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Evolutionary Algorithm Simulation of Japanese to Chinese Buzzwords Based on Quantum Social Network Modeling

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Abstract:Based on the quantum social network theory, this paper conducts an evolutionary algorithm research on the law of Japanese catchphrase introduced into China and its changes in China. The network generated by this modeling method is comprehensively analyzed from the aspects of network degree, degree distribution, average shortest path, node aggregation coefficient, etc., which verifies the effectiveness of the modeling method. Starting from the language itself, from both internal and external perspectives, this paper explores the reasons for the popularity of Riyuan's animation language in China. One is to study from the internal causes of language; the other is to study from the outside of society.

Keywords: Evolutionary Algorithm Simulation, Japanese to Chinese Buzzwords, Quantum Social Network Modeling

1. INTRODUCTION

With the rapid development of new media in our country, the popularization and use of smart phones, the usage rate of the two micro-ends continues to increase [1], and the channels for Riyuan animation to be introduced into our country have become diversified. As in the past, it came to the public world through TV and CD-ROM alone [2], and the large amount of input of Riyuan animation made Riyuan animation language further spread and spread on my country's network platform, such as homophony [3], typos, rare words, Loan words and pictographs, etc. Due to differences in language and culture, various Internet terms with local color have been formed around the world [4], and for those who do not understand the cultural context produced by Internet terms, their meanings are often difficult to grasp [5].

Internet catchphrase is a product of language development, with its unique characteristics of the Internet, catchphrase is a language mineral containing social culture [6], with important academic value and profound cultural significance. From a vertical perspective, buzzwords can not only demonstrate the evolutionary trajectory of language [7], but also reproduce the history of the times; from a horizontal perspective, buzzwords can not only present hot issues in today's society, but also demonstrate the psychological evolution of ordinary people. People have long noticed the existence of buzzwords [8], and have collected, organized and studied them as a special genre. As early as the 1950s and 1960s, the famous critic Soichi Otaku conducted research on the characteristics of buzzwords. Since 1984 [9], Japan has selected the "Japanese New Words and Popular Words Award" every year. With the development of the Internet, more and more users have begun to use social networks [10].

At the same time, the analysis method of social network has also attracted the attention of a large number of researchers [11]. However, real social network modeling is an interdisciplinary and extremely complex. In addition to the above-mentioned production descriptions with strong social attributes [12], traditional account websites also have a certain stickiness to netizens. In the industry field, netizens with different cultural and geographical backgrounds [13] will browse news reports, ranging from international politics and economy to work and entertainment, and other aspects of life. After browsing news information, netizens often express their own comments and opinions [14].

The development and application of Japanese catchwords has become a cultural phenomenon. Nowadays [15], more and more Japanese buzzwords have been introduced into China, and then combined with the characteristics of China's local human environment [16], their semantics and usage have changed to a certain extent, and they have been widely accepted in Chinese society and become buzzword memes. Memetics based on Richard Dawkins could be more scientific [17]. The early models of social network modeling research include small-world network models, including the Watts-Strogatz model and the Newman-Watts model. Later developed to scale-free network [18], and its typical models are BA model and HK model. Among them, the HK model is the closest to the real social network, but there is still a certain distance between the two. Anime lovers, taking advantage of the openness of the network platform [19], constantly copy and paste the Japanese animation language, spread virally. In the Chinese language and culture, it affects the dissemination and use of Chinese Internet buzzwords [20].

The automatic acquisition of buzzwords is a research skill based on Chinese information processing. As a branch of natural language processing [21], Chinese information processing is a comprehensive discipline related to computer science, linguistics, mathematics, informatics, acoustics and other disciplines. Such information is processed and processed. In recent years [22], the innovation in the form of buzzwords, the enrichment of content and the speed of dissemination have made it increasingly penetrating and influential, and are widely used in various fields [23]. It not only appears in various media terms, but also appears in the language of official documents known as "dignified, plain and concise", and is also frequently used in speeches by party and state leaders [24]. By studying the usage of buzzwords in

official language. Faced with such a complex network structure, many researchers at home and abroad have carried out research in this area and proposed many algorithms for discovering social network relationships. Most of these algorithms are based on graph theory. The algorithm proposed in this paper does not. Starting from a traditional perspective, it is a social relationship discovery algorithm that combines text mining and topic models.

2. THE PROPOSED METHODOLOGY

2.1 The Modeling Quantum Social Networks

In order to study social networks, this paper uses graphs to describe their structure and the relationships between nodes. Based on graph theory, many network attributes have been explored, among which important attributes include: network degree, degree distribution, average shortest path, aggregation coefficient and community structure. The current mainstream language model is n-gram model (n-grammodel), This model is simple in principle and simple and straightforward to construct. Statistical language models are usually constructed as the probability distribution p(s) of a string S, where P seems to be the probability that the string S appears as a sentence.

Assuming that a sentence S is composed of k primitives (“primitives” can be linguistic units such as words, words, phrases, etc.), topic modeling of news texts requires a lot of news materials, and the commonly used methods to obtain text materials are: The methods include web crawling or downloading open news materials directly from the third party account website. Here, I choose the news data (SogouCS) opened by the Dog Lab as the news material for the research.搜hu is the earliest account website in China. In an unweighted network, the shortest path between 2 nodes is the path with the least number of connections among all possible paths among the 2 nodes. The average shortest path of a network is the average of the shortest paths between any 2 nodes. For network G, use d(vi, vj) to represent the shortest path between nodes vi and vj. When n=1, the model uses the probability of occurrence of a single primitive for estimation, which is called a unigram language model; when n=2 , the model uses the probability of two primitives appearing at the same time as an estimate, which is called a binary language model. The number of occurrences of word strings in n-grams in the corpus satisfies the binomial distribution.

According to the principle of the maximum likelihood. The original Sohu news data not only contains valuable content, but also contains some spam information such as broad universe, page jumps or page turning prompts, which are not helpful for text classification.

2.2 The Evolution of Japanese to Chinese Catchphrases

Today, the word "moe" that is widely used in our country comes from the Japanese catchphrase "moe え". "Meng え" originated from the Japanese ACG (Animation, Comic (comic) and Game (game) abbreviation) world otaku (in a narrow sense, it refers to people who are addicted, enthusiastic or proficient in animation, comics and video games). Language, it is said that it evolved from "burning". From a phonetic point of view, most of the Internet buzzwords are composed of homophonic, overlapping, and compound sounds. Compared with ordinary Internet language, they have significant individual characteristics.

For example, in our daily life, such a phenomenon often occurs. When netizens mention "high pressure", in most cases, they will use the homophonic "Yalishanda" to express, or use "Yalishanda" "Four characters plus a picture of a pear. High-frequency words refer to "words that are used more frequently in the basic vocabulary of the common language", that is, those that are closely related to our daily life and are used almost every day Common words, such as "I", "the", "morning", etc. These words are used very frequently, but obviously they are not buzzwords. First of all, high-frequency words are not of the times, and they do not reflect the local language background at that time. As a common term that has long existed in Japanese, "burning" originally means the state of something burning or burning, but in the developed period of Japanese ACG culture, The otaku who love ACG culture have extended it to a new meaning, a metaphor for a strong affection that is almost fanatical.

According to the book "Metaphors We Live By" written by American linguists George Lakoff and Mark Johnson, again, high-frequency words are not hierarchical, and high-frequency words belong to the most frequently used words in basic vocabulary. , with the characteristics of the whole people, they are well known and frequently used by all members of society, and there will be no barriers to understanding or use; while popular words will be affected by factors such as region, gender, age, and educational level. . Internet buzzwords is a corpus that aggregates the languages frequently used by netizens. With the help of globalization, the language between countries has been fully developed.

2.3 The Evolutionary Algorithm Simulation of Chinese Buzzwords Based on Quantum Social Model

It has nothing to do with the ACG world, and it has nothing to do with expressing emotions, but in our existing cognition, the burning fire is full of heat and dazzling light, which symbolizes passion, and also represents enthusiasm and warmth. The saying "passion is like fire" takes advantage of this characteristic of fire, and uses fire as a metaphor for enthusiasm, which is vivid and vivid. Recent studies have shown that the degree distribution of real networks is found to obey a power law. Power law means that the degree distribution function p(k) of network nodes satisfies $p(k) \sim ck^{-\gamma}$. where γ is a constant. Many real networks, such as social networks, are considered to be scale-free.

If a topic is of high quality, its tokenizers are often "exclusive", that is, these terms have already represented the topic and will not become tokenizers for other topics. For example, in the topic of "soccer", there are characterization words such as "football", "Messi", and "World Cup", and their probability in other topics should be very small. For example, in the characterization words of the topic "University", these The word should no longer appear. Based on these H rules, we quantitatively statistic the usage of large-scale corpora obtained from the Internet through the candidate set of network buzzwords obtained by using conditional random field word segmentation and rule extraction methods. The statistical results are modeled according to the time granularity, and the model distances in different time ranges are calculated to describe the characteristics of the Internet buzzword candidates at the level of usage. And the otaku's extreme love for some female characters in ACG corresponds to the fiery and unrestrained burning flame. Using the concept of fire to reconstruct the otaku's fanaticism for their favorite

female characters can be simple and straightforward. express the corresponding meaning.

Once this metaphorically restructured concept is used, it is easily accepted and widely disseminated. In the term distribution matrix output by the LDA algorithm, the term distribution of high-quality topics usually has the characteristics of uneven distribution, that is, the probability of the representative word is often relatively large, and the probability value of the lower term is obviously small. For non-high-quality topics, the characterization words are often composed of some scattered and random terms, and their probability values are low.

3. CONCLUSIONS

At present, there are more and more cultural exchanges between China and Japan, and the collision and influence of cultures are becoming more and more frequent. In the future, more and more Japanese catchphrases will be introduced into China and become Chinese catchphrases, or there will be more Chinese catchwords. The language was introduced into Japan and became a new language and catchphrase that the Japanese people liked to hear and hear. Through quantum social network and genetic evolution algorithm to analyze the propagation law of the two, it has the function of selecting the good and eliminating the bad.

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