# Hopi *-na*[*]

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## 0. Introduction.

Hopi possesses a productive transitivizing suffix *-na*, typically glossed 'causative' and customarily associated with the semantics of causation in the literature on the language. This element deviates from the straightforward causative meaning under certain conditions. The present paper is a preliminary and highly tentative introduction to the study of Hopi transitivization in comparative and theoretical perspective, with primary attention to *-na* and its interaction with other elements.

The following examples of *-na* are taken from Jeanne (1975)—we use the Hopi morpheme itself to gloss the suffix, and we do the same for certain other suffixal morphology as well, in the interests of terminological neutrality at this point in our investigation:

(1)(a) Pòokyaya munu.
Pokyaya fall
'Pokyaya fell.'

(b) Nu' Pòokyaya-t múnu-k-na.
I Pokyaya-ACC fall-K-NA
'I made Pokyaya fall.'

(2)(a) Pòokyaya wa'ö.
Pokyaya recline
'Pokyaya lay down.

(b) Nu' Pòokyaya-t wá'ö-k-na.
I Pokyaya-ACC recline-K-NA
'I made Pokyaya lie down.'

(3)(a) Pòokyaya taatayi.
Pokyaya wake.up
'Pokyaya woke up.'

[*] Some of the material discussed here was also discussed in a paper presented in November, 1998, at the fifth Encuentro Lingüístico del Noroeste in Hermosillo, Sonora, under the title "Transitivización en Hopi." We are grateful to the audience at that conference for their comments and to Zarina Estrada and her colleagues for their work in organizing the Encuentro during the past decade.

(b) Nu' Pòokyaya-t taatay-na.
I Pokyaya-ACC wake.up-NA
'I made Pokyaya wake up.'

(4)(a) Pòokyaya pak-lawu.
Pokyaya cry-LAWU.
'Pokyaya cried.'

(b) Nu' Pòokyaya-t pak-law-na.
I Pokyaya-ACC cry-LAWU-NA
'I made Pokyaya cry.'

(5)(a) Pòokyaya taya-ti.
Pokyaya laugh-TOYI
'Pokyaya laughed.'

(b) Nu' Pòokyaya-t taya-toy-na.
I Pokyaya-ACC laugh-TOYI-NA
'I made Pokyaya laugh.'

1. The causative-inchoative alternation.

The examples in (1-5) illustrate transitivization by means of the suffix *-na*, deriving verb forms representing the semantics traditionally associated with causative or transitivized constructions. Accordingly, the verb pairs in (1-5) exemplify the cross-linguisically well known causative-inchoative alternation, the *na*-form being the "causative", the intransitive base being the "inchoative".

Transitivization of this sort is extremely productive in Hopi. With a class of exceptions to be noted, virtually any monadic verb in Hopi can be transitivized in this manner.[1] The following brief lists give a representative example (taken from the *Hopi Dictionary Project*, 1998). In each set, the intransitive is given first, followed on the right by the transitive in *-na* and a brief gloss:

[1]This fact renders questionable the use of the expression "causative-inchoative" in reference to the Hopi alternation exemplified here, since most intransitive verbs can be transitivized in this manner, including verbs which serve as the Hopi translations of English unergatives, a class generally excluded from the causative-inchoative alternation in the latter language (see below, where English *laugh* is briefly discussed). We employ the causative-inchoative terminology simply because it was familiar to the audience to whom this material was first presented. This may be a mistake, but we have no convincing evidence that it is in fact a mistake, since conventional translation relationships cannot be fully trusted in determining the "meanings" of verbs. Thus, translation does not reliably identify the unergative and unaccusative classes, for example. The only evidence we can truly count on is syntactic behavior, in this case, participation in the alternation at issue, as opposed to non-participation (to be exemplified presently).

(6) k-Verbs:

| | | |
|---|---|---|
| eyo(k-) | eyokna | 'ring (of metal, bell)' |
| homi(k-) | homikna | 'shrink' |
| hoyo(k-) | hoyokna | 'move' |
| kola(k-) | kolakna | 'parch' |
| wari(k-) | warikna | 'run (sg.)' |

(7) yku-Verbs:

| | | |
|---|---|---|
| henanàyku | henanàykina | 'start to trot' |
| horaràyku | horaràykina | 'start to kick' |
| kwalalàyku | kwalalàykina | 'start to boil' |
| tsölöl`öyku | tsölöl`öykina | 'start to sprinkle (weather)' |
| yu'a'àyku | yu'a'àykina | 'start to speak' |

(8) va-Verbs:

| | | |
|---|---|---|
| hongva | hongvana | 'stand up (pl.)' |
| kuyva | kuyvana | 'sprout (of plant)' |
| tokva | tokvana | 'fall asleep (pl.)' |
| yesva | yesvana | 'sit down (pl.)' |

(9) ti-Verbs:

| | | |
|---|---|---|
| alöngti | alöngtoyna | 'change' |
| apiti | apitoyna | 'be of use, do one's part' |
| hamànti | hamàntoyna | 'become embassed' |
| kyaahakti | kyaahaktoyna | 'get rich' |

(10) ta-Verbs:

| | | |
|---|---|---|
| hotsitsita | hotsitsitoyna | 'be zigzagging' |
| kwalalata | kwalalatoyna | 'be boiling' |
| mururuta | mururutoyna | 'be twisted together' |
| nàmtötöta | nàmtötötoyna | 'be turning repeatedly' |
| làngta | làngtoyna | 'be stretching out' |

(11) i-Verbs:

| | | |
|---|---|---|
| kyaktayi | kyaktayna | 'hurry' |
| laaki | lakna | 'dry' |
| momori | momorna | 'swim' |
| o'oki | o'okna | 'stop crying' |
| qöövi | qöpna | 'pout' |
| haani | hanna | 'descend' |

(12) ø-Verbs:

| | | |
|---|---|---|
| hukya | hukyana | 'cool off' |
| waaya | waayana | 'escape (sg.)' |
| watqa | watqana | 'escape (pl.)' |
| yooha | yoohana | 'fracture, break' |
| peekye | peekyena | 'decay' |

There are two observations here which are relevant to our discussion.

First, verbs which transitivize in this way are morphologically complex, consisting in a root (R) of indeterminate (possibly verbal) category followed by a verbal suffix (represented V in diagrams to follow). The latter element is the "verb" in the true sense, since it is the element which bears subsequent verbal inflection in finite clauses. Verbs in the final set, (12), are exceptions to this observation, since no detectable verbalizing suffix appears. We assume, for present purposes, that these verbs are not in fact exceptional but take a phonologically non-overt verbal suffix, symbolized -ø.

Second, the transitivity alternation exemplified in (6-12) corresponds to the canonical, or standard, causative-inchoative alternation illustrated in the sentences of (1) through (5). Specifically, they have the property that the subject of the intransitive corresponds straightforwardly to the object of the transitive.

2. The problem—verbs of manufacture and preparation.

The issue which we wish to address in this work is an extremely small and narrow one, but it is one which has implications for a general study of argument structure relations in Hopi and in Uto-Aztecan languages and in general.

Consider the following sentence pairs:

(13) (a) Um yan-wat kii-ta-ni.
2sg thus-WAT house-TOYA-FUT
'Build the house this way.'

(b) Itàa-ti qa na'önani-qa ita-mu-y kii-toy-na.
1pl-child NEG lazy-COMP 1pl-PL-ACC house-TOYA-NA
'Because our child is not lazy, he built a house for us.'

(14) (a) Itàa-taha inu-ngam tots-ta.
1pl-uncle 1sg-for shoe-TOYA
'My uncle made shoes for me.'

(b) Pu-t tiyòoya-t katsin-na-'at pu-t tots-toy-na.
3sg.ACC little.boy-ACC kachina-father-3sg 3sg-ACC shoe-TOYA-NA
'The little boy's godfather provided him with shoes.'

(15) (a) Pam piiki-t nitkya-ta.
3sg piki-ACC journey.food-TOYA
'He prepared piki for the journey.'

(b) Pam koongya-y piiki-t nitkya-toy-na.
3sg husband-3ACC piki-ACC journey.food-TOYA-NA
'She prepared journey food for her husband.'

(16) (a) Pam pas-ta.
3sg field-TOYA
'He prepared a field.'

(b) Nu' pu-t a-ngqw pas-toy-na.
1sg 3sg-ACC 3sg-from field-TOYA-NA
'I gave him a piece of (my) field.' (HD: pastoyna)

(17) (a) Pam itàa-ki-y paas qeni-ta.
3sg 1pl-house-ACC carefully place-TOYA
'She cleaned / prepared our house carefully.'

(b) Pas pu-ma nu-y qa qeni-toy-na-ya.
PRTL 3-PL 1sg-ACC NEG place-TOYA-NA-PL
'They don't make (any) room for me.'

The verb of the b-sentence in each of these pairs bears the familiar transitivizing suffix *-na*. These sentences involve a sequence of productive derivational suffixes, in fact. Preceding *-na* is the suffix *-toya*, which appears in its phonologically reduced form *-ta* in the a-sentences of (13-17). In these examples, *-toya* has a meaning which can be characterized roughly in terms of "creation" or "manufacture"—thus, *kiita* 'make a house, build a house' (cf. *kii(hu)* 'house'). But the relation between the first and second sentence in these sentence pairs is *not* the one which we are led to expect on the basis of the transitivity alternation exemplified by sentences (1) through (5) in the introduction—that is to say, (13) through (17) do not represent the same simple causative-inchoative alternation represented by the verb pairs in (6-12).

Unlike the standard causative-inchoative alternation, the alternation seen here has the characteristic that the object of the derived transitive is, so to speak, an "introduced" argument, in the sense that it does not correspond to the subject of the corresponding underived verb, in fact it corresponds to no argument of the underived verb. Thus, the object of *kiitoyna* 'build house for x' is not a "causee" and does not

correspond to the subject of *kiita*. The semantic role of the object of the derived verb is that which is customarily termed "beneficiary," "recipient," or "goal" in current usage. We list now the verbs of (13) through (17) with glosses reflecting the semantic roles involved in an approximate manner (with x corresponding to the referent of the object of the derived verb):

| | | | | |
|---|---|---|---|---|
| (18) | kiita | 'build house' | kiitoyna | 'build house for x' |
| | totsta | 'make shoe' | totstoyna | 'make show for x' |
| | nitkyata | 'make journey food' | nitkyatoyna | 'make journey food x' |
| | pasta | 'prepare field' | pastoyna | 'give field to x' |
| | qenita | 'prepare space' | qenitoyna | 'make room for x' |

Semantically, we have here the relation expressed by the dative in many languages—e.g., Spanish, German, Warlpiri. This is the relation expressed by the prepositions *to* and *for* in English and, also in English and many other languages, by the "indirect object" in the so-called double object construction with verbs which permit that construction.

Let us use the term *benefactive* in referring to the derived *na*-suffixed verb of the Hopi alternation represented in (13) through (17). This is intended as a reference to the semantic role of the introduced argument. The problem which we wish to address here can be stated in terms of this vague semantic label, as in (19):

(19) Why does the derived form of the verbs in (18) have the *benefactive* meaning, instead of the simple transitive, or causative, meaning associated with the derived verbs of (6) through (12)?

There are two issues here, in fact. First, why do the verbs of (18) have the benefactive meaning. And second, why *can't* the verbs of (18) have the causative meaning? That is to say, for example, why must (20) have the benefactive meaning and *not* the causative meaning:

(20) Nu' i-ti-mu-y kii-toy-na.
I 1sg-child-PL-ACC house-TOYA-NA
'I provided my children with a house.'
'I had my children build a house.'

The answer that we wish to explore will require us to examine the internal structures of both kinds of na-derived transitive verbs and to determine the lexical argument structure configurations projected by the items of which both the transitive and intransitive verbs are composed. We are concerned in particular with the grammatical, or structural, aspects of the problem and, accordingly, we are especially interested in accounting for the syntactic observation embodied in (21):

(21) The object of the derived na-verbs of (18) is an internal argument *not* present in the corresponding underived verb. In particular, the object of the verbs of (18) does not correspond to the subject of the underived verb. This is in contrast with the situation represented in the canonical causative-inchoative of the verbs of (6) through (12).

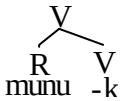
The verbs exemplified by (18) share a property which is perhaps obvious at this point. Like the standard causative-inchoative verbs, the verbs of manufacture upon which the benefactive construction is based are complex, consisting of a root plus the verbalizing ending *-ta* (< *-toya*). This ending also occurs in verbs of the standard causative-inchoative alternating sort (cf., set (10) above). But there is a systematic difference, the root element in verbs of manufacture is consistently *nominal*, while the root component of causative-inchoative alternating verbs is either verbal or categorially underdetermined (hence the noncommittal use of R for the gloss of those elements). Thus while *kwalalata* 'be boiling' is composed with a verbal root (glossed R), *kiita* 'build a house' is composed with a nominal root (glossed N):

(22) (a) R-based verbal theme:
kwalala-ta (< kwalala-toya)
(b) N-based verbal theme:
kii-ta (< kii-toya)

We will assume that the verbs of (6) through (12) and all others like them are R-based; by contrast, the verbs of (18), and their like, are N-based. This is relevant to the problem at hand, we believe.

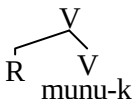
We make the further assumption that these verb words are composed in the first instance through the process called Merge in recent work in the minimalist framework developed in Chomsky (1995). Thus, for example, the verb of (1a), repeated here as (23), has the lexical syntactic structure depicted in the configuration (24):

(23) Pòokyaya munu.
Pokyaya fall
'Pokyaya fell.'

(24)



This is, of course, the *abstract* representation of the result of selecting the root *munu* 'fall (sg.)' and the verbal head *-k* from the lexicon and applying Merge, to form the syntactic configuration labeled V, in accordance with the principle that the head "projects" its category, labeling the construction formed by Merge. The actual word which receives

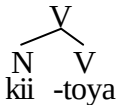
phonological shape implicates another process, conflation, a variety of the operation better known as "incorporation." This will take the root element and adjoin it to the head, producing a single word. We will abbreviate the result of this operation somewhat, simply placing the phonological matrix of the root element under the head V into which it conflates, as in (25):

(25) 

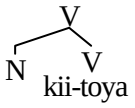

The R-node left behind on the left branch is the trace of the incorporated element *munu*. In the actual pronunciation of this particular form, and others like it, as can be seen in (23), the k-suffix, being word-final and consonantal, is not pronounced—this is simply a fact of Hopi morphophonology. If the word is further suffixed, as in the transitive (1b), the k-suffix is pronounced. Similarly in (26), the future form of (23), in which the k-suffix is followed by the future ending *-ni*:

(26) Pòokyaya munu-k-ni.
Pokyaya fall-K-FUT
'Pokyaya will fall.'

The verb *kiita* 'build a house' is likewise composed by Merge, giving the same bipartite syntactic configuration, with the verbal head *-toya*: and the nominal complement *kii* 'house':

(27) 


Here again, conflation (incorporation) applies, adjoining the nominal complement to the verbal head, forming a single phonological word:

(28) 


Independent phonological processes reduce the verbal suffix to *-ta* in this case, giving *kiita*.

With this background, we can begin to consider answers to the questions posed in (19) and, correspondingly, an explanation for the structural observation in (21). We emphasize that this is a mere beginning, since we are investigating only a small part of a large domain. We seek answers which are consonant with general principles of universal grammar. It will be necessary, therefore, to look at related phenomena in

other languages. We limit ourselves to Hopi and English in our cross-linguistic remarks.

3. A cross-linguistic observation.

Transitivity alternations of the type represented by the Hopi verbs of (6-12) are extremely common among the languages of the world. In English, for example, de-adjectival verbs, like *clear* in (29), easily participate in the alternation:

(29) (a)The sky cleared.
(b) The wind cleared the sky.

Other English alternating verbs include the following:

(30) English alternating verbs:
bend, break, close, crack, darken, drop, lengthen, narrow, open, rip, sink, split, tear, thicken, thin, whiten, widen, ... .

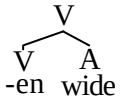
By contrast, the following verbs, typical members of the so-called "unergative" class, fail to alternate:

(31) English non-alternating verbs:
blossom, calve, cough, cry, fawn, foal, giggle, groan, laugh, pup, scream, shout, sing, sleep, smile, sneeze, sweat, twinkle, ... .

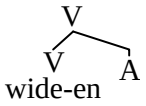
The relevant observation to be made here is this. The non-alternating verbs of (31) are all denominal—*laugh, sleep, foal*, etc. are not only verbs, they are nouns as well. Alternating verbs, on the other hand, involve a range of categorial sources, adjectives being especially prominent among them.

The English situation just described is reminiscent of that seen in Hopi; denominal verbs resist simple transitivization. This suggests that there is something about nouns which is responsible for the inability of denominal verbs to undergo simple transitivization. If this is so, then part of the puzzle formulated in (19) may receive an answer. And more, the answer is based on general principles, not limited to one language. Before pursuing this line of thought, we present our conception of deadjectival and denominal verb formation in English.

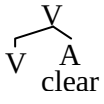
English deadjectival verbs often involve the suffix *-en*, functioning as the verbal head, as in the diagram (35), representing the abstract configuration corresponding to intransitive *widen*, resulting from the application of Merge to the pair *wide* (A) and *-en* (V)—depicted (informally and atheoretically) as head-initial in accordance with the general head-initial pattern of the language:

(32) 

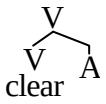

Conflation derives the actual verb *widen* by right-adjoining the adjective to the verbal head, as depicted in the abbreviated conflation (33), the stranded A node being the trace of the conflated adjective:

(33) 

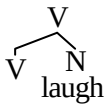

For many adjectives, the derived verb employs a phonologically null head, as in the case of *clear*, whose initial structure (abstracting away from conflation) is shown in (34):

(34) 

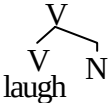

Conflation adjoins the adjective to V, giving (35)—an abbreviation, as before:

(35) 


Denominal verbs arise in parallel fashion. Here, however, the verbal head is standardly null in phonological constituency. The Merge operation combines the verbal component with a noun (N) in the familiar head-initial configuration, as in (36), the structure for *laugh*:

(36) 


The noun conflates with the verbal head, giving (37)—as in previous example, this abbreviates the configuration resulting from conflation by simply reproducing the phonological matrix of the noun under the verb, leaving the original N-node to mark the base position:

(37) 


What we have proposed here for English and for Hopi is, of course, hypothetical. But let us assume it is real for present purposes. If it is, then we might

have some handle on the asymmetry which has been observed. In general, setting aside certain exceptions which must eventually be dealt with, the two languages agree in the following respect:

(38) (a) Denominal verbs resist simple transitivization—i.e., they fail to participate in the alternation represented by such Hopi transitivity pairs as *munu/munukna* 'fall / make fall' and by such English pairs as *clear/clear* 'become clear / make clear'.

(b) Verbs which do permit simple transitivization—i.e., verbs which participate in the standard transitivity alternation exemplified by the verbs cited in (a)—are typically composed with roots which are not nominal.

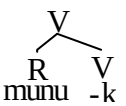
These formulations are not exceptionless, it should be noted, but they point in a direction which we feel compelled to examine, namely, that expressed in (39):

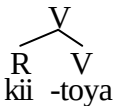
(39) The behavior of a given verb in respect to simple transitivization is determined by the properties of the elements of which it is composed.

That is to say, whether a verb undergoes simple transitivization depends upon its make-up. Verbs built upon nouns generally fail to undergo simple transitivization (i.e., transitivization with conventional causative semantics). Their failure to do so has something to do with the fact that they are denominal. Conversely, verbs whose composition involves, say and adjective or, in Hopi, a verbal root, readily transitivize, other things being equal.

4. A preliminary theory of simple transitivization.

If a verb's ability to undergo transitivization depends upon the properties of the lexical elements of which the verb is composed, then what are these properties? The Hopi verb *munu(-k)* 'fall' is composed of a verbal head V (*-k*) and a verbal root R (*munu*), as depicted in (40a), and the Hopi verb *kii-ta* 'build a house' is composed of a verbal head *-toya* and a noun *kii*, as depicted in (40b):

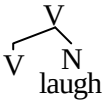
(40) (a)


(b)



What is it about the combination in (40a) that permits simple transitivization, and what is it about the combination in (40b) that prevents it?

The same questions apply to the English alternating verb *clear* and the denominal verb laugh, whose basic intransitive lexical structures are shown in (41), abstracting away from conflation:

(41) (a) 

(b) 


The order of elements in Hopi and English is represented as different in these configurations, in recognition of the general head-final character of Hopi and head-initial character of English. From our point of view, this difference is of no consequence. We are interested not in linear order but in basic syntactic relations. Here, what we wish to express is the head-complement relation, defining the complement relation as in (42):

(42) The complement is the immediate sister of the head.

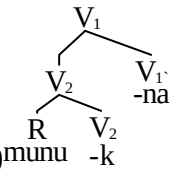
It follows that the head and the compliment are immediately dominated by the same node. The head is defined as follows:

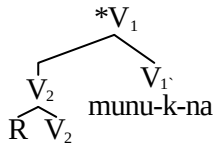
(43) The head is the constituent *C* which determines the label attached to the node immediately dominating *C* and its immediate sister.

Accordingly, we say that the head (H) "projects" its category to the node dominating it and its immediate sister. In this usage, the verbal head in (40) and (41) projects its category V to the node dominating the verbal head and its complement.

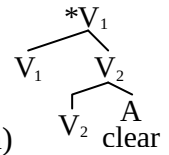
Let us now consider how transitivization takes place. In English, as we have seen, transitivization does not involve extra morphology—the verb appears without transitivizing morphology but within a configuration which permits it to take an object, the latter corresponding to the subject of the intransitive counterpart, as exemplified by the uses of *clear* in (29). In Hopi, however, the transitive member of a given transitivity pair bears overt transitivizing morphology, to wit, the suffix *-na*. We will assume for both languages that transitivization involves a verbal head, null V in English, overt *-na* in Hopi. And we will assume that in both languages, this transitive verbal head takes the intransitive construction as its complement. This is the basic notion of transitivization.

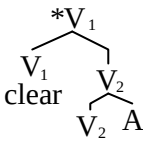
However, it will not do simply to insert, say, (40a) or (41a) into the complement position of the transitivizing verbal head, as in the hypothetical (44a), for Hopi, and (45), for English:

(44) (a) 

(b) 

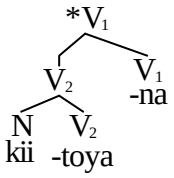
With conflation, applying cyclically to $V_2$ and $V_1$, we derive the correct form of the transitive verb *munu-k-na* 'make fall', as represented by (44b). But this structure is nonetheless ill-formed. The derived verbs has no object. There is no nominal argument (DP) within the structure to which the derived transitive verb can assign accusative case. Hence, the structure fails. The same will be true of the English transitive *clear*, and other such deadjectival verbs, as in (45) and its conflated counterpart—here again, the derived transitive has no object:

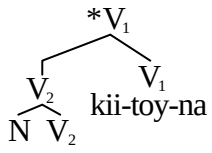
(45) (a) 

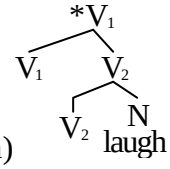
(b) 

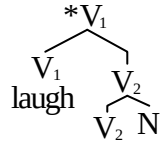

We will assume that the failure in (44) and (45) is fundamentally the same in Hopi and English and, further, that it is to be traced to the fact that some property, or combination of properties inherent in the component elements remains unsatisfied.

What *is* the essential property involved here? Notice that we *want* failure in the case of denominal verbs, since that would explain why they fail to participate in simple transitivization. Thus, assuming this line of thought to be correct, the ill-formedness of (46) and (47) is both to be expected and desirable:

(46) (a) 

(b) 


(47) (a) 

(b) 


Hopi *kiitoyna* and English *laugh* exist as words in the two languages, they do not exist as simple transitives. Hence it is expected that they would not take objects in manner of the transitives of canonical alternating pairs like Hopi *munu/munukna* and English *clear/clear*. The ill-formedness of (46) and (47) is therefore expected.

What is it about alternating verbs that permits simple transitivization? How does the transitive member of an alternating pair acquire its object? And how come the object of the transitive corresponds to the subject of the intransitive? If the answer to these questions has to do with the lexical properties of the elements involved, as we expect, then we must look at the lexical items themselves. In the clear cases, verbs

composed with nouns behave differently from verbs composed with adjectives or verbal roots. What is the nature of this difference?

Let us suppose that the basic difference is that set out informally in (48):

(48) (a) English adjectives (A) and Hopi verbal roots (R) have the property that they force the verbal head governing them (i.e., to which they bear the complement relation) to project a specifier position, normally occupied by a nominal argument (a DP).

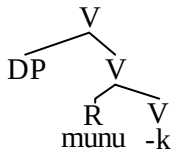
(b) Nouns do not force the projection of a specifier.

The specifier relation is defined informally as follows:

(49) The specifier is the immediate sister of the first non-trivial projection of a lexical head; the lexical head determines the label dominating the specifier and its sister.

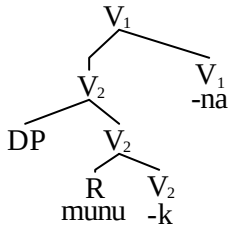
If the Hopi verbal root *munu* forces the projection of a specifier, then the full lexical structure of the intransitive verb *munu(-k)* is as in (50):

(50)




The DP, e.g., *Pokyaya* in (1a), represents the subject in the intransitive use of the verb. If we now transitivize this structure, i.e., embed it as the complement of the transitivizing verb *-na,* we straightforwardly derive the following transitive counterpart (abstracting away from conflation, which produces the phonological word *munu-k-na*):

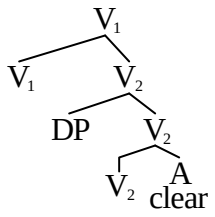
(51)




This gives a successful transitivization, since the derived transitive verb (ultimately assembled in $V_1$ through conflation) locally c-commands and governs DP, to which it assigns accusative case, as required in sentential syntax, where DP is the object of the derived verb.

The derivation of transitive *clear* is exactly parallel, assuming that adjectives force the projection of a specifier in the lexical representatuon:

(52)




As in the Hopi example just considered, so also here, the derived transitive *clear* (assembled at $V_1$ through conflation) is in the position required for case assignment to the sentential syntactic object.

The appearance of the specifier, DP, as the sister to $V_2$ in these structures satisfies two requirements. It satisfies the lexical property of Hopi R (verbal roots) and English A (adjectives) that they must be appropriately situated in relation to a specifier, forcing the verbal head to project one. And it satisfies the sentential syntactic requirement of the transitivizing head that it have an object to which it assigns case (in the normal course of events); this also "forces" the lexical head to project a specifier in the appropriate position.

By contrast, in the standard case, nouns do not force the projection of a specifier; and we assume that if a given noun does not force the projection of a specifier, it cannot do so. Such nouns, then, cannot appear in configurations comparable to (51) and (52), in which a DP appears in the inner specifier position. Again, this explains why there is no transitive *laugh* in English with the meaning 'make x laugh' (hence ungrammatical **the clown laughed the children*). And it explains why Hopi *kii-toy-na* is not the simple transitive of *kii-ta* 'build a house'; that is to say, *kii-toy-na* cannot mean 'make x build a house' or 'have x build a house', or the like.

5. The benefactive.

To this point we have attempted to explain only half of the question posed in (19) above, namely, the part of that question which concerns itself with the observation that Hopi denominal ta-Verbs (like *kii-ta*) do not permit simple transitivization. We have not addressed the question of why derived transitive verbs of the form *kii-toy-na* exist and why this verb means 'build a house for x', 'build x a house', or 'provide x with a house'. That is to say, where does the benefactive meaning come from?

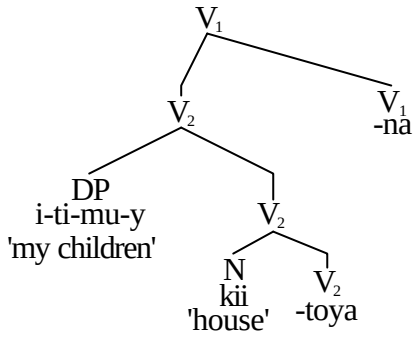
We will discuss this issue only briefly. There is a cross-linguistic observation to be made, incidentally. English verb phrases like *build John a house*, while grammatical,

cannot mean 'have John build a house'; rather, they have the "benefactive" sense, like Hopi *kii-toy-na*, as illustrated in (20), repeated here as (53):

(53) Nu' i-ti-mu-y kii-toy-na.
I 1sg-child-PL-ACC house-TOYA-NA
'I provided my children with a house.'

We propose that the structure involved in this use of the combination *-toy-na* is the following:

(54)




While the transitivizing function of *-na* is the same here as in all previous examples, the nature of *-toya* is different. This is a homophonous but distinct use of this element; in this function, *-toya* projects a specifier, permitting successful transitivization by *-na*; and instead of its usual semantics of creation or manufacture, it expresses a "possessional" relation between the entity denoted by its complement (*kii* 'house', in (54), the possessum) and the entity denoted by the specifier (*itimuy* 'my children', the possessor or beneficiary). The higher verb ($V_1$) represents its usual "causative" function, so that the combination represented by (54) can be paraphrased approximately as *bring it about that my children have a house.*

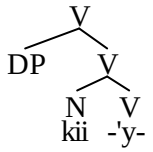
If this is the correct analysis, it might be expected that the inner verbal projection ($V_2$) could appear without the upper verb, revealing the basic possessive verbal construction. We believe this is true, although the actual form of the verb in this use is different, as illustrated in (55):

(55) Um haqam ki-'y-ta?
you where house-'Y-TA
'Where do you live?' (Lit. 'Where do you have a house?')[2]

[2]The suffix *-ta* in (55) is aspectual, not to be confused with the reduced alternant of *-toya* seen in earlier sentences.

Here the verbal head is -*'y*- 'have'. Its replacement by -*toya* in (53) and (54) is by suppletive substitution, found regularly where the possessive verb is transitivized by means of -*na*. The relevant structural features of (55) are shown in (56):

(56)




The key ingredient here is the verbal head, -*'y*-; this item has the property that it projects a specifier. The verbal head -*toya* normally does not project a specifier, as we have seen, However, when it appears as the suppletive replacement of -*'y*-, it naturally inherits this characteristic and necessarily projects a specifier, as shown in (54). In this respect, the Hopi possessive verb -*'y*- (and its proxy -*toya*) has the syntactic character of a postposition. Hopi postpositions, like adpositions cross-linguistically, have the fundamental lexical and syntactic property that they take a complement and project a specifier, like -*'y*-. Further illustration of -*'y*- and its suppletive substitute is presented in (57):

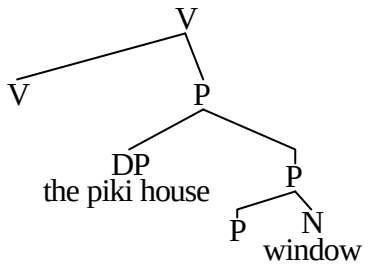
(57) (a) Itàa-tumtsoki qa panaptsa-'y-ta.
1ns-piki.house NEG window-'Y-TA
'Our piki house doesn't have a window.'

(b) Ita-m tumtsoki-t panaptsa-toy-na-ya.
1ns-PL piki.house-ACC window-TOYA-NA-PL
'We made a window for the piki house.'

In English, as in Hopi, there is a denominal verb *window*, which means 'provide with a window or windows' (cf. the entry for *window* in Webster's New World Dictionary). This is a member of the large class of English locatum verbs (Clark and Clark, 1979), which includes, for example, the following *saddle, bridle, hobble, harness, clothe, salt*, and so on.

We think it is reasonable to propose that the benefactive, or transitive possession verbs of Hopi are locatum verbs; that is to say, they are the structural equivalents of English locatum verbs. In English, of course, the internal head and upper heads are empty and are licensed at PF by conflation. Thus, *window the piki house* (for those English speakers who can say this) would have the basic structure depicted in (58):

(58)




The bare noun *window* conflates with P, and the compound element [$_P$ N P] thus derived conflates with V, giving the surface form in which the phonological matrix of the noun is present in the verb only.[3] The English structure (58) differs from the Hopi structure corresponding to *panaptsa-toy-na* 'make a window for x, provide x with a window' in (57b) in the minor matter of the internal head. In Hopi, the internal head (*-'yi ~ -toya*) is verbal and hence has an intransitive use, as in (57a). In English, the internal head is assumed to be non-verbal (perhaps prepositional, P), and hence there is no intransitive use.[4]

6. A final remark.

The notion that the behavior of the verbs under consideration here stems from properties of their component elements raises the question of the "deep" source of these supposed properties. Is there something more that can be said about the property of nouns that they do not force the projection of a specifier by the governing verb? And what of the other categories, adjectives, for instance, or the Hopi verbal roots? At this point, we can only mention a vaguely semantic correlate.

Nouns typically denote entities and normally correspond to arguments, not predicates, in syntactic configurations. On the other hand, adjectives have the characteristic that they must be attributed of entities; they are predicates or modifiers, demanding an associated entity expression to satisfy this property. It is not surprising, therefore, that adjectives should appear in lexical argument structure configurations in which a DP also appears, in an appropriate position, defining a sort of subject-predicate relation. Nouns, on the other hand, might be expected to eschew precisely such configurations. The position of verbs is somewhat variable. Evidently, Hopi verbal roots like *munu* 'fall' regularly force the projection of a specifier. In English, the

[3]There are problems with the notionof conflation, not relevant here, which suggest strongly that it does not exist as such (Hale and Keyser, in preparation). The Hopi counterpart of this process, however, is well established, belonging to the category of head-movement operations known as Incorporation.

[4]James Higginbotham (p.c.) suggests, however, that the P-projections of locatum verbs do in fact occur outside the transitive construction, as in *I found [the horse saddled]*, and for some speakers *when will we finally see [the cottage windowed]?*, and the like, *-ed* being the P head here.

situation is not clear. While the two languages agree on the question in relation to nouns, there is reason to believe that in English verbs, in and of themselves, rarely force projection of a specifier. A verb not otherwise impelled to project a specifier must take an external subject in sentential syntax—this is standard for fully transitive verbs in that language, and in Hopi as well. The languages agree, on the behavior of the verbal heads of simple denominal verbs of creation. These do not force the projection of a specifier . Thus, Hopi *kii-ta* 'build a house' and English *laugh* cannot, in virtue of the verbal head itself, acquire a specifier (an "internal subject") . Instead, the sentential syntactic subject of these verbs, like that of fully transitive verbs, is the standard *external subject* (Williams, 1980). If this were not so, Hopi *kii-toy-na* could mean 'have x build a house' and English *laugh* could mean 'make x laugh', contrary to fact.

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