Double Classifiers in Navajo Verbs *

Lauren Pronger

Class of 2018

1 Introduction

Navajo verbs contain a morpheme known as a “classifier”. The exact functions of these morphemes are not fully understood, although there are some hypotheses, listed in Sections 2.1-2.3 and 4. While the l and l-classifiers are thought to have an effect on a verb’s transitivity, there does not seem to be a comparable function of the (∅) and d-classifiers. However, some sources do suggest that the d-classifier is associated with the middle voice (see Section 4).

In addition to any hypothesized semantic functions, the d-classifier is also one of the two most common morphemes that trigger what is known as the d-effect, essentially a voicing alternation of the following consonant explained in Section 3 (the other morpheme is the 1st person dual plural marker ‘-iid-’). When the d-effect occurs, the ‘d’ of the involved morpheme is often realized as null in the surface verb. This means that the only evidence of most d-classifiers in a surface verb is the voicing alternation of the following stem-initial consonant from the d-effect. There is also a rare phenomenon where two

*I would like to thank Jonathan Washington and Emily Gasser for providing helpful feedback on earlier versions of this thesis, and Jeremy Fahringer for his assistance in using the Swarthmore online Navajo dictionary. I would also like to thank Ted Fernald, Ellavina Perkins, and Irene Silentman for introducing me to the Navajo language.
classifiers occur in a single verb, something that shouldn’t be possible with position class morphology. Most of the verbs where double classifiers may occur include the d-classifier.

Since classifiers are often phonetically null in the surface verb, it can be difficult to determine which classifier is used in a verb, and even more difficult to determine whether a double classifier is present. In Section 4, I discuss Faltz’s (1998) method of determining which verbs contain a d-classifier based on the stem-initial consonant. Using this method, I have collected the data in Section 6, all of which should have double classifiers.

This thesis analyzes the d-effect and classifiers in verbs with double classifier constructions in order to determine the cause of such a construction. That analysis is then used to form a conclusion about the existence of double classifiers, since this phenomenon should not be able to occur due to the rules of position class morphology outlined in Section 2. (Note: the glossing in this thesis often uses non-standard abbreviations. A glossary of all the abbreviations used can be found in the Appendix. Also note that this thesis uses standard Navajo orthography instead of IPA.)

2 Background

With around 170,000 speakers, Navajo is considered a threatened language (Fennig et al. 2013). Spoken primarily in the Navajo Nation around Northeast Arizona and Western New Mexico, Navajo is considered part of the Athabaskan language family stretching all the way to Alaska. It is a polysynthetic language, exhibiting extremely complex verb structures with position class morphology. According to Young and Morgan (1980), there are 10 morpheme slots available to each verb. These slots are broken into two sections: disjuncts and conjuncts. Disjuncts occur in the first three slots, and conjuncts occur in the fourth through ninth slots. The tenth and last slot is reserved for the verb root which is always verb-final. Just before the root, in position nine, is the stem classifier. An example of the Young and Morgan categories is shown in Table 1 with the classifier in bold.
The verb form *búñdabiniildaah*, with *tsii’ááł* ‘pillow’, meaning ‘we two sat them against the pillow repeatedly,’ is presented in the table.

<table>
<thead>
<tr>
<th>Disjuncts</th>
<th>Conjuncts</th>
<th>Stem</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 00</td>
<td>IV</td>
<td>x</td>
</tr>
<tr>
<td>bi- f- ná- da-</td>
<td>bi- ni- yi-  id- l-</td>
<td>daah</td>
</tr>
<tr>
<td>3IO against iterative plural</td>
<td>3DO term trans perf</td>
<td>1dpS</td>
</tr>
</tbody>
</table>

Table 1: Young and Morgan morpheme slots, with an analysis of the verb form *búñdabiniildaah* as an example

Most verbs are not as complicated as the example in Table 1, and many have as few as three or four slots filled in addition to the stem. However, all verbs must have a classifier, regardless of whether it can be seen in the surface verb. Most classifiers are realized as null in the surface verb or undergo phonological changes which can make them difficult to recognize. These effects are discussed in Sections 2.1-2.3.

There are four classifiers in Navajo: ∅, l, d, l. Faltz (1998) explains the classifiers as a way of categorizing verbs, similar to how Spanish verbs are conjugated in categories determined by which vowel begins the suffix. These ‘classifier categories’ determine how verbs are formed, as specific forms of some prefixes can only be used with certain classifiers. In some themes, classifiers have no obvious meaning, but in others they have an identifiable grammatical function. This usually consists of changing the transitivity of the verb as well as being valence and voice markers. There is also a phonological process of classifier deletion that usually results from clashing [± voice] features between the classifier and the root-initial consonant. The details of each classifier is discussed in 2.1-2.4 below according to Young (2000).

Some linguists, such as Michael Krauss (1969) and Chad Thompson (1996), argue that there are really only two classifiers in Navajo, but that each one has a voiced and unvoiced
allomorph. Young and Morgan (2007) claim that these pairs are $∅/d$ and $l/l$, while Krauss (1969) and Thompson (1996) argue that the l-classifier is a compound of the $l$- and $d$-classifiers from Proto-Athabaskan. The allomorph pairs are then argued to be products of the phonological d-effect discussed in Section 3.

Within the current framework of position class morphology, only one morpheme may be present in a single slot, but some Navajo data exists where there appear to be two classifiers sandwiched into slot ix. This appears to be a clear violation of Young and Morgan’s morphology model as there would be two morphemes concurrently in the same slot, but there are a number of possible explanations for how two classifiers can exist in the same verb. Most of these theories involve the d-classifier and its phonological function triggering what is known as the d-effect presented in Section 3. These theories are discussed in Section 7.

2.1 The $∅$-Classifier

In most analyses, the $∅$-classifier represents the absence of a classifier. However, since classifiers are obligatory, the $∅$-classifier is treated as a positive element. Essentially, the $∅$-classifier is thought of as a morpheme with no phonological form. Therefore, it often has no function other than to classify verbs which are active, and can either be transitive or intransitive. Phonologically, this classifier often results in the d-effect on the verb root, as the absence of a classifier means the 1st person dual plural (1st dpl) marker in position VIII, if present, is adjacent to the root. This classifier is often considered the voiceless version of the d-classifier, although it is distinguished from it by tending to carry a stative theme, a semantic function the d-classifier is not thought to have (Young 2000). An example of this classifier can be seen in (1).

(1) /na-$∅$-maas/ \rightarrow [naamaas]
UNCL-CL-to.move.rolling
‘he’s rolling around’

(Young 2000: 29)
2.2 The ł-Classifier

The ł-classifier is the most prevalent and usually acts as a causative-transitivizer of ∅-class verbs. This is evident in the alternation between (1) and (3), where in (1) there is no object so the subject is doing the rolling, and in (3) the subject is causing the object to roll.

(2)  
yá-ł-ti’
   ia.THEM.talk-CL-to.talk
   ‘he’s talking’ (ł-thematic)  
   (Young 2000: 29)

Additional examples of the ł-classifier can be seen in (3)-(7).

(3)  
nei-ł-maas
   UNCL-CL-to.move.rolling
   ‘he’s rolling it around’ (ł-causative)  
   (Young 2000: 29)

The ł-classifier is realized as null (has no phonological representation in the surface verb) when following /s/ or /sh/ and when preceding stem-initial /z/ and /zh/, and /l/ and /gh/. The stem-intial consonants listed are then de-voiced. The ł-classifier also changes a preceding oh so that the /h/ is realized as null. These rules can formally be represented as

\[
\begin{align*}
/l/ & \rightarrow \emptyset & [s] & \underline{\text{[s]}} \\
/l/ & \rightarrow \emptyset & [\text{sh}] & \underline{\text{[sh]}} \\
/l/ & \rightarrow \emptyset & [\text{oh}] & \underline{\text{[oh]}} \\
/l/ & \rightarrow \emptyset & & \underline{\text{[l]} X}
\end{align*}
\]

where X is /z/, /zh/, /l/, and /gh/, and

\[
\begin{align*}
X & \rightarrow Y & [l] & \underline{\text{[l]}} \\
\text{oh} & \rightarrow \emptyset & [o] & \underline{\text{[l]}}
\end{align*}
\]
where \( Y \) is \( X \) devoiced (/s/, /sh/, /l/ and /h/).

In the examples below you can see the l-classifier in parenthesis in the underlying structure on the left, and then the surface representation of the verb on the right where the classifier has been deleted and the following consonant devoiced.

(4) /naash-l-jid/ \( \rightarrow \) [naashjid]
    UNCL-CL-to.move/handle.anything.on.one’s.back
    ‘I’m carrying it around on my back’
    (Young 2000: 29)

(5) /dé-l-zas/ \( \rightarrow \) [désas]
    VIA.THEM-CL-to.handle/move.small.particles
    ‘I’m strewing it along’
    (Young 2000: 29)

(6) /'a-l-gháá'/ \( \rightarrow \) [átháá]
    V.DEICT.SUB.PRON-CL-to.snore
    ‘he’s snoring’
    (Young 2000: 29)

/l/ also changes to [l] under the d-effect in 1st person dual plural, passive, reflexive, and reciprocal verbs as seen in the rule below and shown in (7). The d-effect is a somewhat complicated voicing alternation further discussed in Section 3.

\[ /l/ \rightarrow /l/ \quad | \quad [d] \]

(7) /'ah-ii-d-l-naad/ \( \rightarrow \) [áhiínaad]
    IV.DO.PRON.REC-CL-TO lick
    ‘they’re licking each other’
    (Young 2000: 29)

2.3 The d-Classifier

Unlike most Athabaskan languages, the d-classifier in Navajo does not usually have a phonological surface representation of [d]. Instead, it is usually indicated by the phonological d-effect alternation of the stem-initial consonant. The stem-initial consonants in
Table 2 undergo the d-effect with the d-classifier as shown. In addition, most stem-initial consonants block the d-classifier from appearing as [d] in the surface representation, and the classifier is instead realized as null. These consonants are as follows: b-, ch-, ch’-, d-, d’, dz-, t-, t’, tl-, tl’-, ts-, ts’-, g-, k-, k’-. More formally, this can be represented as

\[ \text{/d/} \rightarrow \emptyset \ |
\]

where \( X \) is any of the stem-initial consonants in the list above.

<table>
<thead>
<tr>
<th>Consonant</th>
<th>Transformation</th>
<th>Example</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>[dl-]</td>
<td>( \rightarrow )</td>
<td>[dl-]</td>
<td>nás-dlíf’ ‘it again became; it reverted’</td>
</tr>
<tr>
<td>[dl]</td>
<td>( \rightarrow )</td>
<td>[dl]</td>
<td>násdlíf’ ‘it again became; it reverted’</td>
</tr>
<tr>
<td>[g-]</td>
<td>( \rightarrow )</td>
<td>[g-]</td>
<td>yígí ‘it was hauled’</td>
</tr>
<tr>
<td>[t’-]</td>
<td>( \rightarrow )</td>
<td>[t’-]</td>
<td>yít’a ‘it was brought’</td>
</tr>
<tr>
<td>[dz-]</td>
<td>( \rightarrow )</td>
<td>[dz-]</td>
<td>biih yídziːd ‘it was poured into it’</td>
</tr>
<tr>
<td>[j] (=[dzh])</td>
<td>( \rightarrow )</td>
<td>[j]</td>
<td>yiijí ‘it turned black’</td>
</tr>
</tbody>
</table>

Table 2: Stem-initial consonants affected by the d-effect (Young 2000: 30)

This classifier usually appears in passive, mediopassive, reflexive, and reciprocal versions of \( \emptyset \)-classifier verbs. This essentially means that d-class verbs are the passive, or more specifically, middle voice, forms of \( \emptyset \)-class verbs.

2.4 The l-Classifer

According to Young, the l-classifier is predominantly formed from the d-effect on the l-classifier, such as in (7), which comes from the preceding 1st person dual plural marker

\[ \ldots \rightarrow [l] \rightarrow \emptyset \rightarrow [l] \rightarrow \ldots \]

1It is important to note that Young and Morgan (1987: xiii) recognize [dz], [dl], and [t’] as single consonants, not consonant clusters (likewise, [d’] is not recognized as a single consonant). This means the d-effect that results in one of those consonants actually changes the consonant from /d-l/ → [dl] and likewise for the others listed. In addition, Young and Morgan also lists [zh] and [j] as separate and distinct consonants (a voiced spirant and unaspirated affricate, respectively).
‘-iid-’. When the l-classifier is used on its own, it can also change into [I] when following the 1dpl as in (11). Also like the l-classifier, this constituent surfaces as ∅ when following /s/ or /sh/, and also surfaces as ∅ (or as Young says “is reflected in failure of the stem-initial consonant to devoice”) (2000: 31) when preceding /z/, /zh/, or /gh/ and it is devoiced when following the /h/ of the oh pronoun. This can formally be represented by the rules below, and can be seen in (8-10).

\[
/l/ \rightarrow /l/ \quad | \quad [d] \\
\]

and

\[
/l/ \rightarrow \emptyset \quad | \quad [s] \\
/l/ \rightarrow \emptyset \quad | \quad [sh] \\
\]

and

\[
/l/ \rightarrow [i] \quad | \quad [oh] \\
/l/ \rightarrow \emptyset \quad | \quad ____ X
\]

where X is /z/, /zh/, and /gh/.

Semantically, it is likely to appear in passive, mediopassive, reflexive, and reciprocal versions of ∅-classifier verbs.

(8) \[\text{/yi-sh-l-déél/} \rightarrow [yishdél]\]
IV.DO.PRON-VIII.SUBJ.PRON-CL-.to.chew/eat.plural.objects
‘I ate them (as berries)’

(Young 2000: 30)

(9) \[\text{/yi-sh-l-ghal/} \rightarrow [yishgalt]\]
IV.DO.PRON-VIII.SUBJ.PRON-CL-.to.chew/eat.meat
‘I’m eating it (meat)’

(Young 2000: 30)
3 The D-Effect

The Athabaskan languages have a phenomenon called the d-effect, a voicing alternation that affects the stem-initial consonant of verbs. In most Athabaskan languages, including Navajo, the d-effect happens primarily as a result of the d-classifier, although it can also be triggered by the 1st person dual plural (1dpl) marker ‘-iid-’ in position VIII. However, unlike other Athabaskan languages, after the d-effect has occurred, the ‘d’ from either the 1dpl or the d-classifier is usually realized as null in the surface verb. In the case of the d-classifier, this can often make it extremely difficult to determine whether the verb contains a d or ∅-classifier without also knowing a different form of the verb.

The changes enacted by the d-effect depend on which morpheme is causing the phenomenon. When the 1dpl triggers the effect, the l-classifier changes to [l] as in (11) and the 1-classifier to [l] as in (??). When the d-classifier triggers the effect, the ∅-classifier changes to the d-classifier, and all of the stem-initial changes outlined in Table 2. For ease of reference, I will recreate that table here as Faltz (1998) presents it.
As outlined below, most existing data on double classifiers involves the d-classifier manifesting solely as the d-effect on the following consonant while another classifier is also present in the verb. A number of reasons, including misinterpretation of the d-classifier as part of the verb stem, as outlined in Section 7, could lead to these constructions.

4 Current Literature

The problem of double classifiers relies on the rules of position class morphology. Kari (1989: 426) describes how contemporary models of morphology and word formation make position class theory look like a “mechanistic ‘slot and filler’ approach that dwells on surface structure alone.” He outlines many models, including his own, that view the Athabaskan verb from a more flexible “zone” structure. In these models, the “slot positions” of morphemes that Young and Morgan present are still there, but they have been modified so that groups of these slots are considered a zone. This allows for various processes during verb formation that may alter the final affix ordering or realization due to

<table>
<thead>
<tr>
<th>before d-effect</th>
<th>after d-effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>z</td>
<td>dz</td>
</tr>
<tr>
<td>zh</td>
<td>j</td>
</tr>
<tr>
<td>gh</td>
<td>g</td>
</tr>
<tr>
<td>w</td>
<td>g or 'w</td>
</tr>
<tr>
<td>y</td>
<td>g or 'y</td>
</tr>
<tr>
<td>m</td>
<td>'m</td>
</tr>
<tr>
<td>n</td>
<td>'n</td>
</tr>
<tr>
<td>l</td>
<td>dl (usually)</td>
</tr>
<tr>
<td>'t'</td>
<td>t'</td>
</tr>
</tbody>
</table>

Table 3: Chart of consonants affected by the d-effect, before and after (Faltz 1998: 30)
phonological processes such as metathesis. An example of these zones can be seen in Figure 1. In this model, Kari numbers the zones from right to left, and includes groups of affixes listed alphabetically inside the numerical zones (such as $<CBA>$ inside zone 3, conjugation affixes, in Figure 1). He also includes a small list of suffixes to the right of the root. However, as can be seen from Figure 1, Kari’s model does not affect the classifier position, nor do any of the models Kari mentions. So while the position class analysis of Athabaskan verbs may be under discussion, it seems the classifiers and their position is not.

Figure 1: Kari’s model of the Navajo verb according to his qualifier zone theory (Kari 1989: 444).

Most literature on Navajo includes a brief mention, or even section, on classifiers. Despite this, it would seem that no one is clear on the true purpose of the classifiers. Thompson (1996: 353) describes the Athabaskan classifiers as cognate prefixes involved in valence changes. He separates the classifiers into $\emptyset$, [l], [də], and [lə], where [lə] is a compound of [l] and [də]. Therefore, he uses the term “D-element” to refer to both [də] and [lə], while he reserves the term “d-classifier” to refer to just [də]. When discussing the separation of classifiers based on use, Thompson (1996: 353) says that while the d-element can be predictable, it can also be “used thematically or derivationally in instances that do not involve voice or any other grammatical construction.” While he
is unable to predict or explain these occurrences, he shows “some degree of correlation between transitivity and agentivity and the choice of classifier as a derivational prefix.” For instance, he claims that “middle voice verbs derived from active themes undergo a predictable change in classifier,” which results in an active \( \emptyset \rightarrow d \) in middle, and an active \( l \rightarrow \ell \) in middle (Thompson 1996: 354).

Thompson separates the appearances of the \( d \)-classifier into two categories: unpredictable and unproductive occurrences; and those that are predictable, and to some extent, productive. The predictable uses fall into the middle voice, which Thompson argues in his 1996 paper are derived from argument suppression. He explains that the middle voice is historically formed by a reflexive morpheme, but that this analysis has come from the study of European languages and so a new analysis may be needed for languages families such as Na-Dene (the family including Athabaskan as well as Tlingit and Eyak). He concludes that the Athabaskan middle voice did likely originate from the reflexive, and the \( d \)-element likely derived from a prefix that could suppress any argument, leading to its prevalence in passives. While Thompson (1996: 360) outlines a number of Na-Dene prefixes associated with the \( D \)-element, he explicitly connects the \( d \)-classifier in Navajo to passive constructions. He also states that many Athabaskan constructions “can have either a passive or anticausative translation,” pointing to agentless passives developing from anticausatives (Thompson 1996: 359). He considers the middle voice to be anticausative, an intransitive verb derived from a transitive through agent suppression, i.e. “the stick broke” versus “the stick was broken,” two translations he has for a single Athabaskan example (he does not specify which Athabaskan language is demonstrated) (Thompson 1996: 359).

To summarize, Navajo has two passive constructions: a patientive argument coded by a subject pronominal prefix, and a patientive argument coded by a direct object prefix. The \( d \)-element is seen in intransitive antitelic verbs (where goal suppression occurs), passives (with agent suppression), and what Thompson calls “agentive passive” (with subject suppression). In unpredictable appearances, Thompson relates the \( d \)-element to \( dV \) morphemes (where \( V \) is some vowel) such as the reflexive prefix. This means there
are many possible sources for the d-element historically, where multiple prefixes could have become cognate with *da*. Figure 2, from Thompson, illustrates this nicely. Also, the reflexive, as stated above, is thought to be the derivation of the middle voice as its \(dV\) form has at least two similarities with the middle voice: they involve affected or patientive subjects, and they reduce valency. Thus, Thompson (1996) concludes that the d-element probably derived from multiple suppressive prefixes, while he hypothesizes that constructions with suppressed subjects could be derived from dummy or impersonal subject prefixes, possibly explaining the non-productive appearances of the d-element in verbs that require non-agentive subjects.

Figure 2: Proposed development of the Na-Dene middle voice from a suppressing (dummy) morpheme. \(\Delta\) = suppressed argument, \(S\) = source, \(G\) = goal, \(A\) = agent, \(P\) = patient (Thompson 1996: 375).

Faltz (1998: 40) suggests that verb stems in Navajo are grouped into categories headed by the four classifiers, equating these categories to the conjugation patterns of Spanish verbs which are separated by which vowel begins the suffix. Each category creates a slightly different version of the verb.
Imperfective: I  
Perfective: P  
Future: F  
Iterative: R  
Usitative: U  
Optative: O  
Progressive: Pg  

Table 4: The seven modes of Navajo verbs and their abbreviations (Faltz 1998: 14)

Faltz uses these different methods of verb creation from the common mode categories in Table 4 to determine which classifier is used for which verb. For example, most verbs in the I mode will have no distinguishable difference between ∅ and d-classifier verbs. In these cases, it is almost impossible to determine which classifier is used when looking only at the surface verb. However, if we take the same verb and put it in the P mode, then it becomes clear which classifier is used based on how the P mode verb is formed.

5 Methodology

Since data recording the presence of double classifiers is extremely rare, I have found likely examples from the Young and Morgan Colloquial Dictionary (1987) using Faltz’s assumptions about stem-initial consonants and verbs in the P mode. According to Faltz (1998: 63), the subject prefixes used in the P mode are split into pairs: the ∅/l class verbs, and the d/l class verbs. Thus, when looking at the P form of the verb, we can determine which classifier is used based on the subject prefix. Faltz also uses the assumption that if a stem-initial consonant is on the right side of Table 3, a consonant that is understood to only exist when the d-effect has been applied, then the d-effect has already applied to that verb stem. Krauss (1969: 65) also seems to have this assumption based on his use of the verb ko’yilt’át as an example of a double classifier with l- and d-.
In most cases, if the verb stem is affected by the d-effect, then the d-classifier must be present in the underlying form. Since the d-effect can also be applied through the 1dpl morpheme ‘-iid’, I have only included verbs that also have a morpheme between the 1dpl (if it is present at all) and the stem so that the d-effect is essentially blocked from affecting the verb stem. In addition, in order to make sure there are two classifiers present and not just the d-classifier, I only included verbs that are shown to have an l- or ł-classifier in the underlying representation. This usually means that the l or ł has been realized as null in the surface verb from a preceding [s] or [sh].

Based on the data collected from Young and Morgan (1987), I analyze how the double classifiers tend to appear to form a conclusion. In other words, does the d-classifier tend to pair more with the l or ł-classifier? Do verbs with double classifiers have a meaningful difference in translation or semantics from verbs with single classifiers, particularly those which seem to be single-classifier counterparts of the data?

6 Data

There does not appear to be a source that compiles Navajo verbs with double classifiers. Most sources do not even mention the phenomenon, and the ones that do (Young 2000, Young and Morgan 2007) only have a brief mention or list only a couple of examples. Therefore, most of the data listed below is what I have determined to contain double classifiers based on the stem-initial consonant. In other words, following Faltz’s (1998) assumption that if a consonant from the right side of Table 3 is in the surface verb, then the d-effect has already acted on it in order to create that consonant or consonant cluster, I am assuming the verbs in the fourth section of data contain double classifiers based on the l or ł that seem to occupy the classifier position as well as the stem-initial consonant from the right side of Table 3.

The data below is grouped into pairs of double classifiers. For example, in 6.1, the
example verb has both ł- and l-classifiers. Where possible, I have shown the underlying representation, with all morphemes I have been able to identify, and the surface representation shown in the source. The classifiers are in bold.

6.1 ł- and l-

The [l] is deleted because it fails to devoice the w. The ł-classifier is a causative and the l-classifier gives the verb the semantic role of theme.

(12) /yi-yoo-ł-l-wol/ \(\rightarrow [yiyyo\text{ł}wol]\)

IV.DO.PRON-UNCL-CL-CL-to.run

‘he’s running it, causing it to run’ (Young 2000: 31)

6.2 l- and d-

The [d] combines with the stem-initial [z] to make [dz] because of d-effect rules. Aspect listed as Neuter Imperfective; stem listed as ldzis.

(13) /’a-?-l-d-zis/ \(\rightarrow [’ałts’ádzis]\) ²

UNCL-CL-CL-to.be.grooved.or.channeled

‘they fork, split (like canyons)’ (Young and Morgan 1987: 106)

The [d] changes to [t] and combines with the stem-initial [’] to make [t’] because of d-effect rules. Aspect listed as Neuter Imperfective; stem listed as lt’e’.

(14) /’á-ní-ii-l-d-’e’/ \(\rightarrow [’ánílt’e’]\)

UNCL-CL-CL-to.be.in.number

‘to number (in a relative or comparative sense)’ (Young and Morgan 1987: 121)

²The underlying form of the verb is unclear.
The [l] is realized as null because of the preceding [sh], and the [d] changes to [t] and combines with the stem-initial ['] to make [t'] because of d-effect rules. Aspect listed as Continuative Imperfective; stem listed as lt'í.

(15) /ˈá-ná-ho-di-sh-l-d-ˈí/ → ['ánahodisht']
    UNCL-VIII.SUBJ.PRON-CL-CL-to.act.or.do
    ‘I pretend to do’ (Young and Morgan 1987: 112)

The [l] is realized as null because of the preceding [sh], and the [d] changes to [t] and combines with the stem-initial ['] to make [t'] because of d-effect rules. Aspect listed as Imperfective; stem listed as lt’ááh.

(16) /ˈa-ni-sh-t-d-ˈááh/ → [‘anisht’ááh]
    UNCL-VIII.SUBJ.PRON-CL-CL-to.cause.to.move.flying
    ‘to fly (as pilot of an unspecified flying vehicle)’ (Young and Morgan 1987: 119)

The [l] is realized as null because of the preceding [sh], and the [d] combines with the stem-initial [l] to make [dl] because of d-effect rules. Aspect listed as Imperfective; stem listed as ldlóósh.

(17) /ˈi-ūsh-l-d-lóósh/ → [yiishdlóósh]
    UNCL-VIII.SUBJ.PRON-CL-CL-to.move.on.all.four
    ‘I got on my hands and knees’ (Young and Morgan 1987: 799)

The [l] is realized as null because of the preceding [s], and the [d] changes to [t] and combines with the stem-initial ['] to make [t'] because of d-effect rules. Aspect listed as Imperfective; stem listed as lt’ees.

(18) /ˈa-s-t-d-ˈees/ → [‘ast’ees]
    UNCL-CL-CL-to.roast.or.cook

---

3This verb has two entries in the dictionary: (a) listed above, categorized under the l-classifier and with the stem lt’ááh translated as “to cause to move by flying.” (b) is categorized under the d-classifier with the stem t’aah and translated as “to move - a solid roundish object.”
‘to roast or cook food’  
(Young and Morgan 1987: 124)

The [l] is realized as null because of the preceding [s], and the [d] combines with the stem-initial [z] to make [dz] because of d-effect rules. Aspect listed as Continuative Imperfective; stem listed as \( \dot{ldzid} \).

\[
\text{(19) } /na-ni-s-\dot{l}-d-zid/ \rightarrow [nanisdzid]
\]
UNCL-CL-CL-to.agitate
‘to shake it (around), to slosh it (liquid)’  
(Young and Morgan 1987: 561-562)

### 6.3 \( \dot{l} \)- and \( d \)-

The [d] combines with stem-initial [n] to make [’n]. The \( \dot{l} \)-classifier adds a semantic theme and the \( d \)-classifier enforces the d-effect.

\[
\text{(20) } /ná-bi-dii-\dot{l}-d-na’/ \rightarrow [nábidii’na’]
\]
Ia.IO.PRON-IV.DO.PRON-?-CL-CL-to.cause.to.get.up
‘I stood it back up’  
(Young 2000: 31)

The [d] changes to [t] and combines with stem-initial [’] to make [t’]. The \( \dot{l} \)-classifier adds a semantic theme and the \( d \)-classifier enforces the d-effect.

\[
\text{(21) } /yoo-\dot{t}-d-’áát/ \rightarrow [yoot’áál]
\]
UNCL-CL-CL-to.cause.to.move.along.(fire)
‘he’s carrying it (fire/torch) along’  
(Young 2000: 31)

The [d] changes to [t] and combines with the stem-initial [’] to make [t’] because of d-effect rules. The \( \dot{l} \)-classifier is a causative and the \( d \)-classifier enforces the d-effect. Mode listed as Progressive; stem listed as \( \dot{l}d- ’áát \rightarrow t’áát \).

\[
\text{(22) } /dee-\dot{l}-d-’áát/ \rightarrow [deesht’áál]
\]
UNCL-CL-CL-to.cause.to.move.along.(fire)
The [d] changes to [t] and combines with stem-initial [’] to make [t’] because of d-effect rules. The ł-classifier is a causative and the d-classifier enforces the d-effect. Aspect listed as Imperfective; stem listed as lt’ááh.

(23) /nish-ł-d-’aah/ → [nisht’aah]
UNCL-CL-CL-to.cause.to.move.flying
‘to fly it, to take it (an airplane)’

The [d] changes to [t] and combines with stem-initial [’] to make [t’] because of d-effect rules. The ł-classifier is a transitivizer and the d-classifier enforces the d-effect. Mode listed as Progressive; stem listed as ł-d- ’ááł → lt’ááł.

(24) /yi-ł-d-’ááł/ → [yisht’ááł]
UNCL-CL-CL-to.handle.(fire)
‘to be carrying it along (fire)’

The [ł] is realized as null because of the preceding [sh], and the [d] changes to [t] and combines with the stem-initial [’] to make [t’] because of d-effect rules. Aspect listed as Imperfective; stem listed as lt’ood.

(25) /’ii-sh-ł-d-’ood/ → [’iisht’ood]
UNCL-VIII.SUBJ.PRON-CL-CL-to.suck

---

4This verb has two entries in the dictionary: (a) listed above categorized with the ł-classifier, but noted as having a double classifier, and (b) with only the d-classifier. There are separate translations listed for the resulting stems, lt’ááł, (a) as “to cause to move along - fire” and (b), t’ááł, as “to handle - a solid roundish object.”

5This verb has two separate entries in the dictionary, both listed under the ł-classifier: (a) listed above with the stem lt’ááh and translation “to cause to move - flying”, and (b) with the stem ł-d- ’aah and translation with ko’ “to cause to move - a solid roundish object - double classifier relates only to fire.”

6This verb has two separate entries in the dictionary: (a) listed above with a noted double classifier, the stem lt’ááł, and the translation “to handle - a solid roundish object, fire.” (b) is listed under the d-classifier only with the stem t’ááł and translation “to handle - a solid roundish object.”
‘to suck it away, to pump it away’  

(Young and Morgan 1987: 486)

The [l] is realized as null because of the preceding [sh], and the [d] changes to [t] and combines with the stem-initial ['] to make [t'] because of d-effect rules. Aspect listed as Imperfective; stem listed as lt’e’.

(26) /’ii-sh-l-d-’e’/
UNCL-VIII.SUBJ.PRON-CL-CL-to.move.a.slender.stiff.or.animate.object  
→ [’iisht’e’]

‘to put it away out of sight, to toss it away (a rifle, pole, key, animate object)’  
(Young and Morgan 1987: 485-486)

The [l] is realized as null because of the preceding [sh], and the [d] changes to [t] and combines with the stem-initial [’] to make [t’] because of d-effect rules. Aspect listed as Imperfective; stem listed as lt'ééh.

(27) /na-sh-l-d-’ééh/  
→ [naasht’ééh]?
UNCL-VIII.SUBJ.PRON-CL-CL-to.extend.in.a.slender.line  
‘to hang it down (as a cord, sash), to suspend it’  
(Young and Morgan 1987: 599-600)

The [l] is realized as null because of the preceding [sh], and the [d] changes to [t] and combines with the stem-initial [’] to make [t’] because of d-effect rules. Aspect listed as Continuative Imperfective; stem listed as lt’ih.

(28) /bi-ná-’á-sh-l-d-’ih/  
UNCL-VIII.SUBJ.PRON-CL-CL-to.extend.in.a.slender.line  
[biná’ásht’ih]?
‘to surround it with a fence (as a field)’  
(Young and Morgan 1987: 226-227)
The [l] is realized as null because of the preceding [sh], and the [d] changes to [t] and combines with the stem-initial [l] to make [t] because of d-effect rules. Aspect listed as Repetitive Imperfective; stem listed as tl’óóh.

(29)  /yí-ní-sh-l-d-’óóh/  \[yínísht’óóh]\nUNCL-VIII.SUBJ.PRON-CL-CL-to.shoot.an.arrow.or.cast.a.spear
‘to throw it at him (a spear or pole), to shoot at him (with arrows)’ (Young and Morgan 1987: 768)

The [l] is realized as null because of the preceding [sh], and the [d] combines with the stem-initial [l] to make [dl] because of d-effect rules. Aspect listed as Repetitive Imperfective; stem listed as tl’óóh.

(30)  /’a-sh-l-d-laad/  \[’ashlaad]\nUNCL-CL-CL-to.tear.or.rip.violently
‘to husk (corn)’ (Young and Morgan 1987: 125)

In every example above, the d-classifier has no obvious semantic value. Consider Young and Morgan (2007): /yii-d-zhí’/ \[yii-ł-d-zhí’\] ‘I turned black’ with /yii-l-d-zhí’/ \[yiiłjí’\] ‘I threw it very hard (thereby making it turn black)’ or ‘I turned it black’. If there were such a verb where it received semantic or syntactic value from each classifier, the translation might instead look like ‘I made it be turned black’. However, a grammaticality judgement is needed on this verb construction to determine whether it holds any value in the analysis.

7 Analysis

As seen above, only (13) contains two unaltered classifiers in the surface representation. Every other example either realizes a classifier as null in the surface representation or the

\[These translations of the these two verbs' stems differ only in that naasht’ééh has the addition of “lit. to cause it to extend downward.”\]
phoneme changes because of the d-effect with the stem-initial consonant. Double classifiers containing the d-classifier are in the vast majority as seen in 18 out of 19 examples. Following that, the l- and d- combination seems more common than l- and d- as there are 11 of the former and 7 of the latter. This is of particular interest since the classifiers for the P mode, according to both Faltz (1998: 63) and Young and Morgan (1987), are paired as l/d and l/∅. Although there is not enough data to determine a significant majority between l/d and l/d verbs, the lack of such a majority itself would mean the P mode pairs might not have an effect.

It is also important to note that per Faltz (1998: 47), Navajo phonology tends to avoid consonant clusters of 3 or greater. Faltz suggests this as the reasoning behind often realizing the l- and l- classifiers as null, but it is possible that it is also the reasoning behind the d-effect, as the d-classifier is often realized as null after the d-effect has occurred and the resulting number of consonants is reduced. For example, Young and Morgan (1987: xiii) list [d], [t’], and [’] as individual consonants, but not [d’]. This might explain why 13 out of 19 examples include the d-classifier with a stem-initial [’] combining to make [t’] in the surface form. This means a verb like (29) would avoid having a triple consonant cluster of [sh], [d], and [’] (after the l-classifier is already realized as null), and instead have only the two consonants [sh] and [t’]. Verbs such as (19) and (30) similarly avoid the problem as Young and Morgan (1987: xiii) consider [dz] and [dl] to be single consonants. When this theory is combined with Faltz’s (1998: 51) claim that classifiers’ historical meanings are now left-over solely in approximating verb base transitivity, their original particular uses lost, it is very possible that any or all of the classifiers are now only used for minor functions. This means that though they are still a necessary part of the verb base, perhaps in a transition period between their original uses and being no longer needed, they only retain a portion of their original function. These left-over functions would include the afore-mentioned approximation of verb base transitivity as well as helping to avoid large consonant clusters. This includes the d-effect. In this analysis, the d-effect’s primary purpose is to avoid consonant clusters of three or more. However, in cases such as (29), the triple consonant cluster would already be avoided by realizing the [l] as null. The d-effect, as analyzed above, would have been redundant in a single
classifier verb because the consonant cluster problem was already solved. Thus, it would appear that the occurrence of double classifiers is still an issue.

Krauss (1969: 65) suggests that double classifiers occur in old verbs where the ł-classifier is misinterpreted as the stem-initial consonant, therefore requiring a second classifier (misinterpreted as the only classifier). It is possible a similar phenomenon has occurred where the d-effect occurs early in the process ordering, and this has caused the stem-initial consonants affected by the d-effect such as [t’] to be misinterpreted as unaffected consonants (effectively erasing the record that the d-classifier was there at all). Therefore, the verb base is no longer listed as having a classifier and so a new one must be placed in the verb. However, to avoid triple consonant clusters, the new classifier is often realized as null. This is best exhibited by verbs such as (25) and (??). There does not seem to be a previously established process order, so I cannot confirm this argument.

It is also possible that double classifiers are a result from earlier classifier functions, as perhaps the ł- or ł- were needed for transitivity and the ∅ and d- were needed for middle voice constructions, or similar, as yet unidentified, processes were needed that were only accomplished by the ł/ł and ∅/d pairs. As 14 out the 19 examples above are in some form of the Imperfective aspect, the double classifier construction likely has something to do with the Imperfective. If a future analyses were to turn these Imperfectives, and others like the Progressives, into the Perfective in order to analyze the verbs as Faltz (1998) describes, it would certainly yield an interesting result that could contribute to the analysis provided in this paper. This Perfective mode analysis could support the existence of double classifiers in verbs such as (24) were the above phonological analysis to be incorrect. In other words, if the stem-initial consonant [t’] could be a naturally occurring consonant without the d-effect, then the Faltz analysis could prove that the d-classifier is still present in the underlying form.

(22), (23), and (24) all have two separate dictionary entries where one is noted by Young and Morgan (1987) to have a double classifier. These noted entries all have a translation that deals with fire. In addition, Krauss’s (1969: 65) only example of a dou-
ble classifier, *ko’ yilt’áł*, also translates as dealing with fire (“a torch is carried along”). Navajo verbs dealing with fire are usually irregular in terms of word order, because *fire* is in a separate category from humans, animals, and inanimate objects, the three tiers of nouns used when determining word order. Because these verbs are already irregular in a way that is undefined and not always predictable, it is highly possible that these verbs are also irregular in other ways that would result in a double classifier construction.

Another possible analysis to be attempted in the future would involve manipulating the data so that only one classifier was present and then obtaining grammaticality judgments. In other words, when reducing the double classifier construction to a single classifier, is the verb still grammatical and does the meaning change at all? This would help to isolate the different functions of the individual classifiers and also help determine whether double classifier constructions are necessary, as it is possible that they exist to form verbs that need both the transitivity function of the l/l classifier and the middle voice function of the d-classifier, and that this specific verb form cannot be created any other way.

In conclusion, double classifiers could result from the inclusion of the d-classifier into the verb stem as Krauss (1969: 65) suggests, where the old form of the verb was originally just the d-classifier and stem, and were at some point misinterpreted as just a stem requiring a second classifier. This analysis incorporates the suggested reason behind the d-effect above, where the [d] combines with the stem-initial consonant to avoid large consonant clusters. Double classifiers could also result from earlier classifier functions such as the suggested transitivity and middle voice. A further analysis of these aspects is needed to confirm this analysis. Also, Faltz’s (1998) Perfective form analysis could prove instrumental to confirming double classifiers in the above data as well as in other Navajo verbs, and gaining grammaticality judgements on manipulated verbs with double classifier constructions could help determine whether those constructions are semantically necessary.
Appendix: Glossing Abbreviations

This thesis uses non-standard glossing abbreviations formed from the Young and Morgan verb chart. Each abbreviation includes the numbered position in the Young and Morgan chart, followed by the part of speech or semantic function. These abbreviations are listed below, and the Young and Morgan categories can be seen in Figure 3.

Each abbreviation consists of two separate parts: the category number and the type of morpheme used from that category. For example, the direct object pronoun yi- from slot IV would be marked as IV.DO.PRON. A morpheme from slot 00 or ia might also use the position or theme, such as 00.POS.over for -’a-. Stems are not marked, they are glossed as their English translation.

Figure 3: Young and Morgan categories.

<table>
<thead>
<tr>
<th>Slot</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Slot 0, object (&amp; possessive) pronouns</td>
</tr>
<tr>
<td>00</td>
<td>Slot 00, postpositional stems</td>
</tr>
<tr>
<td>1a</td>
<td>Slot 1a, derivational and thematic morphemes</td>
</tr>
<tr>
<td>1b</td>
<td>Slot 1b, indirect object pronouns</td>
</tr>
<tr>
<td>1c</td>
<td>Slot 1c, reflexive pronouns</td>
</tr>
<tr>
<td>1d</td>
<td>Slot 1d, reversionary morphemes</td>
</tr>
<tr>
<td>1e</td>
<td>Slot 1e, semi-iterative morphemes</td>
</tr>
<tr>
<td>II</td>
<td>Slot II, iterate modals</td>
</tr>
<tr>
<td>III</td>
<td>Slot III, distributive plural markers</td>
</tr>
<tr>
<td>IV</td>
<td>Slot IV, direct object pronouns</td>
</tr>
<tr>
<td>V</td>
<td>Slot V, deictic subject pronouns</td>
</tr>
<tr>
<td>VIA</td>
<td>Slot VIA, derivational and thematic morphemes</td>
</tr>
</tbody>
</table>

25
VIb Slot VIb, incepts
VIC Slot VIC, derivational and thematic morphemes
VID Slot VID, seriatives and aspectivals
VII Slot VII, modals and aspectivals
VIII Slot VIII, subject pronouns
IX Slot IX, classifiers

ASP Aspectival
CL Classifier
DEICT.SUBJ.PRON Deictic subject pronoun
DER Derivalional
DIST.PL Distributive plural marker
DO.PRON Direct object pronoun
INC Inceptive
IO.PRON Indirect object pronoun
ITER Iterative
MOD Modal
OBJ.PRON Object pronoun
POSS.PRON Possessive pronoun
POS Postpositional stem
REC Reciprocal
REF.PRON Reflexive pronoun
REV Reversionary
SER Seriative
SITER Semi-iterative
SUBJ.PRON Subject pronoun
THEM Thematic

In addition to the glossing abbreviations above, I have designated the one below to serve as a catch-all for affixes that are unglossable due to existing data. As far as this
analysis is concerned, these affixes do not affect the classifier position or d-effect, so determining the exact morpheme breakdown of the underlying form is unnecessary.

UNCL Unclear
Bibliography


Young, Robert W. 2000. The Navajo verb system: an overview. Albuquerque, NM:
University of New Mexico Press.