

Affix and Combining Form

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This paper is an attempt to articulate a theory of word formation based upon a premise that morphology is independent from syntax by taking into consideration the inner mechanism of morphological productivity. The purpose of this research is to explore the grammatical function of word element called "combining form" which is considered to be structurally and semantically placed somewhere in between a lexical item and an affix. Productivity in word formation enables a word or lexeme to expand itself by way of attaching to it prefixes and/or suffixes where the inflectional and derivational process of word formation is realized. A combining form also contributes to the composition and formation of new words by attaching it to a morphological root or stem. It functions like an affix as a bound root, but its semantic content is like an independent lexical item in so far as it mainly originates from Greek or Latin words. After undertaking some degree of grammaticalization, it changes its function, grammatical category, and semantic content in the diachronic or historical process of language change. As a result, the editor's handling of a combining form is varied and differs from dictionary to dictionary. Our discussion leads us to claim that a combining form is to be listed as prefix or suffix, and it is unnecessary in its lexicographical description.

Key words : *Affix, Combining form, Dictionary, Lexicography, Grammaticalization*

1. Introduction

A lexical item is a morphological product of the combination of morphological units in word formation. This combination enables English to expand itself and to produce a huge number of words which we can see in a number of authentic English dictionaries. The words not only of English but also of other languages on this globe are alive and are still dynamically changing and increasing in number. The morphological units of word element have been considered to be either independent free morpheme or dependent bound morpheme. They are typified by lexical item, affix, reduplication, ablaut, truncation, and zero morphemes (cf. Langacker (1987:345)).

The morphological process of word formation is independent of syntax. A word or lexical item is to be listed in a dictionary but not a phrase or sentence. Listed phrases are limited only to those idiomatized or lexicalized in the actual use of language. Aronoff (1994: 13) prefers to call the morphological process of word formation lexeme formation in so far as the latter is characterized by the wider range of the combination of word elements than the former. A lexeme is considered to be the fundamental unit of the lexicon of a language.

One of the commonest ways of composing new words is the morphological device of putting two word elements together. The word element used in this device has been called morpheme which is subdivided into the free morpheme of lexical item and the bound morpheme of affix. However, there seems to be the variety of intermediate morpheme between a lexical item and an affix, which has been called combining form (henceforth CF). A CF turns out to be partly a word or partly an affix: A word; because it is a content word element, and an affix; because it is a bound morpheme. As a result, it is neither a word nor an affix. Then how is the appropriate way to handle this morphological entity?

An intermediate morphological element of CF has been considered a dependent bound morpheme. According to *LDCE3* (*Longman Dictionary of Contemporary English, Third Edition*), a CF is “a form of a word that has a meaning but cannot be used alone, and is used with other words to make new ones such as *Anglo-*, meaning ‘English’ in the word *Anglo-American*.”

However, the same dictionary tells us that *Anglo-* is a prefix, meaning ‘of England or Britain’ with the example of ‘an improvement of *Anglo-American* relations’. Here lies a contradiction. That is, the word ending *Anglo-* is an affix, referring to the actual listing of this dictionary and it is also a CF, referring to its description in this dictionary. Is it possible for the one and same word element to be a CF and an affix at the same time? In other words, is it possible for *Anglo-* to be a CF and an affix at the same time? How does this dictionary deal with this contradicting question?

According to *CED3* (*Collins English Dictionary, Third Edition*), *Anglo-* is listed as a ‘combining form’ meaning ‘denoting English or England’ with the given example *Anglo-Saxon*. *WED* (*Webster’s Third New International Dictionary*) and *OALD4* (*Oxford Advanced Learner’s Dictionary, Fourth Edition*) describe: *Anglo-* is a CF, meaning “of or belonging to England” or “English or British” with some examples of *Anglo-Norman*, *Anglo-Irish* and *Anglo-American*. These three dictionaries take the lexicographical position to approve and accept an intermediate morphological word element called CF.

However, *AHD3* (*American Heritage Dictionary, Third Edition*) says: *Anglo-* is a “prefix [from Medieval Latin *Angli*, Late Latin *Angles*]”. *LDCE3* also claims that *Anglo-* is a prefix, meaning “of England or Britain” like in *Anglophile*. We now find that the meaning of *Anglo-* in all these dictionaries is the same, although the categorical and functional description is different. Thus the lexicographical treatment of *Anglo-* is varied from dictionary to dictionary especially in terms of the lexicographical treatment of each dictionary.

We would like to explore the lexicographical mechanism of the derivational process of English word formation in terms of analyzing the synchronic and diachronic features of the morphological units of affix, combining form and the second word element of a compound. First, we will discuss a number of ways of word formation including inflection, derivation, and CF. Inflection is syntactic but derivation and CF are morphological where we inevitably face the question of explaining adequately the difference between affix and CF. Second, we will analyze the variety of the combination of word elements. We took advantage of the basic morphological units of free form and bound form to distinguish between affix and CF. Third, we will make a detailed discussion of the lexicographical description of word element, focusing on CFs. As a result, we will show that it is varied and different from dictionary to dictionary. Fourth, we will explore the grammaticalization process of CFs in English which mainly originate from Greek or Latin content words. We will also attempt to discuss Bauer’s analysis of CFs and then to elaborate the grammaticalization process of CFs, referring to a number of authentic dictionaries.

2. Word Elements

There are a number of ways of word formation. To form a word the combination of word elements is essential. Words or lexical items in a sentence are considered to be autonomous and independent morphological entities, although affixes are deemed dependent bound morpheme. The difference between lexical free form and suffixal bound form is relative, and there seems to be a gradual morphological cline between the two. Inflectional suffixes are fundamentally involved in syntax in terms of grammatical

number, tense, case, and comparison, although derivational suffixes are involved in morphology in terms of the key concept of productivity in word formation.

Before we move on to the next stage of discussing the lexicographical description of word elements, we would like to touch upon briefly three procedural mechanisms of word formation. One is inflection and the other two are derivation and CF. In either way, the basic morphological unit of word element has been acknowledged to be bound form in terms of the productivity in word formation. The word element called morpheme has traditionally been considered to be the smallest unit of meaning including a free morpheme of independent lexical item and a bound morpheme of dependent affix. The latter is typified by affixes; prefix which is an affix attached before a root or stem like in *un-kind*, *en-large*, *aero-plane*, *contra-diction* and suffix which is an affix attached after a root or stem like in *friend-ly*, *child-hood*, *quick-ly*, *agree-ment*. In addition, a CF should be considered to be a bound morpheme of dependent word element. We would like to make a brief discussion of these three varieties of word elements of bound morpheme.

Noticeably, the linguistic import and mixture of foreign languages such as Greek, Latin, Old French, Scandinavian languages, and so forth caused English to change itself to a great extent in its categorical, semantic and phonological aspects. According to Barber (1976: 232), the chronological distribution of words is characterized by a general resemblance to that for French and Latin loans. That is to say, there are few examples before about 1520; the number rises until about 1590; there is a peak period between about 1590 and 1660; and then comes a decline in the later part of the seventeenth century.

2.1 Inflection

Inflection is supposed to be a grammatical marker of number, case, tense, and comparatives in English sentence formation. It is fundamentally syntactic in its grammatical and structural category and function. For instance, the word ending of a verb undergoes its inflectional change under the grammatical condition of singularity or plurality of nominatives. The singular third person subject changes the predicate verb form of a given sentence with the present tense like in *Mary lives in London*. The genitive -'s undertakes the meaning of belonging and possession in modern English like in *John's book*. The past tense of regular predicate verbs is characterized by *-ed* form like in *John lived in London*. In the formation of noun plurals, they have the inflectional ending of *-(e)s* for plural forms except a number of irregular forms. Thus unlike derivation, inflection is characterized by lexemic paradigms (cf. Katamba 1993) where a set of regular and predictable word forms works out. The selection of a specific word form is determined by syntax where inflectional paradigms are actually shown regarding the agreement of tense or number.

In Old English or Middle English, the inflectional word endings were far more complex than we now see in Modern English. After the leveling age of English word endings, the procedural word ending system was simplified to a great extent, and the English language lost most of word endings. As for the diachronic or historical aspect of conjugation, it changes itself according to the grammatical mood, tense, number and person. Undertaking the diachronic process of language change, many words changed themselves in form, meaning and pronunciation, including the grammatical change from strong inflectional verb form to weak inflectional verb form.

As for gradable adjectives of one syllable, they usually take the adjectival inflectional suffix except

for a few forms such as *right*, *wrong*, and *real*. In the form of adjectival and adverbial comparatives, they are typified by the inflectional word endings of *-er* for comparatives and *-est* for superlatives. Then it is worthwhile to note that the comparative adjectival suffix *-er* is generally attached to monosyllabic adjectives. Thus we acknowledge that inflection is a grammatical marker of number, case, tense, and comparatives in English sentence formation.

2.2 Derivation

Derivational word endings are not dependent on the syntactic environment in their derivational process of word formation. *Unfriendly*, for instance, is composed of the negative prefix *un-*, the stem *friend* and the adverbial suffix *-ly* with the derivational order of stem (*friend*)-suffix (*-ly*)-prefix (*un-*), and *unhappily* is composed of the negative prefix *un-*, the stem *happy*, and the adverbial suffix *-ly* with the different derivational order of stem (*happy*)-prefix (*un-*)-suffix (*-ly*). Unlike an inflectional word ending, a derivational word ending is apt to change the grammatical category of its stem like in *enlarge* (V) from *large* (Adj) or to change the meaning of its stem drastically like in the negative *uncertain* from the positive *certain* or like in *childhood* which is an abstract noun derived from a common and concrete noun *child*.

Derivation is thus a morphological device to form new words by attaching some kind of affix to a stem word. In derivation, affixation is the main procedural process of word formation to form new words by attaching new word beginnings called prefixes and/or word endings called suffixes. Furthermore, the derivational process is multiple in its repetitive arrangement of *make* like in *re-re-remake* or the morphological or derivational expansion of *nation* like in *nation-national-nationalize-nationalization*.

Katamba (1993: 95) discusses Kiparsky's three strata to explain adequately the inflectional and derivational process of word formation in terms of the levels of morphological boundary in each hierarchical stratum. This assumption of hierarchical ordering system takes into consideration the irregular type of inflection of number or conjugation like in *child-children* and *awake-awoke-awaken*.

We also need to take into account diachronic conditions to understand the category and function of derivational affixes more in detail. The diachronic change often takes place in the collocational use of affix. The suffix *-stere* in Middle or Chaucerian English was the grammatical marker of female agent like in *begge-stere*. However, the word with *-ster* like in *trick-ster* in Present English does not mark female agent.

Noticeably, the word element *-smith* like in *blacksmith* and *wordsmith* is a suffix in *LDCE3* and *-moger* like in *rumour-moger* and *warmonger* is also a suffix in *LDCE3*, although *AHD3* describes it 'usually used in combination'. The word element *-wright* in *wheelwright* and *playwright* is a suffix in *LDCE3*, although *RHD* takes it up as 'usually used in combination'. The bound morpheme *-scape* which comes from the Dutch *landschap* functions as an affix in *OALD4* and *LDCE3*, although *AHD3* regards it as 'often usually in combination' and other dictionaries do not take it up. These word elements are controversial in deciding whether they are affix or CF. Then the following crucial question comes into being: What is the definition of CF?

2.3 Combining Form

There may be an intermediate morphological unit between an affix and a word in word formation, but dictionaries such as *LDCE3* and *AHD3* do not take the position to approve it. As Bauer (1983:213) points

out, “a type of word formation, i.e. combining form or neo-classical compound, has received scant attention in the literature on morphology”. It is like an affix in function and it is also like a lexical item in its semantic and cognitive content. Thus some scholars are apt to recognize that there should be some sort of intermediate bound morpheme in between the two.

After discussing calque or loan translation which is a way of exploiting the resources of other languages without quite borrowing any words directly, Trask (1996: 21) touches upon morphemes which can be imported and used as building blocks for constructing new words. Such building blocks are combining forms, and English took advantage of them to create technical and scientific terms which extracted from Greek and Latin. This is exemplified by words such as *thermometer*, *microphone*, *television*, and so forth.

Thus far CF has not been recognized as the established linguistic technical term in morphology like affix and lexical item. Many dictionaries of linguistics or reference books of English grammar do not touch upon this term, although some authentic dictionaries list this term in different way. *LDCE3* says for instance that a CF is:

- (1) a form of a word that has a meaning but cannot be used alone, and is used with other words to make new ones such as ‘Anglo-’, meaning ‘English’, in the word ‘Anglo-American’.

In this dictionary, *combining form* is used for an element that contributes to the particular sense of words (as with both elements of *bio-graphy*), as distinct from a prefix or suffix that adjusts the sense of or determines the function of words (as with *un-*, *-able*, *-ation*).

The CF is considered to be a prefix in *AHD3*, which describes:

- (2) A modified form of an independent word in English or in a language such as Greek or Latin from which English has borrowed that occurs only in combination with other forms. It combines with words, affixes, or other combining forms to form compounds or derivatives, as *electro-* (from *electric*) in *electromagnet* or *geo-* (from Greek *geo-*, from *ge-* “earth”) in *geochemistry*.

According to *AHD3*, a CF is a modified independent lexeme which is borrowed from Greek or Latin. However, this is not the case in so far as it is dependent on other morphological units of affix or word element. CFs such as *geo-* are not modified independent lexeme like in *geochemistry* and *geography*. And the term ‘modified’ here is vague to explain adequately the morphological modification from an independent original form to its modified form. The word element of *geo-* is not an independent lexeme but was once a diachronically independent lexeme *ge* (earth). Thus *geochemistry* is not a compound but a derived form of lexical item. Thus *geo-*, taking the position of word beginning, can be considered to be a prefix rather than a CF.

Consider the following examples of CF:

- (3) a. *anthropology*
b. *monarchy*

- c. *duty-free*
- d. *syndrome*

In (3a), both *anthropo-* and *-logy* are CFs, making up a combined word. The word in (3b) is also a lexeme with the combination of the CFs of *mono-* and *-archy*. In (3c), *-free* is listed as a CF in dictionaries such as *WF* and *CED3*, but it goes without saying that it also works out as a free morpheme. So dictionaries such as *AHD3* and *WED* do not list this word element as a CF in so far as the CF is requested to be morphologically bound in its morphological process of word formation. In (3d), the preceding morphological unit *-syn* turns out a prefix and the following morphological unit *-drome* is considered a CF.

Taking into consideration the above discussion, we would like to summarize that a CF functions as a bound form, and its lexicographical treatment and description is different from dictionary to dictionary. This difference or the variety of the lexicographical treatment of CF causes us to claim that the morpho-grammatical concept of CF is not lexicographically established.

3. Combination of Word Elements

We have three kinds of the combination of word elements in word formation. They are free form morpheme (FF for short), bound form morpheme (BF for short) and CF. The combination of these three word elements shows the variety of the types of word formation. The combination of [FF+FF] turns out to be a compounding word like in (4a) below. The combination of [FF+BF] produces a word of suffixation like in (4c). Contrastively the combination of [BF+FF] turns out to be a word of prefixation like in (4g). The combination of these three word elements is to be listed hypothetically with some examples as follows:

- (4) a. FF + FF: *heavy-duty dashboard daylight*
- b. FF + CF: *duty-free trustworthy fire-proof*
- c. FF + BF: *kindness active friendly agreement childhood*
- d. CF + FF: *agriculture neuro-science stepmother*
- e. CF + CF: *anthropology telekinesis syntax aerodrome*
- f. CF + BF: *criptic psychic contrary phobic nautic*
- g. BF + FF: *enshrine decode dishonest unkind insane*
- h. BF + CF: *precede provide permit insist conceive expel*
- i. BF + BF: *ultraism unify*

However, we point out that this list is far from being good enough to sort out the variety of the combination of these three word elements in so far as they are difficult to determine whether they function as CF or as affix. For example, some dictionaries such as *OALD4* and *CED3* describe *agro-* as CF but others such as *AHD3* and *LDCE3* describe it as BF (prefix). According to *AHD3* and *LDCE3*, *anthropo-*, *tele-*, *syn-* and *aero-* are all BFs (prefixes) rather than CFs.

Furthermore, word elements such as *-cede*, *-vide*, *-mit*, *-sist*, *-ceive*, *-pel* in (4h) are regarded as morphological root, although they are not handled appropriately in any authentic dictionaries.

Nevertheless, we would like to see them as CF in its basic morphological function.

For instance, the word element *-sist* in *consist* and *insist* is the Latin *sistere* which means 'to cause to stand'. The second word element in this word should be a bound form with the semantic Latin contentedness. However, *-sist* is not listed in any authentic dictionary. Similarly, the word element *-mit* in *permit* and *admit* is the Latin *mittere* which means 'to send', and *-vide* in *provide* is the Latin *videre* which means 'to see'. And *-cede* in *precede* and *concede* is the Latin *cedere* which means 'to go or to yield'. Others are *-pel* which is *pellere* in Latin, meaning 'to drive' and *-ceive* which is *capere* in Latin, meaning 'to take'. The following is the list of CFs of this kind:

- (5) a. *-sist*: (L. *sistere*<to cause to stand>): *consist insist resist persist*
 b. *-mit* (L. *mittere* <to send>): *admit permit remit commit submit*
 c. *-cede* (L. *cedere*<to go>): *precede concede proceed exceed*
 d. *-pel* (L. *pellere*<to drive>): *expel compel repel impel propel*
 e. *-ceive* (L. *capere*<to take>): *receive conceive perceive*
 f. *-spect* (L. *spectare*<to look at>): *expect prospect inspect respect*

4. Lexicography of CFs

A word is different from a phrase in so far as the former can be listed in a dictionary, but the latter cannot. Thus morphology has its own module. We already mentioned how a word element within a word is listed is varied from dictionary to dictionary. We would like to look up a number of dictionaries to see how the above-mentioned word element *Anglo-* is listed in terms of whether it is an affix or a CF. The result is as follows:

	<i>OED2</i>	<i>OALD4</i>	<i>LDCE3</i>	<i>CED3</i>	<i>AHD3</i>	<i>RHD</i>	<i>WED</i>	<i>WF</i>
<i>Anglo-</i>	CF	CF	ok	CF	ok	CF	CF	CF

where *ok* stands for affix and CF stands for combining form in the above table. Dictionaries used and added here are *OED2* (*Oxford English Dictionary, Second Edition*), *RHD* (*Random House Dictionary*), *WF* (*Word Finder*). The lexicographic treatment of *Anglo-* is thus varied.

For more detailed analysis, we would like to take some other examples. The word element *-like* in *childlike* is described as a CF in *WF*, although other dictionaries take it up as suffix. The Greek word element *-(o)logy* is suffix only in *AHD3*, *LDCE3*, although others such as *OALD4*, *CED3*, *RHD*, *WED* take it up as CF. The word ending *-most* like in *southernmost* or *topmost* is a CF in *RHD*, although it is treated as suffix in other dictionaries. *-Free* like in *duty-free* and *trouble-free* is CF in *OALD4*, *CED3*, *WF* and *WED*, although it is a suffix in *LDCE3* and *RHD*.

We have other word elements which are rather difficult to decide whether they are suffix or CF. They are to be listed in the following table:

	<i>OED2</i>	<i>OALD4</i>	<i>LDCE3</i>	<i>CED3</i>	<i>AHD3</i>	<i>RHD</i>	<i>WED</i>	<i>WF</i>
<i>-arch(y)</i>	ok	CF	ok	CF	ok	comp	CF	CF
<i>-bound</i>	ouic	ϕ	ϕ	ϕ	ϕ	CF	uupp	ϕ
<i>-centric</i>	ok	ϕ	ϕ	ok	ok	CF	CF	CF
<i>-cide</i>	ok	CF	ok	CF	ok	comp	CF	ok
<i>-cracy</i>	ok	CF	ok	CF	ok	ϕ	CF	CF
<i>-craft</i>	ouic	CF	ok	CF	ok	CF	ϕ	ouic
<i>-crat</i>	ok	ϕ	ok	CF	ok	comp	CF	CF
<i>-drome</i>	CF	ϕ	ok	CF	ok	ok	CF	CF
<i>-ectomy</i>	CF	CF	ok	CF	ok	CF	CF	CF
<i>-free</i>	ϕ	CF	ok	CF	ϕ	ok	CF	CF
<i>-fuge</i>	ok	ϕ	ϕ	ok	ok	ok	ok	CF
<i>-gamy</i>	ok	CF	ok	CF	ok	comp	CF	ϕ
<i>-gon</i>	ok	CF	ok	CF	ok	ok	CF	CF
<i>-gram</i>	comp	CF	ok	CF	ok	comp	CF	CF
<i>-like</i>	ok	ok	ok	ok	ok	ok	ok	CF
<i>-logue</i>	comp	CF	ok	CF	ok	CF	CF	CF
<i>-(o)logy</i>	ϕ	CF	ok	ok	ok	CF	CF	CF
<i>-meter</i>	CF	CF	ok	CF	ok	borrowed	ϕ	CF
<i>-most</i>	ok	ok	ok	ok	ok	CF	ok	ok
<i>-phone</i>	CF	CF	ok	CF	ok	comp	CF	CF
<i>-proof</i>	ϕ	comp	ok	CF	ouic	CF	ϕ	ouic
<i>-speak</i>	ok	ok	ok	ok	ϕ	ϕ	ϕ	ϕ
<i>-sphere</i>	ok	CF	ok	CF	ϕ	CF	ϕ	CF
<i>-wise</i>	ϕ	ok	ok	CF	ouic	ok	CF	ok
<i>-worthy</i>	comp	comp	ϕ	ϕ	ok	ϕ	ϕ	CF

where 'comp' stands for the word element used in compound, 'ouic' stands for the case of 'often used in combination', and 'uupp' stands for the case of 'usually used postpositively'. The symbol ϕ stands for the case of non-listing. And 'borrowed' stands for the case where the word concerned is borrowed from other languages.

In the course of the detailed discussion of the above, we find that *LDCE3* and *AHD3* do not recognize CF. That is, we cannot find any word element which is listed or described as CF in these two dictionaries. These two dictionaries do not take the point of view of approving and accepting CF. This is because they acknowledge that it is difficult to define CF and to decide whether or not it is an affix.

This table noticeably shows for instance that *-speak* like in *computerspeak* and *newspeak* is an affix in *OED*, *OALD4*, *LDCE3* and *CED3*, although other dictionaries do not mention it. The word ending *-wise* is either a suffix or a CF. *-Proof* like in *water-proof* and *fire-proof* is either a suffix or a CF and it is also the second element of a compounding word. *AHD3* simply describes that *-wise* is the word ending often used in combination (ouic). The word ending *-archy* is a suffix in *AHD3* and *LDCE3*, although it is a CF in *OALD4*, *CED3*, and *WED*, and it is the second word element of CF in *RHD*. Dictionaries such as *OED2*

and *WF* do not list it as an lexicographical item of word element.

5. Grammaticalization

Now we face the problem to decide whether or not a given word element is an affix or a CF. As a matter of fact, it is difficult to distinguish between a CF and an affix. According to Heine et al. (1991), the two terms of “bleaching” and “abstraction” in particular have found wide currency in grammaticalization. They are the key terms to understand the cognitive process of language change from lexical to grammatical or functional dimension in word formation.

5.1 Bauer's Analysis

Bauer (1983) makes a detailed discussion about CFs in terms of word-based morphology. He gave a detailed discussion of the word elements of neo-classical word-formation. They are not independent free morphemes but dependent bound morphemes. They really fit the definition of affix rather than the definition of compound.

Bauer points out that there is an embarrassing conclusion that there are lexemes made up of a prefix and a suffix with no root, being exemplified by words such as *biocrat*, *electrophile*, *protogen*. He claims that the notion of a prefix and a suffix occurring together with no root leads to a contradiction. However, we are reasonably able to assume bound roots such as *-crat*, *-phile*, and *-gen* in order to realize the morphological function of the word beginnings in these words. He also claims with negative examples like **electroness* and **electroesque* that only the final combining forms rather than suffixes can combine with initial combining forms. However, this is not the case. We can show some examples of this combination like *cript-ic*, *psych-ic* and *contra-ry*. He also claims that *super-* rather than *hyper-* does not appear to be prefixed to final combining form at all because both are synonymous. But we have the examples of *superable* and *supergene*.

In addition, Bauer feels worried about the degree of the difference of hyponymy between prefixes and initial combining forms. He says that initial combining forms in general produce more hyponyms of the base than prefixes, but this is no more than a tendency. Then he points out that *pseudoacid* is not a kind of *acid*. The term ‘tendency’ here is not good enough to support his hypothesis.

He also claims, “If combining forms are distinct from affixes, it must be asked whether they are distinct from roots. Generally speaking, the productive use of bound roots in contemporary English is very restricted”. However, we also have affixes whose productive use is very restricted like *-ide* in *chloralide* and *lanthanide*.

Thus Bauer's analysis is not persuasive enough to explain the difference between affix and CF, although he attempted to propose explicitly the morphological function of CFs in terms of the diachronic entity of neo-classical compounds.

5.2 Grammaticalization of CFs

The process of word formation is the cognitive process of problem-solving in composing a new form for a new concept by borrowing or modifying an existing lexical form into a morphological entity of suffix. Thus many suffixes are invented through its cognitive necessity in terms of borrowing and modifying existing lexical forms, resulting in the variety of CFs which can be considered to be suffixal.

The grammatical change from old and existing form into new form takes place by grammaticalization. Thus it goes without saying that a number of suffixes and combining forms are diachronically grammaticalized from old content forms.

This process of grammaticalization is suggested by Hopper and Traugott (1993:7) in the “cline of grammaticality” of the following type:

- (6) a. content item > grammatical word > clitic > inflectional affix
 b. a basket *full* (of eggs...) > a *cupful* (of water) > *hopeful*

where a lexical or content item tends to be functionalized into a grammatical word with its semantic bleaching. A content item tends to change itself categorically and semantically in the direction of grammatical word, clitic, and inflectional affix. In (6b), for instance, the suffix *-ful* originates from the content item *full* in its categorical and semantic change of grammaticalization.

Consider the following:

- (7) Now the birth of Jesus Christ was on this *wise*:

— *Authorized King James Version, Matthew I, 18*

The above *wise* in this context is a free morpheme and a lexical item of noun, meaning ‘way’ or ‘manner’. However, this usage is now obsolete and is only used in the idiomatic expression of *in no wise* or *in any wise*. It originates from OE *wīse*, meaning ‘manner’. This term is now survived in the functional usage of suffix like in *clockwise*, *crabwise* and *lengthwise*, retaining the original meaning of ‘way’ or ‘manner’. The grammatical category is changed from a content word of noun to a functional word element of suffix. Then we claim that this is a good evidence of grammaticalization in word formation.

As for suffixes such as *-cide* and *-fold*, they originated from old content words such as a Latin *caedere* (*strike*, *kill*) and OE *feald* (*fold*). Existing content words sometimes turn themselves into function words or word elements including affixes or CFs in so far as the grammaticalization process works out. In other words, the grammatical change from content to function word is characterized by the dynamic diachronic process of grammaticalization.

According to Hopper and Traugott (1993:131), the adverbial suffix *-ment* was originally an autonomous word, ‘Latin *mente* + ablative case.’ And they claim: The history of the French suffix *-ment* is a straightforward instance of grammaticalization; a new grammatical formative has come into existence out of a formerly autonomous word. Thus an affix like *-ment* originates from an autonomous and independent lexeme.

As for a CF, it also originates from an autonomous word. *Aqua-*, for instance, meant ‘water’, *aero-* had the meaning of ‘air’, and *-gram* stood for ‘letter’ respectively. Now we find that there is no fundamental difference between the suffix *-ment* and CFs such as *aqua-*, *aero-*, and *-gram*.

Furthermore, a CF functions as a suffix, and it cannot function by itself as an autonomous and independent lexical item. Thus it cannot be a word element of free morpheme. CFs such as *aero-*, *agro-*, *-drome* *-logy* are morphologically dependent in word formation. Consequently, we claim that a CF is a kind of affix in so far as it cannot occur independently of the stem to which it attaches, even if it is

generally of Greek or Latin origin.

The term *morphology* is generally acknowledged to be composed of the morphological units of *morpho-* and *-(o)logy*. *AHD3* describes that the former is a prefix like in *morphogenesis* and the latter a suffix like in *phraseology*. However, *WED* says that *morph(o)-* is a CF like in *morphodifferentiation* and *-(o)logy* is also a CF like in *sociology*.

Here we see a difference of the way of describing the same two morphological units between the two dictionaries. Furthermore, the term *syntax* is composed of the two morphological units of *syn-* and *-taxis* where the former is listed as prefix in both dictionaries, the latter, however, is listed as prefix in *AHD* and as CF in *WED*. Thus many morphological units are listed and described differently from dictionary to dictionary in terms of synchronic and diachronic analysis of each lexicographer. Then what is a difference between an affix (prefix and suffix) and a CF and a word element of a compounding word?

According to Wierzbicka (1985), it is high time that linguistics started transforming its old dream of being 'a quest for meaning' into reality. What is meant by 'reality' in this context? It means the real lexicographical state of affairs of any significant word element rather than focusing upon describing the meaning of a given word or phrase.

The word element *-speak* in *computerspeak* and *physics-speak* is a suffix in *OED*, *OALD4*, *CED3*, *LDCE3*, although it is not listed in *AHD3*, *RHD*, *WED*. As for the word ending *-type*, it is described as an affix in *OED2* and *RHD*, although it is a CF in *CED3*, being not derived from Greek or Latin origin. *-Wise* is a suffix in *AHD3* and *LDCE3*, although it is a CF in *CED3* and *WED*. Contrastively, it is categorized just as a noun in *LDCE3* like in *pricewise*, *crosswise*, and *lengthwise*.

Interestingly, the word ending *-proof* like in *fire-proof* and *water-proof* is a suffix in *LDCE3*, but it is a CF in *CED3* and *RHD*. *AHD3*, however, describes it only as "often used in combination", and *OED2* and *WED* do not explicitly list this word element. As a result we find that the lexicographical treatment of *-proof* is in fact varied and ambiguous in its categorical function.

We now see the term *trust-worthy* which is composed of the two word elements of *trust* and *worthy* where the former is a free form of lexical item and the latter is a suffix in *AHD3*. According to *WF*, however, *-worthy* is listed as a CF and *WED* lists it just as an adjectival word element of free form. It is also listed as the second word element of compound in *OED2* and *OALD4*. Now we come to the question: Is the morphological unit *-worthy* a suffix or a CF or the second word element of the compound *trust-worthy*? The way of listing and describing this kind of morphological unit is different from dictionary to dictionary.

The combination of word elements is complex in its morphological structure. We find in English a variety of ways of word formation including inflections, derivations, compounds, clippings, acronyms, blendings, and back-formations. We consider the morphology of a language to be the general laws of its grammatical structure in word formation. It encompasses a linguistic component or module which is independent from syntax and phonology, although each linguistic component or module is interactive in the morphological process of word formation.

6. Conclusive Remarks

Words have their own diachronic and synchronic reason for their category, meaning and inner mechanism in word formation. In the course of diachronic change of word, they are almost like something

animate. They change their form, function, and manner of structural behavior according to the context where they are used. In language this can be verified by means of some grammaticalization process in morphology which is a cognitive process of corresponding a new linguistic form to a new idea of concept in its actual use of conversation.

We claimed in this paper that a CF functions as affix, although they look different in grammatical category and function. First, we discussed a number of ways of word formation including inflection, derivation, and CF. Inflection is syntactic but derivation and CF are morphological where the question of explaining adequately the difference between affix and CF is inevitable in terms of the lexicographical description of them in authentic dictionaries. Second, we touched upon the variety of the combination of word elements. We took advantage of the basic morphological units of free form (lexical item) and bound form (affix and CF), attempting to distinguish between affix and combining form. Third, we made a detailed analysis of the lexicographical description of word element, focusing on CFs. As a result, we found that it is varied and different from dictionary to dictionary. Fourth, we discussed the grammaticalization of CFs in English which mainly originate from Greek or Latin content words. We first attempted to discuss Bauer's analysis of CFs and then to elaborate the grammaticalization process of CFs, referring to a number of authentic dictionaries.

A CF is not an independent free morpheme but a dependent bound morpheme. And so is an affix. A CF is generally considered to originate from an ancient Greek or Latin word which was an independent loan word element. However, owing to grammaticalization, this loan word element underwent semantic and categorical change of reanalysis in its actual use. As a result, a CF diachronically came to change itself into an affix in its grammatical and lexicographical function.

The lexicographical handling of CF is different from dictionary to dictionary. As a result of observing and sorting out CFs in a number of authentic dictionaries, we found that the description of CF is varied and different from dictionary to dictionary. Some dictionaries such as *AHD3* and *LDCE3* do not take the position to approve and accept the lexicographical concept of CF. However, other dictionaries such as *CED3*, *RHD*, *OALD3*, *OED2*, and *WED* take advantage of this concept of CF. However, the lexicographical handling of CFs in these dictionaries is different from each other with some confusion. Some dictionaries list a word element as CF, but others list it as affix. There must lie some portion of the degree of suffixality which is difficult to determine. In so far as we see the diachronic process of language change in word formation, we do not take the lexicographical position to approve and accept the morphological entity of CF. And we would like to regard CF as suffix in their lexicographical function.

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- CED3: Collins English Dictionary, Third Edition*
- Cobuild: Collins Birginingham University International Language Database*
- LDCE3: Longman Dictionary of Contemporary English, Third Edition*
- OED2: Oxford English Dictionary, Second Edition*
- OALD4: Oxford Advanced Learner's Dictionary, Fourth Edition*

RHD: *Random House Dictionary*

WED: *Webster's Third New International Dictionary*

WF: *The Reader's Digest Oxford Word Finder*

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