
Ewa Czaykowska-Higgins and Marie Louise Willett  
University of Victoria

Agatha J. Bart  
Nxa?amxcln Language Preservation Project

0. Introduction

Lexical suffixes, bound morphemes which carry primarily lexical rather than grammatical content, occur in all Salish languages, although their number and the extent to which they are used in each language varies. Most lexical suffixes refer to nominal concepts, with the largest class consisting of body part suffixes, and they can have concrete senses (e.g., *=alt* 'child') or more metaphorical senses (e.g., *=anaʔ* 'ear' also is used to mean 'all over'). In all the Salish languages there exist independent nouns whose meanings are similar to those of the lexical suffixes, but whose phonological forms are usually distinct from those of the corresponding lexical suffixes. This fact has raised two questions in particular: the first concerns the lexical suffixes' origins, the second, their function in words and sentences.

As regards the first question, studies such as Egedal (1981), Mattiussi (1987), and Carlson (1909, 1911) all suggest that lexical suffixes likely developed from a process of compounding of root morphemes. According to these researchers it is possible to find phonologically and semantically related pairs of lexical suffix and independent noun. Thus, for instance, in Spokane, Carlson has found about two dozen such pairs. Furthermore, Spokane has a synchronous process of root-compounding, and Carlson shows that the same types of head-modifier relations exist in root-root compounds and in root-lexical suffix forms.

As regards the second question, it is well known that lexical suffixes are associated with thematic roles in words and in sentences—in the sentence *ko=t'aip* 'I cut down a tree', for instance, the lexical suffix *-t'a* serves as the theme of the root *ko* 'cut'. The fact that lexical suffixes are associated with thematic roles means that constructions in which they appear resemble, at least superficially, constructions in non-Salish languages which researchers of those languages have labelled noun incorporation. The term 'noun incorporation' has been defined as "the combination into one word of the noun object and the verb functioning as the predicate of the sentence" (Kroeber 1909: 37), or, in one example of more recent work as "a process whereby nouns combine with verbs to produce a complex verb" (Rosen 1989: 294). The Nxa?amxcln example *ko=t'aip* 'I cut down a tree' certainly seems at first glance to fit in with both of these definitions, and this apparent resemblance to what has been called noun incorporation in other languages has naturally led researchers on Salish to wonder if lexical suffixes are incorporated nouns. Kroeber (1909) and Sapir (1911), for instance, concluded that in spite of their thematic properties, lexical suffixes are not incorporated nouns because they so often do not resemble phonologically the corresponding independent nominals (see also Hagee 1978, 1981). In contrast, Gerds and Hinkson (1996), have suggested that some uses of lexical suffixes in Halkomelem and elsewhere in Salish are instances of noun incorporation (as defined in the work of Rosen 1989). Importantly, however, Gerds and Hinkson suggest that lexical suffixes can also be used in noun-compounds and in applicative constructions, and that they exhibit different degrees of grammaticalization, with "an increasing abstraction of meaning [being] concomitant with a gradual grammaticalization" (Gerds and Hinkson 1996).

In addition, Saunders and Davis (1975a,b, 1977) and Davis and Saunders (1975), while not specifically addressing the question of whether lexical suffixes are incorporated nouns, have proposed that some lexical suffixes in Bella Coola are "incorporated" into predicates as a result of a semantic-syntactic process of lexical suffix copying, an early precursor to the type of syntactic analysis that has been given for noun incorporation constructions in non-Salish languages by Baker (1986, 1996) and Sadock (1980, 1985). Our intention in this paper, therefore, is to determine to what extent, if any, lexical suffixes in Nxa?amxcln exhibit properties which have been attributed to incorporated nouns in recent literature on the subject, represented by the work of Mithun (1984), Baker (1988, 1996), and Sadock (1980, 1985). Since all these researchers have more or less different categorizations of the types of constructions that are included under the label of noun incorporation, and since they attribute similar but not identical properties to noun incorporation, we do not attempt to address here the issue of whether lexical suffixes truly are incorporated nouns. We do show, however, that lexical suffixes in Nxa?amxcln exhibit to varying degrees four properties which one would expect them to have if they were incorporated nouns. First, all researchers on noun incorporation agree that incorporated nouns assume thematic roles in sentences, but there has been some discussion concerning the question of what kinds of roles incorporated nouns can assume. We show that in Nxa?amxcln there is evidence that lexical suffixes assume thematic roles, goal, locative and instrument roles, and suggestive, though potentially problematic evidence that they may assume an agent role. Second, Mithun (1984) and Rosen (1989) in particular have suggested that transitivity facts may differ depending on the type of noun incorporation. Therefore we consider how using lexical suffixes affects transitivity, showing that in fact both transitive and intransitive predicates are possible with lexical suffixes. Third, certain types of noun incorporation constructions have been argued to allow doubling (i.e., the presence of an overt NP coreferential with the incorporated noun). We illustrate that Nxa?amxcln does not allow doubling if the lexical suffix has a theme or a goal thematic role, but that in all cases the language does allow an independent nominal to be coreferential with a lexical suffix in the predicate if the independent nominal is marked as oblique. And fourth, we look at referentiality, an important property in Baker (1986) and Sadock (1980)'s analyses of noun incorporation as syntactic in certain languages. We present the results of referentiality tests on Nxa?amxcln and suggest that these results do not provide conclusive evidence that lexical suffixes are referential but they also do not provide conclusive evidence that they are not referential.

The paper is organized as follows: section 1 briefly describes the different types and uses of lexical suffixes; section 2 describes the thematic roles lexical suffixes may assume; section 3 considers transitivity effects and doubling; and section 4 discusses referentiality.

1. Nxa?amxcln Lexical Suffixes

In Nxa?amxcln there are approximately 90 affixes that can be categorized as lexical suffixes. Lexical suffixes occur in a number of different types of words, may or may not assume thematic roles within the structures in which they are found, and can be more or less semantically fused or lexicalized together with the roots with which they cooccur, or together with other lexical suffixes. In this section we very briefly discuss the different subclasses within the lexical suffix category as a way of providing a context for the data that we present in subsequent sections.

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To begin with, it is possible to separate the lexical suffixes into essentially three subclasses based on the types of meanings that they have: 1) Body-part Suffixes: 28 affixes refer specifically to body-parts (e.g., =akst 'hand', =alps 'back of neck', =cin 'mouth', =us 'face', etc.); 2) Object Suffixes: 33 affixes refer to objects other than Body-parts; this set of objects seems random in the sense that there is no particular meaning element common to the entire set (e.g., =waht 'stone', =sait 'child', =atx 'house', =ewil 'vehicle', etc.); and 3) Miscellaneous: about 25-30 suffixes belong to a miscellaneous category either because their meanings are unclear, or because they are neither Body-parts nor specific Objects (e.g., this category includes =a?st 'stone', =alps 'back of neck', =ein 'mouth', =us 'face', etc.).

2 Nxa'amx'cxl allows more than one lexical suffix to occur in a word. In such cases, the lexical suffixes behave in two different ways: first, in a sequence of two lexical suffixes, the first may combine semantically with the root to form a Root+LS stem (e.g., in na-lop-k'axaw-akst 'hit someone with a stick' the second suffix =akst 'stick' forms a stem with the prefix na- 'hit' and the root =lop 'hit' meaning 'reach with hand', and the second suffix =akst 'water' specifies the location of the reaching'; second, the two (or three) lexical suffixes may combine semantically with each other to form a compound lexical suffix which behaves as a semantic unit (e.g., in k'axaw-akst 'sprain out of control'). The phonological properties of the two types of lexical suffix sequences are identical (see Kinkade 1973, Czajkowski 1982, Czajkowska-Higgins 1996 for discussion of lexical suffix sequences).

3 In this paper we take no paper on the question of whether Salish languages, and Nxa'amx'cxl in particular, distinguish lexically between nouns and verbs. Throughout the paper, therefore, we use the terms 'nominal, NP, verb' loosely (see Kinkade 1983, van Eijk and Hess 1986, Demirdache and Matthewson 1995 among many others for discussion of this issue).

4 Note that the lexical suffix =us does not actually mean 'neck'; it is generally translated with meanings such as 'face' (its most common meaning), 'eye, fire, road'. However, there does seem to be a tendency for at least some lexical suffixes to behave as classifiers (see for example, Rosen...
While the properties of Root+Lexical Suffix Compounds are of interest in themselves, the purpose of this paper is to focus only on the properties of forms which very clearly belong to the category of Root+Lexical Suffix Predicates. We suspect that future research will require us to examine Root+Lexical Suffix Compounds more closely, and that it will reveal certain parallelisms in the semantics of the two types of forms, particularly since at least some instances of Root+Lexical Suffix Compounds are likely to be "lexicalized" versions of Root+Lexical Suffix Predicates.

2. Thematic Interpretations

The first property of Root+Lexical Suffix Predicates that we focus on involves the thematic interpretations assumed by lexical suffixes in such constructions in Nxa?amxcin. Since definitions of thematic roles and a proper theory of thematic relations are under considerable discussion in the linguistic literature (see, for example, Jackendoff 1987, 1990, Tenny 1994, Dowty 1991), in this paper we define the different thematic roles assumed by lexical suffixes rather loosely, along the lines of the definitions laid out in Jackendoff (1972) and Gruber (1965).

In the literature on various Salish languages it has been shown that lexical suffixes can assume the role of theme, instrument or locative within a clause (Kroeber 1909, Sapir 1911, Saunders and Davies 1973, Davies and Saunders 1975a, b, 1977, Gerdts and Hinkson 1996, among others). The Nxa?amxcin evidence suggests that Nxa?amxcin is the like the other Salish languages in allowing lexical suffixes to be semantically interpreted as themes, locatives, or instruments. In addition, the Nxa?amxcin data also suggest that lexical suffixes may be interpreted as goals.

Finally, there is some evidence that lexical suffixes may take on an agent thematic role, although this evidence needs to be examined more closely in future research. We begin first by looking at the evidence for themes and goals, followed by evidence for the locative and instrumental thematic roles, and turning finally to the agent cases.

1989 for a definition) and that may be what is happening here.

In cases where a lexical suffix might have a classifier function, a type of doubling is permitted although not required, with the lexical suffix normally serving to provide the more general meaning, and the independent nominal providing a specific referent. In the examples in (i) we see the lexical suffix -xa acting as a classifier, -xa is used in other types of forms which refer to "window", and one can imagine that it is literally understood as the "eye or face of a house" and therefore its meaning and that of the independent nominal are obviously related.

(i) a. *wok't?dx's a b?x'sn=dx'sxcin 'big windows'
   b. s-x?x=xw=dx'sxcin 'small windows'

In the examples in (ii), however, the lexical suffix -x is generally referred to as a nominal rather than in the examples in (i) we see the lexical suffix -xa acting as a classifier, -xa is used in other types of forms which refer to "window", and one can imagine that it is literally understood as the "eye or face of a house" and therefore its meaning and that of the independent nominal are obviously related.

(ii) a. *wok't?dx's a b?x'sn=dx'sxcin 'big windows'
   b. s-x?x=xw=dx'sxcin 'small windows'

The same lexical suffix may serve as either referential or non-referential, depending on the Root with which it combines. Since the term 'referential' is difficult to pin down, we do not use it here to distinguish classes of lexical suffixes. However, for the most part, forms that Czaykowska-Higgins would analyze as containing non-referentially used lexical suffixes correspond to our Root+Lexical Suffix Compound class, while forms that Czaykowska-Higgins would analyze as containing referentially used lexical suffixes correspond to our Root+Lexical Suffix Predicate class.

The theme role is defined here as the relation representing an object undergoing motion or change. Lexical suffixes denoting a theme role surface both with root-predicates that semantically require two arguments (4) and with root-predicates that select an internal argument as their only argument (namely, unaccusatives; see 5 & 6). In sentences whose meaning parallels those in (4)-(6), but in which an independent nominal rather than a lexical suffix appears, the independent nominal corresponding to the lexical suffix is marked as a direct argument (see 5b):

**Theme**

(4) a. *wok't?dx's a b?x'sn=dx'sxcin 'big windows'
   b. s-x?x=xw=dx'sxcin 'small windows'

The term goal is defined as the thematic role expressing the object toward which an activity of an event is directed. The examples in which the lexical suffix is to be interpreted as a goal are less common than those where it is a theme, and, in fact, all the cases that occur in the data involve the lexical suffix -alt 'child'. This may be because -alt 'child' is the only lexical suffix whose meaning could easily be interpreted as a goal, or it may be an artefact of the data corpus. Nevertheless, such cases are readily interpretable and easily produced by native speakers.

**Goal**

(7) a. *wok't?dx's a b?x'sn=dx'sxcin 'big windows'
   b. s-x?x=xw=dx'sxcin 'small windows'

5 Czaykowska-Higgins (1996) claims that there are two types of lexical suffixes in Nxa?amxcin, referential and non-referential. Referential lexical suffixes are defined as suffixes which have referential meanings, serve as arguments in sentences, and hence play a role in the syntax, while non-referential lexical suffixes are defined as having non-referential meanings and playing no role in the syntax. The same lexical suffix may serve as either referential or non-referential, depending on the Root with which it combines. Since the term 'referential' is difficult to pin down, we do not use it here to distinguish classes of lexical suffixes. However, for the most part, forms that Czaykowska-Higgins would analyze as containing non-referentially used lexical suffixes correspond to our Root+Lexical Suffix Compound class, while forms that Czaykowska-Higgins would analyze as containing referentially used lexical suffixes correspond to our Root+Lexical Suffix Predicate class.
(9) a. křemélít t sw’šnaʔs
   kl-včam-stít
   LOC-vfeed=child OBL huckleberries
   She sent the children huckleberries.

b. křomc wa s¢am’álIt t sw’šnaʔs
   kl-včam-n-t-Ø-s
   LOC-vfeed-n-t-Ø-s SPEC children OBL huckleberries
   She sent the children huckleberries.

(10) ciMú kn sci’ay’stít
    s-vl’ay’stít
    always 1sS NOM-vlecture=child
    I always lecture/advise the child.

In sentences with meanings paralleling those of the goal lexical suffix examples in (7)-(10), but in which the goal is an independent nominal rather than a lexical suffix, the goal is often marked as a direct argument. Thus in (9b), a sentence which parallels (9a), the goal sci’am’tl ‘children’ is marked as a direct argument, and is even preceded by the morpheme wa which may be an absolutive marker (see Willett 1996).

The locative thematic role is defined as the thematic relation expressing location towards which an event is directed, or the location in which an event/object is situated. For our purposes this includes cases which might be subsumed under the thematic relation of goal/theme, such as the examples in (11) and (13). The reason for including such examples under the locative role category is that they differ from the goal/theme cases seen above in that sentences with parallel meanings but with independent nominals instead of lexical suffixes are found to have the independent nominal marked as an oblique rather than as a direct argument. Thus in (13b) ?acp’ák’ ‘tree’ is preceded by the locative preposition i:

9. The thematic role of instrument is used to refer to objects which are the means by which an activity is effected. Instruments are rarer than locatives, and in all our examples the lexical suffix which assumes the instrument interpretation is a Body-part suffix. It remains to be determined whether this is always true, or whether it simply reflects a gap in the data.

   Instrument
   (14) yym’ståk k n
       yyy’ståk k
       vforce=hand 1sS
       I used a lot of force with my hand.

   (15) xal’ya’llátmm
       xal’-ya’llátmm
       DIS-vturn=hand-REL
       stir something (literally: turn with hand)

   (16) a. yym’xmnis
       wa ?acl xå’lit
       yyy’wxn-min-t-Ø-s
       push=foot-REL-TR-30-3sS SPEC DET rock
       He pushed that rock aside with his foot

   b. yym’mis
       t sc’u7xns
       ?yrr-min-t-Ø-s
       push-REL-TR-30-3sS OBL foot
       He pushed it aside with his foot

As is the case with locatives, independent nominals representing instruments are marked as oblique objects (see 16b in which ’oblique’ precedes the word ‘foot’).

The thematic role of agent is defined as the object to which is attributed will or volition toward the action represented in the predicate. There are in our data five examples in which a lexical suffix might possibly be interpreted as the agent of the action. These are listed below. In each case the lexical suffix =alt ‘child’ can be interpreted as having some will or volition in relation to the activity represented in the verb:

   Agent
   (17) lox’commdít
       vla’xt=cor-m=dit
       vcrv=mouth-MID=child
       Someone’s baby cried.

   (18) x’ay’smáált ?acl Linda
       xls’ay’=om=dit
       vrun-away-MID=child DET Linda
       Linda’s child ran away.

   (19) ?acl sqal’tmlx’ ciMú sv’špáltks
       s-vl’spáltks
       DET man DET NOM-vtake off-INCH=child
       That man’s child is always racing/dashing ahead.
Taken at their face value, the stems (i.e., cry, laugh, dash ahead, take off, sing) to which the lexical intransitive predicates which select one, external, argument. If we could show that these predicates are indeed unergative, then this might allow us to consider less tentatively that the lexical suffixes do in fact represent agents, since external arguments are often associated with an agent thematic role. The selectional restrictions and subcategorization frames of roots and of derived stems in Nxaʔamx̣dn have yet to be examined in any detail, however, and therefore we cannot be sure of the (unergative) status of the stems to which the lexical suffixes are affixed. At present, therefore, the agent data are suggestive, but not conclusive.6

In this section, then, we have suggested that Nxaʔamx̣dn allows lexical suffixes to assume the agent thematic role. Given that Nxaʔamx̣dn allows lexical suffixes to assume the agent role and that it may allow lexical suffixes to serve as agents, we can conclude tentatively that the language allows more freedom in the types of thematic roles exhibited by lexical suffixes than is generally found to be the case for what have been called incorporated nouns in other languages.

3. Transitivity and Doubling

In this section we outline the properties of Root+Lexical Suffix Predicates with respect to transitivity and doubling. The data show that if the lexical suffix on a predicate is a theme or a goal, the Root+Lexical Suffix Predicate may be either transitive or intransitive. In addition, an independent coreferential nominal may occur in a construction containing a theme/goal lexical suffix, but only if that independent nominal is marked as an oblique Noun Phrase (NP). In transitive constructions, moreover, an independent direct argument nominal may occur, but it is never coreferential with the theme/goal lexical suffix; instead it (as well as the object marker on the transitive predicate) is interpreted as the possessor of the lexical suffix.

If the lexical suffix on a predicate is a theme or an instrument, the Root+Lexical Suffix Predicate may also surface as transitive or intransitive. As in the theme/goal cases, an independent obliquely-marked nominal which is coreferent with the lexical suffix may also occur in a sentence containing a Root+Locative/Instrument Lexical Suffix Predicate. However, the locative/instrument lexical suffix cases differ from the theme/goal cases in that in a transitive Root+Locative/Instrument Lexical Suffix Predicate, a direct object may occur but is never interpreted as a possessor of the lexical suffix, nor, of course, as being coreferent with the lexical suffix.

We begin this section by focussing on cases in which the thematic role of the lexical suffix is a theme/goal.

3.1 Root+Theme/Goal Lexical Suffix Predicates

The data indicate that Root+Theme/Goal Lexical Suffix Predicates may surface as intransitive, as in (22) and (23):

(22) kaixlilt              t
    cut=tree   1sS
     I cut down a tree.

(23) kala?amx̣dn stxW1l1
    give=child OBL
     He gave his child a house.

These examples bear resemblance to a particular type of noun incorporation that has been referred to in the literature as "lexical compounding" (Type I) by Mithun (1984) or "compound noun incorporation" by Rosen (1989). This type of noun incorporation is considered by Mithun and Rosen to combine a Verb and Noun stem into an intransitive verb. The incorporated N stem is interpreted as being the theme, instrument or locative of the predicate.

It is not possible for Root+Theme/Goal Lexical Suffix Predicates to take a direct object that corresponds semantically to the lexical suffix (i.e., no intransitive constructions of the form Root+LS, DO occur). This is a direct result of the fact that these forms are intransitive and, therefore, cannot license an NP in direct object position. In addition, it is not possible for a Root+Theme/Goal Lexical Suffix Predicate to be marked transitive in order to allow for a direct object NP that corresponds to the lexical suffix, as demonstrated by (24) and (25):

(24) * t'sakso
    slap=handj-3POSS
     I slapped her hand.

(25) * c'k'än stxW1l1
    give=child OBL
     I took the rock.

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6 It is interesting to note that in all instances of what may be an agent thematic role, the lexical suffixes are affixed to stems derived by adding m 'middle', -i 'static/characteristic', p 'inative' to a root morpheme. In the current literature on Salish there is a debate concerning the question of whether argument structure differences between predicates are part of the meaning of roots (as suggested in Thompson and Thompson 1993, Gerdes 1991, Hewett 1993, Thomason and Everett 1993, Thomason 1994), or whether argument structure is "radically decompositional ... (with) all roots having the same (minimal) argument structure, ... differences (between predicates) being derived from different affixation possibilities" (Davis 1996: 2; see also Egesdal 1993). If this latter position is the correct one, then the fact that all four stems to which lexical suffixes are affixed are derived stems rather than bare roots might be evidence that the roots are in fact unaccusative in the lexicon, and that therefore at that level the lexical suffixes represent internal arguments and hence, possibly, themes rather than agents.
These examples are in contrast with Mithun's (1984) "classificatory noun incorporation", Rosen's (1989) "classifier noun incorporation" and Baker's (1988, 1996) syntactic noun incorporation data in which [N+V] forms take transitive morphology and (optionally) direct object NPs corresponding to the incorporated noun. Some examples of this latter kind of construction are given for Tuscarora and Rembarnga:

(26) **Tu** ne-hra-taskw-ahkw-ha?', ha? tstri.
    du-M-animal-pick up-SERIAL EMPH dog
    'He picks up domestic animals.' (He is a dog catcher.) (Williams 1976:60)

(27) **Re** kaf+aj-0
    paperbark-NOM 3sg.obj.3pl.TRANS.8-paperbark-stand-(CAUS)-Past.Cont
    'They would spread paperbark (on the ground).' (McKay 1975:296)

Unlike in languages like Tuscarora and Rembarnga, in Nxaʔamx̣din an independent nominal and a semantically linked lexical suffix in an intransitive predicate can only surface in the same clause if the nominal is marked by t 'oblique' (in the case of a theme lexical suffix) or by a preposition such as k'1 (in the case of a goal lexical suffix), as in (28) and (29), respectively:

(28) **Mary** tumistätxw 'stax'tax'ul
    tumist'atxw 'tumist=atxw
    Mary vendors-3S OBL vendors
    Mary sells vendors.

(29) k7amxist k1 sccomšlits tsxw'sna7x
    k1-kumšlits sccomšlits
    LOC-identified to child-3SPOSS OBL huckleberries
    She sent her children huckleberries.

The Nxaʔamx̣din data also indicate that Root+Theme=Goal Lexical Suffix Predicates may be marked transitive. In such cases, an independent nominal direct object is allowed. However, the direct object is always interpreted as the possessor of the lexical suffix, as in (30) and (31):

(30) **John** k'a'ilátpm
    k1-ilátpm 'kitaillátpm
    cut=tree-TR-30-1sS John
    I cut down John's tree.

(31) **Mary** yāp'ālın
    k1-yāp'ālın 'k1-yāp'ālın
    give=child-TR-30-1sS Mary OBL toy
    I gave Mary's baby a toy.

These possessors are clearly independent direct arguments; they do not surface with possessor morphology. Example (32) shows that possessors are followed by the morpheme t in Nxaʔamx̣din, while (33) and (34) illustrate that when the possessor of a lexical suffix is expressed as a direct argument it cannot be followed by t :

(32) kmn'1t'ax'tx's
    wa John 1 sta'tul
    LOC-paint=side=house-TR-30-3S WA John POSS house-3SPOSS
    He painted the outside of John's house.

(33) * k'a'ilátpm
    John 1
    cut=tree-TR-30-1sS John POSS
    (I cut down John's tree.)

(34) * kax'ilátłm
    Mary 1 t yāp'ālın
    give=child-TR-30-1sS Mary POSS OBL toy
    (I gave Mary's baby a toy.)

If no overt object NP is present, the possessor is determined by the object morphology on the predicate.

(35) t'saks
    t'sak=akti-1 s
    pull-hand-TR-30-1sS
    I slapped her hand.

Similar data have been discussed in Mithun's (1984) Type II noun incorporation ("the manipulation of case"). She gives the following Blackfoot clause as an example:

(36) Ni-sis-k'o'akin-aw őma ninaawa.
    1-break-back-him that man
    'I broke the man's back.'
    (Mithun 1984:858)

Finally, it is possible in Nxaʔamx̣din for a transitive Root+Theme=Goal Lexical Suffix Predicate to cooccur with a coreferent independent nominal, provided that that nominal is marked as an oblique. An example of this kind of construction is seen in (37), which contains not only an oblique nominal coreferent with the lexical suffix =alp 'tree', but also a direct object possessor of the lexical suffix.

(37) John t c'g'qatłpm
    k1-c'g'qatłpm 'k1-c'g'qatłpm
    cut=tree=his-TR-30-1sS John POSS
    I cut down John's fir tree.

Aside from the possessor examples in (28), (29) and (37), Nxaʔamx̣din lexical suffix constructions do not resemble Mithun's Type II noun incorporation. A characteristic property of this type of noun incorporation is that oblique arguments can be raised to non-oblique status when a lexical suffix combines with a predicate. Mithun gives Yucatec Mayan as an example:

(38) a. k-in-ć'ak-1-k
    ce' c'ic il-in-kool
    INCOMP-I-chop-it-IMPF tree in my-cornfield
    'I chopped the tree in my cornfield.'
The non-incorporated version in (a) has both a direct object NP ('tree') and an oblique NP ('cornfield'). When the direct object is incorporated, as in (b), it appears that the oblique NP can assume a vacated licensed position and surface as a direct NP. Comparable examples are not possible in Nxa'ämxcin as shown in (39):

(a) kátxc t stx*ul wa xxä'a?  
\[\text{give-TR-30-3S OBL house WA baby}\]  
He gave a house to the baby.

(b) katsxít t stx*ul  
\[\text{give-child OBL house}\]  
He gave his child a house.

c. * katsxälc stx*ul  
\[\text{give-child-TR-30-3S house}\]  
Thus, Nxa'ämxcin lexical suffix constructions only resemble Mithun's Type II noun incorporation with respect to examples like (30), (31) and (36) where the possessor of a lexical suffix assumes the direct object position. The promotion of oblique arguments is not possible.

In summary, we can schematize possible Root+ThemeGoal Lexical Suffix Predicate combinations as follows (coindexing indicates semantic correspondence):

1. \(\text{Root} = \text{LS} \)
2. \(\text{Root} = \text{LS}; \text{-TR-OPOSS} \) (NP\text{poss})
3. \(\text{Root} = \text{LS}; \text{-TR OBL} \) (NP\text{poss})
4. \(\text{Root} = \text{LS}; \text{-TR POSS} \) (OBL NP\text{poss})

The schematization in (40) summarizes the following facts: theme/goal lexical suffixes can combine with roots to form intransitive or transitive predicates. In the latter case, a direct object must be interpreted as the possessor of the lexical suffix (whether that direct object is an obligatory object marker on the transitive verb, or an optional independent nominal NP). Independent NPs that are semantically linked to the lexical suffix surface as oblique in transitive or intransitive constructions.

3.2 Root+Locative/Instrument Lexical Suffix Predicates

Predicates which contain a locative or instrument lexical suffix can surface as transitive or intransitive, as shown below:

(41) Locative Intransitive
\[\text{LOC-jump-INCH-MID=water}\]  
He jumped into the water.

(42) Instrument Intransitive
\[\text{reach out=foot=MID and pick up OBL toe-POSS}\]  
He reached out with his foot and picked it up with his toes.

(43) Locative Transitive
\[\text{LOC-hit-REL=water-TR-30-1sS}\]  
I threw it into the water.

(44) Instrument Transitive
\[\text{push=foot-REL-TR-30-3S SPEC DET rock}\]  
He pushed that rock aside with his foot.

Note that in (44) there is an independent nominal wa \text{xxä't} marked as a direct argument of the transitive predicate. In this case, unlike in the theme/goal lexical suffixes cases seen in section 3.1, the independent nominal is not interpreted as the possessor of the lexical suffix, but is interpreted as a direct object of the transitive predicate which is non-coreferent with the lexical suffix. We have seen no evidence that a locative or instrument lexical suffix can combine with a root that is marked transitive and that it can license a possessor of the lexical suffix as direct object. Thus, we have found no locative/instrument lexical suffix examples paralleling (30) and (31).

An independent locative or instrument nominal can cooccur with a corresponding lexical suffix provided the locative or instrument nominal is overtly marked as oblique. Some examples are given in (45) and (46). Note that both these examples have transitive marking on the predicate; we do not have corresponding examples with intransitive predicates, although we predicate they should be able to occur:

(45)\[\text{LOC-place=water-TR-30-1sS POSS water}\]  
I put it into the water.

(46)\[\text{LOC-place=water-TR-30-1sS POSS water}\]  
I used force on it with my hand [...]
In (45) the independent locative is marked by the preposition 'in' and in (46) the independent instrument is marked by the instrument marker (otherwise the oblique marker). It is not possible for a direct argument locative/instrument NP to cooccur with a corresponding locative/instrument lexical suffix, as indicated by the following ungrammatical examples:

(47) * niis'ak'o-n siiwtk
     n=vt'nm=ak-t-f-n
     LOC-place=water-TR-30-1sS water
     I put it into the water.

(48) * yaq'sik'tman ??inkalk [...]
     yiaq=skt-min-t-f-n ??in-kalk
     ?=hand-REL-TR-30-1sS 1sPOSS-hand
     I used force on it with my hand [...]

This follows from the fact that the transitive predicate licenses a null pronoun in direct object position in (47) and (48) and, therefore, there is no licensed position available for an unmarked locative or instrument.

It is difficult to see where the locative/instrument Root+Lexical Suffix Predicates fit into the broader picture of noun incorporation since incorporated locatives and instruments receive little discussion in Mithun (1984), Rosen (1989), and Baker (1988,1996), the last of whom considers them not to be instances of true (i.e. syntactic) noun incorporation.

In summary, it appears that Root+Locative/Instrument Lexical Suffix Predicates exhibit the following combinations:

(49) Intransitive Predicates
   i. Root = LS
   ii. Root = LS OBL NP
   iii. *Root = LS NP

   Transitive Predicates
   i. Root = LS TR NP
   ii. *Root = LS TR NP/ NP
   iii. *Root = LS OBL NP

   The locative/instrument lexical suffixes resemble the theme/goal lexical suffixes in that they can combine with roots to form intransitive predicates and transitive predicates. They are unlike theme/goal lexical suffixes in that the transitive predicates they form can take direct objects which are not, and in fact cannot be interpreted as possessors of the lexical suffix. Finally, an independent oblique nominal form and a corresponding locative/instrument lexical suffix can cooccur in a clause.

4. Referentiality

One of the issues discussed in the literature on noun incorporation concerns the question of whether incorporated nouns can be interpreted as referential in meaning. Thus for instance, Sadock (1980) states that in Greenlandic an "incorporated object can [...] set up the reference for a succeeding transitive verb," and that constructions paralleling (50), in which bed and it are coreferential, occur in the language:

(50) I bedt-bought yesterday, and Mary liked it.

Baker (p.c.) claims that examples like (50) are not good tests for referentiality since "the referent of the pronoun is simply determined pragmatically, with no explicit syntactic antecedent." He suggests instead that sentences like (51) are better tests for referentiality:

(51) Mary saw a bed, at the store yesterday, so I went and bedt-bought.

(Baker, p.c.)

In this type of construction it is important, according to Baker, that the incorporated noun is coreferential with an independent nominal that precedes but does not c-command it.

Both Baker (1996) and Sadock (1980) use the claim that incorporated nouns may be referential as evidence that noun incorporation in Mohawk, Southern Tiwa, and Mayali, or Greenlandic, respectively should be analysed as the result of syntactic, as opposed to lexical processes. Thus the question of whether lexical suffixes are referential or not may be an important one to answer in any future attempt to provide an adequate analysis of their properties.

An examination of the Nxa/amdel data reveals that speakers of the language can interpret lexical suffixes in both types of constructions as being coreferential with a corresponding independent nominal or pronominal in the sentence. Thus (52)-(54) parallel the example in (50): in this case the lexical suffix introduces a participant into the discourse, and is co-referential with a null pronoun in a following clause:

(52) kn q'ilt'ay-p k'a? 7amcmin
     q'ilti=sq=lp 7ac-min-stu-f-n
     1sS vurt=throat and vrub-REL-CS-30-1sS
     My throat hurts and I am rubbing it.

(53) yas hsiy'rel k'ayt ??im=alwa-s
     hsiy'p=st ??im=alwa-s
     yas after vscal=child and vlap=breast-TR-30-3S
     After she scolded the child, she slapped it around.

(54) kn ?amta-t sii'ak'o-n yas t'it
     ?amta=tlqk' ?it
     1sS vfeed=child OBL carrot after veat-TR-30-3S and burp
     I fed the child, some wild carrot. After she ate them she burped.

Similarly (55)-(57) illustrate cases that parallel (51): in these examples the lexical suffix introduces a participant into the discourse, and is co-referential with an independent nominal in a preceding clause.

(55) q'ilt' ??amka-p k'a? kn minalq=pm
     ??amka=q=lp minalq=pm
     hurt POSS=throat and 1sS vrub=throat-REL-CS-30-1sS
     My throat hurts and I am rubbing it.

7 Personal communication with Anna Maclachlan. Our thanks to Anna for passing this communication on to us.
In this paper we have shown that lexical suffixes in Nxaʔamx̣in do indeed exhibit a number of properties attributed to incorporated nouns in non-Salish languages. In section 2, we saw that lexical suffixes may take on different thematic roles, including theme, goal, locative, instrument, and possibly agent. In section 3 we saw that lexical suffixes can occur in both transitive and intransitive predicates, but that the thematic role assumed by the lexical suffix determines how any independent nomininals in the sentence are to be interpreted: if the lexical suffix is a theme or a goal, a direct argument nominal is always interpreted as the possessor of the lexical suffix; if the lexical suffix is a locative or instrument, a direct argument nominal is never interpreted as a possessor of the lexical suffix and is always interpreted as non-coreferential with the lexical suffix.

In all types of constructions containing lexical suffixes, the lexical suffix may be coreferential with an independent nominal in the same clause as long as that independent nominal is marked as an oblique argument by the oblique marker t, or by a preposition. Finally, in section 4 we suggested that we cannot come to any conclusions concerning the referential/non-referential status of lexical suffixes.

Although lexical suffixes exhibit a number of incorporated noun-like properties, they nevertheless do not fit neatly into any of the different types of noun incorporation categories defined in the recent literature on the subject. Coming to any firm conclusions regarding the incorporated noun status of lexical suffixes in Nxaʔamx̣in, therefore, will require more investigation into their properties.

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