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Morphologization and Combining Forms

Morio NISHIKAWA

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The grammaticalization process of morphologization is a cognitive process of producing a new form for a new concept in which an existing lexical form grammatically changes into a suffix. The present paper aims at exploring the morphological process of suffix formation in terms of the analysis of combining forms. Some quite common words such as *wise*, *like*, *able* are also considered to be morphological suffixes. Furthermore, the latter are considered to be borrowed or originate from the former. This, we claim, is the result of a morphologization process which involves the creation of bound morpheme suffixes from an autonomous lexical form by way of (i) cliticization and (ii) the structurally transgressive shift of a lexical form from syntax to morphology. Our focus in this paper is placed on the latter. Our discussion first goes through the analysis of the structural and cognitive mechanism of the morphologization process of suffixation via a grammatical analysis of *wise* and *like*. Second, we analyze combining forms such as *-proof*, *-bound*, *-man* and so forth which may function not only as free form words within a phrase or sentence but also as bound form suffixes within a word. Third, we claim that there exists a degree or gradience of suffixality in English word formation, and that combining forms are suffixal. Fourth, we propose a dimensional or vectorial level system of English words which includes combinations of base form, suffixes, combining forms and compounding words for both free forms and bound forms. We also discussed how combining forms are listed in the dictionary in so far as they are lexicographically treated differently from dictionary to dictionary.

Key Words : Grammaticalization, Combining Form, Suffix, Morpheme, Lexicography

1. Introduction

We use words to construct a sentence, and there are various linguistic ways of word formation. Words in a sentence are considered autonomous and independent lexical forms, although affixes in a lexical form are deemed dependent bound morphemes. The difference between lexical free forms and suffixal bound forms is relative, and there is a gradual morphological cline between the two. Inflectional suffixes are fundamentally involved in syntax in terms of grammatical number, case, tense, and comparison, although derivational suffixes are involved in morphology in terms of the productivity in word formation.

Morphological entities have been mainly classified into free form (henceforth FF) and bound form (henceforth BF). Some BF suffixes in English have been grammatically borrowed or originate from lexical FF items. They are exemplified by suffixal forms such as *-wise* in *clockwise*, *-able* in *readable* and *-proof* in *waterproof*.

According to Tobin (1993: 249), "the development of functional words, morphemes, or inflections from independent lexical forms, has been a very prominent theme in the study of aspect in English". This is true not only for the description of the aspectuality of verb but also for the description of suffix formation in English in terms of the grammaticalization process of morphologization.

Grammaticalization has already been discussed to a great extent in Heine (1991), Traugott and Heine (1991) and Hopper and Traugott (1993). It is typalized by a number of examples: i.e. the verb *go* is grammaticalized into the modal *be going to*, and the -ING or -ED form of verb is realized in prepositions such as *concerning*, *considering*, and in conjunctions such as *provided* and *suppos-*

ing.

Suffixes in English are varied. Many of them are inherited from old suffixes in Old English or stems in the Latin, Old French, and Greek languages. Others are borrowed or originate from lexical forms. In other words, some syntactic lexical forms changed into morphological affixes by a linguistic transgressive shift from syntax to morphology, resulting in their change of grammatical category and function.

Modern linguistics has a tendency since F. de Saussure to divide its methodology into two distinct paradigms of synchronicity and diachronicity, which have been pursued for a long time. The linguistic concept of grammaticalization may provide us with a rational bridge between these two paradigms.

The purpose of this paper is to explore the linguistic mechanism of suffix formation in English in terms of the grammaticalization process of morphologization. First, we will discuss the cognitive and structural mechanism of the grammatical transgressive shift from syntax to morphology by way of discussing the cases of *wise* and *like*. As a result, we will clarify the deconstruction and reconstruction process of this mechanism. Second, we will put our focus on the analysis of what has been called suffixal combining forms (henceforth CF). Then we will make a further discussion on the degree or gradience of the suffixality of CFs in terms of the grammaticalization process of morphologization. Third, we will propose the dimensional and vectorial level system of the variety of English words in terms of depicting the graphic scheme of the gradational scale of English word formation. Fourth, we will discuss the cognitive process of morphologization in CFs in terms of applying the principle of morphologization to suffix formation in English. Finally, we will refer to the lexicographic perspective by analyzing how CFs are treated in some reasonably authorized dictionaries.

2. -WISE

A lexical form can be changed into a suffix by the grammaticalization process of morphologization. The noun *wise*, for instance, shifts and changes into the suffix *-wise*. *Like* is also the case where a syntactic adjectival preposition shifts and changes into a derivational suffix.

Consider the following example:

(1) Now the birth of Jesus Christ was on this *wise*.

(Authorized King James Version, Matthew 1.18)

Wise in this example stands for "way, manner, fashion, or respect (especially in the phrases *any wise, in no wise*)" (CED: Collins English Dictionary). It is a free lexical item and its grammatical category is noun in this prepositional phrase. Additionally, in Old English, the archaic *wise* stands for "manner", related to both German *Weise* and Latin *visus* (face). The Oxford English Dictionary (OED) describes: "-*wise* has the appearance of a suffix, and in so far as it could or can still be freely combined with an adjective or a substantive, it has actually performed the function of suffix."

Furthermore, *wise* in the following examples is suffixal:

- (2) a. *clockwise* *crabwise*
 b. *humblewise* *despitefulwise* *likewise* *leastwise/leastways*
 c. *lengthwise/lengthways* *edgewise/edgeways* *slantwise/slantways*

- sidewise/sideways* *cosswise/crossways*
 d. *ostrichwise* *businesswise* *profitwise*

In (2a), the preceding element to *-wise* is nominal, and its suffix cannot be replaced by *-ways*. The resultative function is either adjectival or adverbial like in the following examples:

- (3) a. He pushed the bolt back in and twisted it *clockwise*. (COBUILD)
 b. *Clockwise*: In 1906, three generations of queens WWII walk.
 (Newsweek, August 11, 1997)
 c. a *clockwise* movement of the lid
 (LDCE: Longman Dictionary of Contemporary English)

where *clockwise* in (3a) and (3b) is adverbial, and that in (3c) is adjectival.

In (2b), the preceding element is adjective. Also the suffix *-wise* often forms an equivalent of the suffixal adverb marker *-ly* like in, according to OED, *humblewise* which means *humbly* and *despiteful-wise* which means *despitefully*.

As for the examples in (2c), they have two ways of spelling like in *lengthwise/lengthways* and *edgewise/edgeways*. The suffixal elements *-ways* and *-wise* were characterized by "way" and "manner" in their meaning, and their phonological transcription of *ways* was pararell to that of *wise* in [waiz]. And their initial element is nominal. Furthermore, according to the COBUILD Corpus (The Bank of English), the frequencies of *lengthwise* and *lengthways* are almost the same as follows:

Table 1: The Frequencies of *lengthwise/lengthways*

<i>lengthwise</i>	<i>lengthways</i>
22	24

However, as for the frequencies of *edgewise* and *edgeways*, the COBUILD Corpus shows their frequencies as follows:

Table 2: The Frequencies of *edgewise/edgeways*

<i>edgewise</i>	<i>edgeways</i>
1	9

where, we find that *-wise* is seldom used in actual corpora in comparison with *-ways*.

Also the Corpus shows the comparative number of the appearance of *sidewise* and *sideways* as follows:

Table 3: The Frequencies of *sidewise/sideways*

<i>sidewise</i>	<i>sideways</i>
15	274

Taking into consideration the result of Table 2 and Table 3, we acknowledge that the *-ways* suffix is far more frequently used than the *-wise* suffix in modern English.

As for the example of *likewise* in (2b), it comes from the prepositional phrase *in like wise*,

which includes the noun phrase *like wise*, where the nominal *wise* is modified by an adjective *like*. After deletion of the preposition "in", the noun phrase *like wise* was grammaticalized and changed into an independent lexical item *likewise* where the terminal element *wise* functions as a suffix.

As for the examples in (2d), which represents the meaning "as far as X is concerned", they are considered to be colloquial and not welcomed as normally accepted expressions.

Thus we claim that the syntactic lexical item *wise* changes itself into the morphological entity of suffix, not vice versa, in terms of the change of its grammatical category and function. Thus we briefly schematize our discussion as follows:

- (4) *wise/ways* (lexical item) > *-wise/-ways* (suffix)

This turns out to be evidence of the principle of unidirectionality in grammaticalization, which Heine et al. (1991: 212) describes: As conceptual manipulation leads from lexical or less grammatical meanings to more grammatical ones, this process is unidirectional. We now see the transgressive process of the grammatical shift from a lexical form in syntax to a morphological entity of suffix in morphology.

3. -LIKE

The grammatical usage of *like* is varied. It appears ubiquitously in syntax and morphology. We also see in the usage of *like* the case where the grammaticalization process of shifting from a lexical form in syntax to a suffix in morphology takes place unidirectionally.

Namiki (1988) maintains that *like* is adjective in terms of (i) its combination with *un-* prefix (cf. *unlike*) (ii) its combination with *-ness* suffix (cf. *likeness*) (iii) its combination with *-ed* suffixation in the suffix attachment to compound (cf. *like-minded*) in terms of the inheritance of the subcategorization of the base. and (iv) the adjective formation in compound adjectives (cf. *apelike*),

However, *like* is not necessarily an adjective. Notice the following:

- (5) a. She sleeps *like* a log.
b. She behaves *like* a child.

Like in the above makes up a prepositional phrase which modifies the main verb in each sentence and functions as an adverb. Also in the following example, *like* is a conjunction.

- (6) a. Do you make bread *like* you make cakes? (LDCE)
b. Is she often rude and cross *like* she's been this last month?
(Collins Cobuild English Grammar: 361)

In the course of this discussion, we claim that the above Namiki's discussion about the adjectiveness of *like* cannot always be accepted straightforwardly.

Like can be considered, on the one hand, to be a lexical item of adverbial preposition as is shown in the following example:

- (7) a. She behaves *like* a child.
b. He dances *like* a monkey.

It is, on the other hand, a morphological bound form of suffix as follows:

- (8) a. her child-*like* behavio(u)r
b. his monkey-*like* dance

The grammatical motivation in this suffix formation can be considered to be the nominalization of the verb *behave* into the noun *behavior*, resulting in the adjectivalization of the phrase *like a child* into *childlike* which is placed before the derived noun in terms of the principle of structural stability or the morphological percolation principle (cf. Williams 1978). We acknowledge that the grammatical transgressing process from syntax to morphology is at work here.

Thus we claim that the suffixal *like* in (8) grammatically comes from the lexical form *like* in (7). Now we come to postulate the schematic grammaticalization process of *like* as follows:

- (9) *like* (lexical item) > *-like* (suffix)

4. Deconstruction and Reconstruction

Suppose we face to a new concept or idea, and we don't know an appropriate form for the new concept, we tend to create a new form either by inventing a novel form or by borrowing and modifying an existing form, taking advantage of its conventional meaning and function. The grammaticalization process of morphologization can be considered to be a cognitive process of categorization by creating or inventing a new form for a new concept in terms of the grammatical transgressive shift of a lexical form from syntax to morphology. The grammaticalization process of deconstruction of the existing grammatical form is at work here to reconstruct a newly designed morphological structure. Thus we claim that some suffixal forms in English are grammaticalized from the earlier, existing, and autonomous lexical forms.

According to Hopper and Traugott (1993: 135), morphologization is the grammatical process of "involving the creation of a bound morpheme (i.e. an affix) out of an independent word by way of cliticization". Cliticization, exemplified by tonic *them* to clitic *'em*, or tonic *do not* to clitic *don't*, is commonly used to refer to a set of unaccented form. The former is autonomous, but the latter is not, being structurally dependent. Whether it is enclitic or proclitic, cliticization is a linguistic phenomenon of morphologization from autonomous and independent form to dependent form.

In grammaticalization, another significant grammatical process of univerbation is at work, which includes in theory, according to Hopper and Traugott (1993: 135), "the uniting the two parts of a compound into a single lexical item." I would like to add "the grammatical transgressive process from syntax to morphology" to the above-mentioned cliticization process in order to explain the morphologization process in more detail.

In so far as *like* in (8a) is mapped from *like* in (7a) in terms of the preservation of meaning, we assume that a cognitive and grammatical shift is at work in the following mapping process:

- (10) a. She behaves *like* a child
b. Her *like-a-child* behavior
c. Her *like-child* behavior
d. her child-*like* behavior

First, when the nominalization of the main verb takes place from (10a) to (10b), the adverbial prepositional phrase is moved to the frontal position of the derived noun of *behavior* in order for it to function as adjectival, observing the structural stability in the English word order; Determiner (her) + Adjective + Noun (behavior). Significantly, The grammatical feature of tense is here cancelled. Second, *like-a-child* is neither a phrase nor a word and the functional indefinite article *a* is therefore required to be deleted in the grammatical shifting from (10b) to (10c). Thus the supposed "immature" word *like-child* in (10c) is neither an independent lexical item nor an acceptable compounding word. If an adjectival preposition loses the function of preposition like in (10c), the whole univertation apt to make itself adjectival, especially in case it is placed before the noun. Then the transposing of the constituent words in (10d) takes place to change *like-child* into the appropriate adjectival phrase of *child-like* in terms of the headedness of the adjectival entity of *like* in this word. We claim that the principle of structural stability both in morphology and in syntax is at work here. At the same time, the percolation principle (cf. Williams (1981)) functions here to make it an adjective by transposing the noun *child* and the adjectival preposition *like*, resulting in *child-like* in (10d). Thus the principle of "a new form for a new concept" tends to motivate the design of a new idea to solve the problem of finding a new form for a new concept, although the grammatical motivation in the whole shifting process in (10) is the nominalization process of the given verb.

We claim through this discussion that a grammatical deconstruction and reconstruction process is realized in the course of grammatical transgressive process of *like* from syntactic area to morphological area. The nominalization of main verb is the grammatical motivation to undertake the morphologization process of *like* from syntax to morphology. The preposition *like* in the prepositional phrase is deconstructed at first and next reconstructed or modified into a bound form of suffix in terms of the grammatical motivation of nominalizing the main verb, observing the grammatical principles of structural stability and the transformational operation of function word deletion.

The structural scheme of VP in (10a) is:

- (11) [_S She [_{INFL} [_{VP} behave [_{AP} like a child]]]]

The grammatical operation of nominalization from *behave* to *behavior* takes place by cancelling the grammatical feature of tense and agreement and by changing the grammatical function of *like* from adverbial preposition into adjectival preposition as we see in (11) and (12).

- (12) [_{NP} her behavior [_{AP} like a child]]

Then we propose here the necessity of the grammatical transgressing process of morphologization in order to change this prepositional phrase into a word.

- (13) a. [_{NP} her [_{AP} *like* a child] behavior]
 b. [_{NP} her [_{AP} *like-child*] behavior]
 c. [_{NP} her [_{AP} *child-like*] behavior]

The grammatical deconstruction process takes place from (13a) to (13b) by deleting the indefinite article *a*. We don't have the English univertated or compounding adjectival word *like-child*.

Rather the percolation principle supports the change of word order to newly produce a lexical form *child-like* in terms of the grammatical shift of the lexical form of *like* to the suffixal bound form of *-like*.

5. Suffixal Combining Forms

There are a number of morphemes which are called combining forms. A CF is a morphological form which combines a word or part of a word to make a new word. It is morphologically suffixal, ranging from suffix to compound. They are also lexicographically treated differently from dictionary to dictionary.

Wise and *like* are lexical forms in syntax but may also function as suffixal CFs when used as a terminal element in a word. They are structurally dependent on the preceding stem element and change the grammatical category and function of the preceding stem. For example, the noun *clock* changes into an adjectival or adverbial element by way of the derivational process of attaching *-wise* to this word. The noun *child* changes into an adjectival element by way of the derivational process of attaching *like* to this word. Morphological elements such as *-wise* and *-like* are dependent on the preceding stem element, changing its grammatical category in terms of undertaking the headedness of the whole grammatical category of a given word. These features are parallel to those of suffixes such as *-ful*, *-en*, *-ness*, and *-ly*. These suffixes are those which have been original suffixes in Old English through Middle English. Suffixal elements such as *-wise* and *-like* have not been original ones. Rather they functionally and categorially became suffixes by way of the grammaticalization process of morphologization. Cliticization is one way of morphologization, and the grammaticalization process by borrowing and modifying an existing lexical form in terms of the grammatical transgressive process from syntax to morphology is also another way of morphologization.

A CF once used as a free form (FF) of lexical item in a sentence also functions as a bound form (BF) of suffix in a word. Then a CF, when it works only in a word, should be characterized by the function of suffix.

Taylor (1995:178) summarizes the characteristics of affixes as follows:

- (a) Affixes cannot occur independently of the stems to which they attach.
- (b) Affixes are generally unstressable.
- (c) Affixes are generally integrated into the phonological shape of the word of which they are a part.
- (d) Affixes are highly selective with regard to the kind of stem to which they attach.
- (e) Affixes cannot be moved around independently of their stems, neither can the second occurrence of an affix be deleted; *singing and dancing* cannot be reduced to **singing and dance*.

As for the CFs, they are all applicable to the above characteristics of affixes. For example, *wise* and *like* used in a word cannot occur independently of their attached stems. They are in fact unstressable (e.g. *clockwise* but not *clockwise*). They are also integrated into the phonological shape of the whole word. They are selective in attaching themselves to the stems; i.e. *wise* is not attached to verb and *like* not to verb. Finally CFs such as *-wise* and *-like* cannot be moved around independently of their stems; i.e. *clockwise and sidewise* cannot be reduced to **clockwise and side* or **clock and sidewise*.

Consider the following:

- (14) a. The roof is *proof* against rain. (CED: Collins English Dictionary)
 b. This cloth is *waterproof*.

The grammatical category of the word *proof* in (14a) is an adjective, and the following prepositional phrase "against rain" is a grammatically necessary phrasal element called complement, although the CF *proof* in (14b) is a part of a word. Then, it does not function appropriately as an autonomous lexical form in the following examples.

- (15) a. ?The roof is *proof*.
 b. ?The cloth is *proof*.

where a complement immediately after *proof* such as "against X (e.g. rain)" is necessary, if we make these sentences fully acceptable. Then we will be able to ask instantly; "*proof* against what?". Also we find that an adjective of this kind does not undertake the grammatical role of predicate. Thus it can be considered to be an autonomous lexical form when used in a sentence like in (14a). Contrastively, it is a dependent BF of suffix when used in a lexical form like in (14b).

We have a tentative set of combining forms as follows:

- (16) a. -proof: *water-proof* *fire-proof* *oil-proof*
 b. -worthy: *trust-worthy* *praise-worthy*
 c. -free: *care-free* *tax-free* *duty-free*
 d. -bound: *south-bound* *north-bound* *college-bound* *desk-bound*
 leather-bound *snow-bound*
 e. -able: *fashion-able* *comfort-able* *valu(e)-able* *honor-able*
 wash-able *read-able* *enjoy-able* *compar(e)-able*
- (17) a. -man: *sales-man* *bar-man* *fire-man* *camera-man*
 English-man *Yorkshire-man*
 b. -boy: *ball-boy* *tea-boy* *delivery-boy*
 c. -fashion: *crab-fashion* *schoolboy-fashion*
 d. -style: *cowboy-style* *Indian-style*
- (18) a. -fold: *mani-fold* *three-fold* *ten-fold*
 b. -some: *trouble-some* *tire-some* *meddle-some*
 c. -gram: *tele-gram* *dia-gram* *kilo-gram*
 d. -graph: *photo-graph* *auto-graph* *mono-graph*
 e. -drome: *air-drome* *hippo-drome* *syn-drome*
 f. -logy: *psycho-logy* *bio-logy* *geo-logy*

The CFs in (16) are characteristic of BF adjective maker in morphology, and they can be used in a sentence as a FF lexical item. Those in (17) are nouns and close to compounds, although their whole grammatical category is not necessarily nominal, especially suffixal CFs such as *-fashion* and *-style* undertake adverbial grammatical category. Those in (18) are Latin or Greek or Angls-Saxon

originated BFs, and they cannot be used in a sentence as a FF lexical item.

Taking into consideration the CFs which are borrowed and originate from lexical items and the suffixes which are inherited from the original and ancient suffixes, we postulate the following cline of morphologization:

(19) Lexical Items > Combining Forms (CFs) > Suffixes

CFs are, however, functionally suffixal. They are structurally dependent. They are apt to change the grammatical category of the stem element into a derived word of another grammatical category. They undertake the grammatical category of the whole word in terms of William's percolation principle.

Furthermore, as we saw in the discussion of Taylor (1995:178) in Section 5, CFs cannot occur independently of the stems to which they attach. They are generally unstressed and integrated into the phonological shape of the word of which they are a part. They are also highly selective with regard to the kind of stem to which they attach.

Then English has two kinds of suffix. One is the suffix which is inherited from the original suffixes in Old English and Middle English or from other ancient languages. The other is suffixes which originate from the existing and early lexical autonomous forms. The latter is mainly exemplified by CFs in English. The structural modification or the transgressive process from syntax to morphology is at work in this process of suffix formation.

6. Cognitive Process of Morphologization

As Heine et al. (1991:29) briefly claims, "grammaticalization can be interpreted as the result of a process that has problem solving as its main goal". The two phases of mental task of conceptualization and naming (or terming) are interactive to each other, but the former precedes the latter unidirectionally. We often come across the communicative situation where we use a new linguistic form to a new concept. This is more than a mechanical mapping process of naming between a signifiant and its signifi . It is a cognitive process of producing or inventing a new linguistic device for a new concept as we can figure it out in the following basic scheme:

(20)

new form

 →

new concept

In morphologization grammatical borrowing and modification process works. As we saw in Sections 2 and 3, lexical forms such as *wise* and *like* were borrowed and their syntactic category and function were modified into morphological ones. The result is that a new form comes to categorize and represent a new concept. It can be considered, according to Heine et al. (1991:28), to be the grammatical "exploitation of old means for novel functions".

A new form described here is not necessarily a newly invented word. It can be an existing lexical form which is modified in meaning and function for a new grammatical purpose. Here works the grammatically transgressive shift from syntax to morphology not vice versa in terms of the conditions of grammaticalization in unidirectionality and decategorization.

As for the principles of semantic bleaching and form-meaning asymmetry in grammaticalization, they are not conspicuously seen in the transgressive process of suffix formation. For example, the meaning of *wise* and *like* are preserved even in their suffixal usage in *clockwise* and *childlike*. We don't recognize any significant difference of form-meaning asymmetry between the two *wises*

- c. Level 2: FF + CF <waterproof>
 d. Level 3: FF + FF <watercolor>
 e. Level 4: (FF + FF) + BF <watercolorist>

This can be figured out in the following graphic chart:

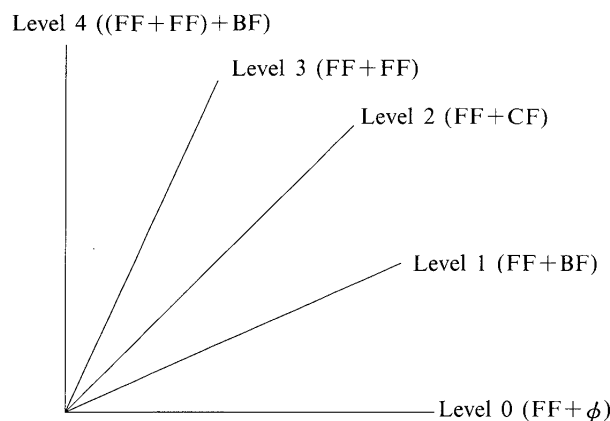


Figure 1: FF Based Words

Contrastively, we have a different set of English words, which are BF based, except the case of prefixation in (23b) below. Many of BF's originate from ancient Latin or Greek words. Borrowed words in English are so varied and ubiquitous that we are not so much conscious of it in everyday conversation.

Consider the following:

- (23) a. Level 0: BF + φ <con/pro>
 b. Level -1: BF + FF <discover>
 c. Level -2: BF + CF <syndrome>
 d. Level -3: BF + BF <conceive>
 e. Level -4: (BF + BF) + BF <conceivable>

An English word with negative level number is here considered to be BF based, except for the case in (23b). We would like to take advantage of negative number, for the sake of appropriate explanation, to figure out BF based words systematically in contrast with the positive level number of FF based words. In Level 0, we refer to a word which is composed of only one bound form which is exemplified by *pro* and *con* in the idiomatic phrase "the *pros* and *cons*". In Level -1, we have words of prefixation such as *dis-cover*, *in-sane*, *re-turn*, *mal-treat* and so forth, where the terminal stem in a word is FF. In Level -2, the first and initial element is BF, although the second terminal element is CF like in *syn-drome* and *tele-phone*. This is the opposite vector system of Level -2 in Figure 1 where we attempted to refer to the vectorial level of CF. In Level -3, both of the constituent elements are characteristic of BF. The words of this kind are very often Latin origins like in *con-ceive* and *pro-vide*. This is the opposite vector level system of Level 3 of compounding in (26). In Level -4, we find another suffixal word where a BF is attached to the combination of BF's like in *con-ceive(e)-able*. We would like to show below a list of the dimensional or vectorial level system of the variety of English words in terms of the fashion of attaching the terminal element

to BF.

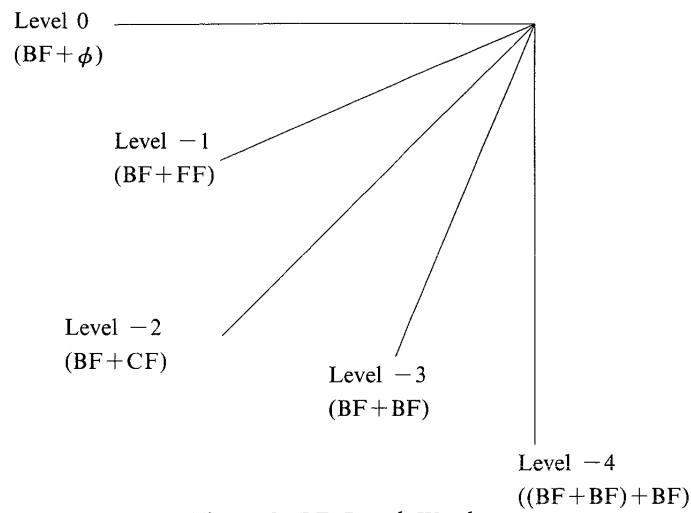


Figure 2: BF Based Words

Now we would like to combine the above two graphic charts of Figure 1 and Figure 2 as follows:

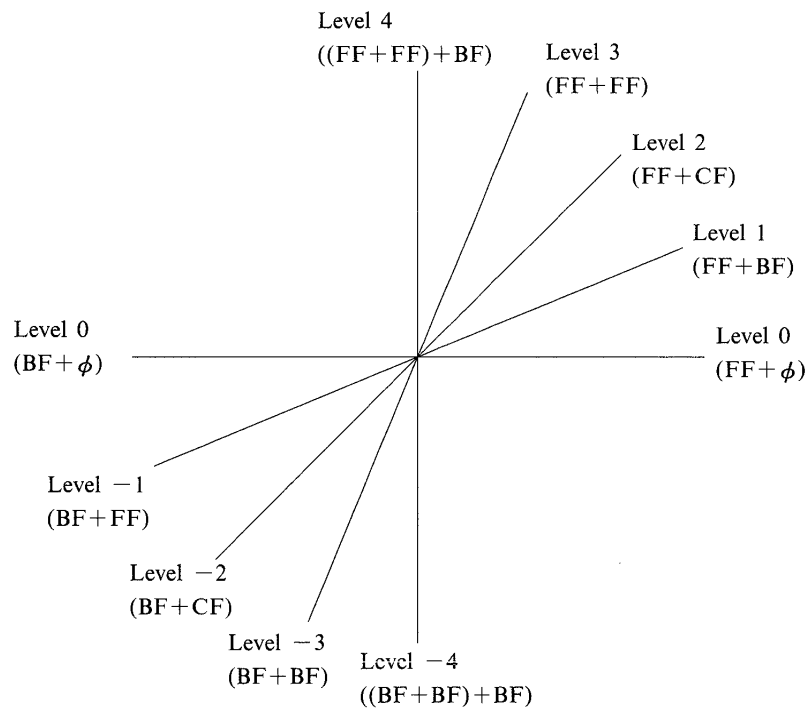


Figure 3: Combination of Figure 1 and Figure 2

8. Morphologization

Morphologization, as a matter of grammaticalization, is the cognitive process of problem-solving in inventing a new form for a new concept by borrowing and modifying an existing lexical

form into a morphological entity of suffix. It takes place mainly by cliticization and the structurally transgressive process from syntax to morphology. It is a realization of the basic principles of grammaticalization proposed by Hopper (1991); i.e. Layering, Divergence, Specialization, Persistence, and Decategorization. In the structural transgressing process from *like a child* in syntax to *child-like* in morphology, the former layer is older than the latter in its historical change. This is along with the "lexical item > morpheme" model of cline in grammaticalization. Also the lexical item *like* is more free in category and function than the suffix *-like*. The use of the latter is characteristic of the narrowing of choices or the loss of choice which occurs when a form is fully grammaticalized (cf. Hopper: 25). Furthermore, the preposition in *like a child* is no longer a preposition but a suffix in the word *child-like*. It turns out to be a suffix in terms of the assumption that a lexical form becomes a grammatical morpheme. In this process of morphologization, as Lichtenberk (1991) claims, (i) emergence of a new grammatical category, (ii) loss of an existing grammatical category, and (iii) change in the membership of a grammatical category are diachronically linked to realize the prototypical consequence of grammaticalization. This process can be considered to be unidirectional. That is, the bound form of suffix *-like* originate from the autonomous free form of lexical item *like*, not vice versa.

We sometimes come across the linguistic situation where an old and existing word is used for new concept or function. This reminds us again of the claim provided by Heine et al. (1991:29) that "grammaticalization can be interpreted as the result of a process that has a problem solving as its main goal, where one object is expressed in terms of another". This is nothing but the cognitive process of production and comprehension of language. It is also, along with Lakoff and Johnson (1978), the main characteristic of metaphor in cognitive linguistic science. Their assumption was; "The essence of metaphor is understanding and experiencing one kind of thing in terms of another."

Many suffixes were invented by its morphological necessity in terms of borrowing and modifying the existing lexical forms, resulting in the variety of CFs which can be considered to be suffixal.

As for a CF, it functions as a suffix when it is placed at the terminal position in a word. In addition to the above-mentioned Taylor's discussion of the characteristics of affixes, we acknowledge that a CF by itself cannot function as an autonomous and independent word, although it works only if it is used with a structural complement like in (14a) and (21a). We then claim that a CF is a kind of suffix in so far as it cannot occur independently of the stem to which it attaches. Also it should be placed at the terminal position in a word. However, it is different from suffixes such as *-ful*, *-en*, *-ly*, *-ness* and so forth in that they usually do not function as a lexical item in any syntactic form or phrase.

We now face to the Hopper's idea of "relativizing the notion of category" or "the degree of categoriality". That is, the family membership in a category is not determined in advance for a form. The suffixes then can be varied, including those which come from the old or existing lexical forms in addition to diachronically inherent and original suffixes. We would like to discuss here the concept of "the degree of suffixality".

9. The Degree of Suffixality

The degree of affixality, especially of suffixality, is, as a matter of fact, reflected in the way how the suffixality of each CF is treated in an authorized dictionary. Many affixes originate and are inherited diachronically from original suffixes such as *-ness*, *-en*, *-ful*, *-ly* and so forth. Other suffixes are borrowed or originate from Latin or French origins such as *-dom*, *-ity*, *-esque*, *-age*, and

-ment. Some other suffixes are, as we so far discussed, morphosyntactic or structurally transgressive like in *-like*, *-wise*, *-proof*, and *-bound* and so forth. English has another important type of suffixes which are borrowed from Greek words such as *-gram*, *-graph*, *-drome*. A number of structurally transgressed suffixes and Greek-originated suffixes are treated in the dictionary as CFs, others, however, are listed in the dictionary as authentic suffixes. We find here some degree or gradience of suffixality in the course of listing the items in a dictionary.

We would like to look back the suffixal CFs in (16), (17), and (18) to see how they are treated in each authorized dictionary. For example, according to RHD (Random House Dictionary), *proof* is listed as CF, and *like* is explicitly listed as "a suffixal use of *-like*". As for *wise*, it is described to be "usually used in combination or in certain phrases" as a suffix. However, *-free* in *care-free* or *duty-free* is not listed as a suffixal CF. Thus the treatment of CF is different from dictionary to dictionary. We would like to show below the listing of suffixal CFs in RHD;

Table 4: Listing of Suffixal CFs in RHD

-proof	-worthy	-like	-wise	-able	-bound	-free
CF	*	ok	ok	ok	ok	*
-fashion	-style	-man	-boy	-fold	-some	-gram
*	*	*	CF	ok	ok	CF
-graph	-drome	-logy				
CF	ok	CF				

where the symbol "ok" stands for the explicit listing of the item as suffix, and the total number is 7; and the symbol "CF" stands for the explicit description of the item as combining form, and its total number is 5. The symbol "*" means non-description of the item concerned, whose number is 5.

However, a different dictionary of LDCE lists these suffixal CFs as follows:

Table 5: Listing of Suffixal CFs in LDCE

-proof	-worthy	-like	-wise	-able	-bound	-free
CF	CF	CF	CF	ok	CF	CF
-fashion	-style	-man	-boy	-fold	-some	-gram
CF	CF	ok	CF	ok	ok	CF
-graph	-drome	-logy				
CF	CF	CF				

where the number of "ok" is 4, and its total number of "CF" is 13, and the number of "*" is null. Thus we assume that RHD tends to recognize the distinction between the suffixality and non-suffixality of CFs, but LDCE tends not to recognize non-suffixality of CFs, and many suffixal items are categorized into CF.

Thus the manner of listing suffixal CFs is different from dictionary to dictionary. These tables suggest us to take account of the degree of suffixality.

The summary of this discussion is that the degree of suffixality is explicitly reflected in the dictionary, leading us to another linguistic discussion in lexicography. The family membership of

suffix is varied, and it is still beyond the narrow and mechanical classification of CFs. As a result, the concept of suffixality is gradient in between compounding and prototypical suffixation.

As for the degree of suffixality in CFs, we propose the following conditions to classify the CFs.

- (24) a. Whether or not it is bounded to a lexical form of stem
 b. Whether or not it can change the grammatical category of the word
 c. Whether or not it is unstressed
 d. Whether or not it is characteristic of the semantic bleaching or weakening

If a given CF satisfies all the above conditions, it can be considered to be most suffixal. If it does not satisfy one or two of the above conditions, it will be less suffixal. If it does not satisfy none of the above conditions, it is no longer suffixal. Then we roughly propose the following stages of the degree of suffixality in English;

Table 6: *The Degree of suffixality*

I	II	III	IV	V	VI
-fold	-wise	-like	-proof	-fashion	-man
-some		-able	-bound	-style	-boy
-drome			-free		
-gram					
-graph					
-logy					

where the suffixal CFs in Group I cannot work as autonomous or independent lexical form if they are placed in a sentence. They are not realized as autonomous word. They are inherited from the ancient usage of suffix in old Latin or Greek or Anglo-Saxon. Those in Group II were once lexical item but now they are not used as they used to. *Wise*, for example, changes the grammatical category of the stem word. Those in Group III and Group IV are difficult to distinguish from each other. The former, however, is generally more productive than the latter. The items in both groups change the grammatical category of their stem word, and the structural transgressive process works to cause the suffixal use of these items. Those in Group V are nouns in modern English whose grammatical category is changed into adverb, where the grammatical category of the whole word is changed. Those in Group VI are the suffixal CFs in which semantic bleaching is realized, but the change of category is not. *Man* does not necessarily stand for a male person, but it stands for just a person. *Boy* does not necessarily mean a male child or infant. It sometimes means a grown-up person of some social status or work. Moreover, the whole grammatical category is also noun and it is the same as that of stem.

Taking into consideration the above discussion of the characteristics of CFs to recognize a lexical form as a suffix, we would like to show tentatively the following gradience model of the degree of suffixality in English combining forms,

- (25) I > II > III > IV > V > VI

where the less the number is, the more the degree of suffixality is, and the more the number is, the less the degree of suffixality is and, therefore we claim that the more the number is, the more the degree of compoundingness is.

10. Summary

The suffix in English is varied. The suffix formation is closely related to the grammaticalization process of morphologization. Some suffixes are original ones which are inherited from Old English through Middle English. Others are those which are borrowed or originate from Latin, Greek or Anglo-Saxon origins. Furthermore, some others are those which are produced by way of the cognitive process of inventing a new form for a new concept. They are those which are borrowed or originate from lexical form to suffix in terms of the transgressive process from syntax to morphology.

We first discussed the morphologization and transgressive process of rather typical examples of *wise* and *like*. Second, we referred to the grammatical motivation of the transgressive shift of these forms from lexical form in syntax to suffixal form in morphology. Third, we referred to the suffixal combining forms (CFs) and discussed the grammatical variety of CFs. In the course of this discussion, we proposed the dimensional or vectorial system of placing the variety of words from level 0 to Level 4 in free form based words and Level 0 to Level -4 in bound form based words. Finally, we touched upon how the suffixal combining forms are treated in dictionary, which is supposed to prepare another perspective of exploring the detailed discussion of suffixality in lexicography.

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