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Derivational Morphology in Eskimo-Aleut

The Eskimo-Aleut language family (also called Eskaleut) consists of three main divisions into the Unangax (Aleut), Yupik and Inuit languages. The latter two are more closely related and together form a grouping that has been called Eskimo.[1] The language family extends from Siberia to Kalaallit Nunaat (the land of the Greenlanders – Greenland). It is therefore indigenous language within four countries, the Russian Federation, U.S.A., Canada and Kalallit Nunaat.[2] The members of this population live in the northern regions of each respective country; Kalaallit Nunaat is entirely northern. Originally more nomadic, people now inhabit communities near the coastal regions, usually above or sometimes just below the tree line.

There are estimated to be 96,891 speakers of Eskimo-Aleut (Ethnologue 2009). In a number of regions, either the language or the local dialect is moribund, i.e. the chances of it surviving are low. The Unangax language has a total of only 155 speakers, Yupik languages have 11,900 and the Inuit Language has 73,644. (Alaska Native Language Center). Statistics are approximate and it is important to remember that individual communities may vary widely in their language strength. In many areas the language is still very strong. This strength is clear in Kalaallit Nunaat, where everyone

[1] The term Eskimo is not a word from this language family but is a word used in English to refer to the people, etymology unknown, but often thought to be Algonquian. In 2010 the Inuit Circumpolar Council passed a resolution that the term Inuit be used in research. There also are more regional terms, e.g. Kalaallit 'Greenlanders'.
[2] Kalaalit Nunaat is autonomous, but not fully, from Denmark.

speaks one of the three dialects (Kalaallisut, Inuktun and Tunumiisut). There are many communities in Canada where the Inuit language is dominant and vital. For example, in Arviat, Nunavut, of 1,915 people who claim Aboriginal identity (which would be Inuit), 1,910 claim knowledge of Aboriginal language(s), and 94.5% of those with Aboriginal identity speak an Aboriginal language most often at home (Statistics Canada 2006). This means the Inuit language is used in the home throughout this community. In contrast, in another Canadian community, Ulukhaktok, NWT, of 370 people who claim Aboriginal identity (Inuit), 190 claim knowledge of an Aboriginal language and 10.8% of those who claim Aboriginal identity speak an Aboriginal language most often at home (Statistics Canada 2006). This means that the Inuit language is much less spoken throughout this community. In these two communities we see two very different language scenarios, both of which are observed in other communities across the Arctic.

Areas where the Eskimo-Aleut language holds the status of an official language include Kalaallit Nunaat, the territory of Nunavut in Canada, and the Northwest Territories of Canada.

Some important references for the language family as a whole include Dorais (2010) for a general overview of the Inuit language including sound systems, inflection, literacy, current status, extensive bibliography, etc., especially for Canadian dialects. Fortescue, Jacobson and Kaplan (2010) is the second edition of the Comparative Eskimo Dictionary, an enormously useful compendium of reconstructed roots and derivational morphology with cognates in various dialects. One of the most thoroughly described dialects is Kalaallisut (West Greenlandic), and Fortescue (1984) is the best source, although unfortunately out of print. A good reference for Tunumiisut (East Greenlandic)

is Tersis (2008). For Unangax,[3] Bergsland (1994; 1997) is the most important body of work, and for the Yupik languages there are the excellent resources of Jacobson (1984; 1995), Woodbury (1981) and de Reuse (1994).

Although Unangax, Yupik and the Inuit language are the three main divisions within the language family, each of these has subdivisions of its own. Yupik consists of three languages, Central Alaska Yup'ik, Siberian Yupik, and Alutiiq, while the Inuit language is usually considered to be one language with four main dialect groups i. Alaskan Inupiaq, ii. Western Canadian or W), iii. Eastern Canadian or E and iv. Greenlandic). There are numerous dialects within these four groups and intelligibility across dialects has never been fully examined. Unangax has two main dialect groups, Eastern and Atkan (Western) (Bergsland 1997). For more detailed information about varieties within these main groups, see Dorais (2010) and Fortescue et al. (2010).

1. Word-Formation in Eskimo-Aleut

The Eskimo-Aleut word has the general schema of root-(affixes)-inflection-(enclitic).[4] Whereas the noun consists of one obligatory categorized root plus case, verbs consist of an obligatory categorized root plus a complex inflection (one of a number of grammatical moods combined with person and agreement). Affixes, however, are the elements which can expand in number in the middle of the word, creating the long words which provide the basis for describing languages as polysynthetic.[5] An example from Central Siberian

[3] The actual term for the language is Unangam Tunuu but Unangax is used in English.
[4] Unangax is the only language in the family with auxiliaries (see Bergsland 1997).
[5] Affixes are suffixal in nature; there is only one prefix in the Inuit language *ta-* which reorients deictics from the point of view of the speaker to that of another, e.g. *maani* 'here (speaker)' vs. *ta-maani* 'here (listener)', i.e. 'over there (by you)'

Yupik is shown in (1), adapted from de Reuse (1994, 25), with deleted segments in parentheses.

(1) angyagh-(gh)lla-ng(e)-yug-tuq=lu
boat-big-acquire-want.to-indic.3s-also
'also, he wants to acquire a big boat'

In this example the root on the left is *angyagh* 'boat' and the inflection towards the right *–tuq* consists of the indicative mood marker plus third person singular. The enclitic *–lu* 'also' follows the inflection. There are three affixes internal to this word.

Derivational morphology in Eskimo-Aleut consists of the set of these affixes. This class of elements has variously been termed postbases, affixes, suffixes, infixes, etc. I will use the term postbase, which is widely used, although no label is entirely adequate. Postbases, as derivational morphology, either i. modify/extend the stem, ii. change the category of the stem or iii. modify the valency or argument structure of the stem through reduction or addition. As Fortescue (1992, 247) notes:

> Much of what is inflectional (or indeed lexical) in more analytic languages is clearly derivational in languages like Eskimo, where, for instance, suffixes for tense and epistemic modality have inflection-like semantics and appear just before the "real," paradigmatic/obligatory inflectional endings for mood, person, and number.

There is long standing and general consensus on this point, illustrated by the statement in Jacobson (1984, 423): "A Yup'ik *postbase* is a derivational suffix similar to English

suffixes such as '-ment' in 'argument'," or by Smith's (1978a) title for the list of these morphemes "A Survey of the Derivational Postbases of Labrador Inuttut (Eskimo)". One exception is de Reuse (2000; 2006), who considers productive members of this set of elements to not be derivational but instead PNC elements (productive non-inflectional concatenation).[6] Lack of productivity should not be a defining property of derivatioinal morphology. Since there is no principled way to delineate among this group of morphemes to isolate a sub-class that could be categorized as derivational morphology, I will consider the set of postbases to be derivational morphology. As we will see, some members are equivalent to derivational morphemes in more familiar languages, while others seem surprising, posing challenges for both our understanding of derivational morphology and syntax.

Enclitics will not be considered here, since they follow inflection.

1.1 Numbers of Postbases and Productivity

Given that the set of derivational morphemes underlies the polysynthetic nature of this language family, it is not surprising that these elements are numerous; they are usually found listed either in a separate section within dictionaries of the language (e.g. Jacobson 1984) or in a lexicon of their own (e.g. Harper 1979). The important information about them concerns what each morpheme means, which categories it can attach to, whether there is any category change, etc. and what type of morphophonological effect occurs to the left as it attaches to the stem. Bergsland (1997, 105) states that in Unangax, there are about 570 postbases, with only 175 productive. de Reuse (1994, 76-77) compares the

[6] Woodbury (1981) reserves the term derivational for category changing or valency changing postbases.

number of Central Alaska Yup'ik postbases in Jacobson (1984) – 556 - with the number in Central Siberian Yupik – 547. He points out that many of the postbases in Central Siberian Yupik are not fully productive and suggests that Central Alaska Yup'ik has fewer non-productive postbases, such that the latter has significantly more productive postbases. Sadock (2003, 3) reports that there are approximately 500 derivational affixes in Kalallisut. Estimating how many postbases there are is complicated by a number of factors, including whether non-productive postbases should be counted, determining whether certain sequences of postbases constitute an independent postbase, and even whether postbases in different positions within the word should be counted separately.[7]

Non-productive postbases are those which cannot be freely added or occur in only a few contexts. An example of this in Central Alaskan Yup'ik is *-tar-* 'to fetch, go to get, or gather N (not food) from nature' as in (2) from Jacobson (1984, 566). de Reuse (1994, 75) also describes the same Siberian Yupik postbase as non-productive.

(2) equg-tar-tuq

wood-collect-intr.3s

'He is collecting firewood'

Here it would be useful to see examples of non-permitted nominal roots. Is it that this postbase selects only for mass-type, desirable products of nature? If so, this would logically limit its application, and it could be compared with the English verb *harvest*, which would not normally be used with stones, books, etc. Alternatively, it may indeed be an unproductive historical relic. In Yup'ik this postbase attaches to nominals meaning

[7] This important issue is independent of the needs of dictionary makers, who may choose to posit two entries, even where a more abstract linguistic analysis would have one.

water, wood, grass, ice, and its cognates in other languages in the family attach to mussels, berries, snow and blood (see for example Briggs et al. in progress).

Sequences of postbases are challenging for analysis. They may involve issues of lexicalization, restricted distribution or even frequency. Lexicalization is used to describe sequences where the meaning is not simply the sum of the parts. Fortescue (1980) describes the Kalaallisut postbase *–vvigi-* 'trans(itive)' as a lexicalized sequence which he says descends from *–vik* 'place' and '*gi*' 'have as'. He says that this postbase only adds an object to a verbal base, and that no other postbase may intervene between the two.[8] It would be interesting to find out if there is additional evidence for considering this type of element as one postbase (see discussion of cognates of this postbase in 2.1.2).

Bergsland (1997, 105) describes an Unangax postbase which is a composite, i.e. lexicalized. The postbase *–yugaaĝ-* 'to V for a while; to V a little' is itself a rare postbase. It is composed of the more rare *-yuug-* 'a little' plus the unknown *–aaĝ-*. Woodbury (1981, 329) describes Central Yup'ik postbases which cannot directly combine with any root but must combine with another postbase to form a complex postbase, e.g. *-knaggar*, which can appear as an intensifier to other postbases: *–ta-**knagga-**irute* 'for there to be absolutely no more N at subject/localis' (*-ta* 'N at subject/localis); -ng:irute 'to run out of N').

Fortescue (1980, 263) makes an additional distinction among postbase sequences based on frequency. He labels as semilexicalized very common collocations, whose meaning is transparent, and which need not necessarily co-occur. One example is the

[8] Similarly Bergsland (1994) describes the Aleut postbase *–ĝiiluĝ-* 'place for having or holding' as a composite with its own entry, even though he says it might be a sequence of *–ĝi-* 'have as' and *–aluĝ-* 'place for –ing.'

Kalaallisut postbase *–qquuqi-* 'undoubtedly; must have' which consists of *–qqur-* 'undoubtedly; must have' followed by the intensifier *–qi-*. Frequency of co-occurrence is not accepted by others as a basis for a separate entry. de Reuse (1994, 69) says it is not clear what the term semilexicalization means even though "Every student of Eskimo postbases is struck by the semantics of certain combinations occurring again and again,…" Fortescue (1980) maintains that this factor is related to psychologically "real" word forms, and warns against overanalysis. The delineation of postbase sequences is an understudied issue for this language, and my own observation is that the majority of these postbases are not readily perceptible by fluent speakers without training or extensive discussion of them.

A final issue concerns the length of words. Given that the properties of the postbases allow for recursion (see discussion below in 2.), words are in principle infinite in length; nevertheless most report a general maximum of six postbases within a word (c.f. Bergsland 1997, 105; Fortescue 1980).[9] Longer words are possible and speakers themselves enjoy (re)creating them as a novelty. Here is a particularly long Kalaallisut word from Fortescue (1983, 97) with nine postbases.

(3) aliikusirsuillammassuraanirartassagaluarpaali

alikkut-lirsur-i-llammak-ssuaq-u-nirar-tar-ssa-galuar-paat-li

entertainment-provide-semi.trans.-one.good.at-great-be-say-repet.-will-sure.but-3p/3s-however

[9] de Reuse (1994, 54) reports that Central Siberian Yupik usually has shorter words than Central Alaska Yup'ik and that there is usually two or three postbases. Jacobson (1984, 423) does not give us an average for Central Alaska Yup'ik but says that there are "sometimes as many as half a dozen, but infrequently more than that."

'However, they will say that he is a great entertainer, but…(e.g. we know otherwise)'

1.2 Scope and Position of Affixes

The meaning of most postbases scopes over the material to which they attach (Kleinschmidt 1851; Smith 1978b; Fortescue 1980; Woodbury 1981),[10] starting from the end of the word (right to left). We can see both these properties in the following Unangax examples from Bergsland (1997, 106), morpheme glosses added.

(4) a. hla-x̂ txin kuri-za-qali-ku-x̂

boy-abs. Refl.3s smoke-habit.-start

'The boy has started to smoke (habitually), has become a smoker'

b. qilam txin kuri-qali-za-x̂

in.morning Refl.3s smoke-start-habit-

'He usually starts smoking in the morning'

Here we see that the order of the postbases *-za-qali-* gives the meaning 'start to habitually X', while the reverse order *-qali-za-* give the meaning 'usually starts to X.'

As a result the starting in (4b) is part of the recurring event but is presumed to have happened only once in (4a). Kleinschmidt (1851, 110) notes that the ordering is the

[10] Both Smith (1978b) and Fortescue (1980) consider the question of whether generative rules are needed if scopal relations do the work. This issue is still debated in the work of Cinque (1999) and Ernst (2002).

reverse of that we find in European languages. This inverse ordering is typical of what Cinque (1999, 53) describes as "non-closing" or stacking suffixes.

Crucially, Kleinschmidt (1851) Fortescue (1980) and Woodbury (1981) point out that scope alone does not provide an explanation for all postbase orderings. For example, there are some postbases which must be in a fixed order with respect to each other, i.e. their ordering cannot be permuted. For example, Fortescue (1980) posits a set of postbases (his V_s), a group consisting of tense, negation and epistemic modality, which must follow other verbal postbases. This suggests there are fixed hierarchical relations within the word.

Another example against a generalized scope rule is that in degree relations, the element on the right does not scope over the entire constituent to its left, but only the immediate element to the left, as in the Unangax example from Bergsland (1997, 105) [my glosses].

(4) aqa-yukach-aasaada-nan aχ̂ta-kun

come-for.a.long.time-very-sub.3pl appear-3p.

'They apparently spent a very long time coming (here).'

Here -*aasaada*- 'very' applies only to -*yukat*- 'for a long time.' This suggests there are subconsitituents within the word.

Finally some of what Fortescue (1980) calls lexicalized postbases sometimes show an ordering that is unexpected, given the meaning of the components. Consider the two possible interpretations of the Kalaallisut example in (5) from Fortescue (1984, 43).

(5) niri-qqu-nngil-aatigut

eat-tell-not-3p/1p.Indic.

'They i. forbade us to eat / ii. didn't tell us to eat'

Observe that the negative is to the right of the postbase meaning 'tell.' Right to left scope would lead us to expect that this example would mean only the second of the two possible interpretations, i.e. there was no communication. Yet the first interpretation is also possible, where negation does not scope over the telling but only over the eating.

1.3 Types of Morphological Processes

The general pattern of morphological attachment is simple affixation, or concatenation, but there is often some morphophonological effect either on the final part of the stem or on both the final part of the stem and the beginning of the postbase. The effect of attachment of individual postbases is not predictable within any single variety,[11] and properties of cognates can vary across the languages and dialects. Each postbase must carry the information which determines the effect of its combination with preceding material. Two of the main patterns are that a postbase will either a) directly attach to a stem or b) that it will delete an immediately preceding consonant on a stem. A typical example of each is seen in these Uummarmiut (W) examples from Lowe 1984) in (6).

[11] The only predictable variety is Labrador Inuttut, which has lost underlying codas in all roots and almost all postbases, with the exception of one or two postbase, e.g. *–niaC-* 'near future' where C indicates a consonant which will take its value through regressive assimilation with the following inflectional suffix; *–niak-Kunga* 1s indicative vs. *–niat-tuk* 3s participial, where the sequence kK is underlying /qq/ which is affricated (Dresher and Johns 1996).

(6) a. qaluk-tuq-tuq[12]

fish-eat-intr.part.3s

'He is eating fish' c.f. qaluk 'fish'

b. tautu-tua-qamiung

see-every.time-caus.3r/3s

'Every time he sees him…..' c.f. tautuk-tuq 'He sees'; c.f. tuaq 'every time'

In (6a) the *–tuq-* morpheme meaning 'eat' does not delete the final consonant of the preceding nominal *qaluk* 'fish' on the left. In (6b), the morpheme *–tuaq-* 'every time' deletes the final consonant of the verb stem *tautuk-* 'see'; at the same time the causative mood morpheme (underlying form -g*amiung*) assimilates and coalesces with the final uvular stop of *–tuaq-* (making the morpheme boundary less clear).

Fortescue (1992) argues that these morphophonemic effects are distinct from simple agglutination, and that overall they heighten the saliency of individual morphemes, which helps maintain polysynthesis.[13] Another important observation in Fortescue (1992) is that postbases do not show any evidence of having been

[12] Although this looks like reduplication it is not; the intr.part. can be inflected for person, e.g. *–tunga* intr.part.1s but the postbase meaning 'eat' cannot. Moreover the postbase *–tuq-* appears before other inflections which do not resemble it.

[13] Another interesting morphophonological issue concerning postbases is the fact that many postbases begin with consonant clusters. The phonotactics of the languages generally do not permit consonant cluster onsets, thus the extra consonant must be syllabified in the coda of the preceding syllable of the stem. An example from the Utkuhiksalingmiut dialect (W) from Briggs et . (in progress) is: *–qpaluk-* 'looks like' *ataata-ga-qpaluk-tuq* father-poss.1s-looks.like-part.3s 'He looks like my father.' This is syllabified *a·taa·ta·gaq·pa·luk·tuq*.

grammaticalized from lexical items. A new root may result through lexicalization over an existing root plus a postbase (Fortescue 1980), and postbases lexicalize among themselves, but no new postbases are created from root material.

1.3.1 Non-concatenative processes

One of the exceptions to the general pattern of straightforward affixation found throughout this language family are the so-called replacive postbases. These involve a type of affixation which triggers the deletion of the entire final syllable of the preceding stem, including also the initial consonant of the postbase. In the Inuit language, this also involves the gemination of the penultimate consonant of the stem. The replacive pattern is said to be a non-productive but frequent pattern in Kalallisut (Rischel 1974, 191-197). The general schema is shown in (7a), and a Kalaallisut example from Rischel (1974, 192) is shown in (7b), where we see an affix with both patterns, the second being the replacive version.

(7) a. ….C1V1C2 + C3V2… -> …..C1C1V2….

b. ipu-li^{r}-ppaa ~ ippi^{r}-ppa
shaft-provide.with-tr.indic.3s/3s
‘(he) provides it with a shaft’

Where an affix allows the replacive pattern, it is said to be optional and the postbases that trigger it begin with /l/ or /n/ (Fortescue et al. 2010). In some cases it leads to doublets,

and the non-composite meaning is associated with the replacive form. An Inupiaq example from Kaplan (1981, 252) is shown in (8).

(8) a. iñu-liq-suq

person-provide.with-decl.3s

'is provided with people' [literal]

b. iññiqsuq (with replacive –liq-)

'has visitors'

The fact that replacive morphology is linked to the less compositional meanings appears similar to recent discussion of diminutive derivation where non-compositional diminutives are analyzed as closer to the root (De Belder et al. 2010[14]).

Another rare process that is not simply affixation is reduplication. Reduplication is not widespread or common in this language family. One example is found in Labrador Inuttitut (Smith 1978b), specifically the Nain subdialect, where the intensifier *–pâ-* can be repeated. Speakers of related dialects remark on this property. A somewhat extreme elicited example is shown in (9).

(9) Kuatsâ-pâ-pâ-pâ-pâ-pâ-pâ-lauk-Kunga

startle-very-very-very-very-very-very-d.past-indic.1s

[14] For example De Belder et al. give the non-compositional Italian *cas-ino* house-dim. 'brothel' for which they posit the diminutive to be generated below the category phrase nP and just above the root, while the compositional *nas-ino* nose-dim. 'small nose' would have the diminutive generated above the nP within an extended projection sizeP.

‘I really really had a very big fright’

DeReuse (1994, 90-91) also gives two examples from Siberian Yupik where productive doubling for emphasis is found.

A final rare occurrence are instances where the forms themselves are not phonologically conditioned, but their insertion is, i.e. phonologically conditioned suppletion (see Carstairs 1990). An Uummarmiut (W) example from Lowe (1984, 157) is shown in (10) with two alternants *–pka-*/*-tit-* ‘cause’.

(10) a. niri-pka-raa
eat-cause-decl.3s/3s
‘She fed him’

b. hiñik-tit-kaa
sleep-cause-decl.3s/3s
‘She put him to sleep’

Here the choice of causative allomorph depends on whether or not the form follows a stem ending in a vowel, leading to *-pkaq-*, or whether it follows a consonant, leading to *-tit-*. See Briggs et al. (in progress) for a dialect where the cognate morpheme allows both allomorph only after vowels.

2. Derivation in the Inuit Language

Having looked at the language family and the general processes involved in derivation, we now turn to a closer examination of the Inuit language with respect to types of derivation. There are numerous dialects within this language and the discussion can be assumed to apply to all the dialects, although there is still much research to be done, as many dialects have received little study.

As noted above, the set of derivational affixes in the Inuit language allows for a wide range of polysynthetic words. Fortescue (1980) calls the interaction of these postbases "internal syntax" and provides rewrite rules to generate them (see also de Reuse 1994). In particular, the nature of their interaction allows recursion, as shown by the Kalaallisut example in (11) from Fortescue (1984, 316).

(11) aamaruti-ssar-siur- vi- ssar-siur- tu- tua-a-suq
coal- fut.-look.for- place fut.-look.for- intr.part. only-be-intr.part.
'who is the only one looking for a place to look/prospect for coal'

In this example we see that the verbal element *–siur-* 'look for' on the left can be within a complement of another higher *–siur-*, further on the right. This process appears to be limited only by processing.

That scope goes right to left is clearly linked to the inverse ordering of the morphemes. Higher syntactic elements occur towards the end of the word and lower ones closer towards the root. The meaning of a complex word can be best understood by reading the morpheme glosses right to left.

Some recent analyses treat these complex words as syntactically derived objects. Compton and Pittman (2010) (see also Cook and Johns 2000; Johns 2007) take the syntactic nature of the postbases to be fundamental, and working within the framework of Distributed Morphology[15] (Halle and Marantz 1993, etc.), provide an account whereby each postbase is generated in the syntax proper. Compton and Pittman argue that the grouping of elements into words results from a language-specific property in Inuit that requires that major syntactic domains (phases – see Chomsky 2008) be phonologically realized (or spelled-out) as words, i.e. single uninterrupted sound units. If Compton and Pittman are correct, then the affixal nature of Inuit postbases is not a property inherent to each lexical item itself, but a predictable by-product of where the element is generated in the syntax. If it falls within the DP (noun-phrase) or CP (clausal) domain, it will form part of that complex unit. For Compton and Pittman, Inuktitut verbs are really clauses.

While the syntactic nature of postbases is generally accepted, there is nonetheless no principled way of distinguishing among these morphemes between those that are familiar as derivation in other languages, i.e. involving category change, etc. and those that are usually thought to be too grammatical to be derivation, e.g. tense. The set of postbases is usually divided into four groups i. verb modifying, ii. noun modifying iii. verb making and iv. nominal making.[16] I will divide these into two main categories (Woodbury 1981), i. Change, which can involve not only change of category but change of valency, etc and ii. Modifying.

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[15] Under Distributed Morphology's view of morphology (syntax all the way down – Harley and Noyer 1999), the distinction between word internal derivation and syntax does not exist.

[16] This is the simplest way to present an overview. In fact, as Fortescue (1980) shows, there are classifications within these groupings, e.g. within verb modifying, some add higher structure (verb extending) while others simply modify.

2.1 Derivation as Change

Category change is one of the more obvious types of change. Certain postbases change the category of the stem to which they are attached. Verbal stems can become nominal and nominal stems can become verbal.

2.1.1 Verbs to Nouns

The number of postbases that turn verbs into nominals is significantly fewer than the postbases that turn nominals into verbs. Some examples from the Kangiryuarmiut (W) dialect are in (12), taken from Lowe (1983). Beside each example, I give the semantic role of the derived nominal.

(12) a. uiguuq-ti-t — agent
translate-agent-pl
'interpreters'

b. uuktu-un — instrument
measure-instrument
'ruler'

c. hinig-vik — place
sleep-place
'bed'

d. hava-qati — companion

work-companion

'co-worker'

e. inuu-niq — event nominalizer

alive-event.nom

'life'

Verbs can also be nominalized by the participial mood morphemes. In (13) we see Utkuhiksalingmiut (W) examples from Briggs et al. (in progress).

(13) a. hana-řaq[17]

work, make-passive participle

'something that has been made'

b. hana-řuq

work-participle (one who)

'He's working (*verb*); one who works, a worker (*e.g.* store clerk or white-collar worker) (*noun*)

The example in (13a) is referred to either as the passive or transitive participle (Fortescue

[17] This is arguably the same morpheme which is found also as an inflectional mood as in the standard transitive participial mood forms (see Johns 1992, and see Fortescue 1995 for a historical account).

et al. 2010). The example in (13b) is referred to as the intransitive participle and is ambiguous between the nominal and the declarative in this dialect. Even though the participial can derive a nominal, it is often left out of postbase dictionaries and instead found in grammars. Nevertheless it clearly can nominalize, especially deep within the word, as in the Utkuhiksalingmiut (W) examples in (14).

(14) a. apiri-řa-ksa-qaq-tunga

ask question-passive participle-potential X-have-part.1s

'I've got someone I can ask (*literally*: I have someone who can potentially be asked)'

b. qai-řu-qaq-tuq

come-intr. participle-there is-part.3s

'There is someone coming.'

In (14a) we see the passive participle to the immediate right of the root. This is followed by the postbase *–ksaq-* 'potential X,' a modifier which can only attach to nominals. Likewise the next morpheme to the right is the postbase *–qaq-* 'have/There is an X,' which attaches only to nominal stems, turning them into verbs (see below). Were the passive participle (or another nominalizer) not present, neither of these two postbases would be permitted.

In (14b) we see the intransitive participle, again immediately following the root. This in turn is followed by same *-qaq-* postbase as in (14a), which can only follow

nominals and derives a verb. The nominalizing nature of the intransitive participial is particularly interesting because it sometimes seems to contribute only nominalization, followed almost immediately by category change back to verb, as in (15).

(15) a. taqa-ju-mmari-alu-u-junga S. Baffin (E) Johns (2010)

fatigue-Participle-genuine-a.lot-be-part.1s

V N V

'I'm really tired'

b. taku-su-u-gamiuk Kalaallisut Fortescue (1984, 285)

see-participial-be-caus.3s/3s

N V

'because HE saw it/ was the (only) one who saw it'

In the example in (15a), the intransitive participial *–juq-* nominalizes the verb, and is followed by a nominal modifier, *-mmarik* 'genuine' and then an intensifier *–aluk 'a lot'*. The construction subsequently reverts back to a verb when the copula *–u-* attaches. In (15b), the verb root is followed by the intransitive nominalizer *–suq-* and then by the copula; the latter two form a common sequence (Fortescue 1984, 285).[18]

[18] Nominalization with the intransitive participial morpheme is also required in the derivation from roots to independent words which function similar to adjectives and adverbs, as in the Baffin (E) examples i. and ii.

i. anguti taki-juq taku-qqau-juq arnar-mit nait-tu-mit
man tall-intr.part. see-r.past-intr.part.3s woman-mod. short-intr.part.-mod.
'The tall man saw the short woman.' Compton (2012, 87)

ii. sukait-tu-mik ullar-tuq

2.1.2 Nouns to Verbs

The Eskimo-Aleut language family is well-known for the property of adding postbases that change nominal stems to verb stems through what has been called noun incorporation (Sadock 1980; 1986; 2003). The Inuit language has quite a number of these postbases and recent discussion has concerned the semantics of the construction and the postbases as a set (Van Geenhoven 1998a; 1998b; Johns 2007). Some examples as shown in (16) from Johns (2007)

(16) a. pitsi-tu-vunga Labrador (E)

dried.fish-consume-intrans.indic.1s.

'I'm eating dried fish.'

b. tiki-lluq-tunga S. Baffin (E)

index.finger-have.a.sore-intr.part.1s

'I have a sore index finger.'

c. qukiuti-taaq-tunga Mittimatalik (E)

rifle-get-intr.part.1s.

'I got a rifle.'

---

slowly-intr.part.-mod. run-intr.part.3s
'She runs slowly' Spalding (1993, 83)
In i. we see two free-standing adjectives derived through the intransitive participial followed by case appropriate to their argument positions.
In ii. we see that a free-standing adverb is derived through the addition of the intransitive participial plus default modalis case.

d. inu-u-řunga Utkuhiksalingmiut (W)

inuk-be-intr.part.1s.

'I am an Inuk (Eskimo)'

e. tipatsauti-sunniq-tuq S. Baffin (E)

perfume-smell-intr.part.3s

'It smells like perfume.'

Such postbases have also been termed denominal (Mithun 1986). The denominal label refers to the fact that they obligatorily must attach to a nominal, even if it is the dummy root *pi-*, as in (17).[19]

(17) pi-si-juq Baffin (E) Spalding (1998)

dummy-find-intr.part.3s

'He finds or comes across something'

The verbs realized by these postbases are analyzed by Johns (2007) as light verbs, to capture the fact that they are different from root verbs both in their requirement that a nominal root be attached, and by the fact that their meanings are restricted in range to that of very simple verbs, such as those meaning 'be' , 'have' and elaborations on these meanings. Many of this set of verbs are antonyms or aspectual variants of a more basic

[19] Under certain conditions the root can be elided (see discussion in Compton 2012).

one, e.g. *–qaq-* 'have' *–taaq-* 'get'. No noun-incorporating verb conveys causal meaning or manner; thus verb meanings such as 'to tickle' or 'to clean' are not possible incorporating verbs.[20] A subset have evidential properties, as in (16e), expressing similarity in appearance, sound and smell. Even though these verbs are often translated by English verbs with richer meaning, e.g. 'eat,' as in (16a), a closer examination finds that they are more abstract (see also Mithun 1999). Thus *–tuq-* translated as 'eat' in (16a) is more generally 'use, consume (food or drink) or wear X'.

In the majority of cases, the nominal stem[21] to which incorporating verb attaches must be uninflected, as shown by the S. Baffin examples in (18a) and (b), but a subset of incorporating verbs involving direction[22] permit inflection, as in the Utkuhiksalingmiut (W) example in (18c).

(18) a. qimmi-qaq-tunga
dog-3sposs.-have-part.1s
'I have a dog.'

b. *qimmi-nga-qaq-tunga
dog-3sposs.-have-part.1s
'I have his/her dog.'

[20] Yup'ik has verbalizing postbases which are variations on 'strike' (Woodbury 1981, 395), which can only attach to body parts.
[21] Johns (2007) describes the incorporated element simply as a root but Compton (2012) shows that nominals with postbase modifiers are also found incorporated. This property should be general across incorporation in the language.
[22] See Sadock (1980); de Reuse (1994, 170) reports that this class exists in Siberian Yupik as well.

c. qimatu-m-nungaq-tara

cached items-1s.poss.-move to-part.1s/3s

'I put it in my cache of left-behind things.'

The nominals which attach to these verbal affixes often are referential (Sadock 1980). As shown in (19), a subsequent sentence can have the nominal as an antecedent.

(19) Suulut timmisartui-lior-poq

Søren plane-make-intr.indic.3s.

'Søren made an airplane$_i$.'

Suluusa-qar-poq aquute-qar-llu-nii-lu

wing-have-intr.indic.3s. rudder-have-inf.-3Rs-and

'It$_i$ has wings and a rudder. (Sadock 1980, 311)'

The ability to have referential incorporating nominals varies across languages with noun incorporation. A further distinguishing feature is that incorporated nominals can even be names, or WH-elements, as in (20).

(20) a. Fredi-jojâ-vutit uKauti-niat-taga

Freddyi-look.like-indic.2s. tell-n.fut.-part1s/3si

'You look like Freddy$_i$. I am going to tell him$_i$. Labrador (E)

b. kina-u-vit

who-be-interr.2s

'Who are you? S. Baffin (E)

Van Geenhoven (1998a) and Chung and Ladusaw (2003) argue that noun incorporation crucially involves nominals as semantic properties, and not entities, within a complex predicate. Under such a view, it should be impossible for names, which are inherently entities, to form part of such complex predicates; in other words names are predicted not to incorporate. While this is likely true of many languages with noun incorporation, examples such as (20a) demonstrate that the Inuit language requires a different analysis.

Almost all the verbalizing postbases are typically followed by intransitive verbal agreement, although transitive[23] agreement can sometimes appear as well (see Johns 2009). The noun incorporating postbase *–gi-* 'have as; consider' is distinct in this property. It is obligatorily followed by transitive agreement, as in the Utkuhiksalingmiut (W) example in (21).

(21) ataata-gi-řara

father-have.as-part.1s/3s

[23] Agreement is labeled as intransitive vs. transitive but intransitive verbs can take objects also (see discussion of antipassive below). A better label is single person vs. double person (Dorais 2010, 77), where single person refers to agreement with only one argument, and double to two arguments.

'He is my father.'

A second property that makes *–gi-* worthy of note is that it can combine with the nominalizing postbase *–vik* (see 12c above) to create a new argument for the verbal complex. The new argument is realized as an absolutive NP if overt, as in the Kangiryuarmiut (W) example in (22a). Both this example and the Baffin (E) in (22b) show transitive agreement.[24]

(22) a. qikiqtaq tangmaar-vi-gi-yaa Lowe (1983)

island(abs) camp-place-have.as-tr.part.3s/3s

'He camped on the island'

c.f. tangmaaqtuq 'He camped'

b. titirar-vi-gi-qattar-paatigut Spalding (1998)

write-place-have.as-often-tr.indic3s/1p

'He regularly writes to us in Eskimo or Inuit language or style'

c.f. titirartuq 'He is writing'

This sequence, as mentioned above, is considered to be lexicalized by Fortescue (1980), who considers it to be a transitiving postbase.

Another morpheme that stands out in this group is the postbase *–lik* 'one who has X' which appears to have properties both of a verbalizing and a nominalizing postbase, as

[24] As Conor Cook pointed out to me (p.c.) this type of construction is interesting because the language has oblique cases yet the postbase strategy prevails in these cases.

in the Kangiryuarmiut (W) example in from Lowe (1983) in (23).

(23) ilgaa-lik

eyeglasses-one.with

'the one with eyeglasses'

This postbase seems almost to be a portmanteau derivational morpheme in that it combines verbal (having/possessing) and nominalizing within the one form.[25]

2.1.3 Change in Grammatical Function

There are a number of postbases that alter the valency of the verb root, either through permutation of how the arguments of the verb are realized syntactically, or the addition of arguments that are not part of the initial verb root, as we saw above in (22).

2.1.3.1 Permutation of Argument Realization

Passive morphology affects the realization of arguments. The passive morphology in the Inuit language consists of the passive participle (see above in 13a) followed by the copula *-u-*, as shown in the Utkuhiksalingmiut examples in (24). [26]

[25] Forms with this postbase not only appear as nominals but are deemed to be more appropriate as predicates than the competing verbal sequence N-qaq-tuq have-intr.part.3s 'He/she has an X,' but only in third person, e.g. *aKumigo-lik* 'He has a speedboat' Jeddore (1976) c.f. *aKumigok* 'speedboat.'

[26] The agent can be optionally realized in either ablative ('from') or allative ('to') case, depending on the dialect; western dialects usually use the former, and eastern dialects the latter (although Kalaallisut uses the former – Fortescue 1984, 53).

(24) kata-ga-u-řuq

drop-passive-be-part.3s

'It was dropped (by somebody).'

c.f. katak-tuq 'it fell (by itself)'; katak-taa 'he dropped it'

Another postbase which determines an alternate structure is the antipassive (also called semi- or half-transitive) morpheme (see Bittner 1987; Manning 1996; Spreng 2012). Both Bittner and and Spreng address the issue that the antipassive morphemes resemble aspect morphemes. Some examples of the antipassive morphemes from the Mittimatalik (E) dialect are shown in (25).

(25) a. Peter kapi-si-vuq

Peter (ABS) stab-AP-IND.3sg

'Peter is stabbing someone'. (Spreng 2012, 41)

b. kunik-saq-tunga (Piita-mik)

kiss-AP-PART.1sg (Peter-*mik*)

'I am kissing (Peter)/someone (repeatedly, many kisses)' (Spreng 2012, 29)

As we can see in (25a, b) the antipassive construction differs from a "transitive" in that

there is single agreement with only the agent, not double,[27] agreement (see footnote 23 on transitive agreement). The object of the action, if overt, is found in a case variously labeled as modalis, secondary case or comitative. We see also that there are at least two forms of antipassive morpheme. Both forms are seen in other constructions as aspect markers, although sometimes with different phonological effects on the stem (see Spreng 2012).

Other postbases add arguments in addition to those of the stem. Two postbases which have this property are 'order/ask/want' and 'cause/let'. Examples are from the Labrador (E) dialect taken from Smith (1978a).

(26) a. tiki-kqu-vauk

arrive-ask/want-tr.indic.3s/3s

'He wants him to arrive'

b. taku-ja-u-ti-vauk

see-pass.part.-be-cause-tr.indic.3s/3s

'He shows it to him'

There is also a negative version of this postbase, e.g. the Kangiryuarmiut (W) *-ttaili* 'to stop someone from X-ing' (Lowe 1983). Pittman (2006; 2009) analyzes verbs such as those in (26) as restructuring verbs.

Another postbase which adds an extra argument is the benefactive or applicative

[27] Yupik can have transitive agreement following the antipassive, producing a malfactive interpretation (Fortescue et al. 2010).

morpheme -*uti*- ‘to do with or for’ (likely related to the instrumental – see above). This morpheme adds an argument who either benefits, as in (27a), or reflexively undergoes the action, as in (27b), both Utkuhiksalingmiut (W) examples.

(27) a. niuv-uti-ř a'ma

buy-do for-part.2s/1s

‘You bought something for me.’

b. ukk-uti-řunga

close.door-do to oneself-part.1s

‘I closed the door on myself (and, e.g., crushed my fingers)’

Another class of postbases which adds on new arguments are those meaning ‘say’ or ‘think’ which take an entire proposition (TP – Pittman 2006) as a complement.

(28) a. Miali igla-niraq-tara

Mary(abs) laugh-say-indic.1sg.3sg.

‘I said that Mary laughed.’ Baffin (E) Pittman (2006)

b. Jaani-up kapi-laung-niraq-taa tuktu Miali-mu

John-erg stab-dist.past-say-indic.3sg.3sg caribou(abs) Mary-mut

‘(Last week) John said that Mary stabbed the caribou.’ Baffin (E) Pittman (2006)

As Fortescue (1984), Woodbury (1981) and Sadock (1986) point out, this is the only class of verb-like postbase which can follow tense morphemes, as seen in (28b).

2.2 Modification

The next major class of postbases are those which change neither the category or grammatical function properties of the stem to which they attach, but instead add extra meaning to it.

2.2.1 Noun Modifying

Postbases which attach to the nominal without changing category are similar to what is termed evaluative morphology (diminutives, augmentatives, etc.). The members of the class are typical in meaning for evaluatives, and include size, affective terms, age, quality; less typical are ones meaning former, as in (29b), fake/toy, as in (29c), genuine, potential, as in (14a) above. The majority have both positive and negative values.

The set that modify nominals is again smaller than those which modify verbal stems. Some examples from S. Baffin (E) taken from Compton (2012) are shown in (29).

(29) a. umingma-jjuaq
muskox-big
'the/a big muskox'

b. iglu-viniq
house-old/former
'the/an old house

c. nanu-ralaa-nngua-t

polar.bear-small-pretend-pl.

'small pretend polar bears'

d. anaana-tsia-kuluk

mother-good-adorable

'dear/adorable grandmother'

As (29c, d) show, it is possible to combine, or stack, multiple members of this class in one word. Compton (2012) reports also that a re-ordering will not necessarily change meaning. Where a postbase forms part of a lexicalized combination with a root, as in (29d), where *anaanatsiaq* means 'grandmother,' ordering is important (see also Mithun 1999 on Yupik).

Compton argues that this class of morphemes consists of strictly-attributive adjectives, thus delimiting the set from all possible adjectives. In other words, adjectives that have intersective properties cannot be members of this set of postbases (and indeed are found as independent words rather than affixes). The core idea is that if the meaning of an adjective cannot exist independently of a root, it will be a postbase in the Inuit language. Thus one can say of a red house that it is both a red thing and a house thing, but with strictly-attributive adjectives, as in 'good house' one cannot say that there are good things and also a house things. Its goodness is directly dependent on how good of a house it is.

There are also a few non-evaluative modifiers which can attach to nominal stems. One example is a postbase in Utkuhiksalingmiut (W) meaning 'only'

(30) iniqni-inna-it

adult-only

only adults (no children)

This postbase also modifies verbal stems; there is a division within modificational postbases as to whether or not they are restricted to a particular category.

Some noun modifying postbases appear to play a larger role than just modifier. For example, *tsa(k)* in the Labrador dialect (E) is translated in Smith (1978, 91) as 'something for x; a future x, a potential x'. This basic meaning is shown in (31).

(31) sini-tsak Jeddore (1976)

border-potential

'binding material or other material used to make border on a coat or a silapaak (outer shell of parka)

Here the noun plus modifier together refer to a substance or material that has the potential to become the type of entity indicated by the root.

We see the same postbase providing the meaning equivalent to English preposition *for* or *to* as in the following typical Labrador (E) example.

(32) a. allatigi-uti-tsa-Ka-ven

wipe-instrument-potential-have-interr.2s

'Do you have something to wipe it with?' Jeddore (1976)

b. kiasaleni-tsa-vuttinik

gasoline-potential-Poss.1pl.modalis

'for our gasoline'

Meaning context: …'and if we have enough money for our grub and for our gasoline.' Winters (2007)

The meanings here are slightly different from (31). (32a) does not refer to something that will literally be turned into a cloth but instead something which will be used as a cloth. In (32b) the context of the utterance is within a discussion of having enough money "for our gasoline." Here again, the use is more abstract in that rather than indicate something which could become gasoline, it instead indicates that the gasoline is a hypothetical entity (although likely). This gives approximately the equivalent in meaning to the English preposition *for* X. As a result this postbase is used where English uses *to* as in (32a), which discusses a hypothetical event, and *for* in (32b), which refers to a hypothetical entity. Arguably these are more complex usages than (31).

Another noun modifiying postbase -*vinik* is usually translated as 'late' or 'former' X, but again it used more frequently than *former* is used in English, as can be seen in the Labrador (E) example in (33).

(33) pullauja-vinik

bottle-former

'a broken bottle' Jeddore (1976)

While English speakers could probably understand *former bottle* to mean one which is broken, it is not a natural way of expressing this.

2.2.2 Verb Modifying

The final class of postbases we will examine are those that modify verbs. This is a very large class, and perhaps the one that seems the less familiar as derivational morphology. Nonetheless, as mentioned above, there is no principled reason to single out this class from the other postbases as being essentially different. Given the clausal nature of the verbal complex, it is unsurprising that verb modifying postbases consist of aspectual markers, all non-derived adverbs (Compton 2012), tense, negation, verbs taking same subject verbal complements (e.g. 'want' which Johns 1999 analyzes as a modal), and even postbases conveying attitudes of the speaker. Readers are referred to Fortescue (1980), Woodbury (1981) de Reuse (1994) and Compton (2012) for more considered and detailed discussion of this class.

We will briefly look at some sub-groups within this class. One group is negation, which takes two forms, one which follows stative or adjectival stems, as in (34a), and the more general negative, as in (34b), both examples from Utkuhiksalingmiut (W).

(34) a. naku-it-tuq

strong-not-part.3s

'He is weak.'

b. taku-ngngi-taa

see-not-part.3s/3s

'He doesn't see it.'

Another sub-group are tense and aspect morphemes. Not all dialects require obligatory past tense marking, e.g. Kalallisut (Bittner 2005), and some lack past tense morphology altogether, e.g. Utkuhiksalingmiut (Jean Briggs p.c.). Hayashi (2011) argues that in at least some dialects, there are past tense postbases, and that they represent hodiernal (restricted to today) and non-hodiernal tenses. Some examples of past are shown in (35).

(35) a. ii, tusaq-vigi-qqau-jara ullumi

yes hear-from-r.past-tr.part.1s/3s today

'Yes, I heard from her today' Baffin (E) Hayashi (2011, 50)

b. qanga tiki-lauq-paa

when arrive-d.past-interr.3s

'When did he arrive?' Baffin (E) Hayashi (2011, 49)

Yet another sub-group within this large class might be described as adverbials, which Compton (2012) shows can be stacked.

(36) a. ani-saaq-tuq

go.out-quickly-intr.part.3s.

'He/she left quickly / just left.' S. Baffin (E) Compton (2012, 1)

b. ani-kasa-kkanni-ngaaq-tuq

go.out-almost-again-instead-intr.part.3s

'He/she almost left instead again.' S. Baffin (E) Compton (2012, 133)

3. Conclusion

We have seen that the Eskimo-Aleut language family exhibits a strikingly syntactic instantiation of derivational morphology, where the morphology within the word extends, permutes and modifies the initial root. The productivity, complexity and general transparency of the relations of the pieces within these words leads us to analyze them as clauses. Nevertheless derivational properties within these words are also prominent. The right to left ordering of their components conforms to derivational orderings observed in other languages. In addition, we saw that category change plays a fundamental role within these word-clauses. Finally, some of the more conventionally derivational morphemes, such *-tsa(k)-* 'potential X' or *–vik* 'place for X-ing' were seen to also be found in contexts where their basic properties were harnessed to express complex syntactic structure. What we see in this language family is a larger distribution of word-internal mechanisms of category change and modification than is seen in more familiar languages. Rather than being restricted to relatively simple structures, these morphemes

play a central role throughout the grammar.

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