

A Cognitive Study on the Categorization and Translation of Chinese Synonymous Double Classifier Constructions

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Abstract: Based on BCC corpus, with the help of Collostructional Analysis and Fisher Exact Test, this study calculates and analyzes the collostructional strength of “Noun” lexeme in Chinese synonymous double classifier constructions “X shuang/dui/fu-N”, with the aim of investigating the semantic hierarchy of “N”, prototypical meaning of each construction and their cognitive motivation respectively. The research findings are as follows: 1) classifier constructions “X shuang/dui/fu-N” share both similarities and significant differences in terms of collocation and categorization extension mechanism. 2) there exists an extension mechanism of metonymy in the extension of classifier constructions “X shuang/dui/fu-N” in addition to the four types of construction categorization extension mechanism proposed by Goldberg, namely, the polysemy links, the subpart links, instance links, and metaphorical links. 3) Though both metaphor and metonymy play an essential role in the extension of classifier constructions “X shuang/dui/fu-N”, yet the metonymy mechanism is more fundamental.

Keywords: Double Classifier Construction; Categorization; Translation; Cognitive Mechanism

1. Introduction

Classifier is an important part of Chinese grammatical system and is widely used in it (Lv Shuxiang 1999: 630). Thereinto, “shuang” “dui” and “fu”, as synonymous double classifiers (can all at least modify double nouns), appear in high frequency. They, however, have both similarities and differences in terms of collocation. Some scholars have preliminarily discussed their similarities and differences in collocation (Guo Peilu 2009; Wang Suping 2005) and some others discussed the semantic categorization characteristics of their collocations from the perspective of etymology (Weng Zhenshan 2010; Song Juanjuan 2010). Besides, some researches adopted the semantic feature analysis method, which annotated the semantic features of the collocations of these three types of classifiers in a more detailed way (Zhang Yiwei, Liang Jun 2015; Kuang Xin 2015). There are also scholars who reviewed their semantic change from a diachronic perspective (Wang Chunling 2005; Wu Yingying 2016). However, these studies investigate the semantic category of the collocation of these three classifiers mainly by introspective speculation. Few of them considers the prototypical collocation and collocation extension motivation mechanism from the cognitive perspective. Without an empirical analysis based on corpus, the reliability of their conclusion and depth of research remain to be improved.

Hence, based on the corresponding theories of cognitive linguistics, combing both qualitative and quantitative research methods, by measuring the collocational strength in R of the linguistic data collected in the BCC corpus, this study investigates the semantic cluster of “Noun” lexeme in classifier constructions “X shuang/dui/fu-N”, prototypical meaning of each construction and the similarities and differences of their cognitive motivations as well as mechanisms respectively.

2. Research Design

2.1 Research Question

This thesis mainly considers the following questions: 1) what are the similarities and differences of the semantic categorization distribution of “N” lexeme in classifier constructions “X shuang/dui/fu-N”? 2) What are the similarities and differences of the cognitive mechanism of the semantic categorization

distribution of “N” lexeme in classifier constructions “X shuang/dui/fu-N”?

2.2 Theoretical Framework

Goldberg believes that a construction is an abstract structure that is gradually established in the continuous use of language. Any form-meaning pairing with a sufficient frequency of use can be considered as a construction (Goldberg 2006:25). She also puts forward the “Principle of No Synonymy”, that is, if two constructions differ in form, they will also differ in meaning and function (Goldberg 1995:42). As for collocation in a construction, Fillmore (1985) holds that the lexical slot of idiomatic constructions is not unitary exclusive, but has certain openness, which allows multi-lexical items qualified to enter. Based on the theories above, Steffanowitsch & Gries (2003) puts forward collostructional analysis which relies on real natural corpus and adopts the method of bottom-up analysis. It can not only look at the collocational strength and categorization relationship between the construction and its collexeme longitudinally from the micro level, but also horizontally compare the similarities and differences between different synonymous constructions from the macroscopic perspective.

2.3 Corpus Sources and Research Objects

BCC Chinese corpus is selected as the source of linguistic data in this study. It contains about 15 billion characters, including about 13 billion modern Chinese characters and about 2 billion ancient Chinese characters in the fields of literature, science and technology, sports, and economy. The reasons for selecting this corpus are as follows: 1) the corpus is large in scale and has the balance and versatility of data collection, which can reflect the language used in social life comprehensively; 2) the corpus has annotated the word class so the total occurrence frequency of the construction as well as the specific word in the construction can be obtained by limiting the word class, which is convenient for later research. In this study, the classifier constructions “X shuang/dui/fu-N” are selected as the research object. The X is defined to numerals, verbs, indefinite articles and demonstrative pronouns while the attributive elements before the N is not distinguished. The final corpus of this study was established through automatic corpus retrieval supplemented by manual screening.

2.4 Research Methods

Collostructional Analysis is first proposed by Steffanowitsch & Gries (2003) and has been well applied in the field of linguistics, especially in the study of construction. Based on the theory of construction grammar, this method investigates the interaction between construction and its collexeme by comparing the attraction or repulsion relationship between them, that is, by comparing their collostructional strength. It provides a new method of combining both corpus research and traditional introspective construction research. According to different research questions and research objects, this research method is mainly divided into the following three types: 1) collexeme analysis, 2) multiple distinctive collexeme analysis, and 3) covarying collexeme analysis. In view of the research object and research objectives, this research adopts the first method, that is, this paper investigates the collostructional strength between the filled lexeme in the slot of a construction and the construction, and the semantic categorization system by exploring the degree of attraction between the semantic hierarchy and the construction. The steps are as follows: 1) analyzing the collostructional strength between these three classifier constructions and its collexeme ‘N’ by Fisher exact test; 2) horizontally comparing the similarities and differences of their collocation categorization distribution by manual operation.

2.5 Data Collection

In this study, the constructions “X shuang-N”, “X dui-N”, and “X fu-N” are selected as search items in BCC. Manual screening is supplemented to eliminate invalid items, such as “shi yi shuang yu zuo nv sheng” (being a girl of Pisces). The final statistical research objects are as follows: 1) there are altogether 57894 valid collostructions of “X shuang-N”, and after the combination of duplicating lexeme such as “yi shuang da yan jing” (a pair of big eyes) and “yi shuang yan jing” (a pair of eyes), there are 45855 N collexemes of “X shuang-N”; 2) there are altogether 68857 valid collostructions of “X dui-N”, and after the combination of duplicating lexeme, there are 43150 N collexemes of “X dui-N”; 3) There are altogether 35129 valid collostructions of “X fu-N”, and after the combination of duplicating lexeme, there are 1490 N collexemes of “X fu-N”. In view of the fact that the occurrence

frequency of the collexeme of the three classifier constructions after the top 50 are less than 10 times, which does not have apparent research significance, this paper selects the top 50 collexemes of the three classifier constructions respectively, which appears in a high frequency, as research object to guarantee the validity and operability of statistical data. The statistical analysis program Coll.analysis 3.5 in R is employed to calculate the collostructional strength of these data. The specific steps are as follows: 1) data collection of lexeme frequency: to investigate the collostructional strength between one particular lexeme L and one construction C, the following four types of data should be acquired, that is, the co-occurring frequency of L lexeme in C construction, the co-occurring frequency of non-L lexeme in construction C, the co-occurring frequency of L lexeme in other non-C construction, and the co-occurring frequency of non-L lexeme in non-C construction. In the end, the acquired data is put into a cross table. Table 1 lists the collostructional strength between a noun “kuai zi” (chopsticks) and a construction “X shuang-N”. 2) Calculating collostructional strength: Fisher exact test is employed in this study to calculate the corresponding statistics. Details are as follows: the cross table of the occurrence frequency of the top 50 lexeme in these three classifier constructions is imported into R to conduct Fisher exact test and the statistics which reflect the collostructional strength between the construction and lexeme, the coll.strength, is acquired. When the collostructional strength is greater than 1.30103, the construction and lexeme present a significant collocation correlation. In this way, the greater the coll.strength, the more their collocation correlation. The “inf” indicates that the coll.strength is infinite. When the collostructional strength is lower than 1.30103, the construction and lexeme present a low collocation correlation, which is of no statistical significance.

Table 1: Statistics of the collostructional strength of Noun “kuai zi” (chopsticks)

	kuai zi	-kuai zi	total
“X shuang-N” construction	448	45407	45855
-“X shaung-N” construction	323	2963729	29637572
total	771	29682656	29683427

After the Fisher exact test of “kuai zi”, this study obtains its coll.strength as being “Inf” which means a infinite significant correlation, which suggests a great collostructional strength between the lexeme “kuai zi” and the construction “X-shuang-N”. By the same operation, this study conducted Fisher exact test for the top 50 lexeme of these classifier constructions and obtains the corresponding statistics as follows in table 2. However, due to the limitation of space, only the coll.strength of the top 20 lexeme is presented in table 2.

Table 2: Collostructional strength of top 20 lexeme in construction “X shuang/dui/fu-N”

X shuang-N		X dui-N				X fu-N					
Noun	coll.strength	Noun	coll.strength	Noun	coll.strength	Noun	coll.strength	Noun	coll.strength	Noun	coll.strength
yan jing	Inf	xue zi	177.24	qing lv	Inf	fu zi	196.24	dui lian	Inf	dan jia	148.51
shou	Inf	ming mou	135.65	fu fu	Inf	er nv	174.53	yan jin	Inf	er ji	129.55
xie	Inf	shou bi	127.53	nan nv	Inf	jie mei	145.32	pai	Inf	guan cai	86.34
tui	Inf	shou tao	105.65	fu qi	Inf	fu nv	133.73	xiao lian	Inf	haoxinchang	74.49
kuai zi	Inf	yan zhu	87.53	xin ren	Inf	chi bang	124.36	pu ke	Inf	zui lian	69.41
jiao	Inf	quan tou	84.43	lian ren	Inf	huo bao	94.35	mu yang	217.65	zhong dan	55.45
chi bang	256.39	shou zhang	79.64	qing ren	Inf	longfengtai	78.45	mianju	215.34	chun lian	54.38
er nv	235.62	jian mei	66.72	mu nv	285.35	yuan jia	66.43	biao qing	191.86	er huan	47.19
wa zi	210.26	si wa	58.35	xiong di	271.55	xiong mei	63.4	shou tao	176.56	xiong shou	46.22
mou zi	179.75	qiu bo	52.33	mu zi	236.53	er huan	61.33	shou kao	157.44	gu jia	40.74

As in table 2, although the noun collexeme of constructions “X shuang/dui/fu-N” presents in high diversity, their collostructional strength tends to be similar and they all have their tendency of semantic categorization. The higher the value of their coll.strength, the bigger the collostructional strength of the noun and classifier construction.

2.6 Results and Discussion

Gries (2010:61) holds that the greater the collocation strength between a lexeme and a construction, the stronger the representational ability of this lexeme towards the central meaning of this construction. Goldberg also points out that, according to Semantic Coherence Principle, there should be an infusion in semantics between the thematic role of a construction and the meaning (Goldberg 1995:69). Thereby, by analyzing the semantic characteristics of the “N” lexeme with a high collocation strength in a construction, this paper investigates the categorization distribution and cognitive extension mechanisms of these three classifier constructions. The semantic characteristics and distribution proportion of their respective top 50 correlation lexeme are presented as follows.

Table 3: Semantic characteristics of the lexeme N in the construction “X shuang/dui/fu-N”

		dui	shuang	fu	instantiation	order for proportion	
biological attribute	body parts	+	+	+	Yi shuang yan jing/a pair of eyes	shuang > dui > fu	
		7.2%	52.6%	12.3%	yi dui chi bang/a pair of wings		
					yi fu da chang/a pair of intestine		
	person	+	+	-	yi shuang er nv/daughter & son	dui > shuang > fu	
		85.8%	5.3%	0%	yi dui fu fu/a couple		
	animal	+5.4%	-0%	-0%	yi dui yuan yang/a pair of mandarin ducks	dui	
	personal belongings	+	+	+	yi shuang qiu xie/a pair of sneakers	shuang > dui > fu	
		2.6%	42.1%	87.7%	yi dui er huan/a pair of earrings		
					yi fu shou kao/a pair of handcuffs		
	quantitative attribute	one-element	-0%	-0%	+38.2%	yi fu guan cai/a coffin	fu
		two-element	+	+	+	yi shuang wa zi/a pair of socks	dui=shuang > fu
			100%	100%	34.6%	yi dui jie mei/two sisters	
					yi fu shou tao/a pair of gloves		
multi-element	-0%	-0%	+27.2%	yi fu xiang qi / chinese chess	fu		
discreteness-aggregation attribute	discreteness	+	+	+	yi shuang shou zhang/a pair of palms	dui=shuang > fu	
		100%	100%	57.2%	yi dui nan nv /man & woman		
					yi fu dui lian/a couplet		
	aggregation	-0%	-0%	+42.8%	yi fu xiao rong/a smile	fu > dui=shuang	
equivalence attribute	homogeneity	+	+	+	yi shuang da jiao/ feet	shuang > fu > dui	
		17.5%	92.3%	73.4%	yi dui jiu wo/a pair of dimples		
					yi fu er huan/a pair of earrings		
	heterogeneity	+	+	+	yi dui fu qi/ a couple	dui > fu > shuang	
		82.5%	7.7%	26.6%	yi shuang er nv /daughter & son		
					yi fu wan kuai/a pair of bowl and chopstick		

From table 3, it can be seen that the difference between the biological attributes of the collexeme of “shuang” and “dui” is more salient while the collexeme of “fu” mainly distinct in quantitative and discreteness-aggregation attribute. Hereby, their semantic categorization distribution is further organized and ranked in accordance with their frequency in closed corpus as follows:

“X shuang-N”:

(1) Yi shuang hui yan (a pair of wise eyes)/ yi shuang chi bang (a pair of wings)/ yi shuang qiao shou (a pair of dab hands)/ yi shuang jian mei (a pair of dashing eyebrows), etc. (body parts, 6983)

(2) Yi shuang tuo xie (a pair of slippers)/ yi shuang shou tao (a pair of gloves)/ yi shuang wa zi (a pair of socks)/ yi shuang xie dian (a pair of insoles), etc. (personal belongings, 5462)

(3) Yi shuang er nv (daughter & son)/ yi shuang jie mei (a pair of dashing eyebrows)/ yi shuang ai lv (boy friend & girl friend)/ yi shuang xin ren (a new couple), etc. (person, 650)

“X dui-N”:

(1) Yi dui fu qi (a couple)/ yi dui xin ren (a new couple)/ yi dui qing lv (boy friend & girl friend)/ yi dui shuang bao tai (a pair of twins), etc. (person, 8210)

(2) Yi dui chi bang (a pair of wings)/ yi dui jiu wo (a pair of dimples)/ yi dui nong mei (a pair of thick eyebrows)/ yi dui mou zi (a pair of eyes), etc. (body part, 675)

(3) Yi dui yuan yang (a pair of mandarin ducks)/ yi dui feng fang (a pair of phoenix)/ yi dui da xiong mao (a pair of giant pandas)/ yi dui tian e (a pair of swans), etc. (animal, 482)

(4) Yi dui er huan (a pair of earrings)/ yi dui ya ling (a pair of dumbbells)/ yi dui yu zhuo (a pair of jade bracelets)/ yi dui zhen tou (a pair of pillows), etc. (personal belongings, 289)

“X fu-N”:

Yi fu xiong xiang (fierce look)/ yi fu kong ke (shell)/ yi fu biao qing (expression)/ yi fu xiao lian (smiling face), etc. (one-element aggregation, 3705)

Yi fu ma jiang (mahjong)/ yi fu zhi pai (playing cards)/ yi fu pu ke (poker)/ yi fu xiang qi (Chinese chess), etc. (multi-element discreteness, 2565)

Yi fu shou tao (a pair of gloves)/ yi fu dui lian (a pair of antithetical couplets)/ yi fu guai zhang (walking stick)/ yi fu qiu pai (a pair of rackets), etc. (two-element discreteness, 1805)

Yi fu yan jing (a pair of glasses)/ yi fu bian dan (shoulder pole)/ yi fu shou kao (a pair of handcuffs)/ yi fu er ji (a pair of earphones), etc. (two-element aggregation, 1425)

From the examples above, we can find that the classifier construction of “X dui-N” and “X shuang-N” are similar in general, though there may be certain differences. The person attribute of the collexeme of “dui” is more salient, accounting for 85.8% while “dui” rarely co-occurs with the lexeme of animal, body parts, and personal belongings which take up 5.4%, 7.2%, and 2.6% respectively. As for the attributes of quantity, discreteness-aggregation, and equivalence, “dui” often co-occurs with a two-element (100%) discrete (100%) lexeme which has more heterogeneous attribute (82.5%) than homogeneous one (17.5%), for instance, yi dui fu qi (a couple) and yi dui nan nv (man and woman), etc. By contrast, although the classifier “shuang” co-occurs with two-element (100%) discrete (100%) lexeme, it has more homogeneous attribute (92.3%) than heterogeneous one (7.7%). Moreover, the person attribute of the collexeme of “shuang” is comparatively weak, accounting for 5.3% while “shuang” often co-occurs with the body parts and personal belongings lexeme, which take up 52.6% and 42.1% respectively, such as, yi shuang yan jing (a pair of eyes), yi shuang qiu xie (a pair of sneakers), etc. The most distinct place between the construction “X fu-N” and the first two constructions is that the collexeme of fu has no salient tendency towards the quantitative attribute and discreteness-aggregation attribute. The lexeme can not only include two-element attribute (34.6%) but also one-element (38.2%) and multi-element ones (27.2%) and makes a balance in its discreteness-aggregation attribute, among which the attribute of discreteness accounts for 57.2% and aggregation, 42.8%. Fu seldom co-occurs with person (0%) lexeme so it has more homogeneous attribute (73%) than heterogeneous one (27%). Its collexeme is more about personal belongings (88%) and some of them is about body parts (12.3%), for example, yi fu dan jia (a stretcher) and yi fu er huan (a pair of earrings), etc.

3. Categorization Characteristics of Constructions “X Shuang/Dui/Fu-N”

Goldberg (1995) holds that constructions have the polysemy characteristic and different construction extensions are in Inheritance links which mainly includes the polysemy links, the subpart links, instance links, and metaphorical links. However, its correctness remains to be testified. This section mainly discusses the following questions: what kind of cognitive inheritance mechanisms are there in the construction extensions of classifier constructions “X shuang/dui/fu-N”? what are their similarities and differences?

According to Semantic Coherence Principle, the collexeme of a construction should be consistent with the construction itself (Goldberg 1995:69). The grammatical meanings of most Chinese classifiers relate closely to their original verbs or nouns (Wang Li 1980:265). Hence, in the investigation of the collostruction categorization of the classifier constructions “X shuang/dui/fu-N”, it is necessary to discuss their etymology and their collocation extension mechanisms together.

3.1 The Etymological Characteristics and Collocation Extension Mechanisms of the Classifier Construction “X Shuang-N”

The character “shuang” is the simplified version of the associative compound “two”. The book *Shuo wen jie zi* (Xu Shen) says: “Shuang, niao er mei ye.” (shuang refers to two birds) “Wei” means bird while “you” means hand and they together mean “to hold two birds by hand” (Xu Shen 1963:58). As we can see, shuang originally means “two birds”. From etymology, it is obvious that shuang originally correlates with two homogeneous organisms, having salient homogeneity and two-element attributes.

From table 2 and table 3, it can be seen that the collostructional strength of the different Noun lexeme in the classifier construction “X shuang-N” can be ranked as body parts > personal belongings>

person, among which the frequency of body part is 6983, accounting for 52.6%, and ranks the top. This kind of collexeme is mainly established by the compound mechanism of metaphor and metonymy (two Ms) (Metonymy mainly involves the following two aspects: the first aspect is at the language level, that is, the metonymic expression specifically presenting in the language domain; the second aspect is at the epistemological level, that is, the innovative thinking methods realized through the conventional metonymic thinking pattern and there is no specific metonymic expression at the language level. All of the metonymy in this paper involve the second aspect, the same hereinafter.) On the basis of the original meaning of “shuang” as “two bords”, for example, yi shuang yan jing (a pair of eyes), etc. On the one hand, from “niao” (bird) to “yan” (eye), the transition is based on the metonymy of from whole to part. On the other hand, from “liang zhi niao” (two birds) to “yi shuang yan jing” (a pair of eyes), this transition is based on the metaphor that they two are similar in the attribute of quantity and homogeneity. The attribute closely following them is personal belongings and its frequency is 5462, accounting for 42.1%. It is established by the composite mechanism of metaphor and metonymy on the basis of body parts, such as, “yi shuang shou tao” (a pair of gloves), etc. It is obvious that the extension from “yi shuang shou” (a pair of hands) to “yi shuang shou tao” (a pair of gloves) involves not only the relation of both “the whole” and “the adherent part”, but also the similarity in quantity and homogeneity. The lowest collocation frequency of lexical categorization is person and it is only 650, accounting for 5.3%. There are only two types of this kind of N collexeme, “er nv” (son and daughter) and “fu mu” (father and mother), in the top 50 lexeme of “shuang”. Compared with “fu” and “dui”, the collocation extension of the classifier “shuang” from “niao” (bird) to “ren” (person) is hardly established by the metonymic thinking of from whole to part and can only be realized by the metaphoric thinking of quantity. Furthermore, they are different in the attribute of homogeneity, for instance, in “er nv” (son and daughter), “er” (son) and “nv” (daughter) are contrast in conception but not equivalent in homogeneity. Hereby, this kind of cognitive mechanism of extension is not only a single metaphoric pattern lacking metonymic thinking, but also a weakened metaphoric pattern. Thus, the cognitive operation from etymological meaning of “niao” (bird) to the collocation of personal noun is hard to realize, and hence has low collostructional strength. Thus, the constructional prototypical meaning of the construction “X shuang-N” can be defined as “to modify one or more groups of two-element homogeneous nouns of body parts or personal belongings”. The collocational extension mechanisms of the classifier construction of “X shuang-N” can be represented as follows:

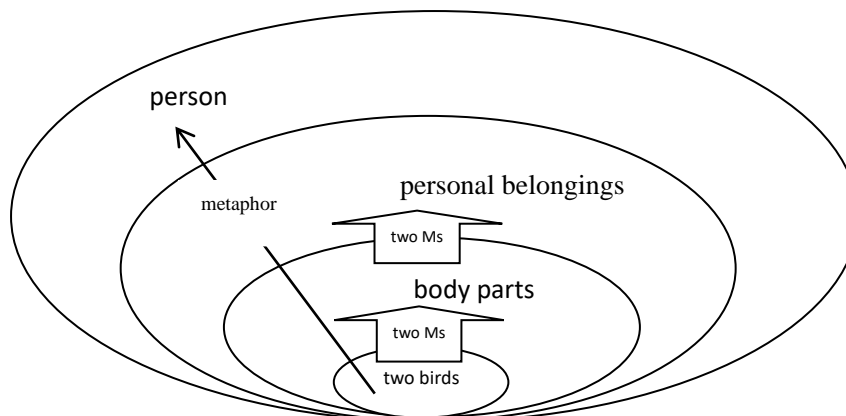


Figure 1: Collostructional extension mechanism of classifier Construction “X shuang-N”

3.2 The Etymological Characteristics and Collocation Extension Mechanisms Of “X Dui-N” And “X Fu-N”

The author believes that although “dui” and “shuang” are more similar in lexical collocation, “dui” and “fu” are more similar in collostruction extension mechanisms. Hence, we discuss the two types together.

Goldberg pointed out in his Scene Encoding Hypothesis that the meaning of a construction comes from the scene encoding of the interactive experience of human being interacting with the outside world (Goldberg 1995:39). The author deems that the collocation categorization of classifier constructions “X dui-N” and “X fu-N” is also related to specific scene. Event-frame refers to a series of related concepts and relations that can be activated simultaneously. Interrelationship event frame is one important kind of event-frame and includes a series of correlated and non-autonomous part, among which the existence of one part presupposes the existence of the other. For example, the action of “da”

(hit) presupposes the existence of the agent of the action and the patient of “hit”.

Human being’s cognitive perspective and language expression are limited and only the highlighted part in cognition can be conveyed by language. Therefore, language related to interrelationship event frame often involves two types of cognitive activity: highlighting the windowing part in the event-frame and ignoring the gapping part in it to make the prominent part foreground and the left part in the frame background through certain language model (Talmy 2000:259-262).

The table was split into two pieces.

What have you done to the table? ---It was split.

What was split into two pieces? ---Table.

What the table was split into? ---Two pieces.

Example (1) can reflect the whole event. The other three examples highlight different parts of this event, among which example (2) presupposes but does not highlight the two frame elements, the patient and consequence of “split”, while example (3) and (4) highlight these two frame elements respectively through “split”:

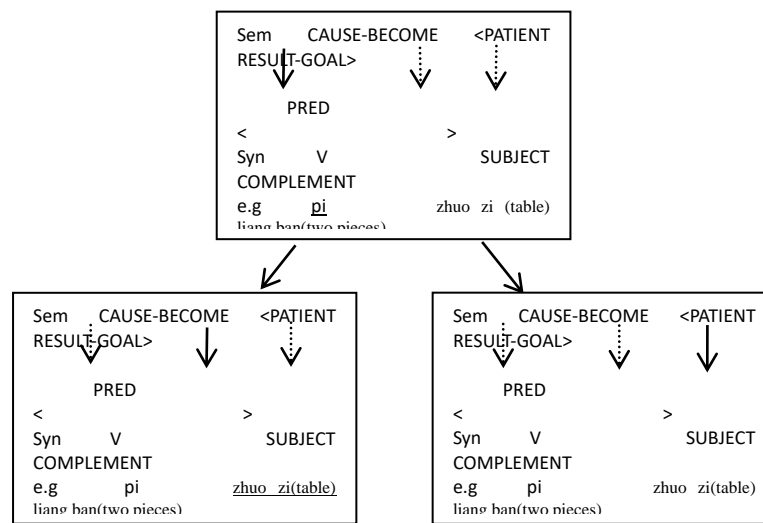


Figure 2: The prominence of various parts in the interrelationship event frame of “splitting”

The prominence and metonymic thinking in cognition are similar in nature because they all belong to the adoption of cognitive focal point. The transfer of cognitive prominence in event frame is often accompanied by metonymy. Ibezetal (2003:189-210) once interpreted the metonymic characteristics of the construction meaning of “What’s X doing Y” in event frame and held that the meaning of this construction comes from the metonymic operation of “action-results-attitude/ requests”:

Customer: What’s this fly doing in my soup?

In this example, the speaker is the customer and the listener is the waiter. If the real event frame is left out of consideration, the literal meaning of this sentence is that “What’s the fly doing in my soup?” However, it is obvious that the customer uses this construction to convey some implied meaning which at least involves the following two aspects: “I can’t accept that there is a fly in my soup” and “there should be an appropriate solution”. That is, the result (the food is polluted) derives from an action (the appearance of the fly) in an event domain through a metonymic transfer, and finally comes to the attitude/ request made by it.

The character “dui” is the simplified version of the “dui”. The book Shuo wen jie zi says: “dui, cong kou cong zhuo cong cun.” (Character dui is formed by cun and you) (Xu Shen 1963:65), and also Xu Kai (1988:103) holds that: “you wen ze dui, fei yi fang ye.”(Act of dui requires two participants). The word “dui” originally is a verb and means to reply or to respond. From etymology, the semantic entailment of “dui” as a binary valence verb presupposes the existence of “asker” and “responser”. The word “dui” also relates to the personal concept and has salient heterogeneous and binary constitutive characteristics.

As is shown in table 2 and 3, the collostructional strength of N lexeme in the classifier construction “X dui-N” is as person >body parts>animal>personal belongings. To be specific, Nouns referring to

person ranks the top, with a frequency of 8210, accounting for 85.8%. This kind of collocation in the interrelationship event frame begins from the metonymic transfer from the action of etymological meaning “to respond” to the “asker” or “answerer”, and to the other binary personal concepts through the metaphorical projection, among which the heterogeneity of this kinds of person usually consists with the contrariety between the “asker” and “responser” in the event frame, such as “yi dui xiong di” (two brothers) and “yi dui fu qi” (a couples), etc. The proportion of the last three collexeme is small, and there is little difference between them, among which the frequency of nouns of body parts is 675, accounting for 7.2%. Based on personal noun, this kind of semantic collocation is established through the composite mechanism of metaphor plus metonymy, for example “yi dui jiu wo” (a pair of dimples), etc. On the one hand, the transfer from “yi dui fu qi” (a couple) to “yi dui jiu wo” (a pair of dimples) is based on the metonymic transfer from “whole” to “part”. On the other hand, although their similarity in quantity can realize metaphorical connection, they can’t realize metaphorical connection in conceptual level because they are different in the heterogeneity of their constituent part, and thus belong to the weakened metaphor compared to the metaphor between “to respond” and “person”. The frequency of nouns of animal is 482, accounting for 5.4%. This kind of collocation is extended from the metaphorical mechanism between the classifier “dui” and personal noun in quantitative concept and contrastive heterogeneity, for instance, “yi dui yuan yang” ((a pair of mandarin ducks) and “yi dui tian e” (a pair of swans), etc. The frequency of personal belongings is 289, accounting for 2.6%. Based on body parts, this kind of collocation is also established through the composite mechanism of metaphor plus metonymy. There exists both the metonymic association between “the whole” and “the associative part” and the metaphorical one based on the similarity in the quantitative concept of the two collexeme, for example “yi dui er ji” (a pair of earphone) and “yi dui shou zhao” (a pair of bracelet), etc.

The reason for the low collocation strength between the classifier “dui” and its collexeme of body parts, personal belongings, and animal is either that they are inconsistent with the participant in the event frame of the etymological meaning of “dui” as “to respond”, in which the cognitive operation is weakened, or that the cognitive realization of the collexeme involves many operations since from the etymological meaning, because, in general, the more operations they involve, the lower their collocation strength and this kind of cognitive operation is hard to realize in language construction. On the contrary, because the metonymic and metaphorical operation between person and the etymological meaning of “dui” as “to respond” is more straightforward, they have high collocation strength. Hence, the constructional prototypical meaning of “X dui-N” can be defined as “to modify one or more groups of binary heterogeneous consistent personal noun”. The figure of the extension mechanism of the classifier collocation “X dui-N” is presented as follows:

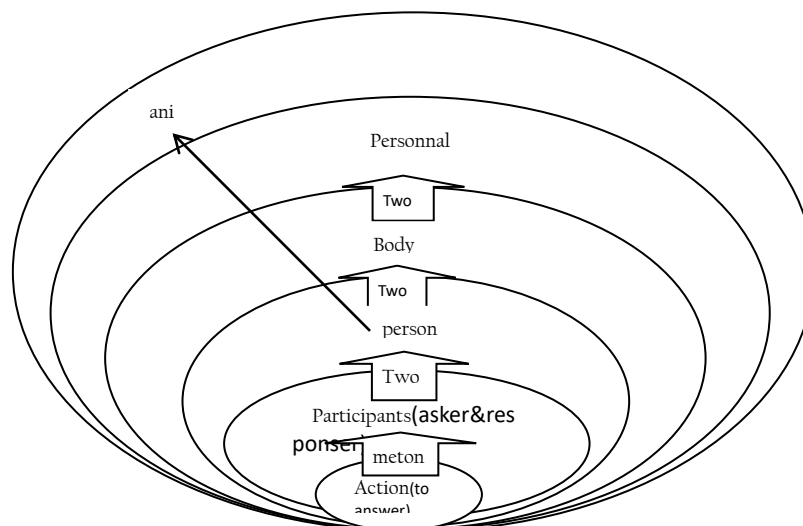


Figure 3: The extension mechanism of the classifier collocation “X dui-N”

The sayings about “fu” in the book *Shuo wen jie zi* (Xu Shen, 1963:79) are written as “fu, pan ye; pan, fen ye.”(Fu means splitting). There is another sayings by Duan Yucai (1988:103) which presents that “fu zhi ze yi wu cheng er, yin reng wei zhi fu, yin zhi fan fen er he zhe jie wei zhi fu.”(Both the whole part and the splitted parts from the whole can be called “fu”) This suggests that “fu” has the meaning of splitting. The verb “split” presupposes the two concepts of “the whole” before the “splitting” and “the parts” after it. At the same time, based on daily experience, the patient of “splitting” is usually object rather than human beings. Thus, from etymology, the classifier “fu” often

relates to part-whole concepts and its collexeme has weak living property.

In accordance with table 3, this paper combines both the quantitative and the discreteness-aggregation attribute and classifies them as the four types of one-element aggregation, two-element aggregation, two-element discreteness, and multi-element discreteness. Table 2 and 3 indicates that the collostructional strength of the above lexeme in the “fu” construction ranks as follows: one-element aggregation > multi-element discreteness > two-element discreteness > two-element aggregation. The one-element aggregation ranks the top, with the frequency of 3705, accounting for 39.1%. It is characterized as being the lexical concepts which works as a whole constituted by its parts and which is hard to be construed by splitting the part and whole from the physical or conceptual perspective. For instance, although there are many facial details in one expression, our cognitive focusing is just the general expression but the details. The more examples are “yi fu xiao rong” (a smile) and “yi fu kong ke” (a shell), etc. This lexeme categorization highlights the general concepts and is consistent with the concept of the “whole before the splitting” in the event frame of its etymological meaning as “splitting”, which is established through the metonymic transfer from the etymological meaning as “splitting” in the Interrelationship event frame to the “patient whole” before the splitting”, and to the other object with the concept of “whole” through metaphorical projection. The two-element and multi-element discreteness rank the second and third and their frequency is 2565 and 1085, taking up 27.2% and 18.8%, respectively. Both of them belongs to discrete nouns and only have a little difference in the quantity of their constituent elements. Their characteristics are that they consist of two parts and each part can exist independently from the physical perspective, such as “yi fu shou tao” (a pair of gloves) (two-element), “yi fu qiu pai” (a pair of racket) (two-element), and “yi fu pu ke” (a deck of poker) (multi-element), etc. This type of lexeme highlight the “part” and are consistent with the “part after the splitting” in the event frame of the etymological meaning of the “fu” as “splitting”. Its collostructional extension is established through the metonymic transfer from the etymological meaning as “splitting” in the interrelationship event frame to the “part after the splitting”, and to the other object highlighting the concept of “part” through metaphorical projection. The lexeme of two-element aggregation rank the last, with the frequency of 1425, accounting for 14.9%. The relevant nouns often involve the whole entity which consists of two constituents with clearly-construed structure and consistent with the whole from the physical and conceptual perspective. They are not easy to be split, for example, “yi fu dui lian” (a pair of couplets), “yi fu yan jing” (a pair of glasses), “yi fu shou kao” (a pair of handcuffs), and “yi fu dan jia” (a stretcher), etc. This type of lexeme highlight the interaction between the whole and the part and are consistent with the interaction between the “whole before the splitting” and the “part after the splitting” of the etymological meaning of “splitting” in the event frame. It is realized by the metonymic transfer from the etymological meaning of “splitting” in the Interrelationship event frame to the “whole before the splitting” to the “part after it” at the same time, and then through the conceptual metaphorical projection of the “whole” and “part”. From the above, in the classifier collocation “X fu-N”, the collostructional strength of the lexeme of one-element aggregation and discreteness (two-element and multi-element discreteness) is high and has no significant difference while the collostructional strength of two-element aggregation is low. This result reflects that the semantic extension of its collexeme is realized by highlighting the “whole” being split and the “part” after splitting in the event frame of “splitting” and further by the metonymic and metaphorical thinking. However, the semantic extension of its collexeme is rarely established by highlighting the concept of “part” and “whole” at the same time, nor further through the the metonymic and metaphorical thinking, because this kind of cognitive operation is complex. On this basis, the constructional prototypical meaning of “X fu-N” can be defined as “the expression of one or more groups of one-element, two-element, or multi-element aggregate or discrete nouns”. The figure of the extension mechanism of its collocation is presented as follows (the bold hollow arrow presents the metonymic operation while the unbold solid arrow signifies the metaphorical operation):

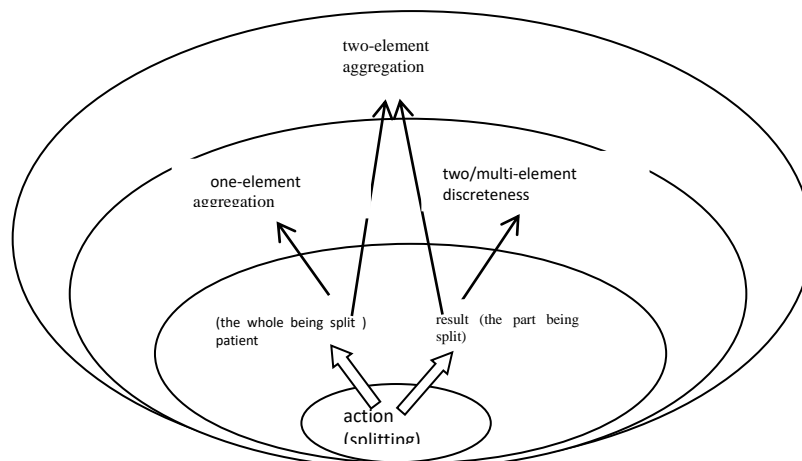


Figure 4. The extension mechanism of the classifier collocation “X fu-N”

3.3 Findings and Implications

From the above, it can be seen that the categorization distribution of the N lexeme in the classifier construction of “dui” “fu” “shuang” has both similarity and difference. At the same time, the collocation inside these three types of constructions has the characteristics of imbalance and continuity. On the one hand, the collostructional strength between different semantic categorization and specific construction is different and can be classified as prototypical collostruction and extended collostruction. On the other hand, the prototypical collostruction relates to the extended collostruction through the cognitive mechanisms of metaphor and metonymy and it is shown that the metonymic thinking is more basic and general than the metaphorical thinking.

On the basis, we have the following implications: 1) metonymy is also one type of connection mechanism. Goldberg once put forward that the categorical extension of a construction mainly includes the polysemy links, the subpart links, instance links, and metaphorical extension links. According to this research, it is obvious that the categorizational extension of a classifier collocation involves at least another inheritance links, the metonymic link. This finding is enlightening for the future exploration of the new characteristics of Chinese classifier construction. 2) In the extension mechanism of a classifier construction, especially the verb-originated classifier construction, metonymy plays a more important role than metaphor. This finding not only verifies the concept that in cognitive thinking, metonymy is more basic than metaphor (Radden 2000:95) but also overturns the concept that metaphor is the most basic motivation mechanisms in classifier categorization (Zong Shouyun 2012:118). This may be because people can identify and store the knowledge chunks outside the world during their interaction with it, and these chunks can correlate and influence each other and if their is one change the whole or part of the whole will be changed (Wang Yin 2007:250). Therefore, the metonymic thinking based on association, for example the association between part and whole, is concrete thinking and is easy to be realized while the metaphorical thinking based on similarity, such as personification, often involves abstract thinking, and is more complex compared with concrete thinking. 3) There exists a composite mechanism of metaphor plus metonymy in the extension of the classifier collocation. Although, metaphor and metonymy belongs to different cognitive model, there is some connections and sometimes they are in a continuum (Radden 2000:108). For instance, this may exist in the extension mechanism of the classifier construction of “shuang” “dui”. Compared with the comparatively simple metaphorical cognition, the application of this kind of complex mechanism will often promote the collocation of the corresponding lexeme and strengthen its collostructional strength with the classifier.

4. Conclusion

The qualitative and quantitative research of combining both the corpus statistical analysis and linguistic theoretical analysis is the necessity for theoretical innovation in cognitive linguistics and the improvement of methodology. There are few quantitative empirical studies on the classifier collocation in the past. With the help of Collostructional Analysis, based on language fact, this paper conducts a contrastive analysis of the collostructional strength and categorization distributional difference among the “Noun” lexeme in synonymous double classifier constructions “X shuang/dui/fu-

N". Combined with the corresponding theories of cognitive linguistics, this paper also explores the cognitive mechanisms behind them and completes the limitation of Goldberg in the application of construction categorization theory to the research of Chinese classifier construction. Besides, it also enriches the research scope of Chinese classifier construction and helps to further explore the new characteristics of Chinese classifier construction to promote a systematic research on Chinese classifier.

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