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Lexical Polysynthesis: Should We Treat Lexical Bases and their Affixes as a Continuum?

Nicole TERSIS

Center for the Study of the Indigenous Languages of the Americas, National Center for Scientific Research, Paris

Abstract

Polysynthesis in Inuit appears at both lexical and sentence levels. The analysis of a sampling of 3000 lexical entries and 300 affixes collected in Eastern Greenland (Tunumiisut) shows how polysynthesis works in lexical morphology and how phonetic wastage helps to obscure the motivation for some lexical forms and favors the development of homophones.

Furthermore, the analysis of the full set of affixes reveals a number of formal and semantic similarities which relate affixes having different functions. This suggests a continuum over incorporating affixes, TAM verb affixes, and verb inflection, attested in a number of items. While the lexical origin of some incorporating affixes has already been suggested, the hypothesis of a larger lexical, derivational, and inflectional continuum may

provide clues for discovering grammaticalization processes operating within the stock of affixes.

Keywords

Lexical polysynthesis, incorporating affixes, derivation, grammaticalization, semantics

My purpose here is firstly to show from the analysis of a sampling of the Eastern Greenlandic Tunumiisut lexiconⁱ that polysynthesis is currently active there. I will then discuss the hypothesis that the various kinds of affixes involved in lexical creation should be viewed as a continuum.

1. Lexical polysynthesis

From a typological standpoint, Inuit provides a classic example of a polysynthetic language. Speakers can produce utterances which collocate up to ten different morphemes definable by category, combining possibilities, and relative sequential position between a verb base and a final person marker. These morphemes express aspect, argument structure, attitude, quantity, quality, and degree of probability, as the following Tunumiisut example shows:

- (1) *ani-ttaa-ttu-ni* *isi-* *tiq-* *pati-* *qqi-* *yaq-* *tiq*
go.out-fast-CONC-3s enter-inchoative-seem-again-CONT-ATTRIB.3s

‘After his quick exit, it sounded as if he were coming back in.’

The polysynthetic character of Inuit is evident not only at the propositional level, but also in lexical entries. Many of these can easily be broken down into segments, and roots can often serve as a common denominator for a whole series of lexical units designating a wide array of referents. Thus, the Tunumiisut verb root *nui-* ‘to thread’ is found in other entries where the semantic link may be far from manifest as in (2):

- | | | |
|-----|---------------------------|-----------------------------------------------|
| (2) | <i>nui-</i> | ‘to thread’ |
| | <i>nui-sa-Naq</i> | ‘bead’ |
| | thread-habitual-PASS | |
| | <i>nuiqsa-at</i> | ‘knitting needle’ |
| | knit-instrument | |
| | <i>nuiqsa-nga-ssiaq</i> | ‘wool’ |
| | knit-resultative-used for | |
| | <i>nui-sima-tit</i> | ‘dried capelins (<i>Mallotus villosus</i>)’ |
| | thread-PFV-ATTRIB.pl | |

In (3), suffixes added to the verb root *timmi-* ‘to fly’ change the verb into a noun, but then change that noun back into a verb, and the verb back into a noun again:

- | | | |
|-----|----------------------|---------|
| (3) | <i>timmi-</i> | ‘fly’ |
| | <i>timmi-saq-tuq</i> | ‘plane’ |
| | fly-habitual-ATTRIB | |

timmi-saq-tu-qaq-pu-t ‘there are planes’

fly-habitual-ATTRIB-have-IND-3p

timmi-saq-tu-qaq-pik ‘airport’

fly-habitual-ATTRIB-have-place

The morphological and semantic analysis of a sampling of 3000 lexical items collected in the field in Eastern Greenland nevertheless reveals a nuanced situation in the lexicon, varying from motivation to opacity (De Colombel and Tersis 2002:51). Alongside motivated, easily analyzed lexical forms are other complex terms which have undergone formal modifications in their basic elements leading to fossilizations that are sometimes hard to explain. This simply shows that the range and productivity of derivation in Tunumiisut yields a lexicon which abundantly illustrates the quest for expressivity and the development from motivation to fossilization to remotivation which characterizes natural language.

2. The Tunumiisut lexicon: between adaptivity and fossilization

Merger with a suffix may give rise to a form which differs considerably from the original root. Such derivatives show a wide range of degrees of opacity. This situation is primarily attributable to the sound changes specific to Tunumiisut, which has undergone numerous consonant

and vowel assimilations and a weakening and occasional loss of intervocalic and final consonants. This has resulted in a large number of homophones in comparison to Western Greenlandic Kalaallisut (cf. Dorais 1981, Fortescue 1984, Sadock 2003).

In a few cases, the affix added to the lexical item cannot easily be identified. Thus, in the verb *ittikkaq*- ‘eat two things together’, the noun root *itti*- ‘other one of a pair’ is easy to identify. On the other hand, it is much harder to assign a synchronic value to *kkaq*-.

In other cases, morphophonological rules will allow reconstruction of the original constituents, e.g., *pannaq* ‘dried meat’ has two components, *paniq-niq* /be dry-fact of/. The resulting form can be explained by rules of elision and vowel harmony.

In other cases still, verb components may be shortened as when *imiqtinga-kkiaq*- /algae-look for/ becomes *imiqtikkiaq*- ‘go algae gathering’.

Further examples can be found where, despite semantic resemblance, the connection between two complex roots can only be established by diachronic comparison, cf. *atiq*- ‘go down’ and *aqqiC*- ‘go down’ which go back to two different Proto-Eskimo forms, * *atəR* - ‘go down (to shore)’ and **atRaR*- ‘go down’ which themselves have as their common origin **at(ə)* ‘down’ (Fortescue et al. 1994:47-48).

Alongside fossilized forms such as are found in any language, the organizational properties of the lexicon allow remarkable ease of creation of

nonce forms in ordinary speech. These properties give rise to such methodological problems in the elaboration of a dictionary that some scholars have expressed doubt as to whether a language like Inuit should have one. To some extent, an Inuit dictionary should be no more than a collection of the phrases and sentence words of the day. Beyond that, one might want a mere list of roots and affixes with no indication as to how they might combine (Lowe 2000:169).

Let us look at a few examples of combining possibilities showing the elasticity of word formation. The principle combining property of the lexicon is the phenomenon of noun incorporation which allows spontaneous creation of verb forms, most of which are never fully lexicalized. These frequently observed forms are built up from a noun followed by a verb suffix with no intervening morphemes allowed. They are generally produced in normal speech as a response to particular circumstances, and it is therefore impossible to provide a definitive listing. Thus, the incorporating affix *-tuuq-* ‘make, cook’ can be joined to any one of an open set of nouns, as for example in *itti-tuuq-pu-q* ‘he builds a house’, *saqqisi-tuuq-pu-q* ‘he makes a kayak’, or *manni-tuuq-pu-q* ‘he cooks eggs’. These examples contrast with fossilized forms such as *aak-patit-*, literally /blood-resemble/, ‘be red’, or *ii-nnguq-*, literally /person-become/, ‘be born’.

Unstable derived noun forms can also be produced, e.g., *amiqta-niqtu-niq* /be many-habitual-fact of/ ‘fact of usually being numerous’, which also cannot be treated as proper lexical entries.

Finally, both the lack of formal differentiation between some lexical units on the one hand and phrases and “sentence words”ⁱⁱ on the other makes it hard to decide when we have a true lexical entry. Thus, the Tunumiisut term *niitassaq* ‘food’ cannot be formally distinguished from the noun phrase *nii-ta-ssaq* /eat-resultative-virtual/ ‘what is to be eaten’. Furthermore, the semantic content of the lexical unit is hardly different from that of the sum of the components of noun phrase.

This ease of spontaneous word formation is nevertheless compatible with a derivational system which allows the lexicon to be enriched by the creation of stable forms. To deal with these, given the high degree of polysynthesis in the lexicon, we must first of all identify the affixes used in lexical creation. Indeed, an initial distinction must be made between derivational affixes which allow the creation of new lexical units and verb specifiers which assign features of aspect, degree of probability, intention, and attitude to verbs.

This done, we can then turn to the matter of whether there are formal and/or semantic similarities between the different classes of affixes and what any such similarities may imply.

3. Roots, derivational series, and verb specifiers

Suffixal derivation appears as the basic process for forming new nouns and verbs in Tunumiisut. Roots take one or more derivational suffixes which may apply to nouns, verbs, or both. Derivation in this sense is restricted to lexical creation and must be distinguished from a broader usage which extends to what are here called verb specifiers. The criteria suggested by W. de Reuse (this volume) to distinguish derivation, inflection, and productive noninflectional concatenation (PNC) are highly instructive in this regard (cf. also de Reuse 2006).

Nominal suffixal derivation thus gives rise either to a change of meaning with respect to a noun root (4) or to a change of grammatical category with respect to a verb root (5, 6).

(4) Noun > Noun

inuusaq ‘doll’

| inuk-Vsaq |

person-resembling (inuk ‘person’ variation from west greenlandic for iik in tunumiisut cf. Example 6)

immuusuiik ‘milk pot’

| immuk-Vsuik |

milk-containing

(5) Verb > Noun

aatisaat ‘fishing line’

| aatisaq-Vt |

angle-instrument

inuuniq 'life'

| inuu-niq |

live-fact of

pukungaq 'crowberry'

| pukuC-ngaq |

pick-PASS

Some affixes are applied to both nouns and verbs:

(6) Verb > Noun

atiwaqat 'schoolmate'

| atiwaq-qat |

go to school-together with

Noun > Noun

iiqat 'contemporary'

| iik-qat |

person-together with

(7) Stative verb > Adjectival noun

angi-kkaayuk 'big'

be big-qualifier

Successions of derivational affixes are allowed:

(8) *katiqsingassat* 'things gathered, things harvested'

| katiq-siq-ngaq-ssat |

gather-repetitive-PASS-virtual.pl

In nouns derived from a verb root, the verb may be followed by one or more verb specifiers which modify the meaning of the verb but cannot themselves give rise to new lexical entries (9). The derivational suffix appears in final position.

(9) *ikiwattattiqniq* ‘hot coal’

| ikiwattaC-**tuuq**-niq |

burst into flame-**unforeseeable**-fact of

manngitiqqaaqniq ‘spring’

| manngiC-**tiq-qqaaq**-niq |

turn into summer-**inchoative-initial**-fact of

It must, however, be remembered that suffixal derivation does not exhaust the possibilities of noun creation, as there are examples of compounds which bring together otherwise separate words.

(10) *pukukkat akisittut* ‘figs’

berry.pl white.pl

A participle can also take on another sense as a noun without formal change:

(11) *nii-niaq-tiq* 1. ‘trying to eat’; 2. ‘hooded seal (*Cystophora cristata*)’

eat-try-ATTRIB

Verbal suffixal derivation results in a change of meaning (12) or transferral to another verb class as when an active verb becomes a stative verb or the opposite (13). Derivation may also bring about a change in verb valency (14).

(12) *sipu-wu-q* ‘He blows.’

blow-IND-3s

sipu-uq-pu-q ‘He blows several times.’

blow-repetitive-IND-3s

akkiq-pu-q ‘He comes.’

come-IND-3s

akki-ip-pu-q ‘He comes with sth.’

come-action with-IND-3s

(13) Active verb > stative verb

pusip-pu-q ‘He turns around.’

turn around-IND-3s

pusi-nga-wu-q ‘He is turned around.’

turn around-state-IND-3s

(14) Change of valency

satti-wu-q ‘He tells lies.’

lie-IND-3s

satti-ppii-wa-a ‘He lies to him.’

lie-have as goal-IND-3s-3s

Let us now look specifically at the widespread use of incorporating affixes to form verbs. This will give us the occasion to consider the formal and semantic similarities of these affixes with verb specifiers. This discussion will lead us to envisage the possibility of a continuum linking both kinds of affixes.

4. Is there a continuum over lexical bases, incorporating affixes, verb specifiers, and inflectional affixes?

An examination of the totality of the 300 functionally contrasting affixes in our corpus (Tersis 2008) reveals a certain number of form and meaning similarities leading us to suggest that a continuum may exist from incorporating affixes to verb specifiers, extending even to verbal and nominal inflection, as a few examples will now show.

Let us first recall that incorporating affixes are attached to a noun root to form a verb — the phenomenon otherwise known as noun incorporation. These affixes form a closed class of seventy members in our corpus. They have fairly abstract meaning which will vary with the noun they are attached to. They are usually translated with the logical or modal senses of existence, becoming, limitation, quantity, movement and location, resemblance, positive or negative evaluation, momentary or lasting constructive activity, or action as such (Johns 2003, Tersis 2005).

A first parallel between incorporating affixes and verb specifiers can be drawn with respect to shared aspectual features. The incorporating affix *-qqiC-* (15) has the same meaning as the verb specifier *-qqiC-* insofar as both express iteration. Likewise, the two *-tiq-* affixes in (16) share a connotation of repetition and gradual action, and the two *-taq-* in (17) share a connotation of habitual or repetitive action.

(15) *-qqiC-*, incorporating (fossilized) N-V(+), ‘add, repeat’

ita-qqip-pa-a

piece-repeat-IND-3s.3s

‘He adds a piece.’

-qqiC-, verb specifier V-V, ‘again, once more’

qanni-qqip-pu-q

snow-again-IND-3s

‘It is snowing again.’

(16) *+/-tiq-*, incorporating N-V, ‘put on, cover, coat’

ammaqqaa-tiq-pa-a

fat-put on-IND-3s.3s

‘He coats it with fat.’

+tiq-, verb specifier V-V, ‘repetitive, one after the other’

mattaq-tiq-pa-a

undress-repetitive-IND-3s.3s

‘He (progressively) undresses him.’

- (17) +*taq-*, incorporating N-V, ‘look for, gather, collect’

qisut-taq-pu-q

wood-gather-IND-3s

‘He gathers firewood.’

+*taq-*, verb specifier V-V, ‘habitual’

nii-taq-pu-q

eat-habitual-IND-3s

‘He usually eats.’

A second parallel involves incorporating affixes and the oblique case.

The examples in (18-19) show the notional parallel between the two types of affix, the first expressing origin and the second, transition.

- (18) -*minngaaniq-*, incorporating N-V, ‘come from’

nuu-minngaaniq-pu-q

Nuuk-come from-IND -3s

‘He comes from Nuuk.’

+/-*minngaaniit*, separative oblique case, ‘spatiotemporal origin’

itti-minngaaniit ani-wu-q

house-SEP come from-IND-3s

‘He is coming out of the house.’

- (19) *-kkiiq-* (variant *-kkuuq-*), incorporating N-V 1. ‘go through (transitional action)’ 2. ‘use as a means of transport, travel’

siki-kkiiq-pu-q

ice-go through-IND-3s

‘He is going through the ice.’

timmisaqtu-kkuuq-pu-q

plane-travel-IND-3s

‘He is going by plane.’

-kkit, translative oblique case, 1. ‘means of doing’ 2. ‘transition (space, time, body part)’

saqqisi-kkit aattaq-pu-q

kayak-TRANS leave-IND-3s

‘He left by kayak.’

awati-kkut kii-wa-anga

hand-TRANS bite-IND-3s.1s

‘He bit my hand.’

Another interesting example is the incorporating affix *-niaq-*, which can be related to both a verb specifier and the injunctive-mood inflection of the same form (19). In all three cases, the common linking notion is that of intention.

- (20) *+niaq-*, incorporating N-V, ‘hunt (+ animal name)’

anniq-niaq-tiq

bearded seal-hunt-ATTRIB

‘one who is hunting the bearded seal’

+*niaq*-, verb specifier V-V, ‘try to’

suutti-i-niaq-pu-q

first-be-try-IND-3s

‘He is trying to be first.’

-*niaq*-, mood, ‘mild injunctive’

nii-niaq-ta

eat-INJUNCT-2p

‘Let’s eat!’

Our final example links a verb specifier and a conjunctive affix (the latter appearing only in dependent utterances), *-ngiaq*-, variant *-Vyaq*-, which in both cases expresses duration of the process over time.

- (21) *-Vyaq*-, verb specifier V-V, ‘simultaneity, (at the time) when, unexpected, abrupt occurrence’

isi-yaq-pu-q

itaqutaat nii-tit

enter-simultaneity-IND-3s family.pl eat-ATTRIB.3p

‘He entered just when the family members were eating.’

-*Iyaq*-, conjunctive affix V-V in subordinate clauses,

‘contemporative’

inunngu-uya-a-ma *tattani* *nayunaqaq-pu-ut*

be.born-CONT-CAUS-1s there stay-IND-1p

‘When I was born, we were living there.’

From a diachronical standpoint, we might also wonder whether a link can be established between lexical roots and the various types of affixes. The origin of these affixes remains a mystery for which various solutions have been proposed. According to M. Fortescue (1996:151, 165), no lexical origin can now be discovered, as the stock of affixes has undergone internal renewal:

“[T]he tense affixes — like all productive affixes in West Greenlandic — are bound morphemes and have no discernible connection with any lexical stem: Eskimo languages have been of an extreme polysynthetic type for a very long time, with many productive derivational affixes (over four hundred), the lexical sources of which have vanished... In fact West Greenlandic — like all Eskimo languages — periodically renewed its Tense/Mood/Aspect affixes, but by exploiting already existing bound morphemes (by splitting allomorphs or combining simpler affixes), not by lexicalizing stems.”

On the other hand, M. Mithun (1999:55) believes that it might be possible to find a lexical origin for some incorporating affixes:

“[I]n a very few cases, resemblances can be seen that are suggestive of an earlier diachronic relationship.... The lexical affixes differ crucially from roots in showing exactly the effects of grammaticalization that we have come to expect of affixes: the generalization and abstraction of meaning, and the erosion of form.”

One of the examples given by M. Mithun (1998) from Alaskan Yupik is that of the incorporating affix *-tuR-* which denotes, depending on the context, ‘use, eat, take’ and which could be derived from the verb root *atur-* ‘use’ or from the affix *-ngirte-* ‘wound, be wounded (body part)’ which could in turn be a reduced form of the verb *akngirte-* ‘hurt, be hurt’.

The form and meaning similarities linking the different types of affix as presented above demand explanation.

5. Grammaticalization or abstract semantic core?

Some explanation must be sought for the resemblances among the various types of affixes. One would be simple homophony with no common origin, easily understandable in a language with few vowels (i, a, u) and consonants (p, t, s, k, q, m, n, ng, N, w, y) where phonetic change has tended

to be assimilatory for both. Another possible explanation would allow for speakers' tendency to reinterpret their language and see meaning resemblances which run counter to historical origin. This phenomenon should be seen in the light of the need for motivation, expressivity, and remotivation (Pottier 1992:44) which shows up in many instances of folk etymology such as (17) where the affixes actually have different origins, *taR- 'fetch or gather' et *ðaR- 'habitually or repeatedly' (Fortescue *et al.*: 426 et 396), despite their semantic similarity.

If, on the contrary, common origin is to be assumed, two further hypotheses may be envisaged. Firstly, if we follow Mithun and admit that incorporating affixes are former verbs that have undergone grammaticalization and that these verbs were used in N + V compounds, we can hypothesize that a continuum exists over verb bases, incorporating affixes, verb specifiers and, in the light of our examples, even inflectional affixes, cf. *-niaq-* in (20). In such case, the formal and semantic similarities between the incorporating affixes and the verb specifiers could result from grammaticalization in a way which can be summed up as follows: the meaning of the incorporating affixes is relatively more concrete and precise while that of the verb specifiers is relatively more abstract. Some formal change may also occur as in the case of the oblique case affixes with respect to the incorporating affix (18-19).

An alternative hypothesis would be that, given the scarcity of instances of grammaticalization in Tunumiisut and the fact that the process of affix renewal could have taken place within the affix category itself without recourse to the grammaticalization of lexical items, some affixes may have developed new abstract uses.

The hypothesis of an abstract core meaning for incorporating affixes has been developed elsewhere (Tersis and Mahieu 2006). The various cases of incorporating affixes which differ in meaning according to the nouns they follow indeed require explanation. Let us take the affix *-suq* ‘hold, use, consume, drink, play, take’ (cf. *tatiq-suq-pu-q* ‘he uses his arms’, *punni-suq-pu-q* ‘he uses butter’, *kola-suq-pu-q* ‘he drinks Coca-Cola’, *qitaatiq-suq-pu-q* ‘he plays the drum’, *nakuqsaati-suq-pu-q* ‘he takes medicines’) as an example. How should this range of meanings be interpreted? Are there two or more homophonic affixes or only a single polysemic one? Is the apparent range of meanings only an illusion of translation? Tersis and Mahieu (2006) try to discern an abstract core meaning which translation to other languages obscures. They propose that this core meaning for *-suq* should be ‘process in the course of which a (usually human) agent repetitively manipulates something’. While this definition can doubtless be refined, it satisfies the requirements that the sense of an incorporating affix should be unlike that of a root, more abstract and yet precise, “having an aspectual value and giving

an exact indication of how the external argument relates to the incorporated nominal argument” Tersis and Mahieu 2006:168).

On this view, there would not be two different *-qqiC-* affixes (cf. 15), one an incorporating verb affix appearing after a noun with the meaning ‘add, repeat’, and the other a verb specifier appearing after a verb and meaning ‘again, repetitively’. There would be only one *-qqiC-* affix expressing abstract iterativity. We would also assume that the combining power of this affix has been widened from an earlier state, so that it can now be added to both nouns and verbs (Tersis 1994). The scarcity of cases of grammaticalization would thus follow from the availability of abstract semantic notions expressed by mobile affixes.

To conclude, the organization of the Inuit lexicon poses theoretical problems regarding the identification and delimitation of lexical entries in view of the range and adaptivity of derivational processes which allow 1) creation of nonce terms at any time in ordinary speech and 2) the recurrent formation of nouns from verbs and then from verbs back to nouns. Further problems arise in connection with the extent of polysynthesis in complex lexical forms and the limitations imposed by fossilization, morphemic merger, and the major phonetic changes in Tunumiisut.

A close examination of the stock of affixes involved in lexical formation leads to a distinction between derivational affixes, which give rise

to nouns and verbs, and affixes which specify verbs. Furthermore, the form and meaning resemblances among incorporating affixes, verb specifiers, and some mood inflection and oblique case markers require explanation.

While it cannot be said with certainty that there is a continuum over lexical units and affixes, it can be affirmed that the affix class is affected by a particular internal kind of grammaticalization insofar as its membership is renewed by the creation of new affixes from older ones by processes of semantic drift, distributional change, and merger.

Seeing that some incorporating affixes resemble verb specifiers in both form and meaning, a harder attempt has been made to link both kinds of affixes by the assignment of a shared core meaning, usually with an identical aspectual value. On this hypothesis, the meaning variations noted in translation result simply from the range of possible associations of a single affix with different noun or verb roots.

Abbreviations

1s, 1p	first person singular, plural
2s, 2p	second person singular, plural
3s, 3p	third person singular, plural
ATTRIB	attributive
CAUS	causative

CONC	concomitant
CONT	contemporative
IND	indicative
INJ	injunctive
PASS	passive
PFV	perfective
pl	plural
SEP	separative oblique case
sg	singular
TRANS	translative oblique case

symbols used before affixes:

–	final consonant deleted from the suffix-bearing morpheme
+	final consonant on the suffix-bearing morpheme preserved
+/-	final consonant deleted or not according to the nature of the consonant inherent or not to the root.

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ⁱ Tunumiisut is spoken on the coast of Eastern Greenland in the Tasiilaq area and further north in Ittoqqortoormiit by some 3500 people out of a total Greenland population of around 57,000. It belongs to the easternmost part of the Inuit dialect chain. Tunumiisut is relatively undocumented (Dorais 1981, Gessain *et al* 1986, Mennequier 1995, Petersen 1975, Rischel 1981, Robbe

and Dorais 1986, Thalbitzer 1921, Victor et Lamblin 1989) in comparison with Kalaallisut spoken in Western Greenland.

ii

The term “sentence-word” refers to words (phonological units set off by pauses) which constitute a full proposition.