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► **To cite this version:**

Guillaume Jacques. From denominal derivation to Incorporation. *Lingua*, 2012, 122, pp.1207-1231.
halshs-00821301

HAL Id: halshs-00821301

<https://shs.hal.science/halshs-00821301>

Submitted on 8 May 2013

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1 From denominal derivation to incorporation¹

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4 **Abstract:** This article investigates the synchronic status and diachronic
5 origin of an incorporation-like construction in Japhug, a polysynthetic Sino-
6 Tibetan language of Eastern Tibet. This construction constitutes the in-
7 termediate stage on a path of development from denominal derivation to
8 incorporation, the opposite of the usual path of development from incorpo-
9 ration to denominal derivation.

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

13 **Keywords:** Rgyalrong; Japhug; incorporation; denominal verbs; com-
14 position; grammaticalization; English; German

15 **1. Introduction**

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

19 Most studies dealing with incorporation in a diachronic perspective (for
20 instance [Mattissen 2006](#), [Haugen 2008](#), [Mithun 2009](#)) discuss the develop-
21 ment of new constructions (denominal derivation, manner or classifier mor-
22 phemes etc) out of incorporation, rather than the origin of incorporation
23 itself.

24 [Mithun \(1984: 872\)](#) suggests that the genesis of incorporation is the
25 result of the coalescence of nouns (especially indefinite direct object) with the

¹I would like to thank Anton Antonov, Denis Creissels, Romain Garnier, Antoine Guil-
laume, Gong Xun, Nathan Hill, Aimée Lahaussais, Lai Yunfan, Johanna Mattisen, Alexis
Michaud, Thomas Pellard, Wu Tong, Mark Van de Velde and three anonymous reviewers
for useful comments on this article. This research was sponsored by the Agence Nationale
de la Recherche (France) as part of the research project “What defines Qiang-ness? To-
wards a phylogenetic assessment of the Southern Qiangic languages of Muli” (acronym
PASQi) (ANR-07-JCJC-0063) and by the Labex EFL (Empirical Foundations of Linguis-
tics, GD1, Typology and annotation of information structure and grammatical relations).
Glosses follow the Leipzig glossing rules, except for the following: CISL cislocative, CONST
constative, COORD coordination, EMPH emphatic particle, GENR generic, IDEO ideophone,
INV inverse, NEU neutral, STAT stative.

26 verb, and this observation is certainly valid for most incorporating languages.
27 In languages where the incorporated noun is always the outermost element of
28 the verb, the explanation of incorporation in terms of coalescence is obvious
29 and hardly deserves a justification.

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

35 This article is divided into five parts. First, we provide a definition of
36 incorporation to distinguish it from related but distinct phenomena.

37 Second, we provide a detailed description of an incorporation-like con-
38 struction in Japhug.

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

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

44 Fifth, we propose to distinguish two types of incorporation in cross-
45 linguistic perspective, direct (the classical type) and indirect (the type ob-
46 served in Japhug), and show the existence of indirect incorporation in Ger-
47 manic languages.

48 **2. Incorporation and its relationship to other morphological phe-** 49 **nomena**

50 The term “incorporation” is generally used, according to [Mithun \(1984:](#)
51 [848\)](#)’s definition, to designate a “particular type of compounding in which a
52 V and N combine to form a new V”. Such a definition allows for broad or nar-
53 row interpretations, depending on one’s understanding of “compounding”,
54 “verb” and “noun”. Since this article discusses the diachrony of incorpora-
55 tion and its relationship to related but distinct constructions, it is preferable
56 to opt for a more restrictive definition, following [Sapir \(1911\)](#), [Gerdtts \(1998\)](#)
57 and [Mattissen \(2003: 169\)](#).

58 We define incorporation as the compounding of a nominal root with a
59 verbal root into a verb, on the conditions that 1) both the nominal and
60 the verbal stems in question exist as independent words (even with mor-
61 phophonological changes); 2) the resulting incorporational construction can
62 occur in finite forms; 3) the resulting incorporational construction consti-
63 tutes both a phonological and a morphological word; 4) verbs and nouns
64 are clearly distinct parts of speech in the language in question (without
65 excluding cases of noun / verb homophony).

66 This definition can distinguish genuine incorporation from three pro-
67 cesses that some authors have analyzed as incorporation: denominal deriva-
68 tion, noun stripping and lexical affixes.

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

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

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

106 Third, in Northwest North American languages such as Wakashan and
107 Salish, lexical affixes with meanings corresponding to nouns or adverbs in
108 European languages can be attached to the verb; these lexical affixes strongly
109 resemble incorporation at least in function. However, these affixes generally

110 have no synchronic relationship with free lexical elements, and even when
 111 they do, the fact that Salishan and Wakashan languages lack a strong noun-
 112 verb distinction makes it difficult to determine with confidence whether a
 113 particular compound is a verb-verb or a noun-verb compound. However, the
 114 situation is different in the case of Algonquian, a family with a very strong
 115 verb-noun distinction. In Algonquian languages, the so-called MEDIAL stems
 116 (Goddard 1990) are (generally nominal) lexical affixes, some of which have
 117 a clear relationship with the corresponding free noun. Incorporating verbs
 118 in Algonquian follow the general template:

119 (1) INITIAL + MEDIAL + FINAL

120 Only INITIAL roots can appear on their own; they can be either verbal or
 121 nominal. The FINAL roots are mainly derivational morphemes, in particular
 122 voice and valency markers.

123 Consider the following examples of incorporating verbs in Ojibwe (data
 124 from Nichols & Nyholm 1995); the MEDIAL is indicated in bold. All of these
 125 examples share the final *-e* of intransitive animate verbs:

126 (2) *ikwe-* “woman” > *miigaad-ikwew-e* “beat (one’s) wife” (compare *miigaadi-*
 127 “fight each other”), Nichols & Nyholm 1995[64]

128 *inini-* “man” > *nawad-iniw-e* “grab people” (compare *nawadin-* “grab
 129 s.o.”), Nichols & Nyholm 1995[93]

130 *zhiishiib-* “duck” > *nandaw-ishib-e* “hunt ducks”, Nichols & Nyholm
 131 1995[92]

132 *anim-* “dog” > *nandaw-isimw-e* “look for horses”, Nichols & Nyholm
 133 1995[92]

134 The relationship between the free noun (the INITIAL root) and the MEDIAL
 135 is in some cases quite transparent, as in *ikwe-* > *-(i)kwew-* “woman” (the
 136 final etymological *-w* shows up in the plural *ikwewag* “women”). In most
 137 cases, however, the MEDIAL is not predictable (*inini-* > *-iniw-* “man” and
 138 *zhiishiib-* > *(i)shib* “duck”) or even entirely obscure synchronically *anim-* >
 139 *-(i)simw-* “dog, horse”.²

140 However, despite the unpredictable morphophonological processes taking
 141 place when deriving a medial from the free root, these examples constitute
 142 incorporation according to our definition. The case of Wakashan and Salis-

²The bare Initial *anim-* does not normally occur in Ojibwe; the common noun for “dog”, *animosh* is a diminutive of an earlier **anim* < **atemwa* “dog” which fell out of use in Ojibwe but whose cognates still exist and other Algonquian languages. The MEDIAL *-(i)simw-* comes from proto-Algonquian **(e)hemw-*. The resemblance between the MEDIAL and the INITIAL is manifest in the proto-language, but no longer apparent in modern Ojibwe.

143 han is more complex and will not be discussed in this article (see [Gerdtts 2003](#)
144 and also [Gerdtts & Hukari 2008](#) concerning the Salish language Halkomelem).

145 Aside from the cases discussed above, our definition excludes cases such
146 as English “go berry-picking” which can occur with participles but not finite
147 forms, at least not in the standard language.³

148 Any definition is at least in part arbitrary, and we do not wish to imply
149 that authors such as [Haugen \(2008\)](#) or [Baker \(2009\)](#) were “wrong” in des-
150 ignating as incorporation phenomena which we would call otherwise. The
151 only important question is whether a particular comparative concept is clear
152 or ambiguous, and whether it is useful for analysing data.

153 The survey of the literature above shows that previous authors have
154 proposed two paths of development related to incorporation.

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

157 (3) INCORPORATION > DENOMINAL DERIVATION

158 Second, the development of incorporation from noun stripping, by coa-
159 lescence of the noun and the verb stems into one phonological word:

160 (4) NOUN-VERB COALESCENCE > INCORPORATION

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

163 3. An incorporation-like construction in Japhug

164 Incorporation is a rather unusual process among languages of the Sino-
165 Tibetan family. [Mithun \(1984: 853\)](#) has argued, quoting data from [Matisoff](#)
166 [\(1973: 309\)](#), that some constructions in the Lolo-Burmese language Lahu
167 could be analysed as incorporation, but as mentioned in section 2, we exclude
168 noun-stripping from our definition of incorporation.

169 In the morphologically richer languages of the Sino-Tibetan family, there
170 is evidence for the existence of incorporation, especially in Kiranti (see for
171 instance [Schackow 2008: 92](#) concerning Puma), but also in the ancient lan-
172 guage Tangut ([Jacques 2011](#)).

173 Japhug, a morphologically complex language belonging to another sub-
174 group of Sino-Tibetan (Rgyalrong), presents a peculiar incorporation-like
175 construction which will be the focus of this article. This construction (hence-
176 forth ILC) resembles incorporation superficially and was analysed as such in
177 previous publications such as [Jacques \(2004\)](#) and [Jacques \(2012b\)](#). At the
178 same time, it presents affinities with denominal derivation (as will be shown

³A 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.

179 in section 5), and we defer discussion of its exact status until sections 5 and
180 6.

181 In this section we first give a short presentation of the Japhug language.
182 Second, we provide a general overview of Japhug morphosyntax. Third,
183 we present all examples of ILC verbs in Japhug: this construction is of
184 limited productivity, so that an exhaustive list can be included in this article.
185 Fourth, we describe some morphological and syntactic properties of the ILC.

186 3.1. *The Japhug language*

187 Japhug (Chinese 茶堡 Chabao) is an endangered Sino-Tibetan language
188 spoken by less than 10000 speakers in Western Sichuan, China. It belongs to
189 the Rgyalrong subgroup of Sino-Tibetan (as defined by Sun 2000). Alongside
190 Japhug, three other languages are found in the Rgyalrong group: Situ (or
191 Eastern Rgyalrong), Tshobdun (Chinese 草登 Caodeng) and Zbu (Chinese
192 日部, also called Showu).

193 The following map presents the Rgyalrong-speaking area in shaded grey,
194 in which the Japhug-area appears as a black dot:



Figure 1: Rgyalrong languages

195 Rgyalrong languages are unwritten, except for some ancient texts in
196 Situ in Tibetan script. Until the 1950s, these languages were under Amdo

197 Tibetan influence, which is still conspicuous in the vocabulary, but now few
198 speakers know Tibetan, while most of them are bilingual in Sichuan Chinese.

199 *3.2. Overview of Japhug morphosyntax*

200 Before studying the incorporation-like construction in detail, it is neces-
201 sary to provide a general account of the main typological properties of the
202 Japhug language.⁴

203 Japhug is a polysynthetic language, with obligatory person marking for
204 two arguments and a direct / inverse system (see DeLancey 1981, Sun &
205 Shidanluo 2002 and Jacques 2010). The verb distinguishes between singular,
206 dual and plural, but not inclusive/exclusive. Transitivity (a feature of crucial
207 importance for our study of incorporation) is marked in five different ways:

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

218 (5) *ku-si*
NMLZ:S/A-die
219 ‘The dead one’

220 (6) *u-ku-sat*
3SG-NMLZ:S/A-kill
221 ‘The one who kills him.’

222 Tense-Aspect-Modality is marked by a combination of several series of
223 directional prefixes with vowel alternation on the verb root. The structure of
224 the verbal word is more templatic than layered (following Bickel & Nichols
225 2007: 218’s definition) and the basic template is the following:

⁴The 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

<i>a-</i>	<i>mw-</i>	<i>ɕw-</i>	<i>ɬɣ-</i>	<i>tu-</i>	<i>wɣ-</i>	<i>ʒɣɣ-</i>	<i>su-</i>	<i>ɾɣ-</i>	<i>nɣ-</i>	<i>a-</i>	<i>nu-</i>	<i>ɣɣ-</i>	<i>noun</i>	Σ	<i>-t</i>	<i>-a</i>	<i>-nu</i>
	<i>mɣ-</i>	<i>ɣw-</i>	<i>pu-</i>							<i>sɣ-</i>		<i>ru-</i>					<i>-ndzi</i>
			etc.									etc.					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

- | | | | |
|--|--|--|--|
| <p>226</p> <p>227</p> <p>228</p> <p>229</p> <p>230</p> <p>∞ 231</p> <p>232</p> <p>233</p> <p>234</p> <p>235</p> <p>236</p> <p>237</p> <p>238</p> | <p>1. Irrealis <i>a-</i>, Interrogative <i>úr-</i>, conative <i>ju-</i></p> <p>2. negation <i>ma-</i> / <i>mɣ-</i> / <i>mw-</i> / <i>múj-</i></p> <p>3. Translocative / Cislocative <i>ɕw-</i> and <i>ɣw-</i></p> <p>4. Directional prefixes (<i>ɬɣ-</i> <i>pu-</i> <i>ɬɣ-</i> <i>t^hw-</i> <i>kɣ-</i> <i>nu-</i> <i>ɣɣ-</i> <i>tí^h</i>²
<i>pju-</i> <i>lu-</i> <i>c^hw-</i> <i>ku-</i> <i>ju-</i> <i>ju-</i>) permansive <i>nu-</i>, apprehen-³
sive <i>ɕw-</i> ⁴</p> <p>5. Second person (<i>tu-</i>, <i>ku-</i> 2>1 and ta- 1>2) ⁵</p> <p>6. Inverse <i>-wɣ-</i> / Generic S/O prefix <i>ku-</i>, Progressive ⁶
<i>asu-</i>. Note that the inverse is actually <i>infix</i>ed with⁷
the progressive as in <i>ju-tu-ɣ<wɣ>su-zgroɔ</i> CONST-⁸
PROG<INV>-attach “he is attaching you”. ⁹</p> <p>7. Reflexive <i>ʒɣɣ-</i> ¹⁰</p> <p>8. Causative <i>su-</i>, Abilitative <i>su-</i> ¹¹</p> | <p>239</p> <p>240</p> <p>241</p> <p>242</p> <p>243</p> <p>244</p> <p>245</p> <p>246</p> <p>247</p> <p>248</p> <p>249</p> <p>250</p> <p>251</p> | <p>9. Antipassive <i>sɣ-</i> / <i>ɾɣ-</i></p> <p>10. Trovative <i>nɣ-</i>, applicative <i>nu-</i></p> <p>11. Passive or Intransitive thematic marker <i>a-</i> / Deexperi-
encer <i>sɣ-</i></p> <p>12. Autobenefactive-spontaneous (appears in this position
only when the passive/intransitive determiner is present,
otherwise appears between positions 6 and 7) <i>nu-</i></p> <p>13. Other derivation prefixes <i>nu-</i> <i>ɣw-</i> <i>ru-</i> <i>nɣ-</i> <i>ɣɣ-</i> <i>ɾɣ-</i></p> <p>14. Noun root</p> <p>15. Verb root</p> <p>16. Past 1sg/2sg transitive <i>-t</i> (aorist and evidential)</p> <p>17. 1sg <i>-a</i></p> <p>18. Personal agreement suffixes (<i>-tɕi</i>, <i>-ji</i>, <i>-nu</i>, <i>-ndzi</i>)</p> |
|--|--|--|--|

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

255 (7) *a-yu-lɣ-ku-su-mts^ham-a*
 IRR-CISL-PFV:upstream-2>1-CAUS-hear-1SG

256 You will come to tell me. (Japhug; The three sisters, 132)

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

262 Japhug is a strongly head-marking language, and its case marking system
 263 is rather poor: it only has an ergative clitic *ku*, an optional genitive *yu* and
 264 an optional locative *zu*.

265 From the point of view of alignment typology, Japhug has ergative mark-
 266 ing on nouns, tripartite alignment in relativization and ergative alignment
 267 in generic marking (cf Jacques 2012b).

268 Japhug has a strong distinction between nouns and verbs, a feature,
 269 which as we have argued in section 2, is a prerequisite for the existence of
 270 incorporation. Nouns, unlike verbs, exhibit little morphology except posses-
 271 sive prefixes, whose paradigm is given in the following table, compared to
 272 the free pronouns (these prefixes also occur in some participial verb forms):

Table 2: Pronouns and possessive prefixes in Japhug

Free pronoun	Prefix	
<i>aʒo</i>	<i>a-</i>	1SG
<i>nyʒo</i>	<i>ny-</i>	2SG
<i>wʒo</i>	<i>w-</i>	3SG
<i>tɕiʒo</i>	<i>tɕi-</i>	1DU
<i>ndʒiʒo</i>	<i>ndʒi-</i>	2DU
<i>ʒyɲi</i>	<i>ndʒi-</i>	3DU
<i>iʒo</i>	<i>i-</i>	1PL
<i>nurʒo</i>	<i>nur-</i>	2PL
<i>zara</i>	<i>nur-</i>	3PL

273 Some intrinsically possessed nouns, especially body parts, kinship terms
 274 and relational nouns, must appear with either a possessive prefix or the
 275 indefinite possessive *tu-* or *tx-*.

276 Finally, we are going to address the definition of wordhood in Japhug,
 277 which is crucial to any discussion on derivational morphology. In some
 278 languages of the Sino-Tibetan family such as Galo (see Post 2009) it has

279 been shown that the phonological and morphological boundaries are not
 280 always congruent. In Limbu, Hildebrandt (2007) and Schiering et al. (2010)
 281 have suggested that a phonological boundary exists between prefixes and the
 282 rest of the verbal word, as indicated by two phonological rules (glottal-stop
 283 insertion and non-application of l/r alternation).

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

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

289 First, some verbal prefixes, in particular the inverse *-wy-*, attract stress
 290 on the preceding syllable, as in the following example:

291 (8) *pú-wy-mto-a-ndzi*
 AOR-INV-see-1SG-DU

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

293 Second, personal agreement suffixes are always unstressed and the vowels
 294 of these suffixes are often devoiced:⁵

295 (9) *pu-mtó-t-a-ndzi* [pʉmʉtóʉndʒi̥]
 AOR-see-PST-1SG-DU

296 I saw them^d. (elicitation, Chen Zhen).

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

299 Stress in Japhug is a valuable indicator of phonological domains, and the
 300 facts presented above suggest that a phonological boundary exists between
 301 the verb stem and the agreement suffixes, in other words between position
 302 16 and position 17 of the verbal template.⁶

303 In Limbu and most other Kiranti languages, Schiering et al. (2010) ar-
 304 gued that / /-insertion between verbal prefixes and vowel-initial root (as in
 305 /*kɛ-im*/ 2-sleep “you sleep” realized as [*kɛʔim*]) was a marker of phonological
 306 boundary. In Japhug, no such insertion is observed: vowel fusion between
 307 the prefix and the verb stem always occurs. For instance, the second person
 308 non-past form of /*aɕq^he*/ “to cough” is /*tu-ɾɕq^he*/ 2-cough [*ɾɕq^he*], not
 309 **tuʔaɕq^he*. All other elements occurring to the right of the second person
 310 prefix and to the left of the verb root (positions 7 to 14, including all deriva-
 311 tion prefixes as well as nominal roots) belong unequivocally to the same
 312 phonological word.

⁵The only exception is the first person singular suffix *-a* when it merges with the verb stem, as in *ɾɾ-aɕq^he-a* AOR-cough-1SG “I coughed” realized as [*taɕq^hʒá*].

⁶See Gong (to appear) for a similar claim concerning Zbu Rgyalrong.

313 3.3. *Incorporation-like verbal compounds*

314 Japhug presents verbal compounds that superficially resemble incorpo-
 315 rational constructions. These verbal compounds include a nominal and a
 316 verbal root, both of which can appear independently, are not restricted to
 317 non-finite forms and belong to the same phonological word, as defined in
 318 the previous subsection. Therefore, they would seem to fulfil the defini-
 319 tion of incorporation presented in section 2. However, we will see in the
 320 following sections that these compounds also show some affinities with de-
 321 nominal derivations. Their exact status will be discussed in sections 5 and 6,
 322 and we will non-committally refer to this construction as incorporation-like
 323 construction (ILC) in this article.

324 Unlike other derivational processes, ILC verbs are not very numerous
 325 in Japhug: only 36 have been discovered up to now out of a total of 1800
 326 verbs in our unpublished lexical database. Although ILC is fairly rare in
 327 traditional stories, these examples show that this process is still productive,
 328 as it applies not only to native vocabulary, but also to Tibetan (*fsoB* “earn”
 329 < Tibetan *bsogs*), *w-nyam* “flesh” < *nyam*) and Chinese (*tʂʰa* “tea” 茶 *chá*,
 330 *pɕawtsu* “money” 票子 *piàozǐ*) loanwords. Chinese loanwords are almost all
 331 extremely recent, dating from after 1950.

332 In the following table, noun roots in ILC verbs are written in bold, and
 333 separated from other morphemes by a hyphen. For each ILC verb, we list the
 334 base noun and verb from which it is built. Note that some of the nouns are
 335 intrinsically possessed nouns, and must appear with a possessive prefix (here
 336 systematically given as the third person *w-*) or the indefinite possessive *tu-*.

337 Verbs for which we have indicated *idiom* as the meaning only appear in
 338 noun-verb collocations with the same noun as in the ILC verb. For instance
 339 *tu-zi loB* is an idiom meaning “have nausea”:

- 340 (10) *wzo w-zi* *ɲw-loB*
 he 3SG.POSS-nausea CONST-have.nausea
 341 He has nausea. (elicitation, Dpalcan)

342 Neither the noun *tu-zi* nor the verb *loB* can appear outside of this collocation,
 343 though they behave morphologically like independent words, but the ILC
 344 equivalent *ɲw-zu-loB* “have nausea” constitutes a single word.

345 The morphological and morphosyntactic properties of these ILC verbs
 346 will be analysed in the following sub-sections.

Table 3: Examples of ILC in Japhug

base noun	meaning	base verb	meaning	ILC verb	meaning
<i>tu-ku</i>	head	<i>amtɕoɕ</i>	pointed (vs)	<i>a-kr-mtɕoɕ</i>	having a pointed head
<i>c^{ha}</i>	alcohol	<i>ts^{hi}</i>	drink (vt)	<i>ɣu-c^{hɤ}-ts^{hi}</i>	to drink alcohol
<i>cw</i>	stone	<i>p^hut</i>	take out, cut down (vt)	<i>ɣu-cw-p^hut</i>	to take out stones (out of the field)
<i>tu-yli</i>	dung	<i>tɕɤt</i>	take out (vt)	<i>ɣu-yliw-tɕɤt</i>	to take out dung (out of the stable, to make fertilizer)
<i>ɣndzɤβ</i>	fire (big)	<i>ta</i>	put (vt)	<i>ɣu-ɣndzɤβ-ta</i>	to clear (fields) with fire
<i>k^huna</i>	dog	<i>ts^hoɕ</i>	attach (vt)	<i>ɣu-k^hu-t^hoɕ</i>	to turn the dog loose on
<i>pɕawtsu</i>	money	<i>fsoɕ</i>	earn	<i>ɣu-pɕawtsu-fsoɕ</i>	to earn money
<i>tu-rɣu</i>	riches	<i>fsoɕ</i>	earn	<i>ɣu-rɣu-fsoɕ</i>	to earn riches
<i>si</i>	tree, wood	<i>p^hut</i>	take out, cut down (vt)	<i>ɣu-su-p^hut</i>	to cut wood (to make firewood)
<i>tɕ^ha</i>	tea	<i>ts^{hi}</i>	drink (vt)	<i>ɣu-tɕ^hɤ-t^hɤ</i>	to have tea
<i>tɕu</i>	way	<i>mts^{hi}</i>	lead (vt)	<i>ɣu-tɕɤ-mts^{hi}</i>	to lead the way
<i>tr-jlɤβ</i>	steam	<i>sqa</i>	cook (vt)	<i>nɤ-jlɤβ-sqa</i>	to cook with steam (vt)
<i>tu-ku</i>	head	<i>tɕ^hu</i>	gore (vt)	<i>nɤ-kr-tɕ^hu</i>	to hit with the head (vt)
<i>tu-zgru</i>	elbow	<i>tɕ^hu</i>	gore (vt)	<i>nɤ-zgru-tɕ^hu</i>	to hit with the elbow (vt)
<i>u-mp^hru</i>	one after the other	<i>za</i>	start (vt)	<i>nɤ-mp^hru-za</i>	to do after after the other
<i>tr-p^hu</i>	clod (of earth)	<i>xtsu</i>	pound (vt)	<i>nɤ-p^hu-xtsu</i>	to break clods of earth
<i>u-qa</i>	root	<i>za</i>	start (vt)	<i>nɤ-qa-za</i>	to start from the beginning (vt)
<i>u-q^hu</i>	back, behind	<i>ru</i>	look	<i>nɤ-q^ha-ru</i>	to look back
<i>u-q^hu</i>	back, behind	<i>ŋga</i>	wear (vt)	<i>nɤ-q^hɤ-ŋga</i>	to wear on the back
<i>tu-zi</i>	nausea	<i>loɕ</i>	(idiom)	<i>nɤ-zu-loɕ</i>	to have nausea
<i>ja</i>	hybrid yak	<i>lɤɣ</i>	herd (vl)	<i>nɤ-jlɤ-lɤɣ</i>	to herd hybrid yaks
<i>ja</i>	hybrid yak	<i>mts^{hi}</i>	lead (vt)	<i>nɤ-jlɤ-mts^{hi}</i>	to lead hybrid yaks
<i>mbro</i>	horse	<i>rɣuɣ</i>	run	<i>nɤ-mbrɤ-rɣuɣ</i>	to gallop
<i>tu-nɣa</i>	debt	<i>tɕo</i>	pay	<i>nɤ-nɣɤ-tɕo</i>	to pay back one's debt

<i>tu-rju</i>	wealth	<i>sɲom</i>	pay	<i>nu-rju-rɲom</i>	to envy people's wealth
<i>u-ɲɪm</i>	flesh	<i>k^he</i>	(idiom)	<i>nu-ɲɪm-k^he</i>	to be skinny
<i>u-ɲɪm</i>	flesh	<i>su</i>	plump	<i>nu-ɲɪm-su</i>	to be plump
<i>paɕ</i>	pig	<i>lɻɣ</i>	herd (v1)	<i>nu-paɕ-lɻɣ</i>	to herd pigs
<i>u-p^haɕ</i>	side	<i>ɲɪl</i>	(not independent)	<i>nu-p^haɕ-ɲɪl</i>	to lay on the side
<i>u-q^hu</i>	behind	<i>astu</i>	straight	<i>nu-q^hu-stu-stu</i>	to back up
<i>tu-rma</i>	household	<i>kro</i>	share	<i>nu-rmɻ-kro</i>	to split the household
<i>tɻ-rme</i>	hair	<i>mbe</i>	old	<i>nu-rmɻ-mbe</i>	to moult
<i>tu-sni</i>	heart	<i>ɲaɕ</i>	black	<i>nu-snu-ɲaɕ</i>	to harm
<i>zruɣ</i>	louse	<i>ru</i>	look	<i>nu-zruɣ-ru</i>	to look for lice
<i>tɕu</i>	road	<i>sti</i>	block	<i>nu-tɕɻ-qɻ-sti</i>	to block the way
<i>tu-mbru</i>	anger	<i>ɲɣu</i>	(idiom)	<i>sɻ-mbru-ɲɣu</i>	to be detestable
<i>tu-zi</i>	nausea	<i>loɕ</i>	(idiom)	<i>sɻ-zu-loɕ</i>	to be disgusting

347 Aside from the 35 examples above, a special case must be made of the
 348 verb *kɣtupa* “to speak”. This verb etymologically includes the verbal root
 349 *-pa*, which originally meant “to do”, but has become restricted in mod-
 350 ern Japhug to the meaning “to close (the door)” or as a light verb with
 351 ideophones. The first part *kɣtu-* is an ablauted form of *kɣ-ti* the patient
 352 participle of the verb *ti* “to say” and literally means “the things that are
 353 said” (in some contexts it also means “niggling”).

354 *kɣtupa* is a defective verb, and only occurs in non-past first and third
 355 person forms. It is morphologically transitive, and undergoes *-a > -e* ablaut
 356 in singular forms. The following table compares the non-past (direct, i.e.
 357 with a third person patient) forms of the transitive verb *ndza* “to eat” with
 358 those of *kɣtupa*:

Table 4: Paradigm of the verb *kɣtupa* “to speak”

Person	“to eat”	“to speak”
1SG	<i>ndze-a</i>	<i>kɣtupe-a</i>
2SG	<i>tu-ndze</i>	XX
3SG	<i>ndze</i>	<i>kɣtupe</i>
1DU	<i>ndza-tɕi</i>	<i>kɣtupa-tɕi</i>
2DU	<i>tu-ndza-ndzi</i>	XX
3DU	<i>ndza-ndzi</i>	<i>kɣtupa-ndzi</i>
1PL	<i>ndza-j</i>	<i>kɣtupa-j</i>
2PL	<i>tu-ndza-nu</i>	XX
3PL	<i>ndza-nu</i>	<i>kɣtupa-nu</i>

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

364 3.4. Morphological properties

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

367 DERIVATIONAL PREFIX NOMINAL STEM VERBAL STEM
nu-, *ny-*, *ɣu-*, *sɣ-*

368 A few examples such as *nutsɣɣɣɣsti* “to block the way” present more than
 369 one nominal element, but we will first restrict the discussion to this basic
 370 structure. This structure, interestingly, is the mirror-image of the Algo-
 371 nquian incorporational construction INITIAL + MEDIAL + FINAL mentioned
 372 in section 2.

373 The nature of the derivational prefixes is analysed in more detail in sec-
 374 tion 5; it will be shown that these prefixes are homophonous with denominal
 375 prefixes, and that the ILC presents affinities with denominal constructions.

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

382 The nominal stem in the ILC differs from the free form in two ways.
 383 First, in the case of possessed noun prefixes with either the indefinite pos-
 384 sessive prefix *tu-* / *tx-* or the third person prefix *u-*, this prefix disappears
 385 in the ILC. Second, in open-syllable nouns, the vowel undergoes a series of
 386 regular changes, which we call the *status constructus*:

Table 5: Status constructus

basic noun	incorporated noun
<i>-a</i>	<i>-x</i> / <i>-a</i>
<i>-o</i>	<i>-x</i> / <i>-a</i>
<i>-e</i>	<i>-x</i> / <i>-a</i>
<i>-u</i>	<i>-x</i> / <i>-a</i>
<i>-i</i>	<i>-u</i>

387 The *status constructus* of some nouns is irregular, in particular the noun
 388 “dog” *k^huna* which becomes *k^hu-* instead of expected **k^hunx-*. Not only
 389 possessive prefixes are lost during derivation, but also derivational prefixes as
 390 in *tu-nja* “debt” a noun derived from *nja* “owe” by the action nominalization
 391 prefix *tu-*. The only case of a prefix preserved in the status constructus in
 392 the list is that of *yndzyβ* “fire”. This noun is an irregular nominalization
 393 of *ndzyβ* “to burn (vi)”, an anticausative derivation of the transitive *txyβ*
 394 “burn (vt)”. The regular form *ku-ndzyβ* is also attested; *y-* originates from
 395 *ku-* by syncope (a cluster such as /knd / would be impossible in Japhug).
 396 The reason for the preservation of this *y-* element is that it is not perceived
 397 synchronically to be a prefix.

398 The *status constructus* is not limited to ILC verbs, but also occurs in
 399 nominal compounds:

Table 6: Examples of noun compounds with *status constructus*

Element 1	meaning	Element 2	meaning	compound noun	meaning
<i>tu-ku</i>	head	<i>tx-rme</i>	hair	<i>tu-kx-rme</i>	hair (on the head)
<i>tɕu</i>	road	<i>tx-mt^hum</i>	meat	<i>tɕx-mt^hum</i>	provision of meat for the road

400 The first element is always a noun in *status constructus*, and the second
 401 element undergoes little change, except for the loss of possessive prefixes.

402 The presence of a distinct bound form for nominal stems in ILC, and
 403 the fact that this bound form also occurs in nominal compounds, are char-
 404 acteristics also attested in many languages with incorporation, in particular
 405 the Algonquian examples discussed in section 2.

406 3.5. Syntactic properties

407 ILC verbs are not common in traditional stories, so that a detailed study
 408 of the function of this construction is difficult.

409 The ILC nominal stem cannot be modified by either stranded demon-
 410 stratives or adjectives as in languages such as Hopi (see for instance [Haugen](#)
 411 [2008](#): 121), and it is never referential. Although ILC retains some degree
 412 of productivity, attempts at creating new ILC verbs on the model of the
 413 ones discovered in the stories met with disagreement by the speakers. For
 414 instance, while *nu-jɿɿ-ɿɿ* “herd hybrid yaks” and *nu-paɿ-ɿɿ* “herd pigs”
 415 are possible, it is impossible (or at least not fully acceptable) to produce a
 416 verb such as **nu-qazɿ-ɿɿ* “herd sheep”, probably because such an activity
 417 is not in Rgyalrong culture “recognized sufficiently often to be considered
 418 name-worthy in its own right”, as [Mithun \(1984](#): 848) puts it.

419 The ILC nominal stem can have three functions:

- 420 (11) O of a transitive verb: *ɿu-suɿ-p^hut* “cut wood”.
 421 S of an intransitive verb: *a-ky-mtɕoɕ* “have a pointed head”.
 422 Adjunct: *ny-q^ha-ru* “look back”.

423 Note that no examples of A have been discovered: the Japhug ILC follows
 424 the well-known implicational hierarchy of incorporating constructions, ac-
 425 cording to which “if a language incorporates nouns in just one function, they
 426 will be direct objects; if a language incorporates only two types of arguments,
 427 they will be direct objects and subjects of intransitive verbs” ([Aikhenvald](#)
 428 [2007](#): 19).

429 When the ILC nominal stem corresponds to the O of the original verb,
 430 the ILC verb becomes intransitive: this is a situation similar to saturating
 431 incorporation (type I incorporation according to [Mithun \(1984\)](#)’s hierarchy).
 432 Compare the two following competing constructions:

433 (12) *nu-nu-nyɿ-tɕo-a*
 AOR-DERIVATION-debt-pay-1SG

434 (13) *a-nyɿ nu-tɕo-t-a*
 1SG.POSS-debt AOR-pay-PST-1SG

435 I paid my debt. (elicitation, Chen Zhen)

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

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

- 445 (14) (i) *w-ku ju-xmtsoʋ*
 3SG-head CONST-pointed
 446 (ii) *w-ku ju-x-kr-mtsoʋ*
 3SG-head CONST-DERIVATION-head-pointed
 447 Its head is pointed (of a knife). (elicitation, Dpalcan)

448 When the ILC nominal stem corresponds to an adjunct, the verb remains
 449 transitive in some cases, as in *nrkr̥t̥c^hu* “hit with the head”:

- 450 (15) *kr̥-wy-nr-kr-t̥c^hu-a*
 AOR-INV-DERIVATION-head-gore-1SG
 451 He hit me with his head. (elicitation, Dpalcan)

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

455 Although the meaning of some of the ILC verbs is not compositional, in
 456 other words one cannot guess the exact meaning of the verb from that of the
 457 ILC nominal stem and the verb, some ILC verbs are quite transparent in
 458 this regard. This is for instance the case of *yur-p̥cawtsu-fsoʋ* “earn money”,
 459 a recent ILC verb since it contains a Chinese loanword.

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

- 462 (16) *ʌasa ju-ku-ʧe t̥ce, nut̥cu p̥cawtsu kr-fsoʋ*
 Lhasa IPF-GENR:S/O-go COORD there money INF-earn
 463 *ju-mbat*
 CONST-easy
 464 ‘If one goes to Lhasa, it is easy to earn money there.’ (Lobzang, 22)
- 465 (17) *nr-mbro nr-r̥juul tu-rke-a t̥ce*
 2SG.POSS-horse 2SG.POSS-silver IPF-put.in[3]-1SG COORD
 466 *ku-yur-p̥cawtsu-fsoʋ j̥r-ʧe t̥ce*
 NMLZ:S/A-DERIVATION-money-earn IMP-go COORD
 467 ‘I will prepare a horse and some silver for you, go and earn some
 468 money.’ (Lobzang, 17)

469 In the first example, *pɕawtsu* “money” is the free object of the transitive
 470 verb *fsok* “earn”. In the second sentence, we find the corresponding ILC
 471 verb. In both cases, the Noun-Verb construction and the ILC verb could
 472 have been substituted one for the other without any noticeable change of
 473 meaning.

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

477 (18) *tu-sɕi ci zu nu, tɣ-tɕu nu li*
 one-day INDEF LOC TOP NEU-boy TOP again
 478 *ku-yu-su-p^hut lɣ-ari*
 NMLZ:S/A-DERIVATION-wood-chop AOR:UPSTREAM-go[II]
 479 *ɲu-ŋu,*
 CONST-be

480 ‘One day, the boy went again to chop wood.’ (The demon, 7)

481 These ILC verbs differ from constructions such as English *go berry-*
 482 *picking*, as they can be fully conjugated, but the prevalence of these verbs
 483 in non-finite forms in spontaneous speech deserves a more detailed study.
 484 More conversations and traditional stories need to be collected in order to
 485 be able to undertake meaningful statistical studies.

486 4. Denominal derivation in Japhug

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

Table 7: List of denominal prefixes in Japhug

Form	Transitivity
<i>nu-</i> , <i>nɣ-</i>	intransitive and transitive
<i>ru-</i> , <i>rɣ-</i>	intransitive and transitive
<i>yu-</i> , <i>yɣ-</i>	intransitive and transitive
<i>su-</i>	transitive verb with instrument, intransitive verb of position
<i>mɣ-</i>	transitive verb with body part, intransitive verb of position
<i>sɣ-</i>	intransitive verb (property)
<i>ayu-</i>	intransitive verb (property)

491 Many denominal verbs are derived from intrinsically possessed nouns,
 492 which always bear either a possessive prefix or an indefinite possessor prefix
 493 *tu-* or *tɣ-*. The vocalism /*u*/ or /*ɣ*/ of the denominal prefixes depends on

494 whether the base noun has *tur-* or *tr-*, though there are a few exceptions. For
 495 instance, from *tr-zri* “dew” one can derive *nr-zri* “be covered with dew” (vi),
 496 while from *tu-zuβ* “sleep (n)” one derives *nu-zuβ* “sleep (vi)”. However,
 497 numerous exceptions to this general principle exist; in particular, the vowel
 498 /*u*/ tends to be realized closer to [ɤ] next to a uvular consonant.

499 There are several pairs where *nu-* / *nr-* derives a transitive verb while
 500 *ru-* / *ry-* derives an intransitive one, such as *tu-kryz* “discussion” > *nukryz*
 501 “discuss (vt)” vs. *rykryz* “discuss (vi)”.

502 However, the transitivity of the derived verb is not always predictable
 503 from the form of the prefix. The following table illustrates the transitivity
 504 of the denominal verbs depending on their derivational prefix (the number
 505 refer to occurrences in my unpublished Japhug dictionary):

Table 8: Proportion of transitive and intransitive verbs

Form	Transitivity	
	vi	vt
<i>nu-</i> , <i>nr-</i>	44	46
<i>ru-</i> , <i>ry-</i>	28	4
<i>yur-</i> , <i>yr-</i>	6	8
<i>su-</i>	2	5
<i>mx-</i>	2	3
<i>sr-</i>	2	0
<i>ayur-</i>	12	0

506 Discussing in detail the semantic properties of each prefix would require
 507 considerable space and will not be attempted in this article. We will only
 508 focus on the functions of the five forms that denominal verbs and incorpo-
 509 rating verbs have in common: *nu-*, *nr-*, *yur-*, *su-* and *sr-*.

510 The prefix *nu-* and its variant *nr-* appear in a considerable variety of
 511 verbs, as illustrated in table 9.

Table 9: Examples of the denominal prefix *nu-*

Base noun	Meaning	Derived verb	Meaning	
<i>u-p^hw</i>	price	<i>nu-p^hw</i>	to be of a correct price	vi, stative
<i>sya</i>	rust	<i>nu-sya</i>	to be rusty	vi, stative
<i>qajy</i>	fish	<i>nu-qajy</i>	to fish	vi
<i>tu-ŋgra</i>	salary	<i>nu-ŋgra</i>	to receive a salary	vi
<i>mt^hw</i>	spell	<i>nu-mt^hw</i>	to cast a spell	vt
<i>kujju</i>	oath	<i>nu-kujju</i>	to swear	vt
<i>mbuwlɣn</i>	plane	<i>nu-mbuwlɣn</i>	to plane	vt
<i>smɣn</i>	medicine	<i>nu-smɣn</i>	to treat	vt
<i>mkɣyur</i>	necklace	<i>nu-mkɣyur</i>	to wear as a necklace	vt
<i>tu-rdoɓ</i>	a piece	<i>nu-rdoɓ</i>	to pick up piece by piece	vt
<i>ɓjoɓ</i>	servant	<i>nu-ɓjoɓ</i>	to give orders to	vt
<i>ɓgra</i>	enemy	<i>nu-ɓgra</i>	to treat as an enemy	vt
<i>tu-sk^hru</i>	body	<i>nu-sk^hru</i>	to be pregnant	vt

512 The prefix *nu-* can derive four major types of verbs, though some (such
513 as “to be pregnant”) cannot be easily classified into any category.

514 First, *nu-* derives intransitive stative verbs denoting a property related
515 to the base noun, as in “to be rusty” and “to be of a correct price”.

516 Second, *nu-* is used to create intransitive verbs describing an activity
517 whose purpose is to obtain the entity designated by the base noun, as in
518 “to fish” or “to receive a salary”; the meaning is never “to make X” or “to
519 become X”.

520 Third, the prefix *nu-* derives transitive action verbs from instrument
521 nouns (as in “to plane” or “to treat”).

522 Fourth, *nu-* forms transitive verbs meaning “to consider as, to treat as”
523 relative to the base noun.

524 The prefix *yw-* is much less common than *nu-*. The following examples
525 illustrate its main functions:

Table 10: Examples of the denominal prefix *yw-*

Base noun	Meaning	Derived verb	Meaning	
<i>tr-tsrw</i>	sprout	<i>yɣ-tsrw</i>	to sprout	vi
<i>ɕoŋtɕa</i>	timber	<i>yw-ɕoŋtɕa</i>	to chop timber	vi
<i>tu-tɕ^ha</i>	message	<i>yw-tɕ^ha</i>	to answer	vt
<i>ɕkat</i>	load	<i>yw-ɕkat</i>	to load (an animal)	vt
<i>tr-fkum</i>	bag	<i>yw-fkum</i>	to put in a bag	vt

526 The allomorph *yɣ-* only occurs with intransitive verbs expressing the
527 generation of the entity designated by the base noun (as in “to sprout”).
528 Some uses of *yw-* seem to be identical to that of *nu-*. For instance, the case

529 of “to chop timber” is similar to that observed with the verb *nu-qajy* “to
 530 fish” above. Verbs such as *yuu-ɕkat* “to load” and *yuu-fkum* “to put in a bag”
 531 on the other hand exemplify a type of derivation slightly different from that
 532 of *nu-*, meaning especially “to put in a container”, the container being the
 533 base noun.

534 The prefix *su-* appears in two cases. First, with body parts or instru-
 535 ments, where it derives a labile or a transitive verb expressing the action of
 536 that instrument (*tu-jasndzu* “finger” > *su-jasndzu* “show with the finger”).
 537 Second, with nouns expressing a position such as *ndzupe* “way of sitting
 538 (without crossing legs, the way women sit in the Rgyalrong traditional so-
 539 ciety) > *su-ndzupe* “sit (without crossing legs, vi)”.

540 4.1. Deexperiencer / tropative pairs

541 Aside from the three groups of prefixes *nu-* / *ny-*, *yuu-* and *su-* discussed
 542 above, we must mention the case of the deexperiencer / tropative pairs in
 543 *sy-* / *ny-* (see table 11 for examples of these prefixes), in relation to the pair
 544 of ILC verbs *sy-zuu-loɕ* “to be disgusting” and *ny-zuu-loɕ* “to have nausea”
 545 derived from the collocation *tu-zi loɕ* “to have nausea”.

546 The deexperiencer prefix *sy-* derives an intransitive stative verb out of
 547 either transitive (perception verbs) or intransitive verbs, and the S of the
 548 deexperiencer verbs corresponds to the *stimulus* of the base verb, while the
 549 original S or A is demoted (see Jacques 2012b). The tropative derivation
 550 derives a transitive verb from a stative verb, by adding an experiencer (which
 551 becomes the A of the derived verb) while the S of the original verb becomes
 552 the O. This derivation differs from the causative in that the resulting verb
 553 always has the specific meaning “to find / consider XXX”.

Table 11: Examples of the deexperiencer and tropative verbs

Basic verb	meaning	Derived verb	meaning
<i>ngio</i>	to slip	<i>sy-ngio</i>	to be slippery (of the ground)
<i>ɕke</i>	to be burned	<i>sy-ɕke</i>	to be burning
<i>rga</i>	to like (itr.)	<i>sy-rga</i>	to be nice
<i>wxti</i>	to be big	<i>ny-wxti</i>	to consider to be too big
<i>zri</i>	to be long	<i>ny-zri</i>	to consider to be too long
<i>mnɣm</i>	to have an odour	<i>ny-mnɣm</i>	to smell (tr.)

554 Apart from the two ILC verbs *sy-zuu-loɕ* “to be disgusting” and *ny-zuu-*
 555 *loɕ* “to have nausea” , we find three pairs of verbs which present the same
 556 apparent meaning derivation:

Table 12: Deexperiencer / Trovative pairs

Deexperiencer verb	Meaning	Trovative verb	Meaning	Noun	Meaning
<i>sv-re</i>	to be ridiculous	<i>nv-re</i>	to laugh (labile)	<i>tv-re</i>	laughter
<i>sv-mts^hvr</i>	to be strange	<i>nv-mts^hvr</i>	to consider (vt) to be strange	<i>tv-mts^hvr</i>	strange event
<i>sv-ŋvrβ</i>	to be such that people are reluctant to do it	<i>nv-ŋvrβ</i>	to be reluctant to (vt)		

557 The verb *nv-re* is labile, meaning “to laugh at (someone)” when used
558 transitively, and “to laugh” when used intransitively.

559 The first two verb pairs *sv-re* / *nv-re* and *sv-mts^hvr* / *nv-mts^hvr* are similar,
560 related to base nouns prefixed in *tv-*. Note that the prefix in these nouns is
561 the indefinite possessive, which disappears when a possessive prefix is added:

562 (19) *u-re* *ci* *ɕmuy* *nv-ɕluy*,
3SG.POSS-laughter a.little IDEO:1:laughter EVD-drop

563 She (could not resist and) laughed a little. (The Frog, 100)

564 For the pair *svŋvrβ* / *nvŋvrβ* on the other hand, no corresponding noun
565 seems to exist, though it could have existed or be attested in other varieties
566 of Japhug.

567 It would appear that the pairs of verbs in Table 12 are derived from the
568 nouns, and thus that the deexperiencer and trovative prefixes can be used as
569 denominal markers alongside their regular use. However, from a comparative
570 point of view, the root of *tv-re* “laughter” is clearly verbal in origin (see for
571 instance Tangut *rjijr*², proto-Lolo-Burmese **ray*¹, both “to laugh”, Matisoff
572 2003: 43). Besides, *tv-mts^hvr* is a loanword from the Tibetan *mts^har.ba* “to be
573 fabulous, to be strange”. This suggests that *tv-re* “laughter” and *tv-mts^hvr*
574 “strange event” are deverbal nouns, and that unattested verbal roots **re*
575 and **mts^hvr* must have existed at an earlier stage.

576 The following scenario can be postulated to explain these forms. If we
577 assume the existence of an intransitive verb **are* “to laugh” (intransitive)
578 with the thematic element *a-*,⁷ its regular deexperiencer would be **sv-are* >
579 *sv-re*.

580 One can also regularly derive from **are* “to laugh” the deverbal noun *tv-re*
581 “laughter (n)”; such examples are quite common, for instance the derivation
582 *aɕq^he* “to cough” > *tv-ɕq^he* “cough (n)”.

⁷This thematic element appears on many intransitive verbs, including stative (*amtɕov* “pointed”, *artum* “round”) and dynamic ones (*aɕq^he* “to cough”, *atuy* “to meet”). It historically originates from an intransitivizer (still reflected in the passive derivation *a-*) but synchronically the *a-* in these verbs must be analyzed as a part of the stem, as no corresponding prefixless verb exists.

583 Finally, *nu-are* > *nyre* “to laugh at” would be the regular applicative
 584 (not tropative) of the verb **are*.⁸ This hypothetical form **are* in turn would
 585 be derived from a root **re* “to laugh at (tr)”, in the same way as *ak^hu* “to
 586 call” must originate from a transitive root **k^hu* “to call (transitive)”. The
 587 Tangut and Lolo-Burmese form reflect the non-derived root **re*, while the
 588 Japhug forms have undergone several layers of derivation.

589 The disappearance of **are* (and other comparable forms) makes the for-
 590 mation quite opaque.

591 For *sr-zu-loɕ*, we need to posit a further step of derivation: first inclusion
 592 of the noun *u-zi* in a hypothetical ILC verb **a-zu-loɕ* “to have nausea (it)”,
 593 to which deexperiencer (**sr-azu-loɕ* > *srzu-loɕ*) and applicative (**nu-azu-loɕ*
 594 > *nyzu-loɕ*) derivations are then applied.

595 4.2. Light verb constructions

596 Most denominal verbs compete with corresponding light verb construc-
 597 tions. In these constructions, the light verb (mostly *βzu* “to do”, *ɪxt* “throw”
 598 but also *ti* “say” in some cases) receives TAM and person marking, while
 599 the noun is a regular object.

600 The following examples illustrate denominal vs. light verb constructions:

601 (20) (i) *thu-nu-rɣo-a*
 AOR-DENOMINAL-song-1SG

602 (ii) *rɣo thu-βzu-t-a*
 song AOR-do-PST-1SG

603 I sang. (elicitation, Chen Zhen)

604 (21) (i) *nu-sw-ndzupe-a*
 AOR-DENOMINAL-way.of.sitting-1SG

605 (ii) *ndzupe nu-βzu-t-a*
 way.of.sitting AOR-do-PST-1SG

606 I sat (without crossing legs). (elicitation, Dpalcan)

607 In both examples, the first sentence has an intransitive denominal verb,
 608 while the second one has a light verb construction.

609 In Japhug, TAM marking relies on both verb stem alternation and di-
 610 rectional prefixes. Except for movement verbs and some action verbs, which
 611 are compatible with all seven directions (up, down, upstream, downstream,
 612 east, west, undetermined), most verbs have a determined directional prefix.
 613 In the case of *nurɣo* “sing” and *sundzupe* “sit” above, the aorist form of

⁸Other examples of applicative *nu-* with *a-* initial verb stems include *azuzu* “to wrestle (vi)” (intrinsically reciprocal verb) > **nu-azuzu* > *nyzuzu* “to wrestle with (vt)”.

614 the lexical directional prefixes are respectively *thur-* “downstream” and *nur-*
615 “towards west”.⁹

616 The same directional prefixes are found in both the denominal construc-
617 tion and the corresponding light verb constructions, showing that these two
618 constructions are synchronically related to one another in a systematic way:
619 In the light verb construction *ndzupε nur-βzu-t-a*, one finds the same *nur-*
620 “towards west” prefix as in the denominal *nur-su-ndzupε-a* “I sat without
621 crossing legs”.

622 Many denominal verbs (especially those in *nur-* and *ru-*) can be replaced
623 by the corresponding light verb construction without significant change of
624 meaning.

625 4.3. Denominal prefixes and ILC

626 The derivational prefixes which appear in ILC verbs, *nur-*, *ny-* *yur-*,
627 *sur-* and *sy-*, all have corresponding homophonous denominal prefixes. One
628 could indeed argue that the two groups are related.

629 It could further be proposed that some of the denominal and/or ILC
630 prefixes have the same origin or even constitute synchronically the same
631 markers as some verbal derivations, in particular the applicative *nur-* and
632 the causative *sur-*.

633 Yet, the phonetic resemblance between these prefixes alone is not enough
634 to draw such a conclusion. In Japhug, the shape of prefixes is determined by
635 various phonological constraints. With the exception of directional prefixes
636 and one modal prefix, both derivational and inflectional prefixes never have
637 consonant clusters, only have /a/, /ɾ/, /u/ as their main vowel, and contain
638 only one of the following eleven consonants: /s/, /z/, /ɕ/, /ʒ/, /y/, /m/, /n/,
639 /r/, /t/, /k/, /j/ (the complete consonantal inventory of Japhug comprises
640 49 phonemes).

641 Therefore, we observe pervasive homophony among prefixes. For in-
642 stance, *nur-* can be either denominal, applicative, spontaneous-autobenefactive,
643 aorist directional “towards west”, vertitive, third/second person plural pre-
644 fix, as in the following examples:

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

⁹These prefixes are simply glossed as “aorist” AOR, since the direction for these verbs is lexically determined.

652 A similar list could be established with *sr-*, which can occur as non-core
 653 nominalizer, deexperiencer, combination of causative and passive, deriving
 654 transitive de-ideophonic verbs, antipassive and denominal prefix. It is im-
 655 plausible that all these functions could have a common diachronic origin;
 656 their resemblance is (for some of them at least) fortuitous and due to the
 657 phonotactics of prefixes, which undergo different sound laws than regular vo-
 658 cabulary and neutralize many phonological distinctions (voicing, aspiration,
 659 main vowel etc).

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

663 5. Incorporation-Like Construction as Denominal Derivation

664 The previous sections have described the formation of ILC and denomi-
 665 nal verbs in Japhug, and we have observed that both groups of verbs present
 666 an important commonality: The presence of a series of homophonous deriva-
 667 tional prefixes. The existence of these prefixes offers a clue as to the origin
 668 of ILC in Japhug, namely that it constitutes a special subtype of denominal
 669 verbs.

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

673 5.1. Noun-Verb composition in Japhug

674 Aside from noun-noun composition as mentioned above, Japhug has a
 675 moderately productive process of nominal composition, in which a noun in
 676 the *status constructus* is combined with a verbal root to form a new noun:

Table 13: Examples of nominal noun-verb compounds

Element 1	Element 2	compound noun
<i>tu-rcu</i> “leather jacket”	<i>ŋga</i> “wear” (vt) <i>u-mbe</i> “old”	<i>rcr-mbe-ŋga</i> “beggar (the one who wears old jackets”
<i>tʂu</i> “road”	<i>ɕp^hyt</i> “patch” (vt)	<i>tʂr-ɕp^hyt</i> “Plantago sp.” (a plant, lit. “road-patcher”)
<i>p^hoŋ</i> “bottle”	<i>sti</i> “fill, block” (vt)	<i>p^hoŋ-sti</i> “bottle stopper”
<i>si</i> “wood”	<i>tɕ^haɁ</i> “diminish” (vi)	<i>su-tɕ^haɁ</i> “shrinking (of wood)”

677 The resulting compound can be either an agent noun, a patient noun
 678 or an action noun from the point of view of its semantics, without any
 679 formal marking. This kind of ambiguity is not normally found in Japhug
 680 nominalized verbs (or rather participles), which have different derivational

681 prefixes depending of the semantic role of the relativized argument (*ku-* for
682 S/A, *kr-* for O/action, *sr-* for non-core argument, *tu-* for action etc).

683 For some examples such as “Plantago” or “bottle stopper”, it is possible
684 that the verbal root first underwent a process of nominalization with the
685 prefix *tu-* / *tr-* before entering the compound: this prefix is regularly lost
686 in composition. In most cases, there is no way to tell whether the derivation
687 from a given noun and verb to the nominal compound $[NV]_n$ followed the
688 direct path in (i) or the indirect path in (ii):¹⁰

- 689 (22) (i) $N + V > [NV]_n$ composition
690 (ii) $tu^{-(v>n)} + V > [tu-V^{(v>n)}]_n > [tu-V]_n$ nominalization
691 $N + [tu-V]_n > [NV]_n$ composition

692 For instance, the transitive verb *cp^hyt* “to patch” has a derived noun
693 *tr-cp^hyt* “patch”; The plant name *tsr-cp^hyt* could be either a compound of
694 *tsu* “road” and *cp^hyt* “to patch”, or of *tsu* and *tr-cp^hyt*: both “road patcher”
695 and “road patch” would be fitting metaphors for this plant. The process of
696 nominal compounding suppresses the nominalization prefix *tr-*, so that one
697 never finds a form such as **tsr-tr-cp^hyt*.

698 In some cases however, semantics can help to settle this issue. For in-
699 stance, in *rcr-mbe-ŋga* “person who wears old jackets” can be glossed as:

- 700 (23) [*tu-rcu u-mbe*] *u-ku-ŋga*
701 NEU-jacket 3SG-old 3SG-NMLZ:S/A-wear
702 Person who wears old jackets.

702 The first two syllables of the compound derive from the noun phrase *tu-rcu*
703 *u-mbe*, and the whole compound has an Object-Verb structure.

704 Besides, if the last syllable in this compound *-ŋga* were derived from
705 *tu-ŋga* “clothes”, the nominalized form of *ŋga* “to wear”, it should not have
706 its attested meaning.

707 We can conclude in cases like this that the compound was directly derived
708 from the verb root *ŋga* “wear” (path (i) in the example 22).

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

¹⁰The 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 $N + \text{affix}^{n>v} > [N^{(n>v)}]_v > [N]_v$

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

716 Observe the following example, with the noun *q^haru* “a look back”, built
 717 out of the noun *u-q^hu* “behind” and the intransitive verb *ru* “look”:

718 (24) *uʒo kw tatpa ta-ta ma q^haru ci ny ʒo*
 he ERG faith AOR:3>3-put because look.back a.little even EMPH
 719 *mu-pa-lʏt tʕe tʏ-ari ɲu-ɲu*
 NEG-AOR:3>3-throw COORD AOR:up-go[II] IPF-be
 720 He had faith, as he did not look back at all, and went up. (Slobdpon
 721 106)

722 *q^haru* occurs here with the light verb *lʏt* in a construction meaning “look
 723 back”. An alternative construction to the light verb construction also exists,
 724 and appears in the same story a few sentences earlier:

725 (25) *maka ci ny ʒo ma-pu-tu-ny-q^ha-ru-nu*
 at.all a.little even EMPH NEG-IMP-2-DERIVATION-back-look-PL
 726 *ra ma ɲju-tu-ʏtʏr-nu tʕe*
 N.PST:have.to because IPF-2-fall-PL COORD
 727 Don’t look back at all, otherwise you will fall. (Slobdpon 100)

728 It is clear from the above examples that the ILC verb *ny-q^ha-ru* “look
 729 back” is a denominal verb.¹¹ Like other denominal verbs, it is interchange-
 730 able with a light verb construction, and both constructions share the same
 731 lexical directional prefix *pu-* “down” (the form *pa-* occurs in aorist 3>3
 732 forms of transitive verbs only, so that the ILC verb, being intransitive, has
 733 the basic form *pu-*).

734 It can be shown that many of the ILC verbs in Japhug belong to the
 735 same type as *nyq^haru* “to look back”. We can conclude that the observed
 736 similarity of the denominal prefixes and the derivational prefixes found in
 737 ILC verbs is not fortuitous: they are really the same morphemes, and ILC
 738 is a subtype of denominal derivation.

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

- 740 (26) (i) Creation of a noun + verb nominal compound: $N + V > [NV]_n$
 741 (ii) Denominal derivation of this compound: $\text{affix}^{(n>v)} + [NV]_n >$
 742 $[[NV]_n^{(n>v)}]_v$

743 Another possible path of derivation to interpret Japhug data would be:

¹¹Note that the adverb *ci* “one, a little” is not a stranded element: in the first sentence
q^haru “a look back” and *ci* 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.

- 744 (27) (i) Denominal derivation: affix^(n>v)+ N > [N^(n>v)] > [N]_v
 745 (ii) Composition of the denominal verb with a normal verb [N]_v+
 746 V > [NV]_v

747 However, solution (27) would leave [NV]_v nominal compounds such as *q^haru*
 748 “look back” above unexplained, and is contradicted by the fact that [VV]_v
 749 compounds are relatively rare in Japhug. This grammatical pathway may
 750 however have existed in other language families, though no examples are
 751 known to the author. Similar phenomena in other languages will be dis-
 752 cussed in section 6.

753 The following table shows the correspondences between Japhug ILC
 754 verbs and nominal forms:

Table 14: ILC verbs and compound nouns

compound noun	meaning	ILC verb	meaning
X		<i>a-kv-mtʂoʂ</i>	having a pointed head
<i>cʰvtsʰi</i>	alcohol drinking	<i>yw-cʰv-tsʰi</i>	drink alcohol
<i>cuw-pʰwt</i>	clearing the stones	<i>yw-cuw-pʰwt</i>	take out stones (out of the field)
<i>ylwtʂvt</i>	taking out the dung	<i>yw-ylwt-ʂvt</i>	take out dung (out of the stable)
<i>yndzʁβta</i>	fire (devastating)	<i>yw-yndzʁβ-ta</i>	clear (fields) with fire
<i>kʰwtsʰoʂ</i>	hunting (with dogs)	<i>yw-kʰw-tsʰoʂ</i>	turn the dog loose on
<i>peawtsuifsoʂ</i>	money earning	<i>yw-peawtsuif-soʂ</i>	earn money
<i>rjuifsoʂ</i>	earning of riches	<i>yw-rjuif-soʂ</i>	earn riches
<i>supʰwt</i>	tree felling	<i>yw-supʰwt</i>	cut wood (to make firewood)
<i>tʂʰvtsʰi</i>	tea drinking	<i>yw-tʂʰv-tsʰi</i>	have tea
<i>tʂvmtsʰi</i>	leading	<i>yw-tʂv-mtsʰi</i>	lead the way
X		<i>nv-jlvβ-sqa</i>	cook with steam (vt)
<i>kvʂtʰw</i>	headbutt	<i>nv-kv-tʰw</i>	hit with the head (vt)
<i>zgrwtʰw</i>	nudge (n)	<i>nw-zgrw-tʰw</i>	nudge (vt)
X		<i>nv-mpʰru-za</i>	do after after the other
<i>tvpʰuxtsu</i>	clod-breaking (vt)	<i>nv-pʰw-xtsu</i>	break clods of earth
X		<i>nv-qa-za</i>	start from the beginning (vt)
<i>qʰaru</i>	look back (n)	<i>nv-qʰa-ru</i>	look back
X		<i>nv-qʰv-ŋga</i>	to wear on the back
X		<i>nv-zuu-loʂ</i>	have nausea
<i>jlvlvγ</i>	yak herding	<i>nw-jlv-lvγ</i>	herd hybrid yaks
<i>jlvmtsʰi</i>	yak leading	<i>nw-jlv-mtsʰi</i>	lead hybrid yaks
X		<i>nw-mbrv-pw</i>	ride (vl)
<i>mbrvrjwγ</i>	horse race	<i>nw-mbrv-rjwγ</i>	gallop
X		<i>nw-ŋv-tʂo</i>	pay back one's debt
<i>rjuvŋom</i>		<i>nw-rjuv-ŋom</i>	envy people's wealth
X		<i>nw-ŋvm-kʰe</i>	skinny
X		<i>nw-ŋvm-sw</i>	plump
<i>paʂlvγ</i>	pig herding	<i>nw-paʂ-lvγ</i>	herd pigs
<i>pʰaʂvvl</i>	laying on the side	<i>nw-pʰaʂ-vvl</i>	lay on the side
?		<i>nw-qʰv-stu-stu</i>	back up
<i>rmvkro</i>	household splitting	<i>nw-rmv-kro</i>	split the household
<i>rmvmb</i>	moulting	<i>nw-rmv-mbe</i>	moult
<i>snvpaʂ</i>	harm (n)	<i>nw-snv-paʂ</i>	harm
<i>zruvru</i>	louse-picking	<i>nw-zruv-ru</i>	look for lice
<i>tʂvqvsti</i>	road-blocking	<i>nw-tʂv-qv-sti</i>	block the way
X		<i>sv-mbrw-ŋgw</i>	be detestable
X		<i>sv-zuu-loʂ</i>	be disgusting

755 The compound action noun from which ILC verbs are derived can always
756 occur in a light verb construction (like *qʰaru* above). We thus observe three
757 competing constructions, as in the following examples:

- 758 (28) (i) *cuw-pʰwt* *nw-βzu-t-a*
stone-clearing AOR-do-PST-1SG
759 I cleared stones (from the field).
760 (ii) *nw-yw-cuw-pʰwt-a*
AOR-DERIVATION-stone-take.out-1SG
761 I cleared stones (from the field).

762 (iii) *cu nu-p^hut-a*
 763 stone AOR-take.out-1SG

763 I cleared the stones (from the field). (elicitation, Chen Zhen)

764 Semantically, the three constructions are not entirely equivalent: light
 765 verb constructions (i) are used to insist on an action taking a long time, or
 766 occurring many times, and could be glossed in English as “I devoted myself
 767 to clearing the stones.” The incorporating and the analytic constructions
 768 are almost identical according to native speakers, though only (iii) can be
 769 used if the object is referential. In the pairs of examples 16 / 17 and 24
 770 / 25 above, we saw that the ILC verb appeared first in the text, followed
 771 by the analytic construction or the light verb construction a few sentences
 772 later: these examples suggest that ILC is favoured in the first mention of
 773 an event, though more such examples from spontaneous texts are needed.
 774 Unfortunately however, the rarity of these examples in natural texts make it
 775 difficult to study the pragmatic differences between the three constructions.

776 These can be elicited for all verbs in table 14 which have a corresponding
 777 compound noun.

778 Aside from occurring in light verb constructions with *βzu* “do” or *lx*
 779 “throw”, the noun-verb nominal compounds also appear in sentences such
 780 as the following:

781 (29) *yndzɣβta pu-tu*
 782 fire PST.IPF-be.there

782 There was a fire. (elicitation, Chen Zhen)

783 (30) *k^huts^hoβ rga*
 784 hunting.with.dogs N.PST:like

784 He likes hunting with dogs. (elicitation, Chen Zhen)

785 As table 14, in some cases no corresponding independent noun exists.
 786 There examples include:

- 787 • All ILC verbs derived from noun-stative verb collocations (such as the
 788 example “to have nausea”).
- 789 • Some ILC transitive verbs (such as *nx-q^hɣ-ŋga* “to wear on one’s back”)
- 790 • The stative *a-kɣ-mtɕoβ* “having a pointed head”, which is the only
 791 example of ILC whose derivational prefix is *not* denominal.

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

797 5.2. *Is there incorporation in Japhug?*

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

801 It constitutes a phenomenon quite distinct from prototypical incorpora-
802 tion, as exemplified by Nahuatl (Launey 1980: 165-166):

803 (31) *ni-c-chīhua* *cac-tli*
1SG.S/A-3O-make shoe-ABSOLUTE

804 (32) *ni-cac-chīhua*
1SG.S/A-shoe-make
805 I make shoes.

806 In Nahuatl, incorporating verbs such *ni-cac-chīhua* differ from the Japhug ILC
807 verbs in that no additional derivational affix appears alongside the nominal
808 and the verbal root.¹² Nahuatl has denominal verbs that are formed by
809 the addition of the suffix *-ti* to the nominal stem, for instance *pochtēca-*
810 “seller” > *pochtēca-ti* “to do business”, and one cannot convert a nominal
811 root into a verb without addition of that suffix: it is therefore impossible to
812 argue that verbs such as *ni-cac-chīhua* derive from a noun **cac-chīhua* that
813 was verbalized by zero-derivation. In Nahuatl, incorporation is a one-step
814 process, by which the noun is integrated into the verbal enlarged stem to
815 form a single word. In our notation, Nahuatl-type incorporation can be
816 represented as simply: N + V > [NV]_v.

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

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

825 The ILC [[NV]_n^(n>v)]_v could only be reinterpreted as [NV]_v (incorpo-
826 rational construction) in the case of zero-derivation, or if the derivational
827 prefixes disappeared due to phonetic changes; however, neither is the case
828 in Japhug.

¹²Note 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).

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

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

841 The first category includes most ILC verbs. In this type, the nominal
842 element is a plain underived noun, such as *cw* “stone” in *yw-cw-p^hut* “to
843 take out stones (out of the field)”. These verbs, as mentioned above, cannot
844 be analysed as incorporation.

845 The second category is exemplified by only one verb, *a-kr-mtɕoβ* “having
846 a pointed head”. Unlike other ILC verbs, it lacks a denominal prefix, as the
847 element *a-* is part of the original verb *amtɕoβ* “pointed”. Although this last
848 verb derives historically from the stative verb *mtɕoβ* “sharp” by addition of
849 *a-*, the prefix *a-* here is not a derivational element (it is unrelated to the
850 homophonous passive *a-* prefix) and it is not analysable synchronically. In
851 *a-kr-mtɕoβ*, the noun is synchronically incorporated *within* the verbal stem.
852 This example, unlike verbs of the first category, constitutes unambiguous
853 incorporation.

854 The third category contains two verbs *nw-nɣɣ-tɕo* “to pay one’s debt”
855 and *nw-rmɣ-kro* “to split the household”. In these two examples, the nominal
856 elements originate from deverbal nouns, respectively *tu-nɣa* “debt” and *tu-*
857 *rma* “household”, which themselves come from the verbs *nɣa* “to owe” and
858 *rma* “to stay at a place”. The *status constructus* stems *-nɣɣ-* and *-rmɣ-*
859 are formally ambiguous: they could originate either from the verb or from
860 the derived nouns (since the deverbal prefix *tu-* is lost during the *status*
861 *constructus* formation). Only the meaning allows us to determine that these
862 elements originate from nouns and not from verbs. ¹³

863 Like verbs of the first category, these two verbs cannot be considered
864 as instances of prototypical incorporation, but they do not constitute real
865 noun-verb compounds either, due to the formal ambiguity of the nominal
866 elements.

867 The fourth category includes the verb *yw-yndzɣβ-ta* “to clear (fields) with

¹³Note that verb-verb compounds also exist in Japhug: from *joβ* “to raise” and *βzur* “to move” one derives the noun *joββzur* “putting in order, tidying up” hence the verb *ɣɣjoββzur* “to tidy up”.

868 fire”. In this ILC verb, the nominal element *yndzɣβ* “fire” is a deverbal noun
 869 as in third category ILC verbs. However, it differs from these verbs in that
 870 *yndzɣβ* “fire” is a fossilized formation deriving from *ndzɣβ* “to burn” by the
 871 irregular prefix *ɣ-*. Since *yndzɣβ* “fire” is not a synchronically transparent
 872 deverbal noun from *ndzɣβ* “to burn”, and since a trace of the derivation is
 873 preserved within the compound, there is no ambiguity as to the nominal
 874 status of this element.

875 The fifth category is the aberrant verb *krɣtupa* “to speak” mentioned
 876 in section 3. This verb resembles *ɣw-yndzɣβ-ta* “to clear (fields) with fire”
 877 in that it includes a deverbal noun preserving its derivation prefix. The
 878 element *krɣtu-* is the *status constructus* of *kr-ti* “things that are said, nig-
 879 gling” which derives from *ti* “to say” by addition of the regular *kr-* participle
 880 prefix. This verb, unlike other ILC verbs, lacks any derivation prefix, and
 881 cannot be analysed as denominal derivation neither synchronically nor even
 882 diachronically. Therefore, just as *a-kr-mtɕoβ* “having a pointed head”, it can
 883 be analysed as incorporation.

884 The following table summarizes the previous discussion:

Table 15: Subtypes of ILC verbs

type	example	Incorporation	NV compound
1	<i>ɣw-cu-p^hut</i> “to take out stones (out of the field)”	N	Y
2	<i>a-kr-mtɕoβ</i> “having a pointed head”	Y	Y
3	<i>nu-nɣɣ-tso</i> “to pay one’s debt”	N	N
4	<i>ɣw-yndzɣβ-ta</i> “to clear (fields) with fire”	N	Y
5	<i>krɣtu-pa</i> “to speak”	Y	Y

885 In conclusion, there are really only two incorporating verbs in Japhug:
 886 *krɣtupa* “to speak” and *akrmtɕoβ* “having a pointed head”, but most ILC
 887 verbs (except those of category 3) constitute noun-verb verbal compounds,
 888 and are functionally similar to incorporating verbs.

889 6. Typological perspectives

890 In the previous section, we have shown that most Japhug ILC verbs do
 891 not constitute prototypical incorporation, but rather a denominal construc-
 892 tion whose syntactic functions resemble incorporation.

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

895 6.1. Incorporation-like construction in other languages

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

899 In Ancient Greek, we find a few denominal verbs which can be analyzed
 900 as a type of ILC (see [Benveniste 1966](#)):

- 901 (33) (i) οἰκο-δόμ-ος
house-build-NOM.SG.MASC
902 “house builder, architect”
903 (ii) οἰκο-δομ-έ-ω
house-build-DENOMINAL-1SG
904 “to build a house, erect a building”

905 Compound nouns of type (i) include a noun (here οἶκος “house”) and the
906 nominalized form of a verbal root -δομ-ός with accent retraction in compo-
907 sition (here from the -o- grade of the root *demh₂, the corresponding verb
908 form δέμω “to build” having -e- grade).

909 Denominal verbs of type (ii) are derived from (i) by addition of a de-
910 nominal suffix -έ-; this is the productive way of forming denominal verbs in
911 Greek (cf πόλεμ-ος “war” > πολέμ-έ-ω “to be at war”).

912 The Greek construction differs from Japhug ILC in three ways. First,
913 the nominal compounds in (i) are always agent nouns, never abstract nouns
914 as in Japhug. Second, the verb > noun derivation by ablaut (δέμω “to
915 build” > -δομ-ός) was not fully productive by the fifth century BC (when
916 οἰκοδόμος “house builder” and οἰκοδομέω “build a house” are first attested),
917 unlike derivation by *tur-* in Japhug. Third, the second element of the com-
918 pounds with -o- vocalism is always formally different from the stem of the
919 corresponding verb (with -e- vocalism), unlike Japhug where they are almost
920 always identical (except for *σηομ* “to envy” > *νωρῆνωρῆομ* “to envy people’s
921 wealth”). Thus, while the derivation formula for Japhug ILC is $[[NV]_n^{(n>v)}]_v$,
922 that of Greek οἰκοδομέω “build a house” is rather $[[N[V^{v>n}]_n]_n^{(n>v)}]_v$.

923 In German, we find the interesting case of the verb *staub-saug-en* “to
924 Hoover”.¹⁴ This verb is formed of two elements related to the noun *Staub*
925 “dust” and the verb *saug-en* “to suck”. Since it can be conjugated in all finite
926 forms, both of its constituting elements can appear independently, and it
927 constitutes a unique morphological and phonological word, it would appear
928 to be an example of incorporation according to our definition. This verb is
929 ambitransitive, and can occur with a patient in some cases:

- 930 (34) *ich staub-saug-e*
I dust-suck-1SG.PRESENT
931 I do the hoovering.
932 (35) *ich staub-saug-e den Boden*
I dust-suck-1SG.PRESENT ART.M.SG.ACC floor
933 I am hoovering the floor.

¹⁴I owe this example and the related discussion to Johanna Mattissen.

934 Note that a competing form with the nominal element occurring sepa-
935 rately also exists:

- 936 (36) *ich saug-e* *Staub*
 I suck-1SG.PRESENT dust
937 I do the Hoovering.

938 *Staub* in 36 is clearly not an object, as it cannot receive an article, and in
939 any case this second construction does not constitute incorporation. This
940 kind of discontinuous structure is not surprising in German, where many
941 prefixal elements can appear separated from the verb stem in finite forms
942 (eg. *Ich mache die Tür auf* “I open the door” from the verb *auf-machen*
943 “to open”).

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

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

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

959 In English, we find ambiguous verbal compounds that can be interpreted
960 as incorporation, due to the pervasive presence of zero-derivation (both from
961 noun to verb and from verb to noun). For instance, in non-standard vari-
962 eties of English, one finds sentences such as the following (taken from the
963 internet):¹⁵

- 964 (37) I duck hunted Lake Ophelia for years.

965 The verb “to duck-hunt” exemplified by this example apparently constitutes
966 non-saturating nominal incorporation. It must have originated from the
967 compound noun *duck-hunt* by zero-derivation, and thus would seem to be a
968 verbalized Noun-Noun compound. However, since the verb and the noun *hunt*
969 in English are homophonous, there is synchronically no evidence that the
970 root *hunt* in the verb *to duck-hunt* is nominal rather than verbal. Here again

¹⁵Scores 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.

971 in English we observe a third kind of incorporation-like construction, that
 972 came into being due to the pervasive noun - verb homophonous pairs. As
 973 in the case of the German backformation and unlike Japhug, the absence of
 974 formal derivational markers allwos the English construction to be reanalysed
 975 as incorporation in spite of being historically a denominal construction.

976 The development path described above is by no means restricted to En-
 977 glish. Creissels & Sambou (manuscript: 279) have proposed an interpre-
 978 tation of incorporation constructions in the Mandinka language along the
 979 same lines: “Verbal compounds [i.e. incorporating verbs], rather than being
 980 directly formed after corresponding syntactic constructions, originate from
 981 nominal compounds later converted to verbs”.¹⁶ It is likely that such a de-
 982 velopment is rather common in languages like English and Mandinka, in
 983 which it is possible to convert nouns into verbs without overt morphological
 984 marking.

985 Incorporation-like constructions include three types of attested deriva-
 986 tions exemplified by Japhug/Greek, German and English/Mandinka respec-
 987 tively:

988 (38) (i) $[\text{NV}]_n + \text{affix}^{(n>v)} > [[\text{NV}]_n^{(n>v)}]_v (> [\text{NV}]_v)$

989 Denominal derivation of a noun-verb nominal compound (Ja-
 990 phug, Greek). Notice that the last stage of the derivation,
 991 namely the reanalysis of the ILC as incorporation, is blocked
 992 due to the presence of overt denominal marking in these lan-
 993 guages. Greek differs from Japhug in that the compound noun
 994 from which the ILC is derived already contains an unambig-
 995 uous verb > noun derivation: $[[\text{N}[\text{V}^{v>n}]_n]_n^{(n>v)}]_v$; reanalysis as
 996 genuine incorporation is even more difficult.

997 (ii) $[[\text{NV}]_v^{(v>n)}]_n - \text{affix}^{(v>n)} > [\text{NV}]_v$

998 Backformation from a nominal compound including a nominal
 999 and a verbal root (German)

1000 (iii) $[\text{NN}]_n > [\text{NN}]_v > [\text{NV}]_v$

1001 reanalysis as $[\text{NV}]_v$ due to homophony between noun and verb
 1002 (English)

1003 These phenomena are not commonly analysed as incorporation, due to
 1004 the fact that the order of derivation is distinct from “classical” incorporating
 1005 languages such as Nahuatl. However, speakers are not usually conscious of
 1006 the derivational history of the constructions they use, and ambiguous forms

¹⁶ [les] composés verbaux, plutôt que d’être formés directement à partir des constructions syntaxiques correspondantes, proviennent de composés nominaux ultérieurement convertis en verbes”

1007 can be reanalysed; the synchronic head-complement structure of a compound
 1008 does not necessarily reflect the historical one.

1009 *6.2. Lavrung*

1010 Lavrung, a language closely related to Japhug (both belong to the Rgyal-
 1011 rongic subbranch of Sino-Tibetan, see Sun 2000), presents a similar system
 1012 of denominal derivation, and there are a few examples of ILC in the pub-
 1013 lished data on this language.

1014 *6.2.1. Denominal derivation in Lavrung*

1015 Denominal derivation in Lavrung, as in Japhug, is based on a series
 1016 of prefixes, but unlike Japhug, it also allows zero-derivation (Huang 2007:
 1017 145-6).¹⁷

Table 16: Denominal derivation in Lavrung

Base noun	Meaning	Verb	Meaning
<i>day</i> ⁵⁵	poison	<i>n-day</i> ⁵⁵	to be poisoned
<i>lvay</i> ⁵⁵	shoulder	<i>n-lvay</i> ⁵⁵	to bear on the shoulder
<i>svə</i> ⁵³	pus	<i>n-svə</i> ⁵³	to suppurate
<i>phray</i> ⁵⁵	sieve	<i>s-phray</i> ⁵⁵	to sieve
<i>krdzə</i> ⁵⁵	sprout	<i>ʋ < v > rdzə</i> ⁵⁵	to sprout
<i>xtsəm</i> ⁵³	mortar	<i>xtsəm</i> ⁵³	to husk with mortar and pestle
<i>zgle</i> ⁵⁵	bolt	<i>(nɛ-)zgle</i> ⁵⁵	to bolt (the door)
<i>χtɕo</i> ⁵³	leprosy	<i>(ka-)χtɕo</i> ⁵⁵	to get leprosy

1018 The Lavrung prefixes *n-*, *s-* and *f-/v-* clearly corresponds to Japhug *nu-*
 1019 / *nr-*¹⁸, *su-* / *sr-*¹⁹ and *γu-* / *γr-* respectively²⁰.

1020 The absence of derivational prefixes in the last three examples can be
 1021 interpreted in three ways.

- 1022 1. The derivation took place from verb to noun, not from noun to verb.
- 1023 2. There used to be denominal zero-derivation in proto-Rgyalrongic, the
 1024 common ancestor of Lavrung and Japhug, and this derivation was only
 1025 preserved in Lavrung.
- 1026 3. The Lavrung verbs lost their denominal prefix in these examples.

¹⁷The syllables between brackets are the aorist prefixes.

¹⁸We find in Japhug denominal verbs that are partially parallel to the Lavrung ones: *tr-ndry* “poison” > *z-nr-ndry* “to poison s.o.” and *tu-rpaɕ* “shoulder” > *nr-rpaɕ* “to bear on the shoulder”

¹⁹Example semantically parallel to Japhug *ɕuyra* “sieve” > *su-ɕuyra* “sieve”.

²⁰Possibly cognate to Japhug *tr-tɕuy* “tree sprout” > *γr-tɕuy* “to sprout”; Japhug *γr-* is the regular outcome of proto-Japhug **wɛ-*.

1027 The first hypothesis can be ruled out: the only forms of nominalization
 1028 reported in Huang (2007) involve the addition of suffixes; there are no ex-
 1029 amples of affixless nominalization in this language. The second hypothesis
 1030 is unlikely, given the complete absence of denominal zero-derivation in Ja-
 1031 phug. If this process had been productive, we would expect at least some
 1032 traces of it in Japhug. We will now examine the third hypothesis in more
 1033 detail.

1034 Japhug CV prefixes generally correspond to simple consonant prefixes in
 1035 Lavrung. Since these prefixes present a vowel contrast (*u* or *ʁ*) in Japhug
 1036 while this contrast is lost in Lavrung, it is clear that Lavrung is innovative
 1037 and underwent syncope.²¹

1038 The massive syncope affecting Lavrung prefixes resulted in a prolifer-
 1039 ation of exceedingly complex consonant clusters. The prefixes have lost
 1040 productivity (unlike Japhug, they cannot be applied to recent Chinese loan-
 1041 words) and often undergo metathesis with the initial clusters (as in *ʁ* < *v* > *rdzʁə*⁵⁵ “to
 1042 sprout” in the table above).

1043 However, some restrictions on the prefixes exist. In particular, con-
 1044 cerning the pair *xtsəm*⁵³ “mortar” and *xtsəm*⁵³ “to husk”, neither the clusters
 1045 **fxts-*, **xfts-*, **ɲxts-* nor **xnts-* exist in Lavrung, so that the derivational
 1046 prefixes *n-* and *v-*, even if originally present in the verb *xtsəm*⁵³ “to husk”
 1047 disappeared for purely phonetic reasons.²²

1048 Prefix attrition is a general feature of Lavrung: in this language, many
 1049 prefixes still productive in Japhug only exist as traces. For instance, there is
 1050 no prefix corresponding to the Japhug nominalization prefix *ku-* in Lavrung,
 1051 but traces are found in fossilized forms such as *ɣdzav* “fire”, cognate of
 1052 Japhug *ɣndzɣβ* “fire” (see the preceding section for the etymology of this
 1053 noun). Many Japhug prefixes, such as the second person *tu-* or the irrealis
 1054 *a-*, have no equivalent in Lavrung, but can be conjectured to have been lost
 1055 in this language.²³

1056 6.2.2. ILC in Lavrung

1057 The presence of incorporation or an incorporation-like construction in
 1058 Lavrung has never been specifically mentioned, but in Huang (2007) we find
 1059 two clear examples of such constructions.

1060 First, *mbra*³³ *ɾjju*⁵³ “to race (on horseback)” (Huang 2007: 312), a com-
 1061 pound of the native noun *bre*³³ “horse” with the verb *ɾjju*⁵³ “to run” (from
 1062 Tibetan *rgʻug* “to run”). The noun in *status constructus* (with *-e* > *-a*

²¹If instead one assumed that Japhug is innovative and underwent general vowel anaptyxis in prefixes, the origin of the vowel contrast would not be explainable.

²²Similar phenomena have been documented in the related language Horpa by Sun (2007).

²³The second person prefix *tu-* in Japhug is unlikely to be a recent innovation, as argued in Jacques (2012a).

1063 vowel alternation) appears between the verb root and denominal prefix *m-*
 1064 (allomorph of *n-*). The aorist form of this verb is:

1065 (39) *ne*³³-*m-bra*³³-*ɾjjuɣ*⁵⁵
 AOR-DERIVATION-horse-run

1066 The presence of the aorist prefix before the noun dispels any doubt that this
 1067 compound is one morphological word and not a noun-verb collocation.

1068 This example is identical in structure to Japhug *nw-mbrɣ-ɾjuɣ* “to gallop”
 1069 mentioned above, and one finds a one-one correspondence in structure:

<i>m-</i>	<i>bra</i> ³³ -	<i>ɾjjuɣ</i> ⁵³
<i>nw-</i>	<i>mbrɣ-</i>	<i>ɾjuɣ</i>
derivation	horse (status constructus)	run

1070
 1071 Although this example is no proof that the compound “race on horse-
 1072 back” can be reconstructed to proto-Rgyalrongic (both verbs could have
 1073 been constructed independently from the same elements), it proves that the
 1074 ILC existed in the proto-language.

1075 Second, *ɾjjə*³³*ɣam*⁵³ “to envy people’s wealth” is another example rele-
 1076 vant to our discussion (quoted from Huang 2007: 321). This verb originates
 1077 from *ɾjjə*³³ “property, goods, wealth” (a borrowing from Tibetan *rg’u* “for-
 1078 tune”) and the verb *ɾɣəm*⁵⁵ “to be greedy for, to lust for”. The aorist form
 1079 of this verb is:

1080 (40) *ne*⁵⁵-*ɾjjə*⁵⁵-*ɣam*⁵⁵
 AOR-wealth-be.greedy

1081 Here again, the noun appears between the aorist prefix and the verb root,
 1082 and the compound constitutes a single morphological word. This verb clearly
 1083 has the same structure as Japhug *nw-ɾju-ɾɣom* “to envy people’s wealth”,
 1084 except that unlike *mbrɔ*³³*ɾjjuɣ*⁵³ “to race (on horseback)” it lacks any deriva-
 1085 tional prefix, and we can analyse it as an incorporational construction. How-
 1086 ever, given the rarity of incorporation in Japhug, and the fact that deriva-
 1087 tional prefixes (the only distinguishing feature of incorporation and ILC)
 1088 tend to disappear in Lavrung, it is unlikely that this verb arose as a result
 1089 of direct noun-verb compounding in Lavrung. A more likely hypothesis is
 1090 that this incorporating verb is an ancient ILC verb whose prefix disappeared
 1091 for phonotactic reasons; neither groups of type **nrC-* nor of the type **rnC-*
 1092 (where C stands for any consonant) are attested in Lavrung. It is therefore
 1093 legitimate to suppose a form **n-ɾjə-ɣam* in pre-Lavrung similar to Japhug
 1094 *nw-ɾju-ɾɣom*, which simplified to the attested *ɾjjə*⁵⁵-*ɣam*⁵⁵ due to the phono-
 1095 logical constraint on having consonant clusters containing both /n/ and /r/
 1096 before another consonant.

1097 The loss of any overt marking of denominal derivation in *ɾjjə*⁵⁵-*ɣam*⁵⁵,
 1098 combined with the absence of any action noun compound such as Japhug
 1099 *ɾjuɾɣom* “envying people’s wealth” as such compounds do not exist in Lavrung,

1100 makes it possible to analyze this verb as incorporation synchronically. Thus,
1101 it exemplifies a grammaticalization pathway similar to that observed in En-
1102 glish and German:

1103 (41) INCORPORATION-LIKE CONSTRUCTION > INCORPORATION

1104 A more exhaustive study of incorporating verbs in Lavrung will not be
1105 possible without complementary fieldwork on this language, but this section
1106 has shown that both ILC and incorporation are attested in spite of the
1107 limited published corpus,²⁴ and that incorporation is likely to originate from
1108 ILC in this language.

1109 7. Conclusion

1110 The data presented in the previous sections from Japhug and other lan-
1111 guages illustrate a new path of development:

1112 (42) NOUN-VERB ACTION NOUN COMPOUND + DENOMINAL DERIVATION
1113 > INCORPORATION-LIKE CONSTRUCTION
1114 > INCORPORATION

1115 The Japhug ILC is an intermediate stage on this development path; it can
1116 become incorporation only when the denominal derivation marker either 1)
1117 is absent due to zero-derivation (as in English and Mandinka) 2) disappears
1118 due to phonological attrition (as in Lavrung) 3) becomes restricted to noun-
1119 verb compounds and ceases to be a denominal marker synchronically.

1120 The noun-verb compounds themselves can have the following origin:

1121 (43) NOUN + NOMINALIZED VERB > NOUN-VERB NOMINAL COMPOUND

1122 Alternatively, they may, as in the case of English, be intrinsically am-
1123 biguous noun-noun compounds forms that can be reinterpreted as noun-verb
1124 compounds due to noun-verb homophony.

1125 The only previously known origin of incorporation, noun coalescence,
1126 can explain most of the incorporating structures observed in the world's
1127 languages. Even in languages such as Iroquoian, where incorporated nouns
1128 appear between the inflectional prefixes and the root (Mithun 2000), one
1129 could argue that incorporated nouns were originally free nouns, cliticized to

²⁴Lai Yunfan, a student working on the Wobzi dialect of Lavrung (on which see Lai 2012) found another ILC verb: $\nu < N > p\check{a}-f\check{c}\check{a}$ “to chatter” (aorist $n\check{a}-\nu < N > p\check{a}-f\check{c}\check{a}$), compound of $f\check{c}\check{a}$ (aorist $nu-f\check{c}\check{a}$) “to tell” and $\chi p\check{a}$ “story” with the denominal marker $\nu-$ (allomorph of $n-$) appearing infix in the nominal element. He also reports the absence of a corresponding noun-verb action noun compound $*\chi p\check{a}-f\check{c}\check{a}$. Further fieldwork will certainly reveal other such verbs.

1130 the verb, that progressively coalesced with it. In the first stage of develop-
1131 ment, they would always appear as the outermost morpheme of the verbal
1132 word (as in Limbu), but progressively get closer to the verbal root by way
1133 of externalization of inflection (Haspelmath 1993).

1134 This article however shows that incorporation does not necessarily origi-
1135 nate from noun-verb coalescence, but could be a special development of
1136 denominal derivation in at least some languages.

1137 In order to avoid the cumbersome expression “Incorporation-like con-
1138 struction”, we suggest the use of the term “indirect incorporation” in future
1139 studies to refer to the phenomena observed in Japhug, English and German
1140 studied in this article.

1141 Genuine incorporation, such as what is observed in Nahuatl or in the
1142 Japhug verb *akymtɕox* “having a pointed head”, can be called “direct incor-
1143 poration” to avoid confusion.

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