

A Corpus-based Study on Figurative Language through the Chinese Five Elements and Body Part Terms

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Abstract

Using a corpus-based approach, this paper analyzes figurative language through observing the Chinese five elements (五行) of 金 ‘metal,’ 木 ‘wood,’ 水 ‘water,’ 火 ‘fire’ and 土 ‘earth.’ This work found that there are at least two types of figurative language in Mandarin Chinese – one of which occurs at the morphosyntactic level and the other occurs during the mappings between two domains (between the body part terms and these five elements). When the figurative uses of the co-occurring five elements with body part terms were tested in a psycholinguistic experiment composed of two groups of subjects (non-native and native speakers of Mandarin), a majority of the non-native speakers were unable to comprehend these figurative uses. This study attempts to prove that a linguistically-driven understanding of the five elements will be of great help to teaching or learning figurative language in a Mandarin L2 context.

Keywords: Corpus, Five Elements, Figurative Language, Body Part, Learners of Chinese, Psycholinguistic Experiment.

1. Introduction

The relationship between body part terms and emotion metaphors was discovered by early psychologists, such as William James (1884) and Carl Lange (1884), who suggested that the origin of emotions is inside one’s body. Linguists of present days, such as Kovecses (2003) and Wierzbicka (1999), have also examined emotions in English and compared them to those in different languages. In Yu’s (1995: 85) inspection of Mandarin metaphorical expressions related to anger and happiness in Chinese, he noted that the “underlying cognitive model based on the fundamental theories of Chinese medicine has led to a cultural emphasis in China of sensitivity to the physiological effects of emotions on the internal organs.” Therefore, it holds that Chinese people are aware of the relatedness between the five elements and emotions

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in Chinese. Our current study is different from Yu's by addressing the following questions.

- (1) (a) What are the distributional patterns of the Chinese five elements in corpora data?
- (b) To what extent will a corpus-based method help to extract figurative language containing the Chinese five elements?
- (c) How will a linguistic analysis contribute to the understanding of figurative language by learners of Mandarin as a second language?

In addition to extracting figurative language, our work aims to explain how a corpus-based method can be used to assist teaching and learning. We intend to see the extent to which corpora and collocational understanding help in extracting these figurative patterns and how these patterns can be applied to teaching and learning of Mandarin to foreigners.

2. The Chinese Five Elements (五行)

Traditional Chinese medicine believes that the five elements also control one's internal body – they “are said to vanquish one another and to produce one another” (Veith, 2002: 19). These elements are also reckoned by philosophers to be phenomena that rule nature. Table 1 provides these resonances (of mapping), according to traditional Chinese beliefs.

From Table 1, it can be seen that the five elements are related to emotions (last column of Table 1) and to body parts (shaded).

Table 1. Five element resonances

自然界						五行	人體				
方位	氣候	發展過程	五色	五味	時令		臟	腑	五官	形體	情志
東	風	生	青	酸	春	木	肝	膽	目	筋	怒
南	暑	長	赤	苦	夏	火	心	小腸	舌	血脈	喜
中	濕	化	黃	甘	長夏	土	脾	胃	口	肌肉	思
西	燥	收	白	辛	秋	金	肺	大腸	鼻	皮	悲
北	寒	藏	黑	鹹	冬	水	腎	膀胱	耳	骨	恐

Hicks, Hicks, and Mole (2004: 28) said that, in Chinese, “emotions create movement and disturbance in a person's *qi*.” Yu (1995: 81) has also commented that “[w]herever *qi* is locally impeded, it will affect the circulation of blood and local pain may occur as a result of increased internal pressure in that area” and “[t]his may point to the reason why *qi* is one of the basic words for the emotion of anger.” From here, one can see how the Chinese relate emotions to the five elements (Table 1) and to body parts. Yet, despite the traditional beliefs about the five elements and body part terms, we found that the denotation of body parts and emotions may sometimes not be in accordance with our linguistic knowledge, except for some that we can immediately relate based on physiological knowledge. While the connectivity of some pairings (such as that between 火 ‘fire’ (heat) and 心 ‘heart;’ as well as 水 ‘water’

and 膀胱 ‘bladder’) can be easily explained, many others, such as the combinations of 腎 ‘kidney’ and 水 ‘water,’ as well as 肺 ‘lung’ and 金 ‘metal,’ are not entirely linguistically-driven. Chinese speakers, however, do not seem to find this a problem – that is, they can use 肚子 ‘stomach’ and 水 ‘water’ on the one hand and believe that 腎 ‘kidney’ and 水 ‘water’ are closely related on the other. This discrepancy between world versus linguistic knowledge may be confusing to a learner of Mandarin. Therefore, we hope to provide some insights to explain these apparent ‘discrepancies’ from a linguistic perspective, further supported by empirical data from corpora and a psycholinguistic experiment¹. It is also through a metaphor framework (Lakoff & Johnson, 1980; Lakoff, 1999) that we hope to explain the mapped meanings of these five elements when they appear as physical entities (of metal, wood, water, fire, and earth) and as abstract elements.

This study claims that collocational data from corpora can be utilized to raise awareness amongst foreign learners of Mandarin so that patterns in the target language can be recognized. These patterns may cause difficulty for learners both at word formation and at sentential levels. For example, some non-existent associations in English (*e.g.*, 肝 ‘liver’ with 火 ‘fire’ to mean ‘irascibility’) can be better explained with corpora data². By providing quantitative data, our research can shed light on the differing conceptualizations a foreign learner of Mandarin may need to overcome. The following expresses the methodology used in this work.

3. Methodology and Results for Corpora Analyses

All single- (*e.g.*, 火 ‘fire’) and multiple- (*e.g.*, 肝火 liver-fire’) character expressions containing the five elements were extracted from the Academia Sinica Balanced Corpus of Modern Chinese (hereafter Sinica Corpus), shown in Table 2. From Table 2, a total of 25,079 instances were found containing these five elements either as single-character expressions (Column 4) or in multiple-character morphemes (Column 6). Among these, 水 ‘water’ constitutes the biggest proportion, with about 40% of the total number of instances. This may be due to the fact that water has a wide applications of functions – to drink, to wash, to flow, to move, to flood, *etc.*, not mentioning its possibilities of combination with different morphemes ranging from aquatic-related attributes (*e.g.*, 水田 ‘paddy field’ and 水產

¹ This observation was made based on the resonances in Table 1 versus the linguistic data observed. This did not include other relations amongst the elements such as the 克 ‘control’ cycle, which may explain some conflict between elements.

² Nevertheless, there may also be another level of metaphoricity because 肝火 ‘liver-fire’ can mean both ‘bodily heat’ and ‘irascibility’ (in addition to the mapping between a body part term (肝 ‘liver’) and the fire element (火 ‘fire’)). These different levels of mappings, however, are not the focus of the current work. Figurative language was identified and accumulated once a metaphorical meaning was detected (regardless of the level of mappings involved).

‘aquatic products’) to watery (水水 ‘juicy’) and to other instrumental meanings (e.g., 水貨 ‘smuggled goods’). As one can see, 土 ‘earth’ constitutes the lowest percentage, with only about 8% of the total instances, suggesting that it perhaps has less frequent applications or may appear in limited, usually soil-related, contexts. The second highest, 金 ‘metal’ (28%), often denotes finance-related terms (金融/基金/資金) and all types of metals (金屬).

Table 2. Number of instances from Sinica Corpus

Elements	Total Instances	%	Single Character	%	Morphemes	%
金 Metal	6,997	27.90	230	3.29	6,767	96.71
木 Wood	3,463	13.81	80	2.31	3,383	97.69
水 Water	9,999	39.87	1,436	14.36	8,563	85.64
火 Fire	2,709	10.80	246	9.08	2,463	90.92
土 Earth	1,911	7.62	149	7.80	1,762	92.20
Total	25,079	100.00	2,141	8.54	22,938	91.46

On the right of Table 2, we can see that, for 水 ‘water,’ about 14% of its instances appear as a single character and this constitutes the highest percentage among all five elements. The other four elements appear as single-character expressions in no more than 9% of their respective total hits. In addition, we found that 木 ‘wood’ rarely appears on its own (2.3%). In order to see the word combinations formed by the five elements, analysis of their positions in an expression was carried out (Table 3).

Table 3. The five elements as morphemes in the Sinica Corpus

Five Elements (E)	Two-charactered Expressions				Three-charactered Expressions						Total	%
	Initial		Final		Initial		Medial		Final			
	E?		?E		E??		?E?		??E			
	(e.g., 金錢 ‘money’)		(e.g., 黃金 ‘gold’)		(e.g., 金字塔 ‘pyramid’)		(e.g., 基金會 ‘foundation’)		(e.g., 獎學金 ‘scholarship’)			
	Tk.	Ty.	Tk.	Ty.	Tk.	Ty.	Tk.	Ty.	Tk.	Ty.		
金 Metal	2,225	146	1,819	73	748	200	1,110	175	506	75	6,408	30.69
木 Wood	760	99	502	61	119	43	210	67	113	49	1,704	8.16
水 Water	3,209	178	2,594	154	480	137	788	225	227	66	7,298	34.96
火 Fire	1,029	70	818	83	227	45	185	58	9	7	2,268	10.86
土 Earth	1,710	65	1,105	63	155	44	142	30	88	20	3,200	15.33
Total	8,933	N/A ³	6,838	N/A	1729	N/A	2,435	N/A	943	N/A	20,878	100.00

In Table 3, the use of the five elements in expressions with two- to three- characters is shown. The number of tokens (Tk.) refers to the instances found, including repeated ones. The number of types (Ty.) refers to the number of varied forms found. From Table 3, we can see

³ The symbol ‘?’ refers to any Chinese character appearing before and/or after the five elements. ‘N/A’ because it is uncommon to add up the different types from different elements. The total in Table 3 does not add up to the total hits in Table 2 because we only considered up to three characters.

that, in terms of tokens, all of the five elements appear consistently at the initial position of two-character expressions (in bold). (Note that comparisons can be made only within each element since different elements are shown to have different overall frequency in the corpus.)

In terms of types, the highest numbers of types within each element are shaded. We found that 金 ‘metal,’ 木 ‘wood,’ and 土 ‘earth’ appear with more varied forms at the initial position of the expressions (as in 金牛座 ‘Taurus,’ 木板 ‘plank’ and 土地 ‘ground’)⁴. On the other hand, 火 ‘fire’ appears most often in the final position of two-character expressions such as in 香火 ‘burning joss stick’ and 烈火 ‘raging fire.’ 水 ‘water’ appears most often in the medial position of three-character expressions (e.g., 淡水魚 ‘freshwater fish’ and 排水管 ‘a drain’). In addition, 火 ‘fire’ seldom appears in the final position in three-character expressions, except in names (e.g., 陳樹火 ‘Chen Shu-Huo’). In fact, all of the nine instances for ‘??E’ are proper nouns of human names. The analysis in Table 3 will help predict the behavior of the five elements in word formation. A corpus-based study like this can display linguistic phenomena that we seldom notice in daily use. In addition, we also found that, while some of the words retain the physical meanings of the five elements (e.g., 木箱 ‘wooden chest’ and 木材 ‘lumber’), some show meaning extensions to denote more figurative use such that in 水準 ‘standard.’ As for 土 ‘earth,’ it seems to have different meanings, including soil (紅土 reddish earth), territory (國土 territory), local (土狗 Formosan/local dog), and not fashionable (老土 old-fashioned).

In addition, in order to observe whether or not these five elements also co-occur with body part terms and how they pattern in the corpus, we first selected a list of body part terms as our reference list (given in Table 4).

Table 4. List of body parts (translated from the English Swadesh list)

Body Parts	Gloss	Body Parts	Gloss	Body Parts	Gloss	Body Parts	Gloss	Body Parts	Gloss
皮	skin	嘴/口	mouth	手	hand	背	back	毛/頭	hair
指甲	finger nail	耳(朵)	ear	舌(頭)	tongue	心(臟)	heart	(髮)	
眼(睛)	eye	牙(齒)	teeth	頭/臉/面	head	胸(腔)	breast	腹部/	belly
腸	intestines	頸/脖子	neck	鼻(子)	nose	骨骼	skeleton	肚子/	
血	blood	膝	knee	身	body	肝	liver	胃	
骨	bone	肉	flesh	腿/腳	leg	足	foot		

We took the English body part terms from the Swadesh list (Swadesh, 1971) because this list constitutes the basic concepts which are claimed to exist in various languages. The Chinese translations were borrowed from the annotations by a research group at Academia

⁴ Note that, at this stage, we did not distinguish the literal from the figurative use since distinguishing the figurative from the literal at the morphological level may sometimes introduce extraneous problems. Furthermore, existence of proper names (e.g., 鄭木金, 黃木添, 彭木城, 鍾木郎, etc.) may affect the overall results.

Sinica (with expansion by the author). From Table 4, there are forty-two Mandarin body part terms used in this part of the research. The number of co-occurrences of the body part terms with the five elements in ± 5 window span (for words, not characters) was recorded (see Table 5). When more than one body part term was found appearing within the designated window size (as in 伸手捧了些清水洗去臉上沙塵 ‘to stretch and hold some clean water to wash away the dirt on the face’), the body part terms (‘hand’ and ‘face,’ in this case) were counted in each category, respectively.

Table 5. Co-occurrences of body part terms with the five elements

Five Elements	Total Instances	Instances with Body part Terms up to ± 5	Per 1,000 Instances	Types of Body part Terms
金 Metal	6,997	73	10.43	22
木 Wood	3,463	38	10.97	15
水 Water	9,999	144	14.40	35
火 Fire	2,709	34	12.55	14
土 Earth	1,911	25	13.08	12
Total	25,079	314	12.52	N/A

As displayed in Table 5, there are only 314 instances from the total hits in which these body parts were found in the designated contexts of the five elements. This frequency is rather low as there are, on average, only 13 instances of body part terms appearing in every 1,000 instances of the (combined) five elements.

From Table 5, we can see that 水 ‘water’ is the most frequently used element with body part terms compared to the other four elements (14 instances per 1,000 instances). This is followed by 火 ‘fire’ and 土 ‘earth,’ each with 13 instances in every 1,000 instances. Sample sentences for 水 ‘water’ and 火 ‘fire’ are, respectively, 增加肚子裡的『墨水』 ‘increase the ink (knowledge) in one’s stomach’ and 眼睛幾乎要冒出火 ‘fire seems to be bursting out from his/her eyes.’ These examples show the co-occurrences of the body part terms with the five elements (regardless whether the five elements appear in single- or multiple- character expressions, or whether they are literal or figurative). A non-figurative use of 土 ‘earth’ can be seen in 他滿口滿鼻都是沙土 ‘his mouth and nose are full of sand.’ “Types of Body part Terms” (last column of Table 5) refers to the number of types of body parts found with a particular element. For instance, 水 ‘water’ co-appears with 35 (83.33%) out of the 42 body part terms selected for the analysis of this work, indicating that 水 ‘water’ appears most frequently with body part terms. 金 ‘metal,’ the second most frequent, is found with twenty-two (52.38%) body part terms.

In order to see whether a certain body part term is used particularly frequently with an element, Table 6 lists the types of body part terms co-appearing more than 5% of the time with the five elements. The data are body part, frequency, and percentage. The most frequently occurring body part terms are shaded. For 金 ‘metal,’ we found that 面 ‘face’ is itself a

classifier often used with 金牌 ‘gold medal,’ as in 各摘下一面金牌 ‘each has won a gold medal.’ In this example, 面 ‘face’ in 一面金牌 ‘a gold medal’ has also had metaphorical extension from ‘face’ to ‘surface.’ Earlier examples of 土 ‘earth’ have also shown its metaphorical extension to the meanings of local and not fashionable. Therefore, future studies on the metaphorical extension of the five elements would be interesting.

Table 6. Types of body part terms found with the five elements in ±5 window size

金 Metal (Total=73)			木 Wood (Total=38)			水 Water (Total=144)			火 Fire (Total=34)			土 Earth (Total=25)		
面 face	23	31.51	手 hand	9	23.68	口 mouth	29	20.14	心 heart	6	17.65	身 body	4	16.00
身 body	11	15.07	身 body	5	13.16	身 body	20	13.89	身 body	6	17.65	腳 leg	3	12.00
手 hand	6	8.22	頭 head	4	10.53	頭 head	12	8.33	手 hand	4	11.76	頭 head	3	12.00
心 heart	5	6.85	眼 eye	4	10.53	手 hand	9	6.25	眼睛 eye	4	11.76	口 mouth	3	12.00
眼 eye	4	5.48	腳 leg	2	5.26				臉 face	3	8.82	手 hand	3	12.00
			手指 fingernail	2	5.26				肉 meat	3	8.82	鼻 nose	2	8.00
			腿 leg	2	5.26							心 heart	2	8.00
			口 mouth	2	5.26									
			臉 face	2	5.26									

As for 木 ‘wood,’ its most often occurring body part term is 手 ‘hand’ (as in 一隻手揮動著木杖 ‘with one of his hands waving the wooden stick’), suggesting that 木 ‘wood’ often is used to refer to something that can be held by the hands (thus having a functional use). 水 ‘water,’ on the other hand, often collocates with 口 ‘mouth,’ indicating that these two are often used together. One classic example can be seen in 我不禁吞了一口口水 ‘I couldn’t help but swallow one mouth of saliva (I couldn’t help but swallow hard)’ in which the first 口 ‘mouth’ is a classifier. As for 火 ‘fire,’ its most frequently appearing body parts are 心 ‘heart’ and 身 ‘body,’ such as 就是秉持這一把心中之火 ‘it is to adhere to the fire in one’s heart’ and 抱住身上有火的小孩子 ‘(someone) is hugging the kid that is on fire,’ with the first example used figuratively and the second used literally. 土 ‘earth’ is also frequently used with 身 ‘body’ (e.g., 揮一揮身上的塵土 ‘to brush away the dust on (one’s) body’).

From the analysis in Table 6, one can see that certain body parts are more commonly used with a certain element. Their co-occurrences here are mainly driven by cognitive motivations, i.e., one knows that 木 ‘wood’ is handy, 水 ‘water’ is drinkable, 塵土 ‘dust’ can cover one’s body, 火 ‘fire’ can burn one’s body, etc. It is possible that these elements pre-select a certain body part to co-occur with due to the nature of the physical elements. Analysis as such will also provide a good example for presenting cognitive mechanisms through linguistic realizations. From these collocations, linguistic predictions can also be

made. For instance, we predicted a higher percentage of figurative language could possibly be found with 火 ‘fire’ when it co-appears with body part terms such as 心 ‘heart’ and 眼睛 ‘eye.’ We also predicted that 金 ‘metal,’ 木 ‘wood,’ and 土 ‘earth’ would be used less figuratively, based on their most often appearing (body part) collocates being a classifier, hand, and body, respectively, each possessing a relation that is likely to be literal. These predictions were made based on the collocational patterns found in a corpus. Nevertheless, we could not make a solid prediction regarding 水 ‘water’ since its collocates of 口 ‘mouth,’ 身 ‘body,’ 頭 ‘head,’ and 手 ‘hand’ can be used both literally and figuratively. These (linguistic) collocates in Table 6 are obviously different from the resonances of the five elements presented in Table 1 earlier, further confirming that language use and traditional beliefs might be two separate knowledge systems for the Chinese.

4. The Five Elements, Body Part Terms and Figurative Language

This section carries out an analysis of figurative language, calculating the number of co-occurrences of body part terms and the five elements which are non-literal. We used the term ‘figurative language’ to refer to the above phenomenon of figurative use, focusing particularly on instances where the Chinese five elements co-appear with body part terms, especially when they carry a figurative meaning. Our definitions of figurative language are also in accordance with the following two important features listed by Liu (2008: 23) for idioms (a term he uses to refer generally to figurative language)⁵.

- (1) Idioms are often non-literal or semi-literal in meaning – that is, an idiom’s meaning is often not completely derivable from the interpretation of its components. (2) They are generally rigid in structure – that is, some of them are completely invariant but others allow some restricted variance in composition... (Liu, 2008: 23)

The linguistic data of our concern are also non-literal (opaque) or semi-literal (semi-opaque). Their meaning cannot be derived completely from their components. Opaque instances including four-character idioms in Chinese such as 冷水澆頭 ‘to pour cold water on one’s head (to discourage).’ These four-character idioms were checked against the Ministry of Education’s Dictionary of Chinese Idioms (because not all four-character expressions in Mandarin are idioms)⁶. Figurative language concerned in this work is generally rigid in nature but does allow for some restricted variance in composition. For instance, both 眼睛冒金星

⁵ Liu listed three features with the last one being “[i]dioms are multiword expressions consisting minimally of two words, including compound words” (pg. 23) which refers mainly to English and is not applicable here.

⁶ Available at http://dict.idioms.moe.edu.tw/sort_pho.htm.

‘Venus is at view (to be dazed)’ and 撞了個滿頭金星亂冒 ‘Venus appears above one’s head due to a collision’ are two variant forms of 冒金星 ‘Venus appears’⁷. Our analyses of figurative language also included similes, which usually appear in the construction ‘body part X is like Y,’ as in 祂的心像死水 ‘His heart is like dead (still) water.’ In this example, even though 死水 ‘still water’ itself is a personification of the water by giving it a feature of death, we concentrated on the figurative language found between the mappings of body part terms and the five elements. We also included examples in which the relationship between the body part terms and the five element terms is implicit. For instance, in 清肝退火 ‘to clean up liver and to reduce internal bodily heat,’ 火 ‘fire’ has no explicit reference to 肝 ‘liver’ but the implied meaning is 退肝火 ‘to recede the fire of the liver’ (also, ‘to cool down’).

Based on the above criteria, our final results concerning the figurative uses of the five elements with the body part terms are given in Table 7.

Table 7. Literal and figurative uses of body part terms with the five elements

Five Elements	Literal	Figurative	Total
金 Metal	69 (95%)	4 (5%)	73 (100%)
木 Wood	32 (84%)	6 (16%)	38 (100%)
水 Water	134 (93%)	10 (7%)	144 (100%)
火 Fire	18 (53%)	16 (47%)	34 (100%)
土 Earth	25 (100%)	0 (0%)	25 (100%)
Total	278 (89%)	36 (11%)	314 (100%)

Based on the total 314 instances for all five elements (from Table 5), we can see the distributions of literal versus figurative usage in Table 7. From this total, about 89% are literal and only 11% are figurative. Previous work (Chung, 2009: 77) found that about 30% of metaphorical expressions are used in newspapers, and the percentages in Table 7 are obviously lower, except for 火 ‘fire,’ which distributes differently with half (53%) of its instances being figurative and the other half (47%) literal. This displays the possibility that 火 ‘fire’ not only is used more often with body part terms but also that half of its instances in a corpus are likely to be figurative. All of the other four elements pattern the same – with more than 84% of the uses carrying literal meanings. This demonstrates that most of their co-occurrences with body part terms refer to their concrete entities, rather than the abstract elements. Co-occurrences of 火 ‘fire’ with body parts are as along the lines of 他胸中的熱火何等地狂燒 ‘the hot fire inside his chest is burning crazily’ and 坦利一時心嫉如火

⁷ The selection of the body part terms is, however, non-arbitrary, a feature shown in most studies on preference selection of collocation. Nevertheless, it is uncertain whether this is due to extralinguistic knowledge caused by Chinese traditional medicine or it is based on a purely linguistically-driven model, as we found counterexamples for a pure extralinguistically-driven model. Therefore, we intend to look into this issue in terms of rigid versus less rigid figurative use.

'Terry's heart was momentarily jealous like fire burning.' We also predicted that 金 'metal,' 木 'wood,' and 土 'earth' would be used less figuratively, based on their most commonly appearing (body part) collocates. The results in Table 7 make clear that, from all the co-occurrences of body part terms with the five elements, only 5% of the instances of 金 'metal' are used figuratively, *i.e.* 心被金錢佔據 'the heart is invaded by money (gold and money,' in which a mapping between 心 'heart' and 金錢 'money' is found through the action of 'invading.' As for 土 'earth,' surprisingly, all of its instances have literal meanings in our corpus (*e.g.*, 哥哥洗去父親滿身的泥土 '(my) brother washed away the soil all over father's body'). An intuitive observation did find instances such as 面如土灰 'a face like grey soil (earth),' but uses such as this were not present in our data. One reason could be that 土 'earth' is not used with body parts but with other aspects of humans, such as 'aspiration' (*e.g.*, 土氣 'to be unrefined in appearance' and 'language' 土話 or 土語 'the local language'). As for 木 'wood,' 16% of its instances are used figuratively and the most commonly seen figurative use is 麻木 'become numb/numbness.' (Even though both 麻 'hemp' and 木 'wood' can refer to a type of crop or plant, respectively, when they are combined, a new meaning of 'being numb' is derived.) Intuitive investigation found examples such as 石木心腸 'a heart as hard as stone and wood' and 心如木石 'a heart like wood and stone,' but these examples were again not found in the data set of the corpus. In the following, four out of the five elements (excluding 土 'earth,' which consists of zero instances of figurative use) that were used figuratively are laid out in Table 8. The words in which the five elements were found are displayed in the first row of each element. The second row of each element shows the body part terms used with these four elements to form figurative language.⁸

From Table 8, one can see the most commonly found figurative language for all four elements. The results differ slightly from those in Table 6. In 金 'metal,' no particular pattern is displayed, as all instances were sparsely found. For 木 'wood,' 麻木 'being numb' and 手指 'fingernail' are highlighted to be the most frequent in their respective cells. For 水 'water,' its appearance as a single word is used most commonly in the figurative sense, while the corresponding body part terms are 肚子 'belly' and 心 'heart' (*e.g.*, 他們有一肚子的苦水 'they have one full stomach of bitter water (complaints) and 江水像跳動的心臟般 'the river water is pumping like the heart'). As for 火 'fire,' it is most frequently used in a figurative sense as a single word, followed by 退火 'recede fire.' The corresponding body part terms for 火 'fire' are 心 'heart' and 眼睛 'eyes.' If one contrasts this table with Table 6, one can produce several observations which are important for the learning of Mandarin, for example, when 金 'metal' co-appears with 面 'face' (see Table 6), it is likely to be used

⁸ By listing them this way, the table by no means shows that any items from the first row can be freely combined with the items in the second row. The table merely provides a calculation of the expressions found.

literally because it is not found in Table 8, which consists of figurative use and when 木 ‘wood’ co-appears with 手 ‘hand,’ it usually refers to the physical property of wood, which is handy (literal). Conversely, when 木 ‘wood’ appears in a figurative use, it is more like to denote 麻木 ‘numbness,’ and this corresponds also to the limbs.

Table 8. Figurative use of the four elements and their body part terms

金 Metal (Total=4)		木 Wood (Total=6)	
金錢 ‘money’ (1)	貼金 ‘paste-gold’ (1)	麻木 ‘numb’ (3)	木 ‘wood’ (1)
金星 ‘Venus’ (1)	金星亂冒 ‘to see stars’ (1)	麻木感 ‘numbness’ (1)	樹木 ‘trees’ (1)
心 ‘heart’ (1)	頭 ‘head’ (1)	手指 ‘fingernail’ (2)	心 ‘heart’ (1)
臉 ‘face’ (1)	眼睛 ‘eye’ (1)	手 ‘hand’ (1)	身 ‘body’ (1)
		腳 ‘leg’ (1)	
水 Water (Total=10)		火 Fire (Total=16)	
水 ‘water’ (3)	墨水 ‘ink’ (1)	火 ‘fire’ (5)	熱火 ‘hot fire’ (1)
水流 ‘water-flowing’ (1)	冷水 ‘cold water’ (1)	退火 ‘recede-fire’ (3)	火焰 ‘flames’ (1)
江水 ‘river water’ (1)	淚水 ‘tear’ (1)	火苗 ‘flames’ (1)	火燒 ‘fire-burn’ (1)
苦水 ‘bitter water’ (1)		肝火 ‘liver-fire’ (1)	火光 ‘fire-light’ (1)
止水 ‘still water’ (1)		怒火 ‘anger-fire’ (1)	火氣 ‘internal bodily heat’ (1)
肚(子) ‘belly’ (4)	頭 ‘head’ (1)	心 ‘heart’ (6)	肝 ‘liver’ (1)
心 ‘heart’ (3)	肚 ‘belly’ (1)	眼睛 ‘eye’ (4)	胸 ‘breast’ (1)
心臟 ‘heart’ (1)		臉 ‘face’ (2)	嘴唇 ‘lip’ (1)
		毛 ‘hair’ (1)	

When 水 ‘water’ co-appears with 口 ‘mouth,’ a literal meaning is usually derived. When it co-appears with 肚子 ‘belly’ and 心 ‘heart,’ it is likely to be figurative. When 火 ‘fire’ co-appears with 身 ‘body,’ it is likely to refer to the physical ‘fire’ (Table 6). When it co-appears with 心 ‘heart’ and 眼睛 ‘eye,’ it usually refers to the figurative anger. Finally, when 土 ‘earth’ co-appears with 身 ‘body,’ it is likely to be literal. It is never used in a figurative sense.

If we examine Tables 6 and 8 against Table 1 in terms of the resonances of the five elements, only 火 ‘fire’ and 心 ‘heart’ seem to show consistent co-appearance both as the resonant and in linguistic terms. There are also some occurrences of 土 ‘earth’ and 口 ‘mouth,’ as well as 木 ‘wood’ and 眼 ‘eye’⁹. Hence, overall, some ‘conflicting’ use of body part terms seems to be found co-occurring with the five elements in real language and in the resonances of the five elements. Without a proper explanation differentiating the extralinguistic and linguistic knowledge to second learners of Chinese, they are likely to be confused if they happen to read something about the five elements in their learning process. A corpus-based study like the current one will help distinguish the cultural phenomena from the

⁹ Nevertheless, the form 目 ‘eye’ was not collected in our body part list. When we searched for this term manually in the same window size of 木 ‘wood,’ zero results were found.

linguistic ones. Furthermore, a corpus-based study will also help discover characteristics that are often implicit in the language. For a second language learner of Mandarin, these implicit uses can be made clearer if their linguistic patterns are displayed, as shown in this work. In addition to being able to predict language usage, this study has also found that there are at least two types of figurative language in Mandarin Chinese – namely, those occurring at the morphosyntactic level and those occurring during the mappings between two domains (the body part terms and the five elements). At both levels, we found mappings from the concrete meaning of the five elements to their less concrete meaning, although there might be one or more levels of abstractness involved. Our analyses also show that figurative language in Chinese involves complex domain mappings, which can prompt discussion regarding the theoretical issues related to metaphor mappings.

5. Figurative Language and Foreign Learners of Mandarin

In order to examine the understanding of figurative language by native and non-native speakers of Mandarin, we conducted a psycholinguistic experiment based on a translation task. In this task, we asked both (foreign) learners and native speakers of Mandarin to translate from Mandarin to English some figurative sentences containing the five elements and the body parts. Only subjects who truly understood the figurative meanings would be able to translate these sentences. A questionnaire was created for this purpose, with examples taken or modified from the Sinica Corpus. Subjects were asked to translate the Mandarin sentences in (2) into fluent English. All of the keywords are highlighted in (2) but were not highlighted in the questionnaire. All subjects were told not to refer to dictionaries while answering¹⁰.

- (2)
- | | |
|--|---|
| (a) 老李最擅長的就是往自己 <u>臉</u> 上貼 <u>金</u> 了。 | (h) 上一場失敗的戀愛後，小華 <u>心</u> 如 <u>止</u> 水。 |
| (b) 整個 <u>嘴</u> 唇因為休息太少而 <u>火</u> 氣上升腫了起來。 | (i) 她找朋友吐了一 <u>肚</u> 子的 <u>苦</u> 水。 |
| (c) <u>肝</u> 火旺盛會導致口乾舌燥。 | (j) 興奮的他 <u>頭</u> 上被澆了一盆冷水。 |
| (d) 這種中藥吃了之後退 <u>火</u> 顧 <u>眼</u> 睛。 | (k) <u>心</u> 裡愛的 <u>火</u> 苗一下子滅了。 |
| (e) 廣泛閱讀可以增加 <u>肚</u> 子裡的 <u>墨</u> 水。 | (l) 水深 <u>火</u> 熱 |
| (f) 一直坐在電腦桌前，容易造成 <u>四</u> 肢 <u>麻</u> 木。 | (m) 一 <u>頭</u> 霧水 |
| (g) 他們在這場比賽中輸得 <u>灰</u> <u>頭</u> <u>土</u> 臉。 | (n) 大動 <u>肝</u> 火 |
| | (o) 眼冒 <u>金</u> 星 |

Only six non-native (NN) speakers of Mandarin were recruited, and all of them were advanced Mandarin learners at National Chengchi University (average age=29.5). Their

¹⁰ All sentences except for (2(l)) contain at least one body part term and one of the five elements.

answers were contrasted with the answers provided by six other native (N) speakers of Mandarin (average age=30). The two groups of subjects differed in their language proficiencies based on a scale of 1 to 7, with 1 being least fluent and 7 being most fluent, in Mandarin (NN=5.0; N=6.8) and in English (NN=6.5; N=5.5)¹¹. We hypothesized that the native speakers of Mandarin would fully understand the figurative stimuli in (2) and would express their meanings in English adequately. The non-native speakers, however, would only partially understand these figurative uses and as a result, their answers might differ slightly from the original meanings of the stimuli. These hypotheses were tested in terms of how many out of the total six subjects in the respective group answered adequately according to the figurative meaning of each stimulus. By ‘adequate answer,’ we referred to cases when an English translation fully expressed the figurative meaning of the idioms, even if the target words might not be directly translated, as in (3a) and (4a). Inadequate answers were such as (3b), (4b) and (4c).

- (3) 老李最擅長的就是往自己臉上貼金了。
(a) “Old Lee’s expertise is flattering himself.” (S5, N)
(b) “Lao Li’s habit is to pretend to be rich.” (S4, NN)
- (4) 上一場失敗的戀愛後，小華心如止水。
(a) “After the last love disappointment, Xiaohua’s heart is like a still water.” (S2, NN)
(b) “After the failure of the last relationship, her heart feels like running water.” (S4, NN)
(c) “After the crazy love affair ends, the heart bleeds water.” (S1, NN)

Missing translation in other parts of the sentences which did not affect the understanding of the target words was acceptable (as in (5a)). Scores were either one or zero. Unanswered or missing information in any of the target words (e.g., 火氣上升 in (5b) (translated as ‘swollen lips’)) was considered inadequate; thus, an answer falling into this category would be accorded a zero score. In some cases, over interpretation (5c) occurred, and these cases were also considered inadequate.

- (5) (a) 廣泛閱讀可以增加肚子裡的墨水。
“Broad range literature can increase one’s knowledge.” (S4, NN)
(b) 整個嘴唇因為休息太少而火氣上升腫了起來。
“My lips are entirely swollen due to lack of rest.” (S5, NN)

¹¹ Even though we tried to recruit more non-native speakers with differing countries of origin, most of the subjects were unable to answer the questions, as they found the task difficult. This further indicates that figurative expressions in a foreign or second language deserve further research.

(c) 一直坐在電腦桌前，容易造成四肢麻木。

“If you sit in front of the computer all day, you will become unfit and begin to progress your body shape in a horizontal manner.” (S5, NN)

All of the answers were then marked as adequate or inadequate (one for adequate and zero for inadequate). The results showed that the non-native speaker group only obtained a 41% (SD=20.77) score for adequate answers. The native speaker group, in contrast, obtained high performance with 92% (SD=8.61) of adequate answers, indicating almost all the answers were correct. Nonetheless, a higher standard deviation value (SD) for the non-native speaker group means that the subjects' answers in this group varied greatly compared to those given by the native speaker group. When tested using a Mann-Whitney test, significance was found, $U(28)=0.00$, $p<.05$, suggesting that the two groups differed significantly from each other. From the experiment, we found that most non-native speakers had problems with the following stimuli in (6), as each had only one adequate answer (16.67%) from the six subjects who participated. Some of these stimuli were left empty.

(6) (a) 整個嘴唇因為休息太少而火氣上升腫了起來。(b)

“She always talks and that's why she's getting angry so easily.” (S3, NN)

(b) 這種中藥吃了之後退火顧眼睛。(d)

“Eating this traditional Chinese medicine will help healing conjunctivitis.” (S5, NN)

“Having eaten herbal medicine, your eyes will feel as if it suddenly can see clearly again.” (S6, NN)

(c) 大動肝火 (n)

“Being quick to reacting to emotions leads to distress.” (S5, NN)

“He has the guts to take a risk.” (S1, NN)

(d) 眼冒金星 (l)

“reach for the stars.” (S3, NN)

“eye twinkling.” (S4, NN)

From this experiment, we found that the figurative language studied in this paper is indeed difficult for non-native speakers of Mandarin. For instance, the translated meaning for 水深火熱 ‘predicament’ cannot be formulated based on any conceptual metaphors. Sometimes, even though both Mandarin and English sentences may possess a similar literal meaning, the translated English sentences may become a different or sometimes novel use with meanings ‘forced or borrowed’ from the translated source language such that in ‘head stuck in the clouds’ (S4, NN) for 一頭霧水, which, albeit being analyzable (to mean ‘daydreaming’ or ‘not thinking realistically’ in English), does not have equivalent meanings in the source and target languages. That is, when a body part is not understood in the same way

in a different language, it is very hard for a foreign or second language learner to master the meanings in the target language. Therefore, analyzing the similarities and differences between any two languages is important as the learning of metaphors not only involves learning new vocabulary but also learning a different culture. Since learners do not know many of the opaque or semi-opaque meanings of these figurative expressions, by understanding the relationships between the five elements and the body part terms, learners are likely to improve in their ability at guessing the figurative meanings of these uses.

6. Conclusion and Future Work

Our paper proposes a criteria-based method to identify figurative language through observing co-occurrences of body part terms with the Chinese five elements. The research questions of this work were answered based on a detailed analysis of the five elements and their appearances in a corpus either as a single-character expression or as a morpheme. Our study also finds results regarding figurativeness in word formation and that metaphors may occur at units as small as morphemes. The findings of this work also show the different uses of the five elements – these five elements are not treated equally when formulating figurative language. For instance, we found that, in the Sinica Corpus, 水 ‘water’ is the most frequently occurring element compared to the other four elements. When examined with body part terms, however, the element of 火 ‘fire’ stands out and also comprises the highest percentage of figurative usage. Additionally, the research herein also shows that a corpus can be of great help to language learners, as it presents linguistic data in the form of statistics to them. A corpus-based study is also able to present distributions of collocated data, through which we predict the possible occurrences of literal versus figurative usage. Through a psycholinguistic experiment, we found that linguistic analysis is needed in teaching and learning of Mandarin since figurative language constantly causes great difficulty to learners of Mandarin.

Since our study also finds results regarding occurrences of figurativeness in word formation, for future research, we intend to analyze figurativeness at the morphosyntactic level, as we found that there are many uses of 木 ‘wood’ in the sense of ‘stupidity’ (*e.g.*, 木頭木腦 ‘one without expression’ and 木頭人 ‘a blockhead’). In addition, 木舌 ‘a tongue that is made of wood’ is also used to mean ‘someone who is silent.’ These examples may be low in frequency and, therefore, not collected in the corpus we used. Another explanation for this may be attributed to their denotation of negative meanings (usually used to mock people). These uses are considered improper or impolite, resulting in lower production both in speech and in writing.

For future work, the hypotheses regarding the ease and difficulty of learning certain body part metaphors will be further tested. Further studies can also focus on extending the corpus to the World Wide Web in order to find the linguistic phenomena outside the precompiled corpus.

An extension of this work can examine the relation of body parts and the five elements in English. The English phrase ‘my heart is on fire’ seems to differ in meaning from its Chinese equivalent (‘to be angry’). Therefore, a cross-cultural investigation is also feasible. In addition, this paper finds ambiguity with regard to translating the Chinese 金 to ‘gold’ or ‘metal’ and 土 to ‘soil’ or ‘earth’ in some phrases. It would, therefore, be interesting to see how English translation deals with this ambiguity and how this can become useful to studies in machine translation. The paper is also able to pinpoint the existence of traditional Chinese concepts in Mandarin and how they can be contrasted with linguistic data for the purpose of computer-assisted language learning.

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