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# Denominal Verbs and Noun Incorporation: Uto-Aztecan Evidence for a Unified Syntactic Account\*

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## 1 Introduction

One of the classic controversies in the study of the morphosyntax of the indigenous languages of the Americas, which is relevant much more broadly and still largely unresolved, is the correct description and analysis of what has been termed “noun incorporation” (NI). In his foundational statement establishing the modern conception of the issue, Sapir remarked that

[t]he term ‘incorporation’ has been much used in discussion devoted to the structure of American languages. Despite the steadily growing mass of American linguistic material, a good share of the data presented in the last

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few decades being distinctly superior from the point of view of critical analysis to much that served as illustrative material in earlier days, it can not be asserted that the term is always clearly understood or satisfactorily defined. (1911: 250)

This quotation is as apt as ever, even after nearly a century has elapsed since its initial appearance in print, although many subsequent scholars have adopted Sapir's definition of NI. Under the Sapirean conception, NI is posited to be a morphological process, or, in modern generative parlance, a pre-syntactic (or "lexical") process of compounding a nominal stem to a verbal stem (e.g. Mithun 1984, 1986; Rosen 1989). However, in contrast, there are scholars that have maintained that NI is a syntactic process, as evidenced by such phenomena as the "stranding" of modifiers. Sadock (1980) and Baker (1988) account for modifier "stranding" by positing some syntactic level at which modificational material forms a constituent with an incorporated noun, sharing features such as number and/or gender.

A further issue is the relationship of NI to the similar phenomena that we observe when we consider denominal verb constructions (DVCs). Whereas Sadock (1980, 1986) has regarded the obligatorily incorporating verbal suffixes of West Greenlandic as NI constructions, others (e.g. Mithun 1986) have rejected this position on the grounds that such constructions differ in kind from NI (see also Gerdts 1998).

In the present paper I am going to present evidence from the Uto-Aztec languages to relate DVCs to NI in two distinct ways. The first is empirical, in that DVCs look and behave much like NI constructions, as pointed out by Sadock. The second is theoretical, in that Baker's (1988) head-movement account of syntactic NI has been applied to DVCs, even in languages where it is not at all obvious that nominal roots are incorporating into a verbal predicate (e.g. English, in the work of Hale and Keyser 1993, 2002).

This paper is structured as follows. Section 2 provides a brief historical overview of these issues in order to contextualize the subsequent discussion. Section 3 empirically links DVCs to NI, primarily by means of evidence from Hopi, but also from several other Uto-Aztec languages. Section 4 reviews the most articulated argument to date for separating DVCs from NI (Mithun 1986), but I will argue that there are considerations that suggest that the two are not so distinct after all. Section 5 discusses hyponymous direct objects, which is a problematic issue relevant to syntactic accounts of both NI and DVCs, and section 6 resolves this problem by utilizing the notion of Late Insertion. Section 7 concludes.

## 2 Historical Background

Sapir defined NI as “the process of compounding a noun stem with a verb . . . no matter what the syntactic function of the noun logically is” (1911: 257). In Sapir’s view, morphology and syntax were obviously distinct realms, and from this perspective he observed that “the sacrifice of syntax to morphology or word-building is indeed a general tendency in more than one American language” (257). Further, contra Kroeber (1909), NI “is primarily either a morphologic or syntactic process; the attempt to put it under two rubrics at the same time necessarily leads to a certain artificiality of treatment” (255). Sapir also emphasized that NI constructions were to be distinguished from DVCs, which involve an obligatorily bound affix attached to a nominal in order to derive a verb, rather than a verbal stem that can appear independently of a nominal host, as is the case with NI.

In contrast, Sadock (1980, 1986) argues that NI in West Greenlandic (Eskimo-Aleut) is necessarily syntactic. The derivational nature of Greenlandic verb structures is shown in (1)-(3). From ostensibly nominal roots such as *qimmeq* ‘dog’ and *pe* ‘thing’, possessive verbs can be formed via a morphological process that is very reminiscent of “incorporation”:<sup>1</sup>

- |  |                         |
|--|-------------------------|
| (1) <i>Qimmeq-arpoq</i><br>dog-HAVE-INDIC-3sg<br>‘He has a dog’                            | (Sadock 1980: 306 [18]) |
| (2) <i>Pe-qarpoq</i><br>thing-HAVE-INDIC-3sg<br>‘He has something’                         | (Sadock 1980: 307 [21]) |
| (3) <i>Qimmimik</i> <i>peqarpoq</i><br>dog-INST     thing-have-INDIC-3sg<br>‘He has a dog’ | (Sadock 1980: 307 [24]) |

That the verb is intransitive in these examples is seen by noting that it does not have an object agreement suffix, and that the direct object in (3) appears with instrumental (INST) case marking (Sadock 1980). Since Greenlandic has ergative/absolutive case-marking, the direct object of a morphologically transitive verb normally appears in the absolutive case, as in the following example:

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<sup>1</sup> All data in this paper are given with the transcription and glosses of the cited sources. Cases of particularly interesting and/or relevant glosses are discussed in the text.

- (4) *Arnaq takuvara* (Sadock 1980: 304 [2])  
 woman(ABS) see-INDIC.-1sg/3sg  
 'I saw the woman'

An incorporated nominal can be modified by adjectives, numerals, and the like, which appear in instrumental case just like the direct object in (3):

- (5) *Kusanartumik sapanngarsivoq* (Sadock 1980: 307 [27])  
 beautiful-NOM-INST bead-get-INDIC-3sg  
 'He bought a beautiful bead.'

The grammatical number of the incorporated nominal is indicated by the external modifiers. Sadock (1980) argues that there are two options for accounting for the modification of the incorporated nominal: either the grammar must assign number twice (onto a pre-formed N-V complex and also onto the modifiers), or only once: onto some modifier-noun constituent. Opting for the latter option, Sadock (1985, 1990) develops an autosegmental theory of morphology-syntax interaction in order to account for these (and other) examples of syntactic word formation.

Mithun (1986) rejects the idea that the Greenlandic data are relevant to the consideration of the cross-linguistic properties of NI, on the grounds that such data involve affixes (i.e. elements that are necessarily bound) rather than being NI constructions proper; i.e. the Greenlandic data involve DVCs. Whereas NI is a discourse-functional option available to some languages, where two roots that can occur independently are compounded for discourse purposes, DVCs involve verbal elements that are necessarily bound. According to Mithun's view, these processes are not the same thing and should not be conflated. Thus, Sadock has not shown that NI is a syntactic process and Sapir's view of NI as a morphological (lexical) process of compounding may be maintained.

Mithun does not directly argue against Sadock's claim that DVCs are syntactic, merely that DVCs do not contain noun-incorporating verbs. If DVCs are in fact syntactic, and if we can show that they are actually incorporating verbs (or at least that they have the same distributional properties as incorporating verbs), then it follows that incorporating verbs are (or at least can also be) syntactic. The distinctions between the two construction types would have to be teased out by examining a language that robustly exhibits both phenomena within the same grammar.

One such language is Hopi, a member of the Northern branch of the Uto-Aztecan language family. Our research has revealed no discernable differences in the syntax of these two construction types in that language. Perhaps most interestingly, both of these construction types appear in a

construction that poses an identical puzzle for purely syntactic accounts of word-formation. In both NI and DVCs, a verbal element with an incorporated nominal can take hyponymous direct object nominals. Such constructions are identified by Mithun (1984) as Type IV or “classificatory” NI.

In section 3 we will examine the relevant data from Hopi and other Uto-Aztec languages that suggest that DVCs are not so different from NI constructions after all, and then in section 4 we will examine point by point Mithun’s arguments for distinguishing these two constructions from each other. I will argue that the most perspicuous account of these constructions is the unified syntactic account provided in sections 5 and 6.

### 3 The Uto-Aztec Data

#### 3.1 DVCs and NI in Hopi

In a recent paper discussing the extensive data collected by the Hopi Dictionary Project (HDP 1998), K. Hill (2003) exhibits a range of facts that suggest that DVCs and NI constructions have the same syntactic properties in this language. In this section I will briefly review some of this evidence.

The crucial criteria for this discussion are the following: modifier-stranding; hyponymous objects; and the introduction of definite referents.

##### 3.1.1. NI in Hopi

As mentioned above, with true NI constructions, both the verb and the noun can appear as free roots. Such constructions illustrate modifier-stranding in Hopi, as in (6) and (7):

(6) *Naat itam pu-t qatsi-yese.* (K. Hill 2003: 234 [98])  
 still we that.-ACC life-sit(PL)  
 ‘We are still living that life.’

(7) *Nu’ pay i-t töövu-t aw qötö-tpe.* (K. Hill 2003: 234 [99])  
 I well this-ACC embers-ACC to.it head-roast  
 ‘I roasted this head over the embers.’

These constructions can also appear with hyponymous objects, where the incorporated nominal acts as a classifier of the external nominal:

(8) *Nu’ yöypala-t kùy-tàngta.* (K. Hill 2003: 237 [117])  
 I rainwater-ACC contained.liquid-put.into.container(s)  
 ‘I put the rainwater into some containers.’

They can also introduce definite referents, a typologically unusual property of NI (cf. Mithun 1984):

- (9) *Nu'*            ***pakiw-maqto-ni***;            (K. Hill 2003: 241 [143])  
I                    ***fish-go.hunting-FUT***;

*noqw itam pu-t enang nööñösa-ni.*  
so we ***that-ACC*** in.addition.to eat(PL)-FUT

'I'm going fishing, so we can eat it (fish) along with the other food.'

### 3.1.2. DVCs in Hopi

Unlike NI constructions, DVCs involve a verbal element that is necessarily bound (i.e. that cannot appear without being attached to a nominal root). However, in Hopi DVCs share similar properties to NI constructions, including the appearance of "stranded" modifiers, as in (10) and (11); hyponymous objects, as in (12); and the introduction of definite referents as in (13):

- (10) *Hak i-t kis-ta?*            (K. Hill 2003: 234 [96])  
who ***this-ACC*** shade-CAUS  
'Who built this shade?'

- (11) *Um qa hii-ta ho-'y-va?*            (K. Hill 2003: 234 [97])  
you not ***what-ACC*** arrow-POSS-INGR  
'Didn't you bring any arrows?'

- (12) *Pam tsiili-t nakwa-'y-ta-ngwu.*            (K. Hill 2003: 236 [112])  
he ***chile-ACC*** feather.worn.on.head-POSS-DUR-HAB  
'He (the Hehey'a kachina) wears chili pepper on his head.'

- (13) *Pay kur puma hin'e'wakwmu-y kong-mu-'y-yüñg-qe*  
well evidently they ugly(PL)-ACC ***husband-NSG-POSS-DUR(PL)-when***

*yaw puma oovi kong-hehep-ya.*            (K. Hill 2003: 241: 144)  
QUOT they therefore ***husband-be.looking.for-PL***

'Since they had ugly husbands, they were looking around for (new) husbands.'

These data suggest that since DVCs and NI constructions share syntactic properties, they should also be amenable to a unified account, at least for Hopi. We now consider denominal verb and NI constructions within the larger context of the Uto-Aztecan languages more broadly.

### 3.2 Denominal verbs in other Uto-Aztecan languages

Haugen (to appear) reviews the denominal verb morphemes across the Uto-Aztecan family, and finds that the constructions in which they appear typically allow for the stranding of modifiers, as in the following examples:

- (14) Northern Paiute (Snapp et al. 1982: 28)  
*usu hīci puku-ga-si iwa puku-dua*  
 he few horse-HAVE-SUBR many horse-INCEP  
 ‘He had just a few horses; then his horses became many.’
- (15) Tümpisa Shoshone (Dayley 1989b: 40 [89])  
*Satü so’oppüh paani’amitu’ih*  
 that much bread-MAKE-will  
 ‘She’ll make a lot of bread’
- (16) Gosiute Shoshone (Miller 1996: 706)  
*Ni wahatti kahnikantm*  
 I two-OBJ house-HAVE  
 ‘I have two houses’
- (17) Comanche (Charney 1993: 205 [78])  
 [suR]ise nīkīnu tammati sonipIφai]  
*suti=-se nī-kīnu tamma=-ti soni=-pīh-pai*  
 that.one-CNTR my-father’s.father a.lot-OBJ grass, hay-ABS-pai  
 ‘My grandfather had hay (for horses)’
- (18) Southern Paiute (Sapir 1930: 134)  
*wa’q-utcanI qava’x:A*  
 two-OBJ-preterite-I horse-GET  
 ‘I received two horses’
- (19) Tohono O’odham (Saxton 1982: 141)  
*n-t wo ha’i kii-ki-t*  
 I-TNS FUT some RED-house-MAKE  
 ‘I’m going to build some houses’

- (20)
- Southeastern Tepehuan
- (Willett 1991: 64 [141])

*day ma'n tu-sa'ua-h'iñ*  
 only one OWN-blanket-1s  
 'I have only one blanket'

- (21)
- Western Tarahumara
- (Burgess 1984: 28)

*bilé mahtá-ga-me*  
 one metate-STAT-PRTC  
 'I have one metate'

These constructions also typically allow for the appearance of hyponymous objects:

- (22)
- Yaqui

a. *vempo 'uka kari-ta teopo-k* (Jelinek 1998: 217 [61a])  
 3pl DET:ACC house-ACC church-PERF<sup>2</sup>  
 'They use that house as a church' (*lit.* 'They church-have that house')

b. *'uka 'ili chu'u-ta nee vuk-ek*  
 DET:ACC little dog-ACC 1.sg.NOM pet-PERF  
 'That little dog is my pet' (*lit.* 'I pet-have that little dog.')

c. *uu uusi uka chu'u-ta kava'e-k.*  
 DET child DET:ACC dog:ACC horse-PERF  
 'The child has/uses the dog as a horse'

- (23)
- Tümpisa Shoshone
- (Dayley 1989b: 91 [123])

*Nümmü so'oppüh putish pungkupaimmippühantü*  
 we(exc) many burro pet-HAVE-HAB-PAST  
 'We used to have many burro pets'

- (24)
- Gosiute Shoshone
- (Miller 1996: 706)

*Isapaippih sukka ponaiha taipai*  
 Coyote that-OBJ Mouse-OBJ brother-HAVE  
 'Coyote has Mouse for a younger brother'

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<sup>2</sup> "PERF" in these examples indicates the perfective morpheme. In Yaqui, any tense, aspect or mood marker can attach to a nominal in order to indicate possession. These constructions have been analyzed as containing a null verbal predicate (Jelinek and Escalante 1988, Haugen 2004).



- (25) Cupeño (Jane H. Hill, p.c.)  
*túku* = 'ep      *ne- 'ásh-lyu*      *awá-l-i*  
 yesterday=r    1s-pet-VB      dog-NPN-O  
 'Yesterday I had a dog'

With respect to NI with potentially free verb stems, the Uto-Aztec languages vary. It does not appear that many of the Uto-Aztec languages allow for productive NI synchronically, although productive NI is attested within the family, e.g. in Hopi (K. Hill 2003) and in Nahuatl (Merlan 1976). These languages also vary with respect to the synchronic productivity of compounding more generally. Langacker (1977) argues that "it is fair to assume provisionally that the most widespread contemporary UA compounding patterns probably reflect at least approximately the range of major patterns found in PUA" (71), and by the same logic NI can be plausibly reconstructed for the protolanguage.

One potential difference between NI and DVCs is the intransitivizing effect of NI in some languages. Intransitive N-V compounds have been referred to as "Type 1" NI by Mithun (1984), and was what Sapir (1911) had in mind in his discussion on this topic. Jelinek (1998) shows that Yaqui NI constructions differ from typical DVCs in the language, in that NI verbs are intransitive, thus they do not allow modifier-stranding (cf. 26c):

- (26)a. *aapo maaso-ta*      *peu-ta-k*      (Jelinek 1998: 213 [48])  
 3sg deer-ACC      butcher-TRAN-PERF  
 'He butchered a deer'
- b. *aapo maaso-peu-te-n*      (Jelinek 1998: 213 [48])  
 3sg deer-butcher-INTR-PAST  
 'He was deer butchering'
- c. \**aapo bwe'uu-k maaso-peu-te-n*      (Jelinek 1998: 213 [48])  
 3sg big-ACC      deer-butcher-INTRAN-PAST  
 \*'He was [big deer]-butchering'/\*'He was deer-butchering a big one'

Such NI constructions are not fully productive in Yaqui, which has only a few verbs that can incorporate only a few nouns. However, there are examples of similar cases of NI being used transitively, as in the following examples:

- (27) *Irene panim am-hoo-ria*  
 Irene bread-PL 3.PL-make-APPL  
 ‘Irene is making bread for them.’
- (28) *Irene am-pan-hoo-ria*  
 Irene 3.PL-bread-make-APPL  
 ‘Irene is making bread for them.’
- (29) \**Irene pan am-hoo-ria*
- (30) *Irene oficiom sii kiam pan-hoo-ria*  
 Irene oficio very delicious-PL bread-make-APPL  
 ‘Irene is making very delicious bread for the ceremonial officials’

There may be some dialect variation in the domain of transitivity of NI in Yaqui. Null-headed modifiers are otherwise attested in Yaqui,<sup>3</sup> so data such as those in (26c) indicate that the issue here truly is one of transitivity. This raises the question of whether we are observing not a distinction between NI and DVCs, on the one hand, but perhaps rather two different kinds of NI (i.e. transitive vs. intransitivizing), on the other. Since the examples from Hopi above are clearly transitive we conclude that the latter is the case.

Rosen (1989) suggests exactly this distinction as the relevant typological property of NI constructions. Whereas Mithun’s categories of NI are discourse-functional, Rosen’s are purely syntactic. Rosen proposes the categories of *compound NI*, which alters the argument structure of the verb by deriving an intransitive verb (as we see in the Yaqui example in 26c), versus *classifier NI*, which creates an N-V compound that retains its transitivity (as in the previous examples from Hopi). Classifier NI is the label applied to NI with both “modifier-stranding” (or, in Rosen’s framework, “null-head” modifiers) and NI with hyponymous objects (which Rosen refers to as “doubling”).

Rosen’s theory of NI is lexicalist, in that the process of compounding the nominal to the verb stem occurs in the lexicon, prior to syntax. With compound NI an intransitive verb is inserted, and with classifier NI a transi-

<sup>3</sup> Some examples of Yaqui transitive sentences with null-head modifiers include the following:

- (i)a. *aapo 'uka vicha-k* (Jelinek 1998: 212 [46a])  
 3sg DET-ACC see-PERF  
 ‘He saw that [one].’
- b. *aapo siali-k vicha-k* (Jelinek 1998: 212 [46b])  
 3sg green-ACC see-PERF  
 ‘He saw a green [one].’

tive verb is inserted. In section 5 I will discuss a non-lexicalist syntactic approach to these phenomena. Before doing so, however, I will first review Mithun's arguments against including DVCs in the class of NI constructions, in order to justify my discussion of DVCs as incorporating constructions in Uto-Aztecan.

#### 4 Connecting DVC's to Noun Incorporation

The central thesis of Mithun (1986) is that while NI constructions are "very nearly syntactic", they are *not quite* syntactic. Some similarities between NI and syntax proper are that NI manipulates morphological objects (constituents) that are normally related syntactically (i.e. nouns and verbs); it is very productive, unlike some other derivational processes (e.g. affixation); and it involves open class morphemes.

However, NI also shares some properties with morphological word-formation rules, such as the fact that it is highly productive but not completely free; it creates "automatic candidates for lexicalization"; and relatedly, the lexical items formed via NI represent conceptual units, i.e. they are (often) non-compositional. Mithun's points about lexicalization and non-compositionality essentially entail the idea that noun-verb compounds are frequently used to form idioms, such as the following examples from the Northern Uto-Aztecan language Comanche:

(31) Comanche N-V compounding w/ idiomatic usage (Mithun 1984: 855)

- |                          |                          |
|--------------------------|--------------------------|
| a. <i>wana-roh-peti-</i> | b. <i>waa-hima</i>       |
| cloth-by.force-throw     | cedar.tree-take          |
| 'to gamble'              | 'to celebrate Christmas' |

Mithun's position on this issue reiterates Sapir's stance that morphology is a module of grammar that is strictly distinguishable from syntax.

However, much modern work in morphological theory has blurred the distinction between morphology and syntax, and once this is done Mithun's rationale for separating DVCs strictly from NI largely falls away. Here I will adopt a current theoretical model, Distributed Morphology (DM) (Halle and Marantz 1993, Harley and Noyer 1999), that has placed the issue of the formation of idioms at the forefront in order to show that the attachment of special meanings to linguistic forms is neither an argument for word-hood nor for lexicalism.

DM is overtly non-lexicalist, in that it denies that there is a distinct independent generative mechanism ("Lexicon") that forms words to insert into syntax; rather, word-formation itself is taken to exemplify only one

manifestation of independently necessary syntactic principles. From a decompositional perspective, Marantz (1997) makes the strong claim that even what most speakers of a language might agree are simplex words, such as *cat*, are “phrasal idioms”. From Marantz’s perspective, such words involve roots being interpreted within the context of syntactic configurations involving syntactic functional heads (e.g. “D” or “v”). The basic claim of this approach is that since there cannot be a principled distinction between “syntactic” idioms and “lexical” idioms, there cannot be a principled distinction between “syntactic” word formation and “lexical” word-formation either.

Applying this perspective to the DVC/NI distinction, it appears that Mithun has taken what she assumes to be a lexical process (compounding), and has defined what may or may not be lexical (noun incorporation) in such a way as to presuppose that *it is and can only be* lexical.<sup>4</sup> She then excludes DVCs from NI by referring to this Sapirean conception of NI, remarking that “it is not entirely clear why one would want to refer to [denominal verb formation] as NI, since it is not obvious what such nouns are incorporated into” (1986: 32).

In order to clarify this issue raised by Mithun, I propose that denominal verb affixes are simply the morphophonological reflexes of the verbal syntactic head “v”. As I will discuss below in section 5, this theoretical link has already been made by Hale and Keyser (1993). In the Hale and Keyser view, denominal verb affixes are “phonologically defective” (and sometimes null) instantiations of *v*, which unlike typical verb roots actually require the incorporation of the head of their complements in order to be pronounced.

Here I would like to lend a supporting argument for this position based on information inferred from historical change. I assume that *affix-hood* is only one stage in a diachronic process of “grammaticalization”, where free morphemes lose semantic and phonological content over time, undergoing reductions leading to clitic-hood and eventually affix-hood (cf. Bybee et al. 1994, and many others). I would like to suggest that denominal verb morphemes originate as full verbs at *v*, which over time undergo erosion to phonological defectivity, ultimately requiring the incorporation of the head of their complement in order to be pronounced. However, they remain in the same syntactic location: *v*. Thus, DVCs are in a sense obligatory NI constructions, and therefore DVCs and NI are amenable to analysis as instantiations of the same (synchronic) syntactic process.

From Mithun’s perspective, however, NI and DVCs are not related in any way, therefore any similarities the two might have would be purely

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<sup>4</sup> Baker (1995) argues that lexical NI co-exists with syntactic NI.

coincidental. Under such a view there is no explanation for the identical characteristics of the two construction types in Hopi, and there is also no reason to expect such similar behavior. In contrast, if the historical relationship of DVCs to NI under the account proposed here is correct, these similarities are not only accounted for, but expected.

In regard to function, Mithun rightly notes that NI constructions are typically optional and have “syntactic analogues” (i.e. verbs can appear in syntactic constructions without incorporating their nominal complement), whereas denominalizing morphemes are always realized as bound affixes that require an incorporated nominal. In Uto-Aztecan, these bound verbal roots also often have syntactic analogues with different, non-bound verbal roots, as with the equivalent ways of expressing the notion of “making” and “possession” in Yaqui, which have both a DVC with a verbalizing affix for making (*-te*) (32a) and possession (*-k*) (33a), as well as a lexical verbs for the equivalent (*hooa*) (32b) and (*hippue*) (33b):

- (32)a. *aapo kari-te*  
 3sg house-MAKE  
 ‘S/he is building a house’
- b. *aapo kari-ta hooa*  
 3sg house-ACC MAKE  
 ‘S/he is building a house’
- (33)a. *aapo chuu’u-ø-k*  
 3.sg dog-HAVE-PERF  
 ‘S/he has a dog’
- b. *aapo chuu’u-ta hippue*  
 3.sg dog-ACC HAVE  
 ‘S/he has a dog’

In some cases with possessive verbs, there is no semantic or pragmatic difference between the two constructions. However, *hippue* can only be used for alienable possession, and there is an implication of inalienable possession with some usages of the denominal verb:

- (34) a. *aapo tetā-ta mam-po hippue* (Jelinek & Escalante 1988: 419 [29])  
 3.sg rock-ACC hand-in have  
 ‘S/he has a rock in his hand’
- b. *aapo mam-po tetā-ø-k* (Jelinek & Escalante 1988: 419 [29])  
 3.sg hand-in rock-HAVE-PERF  
 ‘S/he has a rock (stuck or embedded) in his/her hand’

Thus, it remains the case that speakers can alternate the use of denominal verbs for some functional reason, although it is not clear that this is ultimately relevant to the syntactic analysis of the construction being used. For example, the alienable/inalienable contrast is also made in the Northern

Uto-Aztecan language Gosiute Shoshone (Numic), which utilizes denominal verb affixes (*-kantin* and *-pai*) for each of those functions (Miller 1996).

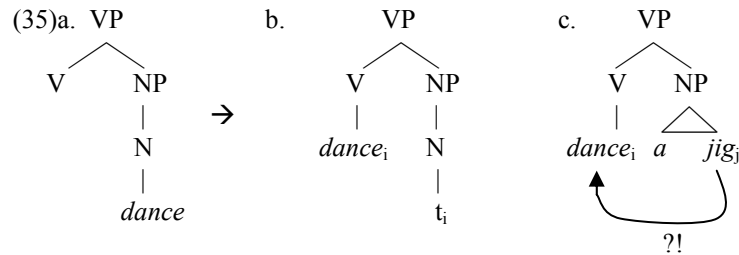
If we are to adopt a theoretical approach such as DM, which minimizes the phonological distinction between free and bound morphemes, might there be some factor that would lead us to maintain that NI and denominal verb constructions are in fact formed by the same process?

I argue in the affirmative. The pertinent factors are identical syntactic distribution, discussed above, as well as an identical semantic selection restriction, to which we now turn.

## 5 The hyponymous object problem

Whereas Rosen's (1989) lexicalist theory of NI involves noun-verb compounding in the pre-syntactic lexicon, Baker (1988) gives an account wherein NI occurs via head movement ("incorporation") in syntax proper. Like Sadock (1980), Baker supports his syntactic view particularly with evidence from the "stranding" of nominal modifiers, which Baker claims remain in the original position from which the incorporated nominal moves.

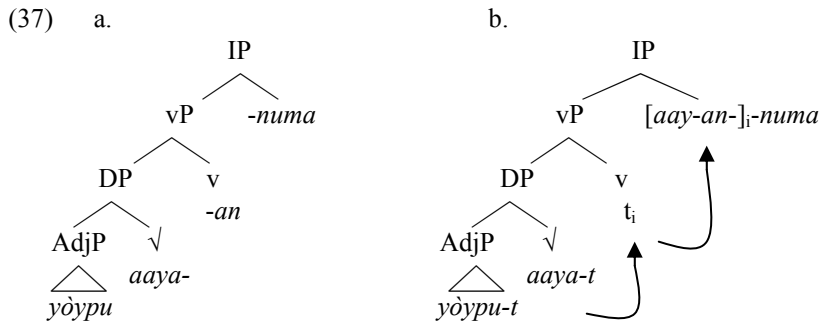
Hale and Keyser (1993) define *denominal* verbs as those verbs formed via incorporation in the technical sense of head-movement, à la Baker (1988). For Hale and Keyser, unergative verbs like English *dance*, *sing*, *saddle*, etc., are formed by the incorporation of a nominal complement into a null verbal predicate ("v"). Their derivation of *dance<sub>v</sub>* is shown in (35a-b) below:



(35c) illustrates what I will call *the hyponymous object problem*. Hale and Keyser's syntactic approach does not provide an obvious way for a derived verb to take an overt direct object, if the incorporated nominal originates in the position of the verbal complement. For example, in (35c) the syntactic slot from which the verb *dance* supposedly originates is occupied by non-cognate nominal material, namely, *a jig*.

Cognate objects pose no particular problem for the Hale and Keyser account, assuming that some languages allow for the spell-out of the lower copy of the moved element. Such constructions are attested in Hopi (e.g. 36), and the Hale and Keyser derivation of such is shown in (37).

- (36) *Hak yòyphu-t aaya-t aay-an-numa.* (K. Hill 2003: 239 [131])  
 who cracked-ACC rattle-ACC rattle-CAUS-CIRCG  
 ‘Someone’s going around shaking a cracked rattle.’



The analysis of such constructions is straight-forward: the spell-out of the lower copy in cognate object constructions is optional in Hopi, but is obligatory in English.

Hyponymous objects as in (35c), on the other hand, initially appear to pose an irreconcilable problem. Hale and Keyser (2002) ultimately abandon their original (1993) approach to denominal verbs, largely because of this problem, and pose instead a separate notion of *conflation*, which is a concomitant of the Minimalist Program notion of Merge, rather than Move.<sup>5</sup>

For the purposes of this paper I will not distinguish the notion of “conflation” from “incorporation”. I will point out that the hyponymous object problem is equally a problem for well-understood cases of syntactic noun incorporation as it is for DVCs under any syntactic account. Since we have seen that DVCs and NI verbs have the same syntactic distribution and observe the same semantic selection restriction (i.e. that any overt nominals in their complement will be interpreted as hyponymous), I will argue that there is ultimately an identical syntactic source for each construction type. It is to the solution of this hyponymous object problem that we now turn.

<sup>5</sup> Hale and Keyser (1997) attempt to resolve the hyponymous object problem by proposing that movement chains can be broken by “delinking” an incorporated nominal from its base-generated position, via index-deletion. They abandon this approach in their 2002 book, however.

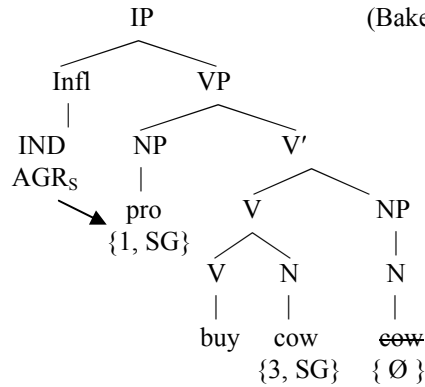
## 6 The solution: Late Insertion

In the spirit of Baker (1988 *et seq.*), I will present a non-lexicalist approach to NI that involves nominal head-movement in syntax. Within the theoretical framework of DM I offer a novel approach to the hyponymous object problem by utilizing the notion of *Late Insertion*.

In contrast, Baker et al. (2005) propose a *PF-deletion* account of NI. Following the “copy theory” of movement (Chomsky 1995), they claim that languages may vary with respect to whether or not features in copies of a movement chain may be deleted. They assume that NI normally involves the deletion of the lower copy of the moved element (“trace” in earlier theories), which gives the appearance of “stranding” any modifiers in the lower NP:

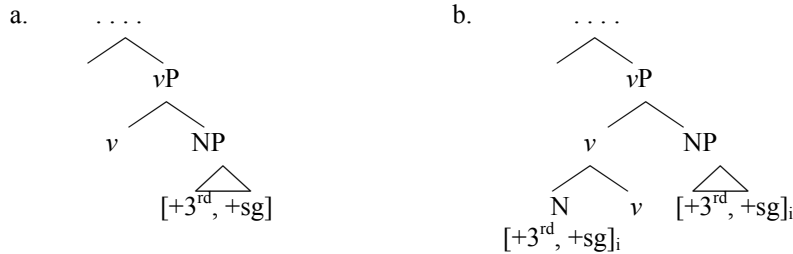
(38) NI with PF-deletion

(Baker et al. 2005: 158 [Fig.2])



With Late Insertion, however, no morphophonological material is inserted into syntactic structures until after all movement operations have already applied. The merge operation merely adjoins a copy of the nominal feature structure of the complement N into the verbal position at *v*:

(39) NI with Late Insertion





NI constructions have three logical possibilities for the spell-out of the complement to the derived N-V complex. They can spell out cognate material, as in (37b) above, or in such English cognate object constructions as *sleep the sleep of the dead*. A movement account of cognate objects in DVCs is supported by denominal verbs in Hindi, where some of these verbs actually require the spell-out of their complement, as in such examples as *khaana khaa-* ‘food-eating’ and *gaanaa gaa-* ‘song-singing’, etc. (Klaiman 1990).

Secondly, these constructions can be spelled out with non-cognate nominal material, which will be interpreted as a hyponymous object, as we have seen with NI constructions in Hopi and denominal verbs across Uto-Aztecan. Or, finally, they might allow for non-insertion, which would give the appearance of “stranded modifiers”. The non-spell-out of nominal material presumably depends on the independent availability of null-headed modifiers in the language in question; e.g., English does not typically allow for the appearance of null-head modifiers without a good deal of pragmatic context being available.

As with all syntactic accounts of NI, the analysis proposed here raises the question of why languages may vary with respect to the possible types of complementation that their NI verbs allow. As Baker et al. (2005) point out, Rosen’s lexicalist theory predicts that any hyponymous object should be allowed in languages with Classifier NI, but such is not the case. Southern Tiwa (Kiowa-Tanoan) allows for modifier-stranding, but not cognate or hyponymous objects; Mohawk (Iroquoian) allows for the stranding of the full range of nominal modifiers, but Mapudungun (Araucanian) only allows for the stranding of possessor NPs.

Although modifier-stranding has been taken to be the crucial piece of evidence that NI occurs as a syntactic process (Sadock 1980, Baker 1988), here I adopt Rosen’s claim that the availability of the different types of complementation follows independently from NI itself, as there are in fact languages that allow for null-head modifiers even without NI; this is in fact typical in Uto-Aztecan. Thus, I assume that the different possibilities in complementation with NI reflects language-specific factors external to NI. Baker et al. (2005) explain the Mapudungun facts by arguing that possessors (but not other modifiers) appear in argument rather than adjunct positions in that language, which I take to support this position.

Under the lexicalist view, though, the selectional restriction that the incorporated nominal holds over the direct object nominal (i.e. that the latter must be either cognate or hyponymous) must be stipulated. In addition, there is no natural way to rule out the possibility of agent incorporation, which is accounted for by means of the higher structural position of agents

under the syntactic account. Therefore it seems to me that it is preferable to maintain the syntactic account, if it is tenable.

Under the account that I have proposed here, the sharing of features between the incorporated element and its complement occurs because those feature bundles are copies of one another, which, in some cases, can be spelled out with different material (i.e. a classifying nominal root and a hyponymous object nominal root).

There are two major issues for a Late Insertion theory of NI. The first involves the question of how different roots can be inserted to spell out the same features (6.1.); the second is why there is a hyponymous interpretation of the complement NP (6.2).

### 6.1. Different roots to spell out the same features?

With respect to the issue of how different roots can be inserted into a syntactic tree to spell out the same features, we must consider the nature of the terminal nodes created by syntactic structures. Harley and Noyer (2000) propose two different kinds of syntactic terminal nodes for the post-syntactic insertion of Vocabulary Items. The first are *f-nodes* ( $\approx$  functional nodes), for which the spell-out is determined entirely by the syntactic features present (e.g. tense). The second are *l-nodes*, for which a variety of roots may be licensed in any given syntactic environment. It is only in the former that Vocabulary Items compete for insertion, and where the Elsewhere Principle demands that the most highly specified possible candidate be inserted. For *l-nodes*, however, no such competition takes place.

Under the assumption that the spell-out of *l-nodes* is non-deterministic and that the encyclopedic information attached to roots is irrelevant to syntax, it follows directly that different roots (e.g.  $\sqrt{tsiili}$  and  $\sqrt{nakwa}$ , cf. 12) can be inserted to realize the features for which they are licensed (e.g. [+3<sup>rd</sup>, +sg]).

### 6.2. Why a hyponymous interpretation?

The second issue that arises under the account proposed here is the (possibly universal) hyponymy relation that is imposed by an incorporated noun to its direct object nominal. I propose that this is a pragmatic matter, akin to Grice's Maxim of Quantity. Since the verb already contains the patient relation in the incorporated noun, any non-cognate root that is spelled out in the lower copy is understood to be giving further specification about that incorporated noun. A hyponymy reading can be coerced even in situations of

novel usage, such as the Hopi example above (12) which involves the classification of a chili pepper ( $\sqrt{tsiili}$ ) as a member of the set of things that are feathers to be worn on the head ( $\sqrt{nakwa}$ ), or the Yaqui example (22c) which involves the classification of dogs ( $\sqrt{chuu'u}$ ) as members of the set of animals that can be kept and used as horses ( $\sqrt{kava'i}$ ). The prediction here is that semantic reversals will occur if the relevant nominal roots are reversed. For example, one could plausibly keep horses as dogs or use feathers-to-be-worn-on-the-head as a spice in lieu of chili peppers, although the pragmatics of these situations make such statements odd.

## 7 Conclusion

To conclude, this paper has related DVCs to NI by presenting a head-movement analysis that uses Late Insertion to account for hyponymous objects in both construction types. I concur with Rosen (1989) that there are two types of NI, although my proposal is non-lexicalist. Compound NI is simply N-V compounding, as proposed by Sapir, Mithun, Rosen and others. Classificatory NI, on the other hand, is formed via head-movement in syntax, as was proposed by Baker (1988), as are DVCs, as proposed by Hale and Keyser (1993).

The upshot of the analysis of DVCs presented here is that data like those from Greenlandic should not be so easily dismissed from our consideration of the cross-linguistic properties of NI. Among other questions that are raised by this account are such issues as why the DVCs of Greenlandic are morphologically intransitive (unlike what we observed above in Uto-Aztecan), and what the articulation of the historical relationship of DVCs to NI might ultimately entail for our synchronic analyses, and vice versa.

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