



## **A Study of Semantic Change in the Word *viral***

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” There is nothing permanent except change.”

Heraclitus

## Abstract

With diachronic corpus over the time periods, I selected a word that might be suitable for this type of study for detecting if potential semantic changes have occurred. In this study, I explored the lexical semantics of the word *viral* to see if the World Wide Web (WWW) has influenced the word. This essay explores how the WWW influences word meaning within a language. The present study has been done in two parts. The first part was done by collecting and comparing definitions from four different dictionaries: *The Oxford English Dictionary 1933/1961*, *The Oxford Dictionary of English Etymology 1966*, *Compact Oxford Dictionary of Current English 2002*, and *Longman Dictionary of Contemporary English, 2018*. Four different dictionaries were used to collect definitions that occurred during different periods; for example, two were used before the appearance of the WWW, one was used after the appearance of WWW, and the last dictionary was used to display the definition of contemporary English. The second part was done by corpus analysis. Two different corpora were used for this study: The Corpus of Contemporary American English (COCA) and the Corpus of Historical American English (COHA). Corpora were used to look through the word *viral* and to provide a useful source of how a particular word is used within language. The results showed that the principal definition of the word *viral* had obtained additional definitions within language, a definition related to Internet terminology.

Keywords:

Semantics, Semantic change, Diachronic change, Corpus, Collocation, Context analysis, viral, WWW, dictionaries

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## 1. Introduction

Time changes everything, and everything around us is constantly changing. However, a language can also be attached to the change because nothing is permanent except change. Take, for example, the Latin language; stories go that the language died, while others say that the language never died but simply evolved into the Roman language, languages that are spoken throughout the Western World. Nevertheless, language is one of the living and growing things, yet interchangeable. Semantics has to do with meaning, where the study of words' meaning is called lexical semantics. Semantic change is a concept that focuses on how a new meaning arises within a language. Namely, a change can occur in different ways. For example, when a word procures a new meaning and where the meaning is entirely different from the original one, it gains multiple meanings and becomes a polysemous word, or when it becomes less general than its previous definition, also known as semantic narrowing. Several things influence language, for example, new words entering the language, old words obtaining new meaning, language contact, cultural environment, social prestige, migration, trade, technology, and new inventions. At any rate, regardless of these reasons, this work will mainly focus on the language change that may or may not be obtained after the creation of the World Wide Web (WWW).

As the WWW was becoming an essential part of social evolution, it has influenced our language and education, healthcare, businesses, government, and how we communicate with each other. This work aims at investigating the meaning of the English word *viral*. This study will focus on a specific period to discover if there is any sign of semantic change within the word *viral* after the invention of the WWW. In this research, the particular period dates back to the early 1990s when the WWW became accessible to everyone, until today. This subject is chosen simply because of my personal curiosity about the language and how the influence of the WWW may affect it. The word *viral* has developed gradually and is used repeatedly by adolescents. Nevertheless, it has an entirely different semantic meaning than it had a few centuries before. The word *viral* became alluring on this occasion and was selected for this study.

## 1.1 Aim and framing of the questions

This work aims to investigate the word *viral* and see how it is used and in what contexts.

However, the primary purpose of this research is to see if the word *viral* has been the subject of semantic change over a specific period of time. The specific period of time, as mentioned above, is the period before and during the WWW, that is to say, a time before the WWW, to the present time. The following questions will be studied and investigated in this research:

- ✧ What was the meaning of *viral* prior to the WWW?
- ✧ Has the WWW affected the meaning of the word *viral*?
- ✧ What signs of semantic change can be found?

## 2. Background

### 2.1 The World Wide Web and Software Framework

The WWW has made it easier for people in many ways, such as sharing information, communicating with each other, or using it for entertainment. Therefore, this part will give brief details about the history and a rise of an interconnected system of public web pages, WWW.

As technology developed and the popularity of networking increased, scientists became curious about the network. Some of them were interested in the software platform, such as telecommunicator carriers and vendors of network products. One of these scientific enthusiasts was a British scientist, Berners- Lee. Berners is acknowledged as the inventor of the World Wide Web (Abbate, 2000), who opened up the WWW to everyone. The history of WWW, also called W3, WWW, and the Web (*MDN Web Docs Glossary 2021*), dates back to the year 1990 in the CERN physical laboratory in Geneva. This is where the first software version launched into operation as a communication channel. The WWW is an information system where documents are recognized by reference (an address), which helps users of the network utilize resources on the WWW. Approximately after the two decades that went into packet switching networks, the WWW transformed into a popular form of communication networking. Scientists increasingly

became involved in software development and mass media communication. The team of software engineers, together with Marc Anderssen, developed the first computer program in 1993 that included colored images called Mosaic.

By having a browser that included both graphics and texts, the WWW browser was greatly desired on the market, and within five months, in the spring of 1994, it was estimated that more than one million had access to it (Schatz, & Hardin, 1994, p.897). Notwithstanding, one year after the WWW browser Mosaic, as the world's largest software company, at that time, Microsoft Corporation released a Windows 95, where in the first five weeks, 7 million copies of the new product were sold, History.com Editors (2020). Soon after Windows 95, the Internet Explorer (IE), as an operational system for Windows 95, was introduced to the public. It has become one of the most popular tools for accessing the Internet (Internet Explorer, 2021), one of the most known browsers for the Millennials and Generation Z. Even though IE was a leading web browser at that time, around the same time, a new search engine was appearing, which was called Backrub. However, as nothing is permanent except change, the development process occurs repeatedly, and at that time, the Backrub developed gradually into a powerhouse company called Google. Once Google became popular, the contemporary world got a new search engine named Google. Currently, Google is an Internet search engine that organizes information and helps people collect information and make them universally accessible.

Nevertheless, at present, looking at any information we need at Google search engine, for example, this piece of information about the word *viral*, where all the “lion share” of information is accessible publicly. Due to WWW, people can communicate, assemble, and share information from anywhere to anyone.

## **2.2 A linguistic perspective on Language and the Internet**

If the WWW is so beneficial and functional, are there any advantages and disadvantages of the WWW? How does the WWW influence our language? As mentioned before, this research is related to language and the change caused by the WWW. Therefore, the focal point of this section is to share information from a linguistic perspective.



As an editor of the Cambridge Encyclopedia database, British linguist David Crystal's principal purpose is to investigate the Internet's impact on the language. Crystal (2004) states that technology constantly changes a language, dating back to the discovery of printing machines, the telegraph, the telephone, and broadcasting technology; however, this also applies to the Internet. For instance, it allows language to become more diverse, where new words enter the language, unique style, and new sounds, and ultimately it gives a dramatic expansion to the language. In his book *Language and the Internet*, Crystal (2004) writes that language has become more prosperous due to the Internet. As the Internet grew in the last decades, language became more diverse, and many different variations of communication entered society. In an interview with Macmillan Education ELT, Crystal suggests that new styles of the English language are becoming apparent as consequences of the Internet and creating new opportunities for conversation, or as he phrases it, "new communicative dimensions." For example, new ways of communication are messaging on the phone, blogging, different chatrooms, e-mailing, social networking sites, and so forth. Not to forget, a way that language has been enriched by varying types of suffixes that belong to an electronic address, including a "com" for commercial, "gov" for government, and "net" for the network. Crystal believes that language has not been changing much since the innovation of the Internet; for example, grammar and pronunciation continue to be the same.

On the other hand, some changes have taken place, for example, a new way of using punctuation, that is, emoticons have emerged in language and are used frequently by adolescents. Apart from emoticons, punctuation marks have been used differently, especially exaggeratedly. Besides punctuation, new ways of abbreviations have emerged due to language, for example, "lol" for "lots of love," "u" for "you," "2" for "to," and many more. However, regarding new vocabularies, a few thousand words have entered the language but not that many compared to how many words are in the English language. As an Internet linguist, Crystal mentions that only a tiny fraction of new words have entered the English language since the innovation of the Internet. To give some examples, words such as hashtag, selfie, selfie-stick, podcast, retweet, and so forth. Nevertheless, these new words have not affected English that much because most English is the same today as 20 years ago (Crystal, 2013), yet small changes have occurred.

### 3. Theory

The theory used for this work is Wilkin's seven-stage semantic theory, provided by Koch.

#### 3.1 Semantics

According to contemporary reports, the history of semantics dates back to the late 19<sup>th</sup> century. The concept of semantics was first used by a French scholar, Michel Bréal, in 1883 (Allan, 2016). According to Allan (2016), Bréal considered semantics as an essential part of linguistic study, yet, in a way, Bréal saw those semantics were suffering a lack of proper care where, in his fashion, semantics came to the fore. Nerlich (1992) famously put it that semantics is “the reflection upon meaning in general and the meaning of words in particular” (p.2.). Semantics helps people to express their particular thoughts, how they decode texts, and how they communicate with each other. Hurford (2007) writes that linguists are “thinking of semantics as dealing with the meanings of words and sentences” (p.49). For example, consider the following criteria and their meaning within the language, introduced by Finegan (2015):

(1) “Matthew spent several years in northern Tibet.”

(2) “Matthew was once in northern Tibet.”

Both examples describe Matthew’s visit to Tibet, yet they bear different meanings. For example, the first sentence manifests that Matthew spent several years in northern Tibet. In contrast, the second example only shows Matthew’s visit to Tibet, regardless of the length of the stay. Different sentences consist of different meanings; nevertheless, this applies also to lexical items, known as words. Other words have different semantic meanings, and according to Finegan (2015), the study of word meaning is called lexical semantics and is focused on linguistic meaning. Each word is considered on its own and has its own history.

Like language, words can change over time, where they simply lose their old meaning and obtain new; this term is known as a semantic change or semantic shift. Finegan (2015) calls the lexical change a semantic shift and metaphorical extension, other linguists, such as Traugott and Dasher

(2005), call it a semantic change. Finegan (2015) uses two well-known words, *hawks* and *doves*, that gained popularity of language change during the Vietnam War.

Due to that, hawks and doves had achieved an extension of their meanings after the outbreak of the war. For example, *hawks* came to be used as someone who favored the military pressure, while *dove* meant when someone who resisted the military force. In the contemporary world, the word *dove* is known to signify love and peace. Semantic change happens for various reasons and in multiple ways. In the report, a famous linguist, Anatoly Liberman (2013), writes that “*the meaning changes dramatically, from century to century.*” or obtained an additional meaning.

Another linguist that focused on the work of semantic change is Gustaf Stern. In his study, *Meaning and change of meaning, with special reference to the English language*, Stern (1931) takes as an example the word *bead*. Long ago, the word *bead* was first used in a religious context; for example, “she was counting her beads.” However, it gained a new meaning later on and became “a small ball.” Today, the word *bead* bears a meaning of “a small piece of glass, wood, etc., with a hole through it, that can be put on a string with others of the same type and worn as jewellery” (*Oxford English Dictionary*).

Traugott and Dasher (2002) list pejoration and amelioration, restriction and expansion as different types of semantic change that can affect words. For example, if the word changes positively, then positive connotations occur, and this is called amelioration. The word *nice* is an example of this semantic change. Some time ago, the lexical meaning of *nice* was a *stupid, ignorant or foolish* person, while in the present day, *nice* means “kind and friendly person” Steinmetz (2008). On the other hand, if the word takes a negative meaning, this is called pejoration, when a word changes for the worse, for example, the word *silly*. A long time ago, *silly* meant *happy and fortunate* person, whereas in the modern world, *silly* means *foolish, stupid or unintelligent person* (Steinmetz, 2008). Other ordinary semantic changes are restriction and expansion, also known as narrowing and broadening the meaning (Traugott & Dasher, 2005). Words that obtained narrowing are *deer* and *corn*. For example, the word *deer* currently signifies a specific animal, whereas, in the past, it signified any type of animal. Concerning the word *corn*, its meaning has become less inclusive and obtained a new semantic meaning of *oats* in Scotland and *maize* in the USA (Traugott & Dasher, 2002, p.56).

On the other hand, broadening, also known as expansion/generalization, is an opposite process. It is when a word's meaning become wider. An example of this it the word *arrive*. This word has its roots in old Latin *arripere*, which means “*reach the river's shore*” (Traugott & Dasher, 2002, p.56): today, the broadened meaning of arriving means to “reach a destination” either to “each the river's shore,” at work or home. As well as that, it is worth noting that the same words can obtain additional meaning and become polysemous word, a word that has multiple meanings.

### **3.2 Theoretical framework**

It is known that semantic change is a slow-moving procedure that occurs in small stages over a long period. Koch (2016) wrote a chapter in Juvonen & Koptjevskaja-Tamm (2016) about innovative semantic change, where he explained how semantic change makes its occurrence in the first place. In this chapter, Koch (2016) discusses John Wilkin's theory, “cycle of genesis and disappearance of lexical polysemy in semantic change” (p.25). For example, he writes that the meaning of one word, A, can easily bend and become transformed as a whole into a new meaning. However, this is attainable only with the word that has a polysemous meaning. Even so, this gradual change proceeds throughout some stages. For example, Wilkins' theory consists of a total of seven stages:

1. Only the definition of A is used
2. Definition A is generally used, but definition B emerges and is accepted
3. Definition A is generally used, but definition B is to some degree used
4. Both the definition A and B are used alike
5. Definition A became less used while B became more used
6. Definition A is recognized but not used, definition B is used
7. Only definition B is used

Along with Wilkin's theory, another researcher proposes an identical approach devoted to ongoing semantic change. Traugott (2002) explains semantic change theory in three different steps, yet these steps are similar to Wilkin's theory.

1. Where a word has a definition A
2. When a word has definitions A and B
3. When a word has definition B

Both Traugott & Dasher (2002) and Wilkin's theory, provided by Koch (2016), show the same idea about semantic change. Moreover, their theories clarify that semantic change is a slow process and requires gradual development over a long time. Traugott and Dasher (2002) back up this process by arguing that semantic change appears from polysemy condition and not from monosemy. It should be noted that words can have more than two meanings and still not procure the semantic change (Traugott & Dasher, 2002).

### **3.3 Previous Research**

As it is known that meanings change and some words no longer have the same meaning while others obtain additional meaning, studies about semantic change have been conducted previously by other researchers to demonstrate these processes. For example, Banks' (2004) informative thesis show examples of a list of 16 words in Present-Day English that obtained any form of semantic change. The primary purpose of Banks' dissertation is to explain that the English language is forever changing. By demonstrating her motive, she investigates the various terms of Present-Day English and provide examples of semantic changes in chosen words for research, which have different meanings today than they once had. The methodological assumption of the study was completed by accumulated data from journal and magazine articles, textbooks, Internet resources, and dictionaries. Henceforth, Banks (2004) discusses the importance of how words have undergone semantic changes; for example, how words *meat*, *girl*, *hound*, and *starve* obtained semantic narrowing. For example, earlier, the word *meat* meant anything edible; nevertheless, now, it means the flesh of an animal. Similarly, the word *hound*, originally the *hound*, referred to any dog, but now it is used to identify a hunting dog. Regarding the word *girl*, earlier, the word *girl* denoted a child or young person of either sex, but, in the present English, the *girl* indicates a female child. Lastly, *starving* means to die, while in the Present-day English, it means to die from the absence of food (Banks, 2004).

On the other hand, words such as *plant* and *nice* became broader and expanded their meaning, known as generalization. For example, the word *plant*, Banks (2004), “Its early meaning was restricted to shrubs, saplings, and seedlings” (p.17), while now it designates any living organism of the kind typified by trees. Similarly to Steinmetz's (2008) example, Banks (2004) mentions the meaning of the word *nice*. In the present English, the word *nice* has numerous meanings, yet previously it meant a foolish person.

As a further matter, another investigation about the semantic change was carried out about the word *love*. Österberg (2020) used both corpus analysis and dictionaries as a central research tool to collect the data for her study about the word *love*. Österberg's investigation is set up between 1930 and 2010. The word of the investigation is to pinpoint if the word *love* has obtained semantic changes between the periods. The outcome of this research is quite interesting and noteworthy. Based on data from Österberg's investigation, it is possible to see that the use of the word *love* has changed, however, only by a small amount. Furthermore, research shows that development in society has contributed to a gradual change of the word *love* and, at the same time, expanded the meaning of the word. For example, the emergence of the new context, “I *love* it,” signifies satirical pleasure for another person's failures (Österberg, 2020).

Norlin's (2013) investigation of semantic change has similar results as Österberg's; however, her findings are associated with online games. Norlin (2013) study the semantic change in the Massively Multiplayer Online Role-Playing Game (MMORPG) in the Lord of the Rings Online (LotRO). This study looks into how the semantic changes work in an online gaming environment and how the language process occurs in an online Role-Playing Games environment. The synchronous chat logs from the LotRO corpus have been used as a quantitative method, where they were collected through an in-game application. Subsequently, the dependable and potential phrases of semantic change were thoroughly analyzed using the qualitative method. According to Norlin's (2013) research, the findings in MMORPGs verify that the language changes have occurred; for example, such a word would be the word *buff*. The word *buff* means to rub up against or polish something until it has shined. In contrast, in MMORPGs, as reported by Norlin (2013), the buff definition is to “protect players from disease or poison, or to buff them so that they are provided with additional morale or power” (p.19).

Similarly, in Oderfält's (2021) dissertation, the central theme is the semantic change in the English language during the Covid-19 pandemic. The research was conducted by using the ten most frequent words correlated with the Corona virus: *Reopen, Easing, In-person, Zoom, Mask, Distancing, Lockdown, Furlough, Phase, and Covering*. The Coronavirus Corpus and The British National Corpus are used as the primary methods tool for this exploration. The research aims to compare these words and see their usage before and during the pandemic. The results clearly show that the Coronavirus pandemic has affected the semantic prosody of these words and, according to Oderfält (2021), after the Coronavirus, they are mostly recognized as negative prosody. Findings show that before the Coronavirus, the word *covering* "used to describe something covering an area or a letter covering a certain topic" (p.15). Following the Coronavirus, the word was used as the "facial covering or wearing covering to protect oneself during the pandemic" (p.22). Not only global events, such as the Coronavirus, are capable of affecting the language. As it is very well known, the language is continually changing, especially during the times of different global events.

Not only has Covid-19 affected the English language, but the digital revolution has achieved that too. In his essay, with the help of the COCA and COHA corpus, Andersson (2020) brings forth the considerable outcomes about how the digital revolution and the advancement of technology influence our language. In his survey, Andersson (2020) concord the semantic change in four English words, *web, cloud, mouse, and bug*, to see if the digital revolution has affected these words, and the results are astonishing. For example, before the digital revolution, the result conveyed that the word *cloud* was defined as "watery vapour and the sense of smoke or dust floating in the air" (p.7). However, throughout the digital revolution, the meaning of the word *cloud* grew and obtained a new definition, *the online storage*. Consequently, during the 2010s, the results indicate that the online storage increases to 29.3 % of the total uses while the *watery vapour* "made up 30.4% of the total, compared to 45.1% during the previous decade" (p.7). As results based on this study, *cloud, web, mouse, and tag* derive polysemous meanings.

## **4. Method and Material**

This part will focus on the method deployed in this study. The information included here is about how data collection was made and utilized for analysis.

### **4.1 Quantitative and Qualitative analysis**

The quantitative part of the analysis has been done by collecting the information, such as analyzing numerical data in a corpus of collocated words. In contrast, the qualitative part investigates language samples within their context and meaning. Strauss and Corbin (1998) bring up three main components to conduct qualitative research: for example, data collection, analysis of data, and written and verbal reports. Data collection is necessary for qualitative research, and it can be collected from various sources, for instance, interviews, observations, documents, records, and films. After data collection, the organizing procedure takes place, for example, “conceptualizing, reducing the data, elaborating categories in terms of their properties and dimensions” (p.12). Lastly, the written reports are presented in the research, article, or books.

To sum up, all in all, qualitative data has to do with text, patterns, and qualities. Quantitative data, on the other hand, has to do with things that consist of information about numbers, graphs, and figures. Rasinger (2013) writes that, by using quantitative analysis, researchers are often interested in knowing how much or many there is/are.

### **4.2 Material - Dictionaries and corpus linguistics**

This research will focus on English dictionaries and corpus analysis to better understand the selected word. Dictionaries were used to show broad information about the word *viral* and its meanings. They are used to look up the meaning of the word and how a specific word is used by language users.

#### **4.2.1 Dictionaries**

In this work, I decided to investigate four different dictionaries, viz. *The Oxford English Dictionary 1933/1961(OED)*, *The Oxford Dictionary of English Etymology 1966 (ODE)*,



*Compact Oxford Dictionary of Current English 2002(COD)*, and *Longman Dictionary of Contemporary English 2018 (L.D)*. Dictionaries were used to give brief information about the word *viral* within a specific period of time to see if and how the word *viral* has been defined in these dictionaries. *The Oxford English Dictionary 1933/1961* and *The Oxford Dictionary of English Etymology 1966* have been used to give detailed information about the word's meaning before the appearance of the WWW. They are used to provide this study with an overview of how the word *viral* was used during the 1960s. *Compact Oxford Dictionary of Current English 2002* and *Longman Dictionary of Contemporary English 2018* were used to examine if there have been any changes with the word *viral* and see if any definition entered dictionaries. *Compact Oxford Dictionary of Current English 2002* dictionary was used to give data on the word *viral* when the WWW was young, for instance, during the first years of the 21<sup>st</sup> century. Lastly, the *Longman Dictionary of Contemporary English 2018* has been used to provide facts after the appearance of the WWW and the definition of contemporary English. Dictionaries were used to give an essential function of the word's meaning. For example, the first task was to look for the word *viral* in the dictionary. When the first part was finished, and the word *viral* was found in them, the second part was performed by collecting the information provided in dictionaries. Lastly, the collected information was written down and analyzed. The same procedure was done with all four dictionaries.

#### **4.2.2 Corpus data**

Corpus linguistics, as Barth and Schnell (2021) write in their book, is “a specific way of studying a language and language by systematically investigating how language is used in context” (p.9). Similar to their expression, Kübler and Zinsmeister (2015) define linguistic corpus as “an electronically available collection of text or transcripts of audio recordings is sampled to represent a certain language, language variety, or other linguistic domain” (p.4). Due to the electronically available text and audio recordings, corpus methodology is an efficient way of studying language and its use within different contexts; additionally, this also applies to lexical semantics and their collocation. In the report from Barth and Schnell (2021), the preliminary study of corpus linguistics is that language is massively variable. Corpus linguistic analysis is one of the promising approaches for investigating language and semantic change.

Data collection for the present research was taken from English-corpora.org, where large-scale data is collected. In this study, I have used the Corpus of Contemporary American English (COCA) and the Corpus of Historical American English (COHA) because the language in these corpora is used in everyday life. These corpora were used because they are the largest corpora of American English. According to (English-corpora.org), the COCA is the most used in the world and contains texts from early 1990 until 2019; on the other hand, the COHA collection of text dates back to 1820 until 2019. The COCA corpus contains more than a billion words from different genres, for example, academic texts, spoken, fiction, newspapers, and popular magazines.

The present study collected data by searching for the word *viral* in COCA and COHA. The first part was done by searching and looking for the available information on the word *viral* in COHA. This search enabled me to get quick information about the word *viral*, its first appearance within language, and how often it was used within texts. When this part was finished, the search for collocates took place. Meanwhile, searching the word collocates, the corpus reckons the Mutual Information scores to ascertain the connection between the words. The Mutual Information scores in this research were adjusted to level 3 to show the sufficiently strong relation between collocated words. The present study was limited to word forms where only noun collocates were searched. The primary purpose of this search was to explore what were the most collocated nouns with the word *viral*; the top six nouns were noted down in the table. Performing this search helped me realize what words are closely affiliated with the word *viral*; additionally, it provides considerable insight into the meaning of the text. Together with this search, the adjustment of different decades was set up.

Furthermore, settings were adjusted to ensure that all words fall into the same category of their origins. For example, instead of having both infection and infections as two different collocates, the search was grouped by the lemmas, which organized words fall into the same category. Finally, the search was done, and the records of all nouns collocates showed up.

Different decades were chosen for this study, starting with COHA's, 1960. Moreover, 1990 and the time between 2000-2019 were presented. These years are presented as prior to and after the emergence of the WWW. Regarding the COCA, the decades 1990, 2000, 2010, and years

between 2015-2019 were presented. Presenting years from 2015 to 2019 were particularly chosen to provide a detailed idea if another collocation related to Internet terminology emerged.

Subsequently, a brief analysis was carried out about the first appearance of the word *viral*, as mentioned before. When findings were presented, the result from these periods was compared to see if there were any signs of semantic change.

The context analysis was accomplished using Wilkin's theory, which Koch (2016) discussed as a cycle of genesis and the disappearance of lexical polysemy in semantic change, a seven-stage theory presented above. This was done by examining findings from different decades. For example, as polysemous meaning emerged in 2000, a closer context analysis was done during this decade. Additionally, the time between 2015 and 2019 was carefully scrutinized to identify if the Internet terminology has climbed further up in Wilkin's seven-stage theory. When completed, a comparison was made to survey how the definition of the word *viral* has changed over time. Besides Wilkin's theory, as mentioned above, Traugott's (2002) semantics theory with three different stages was used to assist and supplement Wilkin's theory, while Wilkin's theory will be the primary guide of this study.

## **5. Results**

### **5.1 Findings in dictionaries**

In this part, I will provide data collected from four different dictionaries starting with *The Oxford English Dictionary 1933/1961* and *The Oxford Dictionary of English Etymology 1966*.

#### **5.1.1 *The Oxford English Dictionary 1933/1961(OED)* and *The Oxford Dictionary of English Etymology (ODE) 1966***

Interestingly, in OED Vol XII, p.229, the word *viral* does not exist. This could be because the word *viral* did not exist during the specific time period or that the word was new and unusual within the language. To make sure that the word *viral* was not left out, ODE is used to confirm these findings. What is noticed here is the absence of *viral* in these two dictionaries. These findings show that the word *viral* did not enter dictionaries in the decades of the 1960s. On this

occasion, as results presented in OED and ODE, the word *viral* has not become a “real word.” For example, the word that had not been added in dictionaries at that time because it was not an accurate word and was not used in the real world.

### **5.1.2 Compact Oxford Dictionary of Current English 2002 (COD)**

In 2002 things looked different; *viral* has emerged and is found in the COD dictionary. In COD, *viral* is represented as an adjective together with a basic definition of the word:

Of the nature of, caused by, or relating to a virus or viruses.

The only definition represented in COD is the definition of medical terminology, which includes an example that is regarded as the spreading and growth of a virus from person to person. As seen in COD, OED, and ODE, the word *viral* emerged in dictionaries somewhere between the 1960s and 2002. On this occasion, with these findings, at the beginning of the 21<sup>st</sup> century, the word *viral* has become a “real word.”

### **5.1.3 Longman Dictionary of Contemporary English 2018 (L.D)**

However, looking at the latest dictionary in this study, L.D things look different. For example, the dictionary presents a new definition in the dictionary with a new word type, a noun, and a compound noun. In the following, we will see a definition of how *viral* is used as an adjective:

1. relating to or caused by a virus
2. passed on to other people on the Internet or using Mobile Phones
3. *go viral* if a picture, video, joke ect goes *viral*, it spreads widely, especially on the Internet or Mobile Phone

The first definition remained unchanged and contained approximately the exact definition as in COD 2002. Besides that, what is noticed here is that word *viral* has obtained additional definitions. For example, a new definition has emerged in the L.D dictionary. It is used in a different context, such as something spread or circulated rapidly on the Internet or Mobile Phone,

a picture, or video. This result suggests that the word *viral* is related to Internet terminology, and it came to light between 2002 and 2018.

Moreover, in L.D there are two additional meanings of the word *viral*; the second definition is when *viral* is used as a noun:

1. a *viral* video, advertisement etc, they use humorous *virals* to promote their products

In this context, *viral* is used as a noun instead of an adjective. For instance, the example in L.D “they used humorous *virals* to promote their products” (p.2033) shows that humorous is used as an adjective while *virals*, as a noun. In this example, the word *viral* has obtained a new part of speech and is used as a noun.

The last definition provided in L.D about *viral* is a compound word of *viral* and *marketing*, a *viral marketing*, and is used as a noun:

1. A type of advertising used by Internet companies in which computer users pass on advertising messages or images through email, sometimes without realizing that they are doing this.

### *Summary of dictionaries*

Regarding the word *viral*, there has been some change. Firstly, looking at the OED 1933/1961 and ODE 1966, it is noticeable that there was no sign of the word *viral* in these dictionaries; regardless of this, it might be because the expression is too new or unknown to be included in dictionaries. Looking at the COD 2002, there has been some change. What is noticed here is that word *viral* has emerged, and it has been added to the dictionary, commonly used in the medical context, such as, caused by a virus, a *viral* infection. The L.D 2018, the latest dictionary used in this study, shows that the word has extended its meaning and is used in different contexts.

Moreover, a word compound of the word *viral* has emerged, for example, *viral marketing*. Besides that, a new standard definition of the word *viral* became usual in language, but instead of an adjective, it is used as a noun; still, it is used entirely differently than as an adjective.

In summary, there have been some changes over a specific period of time. For example, according to chosen dictionaries, during the 1960s, the word *viral* did not exist in English dictionaries, while it appeared when the WWW was young COD 2002. At that time, the word *viral* had only one definition, and it was used in a medical context. Besides this, looking at the most contemporary dictionary in this research, L.D 2018, the technological development has influenced the word *viral*. The word has obtained both new definitions and new parts of speech, such as nouns, which have become more prevalent within words related to Internet terminology.

## 5.2 Corpus Findings

### 5.2.1 Findings in COHA

In this part, I will focus on findings found by COHA that expand between the years 1820- 2019. The first part will focus on words that collocate with the word *viral*; at the same time, a portion of examples will be provided to show in what context these collocates are used and in what type of terminology they are specified.

Despite the result from dictionaries, the statistics from COHA disclose different findings that are not present in the dictionaries. For example, the word *viral* was used for the first time at the beginning of the 20<sup>th</sup> century. Moreover, data shows that a rise in usage can be deduced in the second half of the 20<sup>th</sup> century. The first signs of *viral*, according to COHA, appeared already in 1914, when it was used only once by an American naturalist, John Burroughs. Just as his occupational domain suggests, it has to do with nature; therefore, the word *viral* used at the beginning of the 20<sup>th</sup> century is related to nature, describing nature and the natural world. Having said that, in 1950, the word *viral* began to appear in the language in a few instances. However, it remained consistent in the 1960 and 1970. An increase in *viral* is seen in 1980 when the word *viral* was used twice as much compared to previous decades. Yet, a growing trend of the word *viral* could be seen at the beginning of the 21<sup>st</sup> century; this is when the word *viral* became relatively frequent within the language (See Appendix 1).

During 1960, the most collocated word, undoubtedly, were *infection* and *disease*. Table 1 shows the frequencies of top-six collocations to *viral* and is measured in frequency per million (see Table 1). For instance, consider the following statements found in COHA, “Leukopenia is often

associated with many of the *viral* diseases such as measles.” Other collocated words were also related to the medical terminology, such as *encephalomyelitis*, *hepatitis*, *myocarditis*, and many more. On the other hand, looking in the 1960s decade, there were no words related to Internet terminology.

**Table 1. Collocates of viral (1960)** **COHA**

Collocate +3	Freq	MI
<b>Infection</b>	4	12,66
<b>Diseases</b>	4	10,42
<b>OR</b>	2	3,41
<b>Encephalomyelitis</b>	1	18,75
<b>Myocarditis</b>	1	17,75
<b>Fungal</b>	1	15,43

Results further display that the principal usage of *viral* in the 1960s indicated only collocates of medical terminology. There were no signs of Internet terminology or terminology related to something that spread or circulated rapidly on the Internet. It is essential to mention that, as discovered in this research, during these years, *viral* was a relatively new word, and usage of the word *viral* occurred 0,76 times per million words.

A growing trend in usage can be seen during 1990 when the frequency reached 2,71 times per million words. However, in 1990, collocated words were identical to 1960. There was only medical terminology that collocated with *viral*. Words such as *infection* and *disease* were still the most used ones. At the same time, new nouns that emerged were *meningitis*, *bacterial*, and *cause*, terminology related to medical professionals. Nevertheless, there were no signs of work related to Internet terminology (See Table 2).

<i>Table 2. Collocates of viral (1990)</i>		COHA
Collocate +3	Freq	MI
<b>Infection</b>	26	12,18
<b>Disease</b>	7	8,21
<b>Load</b>	5	8,23
<b>Meningitis</b>	4	13,51
<b>Bacterial</b>	4	12,32
<b>Cause</b>	3	5,49

Even in the 21<sup>st</sup> century, words related to medical terminology were still dominant. The first sign of collocation words related to Internet terminology in COHA appeared in the 21<sup>st</sup> century and was found in 2009. From 2000 to 2019, the word *video* appeared in the second place and showed a growing trend of the word relating to Internet terminology. Words related to Internet terminology, such as the word *video*, seem to become popular in the new century, at which point, it overtook all collocated words except the word *infection*. Another interesting word that emerged among the top words that collocate with *viral* was the word marketing.

Nevertheless, in this context, marketing is not used as a verb but as a noun; the compound of words *viral* and *marketing* obtained a new word, *viral marketing*. As well as that other words related to Internet terminologies emerged during this period, such as *YouTube*, *Media*, *Twitter/Tweets*, and *Photos* (see Appendix 2). For example, consider the following sentence found in COHA, “Have you seen this *viral* photo of Russian President Vladimir Putin?”

However, given that information, table 3 shows a rise in the usage of words *video* and *marketing*.



<i>Table 3. Collocates of viral (2000-2019)</i>		<i>COHA</i>
Collocate +3	Freq	MI
<b>Infection</b>	39	10,37
<b>Video</b>	25	7,80
<b>Load</b>	11	7,55
<b>Disease</b>	9	6,47
<b>Bacterial</b>	7	10,47
<b>Marketing</b>	7	7,89

### 5.2.2 Findings in COCA

This part will focus on findings from COCA between the years 1990 and 2019.

As one of the most used corpus of English, a corpus containing 25+ million words each year (1990-2019), COCA findings provide similar findings to COHA in the time between 1990-1999. (See Tabel 4). For example, medical terminology was still highest in collocation with the word *viral*; nouns such as *infection*, *disease*, and *load* are the most used. *Infection* is twice as much used in comparison to second-holder. Similarly to the COHA, words used to describe something widely circulated on the Internet are unnoticeable in this decade. A word such as *marketing* or *video* does not appear at all in this period of time.

<i>Table 4. Collocates of viral (1990s) COCA</i>		
Collocate +3	Freq	MI
<b>Infection</b>	130	11,42
<b>Disease</b>	60	8,2
<b>Load</b>	48	8,8
<b>Bacterial</b>	28	11,92
<b>Replication</b>	21	12,19
<b>Hepatitis</b>	21	11,75

In COHA, the first sign of collocating words related to Internet terminology appeared in the 21<sup>st</sup> century, as it is with COCA. The first collocated word related to Internet terminology in COCA appeared already in 2000, which was *marketing*. However, dominating collocates in this decade were still those related to medical terminology (See Table 5). The popularity of the defined categories in COCA is relatively identical to COHA. Words such as *infection*, *load*, *disease*, and *bacterial* remain at a high position, while words related to Internet terminology emerged, but were seldom used. In the first decades of the 2000s, terms such as *marketing* and *video* appear relatively high, ninth respectively twelfth place (See Appendix 3). On the other hand, there was no indication of other words related to the Internet terminology during this decade.

<i>Table 5. Collocates of viral (2000s) COCA</i>		
Collocate +3	Freq	MI
<b>Infection</b>	180	10,85
<b>Load</b>	99	9,34
<b>Disease</b>	39	6,74
<b>Wheeze</b>	33	12,09
<b>Bacterial</b>	29	10,79
<b>Illness</b>	26	8,05

Results from 2010 are interesting. The most common collocate in this decade is the word *video* (See Table 6). However, this is not surprising since WWW and social media usage increased and was, still are, used for social interaction. This change has to do with the WWW, which has become a part of our daily life. The popularity of the WWW and the number of users increased, and as a consequence of that, terminology related to the Internet increased; consider this sentence “everybody’s watching this *viral* video, this guy in the hood they’re calling the grim reaper.”

Along with *video*, other words related to Internet terminology appeared in COCA, such as *YouTube*, *Media*, *Internet*, *Facebook*, and *Tweet/Twitter*. On the other hand, medical terminology still dominates compared to Internet terminology. For instance, *infection* is still the most used collocation within medical terminology, other words that emerged and attained its popularity is *RNA* which stands for ribonucleic acid; consider the following sentence found in COCA, “Investigators detected *viral* RNA in one or more samples in 81 men”.

<i>Table 6. Collocates of viral (2010s) COCA</i>		
Collocate +3	Freq	MI
<b>Video</b>	288	7,31
<b>Infection</b>	176	8,68
<b>RNA</b>	74	9,90
<b>Load</b>	73	7.41
<b>Hepatitis</b>	58	10,66
<b>Disease</b>	54	5,52

Lastly, in this part, collocation after 2015 is provided. As shown above, I have mainly focused on different decades. However, while doing this research, my curiosity grew, and I decided to examine the collocation from 2015 to 2019 because the COCA only contains data collection until 2019. The primary purpose of this is to look if another collocation related to Internet terminology has emerged. Some collocations have lost their place while others have gained; for instance,

*vector* has emerged and proceeded *hepatitis* and *disease* while *video*, *infection*, and *load* remain unchanged (See Table 7). Something worth paying attention to is the new collocations related to Internet terminology. New collocations have emerged; however, they have not yet gained wide popularity. Consequently, they ended up further down the page. Collocations include *photos*, *posts*, *stories*, *social*, *clips*, *memes*, and many more (See Appendix 4).

<i>Table 7. Collocates of viral (2015) COCA</i>		
Collocate +3	Freq	MI
<b>Video</b>	152	6,82
<b>Infection</b>	96	8,77
<b>Load</b>	35	7,16
<b>Vector</b>	29	8.71
<b>RNA</b>	28	8,73
<b>Replication</b>	25	9,64

### *Summary of the English corpus*

As shown above, the findings from corpora show the collocate analysis of the word *viral*. The word *viral* did not exist within language a century ago; however, as found in COHA, *viral* was first introduced in 1914 by an American naturalist, John Burroughs. A few decades after, it has obtained its popularity. According to COHA, in 1950, the word *viral* commenced its usage within the language in a small amount. However, as decades passed, the word *viral* became frequent, primarily within medical terminology, as noticed in the present study. As the WWW emerged and became used frequently, the word *viral* obtained its popularity, and, on this account, the word received additional definitions. As a matter of course, *video* has passed all definitions related to the medical terminology and emerged at the top. However, this happened between 2010 to 2019 (see Table 6 &7). At this time, the top collocated word to the word *viral* is the word related to Internet terminology, *video*. The present study is also interesting in the emergence of other vocabularies related to Internet terminology; as discovered in this study, around twenty new words related to Internet terminology emerged (See Appendix 4).

Still, for the most part, words related to medical terminology are the most collocated words.

## 6. Discussion

The primary purpose of this study has been to examine if the word *viral* has changed over a specific period of time and to discover if there is any indication of the semantic change that occurs after the invention of the WWW. This study focused on answering three different questions. The first question was to find out the meaning of the *viral* prior to the WWW. After that, the main focus was to find out if the WWW affected the meaning of the word *viral*. Lastly, when these questions were answered, the ultimate task was done by putting together all answers.

Both dictionaries and English corpora have provided significant results about the word *viral*. This study's interesting and unexpected discovery is that the word *viral* has been used within language since the first half of the 20th century. For example, corpus findings show that word was used only once, already in 1914. According to COHA, in the 1950s, the word *viral* commenced its usage within the language in a low amount and continued to be the same during the 1960s and 1970s. With given results, the answer about *viral* missing in *The Oxford English Dictionary 1933/1961* and *The Oxford Dictionary of English Etymology 1966* could be explained; the word *viral* was not popular among language users. However, during the 1980s use of the word *viral* increased, and it became more common within language. As seen in Table 1, during the 1960s, *viral* was inadequately used within the language and only within medical terminology. The results seemed to be the same until the beginning of the 21st century. During the first decades of the 21st century, the first sign of collocation related to Internet terminology emerged, as proved in the result section. Thus, the collocation related to Internet terminology was used infrequently. As the WWW became available and electronic devices became easily accessible, new words emerged within language, and terminology related to the Internet gradually grew. As shown in this study, from the first decades of the 21<sup>st</sup> century, the word *viral* has obtained new collocate words and extended its meaning, and was used in different contexts; a definition related to something that spreads widely on the Internet (see Tables 3 and 6). Throughout this period, the word *viral* slowly obtained a polysemous term. The signs of polysemy can be seen as well in table 6. Words such as video and other words related to Internet terminologies, photo, social, clip,

and meme obtained popularity. These collocates attribute the word *viral* as something that is circulated rapidly on the Internet rather than in medicine.

In 2015, both medical and Internet terminology were the primary senses of the word *viral*. Table 7 shows that the word video has overtaken medical terminology, and it has a frequency of 152 during this time period, while infection, on the other hand, the highest-rated word related to medical terminology, has a frequency of 96. It seems as if the impact of the WWW has influenced the word *viral*. The WWW dramatically expanded the word *viral*, where the word became more prosperous and more diverse; as Crystal (2001) discussed, these small changes are helping language become more diverse. These findings are closely associated with Norlin's (2013) investigation of semantic change in the online game (MMORPG). It could be argued that online gaming and computer systems such as WWW are constantly yet in a slow-moving process affecting our language.

The dictionaries section shows that the word *viral* has developed over time. *The Oxford English Dictionary 1933/1961* and *The Oxford Dictionary of English Etymology 1966* indicate that the word *viral* is missing. It can be argued that the word *viral* was a newfound expression and has not entered dictionaries. Regarding *Compact Oxford Dictionary of Current English 2002*, the result demonstrates that the existence of the word *viral* is only associated with the medical expression, for example, something that is related to “the nature of, caused by, or relating to a virus or viruses” (p.1290). Besides this, COD shows no definition concerning Internet expression, which conspicuously shows that the definition of the word *viral* is practically linked with medical expression. According to *L.D. (2018)*, the word *viral* has expanded its definition—findings in *L.D. (2018)* show an additional definition of the word *viral*, a definition that is related to Internet terminology, in particular, go *viral* “if a picture, video, joke goes *viral*, it spreads widely, especially on the Internet or mobile phones” (p.2033). To put it differently, something that spreads widely on the Internet. It could be argued that accompanying the development of society and the influence of the WWW, the word *viral* has obtained an additional definition.

Over and above this, one thing that is apparent in *L.D. (2018)* is that the word *viral* has processed a conversion, a word-formation that gives an existing word a new word class or part of speech, a noun. To put it differently, *viral* has undergone conversion, or functional shift, as it is called in

linguistics. This occurs when a word class or part of speech gains a new syntactic function. Hence, it seems as if this change occurred when a rise in digital technology and WWW entered the world's community. Consequently, the word *viral* is used in different circumstances, a noun, as presented in L.D. (2018), "they used humorous virals to promote their products." (p.2033). As seen in the dictionary, the results show that the meaning of the word *viral* has become richer and more diverse. This could also be seen when the *viral* established an additional part of speech. Perhaps, this can be tied up to Crystal's (2004) theory that a dramatic language expansion occurs due to the digital revolution.

As a further matter, this dramatical expansion has established a newly coined expression. This brand new word was made by compounding the words *viral* and *marketing*, and in such a manner, yielded a new coinage, namely, *viral marketing*. This noun is mainly found within the services across the WWW. The WWW and the arrival of social media have considerably enlarged communication between people, but it also influenced commerce and online marketing. At present, the activity of buying goods, merchandise, and supplies online has become common in everyday life; due to this social development, online advertisement has become essential. Based on findings from L.D. (2018) *viral marketing* is defined as "a type of advertising used by Internet companies in which computer users pass on advertising messages or images through email, sometimes without realizing that they are doing this: You can reach more potential customers by using viral marketing techniques." (p.2033). Proof of an establishment of a new word in a different sense, neologism, exemplifies a paragon of Crystal's (2004) study about how technology and innovation within society enriched and, in small margins, affected language.

Perhaps, these findings are closely connected to some of the previous research. For example, these results go hand in hand with Österberg's (2020) discoveries on the word *love*, where the development in society has contributed to a gradual change within the vocabulary, as in this case, it has done both with the word *love* and the word *viral*. After all, semantic change is clearly a slow-moving process that occurs in small stages over a long period. However, in this study, the word *viral* obtained small changes within semantics. Regardless, the word *viral* is far from obtaining a complete semantic change, yet, as these findings demonstrate, it is an ongoing process. On the other hand, an expansion of meaning in *viral* has taken place, where the word becomes more inclusive than its earlier meaning, like the one Traugott & Dasher (2002) bring up,

broadening, where *viral* has adopted a new definition related to Internet terminology. Similar to Andersson's (2020) investigation about the word *cloud*, the word *viral* grew and obtained a new definition and now contains multiple meanings; for example, something spreads widely on the Internet.

Wilkin's theory, discussed by Koch (2016), is situated in the early stages of the word *viral*. This indicates that the word *viral* is in the process of semantic change. For example, prior to the WWW, only definition A was used within language, yet, as time passed and WWW became customary in everyday lives, an additional definition has emerged and slowly became accepted, definition B. Similarly, regarding the findings in dictionaries, the definition of *viral* that appears in *Compact Oxford Dictionary of Current English 2002* was only related to the medical context. Hence, some years later, as found in *the Longman Dictionary of Contemporary English 2018*, the word *viral* launched both within words related to Internet terminology and medical terminology. One thing that can be approached from this examination is that these findings strongly show that the word *viral* is being used differently.

## **7. Conclusion**

From the timeline in the present study, we have seen that during the 1960s, dictionaries did not contain the word *viral*. On the other hand, simultaneously, we have absorbed from corpus analysis that the word *viral* started to appear within the language and became used within medical terminology and gradually became frequent. Years after the emergence of the WWW, as presented in this study, the word *viral* grew and became used in a different sense. Along with the developments in society, the word *viral* has obtained a new meaning and coexists with two different meanings; the word *viral* becomes a polysemous word. Likewise, neologism or an establishment of a new word in a different sense has transpired, on this occasion, *viral marketing*. It can be argued that the emergence of WWW influenced the word *viral* and gave rise to a newly coined word. Change is a natural object that approaches gradually. Findings in this study point out that the WWW gradually influences the word *viral*, yet it is a slow-moving process. It could be said that the meaning of the word *viral* is gradually changing, and the signs of semantic change of the word *viral* are detectable. Based on the research theory, the proceeding throughout different stages of Wilkin's seven stages theory are detectable in the word *viral*.



As we know very well, we are constantly surrounded by digital technology; where society is constantly developing and, at the same time affecting us with its pros and cons; such as constantly fighting against different diseases; speculation could be made, but it appears to be that the word *viral* might stay with us as a polysemy word, eventually. Further work is necessary to follow and examine the state of the word *viral* and see if any new signs of semantic development appear along the way. As Heraclitus expressed, "there is nothing permanent except change."

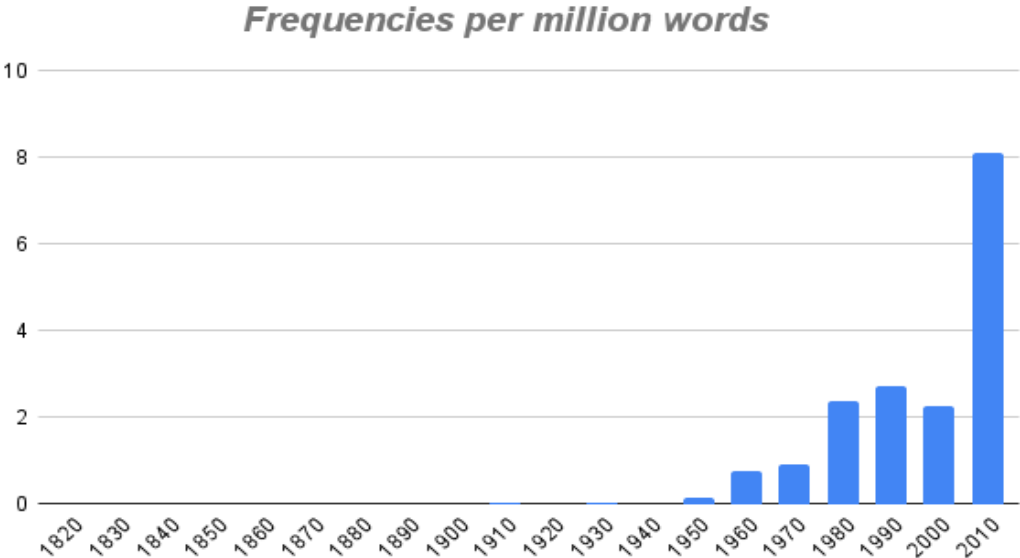
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# 9. Appendix

## 9.1 Appendix:1



## 9.2 Appendix 2

<b>Top 10 Frequencies in COHA, Plus Words Related to the Internet Terminology</b>				
<b>Position</b>	<b>Words</b>	<b>Freq</b>	<b>2000-2009</b>	<b>2010-2019</b>
1	Infection	39	24	15
2	<b>Video</b>	<b>25</b>	<b>1</b>	<b>24</b>
3	Load	11	8	3
4	Disease	9	4	5
5	Bacterial	7	5	2
6	<b>Marketing</b>	<b>7</b>	<b>3</b>	<b>4</b>
7	Hit	6	0	6
8	Enchantment	5	5	0
9	Replication	5	1	4
10	Injection	5	0	5
13	<b>Photo</b>	<b>5</b>	0	<b>5</b>
19	<b>News</b>	<b>4</b>	0	<b>4</b>
21	<b>Misinformation</b>	<b>3</b>	0	<b>3</b>
22	<b>Tweets</b>	<b>3</b>	0	<b>3</b>
24	<b>Youtube</b>	<b>3</b>	0	<b>3</b>
27	<b>Online</b>	<b>3</b>	0	<b>3</b>
30	<b>Media</b>	<b>3</b>	0	<b>3</b>
31	<b>Social</b>	<b>3</b>	0	<b>3</b>
41	<b>Twitter</b>	<b>2</b>	0	<b>2</b>

### 9.3 Appendix 3

<b>Top 10 Frequencies in COCA, Plus the Internet Terminology</b>		
<b>Position</b>	<b>Words</b>	<b>Freq 2000-2009</b>
<b>1</b>	<b>Infection</b>	<b>180</b>
<b>2</b>	<b>Load</b>	<b>99</b>
<b>3</b>	<b>Disease</b>	<b>39</b>
<b>4</b>	<b>Wheeze</b>	<b>33</b>
<b>5</b>	<b>Bacterial</b>	<b>29</b>
<b>6</b>	<b>Illness</b>	<b>26</b>
<b>7</b>	<b>RNA</b>	<b>25</b>
<b>8</b>	<b>Hepatitis</b>	<b>20</b>
<b>9</b>	<b>Marketing</b>	<b>19</b>
<b>10</b>	<b>Particle</b>	<b>19</b>
<b>12</b>	<b>Video</b>	<b>17</b>
<b>81</b>	<b>Internet</b>	<b>2</b>

## 9.4 Appendix 4

Position	Words	Freq. for 2015-2019
1	<b>Video</b>	<b>152</b>
2	Infection	96
3	Load	35
4	Vector	29
5	RNA	28
6	Replication	25
7	<b>Sensation</b>	<b>25</b>
8	Hepatitis	24
9	<b>Media</b>	<b>20</b>
10	Disease	18
13	<b>Post</b>	<b>16</b>
14	<b>Story</b>	<b>16</b>
20	<b>Internet</b>	<b>11</b>
21	<b>Marketing</b>	<b>11</b>
28	<b>Facebook</b>	<b>10</b>
33	<b>Tweet</b>	<b>9</b>
35	<b>News</b>	<b>8</b>
37	<b>Photo</b>	<b>8</b>
41	<b>Meme</b>	<b>6</b>
42	<b>Misinformation</b>	<b>6</b>
46	<b>Twitter</b>	<b>6</b>
57	<b>Advertising</b>	<b>4</b>
58	<b>Clip</b>	<b>4</b>
61	<b>Hoax</b>	<b>4</b>
80	<b>Advertisement</b>	<b>3</b>
87	<b>Image</b>	<b>3</b>

## 9.5 Appendix 5

Appendix 5 (cited definitions of the word viral in dictionaries)

### *Compact Oxford English dictionary of current English (2002)*

**Viral** • **adjective** of the nature of, caused by, or relating to a virus or viruses.

- DERIVATEDS virally adverb.

### *Longman Dictionary of Contemporary English – For Advanced Learners (2018)*

**vi-ral**<sup>1</sup> /'vaɪərəl \$ vaɪrəl ●○○ adj

**1** relating to or caused by a VIRUS: a viral infection

**2** passed on to other people on the Internet or using MOBILE PHONES: It is one of the most viewed viral videos on the web

**3 go viral** if a picture, video, joke etc goes viral, it spreads widely, especially on the internet or MOBILE PHONES

**Viral**<sup>2</sup> *n* [C] a viral video, advertisement etc: *They use humorous virals to promote their products*

**'Viral ,marketing** *n* [U] a type of advertising used by Internet companies in which computer users pass on advertising messages or images through email, sometimes without realizing that they are doing this: You can reach more potential customers by using viral marketing techniques.