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Semantic Characteristics of the Emerging Popular Construction "Cloud X" in Modern Chinese Language

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Abstract. Accompanied by the development of the Internet and big data, "cloud X" has become a popular construction that is more frequently used in the Internet in recent years. Studying and analyzing the generation mechanism and evolution process of "Cloud X" is of great reference significance for understanding the development of popular words in the new period and the word formation process of popular words. Therefore, this paper analyzes the popular word "cloud X" from the semantic perspective, taking the semantic evolution of "Yun (cloud)" as the entry point. In the process of exploring "Yun (cloud)", this paper will focus on the transformation of the semantic features of "Yun (cloud)", observing the original meaning of "Yun (cloud)",Yun (cloud)" in "cloud computing", and the semantic features of "Yun (cloud)" after "cloud X" has become a construction. By examining the similarities and differences of the semantic features, we can explore the process of "Yun (cloud)" gradually changing from a real word to a class of affixes and the reasons for the change.

Keywords: Cloud X; Constructions; Buzzwords; Class Affixes; Semantic Features.

1. Introduction

In recent years, along with the continuous development of online social networking and the advancement of virtual technology, the new term "Cloud X" derived from "Cloud Computing" has gradually entered the public's view. From its beginnings in the field of computers and networks, it has slowly penetrated into today's realm of life, forming part of people's everyday vocabulary, as well as a number of neologisms and terminology coined by the official media in response to current events or news. In 2006, Amazon.com launched its EC2 product and named it "Elastic Computing Cloud", although the concept of "cloud" was not formally introduced at that time, "cloud" already had new semantic features such as [+virtualization] [+digitization] [+sharing] [+instantaneousness] [+data] [+disaggregation]. Meanwhile, "Elastic Computing Cloud" became the name of "Cloud Computing". In August of the same year, in the search engine conference, Google Chairman and CEO Eric Schmidt first put forward the "cloud computing" concept, "cloud computing" formally became a new word in the field of computer networks. Since "cloud computing" was formally proposed, the field of computer and Internet has set off a brand new change, and the technology of "cloud computing" itself has also become a topic of interest and concern. In 2008, Microsoft released its public cloud computing platform (Windows Azure Platform), and in January 2009, AliSoft established the first "e-commerce cloud computing center" in Nanjing, Jiangsu Province. In November of the same year, China Mobile's cloud computing platform "Big Cloud" program was launched. From the introduction of a concept to the implementation of a technology, from abroad into the country and cover the daily life of countless people, to the present day, cloud computing has developed to a more mature stage.

In addition to the proposal of "cloud computing", the development of media technology, network communication and the online life of the three years of the epidemic have also led to the rapid iteration of the semantic features of "Cloud X" and the emergence of emerging buzzwords at a fast pace, and there has also been a proliferation of studies on "Cloud X". There has been a proliferation of studies on "Cloud X", but not on the semantic features of "Yun (cloud)". However, some of the literature only focuses on attributing the reason for the semantic change of "cloud" in "Cloud X" by means of "metaphor", without analyzing the semantic features of "cloud" itself and reasoning about the process

of "cloud" becoming a class of affixes step by step. Therefore, this paper focuses on exploring and interpreting this process.

2. The Semantic Evolution of "Cloud" and the Construction Formation of "Cloud-X

To explore the generation of "Cloud X", we can first examine the semantic evolution of "cloud". [1] Xu Shen's *Shuowen Jiezi* of the Eastern Han Dynasty explains the word "cloud" as follows: Cloud, the rising mist of mountains and rivers. With "rain" as the radical,Yun (cloud)"(云) looks likeYun (cloud)"(雲). All characters related to Yun (cloud)" haveYun (cloud)" as their radical. [2] Duan Yucai, a Qing dynasty scholar, further added to the semantics of "cloud" in his *Commentary on the Explanation of Characters in Shuo Wen JieZi*: "The interpretation of "Yun" in the text "*Shuowen Jiezi*" of the Eastern Han Dynasty by Xu Shen is as follows: "Yun (雲) represents the "qi" (气) of mountains and rivers. It is derived from rain, and the character "Yun"(雲) imitates the shape of clouds as they circulate. All characters under the category of "Yun" (雲) follow this form. Wang Fen cut." In the Qing Dynasty, Duan Yucai further supplemented the semantics of "Yun" in "Shuowen Jiezi": "Yun" represents the "qi" (气) of mountains and rivers. Timely rain descends from the sky. Mountains and rivers produce clouds. The character Yun (雲) is derived from rain. The form of Yun (雲) imitates the circulation of clouds. In earlier versions, there was a Yun (雲) above the character "Hui"(回), which has been deleted. In ancient scripts(小篆), the character was simply written as Yun . In small seal script, a rain character was added above it, thus becoming a character that is half pictographic and half ideographic. The form of Yun (云) imitates the circulation of clouds, which explains the pictographic representation of the ancient character Yun. Wang Fen cut. The thirteenth section. All the cloud of the genus are from the cloud." [3] (Note: The writer has maintained the Chinese term "气" as "qi" in the translation, as it is a concept that is difficult to translate into English without losing its nuanced meaning in the original text. "Wang Fen cut" refers to the rhyming dictionary compiled by Wang Feng during the Eastern Han Dynasty.) Duan Yucai, while pointing out that "rain" is the ideogram for "cloud", also noted that the characterization of "cloud"(雲) has both "compund meaning" and "pictogram elements". In other words, in addition to the "hieroglyphics", the formation of the typeface is closely related to the synthetic meaning of the monograms "cloud" and "rain". From "Yun (cloud)" as "air from mountain and river" and its own "shape like a shifting cloud", it can be concluded that the original meaning of "Yun (cloud)" has the semantic characteristics of [+lightness] [+flowingness] [+etherealness]. At the same time, it also has the semantic characteristics of "rain" [+water] [+density] [+dispersion] [+mobility], and so on. *The Xinhua Zidian (10th edition) and the Modern Chinese Dictionary* (7th edition) have a more scientific interpretation of the original meaning of "cloud". *The Xinhua Dictionary* explains "cloud" as follows: water vapor rises and condenses into tiny water spots floating in the air in clusters, called "clouds".[4] *The Modern Chinese Dictionary* explains "cloud" as an object made of water droplets and ice crystals suspended in the air.[5] This summarizes the semantic features of [+aggregation][+floating] in the original meaning of "Yun (cloud)". Combined with the examples of words given in *the Dictionary of Modern Chinese*, such as cloud gathering", "cloudy mountains", "clouds dissipating", "cloudheads", [6] and so on, the main semantic features of "Yun (cloud)" when it is used in its original meaning are The main semantic features of "Yun (cloud)" in this sense are summarized as follows: [+ ethereality] [+ lightness] [+ flexibility] [+ large scale] [+ wide coverage] [+ aggregation] [+ rapid change] [+ ambiguity] [+ whiteness].

After the emergence of the term "cloud computing" in 2006, the semantic characteristics of "Yun (cloud)" have been expanded from its original meaning. According to Microsoft's official website, "cloud computing" is the provision of computing services (including servers, storage, databases, networks, software, analytics, and intelligence) over the Internet (hereinafter collectively referred to as "the cloud") to provide rapid innovation, elastic resources and economies of scale. [7] *The Oxford Advanced Learner's English-Chinese Dictionary* (9th edition) defines cloud computing as:

NOUN[U]a way of using computers in which data and software are stored or managed on a network of SERVERS=computers that control or supply information to other computers, to which users have access over the Internet. [8] *The Collins COBUILD Advanced Learner's Dictionary of English* (8th edition) (Foreign Language Teaching and Research Press, 2017 edition) defines cloud computing as: N-UNCOUNT Cloud computing is a model of computer use in which services that are available on the Internet are provided to users on a temporary basis. [9] Cloud computing is defined in the *Modern Chinese Dictionary* as an Internet-based computing method that enables a large number of computers to form an extremely powerful system through the Internet, unifies the management and scheduling of resources, distributes tasks across computers, safely and reliably carries out ultra-large-scale calculations, and provides personalized services according to user needs. [10] It can be concluded from the definitions of the two that the "cloud" of "cloud computing" has been equipped with new semantic features on the basis of the original, namely [+Internet] [+intelligent] [+virtualization] [+data] [+platform] [+sharing] and so on, and at the same time, it also retains the semantic features such as [+large scale] [+wide coverage] [+fast change] etc. that are included in the original meaning of "cloud". From the real word "Yun (cloud)" to the "cloud" of "cloud computing", the semantics of "cloud" has begun to change from real to virtual, and the semantics has been expanded, even generating abstraction and generalized meaning.

With the further development of "cloud computing" and virtual big data technology, "cloud X" style terms have begun to emerge on the Internet. In the early stage of development, "Cloud X"-style words have a strong correlation with "cloud computing", and words such as "cloud space", "cloud technology", "cloud interconnection", etc. appear. "Cloud space", "cloud technology", "cloud interconnection" and other words, and overall [+Internet] [+datatization] [+intelligent] and other semantic features are more prominent, for example:

(1) Beijing has launched the "XiangYun Project", which relies on Baidu, Lenovo and other companies to build an open cloud search, cloud storage and other service platforms, so that urban management and public services can develop in the direction of refinement and intelligence. (CCL Corpus 2011-11)

(2) She emphasized that with a simple TV+Internet and without upgrading, various intelligent applications such as cloud office, cloud education, cloud interconnection, cloud games, etc., which would otherwise have to be supported by high costs, can be easily realized. (CCL Corpus 2011-11)

(3) More cloud industrial platforms need to be laid out to bring the Internet and manufacturing closer together. (CCL Corpus 2016-03)

(4) Some modern enterprises have long been realizing telecommuting and "cloud office", releasing great benefits and vitality with a lighter load. (CCL corpus 2016-08)

(5)This means that the development of cloud servers based on "cloud technology" and "cloud concept" has officially pushed China's cloud computing into a substantial stage of development. (CCL Corpus 2010-12)

As the "Cloud X" construction has been widely spread and matured in the media, "Cloud X" words have also begun to integrate with people's real lives. For example, during the Covid-19 pandemic, the stagnation of offline activities led to the enrichment of people's "online life", while "online interviews", "online contracting", "shared employees"[11] and "online employment" were also used. The emergence of terms such as "shared workforce" also provided an external context for the rapid development of the "Cloud X" construction. At this point in time, semantic features such as [+Internet] [+datatization] [+intelligence] are still prominent in "Cloud X"-style terms, but features such as [+virtualization] [+sharing] [+interactivity] have also begun to occupy an important place, for example:

(1) The hospital, which rose from the ground in only 10 days, not only attracted tens of millions of domestic netizens to play the role of "cloud supervisor", but also shocked countless foreign netizens

with Xinhua News Agency's reports on the constructionion of the Vulcan Mountain Hospital on Facebook, Twitter, and YouTube platforms. (Xinhua 2020-02-06)

(2) Cloud drinking, cloud dancing, cloud sleeping, like I'm suffocating at home. (Surge 2020-02-17)

(3) Cloud love, cloud dating, big data ..... can technology unlock the marriage program 3.0 era? (Sohu 2020-04-17)

(4) "Cloud cat petting" is good, but do not overdo it, do not let it disrupt our otherwise normal life. (People's Daily Online 2022-07-13)

(5)Professional DJs and multiple competitors, what is the experience of bouncing at Metaverse Cloud? (Interface News 2022-09-01)

(6) Two years ago, he taught netizens to cook Lu Cuisine through the form of video, real teaching, do not come false, harvest millions of "cloud disciples". (Sina Weibo 2023-03-31)

3. Semantic Delexicalization and the Characterization of Class Affixes

The transformation of the semantic features of "cloud" is mainly based on semantic virtualization. According to the semantic abstraction sequence "person>object>activity>space>time>property" proposed by Heine in 1991, it can be concluded that "cloud" in the construction of "cloud X" has been gradually abstracted from "object" to "property", and the semantics has undergone a strong virtualization. in the construction of "Cloud X" has been gradually abstracted from "thing" to "nature", and the semantics has undergone a strong virtualization. This virtualization is mainly reflected in the "cloud" [-visibility] in "Cloud X", and part of the semantics has been changed from figurative to abstract, and new semantic features such as [+Internet] [+datatization] [+intelligent] [+virtualization] [+interactivity] have also been derived. The [+ wide coverage] [+ large scale] in the original meaning of "Yun (cloud)" refers to the natural phenomenon of the cloud's huge volume and wide distribution in the sky, while the [+ wide coverage] [+ large scale] of "cloud" in "Cloud X" refers to the virtual network system's large volume, scalability, wide range of applications, etc. For example:

(1) The stores on both sides of the street are like a forest, and the billboards are like a tide or a cloud that breaks through the eye. (CCL Corpus 1999-12)

(2) The traditional construction model is constrained in terms of power, space, computing power and bandwidth, and the construction of a cloud platform enables automatic and optimal allocation of resources to maximize productivity. (CCL corpus 2012-05)

(3) Cloud education breaks the monopoly and inherent boundaries of traditional education in terms of the application of information technology. (CCL Corpus 2010)

(4) Cloud socialization is a kind of virtual social application. It takes resource sharing as its main goal and combines the Internet of Things, cloud computing and mobile Internet to create a new type of socialization through its interaction. (CCL corpus 2010)

The [+fast change][+flexibility] in the original meaning of "Yun (cloud)" refers to the fact that clouds flow in the sky with an irregular shape, changing rapidly and irregularly, while the [+fast change][+flexibility] of "cloud" in "Cloud X" tends to indicate a high degree of compatibility of the system, a high degree of flexibility in data processing, and a high speed of updating and iteration. For example:

(1) White clouds flow out of the sky in a flash. (People's Daily 1957-10)

(2) The global Internet is being upgraded to the next generation, and new technologies such as the Internet of Things and cloud computing are developing rapidly and dazzlingly. (CCL Corpus 2010-03)

(3) The computer and information industry has traditionally been the backbone of emerging industries, and has been maintaining a rapid iteration of updates within it. From this year's situation, subsectors

such as cloud computing ..... financial IT and services have achieved growth of more than 20%. (People's Daily 2018-11)

The process of semantic change of "Yun (cloud)" is the result of the gradual transformation of "Yun (cloud)" from a real morpheme to an affix-like morpheme. The idea of "affix-like" began to be conceived in the 1920s and 1930s, and after decades of discussion and development, it was not until 1979 that Mr. Lv Shuxiang explicitly put forward the concepts of "prefix-like" and "suffix-like". It was not until 1979 that Mr. Lv Shuxiang explicitly proposed the concepts of "prefix-like" and "suffix-like". He has mentioned that although quite a number of lexemes in Chinese can almost be considered as prefixes or suffixes, these words have not been completely deflated semantically, and that "it is not enough to say that they are as prefixes and suffixes, and the word 'class' has to be added because they have not been completely deflated semantically, and they sometimes still appear in the form of root words." [12].

Therefore, such words can only be called class prefixes and class suffixes. It can be seen that semantic delexicalization is one of the most important conditions for real words to become class affixes. The semantics of class affixes is not completely delexicalized in comparison with true affixes. In his *Lectures on Grammar*, Zhu Dexi mentions that "true affixes can only be glued on top of the root constituent, and they are only related to the root constituent in terms of position, but not in terms of meaning" [13] Ma Qingzhu similarly states that "the meaning of true affixes is virtualized (the dictionary lists the words singly), and the meaning of class affixes is real or abstract (the dictionary does not list the words singly and it is not the first or second sense)" [14] and that "true affixes are morphemes that become virtual morphemes or are absolutely not morphemes, and class affixes are relatively not morphemes (which can become words in the basic sense)". [15] The most typical features of class affixes are two: first, class affixes are fictionalized from real words but the degree of fictionalization is not complete, and they can become words independently, retaining the nature of free morphemes; second, class affixes are adhesive in word formation, and they are often pre- or postattached. [16] Among them, the "cloud" of "cloud X" is virtualized from the real word meaning of cloud, but not completely virtualized, which not only possesses new semantic features such as [+Internet] [+virtualization], but also possesses some semantic features of the original meaning of "Yun (cloud)" such as [+wide coverage] [+large scale] [+fast change]. It can be seen that even in the prefix position in the construction of "Cloud X", "Yun (cloud)" still has a real meaning, rather than becoming a complete affix. In addition to the necessary condition of semantic defuzzification, Yin Hailiang's "*A Study of Classical Affixes in Modern Chinese*" also mentions a major feature of semantic adherence of classical affixes, that is, the semantic realization of classical affixes has a strong adherence, and the semantics of classical affixes in derived words cannot be realized independently from the root, and classical affixes do not become words independently. [17] Wang Hongjun and Fuli in "*A Trial Discussion on Classical Affixes in Modern Chinese*" point out that unidirectional high collocativity and word formation and localization are also important conditions for the composition of classical affixes. Unidirectional high collocativity means that under the premise of keeping the overall nature of the structure unchanged, there are not many replaceable components of the same kind in one position of the structure, while there can be a lot of replaceable components in another position. constructional localization is divided into absolute and relative localization, where absolute localization means that the position is unconditionally fixed, i.e., it is localized regardless of whether it is in the constructional plane or in the syntactic plane. [18] Relative localization, on the other hand, has two scenarios, one of which is the incongruence between the constructional and syntactic planes of localization; rather, it is localized in the affixal sense (A) and not in the non-affixal sense (B), and the two AB senses are related. [19] Affixation class is the second aspect of relative localization in word formation. In "cloud X", the affixal meaning (cloud) is localized, the non-affixal meaning (X) is not localized, and the meanings of "cloud" and "X" are related, and the two cannot have the semantic characteristics of "cloud X" when used separately. The semantic features of "cloud X" are related to "cloud" and "X", and the two used separately cannot have the semantic features of "cloud

X", so "cloud X" satisfies the condition of relative localization. It means that affixes, affix-like words, and root words all appear in fixed combinatorial positions. [20]

The semantics of "cloud" in the construction of "cloud X" is adhesive and not semantically independent. Only when "cloud" acts as a class suffix, "cloud X" has generalized and abstract semantics, for example, "cloud classroom", "cloud dating", "cloud surfing" all have their semantics changed after removing "cloud", and no longer have semantic features such as [+Internet] [+virtuality] [+informatization], etc. Although "cloud" is not a word, it is a word that has been used for many years. Although " Yun (cloud)" can become a word independently when it is used in its original sense, its semantic and grammatical functions also differ greatly when it is used independently and as a lexical affix, which leads to the conclusion that the semantic adherence of "Cloud" in "Cloud X" is very strong. It can be concluded that "cloud" in "cloud X" has a strong semantic adhesion. The words "online", "on-line", "on the cloud", etc., which have similar meanings with "cloud", can be used as class affixes to replace "cloud" in specific scenarios. However, compared to the substitutability of "cloud", the substitutability of "X" in the constructionion of "cloud X" is obviously stronger, and there are more substitutable components.

"X" can be a verb, for example:

(1) Raise a glass of wine online with more than 200 people from core customer groups across the country. (Tencent News 2022-08-02)

(2) "Cloud petting cats" went viral: one day sucking cats, lifelong quitting cats. (The Paper 2017-08-30)

(3) What is the value of the market prospect of "cloud farming" in the period of rural revitalization? (Zhihu 2021-10-04)

"X" can also be a noun, for example:

(1) "Cloud dance" is on pay-per-view mode. (Sohu 2022-08-26)

(2) Strive to be "cloud shareholders", this generation of young people love to help others make money. (Surfing News 2023-08-29)

(3) Cloud players, should they really get out of the game circle?

"X" can also be a verb phrase, for example:

(1) Come to someone's annual meeting, the main one eat eat eat, please eat one in the cloud. (Sina Weibo 2024-01-30)

(2) In addition to inviting everyone to come to our home to play in the clouds for a day, we also want to show you our lovely home love items. (Sina Weibo 2020-02-11)

In the "Cloud X" construction, "cloud" has few substitutes, whereas "X" can have many substitutes, such as nouns, verbs, phrases, etc.Therefore, "Cloud X" has one-way high collocability. Moreover, the "Cloud X" construction is highly stable, with both "Cloud" and "X" in relatively fixed positions, and "X" is often replaced to express different meanings. The word "cloud" is often substituted with "X" to express different meanings. Therefore, "Cloud X" is characterized by locality, and there is a grammatical basis for "cloud" to be used as a class affix in this construction.

4. “Cloud”The Metaphorical Mechanism of "Cloud X" and "Cloud" as a Real Word

The mechanisms by which grammaticalization is achieved can be summarized in five aspects, such as metaphor, inference, generalization, harmony and assimilation, which are manifested at different levels and stages, with metaphor being the most important driver of grammaticalization. [21] The fact that "cloud" can evolve into a class of affixes, whereas "wind", "rain", "fog", etc., which have similar semantics, do not evolve into a class of affixes is because "cloud", with its own uniqueness, has become metaphorical in the process of semantic increase and abstraction. It does not evolve into a

class affix because "cloud", with its own uniqueness, is metaphorical in the process of semantic increase and abstraction. Metaphor, as a cognitive phenomenon and cognitive way of "utilizing the highlighted things to know the more hidden things, and utilizing the known things to know the unknown things", "utilizes concrete, vivid, commonly used, and familiar concepts to metaphorically represent more abstract, unfamiliar, and difficult to understand concepts [22], thus making complex and unfamiliar concepts clearer and easier to understand."As the main mode of expression for the abstraction of new concepts in language, metaphors are semantic projections across cognitive domains in conceptual systems, mechanisms that enable language to develop more complex, abstract semantic schematic structures that can lead to semantic weakening or relocation in a given linguistic context." [23] It reflects people's innovative thinking ability to recognize things. In the face of new things, people always connect new things with known things, from which they find out the similarities between concepts in order to realize the conceptual conversion. This process can be described as the semantic structure mapping from source domain to target domain.

The role of similarity between the source and target domains is a foundational condition for the production of metaphors, and the difference between the two is also a necessary condition. Based on the similarity of semantic features between things, it is to use the features of thing A to analogize thing B. The purpose is to use the existing lexical connotations to explicate the similar concepts. The role of similarity includes both physical and psychological similarity, with physical similarity often focusing on morphological, appearance, functional attributes, and so on, between the source and target domains. There is a strong similarity between the characteristics of "cloud" in its original meaning of widespread distribution, high mobility, and rapid change, and the characteristics of computer "cloud" in its wide range of uses, fast processing speed, diversified processing paths, and high efficiency of information transfer. Therefore, the semantic features such as [+extensive] [+fast changing] [+informatization] in the class suffix "cloud" are also based on the original meaning of "cloud". Psychological similarity often tends to link human cognition and psychological feelings with the metaphorical things, "cloud" floats in the air, free and unrestrained, giving a person the feeling of emptiness and vagaries, and the virtualization and abstraction characteristics of computer "cloud" also give a person such a feeling. The virtualization and abstraction characteristics of computer "cloud" also give people such a feeling, therefore, the similarity between the two makes people naturally associate "cloud" with the virtual domain of computers, thus borrowing the semantic characteristics of "cloud" to the field of computers. Using the figurative experience of the familiar "cloud" to dilute the abstractness and strangeness of the computer domain is consistent with the psychological experience of "mapping certain features of familiar things into the domain of unfamiliar things". At the same time, in the process of using affixes, inclusive meanings are gradually created between the source domain and the target domain, and the semantics of the two domains slowly converge, and then generalization is formed again.

In addition to similarity, the fact that " Yun (cloud)" can evolve into a class affix is also a result of the differences between the source and target domains. Zhao Yanfang mentioned in *Introduction to Cognitive Linguistics* that "semantic structure is based on imagery, and the formation of imagery (the process of concept formation) reflects people's ability to construction the same perceived situation in different ways, and the formation of different imagery depends on the choice of the cognitive domain by the attention, the focus of attention (or protrusion), the perspective, and the degree of abstraction. " [24] Moreover, highlighting means that different aspects of the same thing can be highlighted due to different focuses of attention. In terms of the relationship between the graphic and the background, the principle of conspicuousness generally reveals the relationship between the conspicuous thing and the related non-conspicuous thing (e.g., the black dot and the white background, the white dot and the black background), and in the semantic expression it is the relationship between the implied meaning and the explicit meaning. Cloud in its original sense has [+visibility][+concreteness], while the affix "cloud" in its class has [-visibility][-concreteness] in its explicit sense, but it has an implicit sense of [+mobility][+variation]. It is precisely because of the differences between the two and the

issues of visibility and concreteness that the commonalities between the two in other aspects are highlighted, deepening their semantic connections and semantic generalization.

It can also be noted that the English "Cloud" in "Cloud computing" appears as a real word rather than a class of affixes, and there is no influence of metaphorical mechanism in its evolution. Such a difference is related to the composition of English and Chinese. English is a morphologically integrated language, while Chinese is an ideologically integrated language. One of the main ways to form English vocabulary is the affixation method. The development of its affixes shows the process of digesting, absorbing and assimilating foreign vocabulary, and therefore the number is abundant. As a morphosyntactic language, English is mostly characterized by the combination of root and suffix, and root and root. Generally speaking, English prefixes mostly change the meaning of words without changing the nature of words; suffixes mainly change the nature of the original word stem, and the meaning of words does not change much. The affixes in English are basically adhesive forms that cannot be used independently. In contrast, Chinese characters are ideographs, which are constructed by means of "six books" (i.e., pictograms, references, ideograms, pseudo-references, and transcriptions), and are a combination of form, sound, and meaning, and each character can be a word. Its affixes do not have the distinctive feature of obvious external forms like English, but "almost every one of them has its own independent form and meaning" [25], and has the function of denotation. That is to say, each lexeme can either form words independently or act as an affix. The formation of English affixes is often related to the metaphorical mechanism, for example, the original meaning of "access" is "passage, access", through combining with other real words, the semantic meaning is gradually generalized. For example, "access" in "access course" means "right", and "access road" and "access time" mean "opportunity (to use)". It can be seen that with the help of the metaphorical mechanism, "access" has migrated from the semantics of "passage and access" in the real sense to the semantics of "right, use and opportunity" in the abstract sense. However, no matter how the semantic transfer and diffusion, they are all based on the original meaning, with the help of the semantic similarity between the source domain meaning and the target domain "(can) access", so that the semantic meaning of "access" is further extended to a certain degree of conceptual abstraction. In fact, in practice, English prefixes are often "secreted". The so-called "secretion" refers to the extraction of a component from a word form that was not originally an affix, and the use of this component as an affix in the construction of a new word. [26] For example, many new words have been constructed by extracting "info-" from "information" as a class prefix, such as "infosheet ", "infopack" and so on.

Also "cloud" in t*he Oxford Advanced Learner's English-Chinese Dictionary* (9th ed.) has the meaning "[NOUN] the cloud [sing.] a network of SERVERS (=computers that control or supply information to other computers) on which data and software can be stored or managed and to which users have access over the Internet". [27] In *the Collins COBUILD Advanced Learner's Dictionary of English* (8th edition) there is the sense: "[ADJ] Cloud-based technology allows you to use programs and information that are stored on the Internet rather than on your own computer" .[28] This also expresses that "cloud" as a noun or adjective has the semantic features of [+storable], [+Internet], [+accessible]. Checking the Corpus of Contemporary American English (COCA), it can be found that cloud does not undergo the process of semantic deflation to metaphor, but semantic evolution as an independent item, so "cloud" does not belong to the affixes or affixes of compounds, but is a free morpheme.

For example:

Dark clouds covered the sun and cast a shadow across the city.(COCA)

Users can make a strong push for ensuring the privacy of data stored in the cloud.(COCA)

Cloud services are eliminating the need for mass storage devices.(COCA)

Components enables new features and integrates the hardware with apps and services in the cloud.(COCA)

The word "cloud" in (1) appears as a denotation of "cloud", while the word "cloud" in (2) denotes a way of storing data, which is a separate denotation of "cloud", just like (1). It is a separate item of

"cloud" as in (1). In (3) and (4), "cloud" is used as a definite article to modify "service", and the structure can be changed to "service in the cloud". It can be found that "cloud" does not undergo semantic virtualization and metaphorical process, and does not belong to the class of affixes. This also indicates that the phenomenon of grammaticalization of class affixes is an inevitable result of the metaphorical mechanism, and there are differences in the composition of class affixes in English and Chinese.

5. Conclusion

Starting from the original meaning of "Yun (cloud)", this paper analyzes the evolution of its semantic features, including the expansion from natural phenomenon to the computer field, as well as the further development in the new era, and interprets the semantic features of "cloud" in different development periods. It is finally concluded that this evolution is the process of the semantic meaning of "Yun (cloud)" gradually changing from real to virtual and from figurative to abstract, and the main motivation behind it is the role of semantic virtualization and metaphor. In addition, unidirectional high collocations, word positioning and the principle of highlighting also play an important role in the formation of the "cloud X" construction.

By looking at the changes and development of "cloud" in the period of the emergence of cloud computing, the development of the Internet, and the emerging period, the article summarizes the semantic characteristics of "cloud X" in each period, and concludes that "cloud" in the construction of "cloud X" has strong adhesion, and gradually changes from a real word to a class of affixes, and begins to have the characteristic of combining with specific verbs, nouns or verb phrases to form a new vocabulary together. At the same time, the stability and unidirectional high collocationality of the "cloud X" constructions indicate their ubiquity in language use, which is also directly related to their future productivity.

In addition, words with similar semantic features to "cloud", such as "online" and "online", although they can replace "cloud" in specific scenarios, they have not evolved into word-like affixes. Although they can replace "cloud" in specific situations, they have not evolved into affixes, which indicates that the metaphor of "Yun (cloud)" not only exists as a linguistic phenomenon, but also indicates an important cognitive phenomenon, i.e., people are used to mapping complex abstract concepts onto familiar and figurative images, so as to make them easier to understand and accept. Therefore, the evolution of "Yun (cloud)" into a word-like suffix is the result of a combination of factors.

It can be concluded that the semantic evolution of "cloud X "construction is not only a change of linguistic connotation, but also a manifestation of cognitive process and metaphorical function, which is a product of the interaction between language development and human cognitive ability. This paper only focuses on the characteristics and reasons for the semantic evolution of "Cloud X" in Mandarin Chinese at different stages, and whether the semantic evolution of other popular languages is similar to that of "Cloud X" needs to be further researched and discussed.

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