

The Application of Corpus Approach of Computer Technology to the Research on Location ICM of Metonymy of Cognitive Linguistics

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Abstract: Corpus refers to a large collection of well-sampled and processed electronic texts, on which language studies, theoretical or applied, can be conducted with the aid of computer tools. Metonymy is a vitally important concept in Cognitive Linguistics and refers to the contiguity within the same domain. Traditional methods such as introspection are employed in researching this topic and lack data support to be convincing. The Corpus method is a newly utilized and empirical method to conduct linguistic research and contains the language materials of real and the actual use of language. This paper takes advantage of CCL Corpus (Center for Chinese Linguistics Corpus) to investigate Location ICM of metonymy and conduct the empirical research to make metonymy research more objective and convincing.

1 INTRODUCTION

Based on the computer, corpus is the basic resource that carries the language knowledge, is stored in the language materials that actually appear in the actual use of language, and the real corpus needs to be processed to become useful resources. It is applied to lexicography, language teaching, traditional language research, and Research on statistics or examples in Natural Language Processing. The paper conducted a survey on the application of corpus into language study by selecting the numbers of articles within recent 10 years from Chinese National Knowledge Infrastructure(CNKI). From the linear graph, we can see that from 2008 to 2015 the number of the articles concerning the language study under the corpus is continuously on the rise. In 2016, the number reached the highest value to 2841 articles. However, in 2017, the number decreased sharply to 1967 articles.



Linear graph 1: Number of Articles concerning language study by Corpus

From the table below, we can see that from the year 2009 to the year 2012, compared to the number of previous years, the publication of the articles grew very fast, amounting to 18.69%, 29.52%, 17.56% and 21.92% respectively. And from the year 2013 to the year 2015, the publication of the articles grew slightly, with the only growth of 7.37%, 7.54% and 4.83% respectively. In the year 2016, there was a slight drop of the growth which declined by -0.83% and in the year 2017, the articles suffered from a sharp drop, declining by -30.77% compared to the year 2016.

In the recent ten years, the publication of articles concerning language study with the aid of corpus underwent ups and downs. However, the corpus-based approach to study Cognitive Linguistics is the convincing and efficient way to conduct empirical researches. Using corpus to research metonymy of Cognitive Linguistics is valuable. Metonymy is a cognitive process in which one conceptual entity, the vehicle, provides mental access to another conceptual entity, the target, within the same domain, or idealized cognitive model (ICM) (Kovecses 2002:145).

Location ICM is one of the type metonymy and Location-specific patterns of metonymy have raised great interest among linguists in the past two decades (Lakoff and Johnson 1980; Pustejovsky 1995). However, most studies in metonymy have run into limitations mainly due to the fact that they are based on linguistic intuition rather than on real occurring texts people use. Therefore, the studies are demonstrated with selected examples to make a particular point. Thus, it's a worthwhile effort to investigate the location-specific metonymies in Chinese based on corpus data.

2 METHODS

To explore the location metonymies in current Chinese, we selected BEIJING, the capital plus one of the most prominent places of China, as the key word for searching the corpus and conducted a corpus-based investigation into its metonymic patterns in naturally occurring Chinese. We randomly sampled 1,000 lists of occurrences of BEIJING from CCL corpus, and then manually annotated all samples by highlighting the desired text. The annotation procedure was conducted by one team member and double-checked by other two team members to make sure the reliability of the result. Then we counted the number of each pattern and performed the statistical analysis to dig deeper into the corpus.

3 RESULTS

The samples contain 1,297 usages of BEIJING altogether and 96 of them (7.4%) are used metonymically. A summary of the results is given in Table 1.

Table 1: Year-on-year growth of the articles

Metonymic patterns	Number	Percentage	Linguistic Examples
PLACE FOR PRODUCT	55	57.29%	<i>Beijinghua</i> "Beijing dialect" <i>Beijingyin</i> "Beijing accent" <i>Beijing hukou</i> "Beijing hukou" <i>Beijingdui</i> "Beijing team"
PLACE FOR ORGANIZATION	23	23.96%	<i>Beijing fangmian</i> "Beijing" <i>Beijing de taidu</i> "Beijing's attitude" <i>Fangwen Beijing</i> "visit Beijing"
PLACE FOR PEOPLE	15	15.63%	<i>Lao Beijing</i> "Beijing locals" <i>Xiaoxi chuandao Beijing</i> "news reached Beijing" <i>Beijing de jiaoao</i> "pride of Beijing"
PLACE FOR EVENT	3	3.13%	<i>Beijing jingshen</i> "Beijing spirit" <i>Beijing aoyunhui</i> "Beijing Olympic Games"
Total	96	100%	--

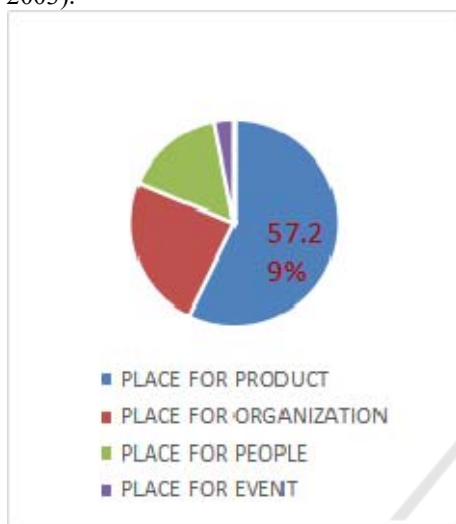
The following sections would give a detailed account of the results of these patterns for each of the location-specific types, specifically, PLACE FOR PRODUCT, PLACE FOR ORGANIZATION, PLACE FOR PEOPLE as well as PLACE FOR EVENT.

Table 2. Metonymic patterns of Beijing

Year	Number of articles	Year-on-year growth
2008	1070	
2009	1270	18.69%
2010	1645	29.52%
2011	1934	17.56%
2012	2358	21.92%
2013	2532	7.37%
2014	2723	7.54%
2015	2864	4.83%
2016	2841	-0.83%
2017	1967	-30.77%

3.1 PLACE FOR PRODUCT

As can be seen in Pie Chart 1, PLACE FOR PRODUCT is overall the most frequent pattern, consisting of 55 instances of metonymic usages, amounting to 57.29% of exemplars of location-specific patterns in the corpus. The place stands for a product manufactured there (Markert & Nissim, 2003).

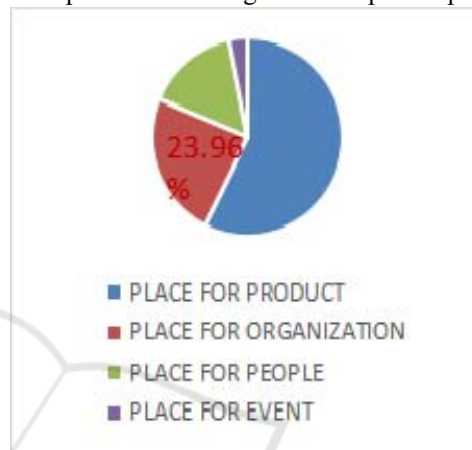


Pie Chart 1: Percentage of PLACE FOR PRODUCT Metonymy of Beijing

Interestingly, there is no illustration of this type of usage in our corpus. Yet, we observed some unconventional metonymies of BEIJING in this category. An example is the use of *beijinghua* which metonymically refers to the language which is spoken only in Beijing, with words or grammar that are slightly different from other varieties of Chinese. Another typical example is *beijingyin* which denotes the way people pronounce the words of Chinese, showing that they come from Beijing area. In our data, there are also 25 occurrences of *Beijing hukou* meaning the registered residence in Beijing, account for 50.9% instances of the metonymy PLACE FOR PRODUCT. This highlights a social-cultural perspective of metonymical patterns in current Chinese, reflecting a booming real estate market in China, especially in first-tier cities like Beijing. In addition to the aforementioned, we also found examples of *Beijingdui* which metonymically refers to the basketball, football or other team on behalf of Beijing. As we can see, the metonymic sense of BEIJING is often triggered by combing with other lexical items, such as *hua* “dialect”, *yin* “accent” or *hukou* “hukou”.

3.2 PLACE FOR ORGANIZATION

In metonymy, one expression is used to refer to the standard referent of a related one (Lakoff and Johnson 1980.) In our corpus, we found 23 instances of samples in which BEIJING stood for various organizations, depending on the context in which it occurred. This PLACE FOR ORGANIZATION pattern ranks the second among BEIJING’s metonymic usage, taking up 23.96% of all exemplars instantiating location-specific patterns.



Pie Chart 2: Percentage of PLACE FOR ORGANIZATION Metonymy of Beijing

For example,

(1) *Caojuren shifen xingfen zhi deng dedao beijing fangmian renke hou, jiang pai daibiao fu dalu zuo zuihou shangding, tongyi zuguo zhi da.ye.*

Cao Juren got very excited that once being approved by Beijing, Taiwan authorities would send delegates to mainland for final negotiation of reunification of motherland.

(2) *zai ming.chao de zhengzhi douzheng zhong,nanjing ge guan shili, yu beijing fangmian xiang jue dou.*

In the political struggle of Ming dynasty, officials’ alliance in Nanjing often fights with those in Beijing.

(3) *zai weilai de shier ge yue nei,guoji aoweihui jiang beijing fangmian miqie hezuo.*

Within the next 12 months, the International Olympic Committee will go on working closely with Beijing

(4) *beijing fangmian yidan zhengshi pizhun jinwan fasheng,yiqie chengxu ji ke.*

Once authorities in Beijing approved of launch tonight, all procedures can be started.

(5) *women daibiaotuan meitian jishi jiang huitan de qingkuang he neirong baogao Beijing.*

Our delegation daily reports the meetings to Beijing without delay .

(6) *yizhayan ershi tian guoqu le, maobing haishi cha bu chulai, zhihao baogao beijing jie jue.*

Twenty days gone, the problem is still undetected. We have to ask Beijing for a solution.

(7) *zhongguo zai zhe fangmian bu hui dui taiwan "chu nanti", beijing de taidu qujue. yu taibei de zuofa.*

Chinese government will by no means make things difficult on Taiwan in this respect, and what it does depends on the practice of Taiwan authorities.

(8) *nikesong zongtong jiang yu 1972 nian chu fangwen beijing.*

President Nixon will visit China in 1972.

(9) *yingguo lundun zhengjiaosuo guanyuan shu zhou lai, liangci zutuan.*

Officials of London stock exchange have visited Beijing in groups twice during the past few weeks

(10) *jin.nian qiutian ta jiang shuailing yi.ge 2000.ren de,youhao daibiaotuan shenchuan yundongfu fangwen Beijing.*

This fall, he will lead a delegation including 2,000 people with sportswear and visit Beijing

As the capital of China, Beijing is often conceptualized as the synonym of the Chinese government. Examples (1), (2), (5), (7) and (8) illustrate a metonymical pattern of location in which Beijing stands for the Chinese government at a specific period of time, be it Ming Dynasty or the People's Republic of China. In addition, Beijing can also be used to refer to various organizations in China. For example, the Beijing Olympic Committee is probably involved in (3) and (10). While in (4), (6), and (9), Beijing is likely to be devised to map into the organization which is responsible for satellite launch, technical support or securities trading. The main character of this sort of metonymy display itself in two aspects. First, what conceptualization the location like BEIJING invokes is largely context-dependent. Second, the metonymic usage of BEIJING often appear in certain linguistic patterns, such as Beijing fangmian, Beijing de taidu, and fangwen Beijing , etc.

3.3 PLACE FOR PEOPLE

In the metonymy PLACE FOR PEOPLE, BEIJING is used to stand for people or the whole population associated with Beijing. There are a total of 15 cases of such usage, accounting for 15.63% of all instances of the location-specific patterns in the corpus.



Pie Chart 3: Percentage of PLACE FOR PEOPLE Metonymy of Beijing

For example,

(11) *beijingshi shizheng jianshe jin nian fazhan xunsu, shirong biande shi xuduo "lao Beijing" dou bu gan xiangren le.*

The municipal construction of Beijing are developing rapidly in recent years, which changes the city so much that even many Beijing locals can't recognize it.

(12) *ta xihuan lao beijing de fengturenqing, duo nian lai yizhi in qingx shouji jishu lao Beijing.ren shenghuo de ziliao....*

He loves local conditions and customs of Beijing and has been committed to the collection of materials which give an account of old Beijing lifestyle...

(13) *xiaoxi chuandao Beijing, zhuanjia xuezhe men xinxi xianggao, erbai nian lai de yuanwang jiuyao shixian le.*

When the news reached Beijing, the experts delightedly informed each other that two centuries of dream was finally coming true.

(14) *zhexie huiying zhe huangjia qipai de yuanlin, shi Beijing de jiaobao.*

The gardens reflecting royal elegance is the pride of Beijing.

(15) *Beijing guopu shi beijing de jiaobao.*

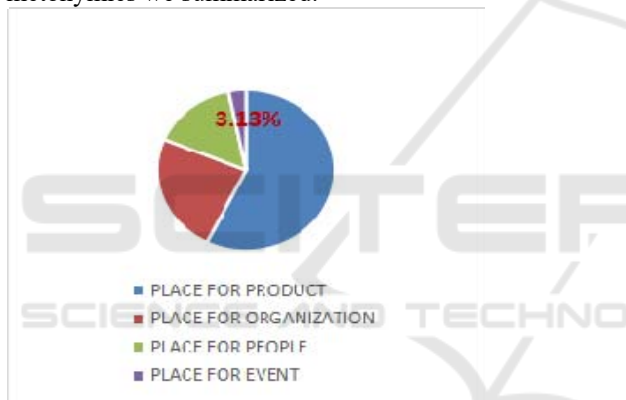
Beijing dried fruit is the pride of Beijing.

In (11), lao beijing stands for people whose family is deeply rooted in Beijing and has been living there for a long time. This concept, which is coined to distinguish from the outsiders who now turn into Beijing residents, reflects a certain socio-cultural trend in China. Big cities like Beijing and Shanghai have attracted many people from other parts of China or even from other countries to obtain residency. Such movement of people is triggered by first-rate resources and opportunities there. It is important to note that lao beijing might also refer to anything which is characteristic of Beijing, as lao

Beijing de fengturenqingin (12). Thus, how to conceptualize a location is practically relied on its context. For example, in (13), the reference of Beijing is specified via ensuring lexemes zhuanjia xuezhe. Often, the explicit referent is left underspecified (Markert&Nissim 2003), as in (14) and (15), where the referent of Beijing could be the government, an organization, or the whole population. Therefore, it is a challenging job to assign a location in Chinese to its metonymical categories in a corpus, which indicates that manual annotation is inevitable considering its complexity and context-dependence.

3.4 PLACE FOR EVENT

The metonymy PLACE FOR EVENT, where a place stands for something that happens there, is relatively rare in our corpus. There are only 3 instances of this metonymy, with a proportion of 3.13% in the metonymies we summarized.



Pie Chart 4: Percentage of PLACE FOR EVENT Metonymy of Beijing

For example,

(16) *huafei juzi chengwei beijing aoyunhui de zanzhushang.*

Spending a huge sum of money to sponsor Beijing Olympic Games

(17) *ta xiwang canjia lianheguo tebie lianda de zhongguo daibiaotuan jixu baochi "beijing jingshen",yu lianheguo yidao zhili.yu beijing de mubiao.*

She expects that Chinese delegation at UN special session could cling to Beijing Spirit and dedicate to the fulfillment of Beijing Action Agenda.

This category is demonstrated with quite clear-cut examples as in Beijing aoyunhui, which triggers a conceptualization of an event, i.e. Olympic Games in 2008, that happened in Beijing. In (17), Beijing jingshen poses obstacle in conceptualizing its metonymic reference. For such ambiguous cases, the

metonymic meaning can be obtained by inference from the contexts. In this case, what she wants to remind of is the spirit of Beijing Platform for Action, an influential event that happened in Beijing

4 CONCLUSIONS

In this section, we used BEIJING as an exemplary case to explore the category as well as the distributions of location metonymies in Chinese. We found four metonymic patterns related to the use of Beijing, namely, PLACE FOR PRODUCT, PLACE FOR ORGANIZATION, PLACE FOR PEOPLE and PLACE FOR EVENT. Out of naturally occurring texts, we observed some unconventional metonymies in the category PLACE FOR PRODUCT that a location was not mapped onto materialized products but concepts like hua, yin or hukou. Additionally, we found some linguistic patterns which might trigger metonymic meanings of a location, such as Beijing fangmian, Beijing de taidu, or fangwen Beijing. What's more, the conceptualization of a location rests largely with the context it appears, for instance, lao Beijing or Beijing de jiaoao and so on, which verifies that the understanding of metonymies is open-ended. Also, the study on metonymies can to a certain extent reveals some dynamic change of language, such as hukou and Beijing locals which come into being to meet socio-cultural needs in recent decades. Lastly, we confirmed the varieties of location metonymies in Chinese as well as the complexity and wanting in further exploration considering the fact that the current corpus is relatively small and more sampling should be included to uncover the metonymic panorama of the Chinese.

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