

## Causativization in Hupa\*

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### 1. Introduction

In this paper I analyze the morphosyntactic alternations involving the causative morpheme *t-* in Hupa, an Athapaskan language. The distribution of this morpheme is of interest because it is intermediate between that of what might be called a ‘lexical’ causative, and that of a syntactic causative which takes a clausal complement. I will argue that a uniform treatment may be given for *t-* in structural terms; that is, that its distribution is determined by syntactic considerations, such that it always appears as a causative (light) verbal head with the same type of complement.

The analysis I propose provides an identical syntactic treatment for two sets of environments, one of which exhibits idiosyncrasies associated with Lexical processes, and one of which does not; this raises questions concerning the applicability of a syntactic account for all of the cases in question. I thus devote the concluding sections of the paper to a discussion of the resolution to this question, and its implications for the relationship between syntax and argument structure. In addition, I discuss the implications of the discussion for analyses of the Transitivity Alternation, focusing on questions surrounding the morphology found in intransitive/transitive pairs.

### 2. Hupa

Hupa is a Pacific Coast Athapaskan language of Northern California. The data discussed in this paper stem from the work of Golla (1970, 1976) (a further collection of Hupa material is Sapir (1927)). Golla (1970) contains a detailed discussion of the types of morphosyntactic operations which take place in the Hupa verbal system, and it is on his discussion that mine will be based.

The Hupa verb often shows a number of obligatory prefixes in addition to the verb stem; the basic representation of the verb will be of what is called the verb *theme*, which consists of the verb stem and any obligatory prefixes. In presenting abstract representations of Hupa verb themes, I will follow conventions derived from Golla (1970) and Golla (1976). This involves presenting the verb with the obligatory prefixes, with schematized object and adverbial markers (O and A respectively, when different adverbials may appear), a series of three dots (‘...’) showing where subject inflection would be, and the classifier that appears with the relevant form of the verb. Thus the representation for a theme like the (derived) verb that is translated as ‘cause to extend in a line somewhere’ is as follows:

- (1) A O ... t  $\frac{ik^x}{ik^y}$   
 ADV OBJ ... CL (a line)-extends  
 ‘cause O to extend in a line somewhere’

Here the element ‘O’ will be instantiated in an occurring form with one of the object markers, while that given as ‘A’ will be instantiated as an adverbial prefix

indicating the relevant sort of motion. The underlined portion of the verb is the stem.<sup>1</sup> The morpheme to be examined in this paper, *t-*, is one of the elements referred to as ‘classifiers’ in Athapaskan grammar. These elements are associated with functions of voice and transitivity, with changes in these being accompanied by classifier alternations. All Athapaskan languages show effects of this type, in reflexes of four classifiers, *t-*, *da*, *l-*, and  $\emptyset$ .

### 3. The Transitivity Alternation

The initial environment in which *t-* will be examined is the ‘Transitivity Alternation’ (henceforth TA): pairs of verbs in which the surface subject of the intransitive corresponds to the logical object of the transitive, as with English ‘break’. Before I begin, it is important to emphasize that what I am looking at in this and the following sections are sets of alternations in which the changes in the classifiers accompany changes in voice or transitivity. In some cases, the presence of a classifier with a verb theme is not the result of productive morphosyntactic processes, but is instead simply a property of the verb in question; this point is made clear in the discussion of Golla (1970), where these ‘lexical’ functions of the classifiers are sharply distinguished from the productive systems of alternations.

Hupa has a class of TA verbs in which the intransitive form has no classifier (i.e. the  $\emptyset$ -classifier), while the transitive shows *t-*:

- (2) Transitivity Alternation with *t-*

Intransitive	Transitive	Translation
$\frac{t}{t}$ ... $\frac{c}{c}$ $\frac{d}{d}$	O $\frac{t}{t}$ ... t $\frac{c}{c}$ $\frac{d}{d}$	‘tire-INTR/TRANS’
... daw	O ... t daw	‘melt-INTR/TRANS’
... $\frac{k^x}{k^y}$ $\frac{t}{t}$	O ... t $\frac{k^x}{k^y}$ $\frac{t}{t}$	‘split/tear’
$\frac{k^x}{k^y}$ $\frac{nt}{nt}$ ... $\frac{c}{c}$ $\frac{s}{s}$	$\frac{k^x}{k^y}$ $\frac{nt}{nt}$ ... t $\frac{c}{c}$ $\frac{s}{s}$	‘go out/put out (fire)’
... $\frac{g^x}{g^y}$ $\frac{as}{as}$	O ... t $\frac{g^x}{g^y}$ $\frac{as}{as}$	‘break/snap’
... mas	O ... t mas	‘roll-INTR/TRANS’
... $\frac{x}{x}$ $\frac{s}{s}$	O ... t $\frac{x}{x}$ $\frac{s}{s}$	‘drop, fall/send dropping, falling’
... xad	O ... t xad	‘(several) drop/knock (them) down’

The most direct way of analyzing the intransitive forms here would be to treat them as unaccusative; this would be essentially the same treatment given to such forms in related Athapaskan languages by Rice (1991) and Hale and Platero (1995) (the phrase-structure here is that of Chomsky (1995)).<sup>2</sup>

- (3) Intransitive Structure:

[<sub>VP</sub> DP [<sub>V</sub> Verb ]]

The VP-internal DP here is interpreted as the Theme of the predicate, and induces subject agreement on the verb following raising.

The next question naturally concerns the transitive forms, and the role played by *t-*. This question is addressed explicitly in McDonough’s (1989) analysis of

the Athapaskan language Navajo, where it is argued that the classifiers provide the information specifying how the verb is associated with its arguments. More specifically, the verb itself is not specified for the manner in which it interacts with its syntactic arguments; this information must be specified by the classifiers. In particular, she holds that the presence of the  $\emptyset$ -classifier specifies that the argument of the verb stem is a subject, while the presence of  $t$ - has two effects: first, an external argument is added, and, second, the argument of the verb stem is specified as internal. While this account is certainly correct in correlating the presence of  $t$ - with the creation of a transitive predicate, it does not make clear how precisely  $t$ - carries about this transitivity. It does not elaborate on how the presence or absence of a classifier specifies how the restrictions imposed by the stem on its argument will apply. On the account presented here, I will take the role of  $t$ - to be structural in nature, as in the following (again, see Hale and Platero (1995)).<sup>3</sup>

(4) Transitive Structure: The role of  $t$ -

[<sub>VP</sub> [<sub>V</sub>  $t$ -] [<sub>VP</sub> DP [<sub>V</sub> Verb ]]]

In this structure  $t$ - plays the role of a (light) verbal head, taking the VP as its complement. In the resulting transitive predicate, the DP generated VP-internally remains there, as the logical object of the action denoted by the verb, due to the presence of an external argument of which the entire structure in (4) is predicated.<sup>4</sup> The inner DP is then interpreted as the Theme of the entire predicate, which has compositional semantics paraphrasable roughly as ‘Cause-V OBJ’.

The compositional properties of this aspect of the verbal system may be seen when we consider a second group of verbs closely related to those in (2) above. The relevant verb themes are essentially adjectival in nature, and may be grouped in intransitive/transitive pairs much like the verbs in (2) above:

(5) Adjectival forms and Transitives

Intransitive	Transitive	Translation
n̄ ... Won	O n̄ ... t Won?	‘be good/cause to be good’
h̄ ... Gvč	O ... t Gvč	‘be lacking/cause O to disappear’
n̄ ... t-cay	O ... t cay?	‘be dry/dry’

The factor differentiating the themes in this group from those in (2) is that the transitive form is not based simply on the intransitive form; instead, it is based on an inchoative form referred to by Golla as the ‘Transitional’. This verbal form, which indicates a change of state, is identifiable morphologically in certain verb themes: CV stems become CV?, while CVN stems become CVN?. An example of the intransitive, Transitional, and transitive may be seen in the following:

- (6) a. n̄ ... Won ‘be good’  
 b. n̄ ... Won? ‘come to be good’  
 c. OBJ n̄ ... t Won? ‘cause to be good’

With the light verbal head  $t$ - having a causative meaning, the transitive forms based on adjectival themes are compositionally constructed in the same way as the ‘verbal’ unaccusatives above. The fact that the complement of  $t$ - in these adjectival

forms is Transitional could be reduced to the fact that an event or change of state variable is required in the meaning ‘Cause-V OBJ.’ That is, with the ‘verbal’ TA-verbs above, the unaccusative VP contains an event as part of its meaning; with the ‘adjectival’ unaccusatives, the transitive forms must be similarly eventive, and for this the Transitional is required.

In conclusion, in addition to being able to account for the appearance of  $t$ - in the TA, the structural approach is motivated by the fact that  $t$ - appears as a light verb outside of the TA, as will be discussed in the following sections.

4. Causativization of Medio-Reflexives

The next cases to be examined are based on a verbal form called the Medio-Reflexive. Golla (1970) describes this as being derived from transitive themes, with a meaning which is either reflexive or similar to the classical middle in nature.<sup>5</sup> The Medio-Reflexive is signaled by a change in classifier from the transitive theme: transitives with no classifier show the classifier  $-d̄-$  in the Medio-Reflexive, while those with  $t$ - show either  $-d̄-$  or  $-l-$ .<sup>6</sup> Below are sample transitives with their corresponding Medio-Reflexive forms:

- (7) a. O ... t k̄ʷoc, ‘stretch O’  
 b. ... d̄ k̄ʷoc, ‘stretch’
- (8) a. A O ... t Wv̄l, ‘slide O somewhere’  
 b. A ... l Wv̄l, ‘slide oneself somewhere; skid’
- (9) a. O ... t Gv̄l, ‘bend O’  
 b. ... d̄ Gv̄l, ‘wiggle’ (i.e. ~ ‘bend oneself’)

The (b) forms here may be further causativized; thus for a verb like ‘bend’ we have the following set of forms:<sup>7</sup>

- (10) Full Paradigm for ‘bend’
- |                 |                                 |                         |
|-----------------|---------------------------------|-------------------------|
| na s̄t ... Gv̄l | ‘be humped over, bent, crooked’ | <i>Intransitive</i>     |
| O ... t Gv̄l    | ‘bend’                          | <i>Transitive</i>       |
| d̄ Gv̄l         | ‘wiggle, tumble, squirm’        | <i>Medio-Reflexive</i>  |
| O t d̄ Gv̄l     | ‘make O squirm’                 | <i>Causative of M-R</i> |

Turning to the question of what sort of structures are the complements of  $t$ - in this case, we may extend the considerations advanced in the discussion of intransitives in the last section to gain insight into the structure of the Medio-Reflexive. As the following examples show, the Medio-Reflexives behave like the unaccusatives seen above in applying the semantic restriction of the stem to the surface subject:

- (11) a. A O ... t Ged, ‘shove (a stick) somewhere’  
 b. A ... d̄ Ged, ‘(A stick) shoves itself somewhere’
- (12) a. A-O ... m̄t, ‘throw (several objects in a bunch)’  
 b. A ... d̄ m̄t, ‘(several objects in a bunch) move precipitously, fly’

The question of the how the VPs in the unaccusatives and the Medio-Reflexives stand in relation to one another depends on a structural analysis of the Medio-Reflexive, which I am not attempting to provide here. Abstracting away from this issue, however, the diagnostic concerning the semantic restrictions provides the necessary information about the Medio-Reflexive. It may thus be concluded that the more abstract structures involved in the Medio-Reflexive and the unaccusatives in §3 are similar in the sense that they are both without external arguments.

### 5. The Possessive

The final case to be discussed is the 'Possessive', a verbal form with *t-* which is related to both statives and passives; the relationship of the Possessive to these other forms is illustrated in the following:

- (13) Stative → Possessive  
 a. *s̄* ... ?an 'One object lies'  
 b. O *s̄* ... t?an 'have (one object) lying; own (one object)'
- (14) Passive → Possessive  
 a. O-o ... Ø xed 'buy O'  
 b. O-o *w̄* ... d̄i xed 'O has been bought.'  
 c. O-o *w̄* ... t-d̄i xed 'have O bought.'

The meaning of the Possessive depends to some extent on the meaning of the theme to which it is related; according to Golla, the interpretations are:<sup>8</sup> (1) From Statives: "...have (an object normally in motion) lying motionless"; often 'keep' (Golla 1970:191). (2) From non-statives: "...causation (by the subject) of the passive state, or the ownership (by the subject) of the object in this state." (Golla 1970:182). The statives referred to here form a morphologically (and to some extent semantically) coherent class of themes which are roughly adjectival in nature; this class will be discussed in detail in §5.2. The more pressing question raised by the Possessive concerns the cases related to the passives in (14). The properties of the verbal form referred to as 'Passive' are as follows. First, it is always a 'neuter', meaning that it is incapable of variation for mode/aspect. In addition, it shows agreement with the object of the verb, in the same way that transitive verbs show agreement with their objects, and exhibits classifier alternations in the pattern Ø:d̄::t̄:l. Finally, the verb stem is in the perfective form. The most telling of these is the second property, namely that the verb continues to show object agreement with the logical object of the verb. The conclusion I will draw from this is that such passives are in fact transitives with an impersonal subject.<sup>9</sup> This is at odds with the hypothesis which has been developed to this point— if the passives are actually transitives, and if the Possessive is actually the transitivization of a passive, then the characterization of *t-* as a verb taking only a VP complement cannot be correct. However, treating the Possessive formed from a passive as simply a different use of *t-* is also undesirable; in particular, it does not account for the fact that simple transitives cannot be causativized with *t-*, and actually predicts that this should be the case. The solution to this problem is, I will argue, to be found in treating the Possessives apparently formed from Passives as actually being formed from something like the Stative. I will first provide an analysis of the Statives from which the Possessive may be formed, and following this argue that all Possessives may be analyzed similarly.

The type of statives relevant to the study of the Possessive are designated 'Stative Neuter Motion Themes' in Golla (1970); these statives are *s̄*-neuters, meaning that they always show the stative aspect morpheme *s̄*-. Two of these themes, with their Possessives, are the following:

- (15) a. *s̄* ... ?an 'One object lies'  
 b. O *s̄* ... t?an 'have (one object) lying; own (one object)'
- (16) a. *s̄* ... I qas 'stones) lie thrown'  
 b. O *s̄* ... t d̄i qas 'have (stones) lying; own (stones)'

There are two points to be made here, one concerning the syntax/semantics of the stative, and one concerning its morphology. Golla (1970:167) describes the themes in this class as being primarily stative, describing an entity typically in motion as being at rest. In this group there are two subtypes. The first simply refers to the stasis of a particular object, without reference to how it arrived in that position. In the second class, reference is also made to an object being in a particular state, but with the implication that it had been handled or manipulated. On this basis, I would like to suggest that the complements of *t-* in the latter cases are effectively *resultative*: states implying prior events. Structurally, these may be treated as VPs without external arguments. This amounts to treating the Resultative as a type of unaccusative, a stance which is supported by the fact that the semantic restrictions found with the statives behave exactly like those noted for the unaccusatives earlier (cf. e.g. (16) above).<sup>10</sup> The Possessives formed from this stative are thus compositionally 'Cause O to be Ved'.<sup>11</sup>

There are two distinct classes of *s̄*-neuters identified by Golla, with the classes being partitioned on the basis of (1) classifiers and (2) relation to other verb themes. The first class, exemplified by (15), comprises themes which show *t-* in the Possessive; while some of these verbs are unrelated to other themes, the majority are identical in classifier to transitive verbs relating to directional motion. The following illustrates some themes of this class:

- (17) Class 1 Stative Motion Neuters  
*s̄*... yen '(one) stands'  
*s̄*... ?an '(one) lies motionless'  
*s̄*... la '(several) lie motionless'  
*s̄*... da '(one) sits, dwells'  
*s̄*... ten '(one person) is lying down'

The themes in the second class are all related to transitive directional themes, and show classifier differences based on the passive correlation. This latter fact leads Golla to hypothesize that the class in question represents '...a fossilized type of passive formation' (p.190). The themes are as follows:

- (18) Class 2 Stative Neuters  
*s̄*... I Peḵ '(several) lie extended'  
*s̄*... d̄t Paḍ '(a fabric) lies flapped'  
*s̄*... I c̄i '(rope) lies knotted'  
*s̄*... I waḵ '(ie thrown, flung'  
*s̄*... I Ged '(a stick) lies shoved'

Golla notes that for each of the Possessives of the verbs in Class 1 with *t-*, there is an alternate form with the same meaning; thus *O sɛ...t da* 'have (one) sitting' ~ *O sɛ...t dɛ-da*. These alternants, Golla suggests, are derived analogically on the basis of Class 2, in which the Possessive is invariably *t-dɛ*. This situation points to a generalization of the role of the *dɛ*-classifier, such that it always appears in resultatives/statuses.<sup>12</sup> Based on this generalization, I would like to suggest that what is found in the Possessive of the Passive is the causativization not of a transitive, but of a resultative of the type found in the *sɛ*-neuters. That is, the facts discussed in §5.2 show that *dɛ-* may always appear with statuses;

Morphologically, in terms of the classifiers shown, the passives are identical to the statuses; all of these appear with *t-dɛ*. Golla notes that passives are identified as Class 2 Statuses for the purposes of further formations.

- (19) a. *A O ... t tɛW* 'move (one person) somewhere'  
 b. *A O wɛ ... l ten* '(one person) has been moved somewhere'  
 c. *A O wɛ ... t dɛ ten* 'have (one person) moved somewhere'

The position I would therefore like to take is that the form in (19c) has as the complement of *t-* a resultative VP of the type found with the status themes discussed in §5.2. This accounts for the interpretation of the relevant forms, and in addition allows for the generalization concerning *t-* and complements with external arguments to be maintained.<sup>13</sup> To sum up §3-5, the distribution of *t-* in morphosyntactic alternations results from structural considerations: *t-* is a causative head which only appears with complements which do not have an external argument.

## 6. Implications

The analysis developed in the previous sections assigns the same structural role to *t-*, and shows that its distribution in the verbal system may be stated in syntactic terms. A question raised by this treatment concerns the fact that the pattern  $\emptyset$ -Intransitive and *t*-Transitive is not the only one seen in the Transitivity Alternation in Hupa. In addition to this pattern, it is also the case that some verbs show no classifier at all in either form, while others show *t-* in the transitive and *dɛ-* or *l-* in the intransitive, as the following examples illustrate:<sup>14</sup>

### (20) Different Alternations

Intransitive	Transitive	Translation
<i>nɛ ... jɛw</i>	<i>O nɛ ... jɛw</i>	'grow to maturity/raise'
<i>nɛ ... Gɛc</i>	<i>O ... Gɛc</i>	'be twisted/twist'
<i>... dɛ wan</i>	<i>O ... wan</i>	'break (a complex thing)'
<i>na xv ... l Wen</i>	<i>na O ... t Wen</i>	'melt'
<i>dɛ ... dɛ mid</i>	<i>O dɛ ... t mid</i>	'tip over'

This type of variability in the Transitivity Alternation is quite common, to judge from typological studies such as Haspelmath (1993).<sup>15</sup> Focusing for the moment on the first three forms in (20), the relevant point is that *t-* does not appear in the transitive forms.<sup>16</sup> This raises the question of whether this lack of full productivity, which is often taken to be the hallmark of Lexical as opposed to syntactic processes, argues

against the structural treatment of *t-* given above. On a Lexicalist approach to the TA, the variation in TA morphology would presumably be a non-question. Various verbs would be identified as fundamentally transitive or fundamentally intransitive, with the morphological marking seen in 'detransitivized' or 'causativized' members being the result of lexical operations on argument structure.

There are two major objections to simply dismissing the variation in TA morphology as a Lexical idiosyncrasy. The first is that on such an account, one cannot pose the question of why the morphological marking found within the TA is often exactly the same as the morphology found with processes such as passivization and causativization which require syntactic analyses. On a Lexical account, there is no reason why the morphology associated with causativization should appear in the TA, as one appearance of the morpheme would be as a functor on argument structures applying in the Lexicon, and the other being a syntactic verbal head. In the analysis above this is the question of why *t-* appears systematically both inside and outside of the TA, but more generally it is the question of why the morphology in the TA should, if Lexical, be identical with the morphology associated with processes which are syntactic in nature.

Furthermore, the Lexicalist approach to the TA fails to capture properties which characterize TA verbs cross-linguistically, as argued originally in Chomsky (1970) and developed more recently in Marantz (1995). One conceivable approach to the different patterns in the TA would be to say that some of the verbs in question are basically intransitive, while others are basically causative; the morphological differences would then stem from the difference in the types of change required to make a particular verb intransitive or transitive. However, this type of approach fails to account for a number of properties of TA verbs, and I will therefore not adopt it.<sup>17</sup> Based on these considerations, I will assume a view of the Transitivity Alternation discussed in Marantz (1995) and originating in Chomsky (1970). On this approach, the Transitivity Alternation involves the same abstract root, e.g. *GROW*, in two syntactic environments. According to this view, the roots of TA verbs are inherently non-agentive, and may receive agents only within a sentential environment; this may in turn be due to the presence of a causative verbal head, as on the approach to *t-* taken here. Because the difference in the transitive and intransitive versions of the TA verbs is reduced to a distinction between two syntactic environments in which a single root appears, the question of variation in morphology becomes directly relevant, given the assumption that identical syntactic representations are involved whether the causative head appears overtly or not.<sup>18</sup>

Thus to summarize the discussion to this point, there are good reasons for rejecting a Lexical treatment of the TA, both from the perspective of the analysis of *t-* presented here and more generally. The different morphological patterns in the TA may not be seen as stemming from the fact that different semantic roots appear in the TA, and must be accounted for otherwise.

The question I will discuss in the remainder of this paper is whether the variation seen in TA-morphology should be regarded as allomorphy. The treatment of *t-* developed in this paper identifies it as the head of a verbal projection, and we may therefore ask whether the variation seen with the causative element of the TA verbs is the same as that seen between e.g. the affixes *-Ø-*, *-d-*, and *-t-* of the English past tense. On any account assuming uniformity in the class of TA verbs, one must specify as a property of certain verb roots whether or not the causative head should be realized as *t-* or as  $\emptyset$ - in the transitive form. The question then is whether a treatment of TA-transitives as involving *t-* and  $\emptyset$ - allomorphs of the causative head is adequate. On the face of it this approach seems promising, but something remains

to be said. In particular, this approach says nothing about the fact that the only cases in which the allomorphy appears are in the Transitivity Alternation; in other cases with *t*-, there is no  $\emptyset$ -allomorph. That is, there are no cases in which a *s*-neuter meaning 'be or lie V-ed' is paired with a Possessive with  $\emptyset$ -classifier meaning 'have O V-ed'.<sup>19</sup> Although a seemingly trivial observation, this points to the fact that if the variation in the TA is to be reduced to allomorphy, this allomorphy is constrained so as not to apply to the causative head in all instances.

One possible approach would be to capture this difference through an appeal to considerations of morphological locality. As noted earlier, it is quite possible that the VPs involved in medio-reflexives and resultatives should be taken to be a more complex syntactic structure than the simple VPs posited for the unaccusatives examined in §3. One could then appeal to the fact that the potential allomorphy of the light verb does not occur because it is not in a sufficiently local relationship with the root that conditions it. This approach might find further motivation in the fact that in the cases in which *t*-always appears the classifier *di*- appears between the *t*- and the verbal stem. It could perhaps be argued that *di*- blocks the relevant morphological relationship required for allomorphy, so that *t*-always appears.

A second approach would also involve an appeal to locality, but of a syntactic rather than morphological sort. Marantz (1995) discusses the idea that the projection of an agent delimits syntactically a domain with which 'special' non-compositional meanings may be associated, and is thus in some sense privileged. The generalization about allomorphy with *t*- might therefore be stated in terms of the syntactic structures in which the causative head appears. Somewhat loosely, the generalization would be that there is only potential allomorphy when the causative head appears within the simple domain associated with the structure [vp [v *t*-] [vp DP [v Verb III]]. The allomorphy in question could thus be termed *Inner Allomorphy*, to emphasize the fact that it only occurs within the non-agentive domain associated with special meanings.

In the present case, it is difficult to distinguish between these two treatments. For one, detailed syntactic analyses of the complements of *t*- are not available, especially in the case of the Medio-Reflexive. Moreover, as noted above, in all of the cases in which allomorphy does not occur, there is additional morphology; combined with the previous point, this makes it difficult to determine what sort of cases would differentiate the two accounts.<sup>20</sup> In spite of the fact that some matters must be left undetermined at this point, the discussion of this section makes a number of points, which I will summarize here. (1) Theories of the TA must address the question of why morphology in the TA is often identical with the morphology associated with syntactic processes; at least with causative or light-verbs appearing in the TA, this question may be answered directly on a structural approach to argument structure. (2) On a unified or 'single-root' treatment of the TA like that of Marantz (1995), the question of morphological variation within the class of TA verbs requires an explanation. (3) As an answer to the question raised in (2), it was shown that some variation in the realization of morphemes in the TA may be treated as allomorphy, but only if locality conditions on this allomorphy are recognized. This final point establishes a question for further research. Further research on Hupa syntax, as well as research on other languages with causative morphology in the TA, will determine whether the locality conditions on allomorphy are to be stated morphologically or syntactically.

## Notes

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1 In citing verb themes throughout the discussion, I will not cite both imperfective and perfective stem variants, but will instead give only the imperfective form. In terms of the transcriptions used, I follow Golla (1970) except that I use 'ʔ' in place of Golla's 'v'.

2 Rice (1991) presents a comparative analysis of several Athapaskan languages in which she argues that Hupa differs from e.g. Slave in allowing the causativization of verbs with external arguments. Although I will not discuss particular cases here, I believe that the causativized forms in Hupa which she analyzes as having external arguments may be analyzed otherwise.

3 Some comments are in order at this point concerning approaches similar to that taken here. In Hale and Platero's (1995) analysis of Navajo, the structure assigned to the transitive member in the Transitivity alternation is effectively that in (4), with the difference that the classifier *t*- is not the causative verb itself. Rather, Hale and Platero argue that the upper (causative) verbal head in such structures is empty, and is (typically) supplied with the *t*- classifier. I will make the assumption here that *t*- in both cases is actually the realization of the causative grounds, as this accounts for the causative role played by *t*- in the alternations in which it appears.

4 The question of where the external argument originates will be answered in different ways depending upon one's theoretical assumptions.

5 In many cases the forms listed as Medio-Reflexive by Golla could be interpreted as the intransitive members of verbs in the Transitivity Alternation. In other cases, this is less clear (see for instance the examples in (11) and (12)), and sets such as *A wɪn...hɛʔ* 'a line extends somewhere', *A-O ... t hɛʔ* 'cause O to extend in a line somewhere' and *A ... t hɛʔ* '(a)group extends itself in a line somewhere'. For the purposes of this section, the difference between the *t*- and *t*-*di*- forms of 'bead' suffice to make the relevant point, which is that the simple transitive and the causative of the Medio-Reflexive are distinct.

6 It is not clear what determines whether a *t*-transitive will show *-di*- or *-l*- in the Medio-Reflexive.  
7 The causative of the Medio-Reflexive shows the 'compound classifier' *t*-*di* adjacent to the verb. This type of classifier stacking within a productive system of morphosyntactic alternations is restricted to the Pacific Coast subgroup of Athapaskan; see Krauss (1969) for discussion.

8 As is evident from the following descriptions, semantic possession is only sometimes associated with the verbal form denoted by the term 'Possessive'; nevertheless, I will continue to use 'Possessive' to designate the forms in question.

9 See Krauss (1969) for similar observations concerning this verbal form.

10 In other cases, verbal themes which appear to be 'adjectival' like those discussed in §3 appear on closer inspection to be resultative *s*-neuters. Thus we find pairs such as *na sɛ ... GvO* ... *t Gv* 'be bent/bead' and *de sɛ ... mɪn/dɛʔ* ... *t mɪn* 'be full/full'. There is morphological evidence that verbs of this class differ from the 'adjectival' unaccusatives. If the last form here were based on an intransitive, we would expect to find CVNʔ in the transitive form (cf. the Translational in §3.)

11 Although this is not the place for detailed discussion, the interpretation of semantic possession associated with this verbal form seems to be derivative from the causative semantics (cf. Kilbrink (1993) for some relevant remarks.)

12 This generalization could in turn be seen as being an extension of the non-active or middle-voice system of Hupa. For instance, the discussion of the Muskogean language Creek in Hardy (1994) exhibits a situation in which the middle voice appears with resultatives in addition to anticausatives, suggesting that similar forces are at work in each of these cases.

<sup>13</sup>One question which must be asked at this point is why there are not *wi*-neuters with subject agreement, effectively like the *s*-neuters discussed above. This type of verbal form would be similar to forms found elsewhere in Athapaskan; in Sarcee, for instance, this type of 'Passive' is found: compare *yisʔi* (< *y1-s-Ø-2in*) 'I saw it' with *yisʔ t* (< *y1-s-d-2in*) 'I was seen', both with 1S subject agreement (data from Cook (1984)). However, this does not seem to occur in Hupa.

<sup>14</sup>Golla classifies the intransitive of the third form here as the Medio-Reflexive of the transitive. As noted earlier, in many cases verbs classified as Medio-Reflexive simply appear to be the intransitive members of TA verbs.

<sup>15</sup>Thus for instance in Modern Greek some verbs in the Transitivity Alternation are non-active in the intransitive and active in the transitive, while others appear in the same (voice) form in both the intransitive and the transitive:

1. 'Anticausative' Alternations	2. Active-only TA Verbs			
<b>Intransitive</b>	<b>Transitive</b>	<b>Translation</b>	<b>Verb</b>	<b>Translation</b>
tsakzone	tsakizo	'break'	ksipinó	'wake up'
keome	keo	'burn'	spazo	'break'
singendronome	singendrono	'gather'	anggo	'open'

<sup>16</sup>It is also the case that with simple transitive verbs (i.e. outside of the Transitivity Alternation) one finds variation in the classifiers shown. The majority show *t*- or  $\emptyset$ , as in the following sample:

1. Transitive Verbs with <i>t</i> -	2. Transitive Verbs with $\emptyset$ ,	
O-ni... <i>t</i> ye	O... <i>ʔag</i>	'hit O in shooting'
O... <i>t</i> yeč	O... <i>ʔat</i>	'chew O'
O... <i>t</i> nad	O... <i>tas</i>	'cut O'
O... <i>t</i> tɛgʷ	O... <i>suv</i>	'scratch/scrape O...'
O... <i>t</i> iw	O... <i>čed</i>	'pound, crush O'
		'pound O with wedge/chisel'

The question of whether these verbs should be analyzed into structures like those found in the transitive versions of Transitivity Alternation verbs is more contentious, although it has been assumed to be the case in recent syntactic work (see Chomsky (1995) for one such approach) and in decompositionally-oriented semantic studies.

<sup>17</sup>For instance, the fact that nominalized versions of TA-verbs fail to take Agents would be completely unexpected on such an account; see Marantz (1995) for discussion. Another option would be to treat all TA verbs as fundamentally causative; the position of Levin and Rappaport-Hovav (1995). Again, I refer the reader to Marantz (1995) for arguments against this position.

<sup>18</sup>The assumption that the structures of all transitive TA verbs within a given language are identical is crucial to the discussion to come. For reasons of space I will not discuss any alternatives to this position here.

<sup>19</sup>A parallel may be made here once again with languages in which the non-active voice is used in the intransitives of TA verbs; in Modern Greek there are no passives with active morphology, yet the intransitive members of TA pairs show either active or non-active morphology. 'Minimal pairs' may also be found for the same verb; for instance, the verbs which appear in the active voice in the TA-intransitive appear in the non-active when passive: compare *aitigo* 'open-ACT (INTR)' with *aitixite* 'open-Non/Act (PASS)'. The difference in this case is that it is not as clear whether passive morphology should be assumed to be a syntactic head like the light-verbal head in Hupa (although see Baker (1988) and related work for recent attempts to treat passive morphology along such lines). Nevertheless, the pattern exhibited seems to be the same.

<sup>20</sup>One remaining point worth noting concerns the other patterns exhibited in (20). In the cases with

the classifiers *di-* and *l-*, which are at the center of the middle voice system of Hupa, the precise analysis will depend on what structural role (if any) is assigned to these morphemes. In any case, the appearance or non-appearance of *di-* or *l-* in the intransitive member of a TA verb could similarly be reduced to a type of allomorphy; it would be simply be specified for particular roots which prefix (if any) they appeared with in the intransitive syntactic environment.

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