From denominal derivation to incorporation

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Abstract
This article investigates the synchronic status and diachronic origin of an incorporation-like construction in Japhug, a polysynthetic Sino-Tibetan language of Eastern Tibet. This construction constitutes the intermediate stage on a path of development from denominal derivation to incorporation, the opposite of the usual path of development from incorporation to denominal derivation.

Additionally, this article shows that similar phenomena exist in other languages, and that coalescence between noun and verb is not the only attested diachronic origin of incorporating verbs.

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1. Introduction

This article deals with the diachronic origin of incorporation and its relationship to denominal derivation, drawing examples from Japhug Rgyalrong, a polysynthetic language belonging to the Sino-Tibetan family.

Most studies dealing with incorporation in a diachronic perspective (for instance Mattissen, 2006; Haugen, 2008; Mithun, 2009) discuss the development of new constructions (denominal derivation, manner or classifier morphemes, etc.) out of incorporation, rather than the origin of incorporation itself.

Mithun (1984:872) suggests that the genesis of incorporation is the result of the coalescence of nouns (especially indefinite direct object) with the verb, and this observation is certainly valid for most incorporating languages. In languages where the incorporated noun is always the outermost element of the verb, the explanation of incorporation in terms of coalescence is obvious and hardly deserves a justification.

The present study will however show that incorporation does not always derive from coalescence of noun and verb, but originates in some cases from denominal derivation. This pathway of development is exemplified in Japhug, where incorporation is a relatively recent phenomenon, but traces of it can be found in other languages.

This article is divided into five parts. First, we provide a definition of incorporation to distinguish it from related but distinct phenomena. Second, we provide a detailed description of an incorporation-like construction in Japhug.

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Third, we describe denominal derivation in Japhug and its similarities with the incorporation-like construction.

Fourth, we analyse the development pathway that led to the creation of the incorporation-like construction in Japhug, and evaluate whether this construction represents true incorporation.

Fifth, we propose to distinguish two types of incorporation in cross-linguistic perspective, direct (the classical type) and indirect (the type observed in Japhug), and show the existence of indirect incorporation in Germanic languages.

2. Incorporation and its relationship to other morphological phenomena

The term “incorporation” is generally used, according to Mithun (1984:848)’s definition, to designate a “particular type of compounding in which a V and N combine to form a new V”. Such a definition allows for broad or narrow interpretations, depending on one’s understanding of “compounding”, “verb” and “noun”. Since this article discusses the diachrony of incorporation and its relationship to related but distinct constructions, it is preferable to opt for a more restrictive definition, following Sapir (1911), Gerhts (1998) and Mattissen (2003:169).

We define incorporation as the compounding of a nominal root with a verbal root into a verb, on the conditions that (1) both the nominal and the verbal stems in question exist as independent words (even with morphophonological changes), (2) the resulting incorporational construction can occur in finite forms, (3) the resulting incorporational construction constitutes both a phonological and a morphological word, (4) verbs and nouns are clearly distinct parts of speech in the language in question (without excluding cases of noun/verb homophony).

This definition can distinguish genuine incorporation from three processes that some authors have analysed as incorporation: denominal derivation, noun stripping and lexical affixes.

First, denominal derivation and incorporation are related concepts, and the term “incorporation” is sometimes used to include both verbs deriving from nouns and compound verbs built from a nominal and a verbal root (see in particular the debate between Mithun, 1984, 1986 and Sadock, 1980, 1986). As Sadock and other authors such as Haugen (2008) have argued, in some language families, especially Eskaleut and Uto-Aztecan, denominal derivation and incorporation present systematic parallelism, and denominal verbs can even be analysed as a sub-class of incorporating verbs, one in which the verb root “requires incorporation of a nominal root or stem for morphophonological reasons” (Haugen, 2008:120). Mithun (2009:13), discussing Eskaleut data, objects that even though denominal verbs in these languages are historically derived from incorporating verbs, the fact that the verb root cannot appear independently precludes analysing it as incorporation synchronically. Her data includes a few examples in which the same root appears both as an independent verbal root and as a suffix, such as Central Alaskan Yupik atuʁ “to use, to sing, to wear” (Fortescue et al., 2010:57) and the corresponding suffix (postbase) –atuʁ– “eat X”, less commonly “use, wear” (Fortescue et al., 2010:473). According to our definition of incorporation, the Eskaleut denominal suffixes that have no verbal equivalent should not be analysed as incorporation, but examples of the suffix –atuʁ– cited by Mithun should, even though the morphological shape of the suffix is not entirely predictable from the base verb and some semantic differences can be discerned.

We propose the following definition for denominal verb derivation: a morphological process that derives a verb out of a noun either by (1) addition of an affix and/or non-concatenative morphology, (2) zero-derivation. In cases where the affix is etymologically related to a free verb like the postbase –atuʁ– “eat X” in Yupik mentioned above, it is preferable to analyse the construction as incorporation rather than denominal derivation.

Second, some authors consider noun stripping to be a form of incorporation: Mithun (1984:849--854) analyses as noun stripping cases where a noun is juxtaposed to a verb without any element occurring in between and loses its syntactic status as an argument of the sentence while remaining a phonologically independent word. Our definition of incorporation excludes such cases, though as pointed out by Mithun (1984:872), incorporation might originate from noun stripping by progressive coalescence of a nominal and a verbal root.

Third, in Northwest North American languages such as Wakashan and Salish, lexical affixes with meanings corresponding to nouns or adverbs in European languages can be attached to the verb; these lexical affixes strongly resemble incorporation at least in function. However, these affixes generally have no synchronic relationship with free lexical elements, and even when they do, the fact that Salishan and Wakashan languages lack a strong noun–verb distinction makes it difficult to determine with confidence whether a particular compound is a verb–verb or a noun–verb compound. However, the situation is different in the case of Algonquian, a family with a very strong verb–noun distinction. In Algonquian languages, the so-called MEDIAL stems (Goddard, 1990) are (generally nominal) lexical affixes, some of which have a clear relationship with the corresponding free noun. Incorporating verbs in Algonquian follow the general template:

(1) INITIAL + MEDIAL + FINAL

Only INITIAL roots can appear on their own; they can be either verbal or nominal. FINAL roots are mainly derivational morphemes, in particular voice and valency markers.
Consider the following examples of incorporating verbs in Ojibwe (data from Nichols and Nyholm, 1995); the medio is indicated in bold. All of these examples share the final –e of intransitive animate verbs:

(2)  *ikwe*– “woman” > *miigaad-ikwew*-e “beat (one’s) wife” (compare *miigaadi*- “fight each other”), Nichols and Nyholm, 1995[64]  
    *inini*– “man” > *nawad-iniw*-e “grab people” (compare *nawadin*- “grab s.o.”), Nichols and Nyholm, 1995[93]  
    *zhishiib*– “duck” > *nandaw-ishib*-e “hunt ducks”, Nichols and Nyholm, 1995[92]  
    *anim*– “dog” > *nandaw-ismiw*-e “look for horses”, Nichols and Nyholm, 1995[92]

The relationship between the free noun (the initial root) and the medio is in some cases quite transparent, as in *ikwe*– > *(i)kwe*- “woman” (the final etymological –w shows up in the plural *ikwewag* “women”). In most cases, however, the medio is not predictable *(inini*- > *(i)niw*- “man” and *zhishiib*- > *(i)shib* “duck”) or even entirely obscure synchronically *anim*- > *(i)simw*- “dog, horse”.¹

However, despite the unpredictable morphophonological processes taking place when deriving a medio from the free root, these examples constitute incorporation according to our definition. The case of Wakashan and Salishan is more complex and will not be discussed in this article (see Gerds, 2003 and also Gerds and Hukari, 2008 concerning the Salish language Halkomelem).

Aside from the cases discussed above, our definition excludes cases such as English “go berry-picking” which can occur with participles but not finite forms at least not in the standard language.²

Any definition is at least in part arbitrary, and we do not wish to imply that authors such as Haugen (2008) or Baker (2009) were “wrong” in designating as incorporation phenomena which we would call otherwise. The only important question is whether a particular comparative concept is clear or ambiguous, and whether it is useful for analysing data. The survey of the literature above shows that previous authors have proposed two paths of development related to incorporation.

First, the development of denominal derivation from incorporation, when an incorporating verb ceases to be usable without an incorporated noun:

(3)  INCORPORATION > DENOMINAL DERIVATION

Second, the development of incorporation from noun stripping, by coalescence of the noun and the verb stems into one phonological word:

(4)  NOUN-VERB COALESCENCE > INCORPORATION

The following will show that (4) is not the only path of development leading to the creation of incorporation.

3. An incorporation-like construction in Japhug

Incorporation is a rather unusual process among languages of the Sino-Tibetan family. Mithun (1984:853) has argued, quoting data from Matiisoff (1973:309), that some constructions in the Lolo-Burmese language Lahu could be analysed as incorporation, but as mentioned in section 2, we exclude noun-stripping from our definition of incorporation.

In the morphologically richer languages of the Sino-Tibetan family, there is evidence for the existence of incorporation, especially in Kiranti (see for instance Schackow, 2008:92 concerning Puma), but also in the ancient language Tangut (Jacques, 2011).

Japhug, a morphologically complex language belonging to another subgroup of Sino-Tibetan (Rgyalrong), presents a peculiar incorporation-like construction which will be the focus of this article. This construction (henceforth ILC) resembles incorporation superficially and was analysed as such in previous publications such as Jacques (2004, 2012b). At the same time, it presents affinities with denominal derivation (as will be shown in section 5), and we defer discussion of its exact status until sections 5 and 6.

¹ The bare initial *anim*- does not normally occur in Ojibwe; the common noun for “dog”, *animosh* is a diminutive of an earlier *anim* < *aemw*a “dog” which fell out of use in Ojibwe but whose cognates still exist and other Algonquian languages. The medio *(i)simw*- comes from proto-Algonquian *(e)simw*-; the resemblance between the medio and the initial is manifest in the proto-language, but no longer apparent in modern Ojibwe.

² A search on the Internet however reveals that sentences such as “he berry-picks it” are possible in some colloquial varieties of English: this constitutes incorporation.
In this section we first give a short presentation of the Japhug language. Second, we provide a general overview of Japhug morphosyntax. Third, we present all examples of ILC verbs in Japhug: this construction is of limited productivity, so that an exhaustive list can be included in this article. Fourth, we describe some morphological and syntactic properties of the ILC.

3.1. The Japhug language

Japhug (Chinese 茶堡 Chabao) is an endangered Sino-Tibetan language spoken by less than 10,000 speakers in Western Sichuan, China. It belongs to the Rgyalrong subgroup of Sino-Tibetan (as defined by Sun, 2000). Alongside Japhug, three other languages are found in the Rgyalrong group: Situ (or Eastern Rgyalrong), Tshobdun (Chinese 草登 Caodeng) and Zbu (Chinese Ribu 日甫, also called Showu).

The following map presents the Rgyalrong-speaking area in shaded grey, in which the Japhug-area appears as a black dot (Fig. 1).

Rgyalrong languages are unwritten, except for some ancient texts in Situ in Tibetan script. Until the 1950s, these languages where under Amdo Tibetan influence, which is still conspicuous in the vocabulary, but now few speakers know Tibetan, while most of them are bilingual in Sichuan Chinese.

3.2. Overview of Japhug morphosyntax

Before studying the incorporation-like construction in detail, it is necessary to provide a general account of the main typological properties of the Japhug language. Japhug is a polysynthetic language, with obligatory person marking for two arguments and a direct/inverse system (see DeLancey, 1981; Sun and Shidanluo, 2002; Jacques, 2010). The verb distinguishes between singular, dual and plural, but not inclusive/exclusive. Transitivity (a feature of crucial importance for our study of incorporation) is marked in five different ways:

The reader can also refer to Jacques (2008), a preliminary grammar of Japhug, as well as to Sun (2003), a sketch of Tshobdun, the closest relative of Japhug.
Table 1
The Japhug verbal template.

<table>
<thead>
<tr>
<th>a-</th>
<th>mw-</th>
<th>cu-</th>
<th>tr-</th>
<th>nř-</th>
<th>sw-</th>
<th>rř-</th>
<th>mř-</th>
<th>a-</th>
<th>yn-</th>
<th>ŋu-</th>
<th>noun</th>
<th>Σ</th>
<th>-t</th>
<th>-a</th>
<th>-nw</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
</tr>
</tbody>
</table>

1. Irrealis a-, Interrogative ŋw-, conative ŋw-.
2. Negation ma- / mw- / můj-.
3. Translocative/Cislocative cu- and ŋu-.
4. Directional prefixes (tř- ŋw- řř- ŋř- ŋw-řř- řř- ŋř- ŋw-řř-) permansive ŋw-, apprehensive cu-.
5. Second person (tř- ŋw- ņř- Ňř- ŋw-řř- řř- ŋř- ŋw-řř-).
6. Inverse -wř- / Generic ŋO prefix ŋu-. Progressive asu-. Note that the inverse is actually infixed within the progressive as in ŋw-tř-řř-
inř> -nř> -ař> "he is attacking you".
7. Reflexive ŋw-řř-.
8. Causative ŋw-, Abilitative ŋw-.
9. Antipassive ŋw- / ŋř-.
10. Tropic ŋv-, applicative ŋu-.
11. Passive or Intransitive thematic marker a-/Deexperiencer ŋy-.
12. Autobenefactive-spontaneous (appears in this position only when the passive/intransitive determiner is present, otherwise appears between positions 6 and 7) ŋw-.
13. Other derivation prefixes ŋw- ŋy- ŋw- řř- ŋř- ŋw-řř-.
15. Verb root.
16. Past 1sg/2sg transitive -t (aorist and evidential).
17. 1sg -a.
18. Personal agreement suffixes (~nř- iř- ŋw- -ndj). (3)

1. The transitive aorist direct 3>3 prefix a-.
2. The transitive aorist 1/2sg>3 -t suffix (only occurs in open-syllable stem verbs).
3. The stem 3 formation, a stem alternation which occurs in direct 123sg>3 forms of verbs. The regular pattern is that verbs whose stem is in -o, -i, -n and -u change to -ŋm, -e, -e and -i, respectively.
4. The generic A form (which cannot occur on intransitive verbs).
5. The A participle construction which differs from the S participle by the presence of a possessive prefix coreferent with the patient; compare the two phrases:

(5) kw-ši  
NMLZ:S/A-die  
"The dead one"

(6) ŋw-kw-šat  
3SG-NMLZ:S/A-kill  
"The one who kills him."

Tense–Aspect–Modality is marked by a combination of several series of directional prefixes with vowel alternation on the verb root. The structure of the verbal word is more templatic than layered (following Bickel and Nichols, 2007:218’s definition) and the basic template is the following (Table 1).

Japhug and other Rgyalrong languages are typologically unusual in being verb-final languages with mainly prefixing morphology. It is quite common to find a verb form with more than four or five prefixes in a row:

(7) a-yu-řv-kw-su-ṃts'ãm-a  
IRR-CISL-PFV:upstream-2>1-CANUS-query-1SG  
You will come to tell me. (Japhug; The three sisters, 132)

Derivational morphology is also extensive: argument-promoting (causative, applicative, tropative), demoting (passive, antipassive, anticausative, etc.) and modal (abilitative, facilitative) derivations are all attested and fairly productive (see for instance Jacques, 2012b or Sun, 2006 on the related Tshobdun language).

Japhug is a strongly head-marking language, and its case marking system is rather poor: it only has an ergative clitic kw, an optional genitive ŋu and an optional locative ŋu.

From the point of view of alignment typology, Japhug has ergative marking on nouns, tripartite alignment in relativization and ergative alignment in generic marking (cf Jacques, 2012b).
Japhug has a strong distinction between nouns and verbs, a feature, which as we have argued in section 2, is a prerequisite for the existence of incorporation. Nouns, unlike verbs, exhibit little morphology except possessive prefixes, whose paradigm is given in the following table, compared to the free pronouns (these prefixes also occur in some participial verb forms) (Table 2).

Some intrinsically possessed nouns, especially body parts, kinship terms and relational nouns, must appear with either a possessive prefix or the indefinite possessive $tɯ$– or $tɤ$–.

Finally, we are going to address the definition of wordhood in Japhug, which is crucial to any discussion on derivational morphology. In some languages of the Sino-Tibetan family such as Galo (see Post, 2009) it has been shown that the phonological and morphological boundaries are not always congruent. In Limbu, Hildebrandt (2007) and Schiering et al. (2010) have suggested that a phonological boundary exists between prefixes and the rest of the verbal word, as indicated by two phonological rules (glottal-stop insertion and non-application of l/r alternation).

In Japhug, there is also some evidence for the existence of a phonological boundary within the morphological verbal word.

Unlike other Rgyalrong languages (see Sun, 2005), Japhug has lost tonal and stress contrasts, and the stress always falls on the last syllable of the word, except in two cases.

First, some verbal prefixes, in particular the inverse $-wɣ$–, attract stress on the preceding syllable, as in the following example:

(8) $pɯ-wɣ-mtɑ-a-ndzi$

AOR-INV-see-1SG-DU

They$^d$ saw me. (elicitation, Chen Zhen).

Second, personal agreement suffixes are always unstressed and the vowels of these suffixes are often devoiced$^4$:

(9) $pɯ-mtɑ-t-a-ndzi$ [numtɔʔndzi]

AOR-see-PST-1SG-DU

I saw them$^5$. (elicitation, Chen Zhen).

In our transcription of Japhug, stress is only indicated in the case of stress-attracting prefixes, as its placement is always predictable otherwise.

Stress in Japhug is a valuable indicator of phonological domains, and the facts presented above suggest that a phonological boundary exists between the verb stem and the agreement suffixes, in other words between position 16 and position 17 of the verbal template.$^5$

In Limbu and most other Kiranti languages, Schiering et al. (2010) argued that /ʔ/-insertion between verbal prefixes and vowel-initial root (as in /kɛ-im/ ‘you sleep’ realized as [kɛʔim]) was a marker of phonological boundary. In Japhug, no such insertion is observed; vowel fusion between the prefix and the verb stem always occurs. For instance, the second person non-past form of /aɕqʰe/ ‘to cough’ is /tɯ-yaɕqʰe/ 2-cough [ɾaɕqʰe], not *tɯʔaɕqʰe. All other elements occurring to the

$^4$ The only exception is the first person singular suffix $–a$ when it merges with the verb stem, as in $tɣ-aɕqʰe$-a AOR-cough-1SG ‘I coughed’ realized as [tasqʰa].

$^5$ See Gong (in press) for a similar claim concerning Zbu Rgyalrong.
right of the second person prefix and to the left of the verb root (positions 7–14, including all derivation prefixes as well as nominal roots) belong unequivocally to the same phonological word.

3.3. Incorporation-like verbal compounds

Japhug presents verbal compounds that superficially resemble incorporational constructions. These verbal compounds include a nominal and a verbal root, both of which can appear independently, are not restricted to non-finite forms and belong to the same phonological word, as defined in the previous section. Therefore, they would seem to fulfil the definition of incorporation presented in section 2. However, we will see in the following sections that these compounds also show some affinities with denominal derivations. Their exact status will be discussed in sections 5 and 6, and we will non-commitally refer to this construction as incorporation-like construction (ILC) in this article.

Unlike other derivational processes, ILC verbs are not very numerous in Japhug: only 36 have been discovered up to now out of a total of 1800 verbs in our unpublished lexical database. Although ILC is fairly rare in traditional stories, and we will non-commitally refer to this construction as incorporation-like construction (ILC) in this article.

In the following Table 3, noun roots in ILC verbs are written in bold, and separated from other morphemes by a hyphen. It will be shown that these prefixes are.

Verbs for which we have indicated idiom as the meaning only appear in noun–verb collocations with the same noun as in the ILC verb. For instance tu-wi loš is an idiom meaning “have nausea”:

(10) uwo u-wi mu-loss he 3SG.POSS-nausea const-have.nausea
He has nausea. (elicitation, Dpalcan)

Neither the noun tu-wi nor the verb loš can appear outside of this collocation, though they behave morphologically like independent words, but the ILC equivalent mu-tw-loš “have nausea” constitutes a single word.

The morphological and morphosyntactic properties of these ILC verbs will be analysed in the next sections (3).

Aside from the 35 examples above, a special case must be made of the verb kntupa “to speak”. This verb etymologically includes the verbal root –pa, which originally meant “to do”, but has become restricted in modern Japhug to the meaning “to close (the door)” or as a light verb with ideophones. The first part knt– is an ablauted form of k- the patient participle of the verb ti “to say” and literally means “the things that are said” (in some contexts it also means “niggling”).

kntupa is a defective verb, and only occurs in non-first and third person forms. It is morphologically transitive, and undergoes –a > –e ablaut in singular forms. Table 4 compares the non-past (direct, i.e. with a third person patient) forms of the transitive verb ndza “to eat” with those of kntupa.

The non-past being the only tense which is not prefixed in Japhug, we observe that the only attested forms of this verb are precisely those which are not prefixed; in other words, the verb kntupa “to speak” is one of the few verbs in the language (alongside the highly irregular yγγ “to be there” and mage “not to be there”) which cannot appear with any prefix.

3.4. Morphological properties

All ILC verbs in Japhug except kntupa “to speak” exhibit a very strict morphological structure, which we can represent as follows:

<table>
<thead>
<tr>
<th>DERIVATIONAL PREFIX</th>
<th>NOMINAL STEM</th>
<th>VERBAL STEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>nu–, ny–, yu–, su–</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A few examples such as muγγγγγ “to block the way” present more than one nominal element, but we will first restrict the discussion to this basic structure. This structure, interestingly, is the mirror-image of the Algonquian incorporational construction initial + medial + final mentioned in section 2.

The nature of the derivational prefixes is analysed in more detail in section 5; it will be shown that these prefixes are homophonous with denominal prefixes, and that the ILC presents affinities with denominal constructions.
Table 3
Examples of ILC in Japhug.

<table>
<thead>
<tr>
<th>Base noun</th>
<th>Meaning</th>
<th>Base verb</th>
<th>Meaning</th>
<th>ILC verb</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>tu-ku</td>
<td>head</td>
<td>amųŋkoe</td>
<td>pointed (vs)</td>
<td>a-ku-ŋkoe</td>
<td>having a pointed head</td>
</tr>
<tr>
<td>cəa</td>
<td>alcohol</td>
<td>ts'i</td>
<td>drink (vt)</td>
<td>yu-cζ-y-tζ'i</td>
<td>to drink alcohol</td>
</tr>
<tr>
<td>cu</td>
<td>stone</td>
<td>pʰut</td>
<td>take out, cut down (vt)</td>
<td>yu-cu-pʰut</td>
<td>to take out stones (out of the field)</td>
</tr>
<tr>
<td>tu-ŋlɨ</td>
<td>dung</td>
<td>tʰɨt</td>
<td>take out (vt)</td>
<td>yu-ŋlɨ-tʰɨt</td>
<td>to take out dung (out of the stable), to make fertilizer</td>
</tr>
<tr>
<td>yndzyb</td>
<td>fire (big)</td>
<td>tǝ</td>
<td>put (vt)</td>
<td>yu-yndzyb-tǝ</td>
<td>to clear (fields) with fire</td>
</tr>
<tr>
<td>kʰqunua</td>
<td>dog</td>
<td>tsʰoŋ</td>
<td>attach (vt)</td>
<td>yu-kʰu-tsʰoŋ</td>
<td>to turn the dog loose on</td>
</tr>
<tr>
<td>pcawtsou</td>
<td>money</td>
<td>fso̞v</td>
<td>earn</td>
<td>yu-pcawtsou-fso̞v</td>
<td>to earn money</td>
</tr>
<tr>
<td>tu-qunu</td>
<td>riches</td>
<td>fso̞v</td>
<td>earn</td>
<td>yu-tu-qunu-fso̞v</td>
<td>to earn riches</td>
</tr>
<tr>
<td>si</td>
<td>tree, wood</td>
<td>pʰut</td>
<td>take out, cut down (vt)</td>
<td>yu-su-pʰut</td>
<td>to cut wood (to make firewood)</td>
</tr>
<tr>
<td>tʰq'ua</td>
<td>tea</td>
<td>tsʰi</td>
<td>drink (vt)</td>
<td>yu-tʰq'ya-tsʰi</td>
<td>to have tea</td>
</tr>
<tr>
<td>šu</td>
<td>way</td>
<td>ma̞i</td>
<td>lead (vt)</td>
<td>yu-tʰq'ya-ma̞i</td>
<td>to lead the way</td>
</tr>
<tr>
<td>tʰv‡jvɨb</td>
<td>steam</td>
<td>sqa̞</td>
<td>cook (vt)</td>
<td>yu-tʰv‡jvɨb-sqa̞</td>
<td>to cook with steam (vt)</td>
</tr>
<tr>
<td>tu-lu</td>
<td>head</td>
<td>tʰu̞</td>
<td>gøre (vt)</td>
<td>yu-lu-tʰu̞</td>
<td>to hit with the head (vt)</td>
</tr>
<tr>
<td>tu-zgru</td>
<td>elbow</td>
<td>t squarely</td>
<td>gøre (vt)</td>
<td>yu-tu-zgru-t squarely</td>
<td>to hit with the elbow (vt)</td>
</tr>
<tr>
<td>tv-pʰu</td>
<td>clod (of earth)</td>
<td>xtsu</td>
<td>pound (vt)</td>
<td>yu-pʰu-xtsu</td>
<td>to do after the other</td>
</tr>
<tr>
<td>tu-q̓u</td>
<td>root</td>
<td>sa̞</td>
<td>start (vt)</td>
<td>yu-q̓u-sa̞</td>
<td>to break cloths of earth</td>
</tr>
<tr>
<td>tu-q̓u</td>
<td>back, behind</td>
<td>ru</td>
<td>look</td>
<td>yu-q̓u-ru</td>
<td>to look back</td>
</tr>
<tr>
<td>tu-q̓u</td>
<td>back, behind</td>
<td>nga</td>
<td>wear (vt)</td>
<td>yu-q̓u-ng̓a</td>
<td>to wear on the back</td>
</tr>
<tr>
<td>tu-si</td>
<td>nausea</td>
<td>lo̞k</td>
<td>(idiom)</td>
<td>yu-tu-lo̞k</td>
<td>to have nausse</td>
</tr>
<tr>
<td>jla</td>
<td>hybrid yak</td>
<td>bγy</td>
<td>herb (vt)</td>
<td>yu-jla-bγy</td>
<td>to herd hybrid yaks</td>
</tr>
<tr>
<td>jla</td>
<td>hybrid yak</td>
<td>ste̞i</td>
<td>lead (vt)</td>
<td>yu-jla-stei</td>
<td>to herd hybrid yaks</td>
</tr>
<tr>
<td>mbrọ</td>
<td>horse</td>
<td>rjuy</td>
<td>run</td>
<td>yu-mbrọ-rjuy</td>
<td>to gallop</td>
</tr>
<tr>
<td>tu-ŋa</td>
<td>debt</td>
<td>t̪o̞</td>
<td>pay</td>
<td>yu-tu-ŋ-ʔo̞</td>
<td>to pay back one's debt</td>
</tr>
<tr>
<td>tu-ŋu</td>
<td>wealth</td>
<td>st̄om</td>
<td>pay</td>
<td>yu-tu-ŋu-st̄om</td>
<td>to envy people's wealth</td>
</tr>
<tr>
<td>tu-ŋm̓</td>
<td>flesh</td>
<td>kʰe̞</td>
<td>(idiom)</td>
<td>yu-tu-ŋm̓-kʰe̞</td>
<td>to be skinny</td>
</tr>
<tr>
<td>tu-ŋm̓</td>
<td>flesh</td>
<td>s̄u̞</td>
<td>plump</td>
<td>yu-tu-ŋm̓-s̄u̞</td>
<td>to be plump</td>
</tr>
<tr>
<td>pas</td>
<td>pig</td>
<td>bγy</td>
<td>herb (vt)</td>
<td>yu-pas-bγy</td>
<td>to herd pigs</td>
</tr>
<tr>
<td>tu-b̄x̓</td>
<td>side</td>
<td>p̄v̮l̊</td>
<td>(not independent)</td>
<td>yu-b̄x̓-p̄v̮l̊</td>
<td>to lay on the side</td>
</tr>
<tr>
<td>w̄q̓u</td>
<td>behind</td>
<td>astu</td>
<td>straight</td>
<td>yu-w̄q̓u-astu</td>
<td>to back up</td>
</tr>
<tr>
<td>tu-ŋma</td>
<td>household</td>
<td>kro</td>
<td>share</td>
<td>yu-tu-ŋma-kro</td>
<td>to split the household</td>
</tr>
<tr>
<td>tv-rmc</td>
<td>hair</td>
<td>mbe</td>
<td>old</td>
<td>yu-tv-rmc-mbe</td>
<td>to mould</td>
</tr>
<tr>
<td>tu-ŋmi</td>
<td>heart</td>
<td>pas̄</td>
<td>black</td>
<td>yu-tu-ŋmi-pas̄</td>
<td>to harm</td>
</tr>
<tr>
<td>tvuy</td>
<td>louse</td>
<td>ru̞</td>
<td>look</td>
<td>yu-tvuy-ru̞</td>
<td>to look for lice</td>
</tr>
<tr>
<td>tʂu</td>
<td>road</td>
<td>sti̞</td>
<td>block</td>
<td>yu-tʂu-sti̞</td>
<td>to block the way</td>
</tr>
<tr>
<td>tu-mbrōu</td>
<td>anger</td>
<td>nγu̞</td>
<td>(idiom)</td>
<td>yu-tu-mbrōu-nγu̞</td>
<td>to be detestable</td>
</tr>
<tr>
<td>tu-si</td>
<td>nausea</td>
<td>lo̞k</td>
<td>(idiom)</td>
<td>yu-tu-si-lo̞k</td>
<td>to be disgusting</td>
</tr>
</tbody>
</table>

For the time being we remain non-committal as to whether ILC constitutes true incorporation or a different construction altogether, and will therefore avoid using the term “incorporation” until section 5, when all the facts have been laid out and analysed. The verbs showing this construction will be called “ILC verbs” and the nominal stem that appears in this construction “ILC nominal stem” (rather than “incorporated noun”).

The nominal stem in the ILC differs from the free form in two ways. First, in the case of possessed noun prefixes with either the indefinite possessive prefix tu̞- / tv̄- or the third person prefix u̞-, this prefix disappears in the ILC. Second, in open-syllable nouns, the vowel undergoes a series of regular changes, which we call the status constructus (5). The status constructus of some nouns is irregular, in particular the noun “dog” kʰu̞wa which becomes kʰu̞- instead of expected kʰu̞wa-; not only possessive prefixes are lost during derivation, but also derivational prefixes as in tu̞-ŋ– “debts” a noun derived from ŋ– “owe” by the action nominalization prefix tu̞–. The only case of a prefix preserved in the construct state in Table 3 is that of yndzyb “fire”. This noun is an irregular nominalization of ndzyb “to burn (vi)”, an anticausative derivation of the transitive tszyb “burn (vt)”. The regular form ku̞-ndzyb is also attested; γ– originates from ku̞- by syncope (a cluster such as /knd/ would be impossible in Japhug). The reason for the preservation of this γ– element is that it is not felt synchronically as a prefix anymore.

The status constructus is not limited to ILC verbs, but also occurs in nominal compounds (6). The first element is always a noun in status constructus, and the second element undergoes little change, except for the loss of possessive prefixes.
The presence of a distinct bound form for nominal stems in ILC, and the fact that this bound form also occurs in nominal compounds, are characteristics also attested in many languages with incorporation, in particular the Algonquian examples discussed in section 2.

3.5. Syntactic properties

ILC verbs are not common in traditional stories, so that a detailed study of the function of this construction is difficult. The ILC nominal stem cannot be modified by either stranded demonstratives or adjectives as in languages such as Hopi (see for instance Haugen, 2008:121), and it is never referential. Although ILC retains some degree of productivity, attempts at creating new ILC verbs on the model of the ones discovered in the stories met with disagreement by the speakers. For instance, while \( \text{n}_\text{ɯ}-\text{jl}_\text{ɤ}-\text{ɭ}_\text{ɤɣ} \) "herd hybrid yaks" and \( \text{n}_\text{ɯ}-\text{pa}_\text{ʁ}-\ɭ_\text{ɤɣ} \) "herd pigs" are possible, it is impossible (or at least not fully acceptable) to produce a verb such as \( \text{n}_\text{ɯ}-\text{qa}_\text{ʑ}_\text{ɭ}_\text{ɤɣ} \) "herd sheep", probably because such an activity is not recognized sufficiently often to be considered name-worthy in its own right, as Mithun (1984:848) puts it.

The ILC nominal stem can have three functions:

1. O of a transitive verb: \( \text{ɣ}_\text{ɯ}-\text{sp}_\text{h}_\text{ɯ}t \) "cut wood".
2. S of an intransitive verb: \( \text{a-}\text{k}_\text{ɤ}_\text{-mt}_\text{ɕ}_\text{ʁ} \) "be pointy-headed".
3. Adjunct: \( \text{n}_\text{ɤ}_\text{-q}_\text{h}_\text{a}_\text{-ru} \) "look back".

Note that no examples of A have been discovered: the Japhug ILC follows the well-known implicational hierarchy of incorporating constructions, according to which "if a language incorporates nouns in just one function, they will be direct objects; if a language incorporates only two types of arguments, they will be direct objects and subjects of intransitive verbs" (Aikhenvald, 2007:19).
When the ILC nominal stem corresponds to the O of the original verb, the ILC verb becomes intransitive: this is a situation similar to saturating incorporation (type I incorporation according to Mithun (1984)’s hierarchy). Compare the two following competing constructions:

(12)  nu-nu-ngy-tso-a  
AOR-DERIVATION-debt-pay-1SG

(13)  a-nya  nu-tso-t-a  
1SG.POSS-debt  AOR-pay-PST-1SG
I paid my debt. (elicitation, Chen Zhen)

In example 13 without ILC, the verb tso “to pay”, is transitive, as shown the presence of the past suffix –t, which only occurs in 1SG>3 and 2SG>3 forms of transitive verbs. In the corresponding ILC verb in example 12, the verb cannot appear with this suffix –t, showing that it was intransitivized by the process of incorporation.

When the ILC nominal stem corresponds to the S of the original verb, the verb remains intransitive. In at least one example, the same nominal root appears both within the ILC verb and as the free noun S-argument (tu-ku “head” becomes –ky- in status constructus):

(14)  (i)  u-ku  nu-ŋmtcor  
3SG-headed

(ii)  u-ku  nu-ŋ-ky-ŋmtcor  
3SG-headed

Its head is pointed (of a knife). (elicitation, Dpalcan)

When the ILC nominal stem corresponds to an adjunct, the verb remains transitive in some cases, as in nykŋu-hu “hit with the head”:

(15)  ko-nyu-nyu-ŋ-ŋu-hu-a  
AOR-INV-DERIVATION-head-gore-1SG
He hit me with his head. (elicitation, Dpalcan)

However we have found no case of ILC similar to Mithun’s type II incorporation, when a verb incorporating an O argument remains transitive, and promotes an adjunct to O role.

Although the meaning of some of the ILC verbs is not compositional, in other words one cannot guess the exact meaning of the verb from that of the ILC nominal stem and the verb, some ILC verbs are quite transparent in this regard. Although the meaning of some of the ILC verbs is not compositional, in other words one cannot guess the exact meaning of the verb from that of the ILC nominal stem and the verb, some ILC verbs are quite transparent in this regard. However, we have found no case of ILC similar to Mithun’s type II incorporation, when a verb incorporating an O argument remains transitive, and promotes an adjunct to O role.

This is for instance the case of yu-ŋcawtsu-fsor “earn money”, a recent ILC verb since it contains a Chinese loanword.

We find the following two examples a few sentences apart in the same story:

(16)  łasa  ju-ku-ce  tçe,  mutcu  pçawtsu  ky-fsor  nuu-mbat  
Lhasa  IPF-GENR:S/O-go  COORD  there money  INF-earn  CONST-easy  
‘If one goes to Lhasa, it is easy to earn money there.’ (Lobzang, 22)

(17)  mp-ŋmbro  mp-ŋmtul  tu-rke-a  tçe  ku-ŋu-ŋcawtsu-fsor  jy-ce  tçe  
2SG.POSS-horse  2SG.POSS-silver  IPF-put.in[3]-1SG  COORD  NMLZ:S/A-DERIVATION-money-earn  IMP-go  COORD  
‘I will prepare a horse and some silver for you, go and earn some money.’ (Lobzang, 17)

In the first example, pçawtsu “money” is the free object of the transitive verb fsor “earn”. In the second sentence, we find the corresponding ILC verb. In both cases, the Noun–Verb construction and the ILC verb could have been substituted one for the other without any noticeable change of meaning.

Interestingly, an important proportion (more than half) of textual examples of compositional ILC verbs such as these are found as non-finite verbal forms especially as complements of movement verbs:

(18)  tu-sŋi  ci  zuu  nu,  tr-tcau  nu  li  ku-ŋu-ŋu-su-phuut  jy-ari  
one-day  INDEF  LOC  TOP  NEU-boy  TOP  again  NMLZ:S/A-DERIVATION-wood-chop  AOR:UPSTREAM-go[II]  
nu-ŋu,  const-be  
‘One day, the boy went again to chop wood.’ (The demon, 7)
4. Denominal derivation in Japhug

Japhug has a very rich system of denominal derivations, which cannot be treated exhaustively in this article. All denominal verbs are derived from nouns by means of a derivational prefix. The attested prefixes are the following (7).

Many denominal verbs are derived from intrinsically possessed nouns, which always bear either a possessive prefix or an indefinite possessor prefix $nu-$ or $v-$. The vocalism $tu$ or $ru$ of the denominal prefixes depends on whether the base noun has $tw-$ or $v-$, though there are a few exceptions. For instance, from $v-$ $vri$ “dew” one can derive $v-$ $vri$ “be covered with dew” (vi), while from $tu$-$swu$ “sleep (n)” one derives $nu$-$suw$ “sleep (vi)”. However, numerous exceptions to this general principle exist; in particular, the vowel $tu$ tends to be realized closer to [t] next to a uvular consonant.

There are several pairs where $nu-$ / $v-$ derives a transitive verb while $nu-$ / $v-$ derives an intransitive one, such as $nu$-$kran$ “discussion” > $nu$-$kran$ “discuss (vt)” vs. $v$-$kran$ “discuss (vi)”.

However, the transitivity of the derived verb is not always predictable from the form of the prefix. Table 8 illustrates the transitivity of the denominal verbs depending on their derivational prefix (the numbers refer to occurrences in my unpublished Japhug dictionary).

Discussing in detail the semantic properties of each prefix would require considerable space and will not be attempted in this article. We will only focus on the functions of the five forms that denominal verbs and incorporating verbs have in common: $nu-$, $v-$, $yu-$, $swu-$ and $sy-$.

The prefix $nu-$ and its variant $v-$ appear in a considerable variety of verbs, as illustrated in Table 9.

- The prefix $nu-$ can derive four major types of verbs, though some (such as “to be pregnant”) cannot be easily classified into any category.
- First, $nu-$ derives intransitive stative verbs denoting a property related to the base noun, as in “to be rusty” and “to be of a correct price”.
- Second, $nu-$ is used to create intransitive verbs describing an activity whose purpose is to obtain the entity designated by the base noun, as in “to fish” or “to receive a salary”; the meaning is never “to make X” or “to become X”.
- Third, the prefix $nu-$ derives transitive action verbs from instrument nouns (as in “to plane” or “to treat”).
- Fourth, $nu-$ forms transitive verbs meaning “to consider as”, “to treat as” relative to the base noun.
- The prefix $yu-$ is much less common than $nu-$. The following examples illustrate its main functions (Table 10).
Table 9
Examples of the denominal prefix nuw–.

<table>
<thead>
<tr>
<th>Base noun</th>
<th>Meaning</th>
<th>Derived verb</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>w’-p’wu</td>
<td>price</td>
<td>nuw-p’wu</td>
<td>to be of a correct price vi, stative</td>
</tr>
<tr>
<td>sya</td>
<td>rust</td>
<td>nuw-sya</td>
<td>to be rusty vi, stative</td>
</tr>
<tr>
<td>qay</td>
<td>fish</td>
<td>nuw-qay</td>
<td>to fish vi</td>
</tr>
<tr>
<td>tu-ggra</td>
<td>salary</td>
<td>nuw-ggra</td>
<td>to receive a salary vi</td>
</tr>
<tr>
<td>m’t’wu</td>
<td>spell</td>
<td>nuw-m’t’wu</td>
<td>to cast a spell vt</td>
</tr>
<tr>
<td>kuijyu</td>
<td>oath</td>
<td>nuw-kuijyu</td>
<td>to swear vt</td>
</tr>
<tr>
<td>mburtym</td>
<td>plane</td>
<td>nuw-mburtym</td>
<td>to plane vt</td>
</tr>
<tr>
<td>smyn</td>
<td>medicine</td>
<td>nuw-smyn</td>
<td>to treat vt</td>
</tr>
<tr>
<td>mkryur</td>
<td>necklace</td>
<td>nuw-mkryur</td>
<td>to wear as a necklace vt</td>
</tr>
<tr>
<td>tu-rdoe</td>
<td>a piece</td>
<td>nuw-rdoe</td>
<td>to pick up piece by piece vt</td>
</tr>
<tr>
<td>sjas</td>
<td>servant</td>
<td>nuw-sjas</td>
<td>to give orders to vt</td>
</tr>
<tr>
<td>sgra</td>
<td>enemy</td>
<td>nuw-sgra</td>
<td>to treat as an enemy vt</td>
</tr>
<tr>
<td>tu-sk’ruw</td>
<td>body</td>
<td>nuw-sk’ruw</td>
<td>to be pregnant of vt</td>
</tr>
</tbody>
</table>

Table 10
Examples of the denominal prefix yu–.

<table>
<thead>
<tr>
<th>Base noun</th>
<th>Meaning</th>
<th>Derived verb</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ty-tsru</td>
<td>sprout</td>
<td>yu-tsru</td>
<td>to sprout vi</td>
</tr>
<tr>
<td>sojtsa</td>
<td>timber</td>
<td>yu-sojtsa</td>
<td>to chop timber vi</td>
</tr>
<tr>
<td>tu-t’la</td>
<td>message</td>
<td>yu-t’la</td>
<td>to answer vt</td>
</tr>
<tr>
<td>skat</td>
<td>load</td>
<td>yu-skat</td>
<td>to load (an animal) vt</td>
</tr>
<tr>
<td>ty-fkum</td>
<td>bag</td>
<td>yu-fkum</td>
<td>to put in a bag vi</td>
</tr>
</tbody>
</table>

The allomorph γy– only occurs with intransitive verbs expressing the generation of the entity designated by the base noun (as in “to sprout”). Some uses of γyu– seem to be identical to that of nuw–. For instance, the case of “to chop timber” is similar to that observed with the verb nuw-qay “to fish” above. Verbs such as γyu-skat “to load” and γyu-fkum “to put in a bag” on the other hand exemplify a type of derivation slightly different from that of nuw–, meaning especially “to put in a container”, the container being the base noun.

The prefix su– appears in two cases. First, with body parts or instruments, where it derives a labile or a transitive verb expressing the action of that instrument (su-jamdzs “finger” > su-jamdzs “show with the finger”). Second, with nouns expressing a position such as ndzupe “way of sitting (without crossing legs, the way women sit in the Rgyalrong traditional society) > su-ndzupe “sit (without crossing legs, vi)”.

4.1. Deexperiencer/tropative pairs

Aside from the three groups of prefixes nuw–/nv–, yu– and su– discussed above, we must mention the case of the deexperiencer / tropative pairs in sv–/nv– (see Table 11 for examples of these prefixes and definitions of these terms), in relation to the pair of ILC verbs sv-ʃu-lo ‘to be disgusting’ and nv-ʃu-lo ‘to have nausea’ derived from the collocation twu-si lo ‘to have nausea’.

The deexperiencer prefix sv– derives an intransitive stative verb from either transitive (perception verbs) or intransitive verbs, and the S of the deexperiencer verbs corresponds to the stimulus of the base verb, while the original S or A is

Table 11
Examples of the deexperiencer and tropative verbs.

<table>
<thead>
<tr>
<th>Basic verb</th>
<th>Meaning</th>
<th>Derived verb</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ngio</td>
<td>to slip</td>
<td>sv-ngio</td>
<td>to be slippery (of the ground)</td>
</tr>
<tr>
<td>ske</td>
<td>to be burned</td>
<td>sv-ske</td>
<td>to be burning</td>
</tr>
<tr>
<td>rga</td>
<td>to like (itr.)</td>
<td>sv-rga</td>
<td>to be nice</td>
</tr>
<tr>
<td>wxti</td>
<td>to be big</td>
<td>nv-wxti</td>
<td>to consider to be too big</td>
</tr>
<tr>
<td>zri</td>
<td>to be long</td>
<td>nv-zri</td>
<td>to consider to be too long</td>
</tr>
<tr>
<td>mvmv</td>
<td>to have an odour</td>
<td>nv-mvmv</td>
<td>to smell (itr.)</td>
</tr>
</tbody>
</table>
demoted (see Jacques, 2012b). The tropative derivation derives a transitive verb from a stative verb, by adding an experiencer (which becomes the A of the derived verb) while the S of the original verb becomes the O. This derivation differs from the causative in that the resulting verb always has the specific meaning “to find / consider XXX”.

Apart from the two ILC verbs sv-ʑɯ-ɭu “to be disgusting” and ny-ʑɯ-ɭu “to have nausea”, we find three pairs of verbs which present the same apparent meaning derivation (Table 12).

The verb ny- is labile, meaning “to laugh at (someone)” when used transitively, and “to laugh” when used intransitively.

The first two verb pairs sv-ny- and ny-mts⁵n are similar, related to base nouns prefixed in ny-. Note that the prefix in these nouns is the indefinite possessive, which disappears when a possessive prefix is added:

(19)  w-re       ci       ړmuy        jn-чhу,  
      3SG.POSS-laughter a.little IDEO:1:laughter EVD-drop
She (could not resist and) laughed a little. (The Frog, 100)

For the pair svŋuβ / nyŋuβ on the other hand, no corresponding noun seems to exist, though it could have existed or be attested in other varieties of Japhug.

It would appear that the pairs of verbs in Table 12 are derived from the nouns, and thus that the deexperiencer and tropative prefixes can be used as denominational markers alongside their regular use. However, from a comparative point of view, the root of sv-re “laughter” is clearly verbal in origin (see for instance Tangut r jumlah, proto-Lolo-Burmese *ray, both “to laugh”, Matisoff, 2003:43). Besides, tx-mts⁵n is a loanword from the Tibetan mtsẖar.ba “to be fabulous, to be strange”. This suggests that sv-re “laughter” and ny-mts⁵n “strange event” are deverbal nouns, and that unattested verbal roots *re and *mts⁵ must have existed at an earlier stage.

The following scenario can be postulated to explain these forms. If we assume the existence of an intransitive verb *are “to laugh” (intransitive) with the thematic element α-,[6] its regular deexperiencer would be *sv-re > sv-re.

One can also regularly derive from *are “to laugh” the deverbal noun tx-re “laughter (n)”; such examples are quite common, for instance the derivation αɡɣʰ “to cough” > tx-ɡɣʰ “cough (n)”.

Finally, ny-are > ny-re “to laugh at” would be the regular applicative (not tropative) of the verb *are. This hypothetical form *are in turn would be derived from a root *re “to laugh at (tr)”, in the same way as akʰu “to call” must originate from a transitive root *kʰu “to call (transitive)”. The Tangut and Lolo-Burmese forms reflect the non-derived root *re, while the Japhug forms have undergone several layers of derivation.

The disappearance of *are (and other comparable forms) makes the formation quite opaque.

For sv-ʑɯ-ɭu, we need to posit a further step of derivation: first inclusion of the noun w-zi in a hypothetical ILC verb *a-ʑɯ-ɭu “to have nausea (it)”, to which then deexperiencer (*sv-ʑɯ-ɭu > svʑɯ-ɭu) and applicative (*nu-ʑɯ-ɭu > nyʑɯ-ɭu) derivations are then applied.

4.2. Light verb constructions

Most denominal verbs compete with corresponding light verb constructions. In these constructions, the light verb (mostly βu “to do”, hvt “throw” but also ti “say” in some cases) receives TAM and person marking, while the noun is a regular object.

The following examples illustrate denominal vs. light verb constructions:

<table>
<thead>
<tr>
<th>Deexperiencer verb</th>
<th>Meaning</th>
<th>Tropative verb</th>
<th>Meaning</th>
<th>Noun</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>sv-re</td>
<td>to be ridiculous</td>
<td>ny-re</td>
<td>to laugh (labile)</td>
<td>tv-re</td>
<td>laughter</td>
</tr>
<tr>
<td>sv-mts⁵n</td>
<td>to be strange</td>
<td>ny-mts⁵n</td>
<td>to consider (vt)</td>
<td>tv-mts³n</td>
<td>strange</td>
</tr>
<tr>
<td>svŋuβ</td>
<td>to be such that people are reluctant to do it</td>
<td>nyŋuβ</td>
<td>to be reluctant to (vt)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In both examples, the first sentence has an intransitive denominal verb, while the second one has a light verb construction.

In Japhug, TAM marking relies on both verb stem alternation and directional prefixes. Except for movement verbs and some action verbs, which are compatible with all seven directions (up, down, upstream, downstream, east, west, undetermined), most verbs have a determined directional prefix. In the case of nu-rγγo “sing” and sundzupe “sit” above, the aorist form of the lexical directional prefixes are respectively thu- “downstream” and nu- “towards west”.

The same directional prefixes are found in both the denominal construction and the corresponding light verb constructions, showing that these two constructions are synchronically related to one another in a systematic way: In the light verb construction ndzupe nu-βzu-t-a, one finds the same nu- “towards west” prefix as in the denominal nu-su-ndzupe-a “I sat without crossing legs”.

Many denominal verbs (especially those in nu- and nu-) can be replaced by the corresponding light verb construction without significant change of meaning.

4.3. Denominal prefixes and ILC

The derivational prefixes which appear in ILC verbs, nu-, ny-, nu-, su- and sy-, all have corresponding homophonous denominal prefixes. One could indeed argue that the two groups are related.

It could further be proposed that some of the denominal and/or ILC prefixes have the same origin or even constitute synchronically the same markers as some verbal derivations, in particular the applicative nu– and the causative su–.

Yet, the phonetic resemblance between these prefixes alone is not enough to draw such a conclusion. In Japhug, the shape of prefixes is determined by various phonological constraints. With the exception of directional prefixes and one modal prefix, both derivational and inflectional prefixes never have consonant clusters, only have /l/, /r/, /u/ as their main vowel, and contain only one of the following eleven consonants: /l/, /sl/, /ll/, /l/, /y/, /m/, /n/, /l/, /l/, /k/, /j/ (the complete consonantal inventory of Japhug comprises 49 phonemes).

Therefore, we observe pervasive homophony among prefixes. For instance, nu– can be either denominal, applicative, spontaneous-autobenefactive, aorist directional “towards west”, vertitive, third/second person plural prefix, as in the following examples:

1. rga “to like (vi)” > nu-rga “to like (vt)” (applicative)
2. rpu “to bump” > nu-rpu “to bump one’s (body part)” (spontaneous-autobenefactive)
3. yi “to come” > nu-ye “come (towards west), aorist” (directional prefix)
4. yi “to come” > nu-yi “to come back” (vertitive)
5. mto “to see” > nu-ku-mto “the one who sees them” (third/second person plural)

A similar list could be established with sy–, which can occur as non-core nominalizer, deexperiencer, combination of causative and passive, deriving transitive de-ideophonic verbs, antipassive and denominal prefixes. It is implausible that all these functions could have a common diachronic origin; their resemblance is (for some of them at least) fortuitous and due to the phonotactics of prefixes, which undergo different sound laws than regular vocabulary and neutralize many phonological distinctions (voicing, aspiration, main vowel, etc.).

Therefore, the question which needs to be addressed is whether the denominal and ILC derivational prefixes are only superficially similar, or whether they are related.

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8 These prefixes are simply glossed as “aorist” AOR, since the direction for these verbs is lexically determined.
5. Incorporation-like construction as denominal derivation

The previous sections have described the formation of ILC and denominal verbs in Japhug, and we have observed that both groups of verbs present an important commonality: The presence of a series of homophonous derivational prefixes. The existence of these prefixes offers a clue as to the origin of ILC in Japhug, namely that it constitutes a special subtype of denominal verbs.

In this section, we first study nominal Noun–Verb compounds in Japhug and their relationship with ILC. Then, we discuss the question whether ILC constitutes incorporation.

5.1. Noun–verb composition in Japhug

Aside from noun–noun composition as mentioned above, Japhug has a moderately productive process of nominal composition, in which a noun in the status constructus is combined with a verbal root to form a new noun (Table 13).

The resulting compound can be either an agent noun, a patient noun or an action noun from the point of view of its semantics, without any formal marking. This kind of ambiguity is not normally found in Japhug nominalized verbs (or rather participles), which have different derivational prefixes depending on the semantic role of the relativized argument (kw- for S/A, ku- for O/action, sv- for non-core argument, tw- for action, etc.).

For some examples such as “Plantago” or “bottle stopper”, it is possible that the verbal root first underwent a process of nominalization with the prefix kw- / ku- / sv- before entering the compound: this prefix is regularly lost in composition. In most cases, there is no way to tell whether the derivation from a given noun and verb to the nominal compound [NV] followed the direct path in (i) or the indirect path in (ii):⁹

(22) (i) \(N + V > [NV]_n\) composition
(ii) \(tu-^{(V-n)} + V > [tu-V]_n, [tu-V]_n\) nominalization
\(N+_n [nu-V]_n > [NV]_n\) composition

For instance, the transitive verb \(cp^h\)rt “to patch” has a derived noun \(\tau^x-cp^h\)rt “patch”; The plant name \(\tau^x-cp^h\)t could be either a compound of \(t^xu\) “road” and \(cp^h\)rt “to patch”, or of \(t^xu\) and \(\tau^x-cp^h\)rt: both “road patcher” and “road patch” would be fitting metaphors for this plant. The process of nominal compounding suppresses the nominalization prefix \(\tau^x-\), so that one never finds a form such as \(*\tau^x\tau^x-cp^h\)t.

In some cases however, semantics can help to settle this issue. For instance, in \(rc^x-mbe-\eta^xga\) “person who wears old jackets” can be glossed as:

(23) [nu-rcu w-mbe] u-kw-\eta^xga

\(NEU\)-jacket 3SG-old 3SG-NMLZ:S/A-wear

Person who wears old jackets.

The first two syllables of the compound derive from the noun phrase \(tu-rcu w-mbe\), and the whole compound has an Object–Verb structure.

Besides, if the last syllable in this compound –\(\eta^xga\) were derived from \(tw-\eta^xga\) “clothes”, the nominalized form of \(\eta^xga\) “to wear”, it should not have its attested meaning.

We can conclude in cases like this that the compound was directly derived from the verb root \(\eta^xga\) “wear” (path (i) in the example 22).

In any case, regardless of their exact diachronic origin, these noun–verb compounds can undergo denominal derivation like other nouns and be included in a verb stem. However, the resulting denominal verb, since it contains both a nominal and a verbal root, also seems to fit the definition of incorporation presented in section 2.

The present section will show that all ILC verbs treated in section 3.3 constitute examples of precisely this construction.

Observe the following example, with the noun \(q^h\aru\) “a look back”, built out of the noun \(u-q^h\u\) “behind” and the intransitive verb \(nu\) “look”:

---

⁹ The conventions used in this article to describe the derivations are the following: capital N and V indicate nominal and verbal roots respectively, square brackets [ ] indicate word boundaries while lowercase n and v mark the part of speech (noun or verb) of a given word. Derivational affixes are written as affix\(^{(V-n)}\), with the derivational function of the infix (here V-n deverbal affix) indicated in superscript. Thus the derivation from a noun to a verb by a denominal affix is represented as \(N + \text{affix}^{(V-n)} > [N(V-n)]_n > [NV]_n\).
Like other denominal compounds, creation of a noun fortuitous: they are really the same morphemes, and ILC is a subtype of denominal derivation.

Composition of the denominal verb with a normal verb \[N\] can always occur in a light verb construction (such as \[\text{a little}\] to look back). We thus observe three competing constructions, as in the following examples:

\[\text{mui-ci n} ~ \text{a little, even} ~ \text{EMPH NEG-AOR:3>3-throw} \]

\[\text{He had faith, as he did not look back at all, and went up. (Slobdpon 106)} \]

It is clear from the above examples that the ILC verb \[nv-\text{q}^h\text{aru}\] “look back” is a denominal verb. Like other denominal verbs, it is interchangeable with a light verb construction, and both constructions share the same lexical directional prefix \[p\text{u}^{-}\] “down” (the form \(p\text{u}^{-}\) occurs in aorist 3>3 forms of transitive verbs only, so that the ILC verb, being intransitive, has the basic form \(p\text{u}^{-}\)).

It can be shown that many of the ILC verbs in Japhug belong to the same type as \(n\text{v}^h\text{aru}\) “to look back”. We can conclude that the observed similarity of the denominal prefixes and the derivational prefixes found in ILC verbs is not fortuitous: they are really the same morphemes, and ILC is a subtype of denominal derivation.

The development of ILC in Japhug can therefore be described as follows:

\[\text{ma-ru-tu-rru-nu} \]

\[\text{Don’t look back at all, otherwise you will fall. (Slobdpon 100)} \]

Table 14 shows the correspondences between Japhug ILC verbs and nominal forms.

The compound action noun from which ILC verbs are derived can always occur in a light verb construction (such as \(q^h\text{aru}\) above). We thus observe three competing constructions, as in the following examples:

\[\text{Note that the adverb ci “one, a little” is not a stranded element: in the first sentence } q^h\text{aru “a look back” and } ci \text{ do not form a constituent. } ci “one, a little” is indeed an indefinite nominal marker in some cases, but its use as a phrasal modifier is well attested, see for instance example 19 of the present article.\]
Table 14

<table>
<thead>
<tr>
<th>Compound verb</th>
<th>Meaning</th>
<th>ILC verb</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>alcohol drinking</td>
<td>ω-kv-msxv</td>
<td>having a pointed head</td>
</tr>
<tr>
<td>χ'ts'i</td>
<td>clearing the stones</td>
<td>χu-cv-ts'i</td>
<td>drink alcohol</td>
</tr>
<tr>
<td>cu'u'tut</td>
<td>taking out the dung</td>
<td>χu-cu-p'tut</td>
<td>take out stones (out of the field)</td>
</tr>
<tr>
<td>ydzc'ba</td>
<td>fire (devastating)</td>
<td>χu-χdzc'-ba</td>
<td>take out dung (out of the stable)</td>
</tr>
<tr>
<td>k'wst'sr</td>
<td>burning with dogs</td>
<td>χu-k'wst-ts'w</td>
<td>turn the dog loose on</td>
</tr>
<tr>
<td>pca'wsxwsx</td>
<td>money earning</td>
<td>χu-pca'wsx-fsw</td>
<td>earn money</td>
</tr>
<tr>
<td>nm'fsw</td>
<td>earning of riches</td>
<td>χu-nm-fsw</td>
<td>earn riches</td>
</tr>
<tr>
<td>sup'tut</td>
<td>tree felling</td>
<td>χu-su-p'tut</td>
<td>cut wood (to make firewood)</td>
</tr>
<tr>
<td>ty'is'i</td>
<td>tea drinking</td>
<td>χu-tv-is'i</td>
<td>have tea</td>
</tr>
<tr>
<td>tsm's'i</td>
<td>leading</td>
<td>χu-τσn-τs'i</td>
<td>lead the way</td>
</tr>
<tr>
<td>k'wst'sr</td>
<td>headbutt</td>
<td>χu-k'wst-ts'w</td>
<td>hit with the head (vt)</td>
</tr>
<tr>
<td>nms'tw</td>
<td>nudge (n)</td>
<td>χu-nms-ts'w</td>
<td>nudge (vt)</td>
</tr>
<tr>
<td>tvp'uxsw</td>
<td>clod-breaking (vt)</td>
<td>χu-tvp'-uxsw</td>
<td>break clods of earth</td>
</tr>
<tr>
<td>q'aru</td>
<td>look back (n)</td>
<td>χu-q'aru</td>
<td>look back</td>
</tr>
<tr>
<td>r'amu</td>
<td>herd hybrid yaks</td>
<td>χu-r'am</td>
<td>pay back one’s debt</td>
</tr>
<tr>
<td>mbrv'ru</td>
<td>horse race</td>
<td>χu-mbrv-rv</td>
<td>gallop</td>
</tr>
<tr>
<td>r'mom</td>
<td>envy people’s wealth</td>
<td>χu-r'mom</td>
<td>envy people’s wealth</td>
</tr>
<tr>
<td>X</td>
<td>pull</td>
<td>χu-pv'm</td>
<td>plump</td>
</tr>
<tr>
<td>pa'n'vy</td>
<td>pig herding</td>
<td>χu-pa'n'vy</td>
<td>herd pigs</td>
</tr>
<tr>
<td>p'sag'vi</td>
<td>laying on the side</td>
<td>χu-p'sag'vi</td>
<td>lay on the side</td>
</tr>
<tr>
<td>?</td>
<td>household splitting</td>
<td>χu-?</td>
<td>back up</td>
</tr>
<tr>
<td>mm'kho</td>
<td>moulting</td>
<td>χu-mm'kho</td>
<td>split the household</td>
</tr>
<tr>
<td>mm'mbe</td>
<td>moul</td>
<td>χu-mm'mbe</td>
<td>moul</td>
</tr>
<tr>
<td>snu'pas</td>
<td>harm (n)</td>
<td>χu-snu-pas</td>
<td>harm</td>
</tr>
<tr>
<td>smu'ru</td>
<td>loose-picking</td>
<td>χu-smu-rv</td>
<td>look for lice</td>
</tr>
<tr>
<td>tvq'vst</td>
<td>road-blocking</td>
<td>χu-tvq-vst</td>
<td>block the way</td>
</tr>
<tr>
<td>X</td>
<td>be disgusting</td>
<td>χu-tvq-vst</td>
<td>be disgusting</td>
</tr>
</tbody>
</table>

(28) (i) cu'-p'ut | χu-fszu-t-a
I cleared stones (from the field). AOR-do-PST-1SG

(ii) nu-cu-p'ut-a
I cleared stones (from the field). AOR-derivation-stone-take.out-1SG

(iii) cu nu-p'ut-a
I cleared the stones (from the field). (elicitation, Chen Zhen)

Semantically, the three constructions are not entirely equivalent: light verb constructions (i) are used to insist on an action taking a long time, or occurring many times, and could be glossed in English as “I devoted myself to clearing the stones.” The incorporating and the analytic constructions are almost identical according to native speakers, though only (iii) can be used if the object is referential. In the pairs of examples 16 / 17 and 24 / 25 above, we saw that the ILC verb appeared first in the text, followed by the analytic construction or the light verb construction a few sentences away: these examples suggest that ILC is favoured in the first mention of an event, though more such examples from spontaneous texts are needed. Unfortunately however, the rarity of these examples in natural texts makes it difficult to study the pragmatic differences between the three constructions.
These can be elicited for all verbs in Table 14 which have a corresponding compound noun. Aside from occurring in light verb constructions with βzu “do” or bêt “throw”, the noun–verb nominal compounds also appear in sentences such as the following:

(29) ɣndzyβta  pu-tu
    fire PST.IPF-be.there
    There was a fire. (elicitation, Chen Zhen)

(30) kʰutsʰor  rga
    hunting.with.dogs N.PST:like
    He likes hunting with dogs. (elicitation, Chen Zhen)

As Table 14 shows, in some cases no corresponding independent noun exists. There examples include:

- All ILC verbs derived from noun-stative verb collocations (such as the example “to have nausea”).
- Some ILC transitive verbs (such as nɤ-qʰɤ-ŋga “to wear on one’s back”).
- The stative a-kr-mtɕo “having a pointed head”, which is the only example of ILC whose derivational prefix is not denominal.

It seems reasonable to hypothesize that all examples from Table 14 originated from noun–verb compounds, even if these compounds are not present in the variety of Japhug studied here. A similar study in other Rgyalrong languages or even other dialects of Japhug might yield different results, and could be instructive to determine the relative antiquity of ILC verbs.

5.2. Is there incorporation in Japhug?

The ILC is somehow a paradox: this construction seems to fulfil the definition of incorporation presented in section 2, and yet it is also clearly almost always a special category of denominal verbs.

It constitutes a phenomenon quite distinct from prototypical incorporation, as exemplified by Nahuatl (Launey, 1980:165–166):

(31) ni-c-chi-hua  cac-tli
    1SG.S/A-3O-make shoe-ABSOLUTE

(32) ni-cac-chi-hua
    1SG.S/A-shoe-make
    I make shoes.

In Nahuatl, incorporating verbs such ni-cac-chi-hua differ from the Japhug ILC verbs in that no additional derivational affix appears alongside the nominal and the verbal roots.11 Nahuatl has denominal verbs that are formed by the addition of the suffix –ti to the nominal stem, for instance pochęca- “seller” > pochęca-ti “to do business”, and one cannot convert a nominal root into a verb without addition of that suffix: it is therefore impossible to argue that verbs such as ni-cac-chi-hua derive from a noun *cac-chi-hua that was verbalized by zero-derivation. In Nahuatl, incorporation is a one-step process, by which the noun is integrated into the verbal enlarged stem to form a single word. In our notation, Nahuatl-type incorporation can be represented as simply: N + V > [NV]v.

In Japhug, on the contrary, ILC is a three-step process:

1. Verb nominalization.
2. Compounding of the nominalized verb with a nominal root to form a nominal noun–verb compound (semantically an ACTION NOUN in all cases); nominalization markers are lost.
3. Derivation of that nominal compound into a verb using a denominal prefix. Noun–verb compounding is therefore embedded within the denominal derivation, unlike in Nahuatl where it is a one-stage process.

11 Note however that in some language families with constructions generally analysed as incorporation, such as Algonquian, we find a derivational affix in most incorporating verbs, see section 2 of the present article. On the origin of the incorporational construction in Algonquian, see Garrett (2004).
The ILC [[NV]₁(n → v)] could only be reinterpreted as [NV]ᵣ (incorporational construction) in the case of zero-derivation, or if the derivational prefixes disappeared due to phonetic changes; however, neither is the case in Japhug.

Therefore, from the point of view of morphological structure, most ILC verbs cannot be analysed as incorporating verbs. Nevertheless, from a functional point of view, it is clear that ILC presents at least three major properties common to incorporating constructions. First, ILC verbs are verbal noun–verb compounds that fulfil the definition given in section 2. Second, the nominal element of ILC is always non-referential. Third, we observe the same constraint on ILC nominal elements as on incorporated nouns: S, O and adjunct nominal elements can appear in ILC, but not A.

ILC and related forms in Japhug can be divided into five distinct categories depending on the nature of the nominal element. We now examine whether each of these categories (a) constitutes prototypical incorporation and (b) constitutes a noun–verb verbal compound.

The first category includes most ILC verbs. In this type, the nominal element is a plain underived noun, such as cu “stone” in "yu-cu-p'utut “to take out stones (out of the field)". These verbs, as mentioned above, cannot be analysed as incorporation.

The second category is exemplified by only one verb, a-ky-mtɕɔaw “having a pointed head”. Unlike other ILC verbs, it lacks a nominal prefix, as the element a– is part of the original verb amtɕɔaw “pointed”. Although this last verb derives historically from the stative verb mտɕɔaw “sharp” by addition of a–, the prefix a– here is not a derivational element (it is unrelated to the homophonous passive a– prefix) and it is not analysable synchronically. In a-ky-mtɕɔaw, the noun is synchronically incorporated within the verbal stem. This example, unlike verbs of the first category, constitutes unambiguous incorporation.

The third category contains two verbs nuu-nŋฤ-ŋo “to pay one’s debt” and nuu-mtm-ktro “to split the household”. In these two examples, the nominal elements originate from deverbal nouns, respectively nuu-nŋฤ “debt” and nuu-mtm “household”, which themselves come from the verbs nŋฤ “to owe” and mtm “to stay at a place”. The status constructus stems –nŋฤ– and –mtm– are formally ambiguous: they could originate either from the verb or from the derived nouns (since the deverbal prefix tu– is lost during the status constructus formation). Only the meaning allows us to determine that these elements originate from nouns and not from verbs.¹²

Like verbs of these two categories, these verbs cannot be considered as instances of prototypical incorporation, but they do not constitute real noun–verb compounds either, due to the formal ambiguity of the nominal elements.

The fourth category includes the verb yuu-ndʑɔɾβ-ʔa “to clear (fields) with fire”. In this ILC verb, the nominal element ndʑɔɾβ “fire” is a deverbal noun as in third category ILC verbs. However, it differs from these verbs in that ndʑɔɾβ “fire” is a fossilized formation deriving from ndʑɔɾβ “to burn” by the irregular prefix -n. Since ndʑɔɾβ “fire” is not a synchronically transparent deverbal noun from ndʑɔɾβ “to burn”, and since a trace of the derivation is preserved within the compound, there is no ambiguity as to the nominal status of this element.

The fifth category is the aberrant verb kʁʈuŋpa “to speak” mentioned in section 3. This verb resembles yuu-ndʑɔɾβ-ʔa “to clear (fields) with fire” in that it includes a deverbal noun preserving its derivation prefix. The element kʁʈuŋ- is the status constructus of kɔ-tu “things that are said, nagging” which derives from t “to say” by addition of the regular kɔ– participle prefix. This verb, unlike other ILC verbs, lacks any derivation prefix, and cannot be analysed as nominal derivation neither synchronically nor even diachronically. Therefore, just as a-ky-mtɕɔaw “having a pointed head”, it can be analysed as incorporation.

Table 15 summarizes the previous discussion.

In conclusion, there are really only two incorporating verbs in Japhug: kʁʈuŋpa “to speak” and akʁʈuŋpa “having a pointed head”, but most ILC verbs (except those of category 3) constitute noun–verb verbal compounds, and are functionally similar to incorporating verbs.

¹² Note that verb–verb compounds also exist in Japhug: from jo “to raise” and ɓʈʃur “to move” one derives the noun joʃtʃur “putting in order, tidying up” hence the verb rjoʃtʃur “to tidy up”.

---

**Table 15**

<table>
<thead>
<tr>
<th>Type</th>
<th>Example</th>
<th>Incorporation</th>
<th>NV compound</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>yu-cu-p'utut “to take out stones (out of the field)”</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>2</td>
<td>a-ky-mtɕɔaw “having a pointed head”</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>3</td>
<td>nuu-nŋฤ-ŋo “to pay one’s debt”</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>4</td>
<td>yuu-ndʑɔɾβ-ʔa “to clear (fields) with fire”</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>5</td>
<td>kʁʈuŋpa “to speak”</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>
6. Typological perspectives

In the previous section, we have shown that most Japhug ILC verbs do not constitute prototypical incorporation, but rather a denominal construction whose syntactic functions resemble incorporation.

In this section, we will present other types of ILC in various languages, and show that ILC can develop into incorporation.

6.1. Incorporation-like construction in other languages

Incorporation-like constructions are not restricted to Japhug Rgyalrong. Similar constructions can be found in Ancient Greek and in familiar Germanic languages such as German and English.

In Ancient Greek, we find a few denominal verbs which can be analysed as a type of ILC (see Benveniste, 1966):

(i) οἶκο-δομ-ός
house-build-NOM.SG.MASC
“house builder, architect”

(ii) οἶκο-δομ-έω
house-build-DENOMINAL-1SG
“to build a house, erect a building”

Compound nouns of type (i) include a noun (here οἶκος “house”) and the nominalized form of a verbal root δο-μ-ό-ς with accent retraction in composition (here from the -o- grade of the root *demh2, the corresponding verb form δέμω “to build” having -e- grade).

Denominal verbs of type (ii) are derived from (i) by addition of a denominal suffix -έ-; this is the productive way of forming denominal verbs in Greek (cf πολεμ-ός “war” > πολεμ-έ-ω “to be at war”).

The Greek construction differs from Japhug ILC in three ways. First, the nominal compounds in (i) are always agent nouns, never abstract nouns as in Japhug. Second, the verb >noun derivation by ablaut (δέμω “to build” > -δομ-ός) was not fully productive by the fifth century BC (when οἶκοδόμος “house builder” and οἰκοδομέω “build a house” are first attested), unlike derivation by με- in Japhug. Third, the second element of the compounds with -e- vocalism is always formally different from the stem of the corresponding verb (with -o- vocalism), unlike Japhug where they are almost always identical (except for σπόμ “to envy” > σπύρεμ “to envy people’s wealth”). Thus, while the derivation formula for Japhug ILC is [[NV[ν>ν]]v], that of Greek οἰκοδομέω “build a house” is rather [[N[V>ν]]ν].

In German, we find the interesting case of the verb staub-saug-en “to hoover”. This verb is formed of two elements related to the noun Staub “dust” and the verb saug-en “to suck”. Since it can be conjugated in all finite forms, and since both of its constituting elements can appear independently, and since it constitutes a unique morphological and phonological word, it would appear to be an example of incorporation according to our definition. This verb is ambitransitive, and can occur with a patient in some cases:

(i) ich staub-saug-e
I dust-suck-1SG.PRESENT
I do the hoovering.

(ii) ich staub-saug-e den Boden
I dust-suck-1SG.PRESENT ART.M.SG.ACC floor
I am hoovering the floor.

Note that a competing form with the nominal element occurring separately also exists:

(iii) ich saug-e Staub
I suck-1SG.PRESENT dust
I do the hoovering.

13 I owe this example and the related discussion to Johanna Mattissen.
"Staub" in (36) is clearly not an object, as it cannot receive an article, and in any case this second construction does not constitute incorporation. This kind of discontinuous structure is not surprising in German, where many prefixal elements can appear separated from the verb stem in finite forms (eg. *Ich mache die Tür auf* “I open the door” from the verb *aufmachen* “to open”).

However, the verb *staubsaugen* “to hoover”, as pointed out by Mattissen, must have been built from the noun *Staubsauger* “vacuum cleaner” by back-formation, since the activity could not have existed before the invention of this machine. In other words, compounding occurs within another derivation in this case as in Japhug.

The German verb *staubsaugen* differs however in three ways from the Japhug ILC verbs. First, as mentioned above, it is built by backformation, not by denominal derivation. Second, the base noun is an instrument, not a action noun. Third, there is no derivational element comparable to the Japhug denominal prefixes *ɣɯ*, *nu*, etc. in this German verb.

This shows that the phenomena observed in Japhug are but a particular case of all theoretically possible forms of incorporation-like constructions. Also, in the case of German ILC is formally indistinguishable from genuine incorporation; only knowledge of the derivational history of the word allows us to determine that it does not constitutes a direct N + V verbal compound.

In English, we find ambiguous verbal compounds that can be interpreted as incorporation, due to the pervasive presence of zero-derivation (both from noun to verb and from verb to noun). For instance, in non-standard varieties of English, one finds sentences such as the following (taken from the Internet)\(^\text{14}\):

(37) I duck hunted Lake Ophelia for years.

The verb “to duck-hunt” exemplified by this example apparently constitutes non-saturating nominal incorporation. It must have originated from the compound noun *duck-hunt* by zero-derivation, and thus would seem to be a verbalized Noun–Noun compound. However, since the verb and the noun *hunt* in English are homophonous, there is synchronically no evidence that the root *hunt* in the verb *to duck-hunt* is nominal rather than verbal. Here again in English we observe a third kind of incorporation-like construction, that came into being due to the pervasive noun - verb homophonous pairs. As in the case of the German backformation and unlike Japhug, the absence of formal derivational markers allows the English construction to be reanalysed as incorporation in spite of being historically a denominal construction.

The development path described above is by no means restricted to English. Creissels and Sambou (manuscript:279) have proposed an interpretation of incorporation constructions in the Mandinka language along the same lines: “Verbal compounds [i.e. incorporating verbs], rather than being directly formed after corresponding syntactic constructions, originate from nominal compounds later converted to verbs”.\(^\text{15}\) It is likely that such a development is rather common in languages such as English and Mandinka, in which it is possible to convert nouns into verbs without overt morphological marking.

Incorporation-like constructions include three types of attested derivations exemplified by Japhug/Greek, German and English/Mandinka, respectively:

(38) (i) 
\[
[NV]_n + \text{affix}^{(n > v)} > [[NV]_n^{(n > v)}]_v (> [NV]_v)
\]
Denominal derivation of a noun–verb nominal compound (Japhug, Greek). Notice that the last stage of the derivation, namely the reanalysis of the ILC as incorporation, is blocked due to the presence of overt denominical marking in these languages. Greek differs from Japhug in that the compound noun from which the ILC is derived already contains an unambiguous verb > noun derivation: \([NV]_v^{(n > v)}\), reanalysis as genuine incorporation is even more difficult.

(ii) 
\[
[[NV]_v^{(n > v)}]_n - \text{affix}^{(v > n)} > [NV]_v
\]
Backformation from a nominal compound including a nominal and a verbal root (German).

(iii) 
\[
[NN]_n, > [NV]_n > [NV]_v
\]
reanalysis as \([NV]_v\) due to homophony between noun and verb (English).

These phenomena are not commonly analysed as incorporation, due to the fact that the order of derivation is distinct from “classical” incorporating languages such as Nahuatl. However, speakers are not usually conscious of the derivational history of the constructions they use, and ambiguous forms can be reanalysed; the synchronic head-complement structure of a compound does not necessarily reflect the historical one.

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\(^{14}\) Scores of similar examples, involving –*hunt* or –*pick* as a second element, but also verbs such as *horse-race*, can be found in colloquial Internet texts.

\(^{15}\) [les] composés verbaux, plutôt que d’être formés directement à partir des constructions syntaxiques correspondantes, proviennent de composés nominaux ultérieurement convertis en verbes".
Table 16
Denominal derivation in Lavrung.

<table>
<thead>
<tr>
<th>Base noun</th>
<th>Meaning</th>
<th>Verb</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>dəy^55</td>
<td>poison</td>
<td>n-dəy^55</td>
<td>to be poisoned</td>
</tr>
<tr>
<td>bəy^55</td>
<td>shoulder</td>
<td>n-bəy^55</td>
<td>to bear on the shoulder</td>
</tr>
<tr>
<td>svə^53</td>
<td>pus</td>
<td>n-svə^53</td>
<td>to suppurate</td>
</tr>
<tr>
<td>phray^55</td>
<td>sieve</td>
<td>s-phray^55</td>
<td>to sieve</td>
</tr>
<tr>
<td>srdzəp^55</td>
<td>sprout</td>
<td>s&lt;^&lt;v&gt;-rdzəp^55</td>
<td>to sprout</td>
</tr>
<tr>
<td>xtsəm^53</td>
<td>mortar</td>
<td>xtsəm^53</td>
<td>to husk with mortar and pestle</td>
</tr>
<tr>
<td>zgle^55</td>
<td>bolt</td>
<td>(nx-)zgle^55</td>
<td>to bolt (the door)</td>
</tr>
<tr>
<td>χtəo^53</td>
<td>leprosy</td>
<td>(ka-)χtəo^55</td>
<td>to get leprosy</td>
</tr>
</tbody>
</table>

6.2. Lavrung

Lavrung, a language closely related to Japhug (both belong to the Rgyalrongic subbranch of Sino-Tibetan, see Sun, 2000), presents a similar system of denominal derivation, and there are a few examples of ILC in the published data on this language.

6.2.1. Denominal derivation in Lavrung

Denominal derivation in Lavrung, as in Japhug, is based on a series of prefixes, but unlike Japhug, it also allows zero-derivation (Huang, 2007:145–146) (Table 16)^16^.

The Lavrung prefixes n-, s- and f-/v- clearly correspond to Japhug ^nu- / n-^17^, sw- / s-^18^ and yw- / γw^- respectively. ^19^

The absence of derivational prefixes in the last three examples can be interpreted in three ways.

1. The derivation took place from verb to noun, not from noun to verb.
2. There used to be denominal zero-derivation in proto-Rgyalrongic, the common ancestor of Lavrung and Japhug, and this derivation was only preserved in Lavrung.
3. The Lavrung verbs lost their denominal prefix in these examples.

The first hypothesis can be ruled out: the only forms of nominalization reported in Huang (2007) involve the addition of suffixes; there are no examples of affixless nominalization in this language. The second hypothesis is unlikely, given the complete absence of denominal zero-derivation in Japhug. If this process had been productive, we would expect at least some traces of it in Japhug. We will now examine the third hypothesis in more detail.

Japhug CV prefixes generally correspond to simple consonant prefixes in Lavrung. Since these prefixes present a vowel contrast (u or γ) in Japhug while this contrast is lost in Lavrung, it is clear that Lavrung is innovative and underwent syncop. ^20^

The massive syncope affecting Lavrung prefixes resulted in a proliferation of exceedingly complex consonant clusters. The prefixes have lost productivity (unlike Japhug, they cannot be applied to recent Chinese loanwords) and often undergo metathesis with the initial clusters (as in s<^<v>-rdzəp^55 “to sprout” in Table 16).

However, some restrictions on the prefixes exist. In particular, concerning the pair xtsəm^53^-“mortal” and xtsəm^53^-“to husk”, neither the clusters *fxts-, xfts-, *gfxts- nor *x̱ts- exist in Lavrung, so that the derivational prefixes n- and v-, even if originally present in the verb xtsəm^53^- “to husk” disappeared for purely phonetic reasons. ^21^

Prefix attrition is a general feature of Lavrung: in this language, many prefixes still productive in Japhug only exist as traces. For instance, there is no prefix corresponding to the Japhug nominalization prefix kwu- in Lavrung, but traces are found in fossilized forms such as γdzəv “fire”, cognate of Japhug γndzəvβ “fire” (see the preceding section for the

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^16^ The syllables between brackets are the aorist prefixes.

^17^ We find in Japhug denominal verbs that are partially parallel to the Lavrung ones: n-ndɣɾy “poison” > z-ɾn-ndɣɾy “to poison s.o.” and tw-ɾpar “shoulder” > n-ɾpar “to bear on the shoulder”.

^18^ Example semantically parallel to Japhug γwɾya “sieve” > sw-ɾwɾya “sieve”.

^19^ Possibly cognate to Japhug nɾ-ɾwɾya “tree sprout” > γɾ-ɾwɾya “to sprout”; Japhug γw- is the regular outcome of proto-Japhug *(v)n-.

^20^ If instead one assumed that Japhug is innovative and underwent general vowel anaptyxis in prefixes, the origin of the vowel contrast would not be explainable.

^21^ Similar phenomena have been documented in the related language Horpa by Sun (2007).
etymology of this noun). Many Japhug prefixes, such as the second person *tu*- or the irrealis *a*- have no equivalent in Lavrung, but can be conjectured to have been lost in this language.\textsuperscript{22}

6.2.2. ILC in Lavrung

The presence of incorporation or an incorporation-like construction in Lavrung has never been specifically mentioned, but in Huang (2007) we find two clear examples of such constructions.

First, *mbra\textsuperscript{33} rjuy\textsuperscript{55} “to race (on horseback)” (Huang, 2007:312), a compound of the native noun *bre\textsuperscript{33} “horse” with the verb *rjuy\textsuperscript{53} “to run” (from Tibetan *rg\textsubscript{u}ug “to run”). The noun in status constructus (with --e > --v vowel alternation) appears between the verb root and denominal prefix *m– (allomorph of *n–). The aorist form of this verb is:

\begin{equation}
(39) \quad \text{nc}^{33} \text{- m-bra}^{33} \text{- rjuy}^{55}
\end{equation}

AOR-derivation-horse-run

The presence of the aorist prefix before the noun dispels any doubt that this compound is one morphological word and not a noun–verb collocation.

This example is identical in structure to Japhug *nuu-mbr\textsubscript{3} rjuy “to gallop” mentioned above, and one finds a one-to-one correspondence in structure:

\begin{verbatim}
m- bra\textsuperscript{33} rjuy\textsuperscript{53} 
\end{verbatim}

derivation horse (status constructus) run

Although this example is no proof that the compound “race on horseback” can be reconstructed to proto-Rgyalrongic (both verbs could have been constructed independently from the same elements), it proves that the ILC existed in the proto-language.

Second, *rj\textsuperscript{3} sj\textsuperscript{5} am “to envy people's wealth” is another example relevant to our discussion (quoted from Huang, 2007:321). This verb originates from *rj\textsuperscript{3} “property, goods, wealth” (a borrowing from Tibetan *rg\textsubscript{u} “fortune”) and the verb *rj\textsuperscript{5} am “to be greedy for, to lust for”. The aorist form of this verb is:

\begin{equation}
(40) \quad \text{nc}^{55} \text{- rj\textsuperscript{5} sj\textsuperscript{5} am}^{55}
\end{equation}

AOR-wealth-be.greedy

Here again, the noun appears between the aorist prefix and the verb root, and the compound constitutes a single morphological word. This verb clearly has the same structure as Japhug *nuu-rj\textsubscript{3} rj\textsubscript{5} om “to envy people's wealth”, except that unlike *mbra\textsuperscript{33} rj\textsuperscript{5} uy\textsuperscript{53} “to race (on horseback)” it lacks any derivational prefix, and we can analyse it as an incorporation construction. However, given the rarity of incorporation in Japhug, and the fact that derivational prefixes (the only distinguishing feature of incorporation and ILC) tend to disappear in Lavrung, it is unlikely that this verb arose as a result of direct noun–verb compounding in Lavrung. A more likely hypothesis is that this incorporating verb is an ancient ILC verb whose prefix disappeared for phonotactic reasons; neither groups of type *nrc– nor of the type *r\textsubscript{C}nC– (where C stands for any consonant) are attested in Lavrung. It is therefore legitimate to suppose a form *(n-rj\textsuperscript{3} sj\textsuperscript{5} am) in pre-Lavrung similar to Japhug *nuu-rj\textsubscript{3} rj\textsubscript{5} om, which simplified to the attested *rj\textsuperscript{5} sj\textsuperscript{5} am due to the phonological constraint on having consonant clusters containing both /n/ and /r/ before another consonant.

The loss of any overt marking of denominal derivation in *rj\textsuperscript{5} sj\textsuperscript{5} am, combined with the absence of any action noun compound such as Japhug *nuu-rj\textsubscript{3} rj\textsubscript{5} om “envying people's wealth” as such compounds do not exist in Lavrung, makes it possible to analyze this verb as incorporation synchronically. Thus, it exemplifies a grammaticalisation pathway similar to that observed in English and German:

\begin{equation}
(41) \quad \text{INCORPORATION-LIKE CONSTRUCTION} > \text{INCORPORATION}
\end{equation}

A more exhaustive study of incorporating verbs in Lavrung will not be possible without complementary fieldwork on this language, but this section has shown that both ILC and incorporation are attested in spite of the limited published corpus,\textsuperscript{23} and that incorporation is likely to originate from ILC in this language.

\textsuperscript{22} The second person prefix *tu*- in Japhug is unlikely to be a recent innovation, as argued in Jacques (2012a).

\textsuperscript{23} Lai Yunfan, a student working on the Wobzi dialect of Lavrung (on which see Lai, 2012) found another ILC verb: *u < N > p\textsubscript{v} b-f\textsubscript{u} “to chatter” (aorist *u-s-u < N > p\textsubscript{v} b-f\textsubscript{u}), compound of *f\textsubscript{u}k (aorist *u-f\textsubscript{u} “to tell” and *g\textsubscript{u} “story” with the denominal marker N– (allomorph of N–) appearing infixed in the nominal element. He also reports the absence of a corresponding noun–verb action noun compound *g\textsubscript{u} p-\textsubscript{u} f\textsubscript{u}. Further fieldwork will certainly reveal other such verbs.
7. Conclusion

The data presented in the previous sections from Japhug and other languages illustrate a new path of development:

(42) NOUN-VERB ACTION NOUN COMPOUND + DENOMINAL DERIVATION
    > INCORPORATION-LIKE CONSTRUCTION
    > INCORPORATION

The Japhug ILC is an intermediate stage on this development path; it can become incorporation only when the denominal derivation marker either (1) is absent due to zero-derivation (as in English and Mandinka), (2) disappears due to phonological attrition (as in Lavrung), (3) becomes restricted to noun–verb compounds and ceases to be a denominal marker synchronically.

The noun–verb compounds themselves can have the following origin:

(43) NOUN + NOMINALIZED VERB > NOUN-VERB NOMINAL COMPOUND

Alternatively, they may, as in the case of English, be intrinsically ambiguous noun–noun compounds forms that can be reinterpreted as noun–verb compounds due to noun–verb homophony.

The only previously known origin of incorporation, noun coalescence, can explain most of the incorporating structures observed in the world’s languages. Even in languages such as Iroquoian, where incorporated nouns appear between the inflectional prefixes and the root (Mithun, 2000), one could argue that incorporated nouns were originally free nouns, cliticized to the verb, that progressively coalesced with it. In the first stage of development, they would always appear as the outermost morpheme of the verbal word (as in Limbu), but progressively get closer to the verbal root by way of externalisation of inflection (Haspelmath, 1993).

This article however shows that incorporation does not necessarily originate from noun–verb coalescence, but could be a special development of denominal derivation in at least some languages.

In order to avoid the cumbersome expression “Incorporation-like construction”, we suggest the use of the term “indirect incorporation” in future studies to refer to the phenomena observed in Japhug, English and German studied in this article.

Genuine incorporation, such as what is observed in Nahuatl or in the Japhug verb \textit{akmt}s\textit{cq} “having a pointed head”, can be called “direct incorporation” to avoid confusion.

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