 'The baby burped.'

b. 'Awéé' bi-di-y-é-sa' (<...-u-za')⁷ (Hale and Platero 1996:5) baby **3-d-y-**SPF:1s-u-belch:PERF 'I burped the baby.'

Addition of the classifier prefix alone is not enough to achieve causativization, as shown by the ungrammatical example in (8b).

(8) a. 'Awéé' yi-dloh. (Hale 1997:53) baby PROG:3-d:laugh:PROG 'The baby is laughing.'

b. *(Shí) 'awéé' yishdloh. (< gh-sh-**u**-dloh) (Hale 1997:53) *'I laugh the baby.' (i.e. 'I make the baby laugh.')

c. (Shí) 'awéé' biyeeshdloh. (< bi-y-gh-sh-u-dloh) (Hale 1997:53)
(I) baby 3-y-PROG:1s-u-d:laugh:PROG
'I make the baby laugh.'

The object marking found in the unergative causative construction differs from ordinary 3rd person object marking in that the overt bi- prefix is used with 1st or 2nd person subjects, rather than the expected zero marking, and bi- also appears with 3rd person subjects, instead of the expected yi-.

2. Previous analyses

Hale and Platero (1996) call the y- prefix a "causative" morpheme and suggest that bi- object prefix is present as if it were attached to an incorporated postposition. Hale (1997) expands on this idea and draws on Case Theory (Bittner and Hale 1996) to argue that the y- prefix seen in causativized unergatives is itself an incorporated postposition, with the bi- prefix serving as its object. In other words, the bi- prefix is a position 0 prefix rather than a position 4 direct object marker prefix. This can be seen more clearly in the verb template in (9), repeated from (1) above, with the relevant morpheme positions shown in bold.

⁷Note that the classifier /u/ is not always visible in the surface form due to phonological interactions with the verb stem.

(9) disjunct conjunct stem **0-1-2-3- 4-5-6-7-8-9-** stem

0: pronominal (object of a postposition or the possessor of a verb-prefixed noun)

- 1: postpositional, adverbial-thematic, nominal; reflexive; reversionary; semeliterative
- 4: direct object markers

Hale argues that an oblique case must be employed when an argument is Case-Bound by a verb, which accounts for the presence of an incorporated post-position and object agreement in the causative structure (since oblique case is commonly assigned by a postposition).

There are several problems with analyzing y- as a postpositional prefix. First of all, a comprehensive list of all Navajo postpositions (Young and Morgan 1992:923-929) does not list y- or yi- as a postposition, which is striking. Secondly, Hale has to argue that this causative y- behaves differently from other postpositional elements in order to guarantee its surface linear order. A postposition should appear in position 1, to the immediate right of its object (position 0). However, we see from the following example, repeated from (7b) above, that another prefix intervenes between the postposition and its object.

(10) Awéé' bi-di-y-é-sa' (<...-u-za') (Hale and Platero 1996:5) baby **3-**d-**y-**SPF:1s-**u-**belch:PERF 'I burped the baby.'

Another problem concerns the glossing of y- as a causative morpheme. As we have seen, it is the u- classifier/valence prefix which introduces a function of causativity on the verb, in both the unaccusative and unergative examples; why would the unergatives require a double-marking of causation? Some languages, such as Turkish, Quechua (See Kulikov 1993), and Korean do exhibit causative doubling, but this also adds an additional causer argument to the argument structure, as shown in the Korean example in (11).

(11) John-i Mary-ekey os-ul ip-hi-key ha-ess-ta John-NOM Mary-DAT cloth-ACC wear-CAUS-CAUS do-PAST-DC 'John made Mary have (someone) get dressed.' (Oh 2000:2)

What, then, is this y- element? To begin with, it is not clear from all of the examples if a y- prefix is actually present, due to the fact that the surface phonological structure often obscures underlying morpheme structure. Consider the following example:

(12) biníudaah 'you are seating him' cf. nídaah 'you are in the act of sitting down' (Young and Morgan 1987:65)

In this example, both the u- classifier and bi- object prefix are present but a y-prefix is not discernible.

Assuming that the *y*- prefix is present, one possibility is that it is a "peg element" (a type of epenthetic element), which frequently appears in the Navajo verb because syllable structure requirements. More likely, however, is the hypothesis that this prefix is a thematic element required by these particular verb stems in the causative construction. Such thematic prefixes obligatorily occur in the causatives of other Athapaskan languages (such as Slave syntactic causatives; see Rice (1989)). Finding further evidence to support this hypothesis will be left to future research.

If the y- prefix is not a postposition, then the bi- prefix cannot be the object of a postposition. The remainder of the paper will focus on the unexpected appearance and behavior of bi- object morphology, which we will argue is not postpositional agreement, contrary to Hale (1997).

3. *Bi-* object agreement in unergative causatives

We begin by examining how basic 3rd person agreement works in Navajo.

3.1. 3rd person agreement in Navajo

Normally, the 3rd person direct object is represented by \emptyset when the subject of the verb is other than 3rd person. When both subject and direct object are 3rd person, the 3rd person direct object must be represented by yi- or bi-. (See Young and Morgan 1987:64.) Yi- is the 3rd person object prefix required in normal SOV

⁸Young and Morgan's (1987) analysis also supports the assertion that bi- is not the object of a postposition. They state (1987:65) that the prefix bi- which is used in transitivized intransitive verbs (i.e. unergative causatives) is the 3rd person direct object (position 4-conjunct), citing the following examples:

(i)	habiishyeed cf. haashyeed	'I'm running it up out (as a horse from 'I'm running up out'	a canyon)' (Young and Morgan 1987:65)
(ii)	habiishchxééh cf. haashchééh	'I'm honking it (a car horn)' 'I'm starting to cry'	(Young and Morgan 1987:65)
(iii)	biisıə' cf. yiizıə'	'I stood him up' 'I stood up'	(Young and Morgan 1987:64)

They add that "Bi-IV must not be confused with bi-0, the object of a postposition" (Young and Morgan 1987:65).

sentences when both subject and object are 3rd person. This is summarized in (13).

(13)	If subject is	3rd p. obj agreement is
	1	Ø
	2	Ø
	3	usually <i>yi</i> -, sometimes <i>bi</i> -
		sometimes <i>bi</i> -

The problem involves two separate issues:

- 1) The unergative causative sentences we have looked at so far have 1st person subjects. Why is there any overt 3rd person object agreement at all?
- 2) The usual object agreement when there are two 3rd persons is *yi-. Why is the object agreement bi- and not yi- in causativized unergatives?*

3.2. Question 1: 3rd person agreement with 1st/2nd subject

Many recent analyses argue that causatives undergo a type of argument sharing, whereby the internal argument of the causative predicate is semantically identified with the subject of the embedded predicate. In one such analysis, Alsina (1997) argues that causative complex predicates are formed by predicate composition in which an incomplete predicate is forced to combine with another predicate in order to complete its argument structure. This is illustrated by the causativization of the verb *laugh* in (14)-(17). The base predicate *laugh* has one (external) argument, which is a Proto-Agent. The External Argument Mapping Principle (Alsina 1997:207) requires that the external argument map on to the syntactic function of SUBJECT, as shown in (14).

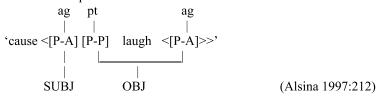


The causative predicate, illustrated in (15), results from the morphological combination of the causative morpheme with a verb stem, with consequent composition of the predicate information (Alsina 1997:211). P* followed by an underspecified a(rgument)-structure represents any predicator and its a-structure. This is an incomplete predicate that must compose with another predicate in order to be complete. The line connecting the argument of the causative predicate with an argument of the embedded predicate indicates that they are semantically identified, i.e. the same semantic participant (Alsina 1997:211).

(15) Causative predicate

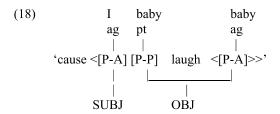
Finally, (16) shows composition of the base predicate *laugh* with the causative predicate.

(16) Predicate composition



Applying this to the Navajo example *I make the baby laugh*, shown in (17), we can interpret this sentence as two predicates, i.e. *I cause/affect the baby, the baby laughs*.

(17) (Shí) 'awéé' biyeeshdloh. (< bi-y-gh-sh-u-dloh) (Hale 1997:53) (I) baby **3-y-**PROG:1s-u-d:laugh:PROG 'I make the baby laugh.'



In (18), the 3rd person argument *baby* is semantically identified with two arguments; *baby* functions as both the patient of *cause* and the agent of *laugh*. We can now answer our first question: why is there overt 3rd person object agreement with 1st/2nd person subjects, when you normally only get overt agreement with two 3rd person arguments? Overt 3rd person agreement morphology is necessary because: a) there are two 3rd person arguments (the baby-patient and the babyagent); and b) one of these arguments is an agent (the baby-agent).^{9, 10}

⁹While this violates the biuniqueness condition of the Theta Criterion (Chomsky 1981), this violation is a common property of complex predicates such as the causative.

3.3. Question 2: bi- agreement marker when 3rd subject/3rd object

We can now turn to our second question. The usual object agreement when there are two 3rd persons is *yi*-. Why is the object agreement *bi*- and not *yi*-?

To answer this question, we must digress a little and examine the instances where bi- object morphology is present. Bi- is the object prefix that shows up in the yi-/bi- alternation known as Subject/Object Inversion or the Inverse Construction. This construction is one of the most-discussed topics in the Athapaskan syntactic literature (see Hale 1973, Creamer 1974, Platero 1974, Perkins 1978, Sandoval 1984, Sandoval & Jelinek 1989, Willie 1989, 1991, Speas 1990, Thompson 1996, Uyechi 1996, Jelinek 1997, Horseherder 1998, Saxon and Rice 2001, and others.) Examples of the yi-/bi- alternation are given in (19)-(21).

- (19)yi-ztau a. eprepru dzannez horse mule him-kicked 'The horse kicked the mule.' (Hale 1973:300) b. ustz-id 'epiebiu zannezb horse him-kicked mule 'The mule was kicked by the horse.'11 (Hale 1973:300) i.e. 'The horse kicked the mule' or 'The mule, the horse kicked him.'
- (20) a. 'ashkii 'at'eed yiyiiutsã/l
 boy girl 3O-3SGS-saw
 'The boy saw the girl.' (Hale 1973:301)
 b. 'at'eed 'ashkii biiutsã/l
 girl boy 3O-3SGS-saw
 'The boy saw the girl.' (Hale 1973:301)
- (21) a. ueechãa'ı mósı yishxash dog cat 3O-3SGS-bit 'The dog bit the cat.' (Hale 1973:301)

¹⁰The requirement that one of the arguments be an agent is redundant in the case of causativized unergatives. However, the relevance of this requirement is evident in the behavior of the causativized unaccusatives, where the two 3rd person arguments are both patient, and overt object marking does not occur. A very similar restriction holds in Tzotzil (a Mayan language) where the Agent Focus form (a type of Inverse) is only permitted in clauses with 3rd person agent and patient (Aissen 1999). The following section will show how the causative construction parallels the Inverse Construction in Navajo.

¹¹It is important to note that although the *bi*-sentences are often given a passive gloss in English, this is an active sentence and not a passive one; an independent passive construction exists in Navajo.

b. mósi uęęchãã'i **bi**shxash cat dog 3O-3SGS-bit 'The dog bit the cat.' (Hale 1973:301)

If both arguments are 3rd person and there is only one overt NP, that NP must be interpreted as the object (the so-called "One Nominal Interpretation" effect), as shown in (22a). If *bi*- object marking is used instead of *yi*-, the one overt NP is interpreted as the subject, as shown in (22b).

(22)a. 'ashkii yiyiiutsã/ 3O-3SGS-saw 'He/she/it saw the boy.' NOT 'The boy saw him/her/it.' (Speas 1990:214) 'ashkii **bi**iutsã/ b. 3O-3SGS-saw boy 'The boy saw him/her/it.' NOT 'He/she/it saw the boy.' (Speas 1990:216)

Previous analyses of the Inverse Construction emphasize the notion that *bi*-marks the subject as a patient and that the object is topicalized. Hale (1973) was the first to discuss the construction in any detail, noting that:

[the subject-object inversion rule] brings about a change in the order of the noun phrases so that, in the derived structure, the logical object (or patient) precedes the logical subject (or agent)...[and] application of the rule is apparently limited to sentences in which both the subject and the object are 3rd-person. (Hale 1973:300).¹²

Sandoval & Jelinek (1989:356) claim that "the *bi*-construction, like the English Passive, involves an argument that does not have the thematic role of agent (that is, a patient, theme, goal, etc.) but does have the grammatical role of Subject."

Willie (1989:410) notes: "[t]he *bi*- prefix marks a construction as inverse. That is, the usual link between the transitive subject and the theta-role agent is reversed."

Thompson (1996) argues that there is no link between Subject-Object Inversion and the yi-/bi- alternation; the choice between the two is instead tied to discourse topicality with the prefix bi- indicating that the object is more topical than the subject.

Finally, Jelinek (1997) also supports the claim that the Inverse marks a change in the mapping between grammatical relations and topic/focus structure. With yi-, the agent is topic and the patient is focus; the bi- pronoun marks a topicalized patient.

 $^{^{12}}$ Hale (1973) was also the first to point out that the yi-/bi- alternation seems to be sensitive to an animacy hierarchy. This aspect of the construction will not concern us here.

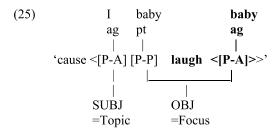
Each of these analyses of the Inverse Construction underscores the fact that bi- marks the subject as a patient. Without disputing this, we would like to propose that a slightly different perspective more accurately characterizes the function of bi-. Crucially, bi- refers to focus rather than topic. Bi- marks the object or "focus" position as agent.

This is illustrated in (23). Adopting the topic/focus discourse terminology, "topic" refers to NP₁, and "focus" refers to NP₂ in a sequence NP₁-NP₂-VERB.¹³

Canonically, agent maps to topic and patient maps to focus. These are the cases where *yi*- appears when there are two 3rd person arguments. However, in the Inverse Construction, a 3rd person *agent* maps to focus (and topic is a non-agent of the predicate).

How does this relate to our discussion of unergative causatives? Just as in the Inverse Construction, the *bi*- prefix indicates non-canonical mapping where *agent maps to focus* (and topic is a non-agent of the base predicate). This is illustrated in (24) and (25), repeated from above.

(24) Topic Focus
(Shí) 'awéé' biyeeshdloh. (< bi-y-gh-sh-u-dloh) (Hale 1997:53)
(I) baby 3-y-PROG:1s-u-d:laugh:PROG
'I make the baby laugh.'



The bi- prefix indicates that baby, in focus position, is agent of the base predicate, rather than patient. As for the topic, I, bi- can only tell us that it is a non-agent of the base predicate laugh; this does not preclude it from being an agent of the causative predicate. It is not enough to say that bi- indicates a topical-

 $^{^{13}}$ We use the terms topic/focus rather than subject/object due to the conflicting uses of the terms subject/object in previous analyses. For example, while some analyses treat the yi-/bi- alternation as an SOV-OSV alternation, others do not.

ized patient; while this will explain the Inverse cases, it will not explain the causative cases nor the one-nominal cases.

Finally, this answers our second question: when there are two 3rd person arguments, the 3rd person object marker bi- is used rather than yi- to indicate that the focused NP is an agent of the base predicate.

4. Conclusions

We have seen that two types of morphological causatives can be found in Navajo: those formed from unaccusative verbs and those from unergative verbs. The causativized unergative verbs exhibit several unique properties, including an additional "causative" prefix and the *bi*- prefix marking 3rd person object agreement, which is not the expected agreement.

Normally, overt 3rd person morphology is only required when there are two 3rd person arguments. By appealing to an analysis of complex predicates in which the internal argument of the causative predicate is semantically identified with the logical subject of the embedded predicate, we can explain why 3rd person object marking is necessary in causatives: there are two 3rd person arguments.

Secondly, the usual agreement found with two third person arguments is the yi- prefix. In causatives, however, the agreement prefix present is bi-. By examining the behavior of the bi- object agreement more closely, we can explain its unexpected appearance: the bi- prefix indicates a non-canonical mapping between argument structure and discourse structure in which agent maps to focus. A reinterpretation of the principles governing 3rd person object marking in Navajo thus makes it possible to unify two seemingly unrelated uses of the bi- prefix.

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