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LEXICAL AFFIXATION IN SALISH AND WAKASHAN AND ITS RELEVANCE FOR A THEORY OF POLYSYNTHESIS[1]

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0. Introduction: What are the Salish and Wakashan languages?

The languages to be discussed in this paper belong to two families of Native North American languages located on the Northwest Pacific Coast and adjacent interior territories. Of the two families, Salish is the more widespread, being spoken in most of British Columbia and across the US border into Idaho and Montana. It includes 23 languages.

The Wakashan languages, on the other hand, are geographically more limited: they are located mostly on Vancouver Island (Nuu-chah-nulth, Ditidaht, Kwakw'ala) and further north on the mainland (Oowekyala, Heiltsuk, Haisla); the southernmost language of the southern branch is Makah, spoken along coastal areas of Northwest Washington State. It includes 7 languages (6 according to some authorities, depending on whether one considers Heiltsuk and Oowekyala as two separate languages or two dialects of the same language).

A list of the languages follows, with their indigenous names indicated in parentheses:

SALISH LANGUAGES

Bella Coola (*nuxálk*)

Central Salish

Comox (*q̓ómox̌ʷs, ʔayʔaǰúθəm*)

Pentlach (*pənx̌áč*)

[1] This working paper is the starting point of a long-term research program into noun incorporation processes and related morphosyntactic phenomena to be found in polysynthetic languages. Several people have helped in its making: first of all, I would like to thank Mark Campana for thoroughly reading an earlier draft and providing me with many helpful comments and corrections; thanks also to Paola Benincà, Guglielmo Cinque, Federico Damonte, Jacopo Garzonio, Alberto Mioni and Cecilia Poletto for additional helpful criticism and suggestions. Many imperfections still remain, and for those I take full responsibility.

Sechelt (*šášíšáɬəm*)
Squamish (*sqʷx̱ʷúṁəš*)
Halkomelem (*həl̓q̓əmíṁəṁ, halq̓əméyləm*)
Northern Straits (*ċáwk, ləkʷəŋíṁəŋ, snčáθən, síṁəməš, xʷləmiʔčósən*)
Klallam (*nəxʷsx̌áy̓əmucən*)
Nooksack (*ɬáčələsəm*)
Lushootseed (*dxʷləšúcid*)
Twana (*sqʷuqʷúʔbəšq*)

Tsamosan
Quinault (*kʷínayɬ*)
Lower Chehalis (*ɬəẇál̓məš*)
Upper Chehalis (*q̓ʷay̓áyiɬq̓*)
Cowlitz (*sx̌púlmš*)

Tillamook (*hutyéyu*)

Northern Interior Salish
Shuswap (*səxʷəpmxcín*)
Lillooet (*sx̌ɛ́x̌əmxəc*)
Thompson (*nɬeʔkepmxcín*)

Southern Interior Salish
Colville-Okanagan (*nsilxcín*)
Columbian (*nxaʔamxcín*)
Spokane-Kalispel-Flathead (*npoqíniščn, qalispé, séliš*)
Coeur d'Alene (*snčícuʔumščn*)

WAKASHAN LANGUAGES

Northern Wakashan
Haisla-Henaksiala (*x̱áʔisəlaǩala, x̱ənáksialaǩala*)
Heiltsuk (*ħíɬzaqʷəla*)
Oowekyala (*ʔuíǩala*)
Kwakw'ala (*kʷákʷala*)

Southern Wakashan

Nuu-chah-nulth (*ɬaaɬaaqsapa, quuquu?aca*)
Ditidaht (*diitiid?aa?tx̌*)
Makah (*q*^{w}*iiq*^{w}*iidičča*q)

From a genetic viewpoint, Greenberg (1987:162-80) has proposed to group these languages together in a single Mosan stock. According to the author, the genealogical tree would look as follows:

(1) Amerindian>Almosan-Keresiouan>Almosan>Mosan

The Mosan hypothesis is generally no longer currently accepted, although the languages do show many typological affinities. Some of the main features of the languages will be outlined below, as well as the main peculiarities of each single family.

0.1. Common features

- Phonologically, the languages under consideration have highly complex consonant inventories, with up to 45 phonemes in Oowekyala; stops may distinguish up to three series (plain, aspirated and glottalized); sonorants and vowels may be glottalized as well. Heiltsuk (Upper North Wakashan) and Upriver Halkomelem (Central Salish) have developed distinctive tones (probably due to the loss of laryngealized vowels);

- Syntactically, both families are characterized by VSO word order (VOS in some cases in Southern Wakashan, cf. Sapir & Swadesh 1939);

- Morphologically, the languages belong to the so-called *polysynthetic* type: agglutinating from the point of view of fusion, they also have high degrees of synthesis (extremely high in Wakashan); they display extensive inflectional morphology, but are poor in category-changing derivation, thus lacking a formal distinction between nominal and verbal roots. Non-concatenative morphological devices such as infixation, reduplication, ablaut, stress shift, metathesis and glottalization commonly affect roots to yield various kinds of functional meanings.

The main common feature of the two families, however, lies in their ability to create noun-verb compounds by means of lexical affixes (I(ncorporated) N(oun)s or affixal predicates standing in a suppletive relation with their corresponding free-standing forms). This fact and its theoretical implications are the main topic of this paper (cf. par. 2 below).

0.2. Working plan

The structure of the paper is as follows: after a definition of the phenomena under consideration (par. 2), I will describe the lexical affixation patterns of each of the two families in detail (par. 3-4) and consider the proposed evidence in favor of a syntactic account or a lexical one. Further theoretical implications will be briefly outlined in the conclusions. To start with, due to the many different uses of the term *polysynthetic* in recent linguistic debate, a brief discussion of its meaning is in order, and it follows in par. 1.

1. What is polysynthesis?

The first occurrence of the word *polysynthesis* goes back to the first half of the 19th century, when Du Ponceau (1819) coined the word to describe the great morphological complexity of Native North American languages, whereby a single word may convey the same meaning of a whole sentence by putting together (*synthesis*) several word stems (*poly-*); ever since then, the word has enjoyed great fortune, acquiring —especially in the last decade —a rich polysemy.

According to the most frequent uses of the term one may come across, a polysynthetic language may be defined:

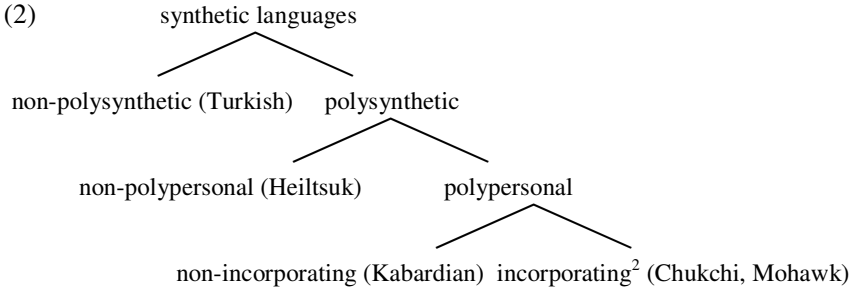
a. a language with a high morpheme-to-word ratio (Sapir's (1921) *degree of synthesis*);
b. a language which builds complex verbs by compounding elements from different lexical categories (verbs, nouns, adjectives), also including verb incorporation among its morphosyntactic devices (e.g. Denny 1989);
c. a language which morphologically marks more than one argument on verbs (*polypersonalism*: one of the criteria used by Evans & Sasse 2002);
d. a language which morphologically marks more than one argument on verbs and may replace a patient agreement marker through an incorporated noun (*syntactic N(oun) I(ncorporation)*: Baker 1996).

In the literature, the sense given in (a) has been the most common ever since it was first introduced by Sapir in the 1920s. According to this definition, however, many languages that have elaborate word-formation strategies (German, Hungarian, Finnish, Turkish) could be considered polysynthetic, although this proposal has never been put forward in the literature. On the

other hand, there has been an increasing trend toward the definition in (d) among scholars lately, mostly under the influence of Baker's (1996) work. Nevertheless, we must observe that Baker himself does not feel completely at ease with his use of the term. If we read carefully what he has to say about this terminological choice ("I have not been able to tear myself away from the more familiar term", p. 36), it is apparent that he had no intention of establishing this use of the term 'polysynthesis' as the foundation of a new typology. Furthermore, as we shall see, there are good reasons to keep the concepts of *polysynthesis* and *polypersonalism* (c) separate, due in no small part to some important syntactic properties of Wakashan languages (namely, actant agreement through sentence-second (S2) clitics instead of verb-internal morphemes). All these factors lead to thinking that a definition like that in (b) would be the most appropriate, both for typological reasons and also because it turns out to be closest to Du Ponceau's original use. Denny (1989: 230-1) chooses to consider polysynthesis as a special compounding strategy that is neither syntactic nor lexical. Such a strong claim would perhaps be too difficult to defend, but nevertheless, conceiving polysynthesis as a matter of interaction between lexical categories would do justice to many of its typological properties in the best possible way. Sticking to the definition in (b), therefore, an innovative proposal would be to redefine the four language types given above respectively as *synthetic*, *polysynthetic, polypersonal* and *incorporating*, whereby (syntactic) noun incorporation would turn out to be a special type of polypersonalism, which in turn would be a special type of polysynthesis.

This (tentative) terminology is represented below in (2), where a few examples of languages falling within each group are given in parentheses:

(2)



[2] Note that my typology does not distinguish between the two kinds of incorporation (classifier and compounding) proposed by Rosen (1989); it still has to be clarified whether these two kinds of incorporation are mutually exclusive or else they can co-occur in languages. Note also that incorporating languages need not be the most synthetic ones: the highest degrees of synthesis are found in Wakashan (non-

Although Turkish has a high degree of synthesis, it has only verb incorporation and thus may not, according to the above proposal, be termed polysynthetic. The Wakashan languages, on the other hand, incorporate in their verbal forms virtually every part of speech, but their extensive use of S2 clitics does not result in true polypersonal verbs. If a language is polypersonal, it may or may not make use of syntactic noun incorporation, hence it may be incorporating (like Mohawk, Chukchi, Sora and probably also the Salish languages) or non-incorporating (like Kabardian[3], Georgian and Navajo). There is at least one family of polysynthetic languages (Eskimo-Aleut) that still defies this typology for reasons that go beyond the scope of this essay (i.e., whether incorporation in these languages is really a syntactic process or merely the result of strong external sandhi rules, thus pertaining to the domain of phonology). This problem needs to be tackled in future work, since it is one of great relevance.

2. What are lexical affixes?

Much attention has been devoted lately to the problem of *lexical suffixes*, i.e. affixes with a semantic content as rich as that of independent lexical items[4]. The Salish family has some lexical prefixes as well, and this is why we have chosen to talk about 'affixes' instead of 'suffixes'; typologically, lexical prefixation (a Salish phenomenon not found in Wakashan) is quite rare.

Some of these affixes have locative meanings, specifying the location of the noun root in detail, whereas others refer to nominal concepts and can have either concrete meanings or more metaphorical ones. From now on, following Czaykowska-Higgins (1998) we will term the suffixes from the first group as *locative lexical suffixes* and those from the second group as *referential lexical suffixes*. Included in the last category are also a few *classifiers*, i.e. suffixes which have the function of specifying the semantic

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polypersonal) and Eskimo-Aleut (polypersonal, but difficult to classify in terms of incorporation).

[3] Colarusso (1992:83-4) does mention a few cases of INs in Kabardian (nouns incorporated along with their whole phrases), but apparently the process is not productive.

[4] Typologically, lexical affixation (mainly suffixation) is not unique to the languages we are dealing with, but appears to be an areal feature typical of the North Pacific Rim: it is found further north in the Tsimshianic family (mostly body-part nouns), as well as in Eskimo-Aleut (verbal predicates as in Wakashan) and, to some extent, in Chukotko-Kamchatkan (here too, verbal predicates); to the south, it is found in the Chimakuan languages, which according to Sapir (and more recently Greenberg) constitute the third branch of Mosan.

features of the noun they modify, mostly in terms of shape or animacy. A further distinction applied to nominal suffixes is between *somatic* and *non-somatic* suffixes: the first category is formed by suffixes denoting body parts —found in both of the families— whereas the second is much harder to define and is specifically Salish.

Wakashan lexical suffixes likewise display a distinction between *locative* and *somatic* suffixes, but there are no referential ones. A peculiarity of this family is the presence of *verbal suffixes*: they will be discussed at some length below. Suffice to say they may either create incorporative verbal complexes or attach themselves to semantically null bases (a property which none of the Salish suffixes shows).

A rough-and-ready typology for the two families' different behaviors with regards to lexical affixation phenomena is the following:

	Salish	Wakashan
Locatives	Yes	Yes
Somatic Nouns	Yes	Yes
Non-Somatic Nouns	Yes	Rare
Verbs	Very rare	Yes

Tab. 1: Categories of lexical affixes

The most noteworthy feature of these affixes (excluding the locatives) is surely their ability to form compound verbs with many of the properties of NI[5] constructions (see below), but these constructions differ crucially from the ones commonly described in the literature. Let us consider the following examples from the Iroquoian language Onondaga (Woodbury 1975:10):[6]

[5] For a general introduction to noun incorporation, the reader is referred to surveys like Mithun (1984). For a technical generative theory of this phenomenon see Baker (1988, 1996).

[6] The following abbreviations have been used in the examples: AUX=auxiliary; CəCRED=CəC reduplication; CTRL=control; DEF=definite mood; DET=determiner; DIM=diminutive; FOC=focus particle; FUT=future; IMP=imperative; INCH=inchoative; IND=indicative; LOC = locative; NEG = negative; NOM = nominalizer; OC = out of control; PERF=perfective; POSS=possessive; PUNC=punctual aspect; PST=past; REL=relational; QUOT=quotative; TR=transitivizer. The following glosses are used for actant and gender agreement; 1=first person; 3=third person; F=feminine; ERG=ergative; M=masculine; N=NEUTER; O=object; P=possessor; S=singular; S=subject.

(3) a. *wa?hahninú? ne? oyέ?kwa?*
*wa?-ha-**hninu**-?* *ne?* *o-**yε?kwa**-?*
DEF-3MSS/3NO-**buy**-PUNC DET N-**tobacco**-NOM
'He bought the tobacco.'

b. *wa?hayε?kwahní:nu?*
*wa?-ha-**yε?kwa-hninu**-?*
DEF-3MSS/3NO-**tobacco-buy**-PUNC
'He bought tobacco.'

In these examples, the roots of the IN and the verb that incorporates it are clearly identifiable both when the noun is incorporated and when it stands free in the sentence, accompanied by its functional morphology; the two language families we will be examining next deviate from this pattern in two important ways:

- in each family, the IN (Salish) or the verb (Wakashan) have different forms when bound and when free;
- Salish has an unusual compounding pattern $[V+IN]_{VP}$ which is difficult to explain for a syntactic theory of incorporation.

Let us now consider the data in detail.

3. Salish lexical affixes

Salish languages (unlike Wakashan) have both prefixes and suffixes: the former are almost exclusively functional morphemes, whereas the latter can also have, as pointed out earlier, lexical reference. Prefixes may express TMA categories like stative or mutative or add locative meanings to the root; a few lexical prefixes have meanings like 'reason for', 'functioning as', 'having colour', 'take part in' or 'alone'. One Northern Straits suffix (Montler 1986, cited in Mithun 1999:495) means 'to have', and may curiously attach itself to verbs as well as nouns, giving rise to combinations like 'have-catch' (a construction similar to the English *do*-support). Among the non-lexical suffixes, important categories are *control*, *voice*, and *transitivity* suffixes (which also play a role in actant agreement[7]); *applicative*

[7] Salish languages have an agreement system based on a split-ergative alignment; this is a further factor that sets them apart from the Wakashan languages, which are basically accusative.

morphology also plays an important role in Salish (again, unlike Wakashan). TMA categories include resultative and durative, and there is also a desiderative as well as some directional and directionless-motion suffixes.

A major problem concerning the nature of lexical suffixes is whether or not they are instances of NI. Kroeber (1910) and Sapir (1911) suggested that lexical suffixes are not INs, because their phonological form is often too different from that of the lexical items with equivalent meanings. To exemplify this difference, let us consider the following examples from Moses-Columbian (Czaykowska-Higgins 1998:165-7):

(4) a. *kat?álkʾʷn* *?ísnɬqʷútn*
*kat-**?álkʾʷ**-n-t-Ø-n* *?ís-n-**ɬqʷútn***
LOC-**fix**-CTRL-TR-3O-1SS POSS-LOC-**bed**
'I fixed my bed.'

b. *kat?álkʾʷlúp*
*kat-**?álkʾʷ=lúp***
LOC-**fix=bed**[8]
'fix the bed'

(5) a. *təẋʷəẋʷ wa ?a?ásqʷsa?s ?ací sm?ámml*
***təẋʷ**-əẋʷ wa ?a-**?ásqʷsa?**-s ?ací s-m?ámm-l*
die-OC FOC DIM-**son-**3SFP DET NOM-woman-POSS
'The woman's little son died.'

b. *təẋʷəẋʷált ?ací sm?ámm*
***təẋʷ**-əẋʷ=**ált** ?ací s-m?ámm*
die-OC=**child**[9] DET NOM-woman
'The woman's child died.'

In (4a) and (5a) we see the free-standing forms, which are reported to be equivalent to the incorporated forms in (4b) and (5b), respectively. As we can see, in both cases the two expressions of the same meaning are totally

[8] Czaykowska-Higgins unambiguously glosses this morpheme as 'bed' in her paper. Mattina (1987:73), however, gives the more generic meaning of 'place' for the same suffix in the closely related Colville-Okanagan language. In this case, as elsewhere, we may have to do with a semantic specialization of a basically light noun.
[9] Note that the meaning 'child' is without a doubt more generic than the meaning of the free form ('son').

suppletive, bearing no resemblance to each other —a major difference between lexical suffixation and noun incorporation as found in many other polysynthetic languages. This fact seems to be evidence for a lexical account. However, Davis & Saunders (1973, 1974, 1975a, 1975b) show that lexical suffixes may take on a number of thematic roles in the sentence, thus providing evidence that syntactic incorporation may be involved in lexical suffixation[10]. Gerdts & Hinkson (1994) distinguish four functional types of lexical suffixation which may produce noun compounds, compounding noun incorporation, classifier noun incorporation or applicative constructions, with an increasing decategorialization and abstraction of meaning most evident with the applicatives. For the sake of clarity, I have resumed in table 2 the most important properties that are associated with the two types of incorporation first recognized by Rosen (1989):

Classifier NI	Compounding NI
No valence-changing effect	Antipassive effect
Modifier stranding	No stranding
Syntactic doubling	No doubling

Tab.2: Classifier and compounding Noun Incorporation

An important way in which Salish and Wakashan differ with respect to these parameters is *modifier stranding*: its manifestation in Salish is quite in line with its analogues in other Native American languages, whereas Wakashan displays a very unusual pattern (cf. par. 4 below)[11]. An example of Salish modifier stranding is the following (Gerdts 2003: 353; cf. also ex. 5b above):

[10] Even in the above examples it can be noted that the first lexical suffix performs the role of a *transitive object*, whereas the second one is an *unaccusative subject*.

[11] As to the other two parameters, the tests are not applicable to Wakashan: on the one hand, valence change cannot take place since agreement is expressed through clitics (Wakashan languages are non-polypersonal); on the other hand, there can be no trace of doubling since the verbal affixation process starts from a noun complete with all of its morphological features (e.g. reduplication to mark plurality). All these cues point to the possibility that Wakashan lexical affixation is something quite different from NI in its traditional sense (an opinion already expressed by Nakayama, cf. below).

(6) *ni? tši?q^{w}təs łə słeni? k^{w}θə sq^{w}əmé́y̓.*

ni?	***tši-ʔq^{w}-t-əs***	*łə*	*słeni?*	*k^{w}θə*
AUX	**comb-head**-TR-3ERGS	DET	woman	DET

sq^{w}əmé́y̓
dog
'The woman combed the dog's head.'

In this example it can be observed that the incorporated part of the DP 'the dog's head' is only the lexical suffix *-ʔq^{w}* meaning 'head', which is also the head of its phrase.

One possibility that Rosen does not seem to consider is two types of NI co-occurring in a single language, but that seems to be the case in Salish, and not only there. This fact does not seem to support a lexicalist account of lexical suffixation. There can be little doubt that the greatest stumbling block preventing us from recognizing the syntactic status of lexical suffixes is their phonological difference from free-standing nominals. Still, Carlson (1990) has found a few similarities between some of these suffixes and lexical bases, although this is very rare (as is also the case with the Wakashan suffixes).

Let us now consider the debate between lexical and syntactic approaches to the problem of the status of noun incorporation. According to the strong version of the Lexicalist Hypothesis (Di Sciullo & Williams 1987), all morphological processes take place within the lexical component of the grammar, hence syntax and semantics can only see the final result of these morphological operations. Syntactic accounts (e.g. Baker 1988), on the other hand, hold that syntax can actually "see inside" the structure of words. Given the great difference in phonological form between lexical suffixes and the corresponding free-standing nominals, it is only natural that the standard view in the literature had to be very close to the Lexicalist Hypothesis. However, perhaps one of the most convincing accounts on the subject is that proposed by Gerdts (2003), which happens to endorse a syntactic approach. In her survey of Halkomelem lexical suffixes, the author tries to apply different diagnostics to test the effects of lexical affixation on argument structure, and we shall have a cursory look at these diagnostics.

The first test concerns the interaction between lexical suffixes and *benefactive applicatives*: because Halkomelem has two benefactives (one used with transitive verbs and the other one with intransitives), and because lexical suffix constructions always result in intransitive clauses, a lexical account would predict that the intransitive benefactive should be used. Instead, we find the transitive one, which is a clear sign that the applicative is syntactically sensitive to the argument structure of the base, and not of the

full $[V+LS]_{VP}$ complex. This is proof that the lexical suffix is the theme of the construction.

The second diagnostic is the interaction between lexical suffixes and *causatives*: because the *causee* and the *theme* of a causative construction are core arguments, we would expect them to be expressed by lexical suffixes if lexical suffixation were a syntactic process, and this happens to be precisely the case.

The third and last diagnostic regards the interaction between lexical suffixes and *reflexives* in *external possession* constructions, that is when an incorporated noun (IN) is the *possessee*, and the semantic *possessor* appears as an argument of the verb, normally a semantic patient. On a lexical account, we would predict that the IN be only an adverbial modifier, and that the possessor is the real theme of the construction: a sentence like "I washed his back", if expressed by a construction like "I back-washed him" would more properly be translated as "I washed him on the back". But with reflexive constructions, this account does not seem to hold true. As a matter of fact, Halkomelem has a *reflexive* and a *middle* voice suffix; so, in a sentence like "he back-washed himself", we would expect a reflexive if the lexical suffix were only an adverbial modifier. On the contrary, we find the middle suffix, thus showing that the real object is the IN.

As we shall see, these uses do not tell the whole story of Salish lexical suffixes; nevertheless, these data may be interpreted as solid proof that syntax is involved in lexical suffixation, as lexical suffixes have the property of altering argument structure, just as Compounding NI does.

What are the types of meanings that Salish *referential* lexical suffixes may assume? Let us give a few examples of the meanings listed under this category for the Squamish language (Kuipers 1967: 125-129):

- locative/temporal suffixes: *-iw?iɬ* (location), *-q* (o'clock), *-aɬ* (times), *-t* (past, deceased), *-awanəx*^{w} (years);

- quantifier/shape suffixes: *-miṅ* (half), *-ayuṁ* (small object);

- psychological/perceptual suffixes: *-ay?aqap* (taste);

- physical/environmental suffixes: *-(aw)tx*^{w} (house), *-ɬal* (food), *-ay?us* (stick), *-yunəx*^{w} (waves), *-ačx*^{w} (branch), *-ax*^{w}*iɬ* (container), *-ay̓* (bush, tree), *-ik*^{w}*up* (fire);

- body-part suffixes: *-qin* (head/language), *-ay̓č* (surface, area), *-ay?us* (skin, piece);

- human/relational suffixes: *-ay̓ɬ* (child).

According to Gerdts (2003), shape, locative and relational meanings for lexical suffixes are secondary, mostly semantic extensions of body-part suffixes, many of which become further grammaticalized into desideratives or applicative morphemes (Gerdts 2003: 346). An important consequence of this is that incorporation of body-part nouns may have been the starting point of the whole process of Salish lexical affixation. Let us now consider a couple of examples of how metaphorical extensions of body-part suffixes work in a Salish language; examples are again from Moses-Columbian (Czaykowska-Higgins 1998:165-7):

(7) a. *naq̓ílna?*
*na-**q̓íl=(a)na?***
LOC-**hurt=ear**
'ear aches'

b. *ktaw̓w̓ána?*
*k-**taw̓**-w̓=**ána?***
LOC-**rain-**OC**=ear**
'get rained on'

(8) a. *ɬn̓pákst*
ɬn**-p=**ákst
break-INCH=**forearm/hand/finger**
'He broke his forearm/hand/finger.'

b. *kʷχ̓kʷχ̓pákstms*
*kʷχ̓–**kʷχ̓** –p=**ákst**-min-t-Ø-s*
CƏCRED-**separate**-INCH=**hand**-REL-TR-3O-3S
'He dropped it.'

In the first example, we have a suffix meaning 'ear' which becomes grammaticalized with an adverbial locative meaning 'on the body' (*surface extension*); on the other hand, in the second case we have a suffix meaning

'forearm' (or, better, the part of an arm that is below the elbow) whose meaning becomes restricted to 'hand' (*surface reduction*). We thus see how grammaticalization paths can even have opposite effects. Without a doubt, the semantics-syntax interface is a very promising ground for further studies into the nature of lexical affixation. If we think about the fact that most suffixes have a more general meaning than their unbound counterparts —as Mithun (1997) points out— we may suppose that, at least in the case of body-part terms, the meaning of the two forms should be the same. But if we find that even somatic suffixes may undergo metaphorical extensions and be grammaticalized into locative and even more functional meanings, then we can conclude that, if we are not authorized to consider them all classifiers, at least they have the status of light nouns.

To sum up, lexical affixation construction in Salish have the following properties:

- they are sensitive to the argument structure of their bases even if these are detransitivized (proof that syntax is active);
- they display typical properties of NI constructions;
- they always give rise to verbal compounds with the structure [V+N].
- their semantic value is more generic than that of the corresponding free-standing items, and they often become grammaticalized into functional morphemes.

Let us now turn our attention to Wakashan.

4. Wakashan lexical suffixes

Ever since Franz Boas made them first known in the late 19th century, Wakashan languages have been a topic of great interest. Apart from being famous for their extremely high degree of synthesis and complex laryngeal phonology, these languages are characterized by a feature which is rare in Native American languages, i.e. the absolute lack of prefixation[12]. Bases may only undergo reduplication, infixation (particularly for pluralization) as well as extensive suffixation. Functional morphology is located at the rightmost edge of words, and especially developed is the aspectual system,

[12] The only other family displaying this feature, as far as I know, is Eskimo-Aleut.

along with evidentiality (particularly in the northern branch). Personal inflection is expressed through clitics (unlike in Salish, where it is expressed by transitivity suffixes). These must be located in S2 position, so if the verb is not the first word in a sentence, the personal clitics will climb all the way up to the complementizer position (these clitics are special in that they can only be *enclitics*, never *proclitics*, in conformity with the general structure of the languages in question). This syntactic expression of inflection (unique among polysynthetic languages) gives rise to constructions that are very similar to serial verbs.

A striking feature of the family is the great difference between northern and southern branches, a difference that is most notable in the case of deixis: determiners and demonstratives are based on an ordinary, threefold deictic system in the southern languages, whereas in the northern branch they interact with a visible/invisible dichotomy (only marginally attested in the southern branch), plus an additional present/absent category (in Heiltsuk, Oowekyala and Haisla). Moreover, this interaction also applies to personal deixis, thus yielding seven types of third-person agreement.

The southern languages, on the other hand, show elaborate possession constructions: external possession interacts with possessor raising through the addition of a possessive suffix referring to the possessed subject; in this way the agreement morphemes indicate the possessor instead of the subject, a cross-linguistically extremely rare feature.

Let us now examine the main patterns of lexical suffixation in these languages (remember that there are no lexical prefixes in Wakashan). In the present essay, examples will be taken mainly from the Ahousaht dialect of N(uu)-C(hah)-N(ulth) (Wojdak 2004, 2005), a Southern Wakashan language spoken on the West Coast of Vancouver Island.

The most influential proposal for a classification of Wakashan suffixes is probably the one put forward by Sapir and Swadesh (1939), who distinguish two categories: *governing* and *restrictive suffixes*. As reported by Davidson (2002: 182), the main difference between the categories is that governing suffixes have the property of changing the formal class of the word they create, whereas restrictive suffixes do not show this property. Davidson takes this classification several steps forward in subdividing the governing class (which he calls *nuclear suffixes*) into the following categories:

- *verbalizing suffixes* (e.g. *-ʔiƛ* 'get, invite(PERF)')

- *nominalizing suffixes* (e.g. *-ʔaqsup* 'woman of ... tribe')

- *quantifier suffixes* (e.g. *-ʔiiqʷ* 'score')
- *temporal suffixes* (e.g. *-yi* 'at ... time')

Restrictive suffixes, on the other hand, are divided into:

- *path-orientation suffixes* (e.g. *-ʔaaʔatu* 'move down(PERF)')
- *locative suffixes* (e.g. *-(q)uu(ɬ)* 'on the face')
- *degree suffixes* (e.g. *-cƛ̓in* 'slightly')
- *plural-formation* (suffixes, infixes, reduplications)

Strictly speaking, the last two categories are not exactly *lexical* suffixes (they have functional meanings), so we will not treat them in this paper. Verbalizing suffixes (our *affixal predicates*) are the most typical feature of this language family; they will be dealt with below. With regard to the other categories, there are some nominal suffixes used on *verbs* for nominalization (e.g. *–(š)tuup* 'thing' in *saštuup* 'animal', a derivative of the verb *sa* 'to crawl'), but also on *nominal/adjectival stems* to modify them (the same suffix is added to the stem for 'big' to create the word for 'whale', *ʔiiḥtuup*, lit. 'big thing'). Other suffixes with nominalizing functions include *quantifiers*, *temporal suffixes*; the NCN language also displays some *numeral classifiers*, which play a central role in the morphology of DPs, much the same way as in Chinese. Although these suffixes are classified either as verbalizing or nominalizing, the lexical category of the formations they give rise to will ultimately be determined by inflectional morphology.

Path-orientation suffixes form verbal complexes that are further divided on the basis of their inherent aspectual value, and express meanings like 'go over', 'go through', 'be attached on', 'be in view'. Locative suffixes (which alone number well over 100) are in turn divided into *locale* and *site* suffixes, the former based on a semantic partition of the external world (e.g. the pan-Wakashan suffixes *-iɬ* 'on the floor', *-as* 'on the ground', *-is* 'on the beach'), the latter expressing locations relative to body parts, objects in nature, artifacts (*-c̓u(u)* 'in a container, in a bay') or house parts, as well as relative locations such as 'behind' (Davidson 2002: 202). Note, however, that the body-part suffixes can only function as *location suffixes*: they never

function as incorporated nouns (as in Salish), nor do they act as nominalizers.

Let us now turn to the verbalizing suffixes (which we shall also term *affixal predicates*), the most salient characteristic of the family. First, we note two important features that differentiate the behavior of the Wakashan languages from those of other polysynthetic languages. The first phenomenon sets Wakashan apart from Salish in terms of the modalities with which lexical suffixation takes place: lexical suffixes in Wakashan can be added to semantically empty bases (9c), a feature which is not present in Salish. Note also the suppletive relation between the two expressions of the verb 'buy' in (a) and (d). Incorporation as we have seen above for Onondaga in (3) is not possible in NCN, hence the agrammaticality of (b):

(9) a. *maakuk^{w}it?iš čakup maḥt̓ii*
maakuk-mit-?iš čakup maḥt̓ii
buy-PST-3SS.IND man house
'A man bought a house.'

b. **maḥt̓amaakuk^{w}it?iš čakup*
maḥt̓a-maakuk-mit-?iš čakup
house=**buy**-PST-3SS.IND man
'A man bought a house.'

c. *?u?aamit?iš čakup maḥt̓ii*
*?u=**'aap**-mit-?iš čakup maḥt̓ii*
Ø=**buy**-PST-3SS.IND man house
'A man bought a house.'

d. *maḥt̓a?amit?iš čakup*
*maḥt̓a=**'aap**-mit-?iš čakup*
house=**buy**-PST-3SS.IND man
'A man bought a house.'[13]

[13] We will not consider the suppletive form of the IN *maḥt̓a-* with respect to the free-standing form *maḥt̓ii* here, since such weak suppletion in INs is apparently not very frequent in Wakashan, and also since our main concern is for instances of strong suppletion.

These constructions are nevertheless the closest Wakashan equivalent of NI constructions in proper incorporating languages. An interesting thing to note about the above examples is that NCN lexical suffixes, when not attached to a full base, always attach themselves to the expletive base *ʔu-*, which might be etymologically related to a Northern Wakashan base forming names of body parts (e.g. Heiltsuk *ʔu-xʷsḵání* 'forearm, wrist'). If this etymology proves to be tenable, this would point to the possibility that the class of somatic nouns might represent a starting point in the formation process of lexical suffixes, as appears to be the case in Salish. Note, however, that in Northern Wakashan the semantically empty base is not the same: Heiltsuk uses the espletive *la-*, which is a reduction of the verb *lá* 'to go'. This point alone is worthy of investigation.

The second phenomenon involves the process we called *modifier stranding*, whereby a modifier in a DP is left outside of the verbal complex in incorporating languages. The interesting thing to note here is that, contrary to what one would expect from a language with NI constructions, it is not the noun that incorporates, but the modifier, as can be seen in the following example (Stonham 2004: 230):

(10) *ʔayasiik ćiiḥati*
*ʔaya=**siik*** *ćiiḥati*
many=**make** arrow
'He made a lot of arrows.'

This follows from a syntactic rule that requires lexical suffixes to be placed in S2 position. Due to phenomena of this type, Nakayama (2001:18) advocates a radical distinction between polysynthesis based on noun incorporation vs. that based on lexical suffixation. There is a conflict between two competing rules: given the fact that the lexical suffix must come in S2 position, the requirement of preserving the relative order of modifier and head within the DP preempts the requirement of incorporating a head where the order of elements within the DP would otherwise be altered. This is a basic difference between languages based on lexical suffixation vs. other polysynthetic languages. Furthermore, as pointed out earlier (cf. note 11 above), the clitic-second properties of Wakashan agreement render the test of valence changing not applicable to these languages. Add to this the fact that "INs" are not stripped of any of their functional features and we may conclude (in full agreement with Nakayama) that in Wakashan there is nothing like NI as commonly understood.

As to the range of meanings expressed by verbalizing suffixes, the usual distinction is between verbalizing *action* and verbalizing *state suffixes*. The former tend to express general activities, like 'consuming' or 'perceiving', whereas specific actions ('eating' or 'drinking' for 'consuming' and 'seeing' and 'hearing' for 'perceiving') would be expressed by an independent root. Consider for instance the following sentences (Waldie 2004:2):

(11) a. *suuḥa?ics*
*suuḥaa-**'ic**-s*
salmon-**ingest**-1SS
'I am eating salmon.'

b. *ti?iic?iš Kim*
*ti-**'iic**-?iš* *Kim*
tea-**ingest**-3SS.IND Kim
'Kim is drinking tea.'

The concepts of 'eating' and 'drinking' are here expressed by one and the same suffix, *-'iic*; if we were to paraphrase the sentences above using a full verb, we would have to use *ha?uk* for 'eat' and *naq* for 'drink'.

The only semantic fields where verbalizing action suffixes take on very specific meanings are those connected with ceremonial activities, like *-simč* 'pray for', *-cḥi* 'marry' or *-ƚuuƚa* 'host (a ceremony)'.

State suffixes, on the other hand, express a wide variety of notions (Davidson 2002: 190), e.g. mental states (*-awiƚ* 'expect', *-ma?iiqƛ* 'want'), physical characteristics (*-ḥtin* 'made of'), locative meanings (*-či* 'be at, in, attached to'), concepts connected with social status (*-(č)ƚaa* 'having … as name'), and others such as *–naak^{w}* 'have' or *–iic* 'belong to'.

Boas (1947: 237) argued against the classification proposed by Sapir & Swadesh on the grounds that it is the product of a "eurocentric" classification based not on internal evidence coming from the languages in question, but rather on the English translations of the suffixes. Whereas Davidson (2002) strongly objected to Boas' remarks, Wojdak (2004) has recently reaffirmed his doubts toward the traditional classification on syntactic grounds. Framing her work in terms of Chomsky's *Minimalist Program* (1995), the author assumes NCN affixal predicates to follow from their argument structure and —following Hale & Keyser (2002)— distinguishes four types of predicates: *transitives*, *unaccusatives*, *location* and *locatum predicates*, the last two having inverse argument structures. As

is also the case with noun incorporation, incorporating verbs may only be *transitive* or *unaccusative*, while there are no cases of affixal *unergative* verbs. This is proof that Wakashan lexical affixation is an essentially syntactic phenomenon, and not a matter of pure lexical compounding. The following examples are given by the author (glosses have been normalized and the last sentence has been provided with additional readings in compliance with Davidson's (2002:181) original examples):

(12) a. *łuč?insiikitsiš* (transitive predicate)
*łuč?in=**siik**-it-siš*
dress=**make**-PST-1SS.IND
'I made a dress.'

b. *?ayasuuƛwa?iš* (unaccusative predicate)
*?aya-**suuƛ**-wa?iš*
many=**die**-3S.QUOT
'Lots died.'

(13) a. *qa?uucči?iš ẏaṁa* (location predicate)
*qa?uuc=**či**-?iš* *ẏaṁa*
burden.basket=**be.in**-3S.IND salal.berries
'The salal berries are in a/the burden basket.'

b. *ha?umću?iš qa?uuc?i* (locatum predicate)
*ha?um=**ću**-?iš* *qa?uuc-?i*
food=**contain**-3S.IND burden.basket-DET
'There is food in the burden basket.'
'The burden basket has food in it.'
'S/he has food in the burden basket.'

As seen here, a transitive affixal verb typically incorporates its direct object, whereas unaccusative verbs incorporate their subjects, these being semantic patients; the examples in (13) are based on two sentences quoted by Davidson to demonstrate the usefulness of Sapir & Swadesh's original classification of NCN suffixes into *governing* and *restrictive*. At this point, Wojdak's proposal comes into play: Davidson classifies the suffix *-či* 'be at, in, attached to' as a *verbalizing state suffix* (nuclear), whereas *-ću(u)* is described as a *locative site suffix* (restrictive); it would thus be reasonable to

suppose that a restrictive suffix always acts as such. Consider, however, the following examples of nominalizations:

(14) a. *qa?uucċu?i*
*qa?uuc=**ċu**-?i*
pack-basket=**in.container-**DET
‘the pack-basket (that is) in a container’

b.

wiƛ̓um	*?uyii*	*ha?umċu?i*
wiƛ̓-um	*?u =ayii*	*ha?um=**ċu**-?i*
NEG-2SS.IMP(FUT)	Ø=give	food=**contain**-DET

‘Don’t give her the one that has food in it!’
*‘Don’t give her the food that’s in a container!’

The first example illustrates the restrictive use of the suffix, as seen from the fact that it does not alter the class of the noun it is added to. In the second example, however, the suffix forms a predicate that is exactly equivalent to the one given above in example (14b)[14]; the determiner then renominalizes the predicate. This use is typical of nuclear suffixes, not of restrictive ones. If we also consider that the nuclear/restrictive distinction does not predict the absence of unergative predicates, we have two very good reasons to modify this classification: this is why Wojdak chooses to replace it with a new one based on the predicates’ inherent argument structures. We can observe that her analysis has the privilege of offering a unified account for affixal predicates in Nuu-chah-nulth; an integration of this intuition with the more extensive classification of lexical suffixes proposed by Davidson — based on earlier ones by Sapir & Swadesh (1939) and Rose (1981) — would be the next step toward promoting argument structure as a new guideline for establishing a more precise classification of NCN lexical suffixation.

An additional benefit of Wojdak’s analysis is the fact that she provides evidence for the syntactic status of lexical suffixation: to achieve this, she devises four syntactical diagnostics for relations involving subjects and objects: clausal inflection, noun incorporation, word order and agreement in possessive-raising costructions. These diagnostics are useful for distinguishing transitive from intransitive verbs as well as for showing that location and locatum predicates have inverse argument structures. In the case of intransitive verbs, only the incorporation test is applicable, since only

[14] We have chosen in both cases to gloss the affixal predicate as ‘contain’ rather than ‘in container’. This affixal predicate seems to have both an active interpretation (‘contain’) and a passive one (‘be contained in’).

unaccusatives have a semantic patient as their subject. Unergatives have no semantic patient to incorporate, hence must manifest themselves exclusively as non-affixal. All this shows clearly that syntax is an active process in Wakashan lexical suffixation.

To sum up, let us review the most salient properties of Wakashan affixal predicates:

- they have thematic grids similar to those of incorporating verbs (proof that syntax is active);
- they display compounding properties which are totally different from those of true incorporating languages, therefore we cannot speak of NI. We will then refer to this type of noun-verb compounding as *affixal predication*;
- they always give rise to verbal compounds with the structure [N+V].
- their semantic value is more generic than that of the corresponding free-standing items, though they can be highly specific in the case of ritual or culturally specialized activities.

To conclude, we shall now reflect on some further theoretical implications of the facts we have been investigating.

5. Conclusions

What are the consequences of lexical affixation for linguistic theory? First of all, the factors we have highlighted so far bring us to reflect about the nature of the debate between lexical and syntactic approaches to noun incorporation and related phenomena: we have seen that the astonishing phonetic differences between affixal and non-affixal expressions of the very same meanings has led some researchers to thinking that lexical affixation is essentially a lexical phenomenon. However, we have also seen diagnostics which clearly point to a syntactic account of the very same facts.

Although some theories assume that syntax is operative in lexical affixation, what a syntactic approach must be able to provide —both for Salish and Wakashan— is an account of why the bound forms are so different from the corresponding free-standing ones. This may require research in two directions:

- on the syntactic side, explaining suppletion may entail another look at the diachronic dimension of syntactic operations, as proposed by some recent morphological theories like Distributed Morphology (Halle & Marantz 1993);

- on the semantic side, we will have to verify in what measure the meanings of bound and free forms are the same, since it has been pointed out several times (i.e. Mithun 1997 for Salish and Davidson 2002 for Southern Wakashan) that the affixal forms commonly have more generic meanings.[15]

In the first direction, one solution could be to suppose that (at least some) derivational morphemes are spelt out not individually, but in larger morphological chunks also including the root, and that the Lexicon is formed by several lists which are active at different levels. The combinations we have considered in this paper would be inserted into the derivation —in their full phonetic form— from a lower list (Late Insertion); higher-level operations (syntactic NI) should take place independently, only manipulating bundles of features without (or with very little, cf. Hale & Keyser's (2002) *p-signatures*) phonological content.

One such model has been proposed in Marantz 1997, where three lists are introduced: a high list providing only syntactic and semantic features, a mid-level one providing phonological features for terminal nodes, and a low one providing special meanings and lexicalized combinations. The lower lists, containing items which are likely to be the result of grammaticalization paths mainly of nouns (in Salish) and verbs (in Wakashan), could be imagined as the sites where these items are preserved longest (the grammaticalized INs and verbs may have been replaced by new free items in the lexicon). If we take into account the fact that these lists are low in the derivation (they only become active after the main syntactic operations have taken place), such a deduction seems plausible (synchronic innovation would have to be motivated syntactically, i.e., it would have to start from a higher list).

Further details are yet to be worked out, but a good thing that should be mentioned about this approach is that it would reformulate the old rivalry

[15] On this purpose, it may also be useful to verify which affixal meanings do actually have a corresponding free forms and which do not, as suppletive free roots are not to be found for all lexical affixes indiscriminately.

between syntactic and lexical approaches by turning it into something new, which alone would be worth exploring[16].

In the second direction, since we have seen a difference in meaning between bound and free forms, we may ask ourselves if the meanings of INs are ever the same, even in true incorporating languages; this leads us to the problem of why NI takes place, and we will come to this problem in future work. Such an approach does not exclude the morphological explanation, quite the opposite: it entails considering not only cases of strong suppletion like the ones examined in this paper, but also weak suppletion that may be equally revealing both on the syntactic side and the semantic one.

In conclusion, although we are still far from a convincing theoretical explanation for the phenomenon of lexical affixation as found in the two Northwest Coast language families discussed in this paper, at least we have shown how relevant to contemporary linguistic theory this phenomenon is.

[16] An alternative solution could be to resume Sapir's line of thought and try to reduce all affixal nouns to classifiers and all affixal verbs to light verbs: this path, however, though theoretically attractive (it has been proposed in Johns 2005:33), seems to be rather unpromising due to various semantic (maybe also syntactic) problems (cf. Waldie 2004).

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