

# Lexicon and Cognition

## —A Study of Listed Syntactic Objects—

Morio NISHIKAWA

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This paper aims at exploring the morphological process of word formation in terms of the analysis of the lexicalization process of syntactic objects. A word has been considered to be composed of morphemes in the syntagmatic stance of morpheme-based morphology. However, this stance has been controversial and the other stance of word-based morphology tends to work today. A phrase oftentimes changes itself into a word in its grammatical category and function. The morphological process of drastic change from phrase to word has not yet been so far discussed in detail. Not only a compound but also a listed syntactic object turns out to be a word which is coined from a phrase in terms of the non-compositional and idiosyncratic process of lexicalization. It is stored in our mental lexicon of brain. It is also a case of morphological creativity in so far as it is coined beyond the affixal (inflectional or derivational) constraints of productivity. Even a sentence sometimes functions as a word as in *A God-is-dead theology*. In this research we will make a critical discussion at first of the correspondence rules of representational modularity provided by Jackendoff (1997). Second, we will discuss the syntagmatic stance of morpheme-based morphology compared with the paradigmatic stance of word-based morphology. Third, we will discuss a number of conditions of listedness in our mental lexicon in terms of the analysis of lexicalized syntactic objects. Fourth, we will account for the morphological process of lexicalizing syntactic objects in terms of lexical idiomatity. Fifth, we would like to observe and classify the variety of listed and lexicalized syntactic objects including Sentence, Noun Phrase, Prepositional Phrase, Phrasal Verb and so forth. In the last, we will attempt to claim that lexicalized phrases are the cognitive products of creativity (i.e. non-productive innovation) which is supported by analogy.

**Key words :** *Morphology, Productivity, Creativity, Mental Lexicon, Analogy, Idiomatity*

### 1. Introduction

Language is a symbolic entity to realize our mental process of conceptualization in the actual use of language. Not only a phrase but also a word is the vehicle by which the cognitive content of meaning is conveyed in the form of phonological entity.

Words are complex in their system and they have their own modular system which is applicable only to words. The linguistic process of word formation has its own synchronic and diachronic reasons. A word is characterized by some portion of sound and meaning. It is based on a memorized pairing between sound and meaning as its phonological form bears a cognitive content of meaning.

A word consists of its constituent word elements. They are lexical form (LF), affixal form (AF) and combining form (CF). AF and CF, which are bound morphemic, are actualized in the derivational process of productivity and LF, which is free morphemic, turns out to be a morphological stem in word formation.

Words are ubiquitous in all human languages. Typologically it is sometimes difficult to draw a line between a word and a sentence. In Spanish, *hablo*, for instance, is not a word but a sentence, meaning “I speak.” Words are also considered to be stored in our brain as a set of symbolic entity. In the cognitive process of production and understanding in communication, we tend to retrieve words from our mental storage of lexicon and to construct grammatical phrases or sentences.

There are many morphological devices of word formation; e. g. inflection, derivation, compounding, cliticization, blending, clipping, acronym, metanalysis, back formation and so forth. In addition, we acknowledge that there is another morphological device of lexicalization where a word is newly coined from a phrase. For instance, the word *out of town* which is structurally a prepositional phrase is lexicalized into a word and it can also be expanded into *out-of-towner*

which means “a visitor from another town or city” (*American Heritage Dictionary, The Third Edition*: henceforth AHD3). A part of verb phrase *has-been* changes itself into a nominal word which means “one that is no longer famous, popular, successful, or useful” (AHD3). *One-upmanship* means “the art of outdoing or showing up a rival or competitor” (AHD3). These lexical forms which are syntactically phrasal are composed neither of inflection nor of derivation but are coined from a phrase and they are listed in an authentic dictionary.

The purpose of this paper is to explore the productive mechanism of word formation in terms of coining a new word from a phrase. A word has been considered to be composed of morphemes which have been defined to be the smallest unit of meaning. Nonetheless, we see the case where a word is coined from a phrase. A phrase, which is a composite unit of sentence, belongs to syntax, but it oftentimes changes itself into a word in its grammatical category and function.

The morphological process of coining a word from a phrase has not been discussed in detail. Our discussion on this issue will enable us to gain a new insight into some aspects of the modular system of word formation in English. First, we will make a critical discussion on the correspondence rules of representational modularity provided by Jackendoff (1997). Second, we will discuss whether or not a morpheme-based morphology functions well enough to explain adequately the morphological process of coining a word from a phrase. Third, we will refer to the function of the mental dictionary of lexicon where our lexical knowledge is stored in our brain, taking into consideration the morphological conditions of listedness. Fourth, we would like to classify the variety of listed syntactic objects including Sentence, Noun Phrase, Prepositional Phrase, Phrasal Verb and so forth. Lastly, we will distinguish the morphological productivity from creativity, paying attention to the morphological process of coining a word from a phrase in terms of the cognitive process of creativity by analogy.

## 2. Lexical Licensing of Jackendoff (1997)

According to Jackendoff (1997: 85), a lexical item is regarded as a triple of phonological, syntactic and conceptual features which are stored or listed in our long-term memory. He claims that phonological, syntactic and conceptual representations should be strictly segregated from each other, but they are coordinated through correspondence rules which constitute the interactive modules between the linguistic representations. Then he replaces traditional lexical insertion into syntactic derivations by correspondence rules; correspondence rules between Phonological Structure (PS), Syntactic Structure (SS) and Conceptual Structure (CS). This approach is termed by him lexical licensing which is apt to explain adequately the modular system in word formation. As a matter of fact, any lexical item is characterized by the grammatical features of phonological, syntactic and conceptual or semantic components. It comes into being as a result of the integration of the features of these three linguistic components. Taking *the cat* for example, Jackendoff proposes the following modular correspondence between PS and SS and CS:

The phonological structure of *the cat* is represented as in  $[[\text{ðə}] + [\text{kæt}]]$  in terms of the combination of vowels and consonants in English. Its syntactic structure is NP ( $[[\text{Determiner}] + [\text{Noun}]]$ ) where  $[\text{Determiner}]$  is to be filled by the definite article *the* and  $[\text{Noun}]$  represents a countable and singular noun in its grammatical feature. Furthermore, the conceptual structure of *the cat* consists of conceptual features such as  $[\text{TOKEN}]$ ,  $[\text{INSTANCE OF } [\text{TYPE: CAT}]]$  and  $[\text{DEF}]$  where  $[\text{DEF}]$  stands for a THING which is definite. Thus even a simple noun phrase like *the cat* is supported by the lexical licensing which interacts the modular correspondences between PP, SS and CS as in:

- (1) a. PP (Phonological Structure) :  $[[\text{ðə}] + [\text{kæt}]]$   
 b. SS (Syntactic Structure) :  $[[\text{Determiner}] + [\text{Noun}]]$   
 c. CS (Conceptual Structure) :  $[\text{TOKEN}]$   
 $[\text{INSTANT OF } [\text{TYPE: CAT}]]$   
 $[\text{Thing}[\text{DEF}]]$

This modular correspondence is not applicable to the interrelationship between the phrase *on the spot* and the word *on the spot* as in *a on the spot speech* or *They applied the job on the spot*, which means *impromptu* or *instant(ly)*, because it does not account for the morphosyntactic relation to make up the latter from the former.

Jackendoff's linguistic stance of lexical licensing takes into consideration the modular system of language and is

trying to postulate an integrated syntactocentric view of language in terms of the consequence of Representational Modularity. It points out the oddity of the traditional lexical insertion of the early lexicalist hypothesis. Oddity because it does not take account of the complex and detailed aspects and inner mechanism of word formation. There remains, however, the problem why he puts a key role on syntactic representation, and how does his modular correspondence model deal with the morphological process of the drastic change from a phrase to a word in terms of the analysis of idiomatized or listed syntactic objects.

### 3. Morpheme-Based Morphology and Word-Based Morphology

Whether a word is to be explained adequately in morpheme-based morphology or in word-based morphology has been controversial. Structuralist linguists claimed that there works out the concept of morpheme, the smallest meaningful unit of word in terms of the syntagmatic stance of compositionality. Thus the compositional accumulation of linguistic units in form and meaning has been considered to be a summarized set of word or phrase (including a maximal phrase of sentence). The morpheme-based morphology is applicable only to the transparent or paraphrasable unit of phrase. It does not treat the Gestalt of word meaning which is characterized by the idea that a symbolic configuration is so unified as a whole that its meaning cannot be derived from a simple summation of the meaning of its each part. Furthermore, the morpheme-based morphology is characteristic of compositionality. A word, therefore, is composed of a certain number of word elements of morpheme. It turns out to be a product of the syntagmatic combination of word elements. In other words, morphemes are considered to be linguistic materials to build up a lexical architecture of word whether it functions as content or function word.

This is exemplified by *Childhood* which stands for “the state or condition of being a child” is due to the combination of the root morpheme of *child* and the affix morpheme of *-hood*. *Untie* consists of the affix morpheme of *un-* and the root morpheme of *tie*, standing for the reversed meaning of *tying*. A rather complex lexical architecture like *internationalization* consists of one stem of *nation* and one prefix *inter-* and three suffixes *-al*, *-ize*, and *-ation*. Moreover, a compound like *wrist watch* is a word which consists of two free morphemic forms of lexical item. Thus we see that the combination of stem and affix causes us to build up the lexical architecture of word.

However, the theoretical validity of the morpheme-based morphology is controversial. As Aronoff (1976) points out, there is a class of *hapax legomena* morphemes which only occur in one English word as in *cranberry* morphs. In this example, the word element *cran-* is not a ‘minimal meaningful element’ and it causes some troubles to acknowledge the basic concept of ‘morpheme’. Furthermore there sometimes exists the case where there is no way to draw a line between morphemes and words as in *up(-)*, *self(-)*, *all(-)*, *under(-)*, *(-)person*, and *(-)proof*.

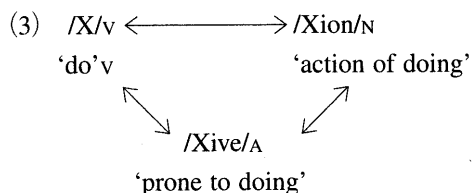
We have another type of word formation which we would like to call idiomatized phrasal word. It is also called by Di Sciullo and Williams (1987:6) the listed syntactic units. Its whole meaning is idiosyncratic and is more than the summation of the compositional meaning of each constituent word element. *Green house* does not mean “a house which is green,” but it means “a structure, primarily of glass, in which temperature and humidity can be controlled for the cultivation or protection of plants” (AHD3). *Standoff* which comes from the phrasal verb “stand off” is changed into a noun which means “a situation in which one force neutralizes or counterbalances the other” (AHD3). In this case, the concept of tense is deprived. The prepositional phrase *off-the-record* turns out an adjective which means “not for publication or attribution” (AHD3). In this case, the concept of adverbial function of prepositional phrase is deprived. *Run-of-the-mill* which is listed as “not special or outstanding, average” (AHD3) is a word as we see below:

- (2) It’s already made \$3 million here and has been selling two or three times as many tickets at each theater as the *run-of-the-mill* fare currently in the top 10.

— *Newsweek* 4/21/03

This is the case of idiomatized syntactic unit which functions as adjectival modifier, but it is no doubt a word in its category and function. This idiomatized syntactic unit is idiosyncratic and beyond the morphological productivity. It results from the creative process of word formation by analogy.

A word-based morphology is the morphological stance where a word is not to be split into compositional morphological parts. It deals with words as a whole, but not with individual morphemes. It points out the weakness of the concept of morpheme to explain adequately the structure of word like *cran-* in *cranberry*, which is a make-believe morpheme. A word-based morphology formulates word schemas which represent the common features of morphologically related words, which we see in the derivational expansion as in  $[X]_v$  (*attract*),  $[Xion]_n$  (*attraction*) and  $[Xive]_{adj}$  (*attractive*). It is like a lexical entry in which it contains information about phonological, syntactic and semantic properties. Haspelmath (2002:51) formulates the threefold relation of verbs such as *attract*, *suggest*, *prohibit* as follows:



After Aronoff (1976), this morphological stance of the analysis of word structure got prevailed. However, languages such as Japanese, Polynesian and Turkish turn out to be composed of morphemes rather than isolated word stems. In Japanese, for instance, words such as *tanoshi-i* (Adj), *tanishi-sa* (N), *tanoshi-mi* (N), *tanoshi-ku* (Adv) have the same bound root *tanishi-* and the derivational affixes such as *-i*, *-sa*, *-mi* and *-ku*, both of which are bound morphemic.

In either way, we acknowledge that morpheme-based morphology takes the position of syntagmatic framework of word formation. Word-based morphology takes the position of paradigmatic framework of word formation. In English, then, we acknowledge that a word comes from either the concatenation of morphemes or the lexicalization process from a phrase to a word.

#### 4. Lexicon

According to Wierzbicka (1985: 8), the problem of the meaning of words designating 'natural kinds' and 'cultural kinds' lies at the crossroads of all the disciplines of linguistics, anthropology, psychology and philosophy. The meaning of a word is conventionally stored and memorized in the lexicon and creatively used in the communicative context. The vocabulary of a language is not always a fixed list of words. It is characteristic of growing and developing the storage from which a speaker retrieves appropriate words for a particular communicative situation where he/she communicates with each other. It has a tendency to change itself in form and meaning in its history. Some words become obsolete and disappear and others are neatly coined due to their socio-cultural necessity. Language change in pronunciation, grammatical structure and meaning is unavoidable in so far as language turns out analogically to be something animate.

We are apt to take advantage of the knowledge of word elements which we memorize in our brain. The key term is 'memory' of word elements. They are hierarchically morphemes, words, compounds and idiomatized words which Di Sciullo and Williams (1987) term listemes in the lexicon.

##### 4.1 Listedness

Lexicon is a mental dictionary stored in our brain where word elements are considered to be memorized. They are also listed and work out to produce and understand a given linguistic message. Along with the discussion of Haspelmath (2002), The gradient scale of the degree of listedness is shown below:

- (4) morphemes > words > compounds > idioms > phrases > sentences

In this gradient chain of listedness, almost all morphemes tend to be more listable than all other word elements on the right hand side. Most of words tend to be listed according to their high degree of being established. Many compounds tend to be listed. Idioms are to be listed selectively according to their frequency and necessity, although their concatenation of constituents is syntactic. Phrases and sentences are not listed in any dictionary. Nonetheless it is difficult

to draw a line between morphemes, words, compounds and idioms.

Word elements such as bound morphemes, free morphemes, or idioms are listable, but phrases and sentences are not. In fact, we don't have any 'phrase' or 'sentence' dictionary, although we have many word or idiom dictionaries. It is due to the fact that a sentence is produced casually and creatively in the communicative situation and is not an established linguistic element.

It goes without saying that words or idioms are listable. Their frequency or the degree of sharedness in the linguistic community plays an important role to determine whether or not they are to be listed in a dictionary. Innovative words are not necessarily listed immediately after their appearance. Notice the following:

- (5) "You are doing fine," I told her, trying to *BOY SCOUT* her into the spot..

--- *Newsweek* 2/17/2003

The word *Boy Scout* in the above is an innovative verb coined from a noun compound. Nevertheless, the verbal use of it is not listed in any dictionary to the effect that it is not used frequently as a verb and it seems created on the spot. *Motherese* is a kind of specific language which a mother usually talks to her infant in a certain developmental stage of it. Taking into consideration *journalese* and *computerese*, we assume that *motherese* came to be acceptable and to be listed in a dictionary.

Thus we have the mental lexicon in our brain which consists in a set of symbolic entity of words or idioms. We produce sentences by combining word elements which we retrieve from the mental lexicon in our communicative necessity. We also take advantage of a set of rules to combine word elements to construct an appropriate sentence, taking into consideration the knowledge from the context where it is used.

Within the lexicon, the difference between a word and a phrase is sometimes vague and obscure. *Record* is no doubt a word and *off-the-record* is also a word as in *He spoke off-the-record to the press, or the off-the-record report by the senator*, although this phrasal word is composed of three words. *Off-the-record* in this case is also an idiomatized and listed word which is a semantically and grammatically established. And this word is originated from a prepositional phrase. Here comes to be a difference between a word and an idiom. The latter is non-compositional and idiosyncratic.

#### 4.2 Full-listing and Root-listing

According to Clark (1993: 251), there are two main proposals about the forms stored in memory: full-listing and root-listing. With full-listing, each word element would be represented separately as a distinct form; with root-listing, each root would be listed together with a set of procedures, each associated with a word element. An idiomatized word which is created from a phrase is listed due to the lexical procedures of full-listing. Idiomatized words such as *up-to-the-minute*, *down-and-out* and *off-the-cuff* are listed lexical items which are independent from other morphological roots or morphemes. Latinate roots such as *-duct-* in *conduct* or *product* and *-mit-* in *permit* or *admit* are examples of root-listing. They are listed with a set of morphological procedures. They are also dependent on other morphological word element of morphemes.

Mental Lexicon is more flexible than a real dictionary. In his childhood, a man's capacity for memory of word elements is relatively small. However, his capacity for it tends to be bigger and sometimes is rendered specific in his adulthood. Lexical items both in full-listing and root-listing should be neatly stored in his mental lexicon.

Di Sciullo and Williams (1987) raised the term of listed syntactic objects, and their meanings cannot be compositionally computed. They take the example of *take to task* which means "reprimand or censure" (AHD3), and claim that this is a complex V and not a VP at all. That is, a listed syntactic object is independent from a phrase in any means. Being noncompositional, those listed syntactic objects such as *take in hand* and *push too far* function as word and they are to be fully listed in the lexicon. They raise the following listed syntactic units; *all wet* in AP, *in the dark about NP* in PP, *the cat has got NP's tongue* in S, *that son of a bitch* in N' and the *Big Apple* in NP.

#### 4.3 Phrases and Compounds

The Compound Stress Rule is commonly considered to be a criterion to determine whether a given form is a

compound or a phrase. Phrases differ from compounds in that they allow referential dependent members and exhibit less morphological and syntactic cohesion. Morphological rules can be dealt with only in morphology and syntactic rules cannot be applied to parts of words. And idiomaticity is a key property of compounds, where their meaning cannot be determined from the meaning of each constituent. First, the compound *heavy smoker* which roughly means “a man who smokes heavily” cannot be structurally expanded to a \**very heavy smoker*, as the two constituents *heavy* and *smoker* cannot be separated. In *church-goer* which means “a man who habitually goes to church”, we cannot say a \**big church-goer* where the preceding *big* cannot modify only *church* in the following *church-goer*. Thus a compound cannot expand itself by adding a modifier, although a phrase can do so.

Second, anaphoric cohesion does not work in compounds as in:

- (6) ??Mary ate one *red salmon* and John (ate) two *red ones*.

where *red ones* cannot be considered to be *red salmons*. Thus we find out that any part of the constituents of a compound cannot be replaced by any other word, because a compound cannot be divided into its constituent parts.

Third, the movement of a constituent extracted from a compound cannot work well as in the following example of *history teacher*:

- (7) a. History, which I have been teaching \_\_\_ for years, still fascinates me.  
b. \*History, which I have been a \_\_\_ teacher for years, still fascinates me.

(Haspelmath 2002: 159)

This is a type of extraction called topicalization. Then we recognize that extraction is applicable to phrase but not to compound.

## 5. Words and Phrases

Chierchia and McConnell-Ginet (1990: 367) point out that we do not have to store sentences used as we do words considered to be a part of the vocabulary of our language. A phrase therefore is not applicable to word formation rules which enable us to produce the grammatical concatenation of words.

A word has threefold ways to be constructed. First, a word is by itself a part of a phrase. A word therefore is functionally smaller than a phrase (i.e. Word < Phrase). *House*, for instance, is smaller than the phrase *the big house*. The phrasal verb *stand off* stands for “to stay at a distance” (AHD3). Second, a word is equalized to a phrase (i.e. Word = Phrase). This is exemplified by idioms as in *kick the bucket*, *butter cup*, *off-the-shelf* and others. The noun *standoff* stands for “a situation in which one force neutralizes or counterbalances the other” (AHD3). Third, a phrase can be a part of a word. In *out-of-town*, for instance, it can coin another new word *out-of-towner* where the suffix *-er* is the head of this phrasal word as in [[*out-of-town*]-*er*]. *Standoffish* stands for “aloof or reserved” (AHD3), being schematized as in [[*stand-off*]-*ish*]. In this case a word is bigger than a phrase (i.e. Word > Phrase). Thus the following threefold ways to construct an architecture of word are shown with some examples:

- |                      |                               |                      |
|----------------------|-------------------------------|----------------------|
| (8) a. Word < Phrase | (ex) <i>stand off</i>         | <i>out of town</i>   |
| b. Word = Phrase     | (ex) <i>standoff</i>          | <i>out-of-town</i>   |
| c. Word > Phrase     | (ex) <i>standoffish(ness)</i> | <i>out-of-towner</i> |

### 5.1 Lexicalized Syntactic Objects

The morphological process to change a non-lexical element into a word is called lexicalization. This is the case of lexical licensing in word formation. As is generally considered, it is more than the accumulation of the meaning of composite word elements.

A phrase by definition belongs to syntax and a word to morphology. And syntax and morphology are considered to be independent from each other in their linguistic module, which has so far been considered the linguistic stance of

Lexicalist Hypothesis. A phrase consists of words and a word consists of word elements. This morphological attitude of compositionality seems to work well to explain only a straightforward word. A lexicalized phrasal word, however, is more than the simple compositional process of accumulating the meaning of each constituent word element, and it is characteristic of non-compositional and idiosyncratic features.

A phrase can change itself into a word. It is considered to be independent from the linguistic module of morphology. It also plays an important role to coin a new word. In fact, we come across a word which is coined from a phrase. They are not composed of the combination of a number of free word elements. They function as a phrase in form but behave as a word in their grammatical function. Notice the following:

- (9) a. In an article titled “Brains that click”, the author enthused over a *state-of-the-art* supercomputer called the Eniac. --- *Newsweek* 5/6/02  
 b. “The present situation,” he told his guests, “can be called graver than it was 1933. It will be *touch and go*.” --- *Newsweek* 2/17/03  
 c. I feel like a *round-the-world* sailor who’s finally reached land. --- *Newsweek* 5/6/02

In (9a), *state-of-the-art* is a phrasal word which means “the highest level of development, as of a device, technique, or scientific field, achieved at a particular time.” (AHD3). In (9b), *touch and go* functions not as a verb but as an adjective, meaning ‘dangerous and uncertain in nature or outcome’ (AHD3). In (9c), the prepositional phrase works as an adjective. A *round-the-world* sailor is ‘a sailor who rounds round the world’. In either way, a given phrase behaves as a word in its grammatical category and function. We find out now that these phrases are composed of free word elements and they are listed syntactic objects. We would like to see below the variety of lexicalization from a phrase to a word.

### 5.1.1 Sentence

A sentence is a maximum type of phrase and it sometimes changes itself into a word in its category and function. Notice the following:

- (10) a. A *God-is-dead* theology  
 b. *forget-me-not*, *touch-me-not*  
 c. His face had taken on a rugged *devil-may-care* maturity.

In (10a), “*God is dead*.” is by itself a sentence, and it functions as an adjectival modifier. It also subcategorizes semantically the head noun *theology*. The words in (10b) take on the medieval form of English negation before the age of periphrastic *do*, standing for the name of flower. “*Devil-may-care*” in (10c) which means “heedless of caution, reckless” (AHD3) functions as an adjectival modifier, although it could be a sentence “*Devil may care*.” Noticeably, a lexicalized sentence does not retain the syntactic feature of tense as in *We talked about a God-is-dead theology* where the lexicalized sentence does not undergo any influence from the past tense of the main sentence in so far as a sentence itself functions as a word.

### 5.1.2 Modal Auxiliary + V

A verb phrase sometimes changes its category and function. The concatenation of modal auxiliary verb and main verb also builds up a new word. And it changes drastically from a part of verb phrase into a noun. It is also generic and it does not imply anything syntactically specific. Thus the function of verb phrase is idiomatized into a noun. Notice the following:

- (11) a. What they wear, their hairstyles, the places they go --- they “immediately become *must-dos* or *must-haves*.” --- *Newsweek* 6/30/03  
 b. In the 90’s, Marvel was blinded by explosive sales of its comic books to speculators who believed they were a *can’t-miss* investment. --- *Newsweek* 2/17/2003

In (11a), *must-do* and *must-have* turns out to be nominal, and they are realized in their plural form. They do not have anything to do with the grammatical essence of tense in verbs and auxiliary verb. Unlike (11a), *can't-miss* in (11b) functions as an adjectival modifier. And *has-been* which means “one that is no longer famous, popular and successful or useful”, is among those examples.

### 5.1.3 Phrasal Verb

A phrasal verb is a word which is functionally modified from a phrase into a word consisting of a verb and an adverbial particle. This turns out to be a phrase syntactically but semantically or cognitively a word. The nominal form of *breakthrough* comes from a syntactic phrasal verb “break through” (cf. To make a sudden, quick advance, as through obstruction or opposition; AHD3) but is used as a word as in:

- (12) On its face, the overture might look like a diplomatic *breakthrough* that could ease tensions on the peninsula.  
 --- *Newsweek* 4/21/03

And the deprivation of the key concept of action/motion of verb takes place in this example. Many other examples of the change from a phrasal verb into a noun can be seen as in:

- (13) a. Menem is likely to do well enough in the April 27 voting to enter the *runoff* phase of the election in May.  
 --- *Newsweek* 4/21/03  
 b. His Beverly Hill's home became a favorite *hangout* of John Huston, Elia Kazan, Orson Wells and Otto Preminger.  
 --- *Newsweek* 4/21/03  
 c. The *tip-off* that this was not exactly right came in late 2000 and early 2001.  
 --- *Newsweek* 2/17/03  
 d. There's the question of whether a hunk of foam that fell on the shuttle's left wing at *liftoff* might have damaged fragile heat-shielding tiles, causing the accident.  
 --- *Newsweek* 2/17/03

The exchange of the position of constituent word elements sometimes takes place as in:

- (14) a. The worst possible *outcome* would be a resumption of business as usual.  
 --- *Newsweek* 2/17/03  
 b. The *uproar* has prevented Musharraf from addressing the Assembly.  
 --- *Newsweek* 5/05/03  
 c. Fraser-Cavassonishas turned out a delightful account of *on-set* intrigue and illicit affairs in business as well as in love.  
 --- *Newsweek* 4/21/03

Furthermore, we come across the following cases of the expansion of the nominalized phrasal verb in terms of the morphological process of derivation.

- (15) a. But the current *standoff* is forcing him to confront the impracticality of such a strong-arm tactic.  
 --- *Newsweek* 5/05/03  
 b. Americans are *standoffish* and nasty.  
 c. Her teachers misinterpreted her lonely *standoffishness* as conceit.

### 5.1.4 NP

We sometimes come across a noun compound which is opaque due to its metaphoric reason and its grammatical category is converted into another grammatical category.

- (16) a. The movie is the story of 18-year-old Jess, a *tomboy* who wants to play soccer but is forbidden by her Sikh



- parents. -- *Newsweek* 4/21/03  
 b. "You are doing fine," I told her, trying to *BOY SCOUT* her into the spot. (= (5))  
--*Newsweek* 2/17/03

In (16a), the word *tomboy* does not say anything about a boy. It means "a girl considered boyish and masculine in behavior and manner" (AHD3). This is a newly created opaque noun compound. In (16b), *BOY SCOUT* is converted from a noun into a verb, although we don't find any dictionary where the verbal use of this word is described.

### 5.1.5 VP

Idiomatized verb phrases sometimes come to have their specific meaning and to function as a word. There is no way to infer and specify the entire meaning of the whole by accumulating the partial meaning of each constituent. For instance:

- (17) a. Probation officers *keep tabs on* young offenders on parole.  
(Katamba 1994)  
 b. The realistic way to prepare for such a trip is to *cut your teeth on* a space station in Earth orbit.  
-- *Newsweek* 2/17/03

In (17a), *keep tabs on* stands for "to observe carefully" (AHD3), and in (17b), *cut one's teeth on* stands for "to learn and do as a beginner or at the start of one's career" (AHD3). Each verb phrase has the syntactic structure of  $[[V+NP]_{vp} + PP]_{vp}$ , although it cannot be split into parts. Thus it can be considered to be a word which is originated and modified from a syntactic phase of verb phrase.

There may be some portion of unique reason why this kind of idiomatized verb phrase came into being, although its entire meaning is obscure and idiosyncratic. It may be possible to say that the idiosyncratic meaning of idiomatized verb phrase is created by the cognitive potential of analogy.

### 5.1.6 PP

A prepositional phrase (PP) oftentimes is changed into a lexicalized PP which is listed in a dictionary as a word. Their grammatical category turns out to be an adjective as in *an up-to-date catalogue*. And its key grammatical concept of adverbiality is thoroughly deprived. The other examples are as follows:

- (18) a. *out-of-date on the spot off-the-record up-to-date*  
           *out-of-court out-of-the-way down-and-out down-at-the-heel*  
 b. *standoffishness out-of-towner down-and-outer*

Furthermore, we oftentimes come across complex nouns such as *out-of-towner* and *down-and-outer* which are characterized by adding the agent suffix *-er* to an idiomatized prepositional phrase as in  $[[out-of-town]-er]$  and  $[[down-and-out]-er]$ . And *standoffishness* has also the structure of  $[[[standoff]-ish]-ness]$ , where *standoff* is a nominalized phrasal verb.

PP is also composed of preposition and noun phrase, both of which are always lexical forms. Neither the dependent word elements of affixal form nor of combining form work to coin a new listed syntactic objects.

## 6. Productivity and Creativity

According to Haspelmath (2002: 11), when the morphological rules are used to create a new word that is not listed in the lexicon, they have a creative role. If the neologism becomes current in the language, it may be added to the lexicon, and morphology thus serves to enrich the lexicon. Productivity is a key term to understand the morphological process of word formation. It is rule-governed and it enables the participants of communication to produce grammatical words and to exclude ungrammatical words.

Aronoff (1976: 35) points out that “Yet productivity is one of the central mysteries of derivational morphology. It is the root of the strange and persistent fact that, though many things are possible in morphology, some are more possible than others.” Taking into consideration the result of discussions about affixes, Haspelmath (2002: 42) proposes a rough scalar chart of productivity as follows:

- (19)
- |                            |                  |                     |                            |                  |                |               |                 |
|----------------------------|------------------|---------------------|----------------------------|------------------|----------------|---------------|-----------------|
| -ness                      | -ize             | mis-                | -ee                        | -eer             | -al            | -th           | -ter            |
| <i>goodness</i>            | <i>globalize</i> | <i>misrepresent</i> | <i>invitee</i>             | <i>profiteer</i> | <i>refusal</i> | <i>warmth</i> | <i>laughter</i> |
| <-----most productive----- |                  |                     | -----least productive----> |                  |                |               |                 |
- (Haspelmath (2002))

According to Haspelmath (2002: 100), a productive rule allows speakers to form new words unconsciously or unintentionally, whereas creative neologisms are always intentional formations that follow an unproductive pattern. *Mentalese* which is used in the field of philosophy is a creative neologism in contrast to *motherese* and *journalese*. Bauer (1983: 63) also discusses the creative use of the word *headhunter* in its metaphorical meaning where cognitive process of analogy works. Thus we claim that creativity but not productivity functions to coin an idiomatized new word in word formation owing to its analogical function. The change of meaning and function of *under-the-table* (cf. meaning ‘not straightforward or secret’) from prepositional phrase to a word is caused by the cognitive process of analogy.

In addition, as Clark (1993: 139) points out, productivity depends on the cognitive feature of transparency, but not the reverse. And the idiomatized word is not productive in so far as it is not transparent in its meaning as in *on the spot* which means ‘impromptu or instantly’ (AHD3). Thus we acknowledge that idiomatized words are the morphological products of creativity (i.e. non-productive innovation) which is supported by the cognitive process of analogy.

Idiomatized words such as *God-is-dead*, *out-of-pocket*, *down-at-the-heel* are not produced in terms of the rule-governed productivity of inflectional or derivational rules. It is produced by the cognitive process of analogy which enables us to create a new word where the process of depriving tense in verb and number in noun is realized. Thus we also claim that an idiomatized syntactic unit, being created by analogy, is realized in terms of the language faculty of genericization; i.e. depriving tense from verb phrase and number from countable noun phrase.

## 7. Conclusion

Words are ubiquitous in all languages, and our memory of words is stored in the brain. Our mental lexicon consists in the variety of listable word elements. We tend to retrieve word elements to produce grammatical words/sentences in our actual use of language. A word has been so far considered to be composed of morphemes in terms of the syntagmatic stance of morpheme-based morphology. Nonetheless, a phrase oftentimes changes itself into a word. Even an idiomatized phrase turns out to be a word, which is coined from a phrase by the non-compositional or idiosyncratic process of lexicalization. It is stored in our mental lexicon which is listed as the morphological storage in our brain. It can be considered to be a case of morphological creativity. Even a sentence sometimes functions as a listed and idiomatized word as in *A God-is-dead theology* and *forget-me-not*.

The variety of lexicalization from a phrase to a word has been discussed in this paper in terms of the analysis of the maximal phrase of sentence, part of verb phrase (including modal auxiliary verb plus verb), full verb phrase, noun phrase, prepositional phrase, and phrasal verb. We first made a critical discussion of the correspondence rules of representational modularity provided by Jackendoff (1997). Second, we discussed whether or not the morpheme-based morphology functions well enough to explain adequately the morphological process of change from a phrase to a word in comparison with the word-based morphology. Third, we discussed a number of conditions of listedness in our mental lexicon in terms of the analysis of lexicalized syntactic objects. Fourth, we attempted to account for the morphological process of lexicalizing syntactic objects in terms of lexical idiomatization. We also referred to the mental dictionary of lexicon where our lexical knowledge is stored in our brain. Fifth, we classified the variety of listed and lexicalized syntactic objects. Lastly, we distinguished the morphological process of productivity from the cognitive process of

creativity, paying attention to the morphological process of coining a new word from a phrase in terms of the cognitive process of creativity by analogy.

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