

4 Incorporation

DONNA B. GERDTS

1 Incorporation

Incorporation is the compounding of a word (typically a verb or preposition) with another element (typically a noun, pronoun, or adverb). The compound serves the combined syntactic function of both elements. This chapter focuses on noun incorporation, on which there exists a substantial literature. Much less is known about pronoun incorporation, due largely to the difficulty of distinguishing incorporation from agreement or cliticization. (See Halpern, CLITICS.) Other types of incorporation are rare. (See Muravyova, CHUKCHEE (PALEO-SIBERIAN) for various examples.)

Noun incorporation is the compounding of a noun stem and a verb (or adjective) to yield a complex form that serves as the predicate of a clause (Kroeber 1909, 1911; Sapir 1911; Mithun 1984). Compare sentences (1a), (2a), and (3a), where the object nominals are free-standing noun phrases, with sentences (1b), (2b), and (3b), where they are incorporated into the verb stem.

- (1) Nahuatl (Sapir 1911)
- | | | | |
|-----|---------------------------|-----|--------------------|
| (a) | ni-c-qua in nacatl. | (b) | ni-naca-qua. |
| | <i>I-it-eat the flesh</i> | | <i>I-flesh-eat</i> |
| | 'I eat the flesh.' | | 'I eat flesh.' |
- (2) Onondaga (H. Woodbury 1975)
- | | |
|-----|---|
| (a) | waʔhahninú? ne? oyéʔkwa?. |
| | <i>tns-he:it-buy-asp. nm. prtc. it-tobacco-n.s.g.</i> |
| | 'He bought the tobacco.' |
| (b) | waʔhayεʔkwahní:nu?. |
| | <i>tns-he:it-tobacco-buy-asp.</i> |
| | 'He bought (a kind of) tobacco.' |

- (3) Chukchee (Comrie 1992)
- | | |
|----------------------------------|------------------------------|
| (a) <i>kupre-n nantəvatgʔan.</i> | (b) <i>kopra-ntəvatgʔat.</i> |
| <i>net-ABS set</i> | <i>net-set</i> |
| ‘They set the net.’ | ‘They set the net.’ |

The incorporated noun in each of the (b) sentences is clearly part of the same word as the verb stem. In (1b) and (2b) the noun appears between the agreement prefixes and the verb. In (3b) the noun undergoes word-level vowel harmony (*kupre* > *kopra*). The above examples also demonstrate that a noun stem, not a word, is incorporated. In Nahuatl the absolute suffix *-tl* appears on free-standing nouns (1a) but not incorporated nouns (1b). In Onondaga the nominal prefix *o-* and the final glottal stop appear only on free-standing nouns (2a). Furthermore, all of the above examples show that the incorporated noun does not take a determiner or case marker.

Pairs of examples like those above raise the question: when does a language use a free-standing noun and when does it use an incorporated noun? The noun + verb compound is used to express habitual or general activities or states. The noun is frequently generic and nonspecific in reference, although some languages, such as Southern Tiwa, allow specific nouns to be incorporated:

- (4) Southern Tiwa (Allen et al. 1984)
- ti-seuan-mū-ban.*
1sg.:A-man-see-past
 ‘I saw the man.’

These nouns are nevertheless devoid of discourse focus. Thus, we see that incorporated nouns in most languages have a different discourse role from free-standing nouns. See Hopkins 1988, Merlan 1976, and Mithun 1984 for discussion of the discourse properties of noun incorporation.

Languages exhibiting noun incorporation place many restrictions on the nouns that can be, or must be, incorporated. H. Woodbury (1975) shows that only nouns that can be stripped down to a simple root can incorporate in Onondaga. Cross-linguistically we find that nouns that arise through nominalization or compounding do not incorporate. The constraints on object noun incorporation in Southern Tiwa (Allen et al. 1984) serve to illustrate the relevance of the semantic class of the nominal. Proper nouns do not incorporate in Southern Tiwa. Mardirussian (1975) posits this as a universal characteristic of noun incorporation. In contrast, inanimate nouns in Southern Tiwa must incorporate. Also, plural nonhuman animate nouns must incorporate. Singular nonhuman animate nouns and plural human nouns must incorporate if they are not modified. Singular human nouns obligatorily incorporate if there is a third-person subject. The above restrictions show that inanimate nouns incorporate more readily than animate nouns, and that nonhuman animate nouns incorporate more readily than human nouns. This hierarchy reflects the

general cross-linguistic tendency for nouns that are higher in animacy to be more central to the discourse. The more salient a noun is, the less likely it is to be incorporated.

In some instances, the meaning of these noun + verb compounds may drift from a simple compositional one; that is, they are idiomatic:

- (5) Mohawk (Hopkins 1988)
tehanuhwarawó:ye
du-MA-brain-stir-stat
'He's crazy.'

Such considerations lead to the conclusion that the noun + verb compound in a clause with incorporation is not a simple paraphrase of the same verb with a free-standing noun phrase.

We see, then, that it is not always possible to have two corresponding clauses, with and without noun incorporation. This is due to special discourse meaning assigned to incorporated nouns, restrictions on what cannot, can, or must incorporate, and the development of idiomatic meanings. Even when there are two corresponding clauses which seem to be propositionally equivalent, we see that they are not usually in free variation. In most languages, incorporation serves the function of making the nominal less salient in the discourse. In some languages, such as Southern Tiwa, it also seems to serve the function of reducing the number of free-standing nouns in a clause.

2 Syntactic conditions on incorporation

Kroeger (1909) and others have observed that the most common type of incorporation is where the incorporated noun serves as the notional object of the clause. The examples b in (1–3) above show this kind of incorporation. In addition, an incorporated noun can also serve as the notional subject of the clause in most languages:

- (6) Onondaga (H. Woodbury 1975)
kahahe?tahíhwi.
it-bean(s)-spill-caus.-asp.
'Beans are spilled.'
- (7) Southern Tiwa (Allen et al. 1984)
I-k'uru-k'euwe-m.
B-dipper-old-pres.
'The dipper is old.'

- (8) Koryak (Bogoras 1917)
 imtili-ntatk-m.
strap-break.off-pres.
 'The strap breaks off.'

In all of the above examples, the predicates hosting the incorporated noun are intransitive predicates that can be characterized as inactive: that is, process verbs, stative verbs, or adjectives. Active verbs generally do not allow incorporation of their subjects. (However, see Axelrod 1990 and Polinsky 1990.)

Sapir (1911) notes that some languages also allow the incorporation of obliques, such as instruments (9) or passive agents (10):

- (9) Huahtla Nahuatl (Merlan 1976)
 ya' ki-kočillo-tete'ki panci.
3SG 3SG:it-knife-cut bread
 'He cut the bread with it (the knife).'
- (10) Southern Tiwa (Allen et al. 1984)
 Khwienide Ø-kan-ēdeure-ban.
dog A-horse-kick:pass-past
 'The dog was kicked by the horse.'

In summary, incorporated nouns are typically related to objects or to subjects of inactive predicates, and rarely to locatives, instruments, or passive agents. They do not generally correspond to subjects of active intransitives or transitives, to indirect objects, or to benefactives. In this respect, noun incorporation appears to be like other cases of compounding. (See Fabb, COMPOUNDING.)

Since incorporation is prototypically limited to objects, and since most clauses contain only one object, examples with more than one incorporated noun are rare. One place where multiple incorporation is found is in morphological causatives:

- (11) Alyutor (Koptjevskaja-Tamm and Muravyova 1993)
 gəmmə t-akka-n-nalgə-n-kuww-at-avə-tk-ən.
I:ABS 1SG.S-son-CAUS-skin-CAUS-dry-SUFF-SUFF-PRES-1SG.S
 'I am making a son dry a skin/skins.'
- (12) Southern Tiwa (Allen et al. 1984)
 Ti-seuan-p'akhu-kumwia-'am-ban wisi te-khaba-'i.
1sg.:A-man-bread-sell-cause-past two 1sg.:C-bake-subord.
 'I made the man sell the two breads I baked.'

Here we see that two objects are incorporated: the object of the lexical verb and the object of the causative (the causee).

3 The effect of incorporation on the clause

Incorporation, as defined above, is not a simple case of compounding. In standard cases of compounding, new words are produced, are assigned a category label in the lexicon, and, like simple words, are used in the syntax accordingly. In noun incorporation, however, the stem that results from the compounding of a noun stem and a verb serves a dual role in the clause: it is both the verb and one of the arguments of the verb.

This fact is seen most clearly in languages where clauses with and without incorporation have different valence. In such languages, when the incorporated noun corresponds to the object, the clause is syntactically intransitive. In Nahuatl, for example, the incorporated object does not determine object agreement (cf. (1b) above). In Chukchee, an ergative language, the subject of a clause with an incorporated object appears in the absolutive case, not the ergative:

(13) Chukchee (Polinsky 1990)

(a) ətləg-e qoraŋə təm-nen.
father-ERG reindeer (ABS) kill-AOR.3SG:3SG
 'The father killed a/the reindeer.'

(b) ətləg-ən qaa-nmə-gʔe.
father-ABS reindeer (INC)-kill-AOR.3SG
 'The father killed a reindeer.'

This led Mardirussian (1975) to suppose that detransitivization is a universal property of object incorporation.

However, we do not see this effect in all languages. For example, in Southern Tiwa the incorporated noun determines object agreement (for person, number, and class):

(14) Southern Tiwa (Allen et al. 1984)

(a) Ti-shut-pe-ban.	(b) Te-shut-pe-ban.
<i>1sg.:A-shirt-make-past</i>	<i>1sg.:C-shirt-make-past</i>
'I made the/a shirt.'	'I made (the) shirts.'

Also, in some ergative languages – for example, Rembarnga (McKay 1975), the subject of a clause with an incorporated object appears in the ergative case, the case used for subjects of transitive clauses:

(15) Rembarnga (McKay 1975)

... piri-ʔut-maŋin?-mijn munəŋa-yi?
3sg.obj+3pl.trans.sub+Rel-road-build-past.punct. white.man-ERG
 '... where the white men built the road'

Therefore, we find that in some languages the incorporation of the object nominal seems to have no effect on the clause valence.

Subject incorporation behaves similarly. In some languages – for example, Onondaga (6) and Southern Tiwa (7) – the incorporated subject determines agreement on the verb. In other languages, however, the incorporated noun does not determine agreement. Instead, there is no agreement, as in Koryak (8), or there is indefinite agreement:

- (16) Huastla Nahuatl (Merlan 1976)
 tla-a-*weci*-∅-∅.
indef.-water-fall-pres.-SG
 ‘It is raining.’

Facts like the above lead to the conclusion that it is necessary to distinguish at least two types of noun incorporation (Hopkins 1988, Mithun 1984, Rosen 1989b, H. Woodbury 1975). These will be referred to here as “compounding incorporation” and “classifying incorporation.” In compounding incorporation the valence of the clause is decreased, but in classifying incorporation the valence of the clause is not affected. Many languages with incorporation consistently use only one type. However, as Hopkins (1988) and Mithun (1984) have shown, some languages have both types.

3.1 Modification and doubling

Classifying incorporation can be viewed as simply a presentational device: that is, a means for expressing a nominal within the predicate rather than as a free-standing noun, thereby shifting the burden of lexicalization from the noun phrase onto the predicate. In languages with classifying incorporation, it is also possible to have free-standing material in the object position when a noun is incorporated. For example, determiners (17), numerals (18), and other modifiers (19, 20) can appear in the object position of the clause. (A, B are class designations.)

- (17) Southern Tiwa (Allen et al. 1984)
 Yedi bi-musa-tuwi-ban.
those 1sg.:B-cat-buy-past
 ‘I bought those cats.’
- (18) Wisi bi-musa-tuwi-ban.
two 1sg.:B-cat-buy-past
 ‘I bought two cats.’
- (19) Wim’a-tin ti-musa-tuwi-ban.
one-only 1sg.:A-cat-buy-past
 ‘I bought only one cat.’

- (20) Mohawk (Mithun 1984)
 Kanekwarúnyu wa'-k-akya'tawi'tsher-ú:ni.
it.dotted.DIST PAST-1sg.-dress-make
 'I made a polka-dotted dress.' ('I dress-made a polka-dotted one.')

Such data show that the incorporated nominal should not be regarded as a noun phrase, but rather as the *head* of a noun phrase.¹

Furthermore, a full noun phrase can appear in the object position when there is an incorporated noun:

- (21) Gunwinggu (Oates 1964)
 ... bene-red-nan redgereneni.
they.two-camp-saw camp.new
 '... they saw a camp which was freshly made.' ('... they saw a new camp.')
- (22) ... bene-dulg-nan mangaralalymayn.
they.two-tree-saw cashew.nut
 '... they saw a cashew tree.'
- (23) Mohawk (Mithun 1984)
 Tohka niyohserá:ke tsi nahe' sha'té:ku ní:kú:ti rabahbót
several so.it.year.numbers so it.goes eight of.them bullhead
 wahu-tsy-ahni:nu ki rake'níha.
he-fish-bought this my.father
 'Several years ago, my father bought eight bullheads.'

In this case, the free-standing object must be semantically related to the incorporated noun. It is either a double of the incorporated noun, as in (21), or a more specific noun phrase referring to the same element as the incorporated noun, which is often of a generic nature, as in (22) and (23).

Examples like these have led Di Sciullo and Williams (1987) to claim that it is unreasonable to propose that noun incorporation arises through a transformation that takes the head of the noun phrase and moves it into the predicate (Baker 1988a, Postal 1979, Mardirussian 1975). While it may be possible to account for examples like (21) by allowing the noun to leave a copy of itself *in situ*, such a proposal does not accommodate data like (22) and (23), where the external position is occupied by a more specific coreferential noun phrase. (See Spencer 1991: ch. 7, for an evaluation of this debate.)

3.2 Other nominals in clauses with incorporation

In many languages, nominals other than the patient can appear as the grammatical object – for example, benefactives, locatives, and possessors. We find that this is also the case in many languages with incorporation. In the following

examples, the patient is incorporated, while the benefactive (24, 25) or locative (26) serves as the grammatical object:

- (24) Classical Nahuatl (J. R. Andrews 1975)
 ni-quin-xōchi-tēmo-lia.
1sg.-3pl.-flower-seek-for
 'I seek flowers for them.'
- (25) Chukchee (Polinsky 1990)
 tumg-e ekək kayηə-nmə-nen.
friend-ERG son (ABS) bear-kill-AOR.3SG:3SG
 'The friend killed the bear for his son.'
- (26) Chukchee (Polinskaja and Nédjalkov 1987)
 ətləg-e kawkaw mətqə-rkele-nen
father-ERG bread (ABS) butter-spread on-AOR.3SG:3SG
 'The father spread the butter on the bread.'

That a semantically oblique nominal is the grammatical object is evidenced by the fact that it determines object agreement (24) or appears in the absolutive case (25, 26).

More commonly, the incorporated noun corresponds to a possessed nominal: that is, the head of a possessive phrase. When a possessed body part is incorporated, the possessor assumes the function of object in the clause, and hence determines object agreement.

- (27) Tupinambá (Rodrigues, n.d.)
 (a) s-oβá a-yos-éy. (b) a-s-oβá-éy.
his-face I-it-wash I-him-face-wash
 'I washed his face.' 'I face-washed him.'
- (28) Blackfoot (Frantz 1971)
 Nít-ssik-o'kakín-aw óma nínaawa.
I-break-back-him that man
 'I broke the man's back.'
- (29) Gunwinggu (Oates 1964)
 namegbe biru-dur-aynbom.
that (man) he/him-heart-speared
 'He speared that man in the heart.'

In many languages, constructions like the above are limited to cases of part-whole possession. However, in some languages, alienably possessed nouns can also be incorporated, and, as above, the possessor assumes the object function.

- (30) Southern Tiwa (Allen et al. 1984)
Ka-kuchi-thã-ban.
1sg.:2sg. | A-pig-find-past
'I found your pig.'
- (31) Classical Nahuatl (J. R. Andrews 1975)
ni-mitz-cac-tohtoma.
1sg.-2sg.-shoe-undo
'I take off your shoes.'

Instances of possessors assuming the role of the possessive noun phrase are not limited to object function. As noted above, most languages allow the incorporation not only of a noun corresponding to the object of a transitive verb, but also of a noun corresponding to the sole argument of an inactive intransitive predicate. If this argument is a possessed body part, the body part is incorporated, and the possessor takes on the subject function in the clause, and hence determines subject agreement.

- (32) Blackfoot (Frantz 1971)
Nit-á-istts-o'kakíni.
I-DUR-pain-back
'I have a backache.'

As in the case of possessed objects, some languages also allow alienably possessed subjects to be incorporated:

- (33) Southern Tiwa (Allen et al. 1984)
In-shut-k'euwe-m.
1sg. | A-shirt-old-pres.
'My shirt is old.'
- (34) Alyutor (Koptjevskaja-Tamm and Muravyova 1993)
gəmmə tə-sejnik-av-Ø-ək.
I:ABS 1SG.S-tea.pot-have.a.hole-AOR-1SG.S
'I have a hole in my tea-pot.' (Approx. 'I am tea-pot-broken.')

4 Incorporation compared to other similar phenomena

The properties of noun incorporation can be summarized as follows:

- (i) An element that can otherwise exist as a noun stem and an element that can otherwise exist as a verb stem are compounded into a single word.

- (ii) This word serves as the predicate of the clause, and the incorporated noun stem corresponds to one of the arguments of the verb.
- (iii) Prototypically, the incorporated noun stem corresponds to the object of a transitive predicate or the subject of an inactive intransitive predicate. In many languages, an incorporated noun may also correspond to an oblique nominal, such as a locative, instrument, or passive agent.
- (iv) Two types of incorporation exist across languages (and sometimes within a single language): compounding incorporation, which decreases the valence of the clause, and classifying incorporation, which does not decrease the valence of the clause.
- (v) Languages with classifying incorporation allow the modification or doubling of the incorporated element.
- (vi) In both types of incorporation, when the incorporated noun corresponds to the head of a possessive phrase, the possessor assumes a grammatical function – subject or object – in the clause.

If we look beyond the strict definition of incorporation in (i), we find that many languages exhibit phenomena that share many of the properties of noun incorporation. Several of these phenomena are discussed in the following sections.

4.1 Noun stripping

One phenomenon that closely resembles noun incorporation is noun stripping (Miner 1986, 1989), also known as composition by juxtaposition (Mithun 1984). As seen in (35b), a “stripped” noun does not have the usual case marking associated with its grammatical function.

- (35) Tongan (Churchward 1953)
- (a) Na'e inu 'a e kavá 'e Sione.
PAST drink ABS CONN kava ERG John
 'John drank the kava.'
 - (b) Na'e inu kava 'a Sione.
PAST drink kava ABS John
 'John kava-drank.'

Noun stripping differs from incorporation, however.² Incorporation is morphological: the two elements involved are part of the same word in surface structure. In noun stripping, the two elements remain as separate words according to phonological criteria such as stress placement. However, surface adjacency of the noun and verb is required. For example, in Kusaiean, adverbs can appear between a verb and an object (36a) but not between a verb and a stripped noun (36b).

- (36) Kusaiean (K. Lee 1975)
- (a) Sah el twem upac mitmit sac.
Sah he sharpen diligently knife the
 'Sah is sharpening the knife diligently.'
- (b) Sah el twetwe mitmit upac.
Sah he sharpen knife diligently
 'Sah is diligently knife-sharpening.'

The motivation for noun stripping may be simple: languages prefer to represent generic and nonspecific nouns with as little morphological marking as possible. We can observe, however, that noun stripping does more than simply delete the case marking or determiners of the noun phrase; the valence of clauses with noun stripping is also decreased. For example, the subject in (35b) is in the absolutive case, indicating that it is the subject of an intransitive clause. In this respect, noun stripping is like compounding incorporation. As is the case in compounding incorporation, stripped nouns may not be modified:

- (37) Kusaiean (ibid.)
 *Nga twetwe mitmit sahfiht sac.
I sharpen knife dull the
 'I am knife-sharpening the dull Ø.'

Miner (1986, 1989) points out other similarities between incorporation and noun stripping. Like incorporation, noun stripping is almost always limited to objects and to subjects of inactive verbs. Prototypical stripped nouns are indeterminate and inanimate, though animate nouns may be stripped in some languages. The stripping of possessed nouns is rare.³

Thus, noun stripping is very much like incorporation, particularly compounding incorporation. The sole difference is that in true incorporation the noun and verb form a single word. Noun stripping can thus be seen as a precursor of noun incorporation. If the language tolerates complex morphology, over time noun stripping can develop into incorporation.

4.2 Lexical suffixes

Salish languages, Wakashan languages, and other northwestern Native American languages are well known for their lexical suffixes. These suffixes have substantival meaning, but bear little, if any, resemblance to free-standing nouns with the same or similar meaning. Compare some lexical suffixes in Halkomelem Salish with free-standing nouns of similar meaning: *-cəs* versus *céləš* 'hand', *-šən* versus *sčénʔə* 'foot', and *-ʔéχən* versus *t'élu* 'arm, wing'.⁴ Most Salish languages have around one hundred lexical suffixes denoting body

parts ('hand', 'foot', 'heart', 'nose'), environmental concepts ('earth', 'fire', 'water', 'wind', 'tree', 'rock', 'berry'), cultural items ('canoe', 'net', 'house', 'clothing', 'language'), and human terms ('people', 'spouse', 'offspring'). Lexical suffixes are widely used in complex nominals:

- (38) Halkomelem (Musqueam dialect, Wayne Suttles, p.c.)
- | | |
|----------------------------|----------------------------------|
| qáʔ-liʔc | 'water box' (water + container) |
| táx ^w ac-əʔp | 'yew tree' (bow + plant) |
| xiləx-áwəʔ | 'battleship' (make war + vessel) |
| t'íwəyəʔ-éwtx ^w | 'church' (worship + building) |

They also appear on verbs, and in this case they have the same syntactic and semantic properties as incorporated nouns. First, the lexical suffixes correspond to the same range of relations typical of noun incorporation: objects (39a), subjects of inactive predicates (39b), and obliques such as locatives (39c) and instruments (39d), but not subjects of active verbs, goals, or benefactives.

- (39) Halkomelem (Musqueam dialect, *ibid.*)
- | | |
|------------------------------|---|
| (a) θéʔ ^w -əl'yən | 'pull a net' (pull + net) |
| məʔ-é:l-zeʔ | 'to return wealth' (return + hide) |
| səwq-iw̄s | 'search for a lost person' (seek + body) |
| ləc-əl-qən | 'shear wool' (cut + hair) |
| (b) yəq ^w -əlʔcəp | 'fire burns' (burn + firewood) |
| (c) qət-á-θən | 'walk along (a shore etc.)' (go along + mouth) |
| pá:l'-cəp | 'blow on a fire' (blow + fire) |
| (d) k ^w c-áləs | 'see with one's own eyes' (see + eye) |
| qə-xín-t | 'accompany him' (accompany + foot + transitive) |

Second, we see the same sort of transference of argument structure in cases of lexical suffixation that we saw with incorporation. When the lexical suffix is notionally equivalent to a possessed noun, the possessor assumes a clausal argument position:

- (40) ni lic'-áq^w-t-əs lə sleni? k^wθə swiwʔləs.
aux. cut-head-tr.-3erg det. woman det. boy
 'The woman cut the boy's hair.'
- (41) ni cən k^wəs-cəs.
aux. 1sub. burn-hand
 'I burned my hand.'

In general, Salish lexical suffixes parallel compounding incorporation. First, we can see that when the lexical suffix refers to the object, the clause is intransitive, since the subject determines absolutive rather than ergative agreement:

- (42) ni yəq^w-əlʔ-cəp(*-əs).
 aux. burn-cn.-firewood(*-3erg)
 'He made a fire.'

Furthermore, external modification is usually not possible:

- (43) ni lək^w-əl-wíl-təs (*k^wθə) líx^w) k^wθə John.
 aux. break-cn.-rib-tr.-3erg. det. three det. John
 'He broke (*three of) John's ribs.'

Finally, the lexical suffix usually cannot be doubled with a free-standing noun of the same or more specific meaning:

- (44) q^ws-iyən (*tə-n̄ swəltən)
 go into water-net det.-your net
 'set your net'
- (45) ni tší-ʔq^w-təs (*k^wθə sʰáləməs-s) lə stálʔəs-s.
 aux. comb-head-tr.-3erg. det. white hair-3pos. det. spouse-3pos.
 'He combed his wife's (*white) hair.'

The above data show that lexical suffixation parallels compounding incorporation. We see that lexical suffixes, just like incorporated nouns, have the syntactic characteristics of a nominal in an argument or adjunct position in the clause. And while we have no direct evidence that the lexical suffix should be assigned the categorial status of a noun, we note that it does block a free-standing noun of the same or more specific meaning from occurring in the clause.

In addition, a small subset of lexical suffixes in each Salish language can serve as numeral classifiers. For example, there are thirteen classifiers in Halkomelem, including *-as* 'round or spherical objects', *-aq^w* 'head' (e.g. of cabbage, animals), *-eʔtχ^w* 'building', and *-x^wəʔ* 'canoe, conveyance'. This type of lexical suffixation parallels classifying incorporation. In the case of numerals, the classifier is usually doubled with an elaborating nominal:

- (46) líx^w-əqən lísék
 three-containers sack
 'three sacks'
- (47) teʔcs-élə k^wθə nə meʔmənə.
 eight-people det. 1pos. children
 'I have eight children.'

Also, in rare examples, classificatory suffixes attached to a lexical verb can double with a free-standing nominal:

- (48) Halkomelem (Musqueam dialect, Wayne Suttles, p.c.)
 ʔs-əlɛʔc-t tə nəwəkʷaʔ
nail-container-tr. det. coffin
 ‘nail up the coffin’
- (49) wə-náy kʷs ʒəx-wil-t ct tə lepát ʔi tə láʔθən.
only det. wash-vessel-tr. 1pl.sub. det. pot and det. dishes
 ‘We only wash pots and plates.’

Data like the above are quite suggestive of noun incorporation. However, Sapir (1911: 251–2) says that the Salish lexical suffixes should not be considered to be noun incorporation. He claims that “it is clear that verbal affixes that refer to nouns . . . are not instances of noun incorporation if they are etymologically unrelated to the independent nouns or noun stems with which they seem logically connected.” This point of view has been taken by Mithun (1984) and others (see e.g. Anderson 1985b, Hagège 1978) as rationale for excluding lexical suffixes from discussions of noun incorporation.⁵ However, it has been claimed that lexical suffixes originated as nominals that commonly occurred as the second element in compounds (Carlson 1989). They were phonologically reduced, and eventually became bound forms. Once these shortened forms took on a generic meaning, new, longer, free-standing forms with more precise meaning were invented. From this viewpoint, lexical suffixes can be regarded as incorporated nouns that have lost their status as free-standing nominals.

4.3 Denominal verbs

In some languages we see a phenomenon that is the reverse of lexical suffixation. A noun stem that can be an independent word is compounded with a verbal affix that does not otherwise appear as a free-standing verb:

- (50) Greenlandic (Sadock 1980)
 Qimmeqarpoq.
dog-have-INDIC-3sg.
 ‘He has a dog.’

Sadock (1980) estimates that there are roughly two hundred verbal affixes that can be attached to nouns in Greenlandic. These include *-qar-* ‘to have’, *-nngor-* ‘to become’, and *-lior-* ‘make for’. Although such examples have been referred to as noun incorporation, a more appropriate label would be “denominal verbs.” (See Mithun 1986 and Sadock 1986.)

Denominal verb constructions show interesting properties that at first glance may seem to parallel noun incorporation. First, like classifying incorporation, they allow external modification:

- (51) Greenlandic (Sadock 1980)
Kusanartunik sapangarsivoq.
beautiful-NOM-PL-INST bead-get-INDIC-3sg.
'He bought beautiful beads.'

Second, the verbalized nominal can correspond to the head of a possessed noun phrase.

- (52) Greenlandic (ibid.)
(a) Tuttup neqaanik nerivunga.
reindeer-REL meat-3sg.-INST eat-INDIC-1sg.
'I ate reindeer meat.'
(b) Tuttup neqitorpunga.
reindeer-REL meat-eat-INDIC-1sg.
'I ate reindeer meat.'

Note, however, that unlike the cases of noun incorporation discussed above, the possessor does not take on the object role in the clause when the head appears predicate-internally. Rather, it remains in its usual case, the relative/ergative. The Greenlandic data also differ from noun incorporation with respect to the complexity of the nominals involved. In some examples, the noun to which the verbal suffix is attached is not a bare noun stem, but rather bears case and other inflectional suffixes:

- (53) Greenlandic (ibid.)
Palasip illuanukarpoq
priest-REL house-3sg.-ALL-go-INDIC-3sg.
'He went to the priest's house.'

Finally, the Greenlandic denominal verb construction differs from noun incorporation with respect to the grammatical relation of the participating noun. In noun incorporation, it is usually objects, subjects of inactive verbs, or obliques that incorporate. The Greenlandic data seem to involve objects (50) or obliques (53), but not subjects.⁶ Sadock (1980) also gives examples involving predicative nominals:

- (54) Palasinngorpoq.
priest-become-INDIC-3sg.
'He became a priest.'

The above examples show that what has been called noun incorporation in Greenlandic differs from core cases of noun incorporation in other languages. However, these data provide strong evidence that the predicate-internal nominal must be the head of the noun phrase in the syntax. Thus the derivational process of compounding the noun and the verb, whatever it is called, must occur in a postsyntactic level of structure (Sadock 1980).⁷

5 Conclusion

True noun incorporation, where a noun stem compounds with a verb, is a typologically rare phenomenon, though it appears in languages in many areas of the world. Noun incorporation is exhibited in some of the language families of the Americas (Algonquian, Athapaskan, Caddoan, Iroquoian, Muskogean, Siouan, Takelma, Tanoan, Tsimshian, Tupinambá, Uto-Aztecán, Yana), in Paleo-Siberian languages (Alyutor, Chukchee, Koryak), in Australian languages (Gunwinggu, Rembarnga), in a Munda language (Sora), in Oceanic languages, and in Turkish. (See Mardirussian 1975, Mithun 1984, and de Reuse 1992.)

In addition, several languages have constructions that might be analyzed as either noun stripping or noun incorporation: for example, Mayan, Zuni, and several Austronesian languages (Miner 1986). Noun stripping, where a noun (usually the object) is stripped of its case marking and positioned next to the verb, can be viewed as a precursor of incorporation or as the equivalent of incorporation in analytic languages. Lexical suffixes, which probably originated through incorporation, can be found in northwestern Native American languages, including the Salishan and Wakashan languages. What has been called "noun incorporation" in Greenlandic (Sadock 1980) is best regarded as a denominal verb (Mithun 1986).

However these various constructions are labeled, they all present an interesting challenge to theories of morphosyntax. In each case, a noun (or nominal affix) combines with a verb (or verbal affix) to form a complex predicate. In the case of noun incorporation, lexical suffixation, and denominal verbs, the complex predicate is a single word by morphological and phonological criteria. Thus, two syntactic constituents combine to form a single word that satisfies both the predicate function and some argument function (usually object) of the clause. This mixture of properties has led Mithun (1984) to call noun incorporation "the most nearly syntactic of all morphological processes."

NOTES

- 1 Alternatively, the incorporated noun could be coreferential with a phonologically null head.
- 2 Miner (1986) argues that noun stripping and noun incorporation are distinct processes by showing that both exist in Zuni.
- 3 Japanese and Korean exhibit a phenomenon sometimes referred to as noun incorporation, but probably more accurately classified as noun stripping, where nouns preceding the verbs meaning 'do' are stripped of their case marking. Either nominative or accusative case can be stripped, depending on the valence of the clause. Modifiers, including possessors, which appear in the genitive case if the head noun is marked with case, cannot appear in the genitive case if

- the noun is stripped. Rather, the modifier is marked nominative or accusative, depending on the valence of the clause.
- 4 Unless otherwise specified, the data in this section are from the Island dialect of Halkomelem Salish (Gerds, field-notes).
 - 5 Hagege's discussion hinges on the contrast between lexical suffixation and another construction that he calls noun incorporation. However, this latter construction is more appropriately classified as a denominal verb construction (see section 4.3).
 - 6 As Sadock (1980) argues, the denominal verb construction is based on an intransitive construction. (See (52a) for example.) The notional object normally appears in the instrumental case. This accounts for the instrumental marking of modifiers, as in (51).
 - 7 Alternatively, a theory of grammar such as Autolexical Syntax (Sadock 1985), in which morphological structure and syntactic structure exist independently but are cross-referenced with each other, could capture these facts.