〈論　文〉

Between Lexeme-Forming Derivation and Paradigmatic Inflection

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Contents:

Introduction

Some of the morphological operations produce lexemes while other morphological operations belong to inflection (cf. Spencer and Zwicky 1998).　Derivation is central in lexeme formation while inflection forms paradigms and completes words.　Other possible morphological operations are compounding, noun incorporation, and cliticization.　Some of the results of compounding definitely belong to lexeme-forming morphology while some other results of compounding may loosely belong to syntax, that is to say that they do not form lexemes or at least "permanent" lexemes.　Noun incorporation belongs to morphology, but it can have some syntactic properties.　Cliticization is basically syntactic, but according to Sadock's (1991) Autolexical Syntax, it forms words on the morphology "tier."

While looking at some actual languages, there are some phenomena which seem to belong neither to (permanent) lexeme formation nor paradigmatic inflection and seem to occupy areas between the two.　This paper will preliminarily discuss questions concerning it, i.e. an area of language description that comes between (permanent) lexical entries in the lexicon and inflectional paradigms in the grammar.

1. Derivation and inflection

When it comes to affixation, the distinction between derivation and inflection is not clearcut[1] (Cf. Beard 1998, Stump 1998).　The borderline between derivation and inflection is

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[1] Salishan languages, Wakashan languages, etc. also have lexical suffixes which belong

placed at various places according to different theories. It is sometimes manifested in how one defines "stem," while "stem" sometimes does not necessarily represent the biggest possible derivational unit in the word in question. According to Spencer's (1991) argument, a stem is rather big. E.g. in the English word *disagreements*, *disagreement* is the stem and *-s* is the inflectional suffix. And the stem represents the biggest possible derivational unit in the word *disagreements*. If you employ this theory, the Russian word *uchitel'nica* "female teacher" will be analyzed as the stem *uchitel'nic* plus the inflectional suffix *-a* ([feminine] singular nominative).

Although the following accounts are not meant to be "generally linguistic" but rather belong to the descriptive grammars of individual languages, but they may have some implications for the general linguistics too. In Alutiiq (Eskimo branch, Eskimo-Aleut language family, Leer 1990), *mit'e* is a verb stem meaning "(for a bird, airplane, etc.) to land" and *misnga* is another verb stem meaning "to be perched." They have a common root *mit* and each is expanded to a semantically more concrete stem with a small suffix each. These stems are not necessarily the maximal derivational units unlike *disagreement* or *uchitel'nic* in the word respectively; they can be and often are further expanded by very productively derivational suffixes (called postbases in Eskimo linguistics, cf. fn. 7). From a viewpoint, stems are variable while roots are invariable (except apparently and superficially by regular phonological rules).

In the same way Japanese adjective/verb stems *kuro* "to be black," *kura* "to be dark," *kure* "to get dark" can said to have a common invariable root *kur* which in turn cannot be used as a stem on its own[2].

In Upper Tanana (Athabaskan branch, Athabaskan-Eyak-Tlingit [≒ Na-Dene] language family) the static verb root *'aa* "a compact round object be" is made into stems by adding a suffix each: *'qq* (*'aa -n*, imperfective stem), *'a'* (*'aa -'*, perfective or optative stem), *'aal* (*'aa -l*, future or progressive stem), etc.

The Japanese stems above and the Upper Tanana stems above are not the maximally derived stems or words minus inflection. Each of the Upper Tanana stem is not

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neither to derivational affix category nor inflectional affix category (Thompson 1979, Kinkade 1983, Gerdts 1998:94-97). They are used with noun stems and with verb stems. They denote body parts, environmental concepts, cultural items, and human terms.

[2] When these words are completed with an inflectional suffix, they look like *kuroi* "to be black," *kurai* "to be dark," and *kureru* "to get dark," respectively.

even a lexical unit; a root with one or more obligatory prefix(es) form a minimal lexical unit of a verb[3].   One can also apply further derivational operations to the unit.

I shall call these Alutiiq, Japanese, and Upper Tanana stems **minimal stems**.   The Alutiiq and Japanese minimal stems are lexical units and lexemes; the Upper Tanana minimal stems are not lexical units but are rather like a set of inflected stems of which the inflection is triggered by (an)other morpheme(s) within the word.   This resembles the situation in which the English auxiliary *have* requires a past participle of a verb for perfective while *be* requires a present participle for progressive and past participle for passive.   The Upper Tanana inflection triggering happens within a verb while the above instances of English are syntactic operations involving two separate words, but the two situations have similarities.

Furthermore, Spencer and Zwicky (1998) argue that stems are anything that one can add inflectional and/or derivational affixes to.

To better illustrate it, I will take the familiar examples *disagreements* and *uchitel'nica* and apply the **maximal-stem** theory[4] (like in Spencer (1991)), the minimal-stem theory (like for Alutiiq, Japanese, and Upper Tanana), and the **liberal-stem** theory (like in Spencer and Zwicky (1998)).

(1)   dis-   agree   -ment   -s
         -----------------------------------   (maximal stem or liberal stem)
                        --------   (root, minimal stem, or liberal stem)
         ----------------------   (liberal stem)
                        ----------------------   (liberal stem)

(2)   uchi   -tel`   -nic   -a
         ------------------------------------   (maximal stem or liberal stem)
         ------   (minimal stem[5] or liberal stem)
         --------------------   (liberal stem)

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[3] A minimal lexical unit of an Upper Tanana verb is formed by a voice/valence marker (which has been traditionally called classifier in the Athabaskan literature) and a root.·   The classifier as a voice/valence marker is not a noun classifier in the modern sense but they "classify" verbs (Krauss 1969).

[4] By "maximal," I do not mean that they are potentially maximally derived lexemes but only that they are a word minus inflection each.

[5] *Uchi* is not a root.   The root here is *uch*.   Consider the perfective and imperfective verb pair *izuchit'* and *izuchat'* (to study) with the same root here in question.   The root perhaps can go further back to *uk* (cf. nauka "science").

If you take the maximal-stem theory, inflection is right outside the stem and affixational morphology within the stem belongs to derivation. If you take the "liberal stem" theory, it does not define the borderline between derivation and inflection. If you take the "minimal stem" theory, then some affixes belong to derivation while some other belong to inflection at this moment.

2. Productive derivation which should not be listed under stem entries in the lexicon

The morphological operations (= affixation here) that form maximal stems *disagreement* and *uchitel'nic* form lexemes. They are lexemes and they should be presented in the lexicon. These lexemes are completed or made into words or free forms by adding an appropriate inflectional affix each. In the previously presented examples the inflectional affixes are *-s* (plural) for *disagreement* and *-a* ([feminine] singular nomnative) for *uchitel'nic*. But coincidentally these lexemes can also take a zero suffix each, i.e. *-0* (singular) for *disagreement* and *-0* ([feminine] plural genitive) for *uchitel'nic*.

Spencer (1991) presents recursive compounding continuum of which one end may belong to the permanent lexicon and the other end may belong to the conditional lexicon or the potential lexicon, which can be described as an unbound list of potential words.

(3a)   student film society
  b)   student film society committee
  c)   student film society committee scandal
  d)   student film society committee scandal inquiry
  e)   etc.

By following Spencer (ibid.), the entries in the permanent lexicon can be said to be lexemes. On the other hand the entries in the conditional lexicon or the potential lexicon can be said to be conditional lexemes or potential lexemes. The conditional lexemes or the potential lexemes do not need to be explicitly listed in the actual lexicon although they are theoretically "entered" in the lexicon.

When it comes to affixation, all of the non-inflectional affixation should be readily regarded as (permanent-lexeme-forming) derivation in some languages, but in some other

more polysynthetic languages[6], the non-inflectional affixation presents a continuum similar to the compounding continuum described above, i.e. its one end belongs to the permanent lexicon while the other end belongs to potential lexicon or conditional lexicon. Theoretically speaking, even the result of "derivation" which is in the potential lexicon or the conditional lexicon is "entered" in the lexicon, but practically-speaking, it should NOT be listed in the actual lexicon. Rather, derivational affixes which do not form permanent lexemes can be listed in the separate list of productive affixes but not under the entries of roots or stems. This is what is done in a Central Yup'ik dictionary (Jacobson 1984), where derivational suffixes are listed under the category postbases[7]. The point that the productive derivational affixes that should be listed separately as such but not under the entries of roots or stems will be further discussed again in the section 4.

3. Incorporation-like action noun construction in Japanese

I would like to bring up pseudo-classifier action noun construction in Japanese here so as to illustrate noun classification which can be regarded as something between lexical categories and grammatical categories. But before introducing pseudo-classifier action noun construction in 3.6., I will look into transversal categories (3.1.), classifier construction in signed languages (3.2.), types of classifiers (3.3.), noun incorporation (3.4.), and noun incorporation in Japanese (3.5.).

3.1. Transversal categories

Miyaoka (1996) argues that the categories which are manifested in languages can be classified into lexical categories, grammatical categories, and **transversal** or **secondary** categories. Lexical categories correspond to lexical meanings like "bird" and "fly." Grammatical categories are like "singular," "first person," "present," etc. Transversal categories come between the lexical categories and grammatical categories. Transversal categories are manifested as grammatical gender like in Indo-European languages and Afroasiatic languages, as noun classes like in Bantu languages, or as (numeral, verbal, etc.)

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[6] They are non-template-type polysynthetic languages as opposed to template-type polysynthetic languages.
[7] Postbases are so called because they are suffixes which are attached to "bases" in the Central Yup'ik Eskimo grammar. The "bases" there largely coincide with my liberal stems in section 1.

noun classification in various languages.   Noun classes are usually bigger in number than grammatical gender, but they behave the same in principle.   The grammatical gender or the noun class of a noun requires agreement in other words within the phrase or the clause. When the grammatical gender or the noun class of a noun changes, it usually means that a new lexeme is formed.   On the other hand, even when a classifier (an exponent of noun classification) changes for a certain noun, a new lexeme does not come about.   Only the "shape" or the "condition" of the entity in the real world which is represented by the noun changes.

3.2. Classifier construction in signed languages

Schembri (2003), probably independently from Miyaoka (1996), argues that the noun classification in the classifier construction in signed languages present categories between lexical categories and grammatical categories.   Most of the description of classifier construction in signed languages involves classifier handshapes in the predicate signs.   This probably is closer to classifiers in verbs rather than to classifiers in numerals in spoken languages.

Let us take a look at an example from Japanese Sign Language (Minoura 2004):

(4)   ME   HATE   WORLD   TRAVEL;   CL:PLANE+FALL
         "I hate traveling abroad because airplanes crash."

In the above example, CL:PLANE+FALL is one sign, i.e. one phonological and morphological word which contains at least two morephemes.   The handshape of the sign is the classifier for airplanes in general.   The downward movement of the sign signifies a downward movement of airplanes in the real world and it implies that the action ends up in a crash.

If you want to modify the CL:PLANE in the classifier predicate, you have to place a noun PLANE outside and before this classifier sign (ibid.):

(5)   JET   PLANE   CL:PLANE+FALL
         "a jet plane crashes."
(6)   PROPELLER   PLANE   CL:PLANE+FALL
         "a propeller plane crashes."

This is related to Gerdts' (1998) **doubling** in classifier-type noun incorporation.

Considering Miyaoka (1996) and Schembri (2003) and other facts, I would like to argue that Miyaoka's grammatical gender and noun classes have double membership in grammatical categories and in transversal categories while noun classification (manifested as classifiers) can be truly classified neither as lexical categories nor as grammatical categories but it stands by itself between the two types of categories as true transversal categories.

3.3. Types of classifiers

Ôshima (1992) discusses the types of classifiers. In his table (Ôshima 1992:126) he classifies classifiers across languages. Classifiers can manifest themselves in numerals, in verbs, and more rarely in postpositions. Morphologically speaking, classifiers are (independent) stems, suppletive roots, incorporated noun stems, prefixes, and suffixes. I would like to extract from the table only the languages with classifiers in verbs. The classifiers in verbs manifest themselves suppletively in Athabaskan languages and to a small extent in Tsimshian; suppletive manifestation means that the classifier morpheme and the morpheme with the verbal meaning cannot be morphologically separated but they manifest themselves as monomorphemic roots. The classifiers in verbs manifest themselves as incorporated noun stems in Northern Iroquoian languages and Caddoan languages. The classifiers in verbs manifest themselves as prefixes in Athabaskan-Eyak-Tlingit languages, namely Northwestern Athabaskan languages, Eyak, and Tlingit, Klamath (Klamath-Modoc language family), Haida, and a Southern Iroquoian language, Cherokee. The classifiers in verbs manifest themselves as suffixes in Wakashan languages, namely Nootka and Kwak'wala, Bella Coola (Salishan language family), Quileute (Chimakuan language family), and Algic languages.

Ôshima does not describe Japanese as having real classifiers in verbs, but in my view, it has a related phenomenon, which will be discussed in section 3.6.

3.4. Noun incorporation

Gerdts (1998) discusses and sums up noun incorporation in general. Noun incorporation is mentioned here because some of the noun incorporation can be considered classifying incorporation. In other words, the incorporated noun stem functions as a classifier in a sense. She writes:

An element that can otherwise exist as a noun stem and an element that can otherwise exist as a verb stem are compounded into a single word. This word serves as the predicate of the clause, and the incorporated noun stem corresponds to one of the arguments of the verb. Prototypically, the incorporated noun stem corresponds to the object of a transitive predicate or the subject of an inactive intransitive predicate. In many languages, an incorporated noun may also correspond to an oblique nominal, such as a locative, instrument, or passive agent. Two types of incorporation exist across languages (and sometimes within a single language): compounding incorporation, which decreases the valence of the clause, and classifying incorporation, which does not decrease the valence of the clause. Languages with classifying incorporation allow the modification or doubling of the incorporated element. In both types of incorporation, when the incorporated noun corresponds to the head of a possessive phrase, the possessor assumes a grammatical function – subject or object – in the clause (ibid.).

Japanese has noun incorporation (section 3.5.), but it is not a productive process. Japanese also has pseudo-incorporation (section 3.6.). The latter can be very productive especially in present-day colloquial Japanese, but it is not a typical noun incorporation that Gerdts describes.

3.5. Noun incorporation in Japanese

Noun incorporation in Japanese is a typical one in that it involves a full noun stem and a full verb, but it is not a typical noun incorporation in that it is non-productive (Cf. Mithun 1984).

Let us see an example of noun incorporation in Japanese:

(7)   hone+or-u[8]

        bone+break-NPST

        "to take up troubles"

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[8] The transcription of Japanese (= Romanization) uses Hattori system for the examples and Hepburn system for non-examples.

Here, the incorporated noun *hone* is segmentally identical with the free form *hone* (bone); the incorporating verb *oru* is segmentally identical with the free form *oru* (to break).

(8)   ma+batak-u
        eye+flap-NPST
        "to blink"

Here, the incorporated noun *ma* is modified from the free form *me* (eye)[9]; the incorporating verb *bataku* is modified from the free form *hataku* (to flap)[10].

Let me classify examples of noun incorporation by the roles of the incorporated nouns.   First of all, the incorporated nouns in the examples above (7, 8) are the objects of a transitive predicate.

(9)   koto+kire-ru (subject of an inactive intransitive predicate)
        thing+cut-NPST
        "to die"
(10)   me+zame-ru (subject of an inactive intransitive predicate, whose possessor can be
        added outside as a syntactic subject of the predicate.)
        eye+be.awakened-NPST
        "to wake up"
(11)   mici+bik-u (locative)
        road+pull-NPST
        "to guide"
(12)   cuma+bik-u (instrument; its possessor can be added outside as a subject)
        nail+pull-NPST
        "to play (a stringed instrument)"

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[9] The "bound" form is called hifukukê (covered form) by Ikegami (1980) while the free form is called roshutsukê (exposed form) (ibid.).   The covered/exposed opposition is observed in a small number of nouns.
[10] The "bound" form is produced by morphophonological voicing of the initial consonant of the free form.

(13)   ta+suke-ru (instrument; its possessor can be added outside as a subject)
         hand+help-NPST
         "to help"

(14)   me+zas-u (instrument; its possessor can be added outside as a subject)
         eye+point-NPST
         "to aim for"

(15)   yomi+gaer-u (source)
         hell+come.back-NPST
         "to come back to life"

(16)   musi+bam-u (classifier[11] agent of a transitive predicate)
         bug+eat-NPST
         "(for a sickness etc.) to eat away"

(17)   hana+hirak-u (classifier subject of an inactive intransitive predicate)
         flower+open-NPST
         "to flourish"

(18)   me+tor-u (classifier object of a transitive predicate)
         female+take-NPST
         "(for a man) to marry (a woman)"

(19)   yume+mi-ru (classifier object of a transitive predicate)
         dream+see-NPST
         "to dream"

To sum it up, the incorporated noun in the Japanese incorporation construction can assume roles of object, subject of an inactive intransitive predicate, locative, instrument, source, classifier agent, classifier subject of an inactive intransitive predicate, and classifier object.

3.6.   Pseudo-incorporation in Japanese

What I call pseudo-incorporation is not really noun incorporation. First, a bipartite action noun is formed by compounding a noun and an element which has a predicate-like meaning but which lacks verbal morphology (this will be called predicative element further along). The order can be either noun+predicative or predicative+noun.

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[11] When the incorporated noun is of the "classifier" type, the predicate does not decrease the valence of the clause (cf. Gerdts 1998).

Then, the bipartite action noun is further compounded with a light verb *suru* (to do) to form a predicate or a verb[12]. Although the product is not an instance of noun incorporation, it is rather productive in present-day colloquial Japanese. Both the noun and the predicative element in the bipartite action noun can be shortened. Some instances of the "shortening" is related to what Spencer (1998:128) calls stub compounding. The element in question is reduced typically to a bimoraic form (cf. 32, 42, 43, 44), but sometimes to a monomoraic (cf. 43) or a trimoraic form. Sometimes the shortening is materialized by suppletion. Then the relationship between the original form and the shortened form can be sometimes not very apparent and for sure, although some examples of this is supported by the usage of an identical Chinese character for the indigenous Japanese form and the (shortened or informationally-reduced) Sino-Japanese form, e.g. indigenous Japanese *oru* "to break" (7 = 24): Sino-Japanese *secu* "to break" (23).

Let me classify examples of pseudo-incorporation by the roles of the incorporated nouns. (Sino-Japanese bound forms are marked SJ. Sino-Japanese free forms are not thus marked.)

(20) yaki+niku+su-ru (object of a transitive predicate)
   fry+meat+do-NPST
   "to barbecue"
(21) doku+syo+su-ru (object of a transitive predicate)
   read(SJ)+book(SJ)+do-NPST
   "to read a book(s)"
(22) syut+ten+su-ru (object of a transitive predicate[13])
   issue(SJ)+shop(SJ)+do-NPST
   "to open a shop"

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[12] The bipartite action noun can be not compounded with *suru* but suffixed or encliticized with the copulative *-da* to form an adjectival or a nominal predicate too. The bipartite action noun can also function as an argument or an adjunct of a predicate or enter into a bigger action noun compound as either a noun or a predicative element.

[13] *Syut+ten+su-ru* can be considered a case of classifying incorporation rather than of compounding incorporation when you consider a sentence like "atarasii (new) mise (shop) =o (ACC) syut+ten+su-ru." The borderline between classifier incorporation and compounding incorporation can sometimes not be very clearcut but blurry as an anonymous reviewer of this paper pointed out.

(23)　　kos+secu+su-ru ((possibly classifier) object of a transitive predicate)
　　　　bone(SJ)+break(SJ)+do-NPST
　　　　"to break a bone"

Compare the example (23) with the example (24 = 7) of noun incorporation. Although the former uses suppleted Sino-Japanese elements, rather the latter with the indigenous Japanese elements have an idiomatically changed meaning.

(24)　　hone+or-u　　　　(= 7)
　　　　bone+break-NPST
　　　　"to take up troubles"

We will go along with more examples of pseudo-incorporation.

(25)　　kodomo+acukai+su-ru (classifier object of a transitive predicate)
　　　　child+handle+do-NPST
　　　　"to treat O as a child"

(26)　　raku+seki+su-ru (subject of an inactive intransitive predicate)
　　　　fall(SJ)+stone(SJ)+do-NPST
　　　　"a stone falls."

(27)　　seki+secu+su-ru (subject of an inactive intransitive predicate)
　　　　pile.up(SJ)+snow(SJ)+do-NPST
　　　　"snow piles up."

(28)　　inu+zini+su-ru (classifier subject of an active intransitive predicate)
　　　　dog+die+do-NPST
　　　　"to die for no purpose"

(29)　　inu+gui+su-ru (classifier subject of an active intransitive predicate)
　　　　dog+eat+do-NPST
　　　　"to eat dirtily like a dog"

(30)　　otona+gai+su-ru (classifier agent of an transitive predicate)
　　　　adult+buy+do-NPST
　　　　"to buy expensive things like the adults do"

(31)   taku+nomi+su-ru (locative)

home+drink+do-NPST

"to drink at home"

(32)   gin+bura+su-ru[14] (locative)

Ginza+stroll+do-NPST

"to stroll about Ginza"

(33)   nyuu+gaku+su-ru-NPST (classifier locative)

enter(SJ)+school(SJ)+do-NPST

"to enter a school"

(34)   moku+soku+su-ru (instrument)

eye(SJ)+measure(SJ)+do-NPST

"to measure with one's own eyes"

(35)   tai+sya+su-ru (source)

leave(SJ)+company(SJ)+do-NPST

"to go home from work"

(36)   socu+en+su-ru (classifier source)

graduate(SJ)+garden(SJ)+do-NPST

"to graduate from a kindergarten or a nursery school"

(37)   ki+kyoo+su-ru (goal)

go.home(SJ)+capital(SJ)+do-NPST

"to go back to Tokyo"

(38)   rai+nici+su-ru (goal)

come(SJ)+Japan(SJ)+do-NPST

"to come to Japan"

(39)   senzo+gaeri+su-ru (goal)

ancestor+go.back+do-NPST

"to go back some generations"

(40)   rappa+nomi+su-ru (manner)

trumpet+drink+do-NPST

"to drink O straight from a bottle (just like holding up a trumpet)"

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[14] This example involves prototypical bimoraic stub compounding, e.g. *gin* from *Ginza*, *bura* from *burabura(+suru)* (stroll).

(41) pin+nomi+su-ru (manner)
alone+drink+do-NPST
"to drink by oneself"

(42) hito+kara+su-ru[15] (manner)
alone+karaoke+do-NPST
"to sing karaoke by oneself"

(43) hura+ge+su-ru[16] (manner)
flying+get+do-NPST
"to buy something before its official release date"

(44) zyake+gai+su-ru[17] (reason)
jacket+buy+do-NPST
"to buy a CD etc. because one likes its jacket"

According to the roles, the incorporates can be classified as: object (20, 21, 22, 23, 48), classifier object (23, 25, 45), subject of an inactive intransitive predicate (26, 27), classifier subject of an active intransitive predicate (28, 29), classifier agent (30, 45. 47), locative (31, 32, 48), classifier locative (33), instrument (34, 46), source (35), classifier source (36), goal (37, 38, 39, 46, 47), manner (40, 41, 42, 43), reason (44), etc.

There are some examples of pseudo-incorporation with two nouns incorporated.

(45) roo+roo+kaigo+su-ru (classifier agent + classifier object)
old(SJ)+old(SJ)+look.after+do-NPST
"(for an old person) to look after an older person"

(46) densya+cuu+gaku+su-ru (instrument + goal)
train+go(SJ)+school(SJ)+do-NPST
"to go to school by train"

(47) zyuuyaku+syuk+kin+su-ru (classifier agent + goal)
executive+go.out(SJ)+work(SJ)+do-NPST
"to go to work late like an executive"

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[15] It is another example of bimoraic stub compounding, i.e. *hito* from *hitori* "alone," *kara* from *karaoke(+suru)* "to sing karaoke."

[16] It is another example of stub compounding, i.e. *hura* is a bimoraic stub from *huraingu* "flying," while *ge* is a monomoraic stub from *getto(+suru)* "to get."

[17] *Zyake* is a bimoraic stub from *zyaketto* "jacket."

(48)   ro+zyoo+cyuu+sya+su-ru (locative + object)

           road(SJ)+surface(SJ)+park(SJ)+car(SJ)+do-NPST

           "to park a car (illegally) on the road"

Some examples above have classifier arguments (23, 25, 28, 29, 30, 45, 47) or classifier adjuncts (33, 36) incorporated.   But this does not mean that Japanese has true verbal classifiers.   The first reason is that these examples are the examples of pseudo-incorporation. In other words, bipartite action nouns are formed first and then they are compounded with a light verb *suru* "to do" to form predicates or verbs.   The second reason is that the classifier elements or the nouns are not the same all the way for the same category like in other classifier languages.   E.g. from the examples (33) and (36), you can come up with an equation: "okay, 'to enter a school' is *nyuugakusuru* and 'to graduate from a kindergarten or a nursery school is *socuensuru*, right?   Then 'to graduate from a school' should be *socugakusuru*."   But you are wrong.   "To graduate from a school (elementary and above)" is *socugyoosuru*.   This means that although the nouns and the predicative elements are morphemes indeed, the more important lexical units which should be entered in the lexicon are the compounds of the two, i.e. bipartite action nouns.   These two reasons set Japanese apart from other languages with predicative classifiers[18].

Although Japanese "predicative classifiers" are not the prototypical ones, they have nonetheless properties of classifiers according to Gerdts' (1998) criteria because some of the Japanese examples of pseudo-incorporation have a nominal morpheme within the predicative word and at the same time a free-standing noun in the clause.   The nominal morpheme and the free-standing noun need to be semantically related.   And the nominal morpheme in the pseudo-incorporation is often of a generic nature.   Let us consider the verb in (33) in a sentence:

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[18] Coincidentally, Liddell (2003) argues that the classifier part and the action/state part of the classifier signs in American Sign Language cannot be randomly picked and paired but rather that the classifier part and the action/state part together form a lexical unit.   American Sign Language has real classifier predicates and Japanese examples discussed here are not true classifier predicates, but they share similarities in the fact that the classifier part and the action/state part together form a lexical unit.

(49)   anata=ga hokkaidoo+dai+gaku=ni nyuu+gaku+si-ta no wa icu=desu=ka?
         you=NOM Hokkaido+big+school=DAT enter+school+do-PST=NMLZ=TOP when=be=Q
         "when was it that you entered Hokkaido University?"

The Sino-Japanese morpheme *gaku* "school, study" repeatedly appears in *university* and in *enter+school*. This looks like an example of a classifier. Moreover, *daigaku* (university) is more specific while *gaku* "school" in *nyuugakusuru* "enter school" is more generic.

If the bipartite action nouns or the bipartite action nouns + *suru* should be entered in the lexicon, there maybe no need for the Japanese predicative classifiers to be set apart and systematically presented in the lexicon. However, not only the predicative classifiers but the mechanism which forms bipartite action nouns (and other compounds) which form lexical units should be described somewhere in the description of the Japanese language. And this seems to occupy somewhere between the lexicon and the grammar.

4. Productive derivational affixes and non-paradigmatic grammatical affixes

Productive derivational affixes (section 2) and non-paradigmatic grammatical affixes are discussed here.

4.1. Productive derivational affixes

The same suffix in Central Yup'ik (Eskimo branch, Eskimo-Aleut language family) can be either permanent or productive.

(50)   Yu-p'ik-0 (permanent and lexicalized)
         person-genuine-ABS.s
         "a Yup'ik Eskimo person"
(51)   qaya-pik-0 (productive and non-lexicalized)
         kayak-genuine-ABS.s
         "a genuine kayak"

The example (50) is an example of a permanent and lexicalized lexeme/word and it should be entered under the stem *yuk* (person) as a lexical unit because it has an idiosyncratic meaning which cannot be understood from simple addition of the meanings of the two

morphemes. On the other hand, the example (51) can be entered under the stem qayaq (kayak), but that is only for the purpose of explanation and exemplification and not because it is lexicalized and permanent. It is a non-lexicalized product of a productive process and its meaning can be understood from simple addition of the meanings of the two morphemes. Consider the following example.

(52)   qaya-pi-cuar-0
                kayak-genuine-small-ABS.s
                "a small genuine kayak"

The above example has two productive derivational süffixes. The potential number of adding productive derivational suffixes is not limited to just two but it is unbounded and can get very large while the semantics permits (cf. 56). Then the productive derivational suffixes should be separately listed as such but not as real examples of derivation in each possible case under the entries of stems or roots.

4.2. Non-paradigmatic grammatical affixes

In agglutinating languages like Japanese, a word and especially a verb can have several affixes with a grammatical category. They should not be described with the whole verbs in a big paradigm, as the potential of adding the grammatical affixes is unbounded.

(53)   tabe-sase-rare-ta-gar-ana-katta (Miyaoka 2002, morphological partition - MN)
                eat-CAUS-PASS-DES-feel.ADJ-NEG-PST (gloss - MN)
                "did not want to be coerced to eat." (translation - MN)

If the grammatical categories shown above are described in a paradigm of words, the paradigm will be infinitely big and the task seems impossible. On the other hand these grammatical categories cannot be shown under the lexical entries of stems just like productive Yup'ik Eskimo derivational affixes. These grammatical affixes should be rather listed separately from the list of stems and from the inflectional paradigm if there is. These grammatical affixes should be arranged syntagmatically, i.e. along the time line, but not paradigmatically. If you account for these grammatical affixes paradigmatically, you need to insert zero affixes when a verb seems to lack certain affixes. In contrast to (53), the verb

tabeta "ate" needs to be glossed as follows if you choose to account for it paradigmatically:

(54)   tabe-0-0-0-0-0-ta
        eat-non.CAUS-non.PASS-non.DES-not.feel.ADJ-AFF-PST
        "ate"

On the other hand if you abandon the paradigmatic explanation, you get:

(55)   tabe-ta
        eat-PST
        "ate"

4.3. Productive derivational affixes and non-paradigmatic grammatical affixes together

The productive derivational affixes (4.1.) and non-paradigmatic grammatical affixes (4.2.) have been discussed separately. But they may form a single category. They should be separately listed from the entries of stems in the lexicon and they should not be described paradigmatically in the grammar. When you look at a polysynthetic example from Yup'ik Eskimo (53) and when you look at a polysynthetically described Japanese example (57), it seems plausible.

(56)   qaya-pi-li-yu-kapigg-ni-nqigte-llru-nrec-ugnarq-ut (Miyaoka 2002:53)
        kayak-genuine-make.O-DES-EMP-A'.say-ITR-PST-NEG-INF-IND.3PL
        "maybe they did not say again they (themselves) wanted very much to make a genuine kayak."

(57)   tabe-sase-<u>te=morat</u>-<u>te=i</u>-na-katta=no=<u>kamo=sire-na</u>-i[19] (Miyaoka 2002:117)
        eat-CAUS-CAUS.BEN-RES-NEG-PST=NMLZ=INF-NPST (gloss - MN)
        "maybe (he/she/they) have not been fed" (translation - MN)

At this moment, I would like to call the category, in which productive derivational affixes and non-paradigmatic grammatical affixes are lumped together, extensional affixes. If it is handy to use this category when describing the grammar of a language, it can be used. If

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[19] The morphemes lumped together with an underline have a gloss each for the group.

not, the affixes can be separately go back to the good ol' homes, i.e. derivational affixes and inflectional affixes.

The category of extensional affixes is rather handy in describing the morphology of languages which have agglutinating and/or polysynthetic properties. Of the polysynthetic languages, it is more so with non-template-type polysynthetic languages than template-type polysynthetic languages[20]. Template-type polysynthetic languages have quite a few slots or positions of prefixes and/or suffixes just like in the cases of Bantu languages and Athabaskan languages and the slots/positions can be presented with a template. On the other hand non-template-type polysynthetic languages do not have slots or positions of prefixes and/or suffixes. In these languages, the affixes are added in a layered manner and the number of affixes that can be added to the (minimal) stem is infinite. One prototypical example of the non-template-type polysynthetic languages is Eskimo languages. Japanese is also described as a non-template-type polysynthetic language in Miyaoka (2002), where he presents and introduces quite a big number of suffixes and lexicalized and/or grammaticalized sets of suffixes[21]. E.g. =kamo=sire-na in (57) can be described to have at least three morphemes, but functionally it serves as a lexicalized and/or grammaticalized unit with an enclitic boundary to the left carrying a grammatical meaning, inferential, i.e. "maybe."

In the table below, I will show the characteristics of derivational affixes, extensional affixes, and inflectional affixes.

<Table>

	Derivational affixes	Extensional affixes	Inflectional affixes
Lexeme-forming or not	Typically permanent-lexeme-forming	Some are non-lexicalized-lexeme-forming	Non-lexeme-forming
Inflectional or not	Non-inflectional	Some are syntagmatically inflectional	Paradigmatically inflectional

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[20] Non-template-type polysynthetic languages can have a small number of slots just like non-polysynthetic languages do, but they are NOT polysynthetic because of the slots.
[21] Miyaoka (2002) describes Japanese as having quite a big number of suffixes and lexicalized and/or grammaticalized sets of suffixes. In these suffixes and sets of suffixes, both the ones with a suffix boundary to the left and the ones with an enclitic boundary to the left are included.

Do they change parts of speech or word classes?	Some do; some do not.	Some do; some do not. Even some inflectional affixed do too.	No, they do not.
Where do they belong?	In the lexicon where the entries are under roots and/or (minimal) stems and in the lexeme-forming morphology.	Somewhere between lexeme-forming morphology and inflectional morphology. If lexicon, not under roots and/or (minimal) stems; they should be classified separately in the list of affixes.	In the inflectional morphology
Do they form (an) inflectional paradigm(s)?	No, they do not.	No, they do not.	Yes, they do. The paradigm(s) can be paradigm(s) of words or paradigm(s) of affixes in the slot(s). Sometimes a few slots are fused together to form a superset of slot paradigms.

I will sum up the characteristics of the three types of affixes. Derivational affixes are typically permanent-lexeme-forming and non-inflectional. Some of them change the parts of speech or word classes in the course of deriving a new permanent lexeme from a (liberal) stem. They belong in the lexicon where the entries are under roots and/or (minimal) stems and in the lexeme-forming morphology.

Extensional affixes can be non-lexicalized-lexeme-forming and/or syntagmatically

inflectional. Some of them change the parts of speech or word classes and some do not in the course of extension from a (liberal) stem to a new (liberal) stem. They belong somewhere between lexeme-forming morphology and inflectional morphology. If in the lexicon, they should not be entered under roots and/or (minimal) stems; they should be classified separately as affixes. Even extensional affixes with an inflectional or grammatical meaning do not form an inflectional paradigm.

Inflectional affixes do not form a lexeme. They are paradigmatically inflectional. They do not change parts of speech or word classes. They belong in the inflectional morphology. And they form (an) inflectional paradigm(s). The paradigm(s) can be paradigm(s) of words or paradigm(s) of affixes in the slot(s). Sometimes a few slots are fused together to form a superset of slot paradigms.

5. Preliminary remarks on template-type polysynthetic languages

Here I would like to make preliminary remarks on polysynthetic languages with template morphology with some implications from the previous sections. I will take Athabaskan languages as examples. A template for Slave (Northern Athabaskan) verb is given in Rice (1998:656):

(58)   preverb#distributive#iterative#incorporate#direct object % deictic
              D   D   D   D   I   I
          subject % gender+secondary aspect+primary aspect+subject [voice+stem
                      D   D   D/I   I

This represents the traditional model of the verbal morphology of Athabaskan languages. Rice (1998) concludes in the paper that some of the slots that have been traditionally described as derivational (D) can be re-described as inflectional (I), but I will not go into that. As the boundary description etc. are updated and not exactly traditional, I will quote Rice (1998:656-657):

> The Athapaskan verb is traditionally thought to consist of a single word, composed of a stem and a number of prefixes. The stem itself is complex, consisting of a root followed by a suffix that indicates mode and aspect. The order of prefixes is determined by a template, or position-class model. Thus,

morphemes occur in a fixed order, and are lexically marked for the position in which they occur. In addition, each morpheme is lexically marked for phonological boundary type. A template for Slave is given in (58 = *22 in the original paper)*. The template includes verb-prefix positions, boundary types and a labeling of the traditional inflection/derivation categorization of morphemes in the positions.

A brief description is in order. Several phonological boundaries are indicated. The symbol '#' represents a strong boundary type, marking what are traditionally called 'disjunct morphemes'. The second symbol, '+', indicates a regular boundary type. It separates what are traditionally called 'conjunct morphemes', a span that includes some items considered to be derivational and others considered to be inflectional. The third symbol '%' is associated with the direct objects and deictic subjects. These morphemes are intermediate in phonological patterning between the disjunct and the conjunct. Finally, the symbol '[' separates the voice morpheme and verb stem from the remainder of the verb.

Some slots are marked derivational (= D), but they do not change the parts of speech or the word classes unlike in the non-template-type (poly-)synthetic languages. A verb remain a verb even after derivational prefixes are added unlike in non-template-type languages.

Upper Tanana verbal template is basically the same as (58) except that it has a few suffix or enclitic slots after the root because some of the suffixes are segmentally sepaparable from the root. A slot in Proto-Athabaskan contains nominalizing suffixes or enlitics *-i· [-human, -plural], *-ən [+ human, -plural], and *-ne· [+plural]. (Upper Tanana has a historically merged nominalizing suffix -yə and has a separate plural marker 'iinə placed after the noun.) The nominalizers make verbs into deverbal nouns. But otherwise, derivation does not bring about changes in parts of speech or in word classes in Athabaskan languages.

It is not economical or possible to present the morphology of template-type polysynthetic languages as a whole paradigm, even if it is only concerned with only one verb theme. It should be described as a set of independent slot subparadigms, where some adjacent slots may be fused to form super-subparadigms. An Athabaskan verb theme consists minimally of a voice prefix and a root. Some verb themes BEFORE any derivation can have

one or more prefixes.   An Upper Tanana example of a voice prefix plus a root is *h-tšąą* "to rain."   An Upper Tanana example of a verb theme with a prefix from another slot is *n-h-'įh* "to see."   The slot for the *n*-prefix is marked *gender* in (58).   (Notice that it is far away from *voice* and *stem*.)   An Athabaskan verb theme can be regarded as an example of my "minimal" stem, but some morpheme(s) can be non-contiguous within the verb theme.   A verb theme can be directly inflected to form a word or a free form.   But a verb theme also can have derivation before being inflected.   And the derivational entity can be polymorphemic and it is called a derivational string.

(59)   e-0-h-tšąą

PRST-3sS-voice-rain

"it is raining"

(60)   šə-n-e-0-h-'įh

1sO-GNDR-EPEN-3sS-VCE-see

"(s)he is looking at me"

(61)   na-tr̃d-t-è-0-d-ʃah

ITR-cane(INC)-INCEP-PF-3sS-VCE-go

"(s)he started walking with a cane"

In this example, *tr̃d* "cane" is incorporated.   Moreover, the iterative marker *na-* is a derivational prefix and it triggers the voice marker to change from *0-* to *d-*.   *t-è-* marks inceptive and perfective here.

(62)   na-t-i-0-d-aa-g

ITR-INCEP-EPEN-3sS-VCE-go-CUST

"(s)he is walking around"

In this example, *na-t-~-g* is a derivational string meaning "around."   And this string triggers the voice marker to change from *0-* to *d-*.   And the stem = root *ʃah* (61) changes to *aa* (62) when it is suffixed *-g*.   It is sort of an aberrant partial suppletion synchronically-speaking.

To sum it up, Athabaskan verbs have verb themes as "minimal" stems. Sometimes they can be discontinuous.   They can under go derivation with one or more derivational strings.   Then they are inserted inflection.   Each morpheme of derivational

strings and of inflection belong to the appropriate slot.   And the processes of derivation and inflection do not take place from the root toward both ends of the word.   That is to say they are not arranged in a layered way.

6. Summary

In this paper, some morphological operations which can be described neither as (permanent-)lexeme-forming derivation nor as paradigmatic inflection have been discussed.   First, derivation and inflection were examined in 1.   Then, non-permanent-lexeme-forming derivation was preliminarily discussed in 2.   Then, incorporation-like action noun construction in Japanese which has some characteristics of noun classification was discussed in 3.   Then, the term "extensional affixes" was introduced for productive derivational affixes and non-paradigmatic grammatical affixes in 4.   Then, template-type polysynthetic languages were preliminarily discussed in 5.

Conclusion and further remarks

In short, some characteristics of noun classification, extensional affixes, and template-type polysynthetic languages have been discussed in this paper.

Noun classification can be considered something that comes between lexeme-forming derivation and inflection.   A new category, namely extensional affixes, was introduced.   It comes between lexeme-forming derivation and inflection and it shares some properties with both the latter two categories.   It also comes handy that it enables one to treat a part-of-speech-changing and/or word-class-changing process a grammatical process.   I.e. you can treat a process which makes a verb into an adjective or a noun a grammatical process. Template-type polysynthetic languages do not have a layered morphology.   The slots imply limits, but derivational processes can be applied over and over involving seemingly randomly selected slots.   And there is a possibility that some of the "derivational" processes can be re-categorized as extensional processes just like in non-template-type polysynthetic languages.

In the future, isolating languages should be looked into with what I found out in this study.   Isolating languages and languages typically described to belong to other types but having isolating properties are characterized by Kôno (1989) as having (non-derived) single roots directly controlled by syntax as words, making use of concatenation of roots to form complex words, and making use of particles.   Skalička (1951) pointed out that the languages which have isolating properties have the (non-derived) single roots directly controlled by

syntax as words.   Skalička (ibid.) also, to quote Chino (p.c.), "wrongly" labeled Chinese and German as having polysynthetic characteristics.   What Skalička means is the characteristics to use concatenation of roots to form complex words.   That is what Kôno (1989) includes in the characteristics of the isolating type.   It was a misnomer, but what Skalička pointed out deserves a place in the history of linguistics (after the due re-naming).

Kôno (1989) also rightly points out that Japanese nominals (here they can be re-labeled "maximal" nominal stems) are isolating in principle except for a number of derivational affixes.   Vigorous radical [22] concatenation takes place within Japanese "maximal" nominal stems.   The radical concatenation does not replace verbal affixational morphology (unlike in truly isolating languages), but some concatenated roots carry sort of grammatical meanings.

More typical isolating languages should be looked into first, but the "isolating" characteristics of Japanese nominals also needs to be addressed.

Isolating languages not only make long concatenated nouns like (3d) *student film society committee scandal inquiry*, but also appear to make use of "grammatical" roots/words.

Differences between grammatical affixation of agglutinating languages and grammatical radical concatenation of isolating languages aside, they may share some similarities.   And I have a gut feeling that concatenated grammatical roots seem more similar to my extensional affixes than inflectional affixes in that the grammatical roots do not form closed and bounded paradigms but rather they are arranged in syntagmatic ways.   Unlike the extensional affixes, concatenation of the grammatical roots does not belong in the morphology but in the syntax, but the similarities, if there are, should be looked into.

Abbreviation: + (compounding boundary), - (affixation boundary), = (cliticization boundary), ABS (absolutive), ADJ (adjective), AFF (affirmative), ATTR (attributive), BEN (benefactive), CAUS (causative), CL (classifier), CUST (customary), D (derivation), DAT (dative), DES (desiderative), EMP (emphasis), EPEN (epenthetic), GNDR (gender), I (inflection), INC (incorporate), INCEP (inceptive), IND (indicative), INF (inferential), ITR (iterative), NEG (negative), NMLZ (nominalizer), NOM (nominative), NPST (non-past), O (object), PASS (passive), PF (perfective), PL (plural), PRST (prosthetic), PST (past), Q (question), RES (resultative), s (singular), S (subject), SJ (Sino-Japanese), TOP (topic), VCE (voice).

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[22] Here, radical means "of the root(s)."

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語彙素形成派生と範列的屈折の間

箕浦 信勝

　本稿では，固定的な語彙素を形成する派生とも範列的な屈折ともなじまない形態論的操作が論じられた．日本語に関して名詞類別の特徴を幾分か持つ疑似抱合動作名詞構造が論じられ，また生産的な派生接辞と非範列的屈折接辞を纏めて拡張接辞(extensional affixes)と呼ぶことが提案された．また，予備的にスロット型複統合語が論じられた．

　今後の展望としては，孤立語や，孤立語的特徴を持つと河野(1989)が論じた日本語の体言が吟味されるべきだとした．孤立語の複合語を形成する（語根）連鎖のある部分も，文法的語根の配置も，形態論ではなく統語論に属するものかも知れないが，本稿の「拡張」との異同が吟味されるべきだとした．