An Analysis of Word Formation Process in the Text of COVID-19

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Abstract

The objectives of this research were 1) to analyze how the Director of World Health Organization formulates the significant morphemes/morphology regarding health and COVID-19 preventions, 2) to analyze how the Director of World Health Organization uses word formation process on health and COVID-19 preventions in the text, and 3) to analyze the major roles of morphology on health and COVID-19 preventions in the text. This research is the quantitative and the qualitative research. The analysis of this research consist of descriptive and qualitative modes of linguistic interpretation and discussion.

The findings of this research were as follows:

1. The formation of significant morphemes on health and COVID -19 prevention in the text were used in the text consisted of 1) coinage words, 2) inflectional words, 3) derivational words, 4) inflectional & derivational words, 5) compounding words, and 6) lexical words, The most of words used repeatedly in the text are item 5 (cases), followed by the item 8 (virus), and the item 89 (community).

- 2. The word formation process on health and COVID-19 preventions in the text1) found in this study consisted of 4 coinage words, 2) 19 inflectional words, 3) 16 derivational words, 4) 4 inflectional & derivational words, 5) 22 compounding words, and 6) 24 lexical words. When considering each aspect, it was found that the lexical words are first ranked, followed by compounding words, and the lowest percentage of words used in the text are coinage words and inflectional & derivational words.
- 3. The significant allomorphs regarding health and COVID-19 preventions in the text are mostly the splurals-/s/, /z/, and /iz/ and the ed-past tense-/t/, /d/, and /id/.

In further study, it should be more analytical study of special academic term in text such as medical, physician and so on and of word meaning in special term in text.

Key words: Word formation process, COVID-19, Morphological Analysis, Allomorph

1. Introduction

In linguistics, an analysis on morphology is a significant role in learningand understanding morphological processes through different texts, and it is discussed that the analysis on the word f needs some understanding on morphological issues. It is a concern of investigating words, how they are formed, and how they relate to different words in a language. It also breaks down word structures and sections of words, such as stems, root terms, prefixes, and suffixes. Possibly, words in a language may be formed or extended by various morphological processes. There are specific formation of words or morphological processes that turn a morpheme into a word in a language.

Media language is a new phenomenon in world society. In everyday use of words in a language in media texts, there is a morphological process described as the characteristics of word formation processes in which the new words are created to satisfying a naming need)Berezhnykh, Ye.Yu, 2017(, such as the new word COVID-19, which has been currently created by World Health Organization (WHO). This is the reason why the researchers are interested in studying the process of coining new words and analyzing how words are created in the media texts. Moreover, we encounter morphological facts in English almost every day through news on television or reading the daily news from newspapers or magazines. Therefore, the objective of this study is to analyze how morphology and meanings are important in the growth and expansion of the English vocabulary and how they are constructed in the media text.

2. Literature review

2.1 Morphology and Word Formation

Many studies have been conducted on the analysis of word formation or lexical morphology. According to Lieber (2009(, the morphology is the study of word formation, including how new words are created in world languages, and how words differ according to the way in which they are used in sentences. Additionally, Sheela (2011) states that morphology is the branch of linguistics that studies these patterns and tries to explain the word formation rules which represent the knowledge of the speakers of these languages. Aronoff and Fudeman (2011) defines morphology as the mental system involved in word formation or to the branch of linguistics that deals with words, their internal structure, and how they are formed.

2.2 Word Formation Process

In English, there exist several processes of word-formation, but this study focuses on affixation, clipping, compounding, acronyms, and initialism. Many researchers study on the word formation processes. Rubba (2004) defines word formation processes as the ways of creating new words in English. According to Mustafa, Kandasamy, and Yasin (2015), the most common word formation processes, or the creation of new words, in English including abbreviation (clipping, acronyms, combination of letters), blending. Likewise, Phookhao (2012 (states that the way which people use to create new words is called word formation process.

2.3 Morphological Analysis in the media texts

For several years, most research works on morphological analysis has focused primarily on standardized literary texts. Nevertheless, interest in analyzing the automated social media texts has considerably grown in recent years)Fenogenova, Kazorin, Ilia, & Krylova, 2019(.

3. The objectives of the study

There are five objectives of the study as follows:

- 2.1 To analyze how the Director of World Health Organization formulates the significant morphemes/morphology regarding health and COVID-19 preventions.
- 2.2 To analyze how the Director of World Health Organization uses word formation process on health and COVID-19 preventions in the text.
- 2.3 To analyze how the Director of World Health Organization uses significant allomorphs regarding health and COVID -19 preventions in the text.

4. The Research Questions

3.1 How/To what extent does the speaker formulate or develop significant

morphemes on health and COVID -19 prevention in the text?

- 3.2 How/To what extent does the speaker use word formation process on health and COVID-19 preventions in the text?
- 3.3 How/To what extent does the speaker use significant allomorphs regarding health and COVID-19 preventions in the text?

5. Methodology

- 4.1 This study analyses the word formation process, developed by Aronoff and Fudeman (2011), which are used as a guideline to analyze the spoken text about COVID -19 addressed by the Director of World Health Organization (WHO) on 27 February 2010. Words can be formed in language expanded by various morphological processes in a language. The morphological processes adopted in this study are coinage-morpheme, lexical morpheme, inflectional morpheme, derivational morpheme, and compounding.
- 4.2 The analysis covers the formation of morphemes, inflectional and derivational words, major roles of morphological structures regarding health and COVID-19 preventions. This also includes significant conclusions and discussion of the analysis.
- 4.3 The analysis lens on descriptive and qualitative modes of linguistic interpretation and discussion. The findings of the analysis are presented in terms of linguistic description and qualitative data and interpretation.

6. Analysis and findings

To analyse the data and present the findings, some steps are provided as follows.

6.1Formulation of significant morphemes/morphology on health and COVID -19 preventions

To answer Q 1, the analysis of significant morphemes/morphology is presented in the table below Table 1 Formation of significant morphemes on health and COVID -19 preventions

Morphemes	Frequency	Percentage	Note
1.WHO	4	9.09	WHO = Wealth Health Organization
			(Acronym)
2.COVID-19	3	6.81	COVID-19 = Corona Virus Disease 2019
			(Acronym)
3.GDP	1	2.27	GDP= Gross Development Product
			(Acronym)
4.Labs	1	2.27	Labs = Laboratories (Clipping)
5.cases	18	40.90	cases = case - s (inflectional)
6.case	3	6.81	lexical (noun)
7.aggressively	1	2.27	aggress-ive-ly (derivational)
8.virus	6	13.63	lexical (noun)
9.prevent	4	9.09	Lexical (verb)
10.deaths	2	4.54	death-s (inflectional)
11.swiftly	1	2.27	swift-ly (derivational)
12.epidemics	1	2.27	epidemic-s (inflectional)
13.influenza	1	2.27	Lexical (noun)
14.measures	1	2.27	measure-s (inflectional)
15.key messages	1	2.27	Compounding (adj+n)

Morphemes	Morphemes Frequency Percentage		Note	
16.widespread	1	2.27	Compounding (adj+v)	
17.transmission	5	11.36	trans-mis-sion (derivation)	
18.samples	1	2.27	sample-s (inflectional)	
19.positive	1	2.27	Lexical (adj)	
20.tested	1	2.27	test-ed (inflectional)	
21.containment	1	2.27	Contain-ment (derivational)	
22.reported	1	2.27	report-ed (inflectional)	
23.aggressive	1	2.27	aggress-ive (derivational)	
24.foothold	1	2.27	Compounding (n+v)	
25.unfortunately,	1	2.27	un-fortune-ate-ly (derivational)	
26.advocate	1	2.27	Lexical (v)	
27.comprehensive	1	2.27	comprehend-ive (derivational)	
28.sustained	1	2.27	sustain-ed (inflectional)	
29.scenarios	1	2.27	scenario-s (inflectional)	
30.fatal	1	2.27	Lexical (adj)	
31.literally	1	2.27	literal-ly (derivational)	
32.borders	1	2.27	Border-s (inflectional)	
33.distinguish	1	2.27	Lexical (v)	
34.ethnicities	1	2.27	ethnic-ity-s (derivatinal& inflectional)	
35.development.	1	2.27	develop-ment (derivational)	
36.hopeless	1	2.27	hope-less (derivational)	
37.defenseless	1	2.27	defense-less (derivational)	
38.isolate	1	2.27	Lexical (v)	
39.trace contacts	1	2.27	Compounding (n+n)	
40.clinical care	1	2.27	Compounding (adj+n)	
41.quality	1	2.27	Lexical (n)	
42.hospital	1	2.27	Lexical (n)	
43.outbreaks	2	4.54	Compounding (prep + v)	
44.vital	1	2.27	Lexical (adj)	
45.isolation	1	2.27	isolate -ion (derivational)	
46.medical oxygen	1	2.27	Compounding (adj+n)	
47.ventilators	1	2.27	ventil-ate-or-s (derivational &	
			inflectional)	
48.reporting system	1	2.27	Compounding (v-ing+n)	
49.health facilities	1	2.27	Compounding (n+n)	
50.alert	1	2.27	Lexical (n)	
51.health workers	1	2.27	Compounding (n+n = n)	
52.training	1	2.27	train-ing (inflectional)	
53.equipment	3	2.27	equip-ment (derivational)	
54.samples	1	2.27	Sample-s (inflectional)	
55.patients	1	2.27	Patient-s (inflectional)	
56.measures	2	4.54	Measure-s (inflectional)	
57.sick	1	2.27	Lexical (adj)	

Morphemes	hemes Frequency Percentage		Note		
58.chemicals	1	2.27	chemical-s (derivational)		
59.severe	1	2.27	Lexical (adj)		
60.disease	2	4.54	Lexical (n)		
61.clinics	1	2.27	Clinic-s (inflectional)		
62.procedures	1	2.27	procedure-s (inflectional)		
63.infections	2	4.54	infect-ion-s (derivational & inflectional)		
64.runny nose	1	2.27	Compounding (adj+ n)		
65.fever	1	2.27	Lexical (n)		
66.dry cough	1	2.27	Compounding (v +v)		
67.rumours	1	2.27	rumour-s (inflectional)		
68.misinformation	1	2.27	mis-inform-ation (derivational)		
69.outbreak	2	2.27	Compounding: (prep+v)		
70.health minister	1	2.27	Compounding (n+n)		
71.gap	1	2.27	Lexical (n)		
72.exploit	1	2.27	Lexical (v)		
73.developed	1	2.27	Compounding (v-ed + n)		
countries					
74.pandemic potential	1	2.27	Compounding (adj + n)		
75.kits	1	2.27	kit-s (inflectional)		
76.protective	1	2.27	Compounding (adj+n)		
equipment					
77.trained	1	2.27	train-ed (inflectional)		
78.multiple languages	1	2.27	Compounding (adj+n)		
79.operational	1	2.27	operate-ion-al (derivational)		
80.guidelines	1	2.27	Compounding (n+n)		
81.key areas	1	2.27	Compounding (adj+n)		
82.detect	1	2.27	Lexical (v)		
83.manage	1	2.27	Lexical (v)		
84.key performance	1	2.27	Compounding (adj+n)		
85.indicators	1	2.27	indicate-or-s (derivational & inflectional)		
86.estimated	1	2.27	Compounding (v-ed+n)		
resources					
87.panic	1	2.27	Lexical (adj)		
88.Fear	2	4.54	Lexical (n)		
89.community	5	11.36	Lexical (n)		
Total	89 words	100			

According to table 1, theformation of significant morphemes on health and COVID -19 preventions found in this study consists of Acronym words, Clipping words, Compounding words, Inflectional words, Derivational words, and Inflectional and Derivational words. The most of words used repeatedly in the text are item 5 (cases), followed by the item 8 (virus), the item 89 (community).

As mentioned above, there are some types of word formation processes regarding health and COVID - 19 preventions in terms of linguistic interpretation as follows:

1. Acronym

The acronym is the word formation process in which the word is created by the initial letter and it is pronounced as alphabetically which are called 'alphabetism' or initialism, as in WHO from "W(orld) H(ealth) O(rganization)" and GDP from "G(ross) D(evelopment) P(roduct)".

2. Clipping

Clipping is the word formation process in which a word is reduced or shortened without changing the meaning of the word. There are four types of clipping: back-clipping, for-clipping, middle-clipping, and complex-clipping. Back-clipping is removing the end of a word as in *lab* from *lab(oratory)*. Fore-clipping is removing the beginning of a word as in *gator* from *(alli)gator*. Middle-clipping is retaining the middle of a word as *flu* from *(in)flu(enza)*. Complex-clipping is removing multiple parts from multiple words as in *COVID-19* from Co(rona) Vi(rus) D(isease) (20)19.

3. Compounding

Compounding is a linguistic unit, which is composed of elements that function independently in other circumstances, as in *health minister*.

4. Affixation

Affixation is a word formation process which involves attaching a formative to an existing word. In English, affixes are divided into three positions: *prefixes* occurring before roots, suffixes occurring after roots, and infixes occurring inside the roots. Suffixes are divided into inflectional suffixes and derivational suffixes.

5. Lexical morphemes

Lexical morphemes or lexical words are the free words which carry meaning or content, for example, virus, detect, manage, panic, fear. They are usually nouns, adjectives, verbs and adverbs.

6.2 Morphological processes

Table 2

Types of Morphological processes	Frequency	Percentage %	Note
1. Acronym words	3	3.37	
2. Clipping word	1	1.12	
3. Inflectional words	19	21.34	
4. Derivational words	16	17.97	
5. Inflectional & Derivational words	4	4.49	
6. Compounding words	22	24.71	
7. Lexical words	24	26.96	
Total	89	100	

From Table 2, it shows that the morphological functions of words found in this study are 1) 3 acronym words, 2) 1 clipping word, 3) 19 inflectional words, 4) 16 derivational words, 5) 4 inflectional & derivational

words, 6) 22 compounding words, and 7) 24 lexical words. When considering each aspect, it was found that the lexical words are first ranked, followed by compounding words, and the lowest percentage of words used in the text is clipping words.

6.3 Formation of allomorphs with phonologically conditioned features

Allo	morphs wit	th phonol	ogically cor	nditioned features
Plural Morphemes	/s/	/z/	/iz/	Note
deaths	/			Final sound is voiceless sound
measures		/		Final sound is voiced sound
cases			/	Final sound is fricative sound
Past tense morphemes	/t/	/d/	/id/	Note
developed	/			Final sound is voiceless sound
sustained		/		Final sound is voiced sound
estimated			/	Final sound is voiceless plosive /t/ and
				voiced plosive /d/

From Table 3, it shows thatthe significant allomorphs regarding health and COVID-19 preventions in the text are mostly the s-plurals-/s/, /z/, and /iz/. When the final sound is voiceless sound, the plural-s is pronounced /s/, and when the final sound is voiced sound, the plural-s is pronounced/ z/, and when the final sound is fricative sound, the plural-s is pronounced /iz, These are allomorphs of the plural-s. For the past tenseed, when the final sound is voiceless sound, the past tense-ed is pronounced /t/, and when the final sounds is voiced sound, the past tense-ed is pronounced/ d/, and when the final soundsare plosive sounds /t/ and /d/, the past tense-ed is pronounced /id, These are allomorphs of the past tense-ed.

Distributing various allomorphs can be stated in terms of their phonemic environments, the allomorphs are said to be phonologically conditioned. Most of the allomorphs we distribute are called **additive** —forming words by adding prefixes and suffixes to bases, which are as follows: *Plural morpheme*, usually written as '-s' or '-es', has at least three different phonemic forms in different environments:[s], [z], and [iz], varying in sound without changing meaning—indicating the different forms of the same plural morpheme {-s}, while *Past tense morpheme* mostly formed by adding {-ed} has at least three different forms of phonologically conditioned distributions:[t], [d], and [id].

5. Conclusions and discussion

The result of study has found that there are language using and word formation totally about 89 words in text as follow as table 1:

- 1. Word is formed by acronym totaling 3 words and Percentage about
- 3.37 of words
 - 2. Word is formed by clipping totaling 1 word and Percentage about
- 1.12 of words.

- 3. Word is formed by inflectional rule totaling 39 words and Percentage about 88.57 of words
- 4. Word is formed by derivational rule totaling 25 words and Percentage about 34.05 of words
- 5 . Word is formed by grammatical function of noun totaling 24 words and Percentage about 43.14 of words
- 6 .Word is formed by grammatical function of verb totaling 10 words and Percentage about 22.71 of words
- 7 .Word is formed by compounding rule of adjective +noun totaling 9 words and Percentage about 20.43 of words
- 8 .Word is formed by compounding rule of adjective +verb totaling 1 words and Percentage about 2.27 of words
- 9 .Word is formed by grammatical function of adjective totaling 6 words and Percentage about 13.62 of words
- 10 .Word is formed by compounding rule of noun +verb totaling 1 words and Percentage about 2.27 of words
- 11 . Word is formed by compounding rule of noun +noun totaling 5 words and Percentage about 11.35 of words
- 12 .Word is formed by compounding rule of preposition +verb totaling 4 words and Percentage about 9.08 of words
- 13 .Word is formed by compounding rule of verb added –ing finally +noun totaling 1 words and Percentage about 2.27 of words
- 14 .Word is formed by compounding rule of verb added -ed finally +noun totaling 1 words and Percentage about 2.27 of words

The result of study has found that there are morphological functions of words in text as follow as table 2:

- 1. There are acronym words totaling 3 words and Percentage about
- 3.37 of words
 - 2. There is clipping word totaling 1 word and Percentage about
 - 3. There are Inflectional words totaling 19 words and percentage 21.34 of words
 - 4. There are Derivational words totaling 16 words and percentage 17.97 of words
 - 5. There are Inflectional & Derivational words totaling 4 words and percentage 4.49 of words
 - 6. There are compounding words totaling 22 words and percentage 24.71 of words
 - 7. There are lexical words totaling 24 words and percentage 26.96 of words

The result of study has found that there are formation of allomorphs with phonologically conditioned features in text as follow as table 3:

- 1 .In a plural Morphemes, it can pronounce a different sound and divide to 3 sound such as /s/, /z/, /iz/ following those features of sound and conditioned environment
- 2 .In Past tense morphemes, it can pronounce a different sound and divide to 3 sound such as /t/, /d/, /id /following those features of sound and conditioned environment

The results of the study showed using of words in the text body that when analyzing the number of words written by the author are first simple compound words in the framework of the specific subject. Second is lexical term which has its own meaning . As regards word formation by adding prefix and suffix, the author may include in the context of the content that needs to be communicated . The authors sometimes choose to create new words with the process of mixing words into the situation for example COVID -19 or as abbreviations for words like WHO.

Language using, the author selects words that have simple, not complicated meanings, is a simple word .Readers at all levels can understand the substance. The author want to communicate with languages and words that have different meanings .Sometimes more than one word has been repeated for the reader to understand easily.

6. Recommendations and implications

In further study, we suggest studying as follows:

- 1. to be analytical study of special academic term in text such as medical, physician and so on.
- 2 .to be analytical study of word meaning in special term in text.

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Appendix

Text for the analysis

WHO Director-General's opening remarks at the media briefing on COVID-19

(27 February 2020)

Good afternoon to everyone online and in the room. Let me start, as usual, with the latest numbers. As of 6am Geneva time this morning, China has reported a total of 78,630 cases of COVID-19 to WHO, including 2747 deaths. But as you know, it's what is happening in the rest of the world that is now our greatest concern. Outside China, there are now 3474 cases in 44 countries, and 54 deaths. We are at a decisive point. For the past two days, the number of new cases reported in the rest of the world has exceeded the number of new cases in China. And in the past 24 hours, seven countries have reported cases for the first time: Brazil, Georgia, Greece, North Macedonia, Norway, Pakistan and Romania. My message to each of these countries is: this is your window of opportunity. If you act aggressively now, you can contain this virus. You can prevent people getting sick. You can save lives. So my advice to these countries is to move swiftly. The epidemics in the Islamic Republic of Iran, Italy and the Republic of Korea demonstrate what this virus is capable of. But this virus is not influenza. With the right measures, it can be contained. That is one of the key messages from China. The evidence we have is that there does not appear to be widespread community transmission. In Guangdong, scientists tested more than 320,000 samples from the community and only 0.14% were positive for COVID-19. That suggests that containment is possible. Indeed, there are many countries that have done exactly that. There are several countries that have not reported a case for more than two weeks: Belgium, Cambodia, India, Nepal, Philippines, the Russian Federation, Sri Lanka and Viet Nam. Each of these countries is different. And each shows that aggressive, early measures can prevent transmission before the virus gets a foothold. Of course, that doesn't mean those countries won't have more cases. In fact, as of Tuesday, both Finland and Sweden had reported no cases for more than two weeks, but unfortunately both had new cases yesterday. That's why we advocate a comprehensive approach. Every country must be ready for its first case, its first cluster, the first evidence of community transmission and for dealing with sustained community transmission. And it must be preparing for all of those scenarios at the same time. No country should assume it won't get cases. That could be a fatal mistake, quite literally. This virus does not respect borders. It does not distinguish between races or ethnicities. It has no regard for a country's GDP or level of development. The point is not only to prevent cases arriving on your shores. The point is what you do when you have cases. But we are not hopeless. We are not defenseless. There are things every country and every person can do. Every country needs to be ready to detect cases early, to isolate patients, trace contacts, provide quality clinical care, prevent hospital outbreaks, and prevent community transmission. There are some vital questions that every country must be asking itself today. Are we ready for the first case? What will we do when it arrives? Do we have an isolation unit ready to go? Do we have enough medical oxygen, ventilators and other vital equipment? How will we know if there are cases in other areas of the country? Is there a reporting system that health facilities are all using, and a way to raise an alert if there is a concern? Do our health workers have the training and equipment they need to stay safe? Do our health workers know how to take samples correctly from patients? Do we have the right measures at airports and border crossings to test people who are sick? Do our labs have the right chemicals that allow them to test samples? Are we ready to treat patients with severe or critical disease? Do our hospitals and clinics have the right procedures to prevent and control infections? Do our people have the right information? Do they know what the disease looks like? It's not usually a runny nose. In 90% of cases it's a fever and in 70% of cases a dry cough. Are we ready to fight rumours and misinformation with clear and simple messages that people can understand? Are we able to have our people on our side to fight this outbreak? These are the questions that every health minister must be ready to answer now. These are the questions that will be the difference between 1 case and 100 cases in the coming days and weeks. If the answer to any of these questions is no, your country has a gap that this virus will exploit. Even developed countries could be surprised. Our message continues to be that this virus has pandemic potential and WHO is providing the tools to help every country to prepare accordingly. We've shipped testing kits to 57 countries and personal protective equipment to 85 countries who need it. We have trained more than 80,000 health workers through our online courses, in multiple languages. We've issued operational guidelines, with concrete actions countries can take in eight key areas to prevent, detect and manage cases. The guidelines also include key performance indicators, and the estimated resources needed to prepare for and respond to a cluster of up to 100 cases. This is not enough, so we will do more. WHO stands ready to support every country to develop its national plan. Once again, this is not a time for fear. This is a time for taking action now to prevent infections and save lives now. Fear and panic doesn't help. People can have concerns and rightly so. People can be worried and rightly so. The most important thing is to calm down and do the right things to fight this very dangerous virus.

Thank you.