A MORPHOLOGICAL STUDY OF COMPOUNDS IN ONLINE POSTS ON THE COVID-19 PANDEMIC

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Abstract
This study examined compound words found in online posts on the COVID-19 pandemic with the view to identifying and analyzing the compounds according to their word classes and structures. The methodology adopted was content analysis and the purposive sampling technique was used in generating data for the study. Through this sampling technique, the available compound words were identified and analysed. The findings revealed that in the formation of compounds related to the COVID-19 pandemic, two types of compounds, namely, noun compounds and verb compounds are used, with noun compounds being the most common. It was also observed that the process of compounding is unlimited and there was no structural limitation on the recursivity of compounds in English. The study maintained that the orthographic structure of compounds was inconsistent. It further noted that as COVID-19 remains in the human life, more compound lexemes continue to emerge through news articles published massively on the internet, especially in social network sites.

Keywords: Compound Words; COVID-19 Pandemic; Neologism; Word Formation

Introduction

This paper analyses compound words used in online posts on COVID-19 with the view to identifying, classifying; and analysing these compounds in terms of their components and their word class structures. The paper reviews the concepts of morphology and compounding and situates the classification of compounding as an aspect of concatenative morphology.

According to Fromkin, Rodman and Hyams (2011), morphology is the study of the internal structure of words, and of rules by which words are formed. It studies and analyses the linguistic elements known as morphemes of a given language. It serves as a bridge between the syntax of a language and its phonology (Brown and Miller 1960:161 in Ndimele, 1999:2). Booij (2007) contends that morphology deals with the internal constituent structure of words, he (2007) also argues that morphology does not only deal with the analysis of existing words into their constituent pieces. Language users can make new words or forms, and it is this form of creativity that is the focus of morphology. By this definition, morphology is basically concerned with the creative potential of language users to make new words in a language. However, morphology should not be limited to the word formation potential of language users. It also encompasses the analysis of grammatically conditioned variants of words in a language. That is, it studies the kind of variation that words exhibit on the basis of their grammatical context. Such variations include structural and semantic extension and conversion. Based on this, Booij (2007) classifies morphology into two types - compounding and affixation.

Compounding and affixation are the most widespread types of morphology since they create words with a high degree of transparency, that is, words whose formal morphological structure correlates systematically with their semantic interpretations. Booij (2007) further argues that affixation is used both in word formation and in inflection, and it is applied to a number of morphological operations. He posits that, for each morphological operation, one has to identify the set of base words to which it applies. His view shows that compounding and affixation are the prototypical cases of concatenative morphology, in which morphological constituents are concatenated in a linear fashion (for example, tear- teargas; boy-boys).

Compounding is viewed as the most frequently used way of making new lexemes (technically refers to forms of lexical item). He further states that the productivity of compounding in many languages is largely due to its semantic transparency and versatility. This is because when a new compound word is formed, the meaning of its constituent elements is already known, and the task is to find out the semantic relation between the compound elements. He also notes that the process of compounding can be applied recursively, and this is another cause of its productivity, for example: *Covid 19- Covid 19 Case – Covid 19 Case Management*. As it can be seen here, compounding process tends to be recursive in many instances.

Compounding and Compounds

Compounds are defined differently by different scholars. Booij (2007:75) observes that in many languages, compounding (also called composition) is the most frequently used way of making new lexemes. Its defining priority i that it consists of the combination of lexemes into large words. He also posits that compounding consists of a combination of two words, in which one modifies the meaning of the other. Booij's definition is supported by Hamawand (2011:201), as he postulates that it is a structure formed by interpreting two substructures (free morphemes). As a productive means of word formation in English, compounding is the process of putting together two free morphemes, be they nouns, adjectives or verbs, to make a compound word, a brand-new word (Hamawand, 2011:201). Matthews (1991:82) notes that compounding is a process by which a compound lexeme is derived from two or more simpler lexemes. Compounding is a lexical process: it derives lexeme from lexemes, (for example, black+ bird = blackbird).

Additionally, O'Grady, Archibald and

Katamba (2011:128) contend that compounding is the combination of two already existing words. Their definition is not inclusive, as compounding is much more than a combination of only two words. Akmajian et al. (2001:33) argue that compounding is not limited to two words. They support their argument with compound words that have more than two members, such as bathroom towel-rack, community finance centre committee, sailboat rigging, sailboat rigging design and sailboat rigging design institute. From these examples, it is clear that the definition put forward by O'Grady, Archibald and Katamba (2011) is deficient. Hacken (2017) views compounding as a word formation process based on the combination of lexical elements (words which refers to different forms of lexical item, or stems which is an unreducible form of word). In the same vein, Hacken (2017), Fabb (2001), and Haspelmath and Sims (2010:137) explain that a compound is a complex lexeme that can be thought of as consisting of two or more lexemes. To put it simply, a compound consists of two or more lexemes, (called compound members) that are joined together. It is important to note that English allows several types of combinations of different word classes (nouns, verbs or adjectives), but not all the combinations are possible in the formation of compounds.

Hamawand (2011) and Haspelmath and Sims (2010) note that the spelling of compounds has caused controversy in the literature. The controversy relates to the high degree of inconsistency in the spelling of compounds, as some compounds are often written as single words (e.g., lipstick), but in many other cases, especially with N+N compound, the constituents of a compound are separated by space, like syntactic phrases (for example sugar plantation, English club, and morpheme lexicon). Moreover, sometimes, the constituent elements of a compound are written in hyphenated form (e. g, bitter-sweet and book-keeper). Fabb (2001) argues that the meaning of a compound is usually to some extent compositional, though it is often not predictable. This unpredictable feature of compounds arises, usually, from their two characteristics, namely:

I   compounds are subject to semantic drift, which can be metonymy. For example, a 'red head' is a person who has red hair.

ii- there are many possibilities of semantic relations between the constituents of a compound, as between those of a sentence, but unlike a sentence, in a compound, case, preposition and structural position are not available to clarify the semantic relation.

Studies have been conducted to describe compounds, particularly their types. Hamawand (2011:203) uses the semantic head parameter to identify three types of compounds: noun compounds, adjective compounds and verb compounds. However, Haspelmath and Sims (2010:137) note that English allows and makes it possible to have several types of combinations of different word-classes (N: noun, A: adjective and V: verb). Therefore, Hamawand (2011) identifies the following types of compounds:

i.   Noun Compounds:

According to Hamawand (2011), a noun compound is a structure that is made up of two free morphemes or lexical substructures. The compound structure is used to express a new idea. The left-hand substructure, which is the modifier (M), can belong to any word class, be it a noun, an adjective or a verb. The right-hand substructure, which is the profile determinant or head (H), is a noun. The resulting structure is a compound noun, describing a class of a time-head entity. The term 'entity' refers to something that has separate and distinct existence and objective conceptual reality. Examples of noun compounds are: gas stove, motor cycle, houseboat, wheat bread, union member, university senate, college staff, pickpocket, makeshift, scarecrow, highchair, strongman and madman.

ii.   Adjective Compounds

Hamawand (2011) posits that an adjective compound is a structure that is composed of two or more free morphemes or lexical substructures. The compound structure is used to describe a new situation or to change the modification of an entity. The left-hand substructure, which is the modifier (M), can belong to any word class. The

right-hand substructure, which is the profile determinant or head (H), is an adjective. The resulting structure is an adjective compound, denoting a feature. The term feature refers to a typical quality or an important aspect of something. Examples of adjective compounds are: ash-grey face, coal-black eyes, sky-blue blouse, cost-effective approach and profit-thirsty trader.

iii. Verb Compounds

Hamawand (2011) also posits that a verb compound is a structure that is made up of two free morphemes or lexical substructures. The compound structure is used to describe a new idea. The left-hand substructure, which is the modifier (M), can belong to any word class. The right-hand substructure, which is the head (H), is a verb. The resulting structure is a verb compound, describing a class of non-stable temporal events. The term event refers to something that happens at a given place and time together with the circumstances in which it takes place. For example, to spoon-feed a baby is to feed a baby with a spoon. More examples include bottle-feed, breastfeed, head-shake, tape-record, babysit, book-review, haircut, brainwash and blow-dry.

Coronavirus disease (COVID-19) is a respiratory illness caused by the SARS-CoV-2 virus, which was first identified in December 2019 in the city of Wuhan, China. In March 2020, the World Health Organisation declared COVID-19 a pandemic due to its wide global spread. With the coming of the COVID-19 pandemic, the world faces changes in almost all the fields of human endeavour, especially politics, economy, administration, business and sports. The area of language as a means of communication is also not left behind. Recently, there have beennew research works on the COVID-19 pandemic in relation to language. Researchers, such as Khalfan, Batool and Shezad (2020) investigated the social needs that motivate the creation of neologisms related to COVID-19 and how the neologisms affect the perceptions of their users on social media. They found that neologisms related to coronavirus are created to fill a social void. It also found that neologisms influence the

perception of their users on social media by conveying certain perspectives and pushing certain narratives. Similarly, Bolotina (2020) investigated neologisms related to the coronavirus pandemic in social media posts. It described neologisms in modern English from the lexical-semantic point of view and distributed them by their structure. The findings indicated that neologisms related to the coronavirus pandemic reflect the current state of the social situation created by the pandemic. They also showed that the general morphological processes involved in creating these lexical elements include compounding, blending and lexical derivation.

Asif, Zhiyong, Iram and Nisar (2020) conducted a study to linguistically describe neologisms related to coronavirus (COVID-19). The researchers investigated word formation, borrowing and lexical deviation in the study. The findings showed that the majority of the people on social media and state briefings utilise word formation in the form of nouns, verbs and adjectives. The abbreviations and acronyms which are related to the current situation of COVID-19 are also used. It also found that neologisms are used to name various societies and cultures that were not in existence before the emergence of the virus.

Simatupang and Supri (2020) used a morpho-semantic approach to study compound words that had been used during the global pandemic. They obtained data from the official website of the World Health Organisation (WHO) in the "Your Questions Answered" section. The study found two types of compounds: compound nouns (67%) and compound verbs (33%). It also found three types of meanings: literal meaning (50%), semi-literal meaning (33%) and idiomatic meaning (17%). This means that the majority of the compound words are used to name new phenomena that are outside the language. As can be seen different aspects related to the present study have been investigated by different scholars, it is observed that most of the research works concentrate on aspects of language, such as semantics and neologisms. However, because

compound words have become popular in online posts on the COVID-19 pandemic, there is a need to investigate the structure of such words and how they deviate or conform to the standard way of compound formation. The research addresses this gap by providing a critical word-class analysis of the compound words found in online posts on the COVID-19 pandemic. The paper, specifically, attempts to investigate compound words related to the coronavirus pandemic in online posts on the coronavirus pandemic by obtaining data from *dictionary.com, merriam-webster.com, macmillandictionary.com* and *the Twitter (now X)handle of the Nigeria Centre for Disease Control* (NCDC). The rationale behind the selection of these sources is due to the fact that they frequently post updates on the COVID-19 situation. The data for the study are obtained from the posts of March 2020 to January 2021. The choice of this period is necessary because it was the period in which posts on COVID-19 dominated online media, especially during the lockdown.

Data Presentation and Analysis
Post 1
.. a second confirmed case of # **COVID-19** in Nigeria (NCDC, March 9, 2020).

The compound structure above is a nominal or noun compound because its semantic head is a noun. That is, the right-hand most substructure of the compound is a noun. It is an acronym for the coronavirus disease, which emerged in the year 2019. It is a complex compound structure which comprises four independent lexical substructures, namely: *corona, virus, disease* and *2019.* Therefore, it is formed through the combination of four lexical elements of the same grammatical class of noun; as such it is a new compound word which found its way into English during the coronavirus pandemic.

Posts 2
... providing care for **#COVID-19 cases**, (NCDC, June 8,2020).

From the data above, the compound word used is *COVID-19 case*. It is formed by the combination of *COVID-19* and *case,* which are both within the grammatical class of nouns. COVID-19 is the modifier of the head (*case*), which is a kind of case. The second composite member (*case*) is the profile determiner of the entire compound structure.

Post 3
... DG@Chikwe_I wa asked to speak if he had seen the tweet & video about #**COVID-19 case management** in Nasarawa, (NCDC, June 8, 2020).

The compound structure (**COVID-19 case management)** above is a noun compound which comprises the acronym, *COVID-19, case* and *management* to form a nominal compound, 'COVID-19 case management'. The final compound member, management, is the semantic head of the compound structure and it determines the lexical class of the structure. It is a nominal compound because the head of the compound is a noun. All the other dependent elements modify the head, a kind of management.

Post 4
Today at the daily **Covid-19 press briefing**, DG@Chikwe_I... (NCDC, June 8, 2020).

The post above contains a noun compound which is used to name a new idea. It is formed by the combination of *COVID-19* (which is an acronym for the coronavirus disease 2019), *press* and *briefings*. It is important to note that all the compound substructures are of the same grammatical category (Noun class); as such, the resulting structure of the substructures is a noun compound, which describes an entity (something that has a separate and distinct existence and objective conceptual reality).

Post 5
In addition to the health risk of the **COVID-19 outbreak** in Nigeria, the country faces... (NCDC, March 15, 2020).

The post above is a compound structure denoting a nominal compound. This is because the right-handmost substructure of the compound structure is a noun. Morphologically, the compound structure is formed by the combination

of a noun (COVID-19), a preposition (*out*) and a noun (*break*). COVID-19 is, itself, a compound structure used as a substructure which narrows the meaning of the head, *outbreak*. It is used to describe a kind of outbreak.

Post 6

NCDC will continue to keep Nigerians updated as the **COVID-19 situation** evolves. (NCDC, March 15, 2020).

The post above is a lexical compound which denotes a noun compound because the head of the compound structure is a noun. It is formed by the combination of *COVID-19*, which is in the noun category and *situation*, which is also a noun. The meaning of the head is narrowed by the meaning of the modifier, the left-hand compound substructure, *COVID-19*. It describes a new idea, *COVID-19 situation.*

Post 7

Coronavirus (Macmillandictionary.com April, 2020)

It refers to one of a group of viruses that cause some forms of the common cold and serious illnesses, such as SARS and COVID-19 (Macmillandictionary.com April, 2020). Morphologically, *coronavirus* is a compound word representing the type of compound noun due to the combination of *corona* and *virus,* which are nouns. Haspelmath and Sims (2010) argue that the second compound member of a compound structure narrows the meaning of the first compound members. Because of this, *coronavirus* is a noun compound lexeme, since the second compound element is a noun.

Post 8

C o r o n a v i r u s   i n f e c t i o n (Macmillandictionary.com)

The post above contains a compound structure which is formed by the combination of three formerly independent lexical elements, namely: *corona* (noun), *virus* (noun) and *infection* (noun). It is used to describe a new idea, the coronavirus infection. The meaning of the compound head, infection, is narrowed by the

meaning of the modifiers (*corona* and *virus*), a kind of infection. The compound structure is used to name a new idea. Therefore, it is a noun compound.

Post 9

... world learns from the **#COVID-19 Pandemic** is there's no option to multilateralism. (NCDC, September 8, 2020).

COVID-19 pandemic is a compound word representing a type of compound noun due to the combination of *COVID-19* (noun) and *pandemic* (noun). The compound structure is used to express a new idea or a phenomenon. The left-hand substructure of the compound structure, which is *COVID-19*, modifies the meaning of the right-hand substructure, while the head is *pandemic*. The resulting structure is a noun compound, *COVID-19 pandemic*, which is a kind of pandemic.

Post 10

... Nigerians to only used accredited private laboratories for travel related to **#COVID-19 Test**. (NCDC, March 25, 2020).

The data above is a compound structure which is composed of two independent lexical elements called compound members. It is formed by the combination of *COVID-19*, which is in the category of noun and *test*, which is also in the category of noun. The resulting structure is a compound noun, *COVID-19 test*. It describes a new idea, namely, the *COVID-19 test*. The meaning of the semantic head of the compound structure is narrowed by the meaning of the first compound member.

Post 11

Coronasceptic (Macmillandictionary.com, October, 2020)

This means believing that Covid-19 is not a real disease or does not represent a serious threat; s o m e o n e   w h o   b e l i e v e s   t h i s (Macmillandictionary.com, October, 2020). Morphologically, *coronasceptic* is a lexical compound representing the type of compound noun. It is a compound noun because it combines

corona and *sceptic,* which are in the grammatical class of nouns. Haspelmath and Sims (2010) argue that the first compound member of a compound structure narrows the meaning of the second compound member. Because of this, coronasceptic is a noun compound because the second compound member (*sceptic*), which is the profile determiner, is a noun.

Post 12

Mask up (Macmillandictionary.com, June15, 2020)

This means to wear a mask or face covering (Macmillandictionary.com, June 15th, 2020). From the data, the compound word identified is *mask up*. The structure is a compound verb because it is formed by the combination of a *mask* (noun but converted to verb) and an adverb (up). This means that it consists of a verb and an adverb, and is in the grammatical class of verb compound. However, in this kind of compound, the right-hand substructure of the composite structure is not the profile determiner which determines the semantic property of the new structure. As such, it is an instance of left-hand headed. The meaning of the compound structure is derivable from the meaning of the two compound elements.

Findings

From their grammatical structure, two types of compounds are identified: noun and verb compounds, and the noun compounds dominate the compound words used in online posts on the Covid-19 pandemic. The orthographic structure of compounds is inconsistent because some of the compounds are hyphenated (as in post-COVID-19*),* some are written with a space in between as in the *coronavirus infection* and *mask up,* while others are written as one word, for example, *coronasceptic* and *coronavirus*. The study establishes that the compounds under study are recursively produced (for example, *COVID-19, COVID-19 case, COVID-19 case management).* Furthermore, it is also established from the study that there is no limit to the number of compound words that can be produced in English.

Discussion

From the twelve posts presented and analysed, two types of compounds are identified, namely: the noun compound and the verb compound. A noun compound is a morphological structure which is made up of two or more lexical substructures and it is used to express a new idea. It is a lexical structure which comprises two or more independent roots and has a noun at the right-hand most of the structure as the head. Katamba (1993:304) argues that generative morphologists, such as Williams (1981) and Selkirk (1982), use x-bar syntax to highlight the fact that just as phrases in syntax have heads, words also have heads. In the light of this, a compound noun is a structure that is composed of two or more substructures with a noun as the head word. The left-hand substructure, which is the modifier of the head, can belong to any word class. Hamawand (2011) also posits that the left-hand substructure serves as a modifier of the head, which is the right-hand member. In a compound noun, the right-hand substructure must be a noun. In light of this, eleven (11) out of the twelve (12) compound words analysed are noun compounds. This is to say that only *post 12* belongs to the lexical category of verb. This implies that almost all the compound lexemes identified and analysed are used to name new ideas related to the Covid-19 pandemic. Some of the noun compounds identified and analysed include *COVID-19, coronavirus, coronavirus infection, COVID-19 test, COVID-19 pandemic, coronasceptic,* etc.

However, the second type of compound found is a verb compound. A verb compound is a morphological structure which is made up of two or more lexical substructures and is used to describe a new idea. Hamawand (2011) observes that a verb compound describes a new idea. It is a composite structure in which a verb serves as the right-hand substructure and determines the grammatical category of the composite structure. It is a compound structure in which the profile determiner, which is the head of the compound, is a verb. For instance, words like *book review, handshake, haircut spoon feed, breastfeed, and brainwash* are good examples of compound

verbs. It is a morphological structure in which the second compound member (in a two-word compound) is a verb. The right-hand element which is the head must be a verb. Meanwhile, from the 12 posts presented and analysed, only a lexeme (*mask up*) is identified and classified under verb compound. This means that only the final post belongs to the category of verb compounds. Therefore, *mask up* is a lexical compound which describes an action.

Conclusion

The main thrust of this study is to provide a morphological analysis of compound words found in online posts on the COVID-19 pandemic. It sets out to identify and analyse the available compound words and their classifications. The study indicates that noun compounds and verb compounds are the compound types used in the formation of compounds related to the COVID-19 pandemic in online posts, but noun compounds are the most common types. This implies that most of the compound words related to the COVID-19 pandemic are used to name new ideas. The orthographic structure of the compound is inconsistent. This is to say that the compound elements are hyphenated before they gain currency or performance and when they gain such currency, they are spelt as single words, as in *Covid-19, coronavirus, coronacut, coronababies* and *coronasceptic.* The study holds that the process of compounding is recursive, and there is no limit to the size of compound words that can be produced in English. Finally, the study also establishes that most of the compound words related to the COVID-19 pandemic are discoverable through news articles published massively on the internet, especially on social network sites.

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