

# Nominal incorporation and word formation via phrasal movement: evidence from Ojibwe

**Abstract** The present paper is a contribution to on-going discussion on the nature of nominal incorporation (NI), denominal verbs, and the composition of words in polysynthetic languages. In the context of Ojibwe, an Algonquian language, the article argues that, before they undergo morphological merger with the verb at PF, INs raise to their hosts in the syntax via phrasal movement. I show that the Ojibwe INs are complex elements that surface with derivational and inflectional affixes, and sometimes even with modifiers, falsifying the hypothesis according to which only bare nominal roots can be incorporated. The paper focuses on a special kind of NI where the incorporator is a bound affix argued to be a light verb *v* with both lexical and functional properties. Unlike simple verbalizers that turn a noun into a verb, it never conflates with the nominal with which it merges, in sharp contrast with denominal verb formation in English or French.

**Keywords** Light verbs • Nominal incorporation • Ojibwe • Algonquian • Denominal verbs • Distributed Morphology

## 1 Introduction

The present paper is a study of nominal incorporation (IN) and word formation in Ojibwe, an Algonquian language spoken in parts of Canada and of the United States. I argue that: (i) the language has a process of light verb NI; (ii) that it is productive and compositional; (iii) that it is syntactic rather than lexical; (iv) that the incorporee is a phrase rather than a head and that it raises in the syntax via XP movement (with subsequent morphological merger at PF).

These claims have theoretical relevance in that they shed light on the relationship between morphology and syntax. They show, in particular, that bound morphological and unitary phonological material in (some) polysynthetic languages can be syntactically autonomous and that such languages have words with an underlying syntactic clausal architecture whose derivations involve not only head but also phrasal movement (see also Déchaine 1999, Branigan et al. 2005 for Algonquian and Julien 2002 for other languages).

The paper also contributes empirically and theoretically to the study of parametric variation in NI phenomena. Whereas INs in familiar NI languages are either categorized root/heads (as in Iroquoian languages, e.g., Mohawk, Baker 1988, 1996) or simple uncategorized roots (as in Salish lexical suffix constructions, e.g., Halkomelem, Wiltschko 2009), less-studied NI languages such as Ojibwe show that INs can be phrases. INs in that language can carry most of the morphological material available in the non-incorporated/independent noun, i.e. not only nominalizers but also person, number, gender, possessive markers and even modifiers.

Although largely ignored in the literature since NI became a subject worthy of attention in theoretical linguistics (Sadock 1980; Mithun 1984; Baker 1988, 1996), this type of NI is in fact found in Michelson's (1915, 1917) papers where he describes similar facts for Fox (Mesquakie), another Algonquian language.<sup>1</sup> In this language, INs surprisingly lose none of the

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<sup>1</sup> Fox NI nevertheless differs from Ojibwe NI in that Fox INs are even richer morphologically: they can, for example, include obviation marking. In Ojibwe, this does not appear to be possible, as we shall see in Section 4. In this respect, I should point out at the outset that, although Ojibwe INs are not completely equivalent to full independent (i.e. non-incorporating) nominals, this does not undermine my claim/observation that they are phrasal.

morphology that they otherwise carry when used independently outside the verbal complex and often appear at the left edge rather than in the middle of the stem, prompting Michelson to use the term “loose incorporation” when referring to Fox NI. It is not clear, however, that the term is useful, since Algonquian NI is definitely like “classical incorporation” in the sense that a noun is bound morphologically while part of the prosodic word constituted by the stem.<sup>2</sup>

Variation in NI phenomena is not restricted to the nominal: depending on the language, the incorporator also varies. It is either a categorized root/head (e.g., a lexical verb *V*, Mohawk, Baker 1988, 1996), an uncategorized root  $\sqrt{\text{ }}$  (Halkomelem Salish lexical suffixes constructions, Wiltschko 2009) or a light verb *v* (a bound affix, Inuktitut, Johns 2007; Hopi, Hill 2003, Haugen 2008; Seri, Marlett 2008; Halkomelem Salish, Gerdts and Hukari 2008), and, as I will argue in this paper, Ojibwe.<sup>3</sup>

While Ojibwe actually allows NI into lexical verbs and roots, this paper focuses exclusively on light verb NI (see Lochbihler and Mathieu 2007 for the other types). (1) is an illustration of the phenomenon: a verbal suffix *-ke* is bound to a nominal that contains not only a root/head, but also a nominalizer *-gan*.<sup>4,5</sup>

- (1) bkwezhganke (Philomene Chegahno, 2008-05-05)  
 bakwezhi-gan-ke  
 bread-NOMZ-VAI  
 ‘He/she is making bread.’

(1) is often referred to as a denominal verb construction in the traditional literature. Unlike more familiar denominal verbs of the English or French kind, however, denominal verb formation in Ojibwe is very productive and fully compositional: the meaning of the derived verb is entirely predictable.<sup>6</sup> In English/French, on the other hand, idiosyncrasy arises because the noun

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In section 4, I will propose that obviation is a functional head located high in the DP. The higher tier is never incorporated in Ojibwe, but is included in Fox.

<sup>2</sup> The verbal/nominal stem is everything in the verbal/nominal complex except inflection, preverbs/prenouns and pronominal clitics. Verbal/nominal complex = stem + inflection + preverbs/prenouns + pronominal clitics.

<sup>3</sup> This type of NI where the host is a bound affix is often treated differently from “classical NI” (Sapir 1911; Mithun 1984; Gerdts 1998), but it is not clear why this should be so. The condition often put forward for qualification as real NI is that it should be possible for the noun and the verb to be used independently. Most INs in “classical NI” are, however, not the exact equivalent of independent nouns and often cannot be used independently (they must be pruned of much morphology or in some cases can simply never appear as independent nouns).

<sup>4</sup> Despite the fact that NI is very productive in the language, NI in Ojibwe is rarely discussed in the Algonquian literature. Although there are admittedly a few notable exceptions: Wolfart (1971), Mellow (1989, 1990), and Hirose (2001) for Plains Cree, Mithun (1984) for Blackfoot, Melnar (1996), Dahlstrom (1987, 2000) for Fox, and Rhodes (1976, 2003) for Ojibwe, and although these studies are fairly comprehensive in their descriptive coverage, they unfortunately do not provide a theoretical framework in which to classify Ojibwe NI. They also often deal exclusively with NI of the type that involves lexical verbs (*V*’s rather than *v*’s) as incorporators to the exclusion of the type illustrated in (1). The latter is a construction that is poorly understood in the language and the overall aim of the present paper is to fill that gap. The research that led to the present paper owes a lot to chapter 10 of Richard Rhodes’s (1976) thesis where a small set of finals is described as taking incorporated nouns. In particular, the discussion around *-ke* translated as “get” inspired the focus of the present study.

<sup>5</sup> List of abbreviations for Ojibwe: VAI = Animate Intransitive Verb, VII = Inanimate Intransitive Verb, VTA = Transitive Animate Verb, VTI = Transitive Inanimate Verb, TR = transitive marker, AN = animate, SG = singular, PL = plural, POSS = possessive, NOMZ = nominalizer, OBV = obviative, *i* = epenthetic vowel.

<sup>6</sup> Incidentally, the productivity of NI in Ojibwe indicates that Baker’s (1996: 18) suggestion that Algonquian languages may at best tolerate NI sporadically or not at all is mistaken. NI in Ojibwe is “robust” in the sense

root/head and the verbalizing suffix, which has no semantic content apart from its verbalizing function, undergo conflation, a process understood as a lexical operation (or internal word formation as in the Distributed Morphology framework, Marantz 2001, to appear). In this case, the verbalizer acquires lexical content from the root/head with which it merges, resulting in the creation of only one  $X^0$  (Baker 2003:168; Hale and Keyser 2002).<sup>7</sup>

In contrast, I will argue that predicative suffixes such as *-ke* in Ojibwe never acquire full lexical content from the noun. They are not like the English *-ize* as in *terrorize* or French *-er* as in *murer* “to wall in something”: they form instead a separate  $X^0$  node from that of the IN and have lexical meaning of their own, albeit multiple and variable.

The variable semantic contribution of *-ke* comes out clearly in examples from (2) to (7). It can mean not only “make”, in its literal (2) or more abstract sense (3), but also “catch/look for/hunt” (4), “gather/pick” (5), “work with” (6), “tell” (7)a, “suckle” (7)b, and even “practice religion” (7)c or “play” (7)d. These examples are also a good representation of how productive this construction can be in the language.

- (2) a. wiigwaamke (Donald Keeshig, 2007-04-20)  
       wiigiwaam-**ke**  
       house-VAI  
       ‘He/she is making a house.’
- b. Eric gii-nboobike (Ernestine Proulx, 2007-04-19)  
       Eric gii-naboob-i-**ke**  
       Eric PAST-soup-*i*-VAI  
       ‘Eric was making soup.’
- c. ziinzbaakwadike (Donald Keeshig, 2007-04-20)  
       ziinziibaakwad-i-**ke**  
       sugar-*i*-VAI  
       ‘He/she is making sugar.’
- d. miiknaake (Philomene Chegahno, 2008-05-05)  
       miikan-**ke**  
       road-VAI  
       ‘He/she is making a road.’
- e. aniibiishaabooke (Juanita Pheasant, 2008-05-07)  
       aniibiishaaboo-**ke**  
       tea-VAI  
       ‘He/she makes tea.’
- (3) a. nbaagenike (Anishnaabemowin language booklet)  
       nibaa-gan-i-**ke**  
       bed-NOMZ-*i*-VAI  
       ‘He/she is making the bed.’

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described by Baker, since it fulfills all four properties put forward by him for the notion of “robust” NI: (i) it is reasonably productive; (ii) the noun root is fully integrated with the verb morphologically; (iii) the noun is referentially active in the discourse (as we shall see in section 2 for light verb NI); (iv) both the noun root and the verb root can, in general, be used independently. Lexical NI in Ojibwe satisfies all four constraints, but light verb NI only the first three. But note the caveat “in general” and see footnote 3.

<sup>7</sup> For example, the verb *to man* means nothing like “to become a man”. Rather, it means “to endow something with a suitable crew or operators” (Baker 2003: 100). Similarly, *to crystallize* and *to fossilize* are not completely semantically transparent (Baker 2003: 166).

- b. ashkodeke (Weshki-ayaad et al. 2003).  
ashkode-**ke**  
fire-VAI  
'He/she is making a fire.'
- c. zhoonyake (Valentine 2001: 998)  
zhooniya-**ke**  
money-VAI  
'He/she is making money.'
- (4) a. memengwaanike (Berdina Johnston, 2008-05-06)  
memengwaan-*i*-**ke**  
butterfly-*i*-VAI  
'He/she is catching/looking for butterflies.'
- b. giigoonke (Juanita Pheasant, 2008-05-07)  
giigoon-**ke**  
fish-VAI  
'He/she is looking for fish.'
- c. amike (Berdina Johnston, 2008-05-06)  
amik-**ke**  
beaver-VAI  
'He/she is looking for beavers.'
- d. moozke (Corbiere et al. 1999: 117)  
mooz-**ke**  
moose-VAI  
'He/she is hunting moose.'
- (5) a. mashkiigiminike (Weshki-ayaad et al. 2003)  
mashkiigimin-*i*-**ke**  
cranberries-*i*-VAI  
'He/she is gathering cranberries.'
- b. mshiimnike (Corbiere et al. 1999: 124)  
mishiimin-*i*-**ke**  
apple-*i*-VAI  
'He/she is picking apples.'
- c. wiigwaasike (Lippert and Gambill 2003)  
wiigwaas-*i*-**ke**  
birchbark-*i*-VAI  
'He/she is gathering birchbark.'
- (6) a. semaanke (Valentine 2001: 419)  
asemaa-*n*-**ke**  
tobacco-NOMZ-VAI  
'He/she is working with tobacco.'
- b. daabaanike (Juanita Pheasant, 2008-05-07)  
odaabaa-*n-i*-**ke**  
car-NOMZ-*i*-VAI  
'He/she is working on a car.'

- c. gaawayike (Philomene Chegahno, 2008-05-06)  
gaaway-i-**ke**  
quill-*i*-VAI  
He/she is doing quill work.'
- (7) a. aasooke (Corbiere et al. 1999: 134)  
aasoo-**ke**  
story-VAI  
'He/she is telling a story/a legend.'
- b. todoshke (Johnston 1978: 89)  
todosh-**ke**  
nipple-VAI  
'He/she is suckling.'
- c. Manitouke (Johnston 1978: 41, 25)  
Manitou-**ke**  
Manitou-VAI  
'He/she is practicing religion.'  
'He/she is seeking a patron of the incorporeal order, a patron to guide him/her.'
- d. bkwaakdoke (Valentine 2001: 418)  
bikwaakod-**ke**  
ball-VAI  
'He/she is playing ball.'

The use of *-ke* is so productive in the language that it occurs with many borrowed words adding evidence for the idea that denominal verb formation in Ojibwe is active and does not stand for fossilized expressions. Valentine (2001: 419) mentions *toastke* ‘make toast’, *homeworkke* ‘to do homework’ and *picnicke* ‘to have a picnic’ while Corbiere and colleagues (1999: 120) mention *cakeke* ‘make a cake’ and *pieke* ‘make a pie’.<sup>8</sup>

I concede, however, that for many researchers in and of itself productivity is not necessarily a strong argument for a syntactic approach. Some derivational morphemes are cross-linguistically very productive; yet, on many accounts, they merge with their roots in the lexicon rather than in the syntax.<sup>9</sup> As pointed out by Reviewer #3 an argument from compositionality would be a stronger argument for the idea that word formation is syntactic in Ojibwe because idioms, fossilized forms or even denominal verbs of the English or French kind, are not compositional (see footnote 7). On the other hand, contextual determination of meaning/compositionality is a property of syntactic derivation (cf. Distributed Morphology framework and other (neo)-constructionist theories like that of Borer 2005). It turns out that the merging of the nominal and the predicative suffix in Ojibwe gives rise to a fully compositional

<sup>8</sup> It is worth mentioning that it is a characteristic of denominal verbs in North-American languages that they can involve the use of borrowed nominals: Gerdtz and Marlett (2008) mention Yaqui, Halkomelem, White Mountain Apache, Seri and Nuuchahnulth. Bilingual complex predicates of this sort are also typically attested cross-linguistically when languages are in contact, e.g., Turkish, Japanese, Greek, Punjabi, to name just a few (Gardner-Chloros and Edwards 2007 and reference therein). Ojibwe has obviously been in contact with English for many years and it is thus not surprising to see bilingual complex predicates used in that language as well (although they tend to be increasingly shunned by speakers in the community).

<sup>9</sup> Having said that, I agree with Piggott and Newell's (2006: 48) claim that Algonquian derivational morphology is as regular as inflectional morphology, providing compelling evidence for one of the central tenets of Distributed Morphology (Halle and Marantz 1993; Marantz 1997).

interpretation, prompting a syntactic view of the facts. For example, there is a clear relation between “nipple” and “suckling”, on the one hand, and between “Manitou” and “religion”, on the other. It is also noteworthy that (6)b can, not only be interpreted as “working on a car”, but also as “making a car”, (7)b not only as “suckling” but also as “making nipples” (in a context of a baby-bottle factory with the meaning “manufacture nipples” or in the context of a plastic surgeon working on breast reconstruction) while (7)d can be interpreted not only as an activity verb (“play”), but also, literally, as a creation verb (“make”).

To conclude Section 1: whereas lexical derivation often produces narrow/specified meanings and is not necessarily very productive, Ojibwe denominal verb formation exhibits all the characteristics associated with syntactic derivation. It is thus very different from English or French denominal verb formation, since the latter yields a meaning that is narrow and specialized (see footnote 7). For this reason and in view of the other special properties that Ojibwe denominal verbs have (possibility of modifier stranding, introduction of discourse referents, etc.), I will not refer to Ojibwe denominal verbs as “denominal verbs” in the rest of this paper, but will use the term NI instead. Ojibwe “denominal verbs” are not simple verbs, but verbs with an incorporated object. When/if I occasionally refer to Ojibwe NI as denominal verb formation or use the term “denominal verb”, it must be understood simply as a descriptive/neutral term.

The paper is organized as follows. Section 2 shows that NI in Ojibwe is syntactic rather than lexical. Section 3 argues that Ojibwe incorporators are light verbs, i.e., elements with both lexical and functional properties. Section 4 provides direct evidence for the idea that Ojibwe INs are complex elements consisting of more than a simple root. In that section I show that Ojibwe INs undergo phrasal rather than head movement. Section 5 concludes the paper.

## 2. Ojibwe nominal incorporation is syntactic

The present section aims to give further arguments in favor of a syntactic view of “denominal verbs” in Ojibwe and to show that these constructions are cases of NI. First, I introduce data showing that, as in NI constructions, the IN in Ojibwe “denominal verbs” can set up reference for a subsequent anaphor. Second, I show that Ojibwe “denominal verbs”, as in NI, may involve the stranding of quantifiers and numerals, indicating that the derivation of such complex verbal predicates is syntactic.

### 2.1 Referential activity

As (8) and (9) illustrate, it is possible in Ojibwe to refer back to a noun that has been merged with a suffix such as *-ke*. In (8) the word *nboob* “soup” surfaces as an IN, introduces a discourse referent and is then taken up anaphorically by the subsequent piece of discourse. In (9) the nominal *memengwaan* “butterfly” is also incorporated and fully referential. The referential property of the nouns in (8) and (9) is exactly the same as the one exhibited by INs in better-studied languages with NI such as Mohawk (Baker 1988, 1996) and Inuktitut/Greenlandic (Sadock 1980, 1986, 1999; Van Geenhoven 1998, Johns 2007).

- |     |  |   |  |
|-----|--|---|--|
| (8) | gii-nboobike.<br>gii-nboob-i-ke.<br>PAST-soup-i-VAI<br>'He/she was making soup <sub>i</sub> .' | Apiiji<br>Apiiji<br>very<br>'It <sub>i</sub> tasted very good.' | gii-mino-waagame (Ella Waukey, 2007-04-20)<br>gii-mino-waagame<br>PAST-good-taste.[liquid].VII |
|-----|--|---|--|

- (9)           gii-memengwaanske.   Apiiji gii-gwanaajiwag  
               gii-memengwaan-s-ke. Apiiji gii-gwanaajiwag (Berdina Johnston, 2008-05-06)  
               PAST-butterfly-s-VAI very   PAST-beautiful-be-3pl  
               ‘He/she was catching butterflies<sub>i</sub>.’ ‘They<sub>i</sub> were very beautiful.’

The fact that the nominal is referentially active in examples such as (8) and (9) sets the Ojibwe type of “denominal verb” construction apart from denominal verb constructions of the English or French type. This is because the latter do not involve INs that can be anaphorically picked up in subsequent discourse. This is exemplified in (10) for English and in (11) for French and is well-documented in Postal (1969), Sproat (1985, 1988), Sproat and Ward (1987) and Ross (2007) for English.

- (10) a.       \*I was hammer<sub>i</sub>-ing really hard. It<sub>i</sub> was blue.  
        b.       \*John butter<sub>i</sub>-ed his toast. It<sub>i</sub> was rancid.  
        c.       \*I tape<sub>i</sub>-d a movie last night. It<sub>i</sub> was broken.  
        d.       \*John terror<sub>i</sub>-ized his neighbours. You felt it<sub>i</sub> in the air.
- (11) a.       \*Il       a       mur<sub>i</sub>-é son       trésor.       Il<sub>i</sub> était épais.  
               he       has       walled his       treasure.       it was thick  
               \*He wall<sub>i</sub>-ed in his treasure. It<sub>i</sub> was thick.  
        b.       \*J’ai   magasin<sub>i</sub>-é   toute   l’après-midi.   Il<sub>i</sub>   était ouvert.  
               I-have shopped       all       the-afternoon   It       was open  
               \*I shop<sub>i</sub>-ped all afternoon. It was open.’

Reviewer #1 questions the significance of these results. He/she argues that, since a verb of creation is involved in cases such as (8), it follows automatically that an entity exists, that it becomes salient and that it is therefore not difficult pragmatically to refer to it with a pronoun. That saliency is sufficient to establish an anaphoric relation between two elements comes out clearly, Reviewer #1 argues, in the following situation, and I quote: “without a word said, I can try my soup and then say, ‘it’s too hot!’”. The soup is so salient that it is not difficult to identify with a pronoun. On the other hand, Reviewer #1 claims, since verbs like *to hammer* refer to an activity and thus do not imply the presence of a hammer (the verb is claimed not to mean “hit with a hammer”, but rather “hit with a hammering motion”), it is not possible to refer back to “hammer” in the denominal verb.

The problem with this view is that light verb NI in Ojibwe is used to describe activities rather than events (by events, I mean accomplishments). This conforms to the use of NI in other languages (Mithun 1984). All the examples introduced in section 1 are about activities. Although the referents associated with the nouns in (8) and (9) may be in the process of becoming into being, no soup (cf.(8)) need actually be completed and no butterfly (cf. (9)) need be caught in order for these entities to be referred to. When an accomplishment is denoted, transitive verbs with non-incorporated/independent nouns are used instead.<sup>10</sup> For example, as shown in (12), a

<sup>10</sup> This shows that, with regard to the description of an activity versus an event, Ojibwe has an opposition between bound forms whose meaning is broad and free forms whose meaning is more precise, mimicking the optionality of NI in languages that have verbs that may or may not incorporate a theme. The Ojibwe dichotomy is not an artifact of that language: the same opposition exists in other languages with light verb NI, e.g., Inuktitut (Johns 2007) and Hopi (Haugen 2008).

transitive verb *ozhitoon* “make” is used lieu of *-ke* (cf. (8)). As expected, the noun *nboob* “soup” introduces a discourse referent. The referential property of the IN in (8) is entirely parallel to the referential property of a free noun despite the fact that it involves an activity rather than an event.

- (12)        *nboob gii-oozhitoon. Apiji gii-gowagmene.* (Philomene Chegahno, 2007-04-20)  
              soup    PAST-make    very    PAST-delicious  
              ‘He/she made soup<sub>i</sub>.’ ‘It<sub>i</sub> was very delicious.’

In sum, the idea put forward by Reviewer #1 according to which a discourse referent surfaces in Ojibwe NI because we are dealing with creation verbs whose accomplishment is realized cannot be right. We can show independently that possession-denoting light verbs such as *-i* introduce fully referential nominals. These verbs are stative verbs and cannot be said to involve accomplishments. It is not difficult to refer to the INs in (13) in subsequent discourse (the nominal need not, in fact, be particularly salient in order for anaphoric reference to apply).<sup>11</sup>

- (13) *nahaangshiimi.                    giinoo-zi                    (Ella Waukey, 2009-06-15)*  
       *nahaangshiim-i.                    giinoo-zi*  
       *son.in.law-VAI                    tall-VAI*  
       ‘He/she has a son-in-law<sub>i</sub>. He<sub>i</sub> is tall.’

While Reviewer #1 speculates that many of the examples of INs other than (8) and (9) would not support a referential pronoun, e.g., “ball” in (7)d, because no event is realized, his/her prediction is not borne out. Speakers have no problem referring back to the nominal introduced in the NI construction in subsequent discourse, as illustrated by (14).

- (14) *bkwaakdoke.                    miskwaa                    (Berdina Johnston, 2009-06-15)*  
       *bikwaakod-ke                    misko-waa*  
       *ball-VAI                    red.VII*  
       ‘He/she is playing ball<sub>i</sub>.’ ‘It<sub>i</sub> is red.’

Next, Reviewer #1 provides English examples that are supposed to show that nouns in N-V compounds can easily be referred to if the verb is a creation verb: (i) “I went butterfly-catching last night, but they all escaped”; (ii) “I went apple-picking, but they were all rotten”; (iii) “I went fishing, but they weren’t biting”; (iv) “I went to cork the wine, but it crumbled in my hand”. He/she contrasts these examples with “baby-sit” which, because it denotes an activity, cannot be involved in anaphoric reference. First, it is not clear that (iv) involves a creation verb (in what sense is a cork created?). Second, (iii) does not involve any salient fish (what the sentence implies is that there were simply no fish around, incidentally showing that saliency is not necessary for anaphoric pick-up). Third, (i) and (ii) are misleading and marginal at best. They are misleading because they involve composition rather than derivation and anaphoric pick-up is achieved via accommodation, a pragmatic device, which appears to be made easier in these particular cases because of the use of “but”. They are marginal in that English words are normally anaphoric islands. Mithun (1984: 871), in particular, in her discussion of reference in

<sup>11</sup> Like *-ke*, the possessive predicate *-i* alternates with a transitive verb that is used for more specific uses and whose object is an independent noun (see Valentine 2001).



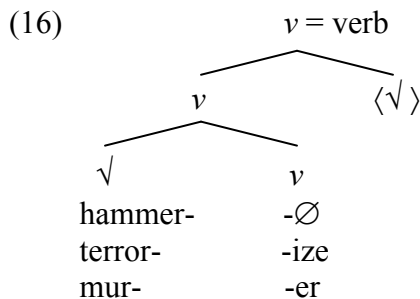
the context of NI, argues that “the utterances below [her (108) and (109)] are interpretable but “mildly unsettling”:

- (15) a. I went berry-picking, but they weren’t ripe.  
 b. I went baby-sitting last night. Boy, was she ugly!

As Mithun (1984) argues in her discussion on reference in relation to NI, there appears to be a difference between anaphora achieved pragmatically versus grammatically. In the first case, there may be a slight pause/hesitation while in the second case the picking-up of the referent is automatic/natural. Ojibwe speakers refer to the noun in light verb NI without any difficulty, which indicates the anaphoric relation is linguistic rather than meta-linguistic. Note that (15)a is on a par with (15)b when it comes to the possibility of reference, yet “baby-sit” is not a creation verb, indicating that the contrast made by Reviewer #1 between creation and activity verbs in relation to saliency is not correct or at least not relevant to the cases under review.

Finally, it seems to me that, although verbs such as “to hammer” need not involve the use of a hammer and may simply refer to an activity, the use of a hammer is not ruled out. This means that accommodation should be possible. Reviewer #1 ignores this possibility in his/her discussion, but it *is* a fact that a hammer can be part of a hammering activity.

The general idea that I am proposing is quite simple: anaphora is generally possible with categorized roots, but impossible with uncategorized roots. This means that it is possible to refer to “baby” in “baby-sit” via accommodation because “baby” is a noun while it is difficult, if not impossible, to refer to “hammer” in “to hammer” because “hammer” is a root. Accommodation is thus not completely unconstrained and is dependent on the syntactic status of the nominal to which it applies. More generally, the hypothesis is that whereas denominal verbs of the English or French kind are formed (uniquely) by conflation (of uncategorized roots into pure verbalizers), Ojibwe “denominal verbs” are formed via incorporation (of nominals into light verbs). Structurally, the nominal in conflation cases does not remain a separate entity from the verb and never introduces a maximal projection as represented in (16). The nominal forms with the verbalizer an indivisible unit, acquiring in the process lexical content from the root. In Baker’s (2003: 168) view, “Conflation is incorporation prior to lexical insertion, resulting in recategorization. The derived structure has only one  $X^0$  node”: it is a predicate and therefore does not carry a referential index.<sup>12</sup>



<sup>12</sup> In order, however, to remain consistent with the model I am adopting in this paper (that of Distributed Morphology), I will simply assume that  $v$  and  $\sqrt{\phantom{x}}$  in (16) are merged in the syntax, but via internal word formation (Marantz 2001, to appear), which is the equivalent of lexical word formation. The verbalizer and the root belong to the same phase and are spelled out together (explaining why  $v$  and  $\sqrt{\phantom{x}}$  are subject to phonological rules such as fusion when merging together). I also follow Harley (2004) in viewing the merging of  $v$  and  $\sqrt{\phantom{x}}$  as head movement at PF.

The cases in (10)a-c are thus straightforward. More problematic, at least at first, are the cases in (10)c,d (and (11)b) where, according to recent syntactic accounts of the lexicon (Marantz 2001 (to appear), Marvin 2002, Arad 2003 following Kiparsky's 1982 original distinction), it is not a root that merges with the verbalizer but a head *n* (i.e., a noun) that has been extracted from an *nP*. We know independently that it is possible for *n* heads in incorporating structures to introduce discourse referents (see Baker 1988, 1996 for Mohawk and Baker 2003 more generally for the idea that nouns come equipped with a referential index while roots do not). If the “nominal” in (10)d,e (and (11)b) is an *n* then it comes as a complete surprise why it is not capable of setting reference for subsequent anaphors.

A solution to this problem comes from Harley and Haugen's (2007) recent snippet where it is argued that Kiparsky's (1982) original distinction—and by extension that of Marantz (2001)—between the two types of denominal verbs (the first created from a root, the other from an *n*) is not warranted and that all English denominal verbs are formed from roots.<sup>13</sup> In Harley and Haugen's (2007) view, the distinction between denominal verbs formed from roots and those formed from *ns* involves the level of semantic/encyclopedic generality associated with the different roots, not a distinction in the syntax.<sup>14</sup> All denominal verbs in English (and I assume French) involve roots and have thus the structure in (16).

Ojibwe “denominal verbs”, on the other hand, are clearly formed from something larger than roots, since discourse referents are introduced when they are used. I propose that Ojibwe “denominal verbs” have the structure in (17)a where *n* is projected. The head *n* carries a referential index, which explains why the incorporated noun can be anaphorically picked up in the discourse (the incorporated noun is in fact even bigger than a head: a whole *nP* is projected, for reasons that will become clear in Section 4). Ojibwe INs are independent units from *v* and since the nominal never conflates with the verbalizer, the latter also remains an independent unit from the nominal with its own syntactic and semantic properties.<sup>15</sup> If *v* in Ojibwe NI is always an independent entity from the IN, this means that, although intransitive morphologically<sup>16</sup> “denominal verbs” in Ojibwe are underlyingly the equivalent of transitive constructions where the object is a separate element from that of the verb as shown in (17)b (denominal verbs of the English and French kind are morphologically and syntactically intransitive).

<sup>13</sup> It remains to be seen whether the distinction put forward by Arad (2003) for Hebrew concerning the distinction between root-based versus noun-based denominal verbs is correct. See Gibrael (2004) for the idea that Hebrew and Ojibwe are very similar in the way words are put together.

<sup>14</sup> Marantz (2001, to appear), Marvin (2002) and Arad (2003) follow Kiparsky (1982) in opposing denominal verbs created from roots (e.g., “to hammer”) and denominal verbs created from nouns (e.g., “to tape”). The rationale behind this dichotomy comes from the putative fact that verbs built from roots are, compared with verbs built from nouns, better-suited for figurative contexts. For example, it is said that verbs such as “to hammer” do not necessarily imply the use of a hammer, hence the possibility of “She hammered the nail with a rock”. In contrast with the first class, “to tape” supposedly implies the use of tape, hence the ungrammaticality of “\*She taped the picture to the wall with pushpins”. Harley and Haugen (2007), however, mention grammatical cases such as: “Lola taped the poster to the wall with band-aids/mailling-labels”. Thanks to Jason Haugen for pointing out the snippet in Harley and Haugen (2007) and for discussing this issue with me. Thanks also to Reviewer #1 for asking the question.

<sup>15</sup> I assume that Ojibwe, like other Algonquian languages (cf. Blain 1997; Déchaine 1999; Branigan et al. 2005) is head-initial.

<sup>16</sup> (ia) shows that Ojibwe “denominal verbs” are morphologically intransitive, since only subject agreement surfaces in the verbal complex. Transitive verbs carry both subject and object agreement, as (i)b illustrates.

- |        |  |    |   |
|--------|--|----|---|
| (i) a. | nwiigwaamke<br>n-wiigiwaam-ke<br>1Subj-house-VAI<br>'I am making a house.' | b. | nwaabmaa bezhig amik<br><b>n-waabam-aa</b> bezhig amik<br>1Subj-see-3Obj one beaver<br>'I see one beaver.' (Donald Keeshig, 2008-05-05) |
|--------|--|----|---|

- (17) a. 
$$\begin{array}{cc} & vP \\ & / \quad \backslash \\ v & nP \\ -ke & bakwezhgan \\ \text{'make'} & \text{'bread'} \end{array}$$
- b. 
$$\begin{array}{cc} & VP \\ & / \quad \backslash \\ V & nP \\ ozhitoon & bakwezhgan \\ \text{'make'} & \text{'bread'} \end{array}$$

Evidence for the idea that transitivity in Ojibwe, and Algonquian more generally, is achieved in the syntax comes from mismatches between the morphology and the syntax. As is well-known (Piggott 1989 and Valentine 2001: 216 for Ojibwe, Branigan and MacKenzie 2001 for Innu-aimûn, and more recently by Ritter and Rosen, to appear, for Blackfoot), the alignment between the verb's derivational structure with its syntactic behavior is not always straightforward.<sup>17</sup> The verb *bootage* "grind" in (18) has no transitive final, no object agreement or obviative marker, yet it appears with a direct object (i.e. *mdaamn* "corn") that is marked third person singular and obviative. The verb is thus derivationally and inflectionally intransitive but transitive syntactically.

- (18) Gii-bootaagewag    giw    kwewag                    niw    mdaamn  
 Gii-bootaage-wag    giw    kwe-w-ag                    niw    mdaamn-an  
 PAST-VAI-3PL    those    woman-NOMZ-PL    that    corn-OBV  
 'The women ground up the corn.' (Valentine 2001: 216)

In relation to transitivity, Reviewer #3 asks whether Ojibwe INs saturate the argument structure of the verb. The answer is yes. An argument in favor of this view comes from the fact that it is not possible in Ojibwe to double the theme as shown in (19). This is because the variable corresponding to the theme cannot remain open (compare with the languages described by Chung and Ladusaw 2004 and Mohawk as described by Baker 1988, 1996).

- (19) a. \*mijjimke    mashkiigiminag  
           \*mijjim-ke    mashkiigimin-ag  
           food-VAI    cranberries-PL  
           'He/she is gathering/collecting cranberries.'
- b. \*maanwangike    mishiiminag  
       \*maanwang-i-ke    mishiimin-ag  
       fruit-i-VAI    apple-PL  
       'He/she is picking apples.'

Before section 2.1 draws to a close, let me add that, despite the fact that this cluster of properties (i.e., morphological intransitivity and lack of doubling) patterns with so-called Compound NI (cf. Rosen 1989, although Algonquian is not discussed in that paper), I want to argue that light verb NI in Ojibwe is not lexical compounding.

First, lexical compounds do not participate in referential activity and neither does Compound NI (Mithun 1984). Ojibwe INs are, on the other hand, fully referential as this section makes clear. Second, NI in Ojibwe need not involve institutionalized events whereas lexical

<sup>17</sup> These verbs are traditionally referred to as Pseudo-Transitive verbs (Bloomfield 1957: 33) while Goddard (1979 : 37) refers to them as transitivized Animate Intransitive verbs, a label which, as O'Meara (1991) points out, reflects a cross-classification of their morphological and syntactic characteristics.

compounds most often do. All the Ojibwe examples introduced in section 1 refer to one-off situations: they need not refer to regular activities. Third, verb NI in Ojibwe need not involve non-specific indefinite phrases as is the case in compounding (“baby” in “babysit” does not refer to a specific baby): the IN in Ojibwe can be interpreted as specific (a speaker can have specific butterflies in mind when uttering (4)c). Fourth, if light verb NI in Ojibwe is not Compound NI, it is predicted that a modifier can accompany the noun by being stranded when the nominal has been incorporated. This prediction is borne out as the next section testifies. In lexical compounding and Compound NI no modifier stranding is possible (Rosen 1989). The fact that modifier stranding is allowed in Ojibwe NI also sets that process apart from denominal verb formation in English or French since, as the next section will show, no modifier stranding is possible in these cases.

In conclusion, although morphologically intransitive, Ojibwe NI has different properties from compound NI as described by Rosen (1989). Like Inuktitut (see Rosen 1989: 304, footnote 11), Ojibwe does not fit in Rosen’s typology.

## 2.2 Stranded modifiers

Denominal verbs of the English (or French) type do not allow the stranding of modifiers. This has led Hale and Keyser (2002: chapter 3) to change their minds about the nature of denominal verb formation in English and about the status of denominal verbs in languages like Hopi (they used to propose that conflation is simply another case of incorporation, but they came to realize that it behaves very differently from incorporation: compare Hale and Keyser 1993 and Hale and Keyser 2002).

Whereas Hopi allows the stranding of modifiers in denominal verb constructions (20)a, English does not, as (20)b,c illustrate. In Hale and Keyser’s view, the derivation for (20)b starts with the modifier “straight” modifying the noun “spear”. Then, the noun incorporates into the verb, leaving the modifier behind ((20)c has the same kind of derivation). English denominal verbs thus behave like English compounds, since it is not possible in compounds like “babysit” to strand an adjective modifying “baby”: \**“I babysat French”* to mean “I babysat a French baby” (in fact, it is not possible, as is well-known, to modify nouns in compounds \**“I French-baby-sat”*; Ojibwe INs can be modified directly as will be shown in Section 4). Hopi denominal verb formation, on the other hand, has the same characteristics as traditional NI (i.e., Mohawk, Baker 1988, 1996): modifiers can be stranded as in (20)a.

- |      |    |  |                            |
|------|----|--|----------------------------|
| (20) | a. | Pas <b>wuuwupa-t</b> <b>angap</b> -soma<br>very   long.PL-ACC husk-tie.PERF<br>‘She bundled up really long cornhusks.’ | (Hale and Keyser 2002: 56) |
|      | b. | *Japanangka <b>spears straight</b> .<br>(cf. Japanangka straightens spears.)   | (Hale and Keyser 2002: 57) |
|      | c. | *The north wind <b>skies clear</b> .<br>(cf. The north wind clears the sky.)   |                            |

Just as in Hopi, it is possible in Ojibwe to modify an IN from outside the verbal complex. In (21), the quantifier *kino* “all/every” is stranded while modifying the IN, in (22) a numeral is stranded while modifying the IN.<sup>18</sup>

<sup>18</sup> Although Ojibwe is mainly SVO, the reason why the modifiers end up at the left periphery is that floated or stranded quantifiers tend to be focused and appear before the verb (Kathol and Rhodes 1999; Tourigny 2008).

- (21) a. Kino memengwaanske (Shirley Ida Williams, 2008-08-10)  
**Kino memengwaans-ke**  
 all butterfly-VAI  
 ‘He/she is catching all butterflies.’
- b. Kino nboobiike (Shirley Ida Williams, 2008-08-18)  
**Kino nboobii-ke.**  
 all soup-*i*-VAI  
 ‘He/she is making all of the soup.’
- (22) niizhoo daabaani (Shirley Ida Williams, 2009-06-22)  
**niizhoo** daabaan-i  
 two cars-VAI  
 ‘He/she has two cars.’

Reviewer #1 questions the data in (21) on the grounds that the quantifier “all” can generally modify any sort of intransitive verbs, even those that do not involve incorporation as in, for example, the English “I’m all finished”. The problem is that Reviewer #1 is relying too much on English translations: *kino* is translated as “all” in my examples, but it is a quantifier that encompasses the meaning of “all” and “every”. So, in fact, I could have used “every” as a translation for *kino* and clearly “every” cannot modify intransitive verbs in English. I am, in particular, not aware of Ojibwe examples where *kino* can simply modify an intransitive verb in Ojibwe without an IN. I think *gichi* “big/a lot” or *apiiji* “very” with the meaning “really” would be used instead. It is clear, nevertheless, that it is possible in Ojibwe to strand numerals (22), indicating that Ojibwe “denominal verbs” exhibit properties associated with NI rather than with denominal verb formation of the English/French kind.

In summary, the facts reviewed in the present section—Ojibwe INs are referential and can be modified from outside the verbal complex—are the kind of facts traditionally taken to indicate that the IN has risen to the verbal host in the syntax (Baker 1988, 1996 for Mohawk). I simply follow this trend for Ojibwe. The next section explains the relevance of the notion of light verbs in the study of Ojibwe NI.

### 3 Nominal incorporation and light verbs

In the present section, I discuss further the idea that the incorporator in Ojibwe is a light verb that forms an independent unit from the nominal with which it merges, in contrast with denominal verb formation in English or French which involves instead a single node with the verbalizer completely dependent on the merged nominal. These ideas have been alluded to already in section 2, but developing them further, focusing on light verbs and providing examples of incorporating light verbs other than *-ke* will make it clear in this section that denominal verb formation is very different from denominal verb formation in English or French.

#### 3.1 The Ojibwe word and the primary/secondary derivation contrast

The arrangement of morphemes within a word in Ojibwe, and more generally in Algonquian languages, is often presented as though it follows a strict linear template (cf. (23)) consisting of an initial, a medial, and a final. The final sometimes surfaces in the derivation as binary with

both a pre-final, dubbed a concrete final by Denny (1978), and an abstract final.<sup>19</sup> All these elements combine to form the stem. Medials, as their name suggests, occupy the position between initials and finals and typically denote classifying or body-part elements. INs in lexical V NI also occupy the medial position (INs in light verb NI occupy the initial position).<sup>20</sup> While the initial position always needs to be phonologically realized (Goddard 1990; Brittain 2003), in some (rare) cases finals can be phonologically null.<sup>21</sup>

(23) Initial	Medial	Pre-final	Abstract final	(Denny 1978, p. 301)
waap- white	-aapikk- mineral	-it- heated	-e PROCESS	
'It [mineral] is white hot.'				

The traditional literature treats the assembly of words in Algonquian languages as lexical, i.e., pre-syntactic (Bloomfield 1946; Wolfart 1973; Rhodes 1976; Goddard 1979; Nichols 1980; Dahlstrom 1991; Valentine 1994). Words are claimed to be assembled via two major word formation processes: primary and secondary derivation. In primary derivation, the left edge position is filled by verbal/adjectival roots (24)a or adverbial roots (24)b while in secondary derivation the left edge position is filled by nominals or verbs, see Valentine (2001: 333) and Goddard (1990) for general discussion (animate forms are given; Ojibwe has a gender system based on animacy). In (25)a and b, an intransitive verb is formed from a noun (which itself consists of a root and a nominalizer). In (25)c a noun is formed from an intransitive verb (which itself contains a noun). In (25)d a noun is created from an intransitive verb (which itself contains a root and a verbalizer). In (25)e a transitive verb is formed from an intransitive verb (which is itself formed from a root and a verbalizer) yielding a causative verb. In (25)f a noun is formed from an intransitive verb (which is itself formed from a transitive verb).<sup>22</sup>

<sup>19</sup> I will assume that the distinction between concrete and abstract finals (cf. Denny 1978) is not necessary, since all finals appear to be instances of *v* (in line with Branigan et al. 2005, but contra Slavin 2007). Concrete finals are supposed to add a meaning component to the word while abstract finals are meant only to identify the word's part of speech and subclass without additional meaning. It is not always easy, however, to distinguish the two on semantic grounds and both types have many properties in common: they are both category-defining and they both introduce the subject.

<sup>20</sup> A more detailed template in (i) shows that once the Ojibwe stem has been formed, inflection can appear after it. Pronominal clitics and preverbs (in that order) can also surface before the stem.

(i) (Pronominal clitics) | (Preverbs) | Stem | Inflection

Elements in parentheses in (i) are optional since they are present in some stems, but not in others. While there may be at most one pronominal clitic prefix (according to McGinnis 1995, these compete for a single position/slot at the C level – see also Halle and Marantz 1993 – there is apparently no structural limit to the number of preverbs that may occur and the number of potential inflectional suffixes is also quite large (Valentine 2001: 93). Apart from their adverbial function, preverbs also typically encode tense and aspect, and they can also be complementizers.

<sup>21</sup> In the literature, Ojibwe long vowels are sometimes indicated as *i*: or *ī*, *a*: or *ā*, and *o*: or *ō* (*e* is always long). Example (24), in particular, was presented with an overlined vowel system in its original source. I have adjusted all Ojibwe examples taken from the literature to *ii*, *aa* and *oo* (now the standard forms).

<sup>22</sup> Similarly to the case of *-ke*, incorporation into the copulative suffix *-i* (26b) is meaning-preserving. The interpretation is not adjectival with the meaning “be womanlike”. Rather (26b) means “to be a woman”. Such cases thus differ from those mentioned by Baker (2003) for other polysynthetic languages (e.g., Kiowa, p. 167).

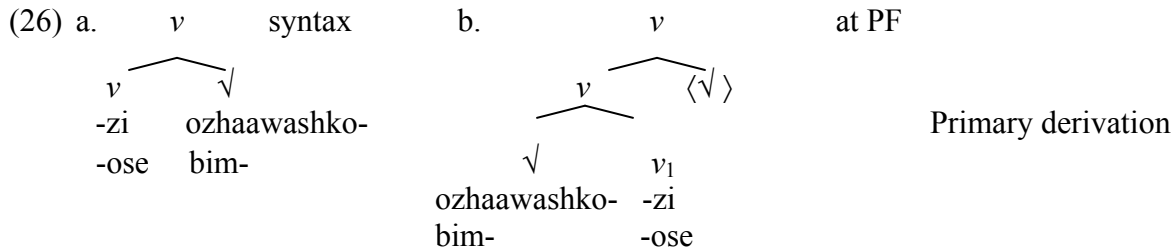
- |         |   |   |                         |
|---------|---|---|-------------------------|
| (24) a. | [ozhaawashko- <b>zi</b> ] <sub>V</sub><br>blue-VAI<br>'to be blue'  | } | Primary<br>derivation   |
| b.      | [bim- <b>ose</b> ] <sub>V</sub><br>along-VAI<br>'to walk (along)'   |   |                         |
| (25) a. | [[daabaa-n] <sub>N</sub> - <b>ke</b> ] <sub>V</sub><br>car-NOMZ-VAI<br>'to make a car'                      | } | Secondary<br>derivation |
| b.      | [ikwe-w] <sub>N</sub> - <b>i</b> ] <sub>V</sub><br>woman-NOMZ-VAI<br>'to be a woman'                        |   |                         |
| c.      | [[[daaba-n] <sub>N</sub> -ke] <sub>V</sub> - <b>win</b> ] <sub>N</sub><br>car-NOMZ-VAI-NOMZ<br>'car-making' |   |                         |
| d.      | [[bim-ose] <sub>V</sub> - <b>win</b> ] <sub>N</sub><br>along-VAI-NOMZ<br>'a walk'                           |   |                         |
| e.      | [[bim-ose] <sub>V</sub> - <b>h</b> ] <sub>V</sub><br>along-walk-VTA<br>'to make someone walk (along)'       |   |                         |
| f.      | [[[bakite-h] <sub>V</sub> -ge] <sub>V</sub> - <b>gan</b> ] <sub>N</sub><br>hit-VTA-VAI-NOMZ<br>'a hammer'   |   |                         |

According to Valentine (2002: 96-97): “*Secondary derivation is formally distinguishable in its requirement that the base be a free lexeme, whereas the constituents of primary derivation are often roots and other bound elements. [...] Meanings are also more straightforwardly compositional in secondary derivation, and more structurally transparent, in that there are not the various accretions and variant forms of morphemes associated with primary forms.*”<sup>23,24</sup>

<sup>23</sup> It should be noted that throughout this paper I will not use the terms “initial” and “root” interchangeably, as is often done in the traditional Algonquian literature, since that it would be confusing/ambiguous. I take “root” to be an uncategorized element in the sense of Distributed Morphology (Halle and Marantz 1993; Marantz 1997) and “initial” to be a purely linear positional concept. In primary derivations, the initial is a root in the Distributed Morphology sense, but in secondary derivation, it is not: it is a complex form that already contains an exemplar of primary derivation. The terms initial, medial and final reflect the templatic, lexical and non-hierarchical nature of traditional accounts of Algonquian word formation. Although I might occasionally use linear notions such as initial, medial and final in the course of the discussion, I will in fact assume a strict hierarchical configuration for all Ojibwe sentences. Algonquian languages are clearly configurational languages (see Bruening 2001 for Passamaquoddy). Although head-marking, Algonquian languages do not always have a one-to-one correspondence between affixes and NP referents: suffixes may overlap and blend together, making it difficult to separate individual affixes (especially in the conjunct order) and two affixes can indicate properties of a single argument (LeSourd for Maliseet-Passamaquoddy and Tourigny (2008 for Ojibwe). Moreover, not all NP referents are related to affixes: secondary objects are not marked for agreement (LeSourd 2006 for Malisset-Passamaquoddy and Rhodes 1994 for Ojibwe). Finally, word order is relatively free but not completely unconstrained and can be derived from a complex array of dedicated syntactic focus and topic positions at the left edge of both TP and vP (Tourigny 2008 for Ojibwe).

There are two reasons why I introduce the distinction between primary and secondary derivation. First, I want to argue that most, if not all, Ojibwe verbalizers are light verbs and not simple verbalizers as in English or French denominal verbs (in other words, primary derivation  $\neq$  conflation). This will be the topic of the present section. Second, secondary derivation shows that Ojibwe INs are larger than simple roots: they are words already formed from a root and a category forming element (e.g., *-gan* in (1), (3)a and (25)f, *-n* in (6)a,b and (25)c, *-w* in (25)a. Nominalizers will be discussed in section 4 where it will be argued that secondary derivation takes as input not heads but phrases.

Let me first go through the arguments for the idea that verbal suffixes in Ojibwe are light verbs and let me explain what I mean by “light verb”. As was argued in previous sections, English or French denominal verbs are created via the merging of a root and a verbalizer. Ojibwe verbal suffixes, on the other hand, cannot be treated as simple verbalizers. This is because they are not devoid of semantic content. The verb finals in (24) and (25) all have lexical meaning of their own: *-zi* = “be” in (24)a, *-ose* = “walk” in (24)b, *-ke* = “make” in (25), *-i* = “be” in (25)b and *-h* = “causative” in (25)d. This means that neither primary nor secondary derivation can be said to involve conflation. Recall from section 2 that structurally the verbalizer in conflation processes never remains a separate entity from the element with which it merges. Instead, it fuses “lexically” with its mate. For Ojibwe, in primary derivation, the verbal suffix and its mate are merged in the syntax as shown in (26)a. I assume subsequent head movement operates at PF (26)b.



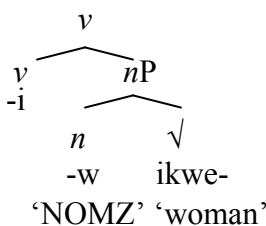
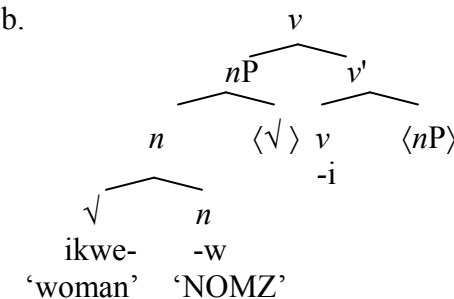
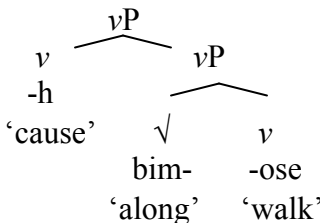
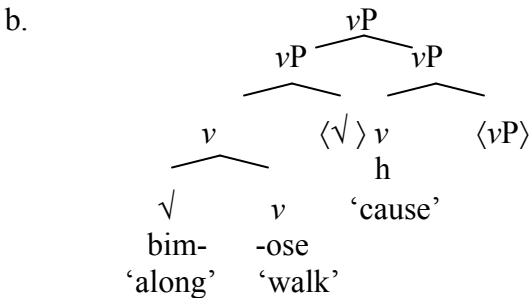
Secondary derivation is similar to primary derivation in that  $v$  remains a separate entity from the element with which it merges. The difference between primary and secondary derivation comes down to the status of the incorporee and the number of domains/phases involved. In primary derivation (26), the incorporee is a root while in secondary derivation (27), the incorporee is a phrase. In (26) one domain/phase is involved (the root and  $v$  merge in the same domain/phase) while in (25)a and b, whose derivation appear in (27) and (28) respectively, two domains/phases are involved (the nominal or verb and  $v$  merge in the same domain/phase).<sup>25</sup> In (27), what rises to the left of the final is an  $nP$  rather than a head (evidence for this idea will be given in Section 4). The  $nP$  is formed in the syntax (it is a case of primary derivation) with

<sup>24</sup> The distinction between primary and secondary derivation is equivalent to the distinction between formative-boundary and word-boundary affixes (Chomsky and Halle, 1968), morpheme-based morphology and word-based morphology as in lexical phonology (Kiparsky 1982) and Stratum I and Stratum II affixes (Halle and Vergnaud 1987). The first kind of affixes may appear inside the second kind, but not vice versa (*\*hopefulness*). This generalization, often referred to as the Affix Ordering Generalization, does not, however, seem to apply in Ojibwe (Valentine 2001 : 334). Word formation in that language is much freer.

<sup>25</sup> That phases are relevant at the word level in polysynthetic languages has been observed in Piggott and Newell (2006) for Ojibwe; Wojdak (2007), Braithwaite (2007) for Nuuchahnulth; Compton and Pittman (2007) for Inuktitut.



subsequent head movement at PF.<sup>26</sup> In (28), it is a *vP* that rises to the left of the final (owing to lack of space I cannot discuss such cases in any detail).

- (27) a. 
- b. 
- cf. (25)b
- (28) a. 
- b. 
- cf. (25)e

Although it is clear that Ojibwe verbal suffixes carry lexical meaning, they nevertheless express meaning of a variable nature (see section 1), a property they share with light verbs which are traditionally considered as deficient or “light”, in that they contribute semantics to the clause which are not very specific (e.g., *-ke* means “make” or “get” in most cases, a meaning most often associated with light verbs when a language has them). Other verbs that tend to participate in such constructions include “be” and “have” (Ritter and Rosen 1997; Harley 2005).<sup>27</sup> In Ojibwe, “be” can be expressed by the verbal suffix *-i* as shown in (25)b. *-i* does not only mean “be”, but also “have” as was illustrated in (13) and as shown by (29) below. Since the final *-i* has a general, rather than a precise, meaning it is a good candidate for light verb analysis.<sup>28</sup>

- (29) a. doodaabaani (Valentine 2001: 416)  
doodaabaan-i  
car-VAI  
‘He/she has a car.’
- b. wzhoonyaami (Nichols et al. 2002: 86)  
w-zhoonyaam-i  
3SG-money-VAI  
‘He/she has money.’

<sup>26</sup> Although unfortunately I cannot go into detail because of lack of space, nominal suffixes (noun finals in the traditional literature) are not all abstract (i.e., simple nominalizers): they can also carry lexical meaning (e.g., *-aaboo* anything pertaining to liquids, *-aakw* anything pertaining to wood, etc.).

<sup>27</sup> Interestingly, as pointed out by Gerdtz and Marlett (2008: 413), when a language has only one denominal affix, it seems to be “have”/“do”/“make”/“get” (next most popular are other transitive meanings such as “buy” and “ingest”; less frequent are intransitive meanings such as “go to” (cf. Gerdtz and Marlett 2008).

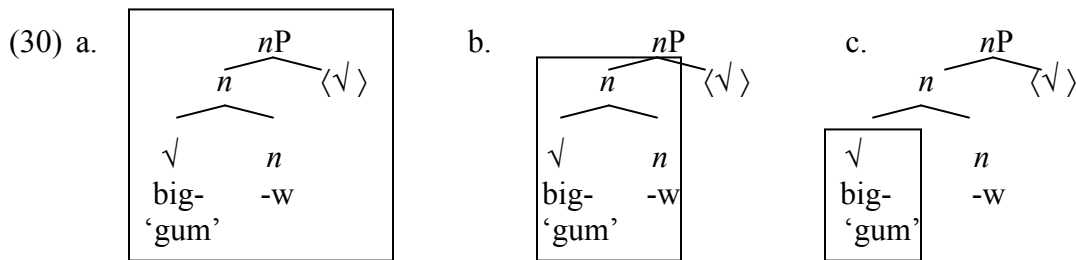
<sup>28</sup> I also assume these constructions are underlyingly transitive (with the object first as the complement of the verbal affix). See Anderson (2000), who argues that even English copulative structures such as those based on “be”, “become”, etc. are syntactically “quasi-transitive” and thus admit another argument position.

As light verbs, verbal suffixes in Ojibwe also have functional properties. First, although they carry lexical meaning they do not strictly constitute an open class. According to Rhodes (1994), the set of finals is a closed class, comprising about 50 or so sets of animate/inanimate pairs and according to Valentine (2001: 325), there is a relatively small number of abstract VAI finals:  $-ii$ ,  $-i$ ,  $-(i)zi$  and  $-(i)n$ . Second, intransitive verbal suffixes introduce the external argument while transitive verbal suffixes introduce not only the external argument but also syntactically license the direct object (properties associated with the light verb  $v$  introduced by Chomsky 1995 and Kratzer 1996). This view of transitivity in Ojibwe is purely syntactic and contrasts with the traditional wisdom that transitivity in Algonquian is arrived at derivationally while signaling aspectual and internal argument structure (verb finals carry transitive or intransitive information). See discussion around (17) and (18).

In summary, verbal suffixes in Ojibwe are like light verbs in that they constitute categories with mixed properties (as proposed by Butt 2003): they are both functional and lexical (also, like light verbs they are most often mono-syllabic and act as hosts for agreement, animate versus inanimate in Ojibwe). They are like the quasi-lexical functional abstract category postulated by Chomsky (1995) and Kratzer (1996), except that they are phonologically overt (as pointed out by Ritter and Rosen, to appear, there is no reason why Chomsky's  $v$  should lack phonetic content in all languages). In short, to use Ritter and Rosen's (to appear) terminology, they are quasi-functional lexical morphemes.

#### 4 Nominal incorporation as phrasal movement

While section 3 concentrated on verbal suffixes, this section focuses on the structure of nominals that incorporate into these verbal suffixes. I provide arguments for the idea that: (i) INs in Ojibwe are complex elements consisting not only of roots/heads but many additional layers; (ii) it is a whole  $nP$  (30)a rather than a head (30)b or a simple root (30)c that rises to the left of incorporating light verbs in that language.



First, I concentrate on the internal structure of INs. Second, I turn to external modifiers that occasionally surface with INs in Ojibwe. Third, I give evidence in favor of the view that modifiers that are bound are nevertheless independent forms phonologically and syntactically.

##### 4.1 Ojibwe INs are bigger than simple roots

Most nominals in Ojibwe consist of a root and a category-defining nominal suffix. One common nominal suffix is  $-w$ : *bzhiw* “lynx”, *bgiw* “gum, pitch” (Valentine 2001: 481), *ootenaw* “town” and *wajiw* “mountain” (Jones 1971). As (25)b and the discussion around secondary derivation in section 3 have testified, such nominalizers are retained when the nominal incorporated into the verbal suffix. The IN in (25)b contains not only a root *ikwe* “woman”, but the nominalizer  $-w$ .

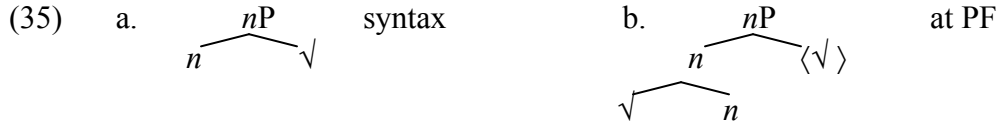
Other examples appear in (31), this time with *-ke* as the light verb. Without the nominalizer, the output is ill-formed: \**bigike*, \**bzhiike*.

- (31) a.      bigwike            (Ella Waukey, 2008-05-06/Philomene Chegahno, 2008-05-06)  
              big**w**-i-ke  
              gum-NOMZ-*i*-VAI  
              ‘He/she is making (pine) gum (as medicine).’  
       b.      bzhiwike  
              bzhi**w**-i-ke  
              lynx-NOMZ-*i*-VAI  
              ‘He/she is hunting lynx.’

Three other common nominalizers are *-gan* (*damnowaagan* “doll”, *biiskawaagan* “jacket”, etc.), *-win* (*ngamwin* “song”, *nbewin* “sleep”, etc.) and *-n* (*bgesaan* “plum”, *kosmaan* “pumpkin”, etc.). The nominalizers are all retained in incorporating constructions as the example in (25)a illustrated. Other examples appear in (32), (33) and (34) (without the nominalizer, all the following examples are ill-formed: \**bkwezh-ke*, \**nbaake*, \**wzaske*, \**pabke*, \**n-jimaake*, \**daabaake*).

- (32) a.      bkwezhganke            (Philomene Chegahno, 2008-05-05)  
              bakwezhi-**gan**-ke  
              bread-NOMZ-VAI  
              ‘He/she is making bread.’  
       b.      nbaagenike            (Anishnaabemowin language booklet and CD)  
              nibaa-**gan**-i-ke  
              bed-NOMZ-*i*-VAI  
              ‘He/she is making the bed.’
- (33) a.      wzaswinike            (Weshki-ayaad et al. 2003)  
              wzas-**win**-i-ke  
              nest-NOMZ-VAI  
              ‘He/she is making a nest.’  
       b.      pabwinke            (Philomene Chegahno, 2008-05-05)  
              apabi-**win**-ke  
              chair-NOMZ-VAI  
              ‘He/she is making a chair.’
- (34) a.      njiimaanke            (Donald Keeshig, 2007-04-20)  
              n-jiimaan-ke  
              1Subj-boat-NOMZ-VAI  
              ‘I am making a boat.’  
       b.      daabaanike            (Juanita Pheasant, 2008-05-07)  
              odaabaan-**n**-i-ke  
              car-NOMZ-*i*-VAI  
              ‘He/she is working on a car.’

In view of these facts, I propose that the Ojibwe nominal finals *-w*, *-gan*, *-win* and *-n* are all instances of *n*, i.e., light nouns (in the sense of Halle and Marantz 1993; Marantz 1997). They select a root and merge with it, as shown in (35)a. Then, the root adjoins to *n* via head to head movement at PF to give (35)b. The nominalizer may sometimes be phonologically null: *makwa* “bear” not *makwaw*, although the latter form is the recognized underlying form in the traditional literature. It must be noted that the derivation of nominals can be fairly complex: like (25)f *bakitehigan* “hammer”, *bkwezhgan* in (32)a is formed from a VTA verb (*bakwebi-zh* “tear a piece off someone”) that is detransitivized with the verbal suffix *-ge* (*bakwebi-zh-ge*). Only then is the nominalizer *-n* added.



The fact that INs retain their nominalizers sets Ojibwe apart from other languages with NI, e.g., Onondaga (an Iroquoian language) and Halkomelem Salish (as in lexical suffix constructions), since in these languages nominalizing morphology, although it surfaces in independent nouns, cannot occur in INs (Gerdtz 1998: 85; Wiltschko 2009). For example, in Onondaga, the nominal prefix *o-* and the final glottal stop, which Woodbury (1975) glosses as noun suffix, appear only in free-standing nouns, but not in INs. Also, the nominal particle *ne*□, which accompanies the free nominal, is absent from the incorporating structure. Compare (36)a with (36)b.

- (36) a.  $\text{wa}\square\text{hahninú?}$   $\text{ne}\square$   $\text{oy}\square\square\text{kwa}\square$  (Woodbury, 1975: 10)  
 TSN-he/it-buy-ASP nm.prtc it-tobacco-n.s  
 ‘He bought the tobacco.’
- b.  $\text{wa}\square\text{hay}\square\square\text{kwahni:nu}\square$   
 TSN-he/it-tobacco-buy-ASP  
 ‘He bought (a kind of) tobacco.’

In Halkomelem Salish, free-standing forms in lexical suffix constructions differ from incorporating forms in relation to additional consonants. The latter lack this added consonant which Wiltschko (2009) takes to be a nominalizer.<sup>29</sup>

- (37)
- |    | <i>Nominal suffixes</i> |     | <i>Regular nouns</i>         |
|----|-------------------------|-----|------------------------------|
| a. | -ínəs (chest, beach)    | a'. | <b>s</b> -ínəs (chest)       |
| b. | -éqsən (nose, point)    | b'. | <b>m</b> -éqsən (nose)       |
| c. | -épsəm (neck, nape)     | c'. | <b>t</b> -épsəm (neck, nape) |
| d. | -énəs (tooth)           | d'. | <b>y</b> -énəs (tooth)       |
| e. | -aθən (margin)          | e'. | <b>θ</b> -aθən (margin)      |
- (Wiltschko 2009: 9, originally in Suttles 2004: 287f)

Interestingly, Ojibwe is not the only language where NI appears to involve more than a simple root, corroborating my empirical findings in Ojibwe and my analysis of these facts. It has

<sup>29</sup> Reviewer #3 mentions that, traditionally, only *s-* is acknowledged by most Salishanists as a bona fide nominalizer.

recently come to my attention that, in addition to the incorporation of nominal roots, Oneida (an Iroquoian language) appears to allow the incorporation of nominals together with their nominalizers. Barrie (2006) does mention a few examples and argues, independently from the present paper, that *n*Ps rather than simple roots can incorporate. In (38) the deverbal noun *atokwa*□*tsl* “spoon”, which is formed from the root *okw*, contains the nominalizing suffix –□*tsl* (this suffix usually appears with the prefix –*a*, see Abbott 2000: 48) (the –*a* just before □*tsl* is an epenthetic vowel).

- (38) *wa*□*utokwa*□*tsl*□*ohale*□  
*wa*□- *u*-                      ***atokw***-                      ***a***-                      □***tsl***-                      *ohale*□  
 PAST 3.SG.F.NOM                      take.out.of.water-                      *a*-                      NOMZ                      wash-PERF  
 ‘She washed the spoon.’ (Barrie 2006: 132, from Michelson and Doxtator 2002)

Although Barrie (2006) claims that Oneida incorporated nominals raise to their hosts via phrasal movement, he does not show empirically that it is the only derivation possible for that language (his main point is that in the absence of head movement in the theory of syntax, cf. Chomsky 2001, INs raise to their hosts via phrasal movement, this in order to avoid symmetry (Moro 2000)). There remains, however, the possibility that in Oneida once a root has merged with a nominalizer it is *n* that raises to the verbal element via head movement. More research on Oneida NI is needed in order to establish that phrasal movement is the only possibility for Oneida INs.<sup>30</sup>

It is clear, on the other hand, that Ojibwe INs undergo phrasal rather than head movement, because they may involve not only a root and a nominalizer, but additional functional layers. First, as recently argued by Piggott (2007), there is evidence that number is present in the derivation of every Ojibwe noun. As Piggott argues, each of the singular forms in examples such as (39)a,b,c ends in a vowel that is demonstrably not part of the exponent of the root morpheme. The root allomorphy in (39)c [*mi*□ → *mis*] results from a palatalization process (*s* → □) that only applies in a derived environment (Kaye and Piggott 1973). This means that there is a singular suffix –*i* that is attached to inanimate nouns and an animate counterpart –*a*. In words where no final –*i* or –*a* surfaces it is assumed that the vowel has been truncated. The vowel can only be truncated, however, if the word meets minimality requirements apart from the singular suffix, i.e., if it is bisyllabic. If the word is too small the vowel cannot be truncated. Therefore, the process is systematic and predictable. Proto-Algonquian had a clear distinction between singulars ending in –*i* and those ending in –*a*; a distinction Fox has retained (Goddard 2002).

- (39)                      *Singular*                                      *Plural*                                      (Piggott 2007: 15)  
                     a.    *makwa*                                      a'.    *makwa*□                                      ‘bear’                                      (animate)  
                     b.    *michi*                                      b'.    *misan*                                      ‘piece of firewood’                                      (inanimate)

Turning back to INs, it is clear that Ojibwe nominals incorporate with their singular number affix. This is illustrated in (40)a for animates and in (40)b for inanimates.<sup>31,32</sup> Since number

<sup>30</sup> Baker (1997, 2003) introduces examples from Mohawk where INs clearly have nominalizers. He does not, however, discuss these nominalizers and their potential relevance to the internal structure of INs.

<sup>31</sup> Reviewer #1 asks why plural number morphology does not surface in INs. Although it is true that plural number morphology rarely surfaces with INs, there is evidence from reduplication that it is not completely ruled out. As noted by Valentine (2002 : 94-95), “verbs denoting parts of the body that standardly occur in plurality such as arms and legs sometimes show duplication, which semantically indexes the plurality of the body part”. The duplication morpheme in (i) can be taken as an exponent of a plural number feature.

marking is fused with gender marking, it is clear that Ojibwe nominals do not lose their gender marking when they incorporate.<sup>33</sup>

- (40) a. makwake  
makw-**a**-ke  
bear-NUM-VAI  
'He/she is hunting bears.'
- b. michike  
mich-**i**-ke  
firewood-NUM-VAI  
'He/she is looking for firewood.'

Next, Ojibwe nominals can also retain diminutive and pejorative morphemes when incorporated. This is illustrated in (41). This might be treated as a different case from the singular marking mentioned above, since diminutives and pejoratives are usually considered to be derivational morphemes (which would mean they could have attached via head movement). In Ojibwe, however, such morphemes are very productive (they can attach to any noun) and yield an interpretation that is always transparent (Valentine 2001).<sup>34</sup>

- (41) gii-ikwezhenzhishiwi (bezhig ikwezhenzhish = one naughty little girl)  
gii-ikwe-**zhenzh-ish**-iw-i  
1SG-girl-DIM-PEJ-*iw*-VAI  
'I was a naughty little girl.'

Further evidence that Ojibwe INs are morphologically complex comes from possessed nominals. We saw in (29) that verbs of possession are formed by adding a light verb *-i* to a nominal. What was not mentioned at that point is that possessed INs in Ojibwe are marked with third number *-o* and a possession morpheme *-im*. Nouns forming possessed themes with inflectional suffixes *-im* show the suffix in their corresponding verbs of possession (42).<sup>35, 36</sup>

- (42) a. obezhgoogzhiimi (Valentine 2001: 416)  
o-bebezhgoogzhi-**im**-i  
3-horse-POSS-VAI  
'He/she has a horse.'

- 
- (i) a. gagaanwaabiigitawage b. mamaangijaabi  
ga-gaanwa-abiig-itawag-e ma-maang-ijaab-i  
DUP-long-sheet.like-ear-VAI DUP-big-eye-VAI  
'He/she has long ears.' 'He/she has big eyes.'

<sup>32</sup> Reviewer #1 suggests that number in Ojibwe may not be inflectional, but derivational. However, it has none of the properties associated with derivational morphology: it is obligatory, it triggers agreement, it is not possible inside compounds or derivational morphology, etc. see Mathieu (2009) for details.

<sup>33</sup> Gender in Ojibwe is grammatical: some inanimate nouns denote animate entities ("game") while some inanimate nouns are animates ("tobacco"). It also has all the properties associated with inflectional gender (Ritter 1991).

<sup>34</sup> In other languages, diminutive morphology is not entirely productive and not always transparent, e.g., French: *kitchenette* "small kitchen", *fillette* "little girl", *maisonnette* "small house", but \**chaisette* "small chair", \**pagette* "small page", \**poirette* "small pear". The word *tablette* does not mean a small table, but a shelf, *oreillette* does not mean a small ear, but an earpiece, etc.

<sup>35</sup> Nouns that do not form possessed themes with suffix *-im* do not show the suffix in their corresponding verbs of possession (i) (*o-bikwaad* = his/her friend). Stems that end in the nominalizer *-w* merge it with the final *-i* to produce *-o*: *bikwaakdo* (*o-bikwaad-w-i*) 'He/she has a ball.' (Valentine 2001: 416)

<sup>36</sup> It must be noted that the nominal prefix *-o* often undergoes syncope and that it is sometimes replaced with *-w* (cf. (29)c) as an alternative orthographic convention. When syncope, it nevertheless influences the vowel in the next syllable in terms of word stress assignment (Valentine 2001), which means there must be a zero exponent.

- b.      omookmaanimi  
           o-mookmaan-**im**-i  
           3-knife-POSS-VAI  
           ‘He/she has a knife.’

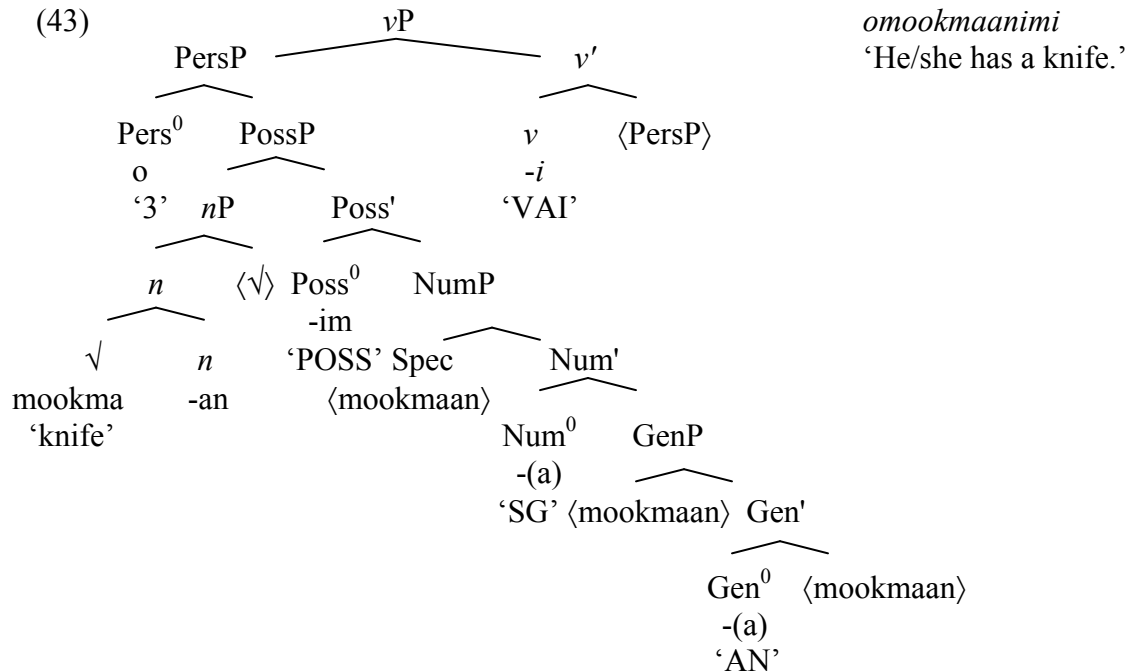
Importantly, the *-o* prefix attaches to the nominal stem (rather than the verbal stem): it appears on possessive nominals that are not incorporated into a verb (*o-wiijiwaaganan* ‘his/her friend’ where the last *-an* is an obviative maker). It should also be noted that third person subject verbal agreement (when it is pronounced) is exclusively suffixal on Ojibwe verbs.

The structure for (42)b appears in (43). Following Déchaine (1999), I assume DPs obey a Person-Number-Gender hierarchy (cf. Noyer 1997; Harley and Ritter 2002) and that a possessor head appears just below PersP. That DP contains an Agreement projection followed by a Possessive phrase followed by a Number phrase has been postulated for many languages (see Coene and D’hulst 2003 for a summary and references). The gender and number heads are filled with the singular/animate affix which is not pronounced in this case (if it was pronounced the two morphemes it would undergo fusion at PF). The possessive head is filled with *-im*. The proclitic *o-* is merged under Pers<sup>0</sup>.<sup>37</sup> The *nP* raises first to the specifier of GenP, then to the specifier of NumP, then to the specifier of PossP.<sup>38</sup> I assume both Poss<sup>0</sup> and *mookman* have matching features that allow both elements to enter into an agreement relationship. The phi-features on *mookman* match the phi-features on the verb.<sup>39</sup> (the Num and Gen morphemes undergo fusion at PF)

<sup>37</sup> Proclitics such as *-o* are often taken to sit under D<sup>0</sup> (and under C<sup>0</sup> on the sentence level) (see footnote 20), since they always appear at the very left edge of the nominal/verbal complex. I have avoided using D<sup>0</sup> for INs because it might give the impression that INs are fully phrasal (whole DPs) when in fact they just fall short of being full DPs. There is a higher tier (corresponding to obviation) that does not appear to be part of INs (see footnote 40).

<sup>38</sup> Reviewer #1 questions my take on possessive *-im*: “if it is true that possessor prefix can appear on an incorporated noun, I would take that to indicate that we do not really understand possessed nominals, not to indicate that INs are fully phrasal, since they obviously can’t have all the things that a phrase can. I think we should re-think how possessed nouns act in languages that have special forms for possessed nouns. It kind of looks like many languages have derivational morphology to derive possessed forms of nouns, in addition to inflectional morphology. If possessed forms are derivational, then again there is no problem having them incorporate in a head-movement theory”. While these remarks are interesting, they are very speculative. Until it can be shown clearly that possessed forms are derivational (in Ojibwe in particular), then surely the null hypothesis should simply be that it is inflectional (as usually assumed for other languages, but also for Algonquian languages) and thus that the complexity of Ojibwe INs is derived not via derivation (i.e., head movement) but via phrasal movement. As a matter of fact, possessive morphology in Ojibwe has all the properties associated with inflectional morphology: it does not change the category it attaches to and it can apply to any noun (provided that the resulting meaning is compatible with an acceptable pragmatic interpretation).

<sup>39</sup> Reviewer #1 asks why INs do not surface with obviative markers, especially since in my analysis, he/she adds, INs are fully referential (Ojibwe, like other Algonquian languages, makes a distinction between two third persons when present in the derivation: one has to be marked proximate, the other obviative). Let me point out that, although my claim is that Ojibwe INs are phrasal, this does not mean that they are necessarily fully phrasal (see footnote 1). I want to argue that the very high functional tier of a nominal phrase in Ojibwe does not get incorporated. There is evidence that proximate and obviative heads are very high in the DP (their morphemes appear last). Depending on the language the IN can be more or less big. In Fox, nouns with obviative marking can be incorporated (Michelson 1915, 1917) indicating that in this language full DPs incorporate.



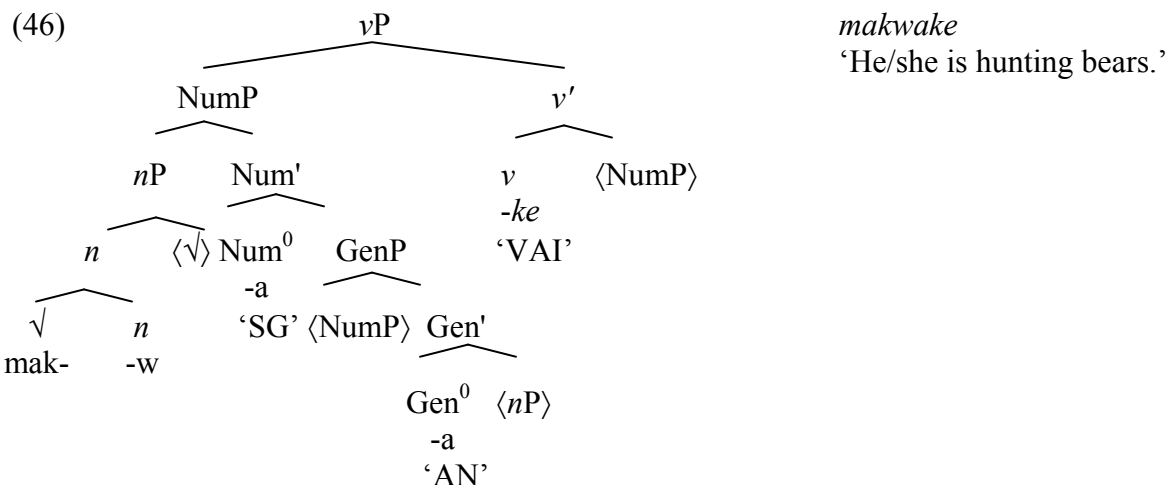
The structure of the possessed nominal in (43) is very similar to what Déchaine (1999) proposes for Plains Cree. In her view, stems in Plains Cree are phrasal and raise in the syntax via phrasal movement. She gives two types of evidence: secondarily possessed forms as in (44)a in which a dependent stem has two layers of possessor agreement and possessor constructions with the verbal suffix *-i* as in (45)a. Her derivation for (44)a is given in (44)b and her derivation for (45)a is given in (45)b.

- (44) a. n-[ô-stikwân-im] (Déchaine 1999: 45)  
 1-3-head-POSS  
 ‘my severed head’ (literally, ‘my his head’)
- b. [DP *n-* [PersP [DP *o-stikwânim*] [Pers  $\emptyset$ ] [NumP *tDP* [Num  $\emptyset$ ] [*tDP*] ] ] ]
- (45) a. [o-môhkomân]-i-w (Déchaine 1999: 46)  
 3-knife-have-3  
 ‘He/she has a knife.’
- b. [CP *n-* [PersP [IP *o-môhkomân-i*] [Pers  $\emptyset$ ] [NumP *tIP* [Num -w] [*tIP*] ] ] ]

My proposal differs from that of Déchaine's (1999) in that I also take parts of stems to be formed via phrasal movement. Evidence in favor of such a view comes from the presence of the *-im* suffix in incorporating constructions with *-i* and the presence of number/gender marking in the IN. One consequence of my analysis is that some verbal suffixes in Ojibwe are phrasal clitics. Déchaine's analysis already entails that Algonquian stems and their inflections do not form complex words (i.e., derived by head movement): both prefixes and suffixes are phrasal clitics/separate units from the stem. While the claim that Algonquian prefixes are proclitics is well-established (Halle and Marantz 1993), the idea that suffixes are enclitics is, as pointed out by Déchaine (1999), novel. My contribution to this particular debate is that some parts of stems are formed via phrasal movement and that they also contain suffixes that are phrasal clitics.



(46) gives the representation for a non-possessed IN such as (40)a where the IN is NumP (the Num and Gen morphemes undergo fusion at PF).



In summary, whereas it is traditionally thought that NI involves the incorporation of roots only (e.g., Iroquoian languages), less documented languages with NI such as Ojibwe provide evidence that it is possible for NI to involve more than simple roots. In Ojibwe, INs are minimally *n*Ps and maximally PersPs.

Before this section draws to a close, I should mention that Ojibwe is not the only language with morphologically-rich INs. Light verb NI in Inuktitut involves more often than not non-inflected forms, but in some dialects (Greenlandic) it has been claimed that it is sometimes possible for INs to bear number and possessive marking (Sadock 1980; Fortescue 1984; Denny 1989), Ojibwe also shares with Inuktitut the property of predicate nominal incorporation, a property which sets both languages apart from other NI languages). Gerds and Marlett (2008) also report that in Halkomelem Salish denominal verb constructions (which appear to have all the properties associated with light verb NI), nouns can be inflected for number, carry diminutive marking, be compounds and even be modified by adjectives. The latter property is a property that surfaces with Ojibwe INs and it is the topic of the next section.

#### 4.2 Modificational data

Whereas it is traditionally thought that modifiers cannot surface with INs in the verbal complex (they are always stranded in Iroquoian, Baker 1988, 1996),<sup>40</sup> it is in contrast possible in Ojibwe for modifiers to modify INs directly within the verbal complex, as shown by (47)a,b,c, d.<sup>41</sup>

<sup>40</sup> Baker (2009) argues that since modifiers in Mohawk cannot accompany the incorporee within the stem, it is not possible to claim that an *n*P style movement à la Koopman and Szabolcsi (2000) can replace head movement for NI in Mohawk. Ojibwe provides evidence that such phrasal movement for NI is possible.

<sup>41</sup> Reviewer #3 asks whether it is possible to modify INs denoting colors. The answer is yes.

- (47) a. shkihiiwan (Rhodes 1976: 261)  
**shki**-hii-w-an  
 new-thing-*w*-be.VII  
 ‘It is a new thing.’
- b. gmino-gwiiwzensiw (Valentine 2001: 710)  
 gii-**mino**-gwiiwzensw-i  
 2-good-boy-*w*-VAI  
 ‘You are a good boy.’
- c. gichi-sabiike (Ella Waukey, 2008-05-06)  
**gichi**-sabii-ke  
 big-net-*y+e*-VAI  
 ‘He/she is making big nets.’
- d. ngii-gchi-gwiiwzensiw (Valentine 2002: 489)  
 niin-gii-**gichi**-gwiiwzens-w-i  
 1SG-PAST-big-boy-*w*-VAI  
 ‘I was a big boy.’

Reviewer #1 questions this type of evidence on the grounds that modifiers such as *shki* “new” or *gichi* “big” cannot appear separately from nouns. Unlike numerals (22), they cannot be stranded. I want to show, however, that, although the modifiers in (47) are bound forms, they are nevertheless syntactically and phonologically independent from the stem.

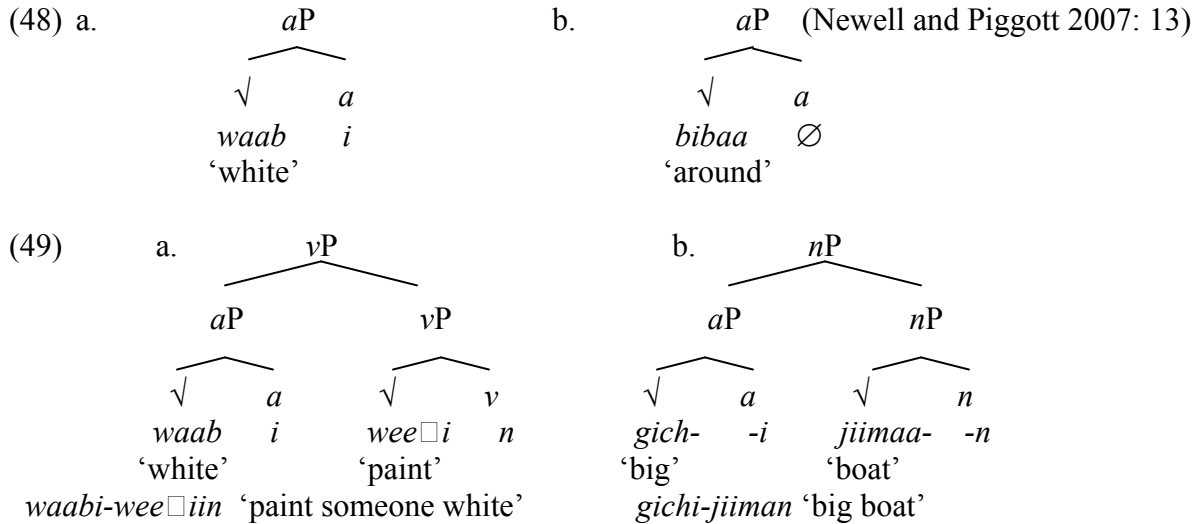
First, as noted by Valentine (2002: 489), the structure of (47)d is [[*gichi-gwiiwzens*]+*wi*], since the meaning is “I was a big boy”, not “I was really a boy” with the structure [*gichi*-[*gwiiwzens+iwi*]] (*gichi* is ambiguous, being between an adjective and an adverb). This shows that the modifier modifies the IN rather than the whole verb. The same logic can be applied to the example in (47)c. This sentence means “He/she is making big nets” with the structure [[*gichi-sabii*]+*ke*], not “He/she is really making nets” with the structure [*gichi*-[*sabii+ke*]]. Generally, Goddard (1990: 479-480) has shown that modifiers in Algonquian do not necessarily modify whole verbal complexes, but can simply modify elements within those verbal complexes. He concludes from examples such as those introduced in (47) that in Algonquian languages “the concatenation of elements in the sentence logically precedes the morphological composition of the stem”.

Second, the alternative, suggested by Reviewer #1, according to which the adjective forms with the noun a compound of two heads via head movement in the syntax through incorporation (either to a verb or a adjective) or via compounding in the lexicon, to form a further compound, must be rejected.

Let me deal with the first objection raised by Reviewer #1. First, since most adjectives in Algonquian are verbs, it might be possible, as proposed by Reviewer #1, to entertain the idea that the nouns in examples such as those in (47) actually incorporate into a verb. Now, although it is true that most adjectives in Algonquian may be viewed as verbs, and that incorporation into adjectives appears possible, *shki* “new”, *mino* “good” and *gichi* “big” in (47) are not verbs (this is uncontroversial), but adjectives. They do not inflect for gender or show transitivity alternations (unlike verbs, VAI versus VII verbs). They also carry specific morphology that indicates that they are adjectives as opposed to something else. As noted by Newell and Piggott (2007), preverbal and pronominal modifiers in Ojibwe are morphologically complex (see also Goddard 1990 and Valentine 2001): every preverb consists of a root and a category-defining *-i* (the most

common ending for this category). For example, the preverb *waabi* “white” in (47)e is built from the root *waab-* + category-defining *-i*, which Newell and Piggott (2007) identify as the exponent of derivational little-*a* (see also Valentine 2001). Other examples are: *nitami* “first”, *ginibi* “quickly”, *agaachi* “small”. Since in Ojibwe (and in other Algonquian languages), there is no formal difference between elements construed as adverbs or adjectives, I follow Newell and Piggott (2007) in viewing the features of *-a* as covering a category that subsumes both adverbs and adjectives.

(48)a gives the structure for a preverb such as *waabi* “white” while (48)b gives the structure for the preverb *bibaa* “around” which has a zero exponent. In this perspective, Ojibwe modifiers are no different from English or French modifiers, e.g., *quick-ly*, *rapide-ment*. The modifiers attach to *vP* and *nP* as shown in (49) via secondary derivation.



Second, if incorporation into the adjective was involved, my guess is that it could not possibly involve incorporation via head movement because the noun surfaces to the right of the adjective. Ojibwe, like other Algonquian languages, has a strict rightward scope hierarchy, so the suffixes to the right have scope over those appearing to the left. This follows from the idea that the morphological structure is the mirror image of the syntactic representation (scope is derived via c-command). Adjectives have scope over their associated noun. Therefore, they are expected to be base-generated higher than nouns in the syntax, which means that after incorporation via head movement they should appear to the right of the noun. The modifiers in (47), however, appear to the left of the noun.

Finally, let us turn to the other suggestion made by Reviewer #1 that the adjective and the noun form a lexical compound. First, as pointed out by Newell and Piggott (2007), the combination of a modifier and a verb stem in Ojibwe does not create a root-root compound, since each component of a modifier-verb construction contains a category-defining little-*x*. Second, although modifier-verb combinations have some resemblance to English compounds like “dry-clean”, “cold-rinse” or “half-close”, the Ojibwe pattern is more productive (Newell and Piggott 2007: 13) and thus appears to be syntactic rather than lexical. Second, although groupings such as “new thing” or “white car” in Ojibwe are compounds in that they are morphologically fused, they are not compounds semantically. In Ojibwe, modifiers that modify INs lead to an interpretation which is completely transparent. This cannot be said of lexical

compounds in general. Although Ojibwe has compounds of the traditional kind (e.g., *shkode-daabaan* “train” (lit. fire-car)), these are clearly different from groupings such as “new thing”, “good boy”, “big nets”, etc.

Further evidence against treating groupings such as “new thing” or “big net” in (47) as lexical compounds comes from the fact that the INs in Ojibwe may contain, as I illustrated in section 4.1, derivational and inflectional affixes, that make them fairly complex. Like Massam’s (2001) analysis of Niuean phrasal NI, I take the presence of grammatical morphemes to indicate grammatical structure. Thus, from the examples containing agreement and possessive morphemes, I conclude that incorporated elements in Ojibwe are phrasal and it is not possible to entertain the idea that the modifier in (47) has merged with its associated noun via head movement.

Yet further evidence against the idea that modifiers and INs form a compound comes from the fact that modifiers are relatively independent phonologically from the nouns they modify. Although Ojibwe modifiers are part of the phonological word as far stress is concerned (Piggott and Newell 2007), segmental phonological rules do not cross the boundary between a modifier and a verb or between a modifier and a noun. This shows that, at the very least, Ojibwe modifiers have a status that is intermediate between a bound form and a fully separate word. I will take the stronger line, according to which they are fully separate words. Evidence that modifiers in Ojibwe may in some cases be separated completely from their putative hosts and bear stress independently from the stem will be given in the next section.

#### 4.3 Ojibwe preverbs/prenouns are independent words

In Ojibwe, the prosodic word is divided into metrical feet that consist of two syllables: one weak, the other strong. The counting begins at the beginning of the word. Some vowels find themselves in weak positions, others in strong positions. Long vowels are always strong and so is the last vowel in a word. Stress is given to strong vowels while (in the dialect described herein)<sup>42</sup> weak vowels are reduced to *schwa* or simply deleted. The main stress is given to the strong syllable in the third foot counting from the end of the word (or the leftmost foot if the word contains less than an adequate number of syllables to be able to count three feet). The remaining vowels in strong positions receive secondary stress.

To illustrate, in (50)a the first syllable receives main stress. This is because it contains a vowel that is strong in the third feet from the back. In (50)b there are two feet only: it is the second syllable that receives main stress. This example shows that modifiers of verbs can receive main stress on their last syllable. In the case of *-gii* (past tense) (50)c, it always receives secondary stress, since it contains a long vowel and it is thus never deleted. (50)d shows that past tense *-gii* can receive main stress. (50)e shows that two syllable modifiers receive secondary stress on the second syllable even when another syllable receives main stress, which explains why the final /i/ of the modifier is not deleted (parentheses are used for syllables, vertical lines for feet while stressed syllables are underlined – note that /e/ is always a long vowel). In fact, that syllable can receive main stress if in the appropriate environment, as seen in (50)f (the stress pattern for the following nouns and verbs was checked with two speakers, 2009-06-15).

<sup>42</sup> Vowel deletion is possible in Eastern Ojibwe and Odawa, but not in Minnesota Ojibwe.

- |         |  |   |
|---------|--|---|
| (50) a. | bezhgooganzhii<br>bezhigooganzhii<br>'horse'   | ( <u>be</u> ) (zhi)(goo) (gan)(zhii) <br>s w s w s    |
| b.      | bmigiawe<br>bimi-giawe<br>away-VAI<br>'He/she is on his way home.'                         | (bi)( <u>mi</u> ) (gii) (we) <br>w s s s              |
| c.      | gii-bmigiawe<br>gii-bimi-VAI<br>PAST-away-go.home<br>'He/she was on her way home.'         | (gii)- (bi)( <u>mi</u> ) (gii) (we) <br>s w s s s     |
| d.      | gii-izhiayaa<br>gii-izhi-ayaa<br>PAST-certain.state-VAI<br>'He/she is in a certain state.' | (gii) (i)(zhi) (a)(yaa) <br>s w s w s                 |
| e.      | gchi-esbanag<br>gichi-esban-ag<br>big-racoon-PL<br>'big raccoons'                          | (gi)(chi) ( <u>e</u> ) (si)(ba) (nag) <br>w s s w s s |
| f.      | gchi-makwa<br>gichi-makwa<br>big-bear<br>'big bear'  | (gi)( <u>chi</u> ) (mak)(wa) <br>w s w s              |

These examples show that modifiers are part of the stress calculus and consequently that the whole verb or nominal complex behaves like a phonological word. Like compounds in English, only one main stress is possible: compare the compound *black-board*, with stress on “black”, versus *black board*, where both elements receive stress. The Ojibwe example in (51), however, shows that modifiers behave as separate words as far as stress rules are concerned. The modifier is *-bi* “come.and” and the stem is composed of the root *nagamo* “sing” and the imperative *-n* suffix. Although the modifier *bi* is in a weak position, its final /i/ cannot be deleted. (51) is ungrammatical. In other words, the modifier defines a domain in which the vowel in its last syllable is always strong, just like any other phonological word.

- (51) a. bi-nagmon | (bi)(na)(ga)(mon)|  
           bi-nagamo-n                   w       s       w       s  
           come.and-sing-IMP  
       b. \*bnagmon

This is an example given by Valentine (2001: 60-61). Let me give another example, this time from the nominal domain. Let us use the modifier *agaasi* which means “small” and which contains three syllables, making sure that the final /i/ does not necessarily end up in a strong position (bisyllabic modifiers will always receive stress on the second syllable if they start the sentence). In (52)a the main stress falls on the fourth syllable, which means the final /i/ of *agaasi* is in a weak position. It should thus be a possible target for deletion. The vowel does not,



- (56) a.  $\cap$   
 gichi-inenim  
 big-think.highly  
 ‘to think highly of someone.’
- b.  $\cap$   
 gichi-ogimaa  
 big-chief  
 ‘great chief/leader’
- (Newell and Piggott 2007: 13)

Now, when an Ojibwe nominal that surfaces with an adjective incorporates into a light verb, we find exactly the same V-V sequence between the adjective and the nominal. This is illustrated in (57). The fact that the V-V sequence is tolerated shows that the adjective is autonomous in relation to the nominal.

- (57) a.  $\cap$   
 gichi-amike  
 gichi-amik-ke  
 big-beaver-VAI  
 ‘He/she is looking for big beavers.’
- b.  $\cap$   
 gichi-animoshi  
 gichi-animosh-i  
 big-dog-VAI  
 ‘to have a big dog’

Consonant epenthesis also shows nicely that modifiers are not affixes (i.e., bound forms). Whereas proclitics, which always appear at the left of the verbal complex, merge with a stem beginning with a vowel, the consonant /d/ has to be inserted between the proclitic and the stem as in (58)a. As illustrated in (58)b consonant epenthesis is not necessary nor in fact is it possible in the case of modifiers that surface with INs.

- (58) a. nidizhaa (Newell 2008: 144)  
 ni-d-izhaa  
 1SG-d-go  
 ‘I go’
- b. \*gichidesbanke  
 gichi-d-esban-ke  
 big-d-racoon-VAI  
 ‘He/she is looking for big raccoons.’

That modifiers in Ojibwe are not connected to the stem the way prefixes or bound forms are is clear from the behavior of these modifiers in discourse. Occasionally it is possible for independent particles or adverbs to intervene between the modifier and the stem. In (59), the emphatic particle *sa* surfaces between the past tense preverb *-gii* and the verbal stem. Such examples indicate the weakness of the preverb-stem boundary. In (60) the demonstrative *naanda* “this” surfaces between the past tense preverb *-gii* and the verbal stem. The space left by the separation of the modifier and the stem is indicated by  $\Downarrow$ .

- (59) gye win      maaba niikaanis      waajnokiimag      (Valentine 2001: 62)  
 also he/she    this      1SG-friend      with-work-1SG/3SG

gchi-waasa    **gii-sa**                      ↓      **wnji-baa**      widi              giowednong...  
 very-far      PAST-EMPH                      there-came    over there      to the north  
 ‘My friend here, too, my fellow worker, has come from far away north...’

- (60) ... bjiinag go      naa    **wgii-nanda**    ↓    **naajmotwaawaan**    Niibaakhomoon  
 shortly indeed thus    3-PAST-this              tell-3SG/3PL-OBV    Niibaakhom  
 ‘... so they just made up some kind of story to tell Nibakom.’

This phenomenon has also been documented for Fox. Michelson (1917: 51) and Dahlstrom (1987: 65-71) show that preverbs may be followed by one or more enclitic particles or nonenclitic words that are not part of the verbal complex. Dahlstrom (2000) shows that preverbs and verbal stems can be separated not only by words but also by phrases and embedded sentences. Voorhis (1971: 71-73) shows that preverbs may be pronounced as separate words, with a following pause. Goddard (1988: 194-195) shows that preverbs may be followed by a written-word divider in texts written by native speakers in the Fox syllabary. In Menominee, it has also been shown that particles can appear between preverbs and verbal stems (cf. Cook 2003 and Shields 2008). In sum, as mentioned by Brittain (2003: 3), “this word boundary is a salient feature to speakers of Algonquian languages. Many orthographic conventions represent the preverb and verb stem as separate words” (see, for example, Ojibwe texts at <http://www.whiteowlservices.ca/>). There are even modifiers that are never attached to the stem in orthography, e.g., *apiiji* “very, much”.

While Valentine (2001) does not provide examples with modifiers of INs separated by particles in sentences of the type illustrated in (47), elicitation work with speakers yielded the following examples, where it is clearly possible to insert a particle between the modifier and the IN.

- (61) a.      gichi sa ↓ amike                                      (Ella Waukey, 2009-06-15)  
               gichi sa      amik-ke  
               big    PRT    beaver-VAI  
               ‘He/she was looking for really big beavers.’  
       b.      gichi go/naa ↓ amike                                      (Berdina Johnston, 2009-06-15)  
               gichi go/naa      amik-ke  
               big    PRT/PRT    beaver-VAI  
               ‘He/she was really looking for big beavers.’

Finally, let me point out that, if Ojibwe modifiers attached to their hosts via head movement, then it would impossible to explain why they can take scope over complements of the verb or the noun. Consider (62) where *binigi* “quickly” modifies the verb *bootaage* “grind” and *mino* “good” modifies the noun *mdaamnán* “corn(OBV)”. The adverb *binigi* clearly modifies the whole verb phrase, verb and object included, not simply the verb. Therefore, it must be the case that the adverb is adjoined to the verb phrase, not simply adjoined to the verb (in order for the meaning to be compositional and interpretable at LF, the adverb has no other possible attachment). The same can be said of the adjective *waabi*. It modifies not only the noun



*mdaamnan* “corn(OBV)” but the complement relative clause as well, since it is the corn that they were going to use that is white, leaving out any other possible type of corn unground. If the adjective modified only the noun, it would not be possible to obtain this interpretation, scope being restricted to strict c-command. Note that it is not possible to claim that the modifier *binigi* “quickly” manages to get scope over the object through the object affixes in the verb stem on the assumption that these are the arguments of the verb. While this may work for transitive verbs generally, the verb that I am using in (62) is one that does not inflect for object agreement, since it is inflectionally intransitive (see discussion around (18) above).

- (62) Gii-**binigi**-bootaagewag giw kwewag niw **waabi**-mdaamnan [waa-abjitoowaad]  
 PAST-quickly-VAI-3PL those woman-PL that white-corn-OBV wh.fut-use-3PL  
 ‘The women ground up the white corn that they were going to use.’

This concludes Section 4. It was argued that Ojibwe INs are complex elements (minimally *n*Ps, maximally PersPs with possible modifiers) that raise to their incorporating hosts via phrasal movement.

## 5 Conclusion

The study of Ojibwe noun incorporation carried out in the present research has shown that roots are not the only possible elements targeted by incorporation cross-linguistically: INs can be phrasal and undergo XP movement.

One consequence of my analysis is that, although verbal and nominal complexes in Ojibwe exhibit polysynthetic properties, they are not built into the lexicon. While the traditional literature treats the assembly of words in Algonquian languages as lexical, i.e., pre-syntactic (Bloomfield 1946; Wolfart 1973; Rhodes 1976; Goddard 1979; Nichols 1980; Dahlstrom 1991; Valentine 1994), everything points to the view that the formation of words in these languages is syntactic.

Although I focused on nominals, the contribution of phrasal movement to word formation is not restricted to the nominal domain, but can clearly be extended to *v*Ps and *a*Ps. Further research will be undertaken to show that *v*Ps and *a*Ps in Ojibwe raise to the specifiers of dedicated heads and that the newly-created complex syntactic units can themselves raise to higher specifiers via roll-up movement (providing further evidence that such an operation is possible in the syntax (cf. Pearson 1998, 2000; Rackowski and Travis 2000; Cinque 2005; Travis 2006 ) but also in the syntactic derivation of words (cf. Julien 2002; Koopman 2005, 2006; Svenonius 2007; Buell et al. 2008).

Finally, further research is needed on the kind of predictions my proposal makes, most notably with regard to the incorporation of agents and non-arguments. If INs in Ojibwe and in Algonquian more generally undergo XP, rather than head movement, it might be tempting to predict that agents and adjuncts will be free to incorporate, since heads, but not XPs, are subject to the Empty Category Principle (Baker 1988, 1996). Initial evidence points to the view that in Innu, inanimate agents, instrumentals, etc. may incorporate (Drapeau 2008) while Fox allows all sorts of NPs to incorporate, including animate agents (Dahlstrom 2000).

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