METAPHORS FOR THINKING IN MODERN MANDARIN CHINESE:
A CORPUS STUDY

by

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Abstract

This paper studies the system of conceptual metaphors for thinking in Modern Mandarin Chinese. It looks into the frequency, types of metaphors and the ways they are realized in Language. The present research concentrates on five commonly used words for thinking, namely 想 xiang, 认 ren, 觉 jue, 觉得 jude, and 认为 renwei. The expressions about thinking used in the research are taken from spoken and non-spoken Modern Mandarin Chinese corpora. All examples were reviewed and metaphorical examples were identified and classified according to the metaphor types as distinguished by Lakoff and Johnson 1999. Series of research done in the sphere of cognitive science proved that some expressions about thinking are generally structured by conceptual metaphor based on the source domain of our embodied experience. However it was unclear how often metaphoric expressions are used in language compared to the non-metaphoric ones. The paper also looks into the difference in metaphor use in spoken and non-spoken Mandarin Chinese, metaphors of heart and head as the locus of thinking in Chinese.

The research has shown approximately every fifth common expression about thinking is metaphorical, while container and path metaphor are most widely used to talk about thinking. Moreover, a large number of metaphors in expressions about thinking are realized through grammatical patterns, such as resultative constructions, and are generally not perceived as metaphorical. The results suggest that possibly different types of metaphor dominate in thinking expressions in Chinese and other languages. The research also indicates that in learning and teaching Chinese as a foreign language, conceptual metaphor awareness is necessary for grammar literacy and language proficiency, since a large number of fixed metaphoric constructions are realized in grammar. Generally the paper suggests that while most metaphors for thinking are universal, there are often differences in the frequency and the ways to use the metaphors. Thus such cultural variations can often result in different conceptualizations of an abstract concept or higher sensitivity to one type of metaphor but not the other.
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Chapter 1.

Introduction. Metaphorical Nature of Cognition

And aren’t we grateful for our brains that can take this electrical impulse that comes from light energy to create images in order for us to explore our world? And aren’t we grateful that we have hearts that can feel the vibrations in order for us to allow ourselves to feel the pleasure and beauty of nature? “

~Louie Schwartzberg

The way our mind works will always remain a mystery. It is hard to imagine where our thoughts come from and how the ideas appear. And while modern cognitive science lifted a curtain to the structure of conceptual metaphorical thinking, most people are still unaware to what extent our thinking and talking about thinking is metaphorical. Particularly, does the use of words for thinking such as “think”, “consider”, and “believe” make our language about thinking less metaphorical? The results suggest that it is not the case. Even though you are probably using standard grammatical patterns, clear about what you say and do not intend any metaphorical effect, you still use metaphors when you talk about thinking because you simply can not talk or think about thinking without metaphors if you are a human.

This paper discusses the mechanisms of abstract thinking and its expression in Spoken and Written Mandarin Chinese as well as the frequency of metaphorical and non-metaphorical use of several common words for thinking (想 xiang, 认 ren, 觉 jue, 觉得 jude, and 认为 renwei ren 认). The metaphors were categorized according to Lakoff and Johnson\(^1\) (1999) and matched to the corpus data to see what type of metaphors prevail. Current research examines the examples of four different

\(^{1}\) Lakoff and Johnson 1999, 235-236.
Modern Mandarin Chinese Corpora and demonstrates that the language about thinking, spoken and written, is highly metaphorical and structured on our basic embodied experience.

The aim of this paper is to determine how frequent is the use of conceptual metaphors in Spoken and written Mandarin Chinese, find if there is a tendency to use a certain type of metaphors over the other, and determine what mechanisms are used to construct metaphors of thinking in Mandarin Chinese. Another question discussed is the locus of thinking in container metaphors: metaphors of heart and head, and particular tendencies associated with their use. The paper intends to stress the importance of understanding the cultural and linguistic impact on human reasoning about thinking.

The structure of the research

The present paper consists of five chapters, introduction and conclusion. The first two chapters provide some necessary theoretical background to the researched topic. Chapter one gives a brief introduction to the basic concept of conceptual metaphor and its effect on reasoning about abstract concepts, such as thinking. Such concepts as metaphor universality and cultural variation are outlined, with citations from works of Lakoff and Johnson\textsuperscript{2}, Kövecses\textsuperscript{3}, Gibbs\textsuperscript{4}, Kimmel\textsuperscript{5} and Fernandez\textsuperscript{6} image schemas\textsuperscript{7} and their role in structuring the embodied experience discussed. Chapter two analyses the findings of the previous research done about thinking metaphors in Chinese and other languages and their impact on cognition. Additionally, the heart and mind as the locus of thinking is discussed. The paper reviews the work of Ning Yu about metaphors in Mandarin Chinese, experiments done by

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\textsuperscript{2} See Lakoff and Johnson 1999 and Mark Johnson 2005.

\textsuperscript{3} See Kövecses 2004, 263-274.

\textsuperscript{4} See Gibbs 1999, 145-166.

\textsuperscript{5} Kimmel 2004, 275-294.

\textsuperscript{6} Fernandez 1999, 57-93.

\textsuperscript{7} For definition and discussion see part 1.4 of this paper.
Boroditsky\textsuperscript{8} about the influence of Mandarin Chinese on reasoning about space. It compares Sonya Pritzker’s\textsuperscript{9} research on feeling and thinking conceptualization in Mandarin Chinese and Penny Lee’s\textsuperscript{10} research about conceptualizing the thinking-feeling distinction in English. I also mention Mengistu Amberber\textsuperscript{11} and his discussion of the grammar’s influence on conceptual meaning of the thinking verbs that relates to the patterns of metaphor formation in Mandarin Chinese grammar.

Chapters three and four discuss the actual corpus search and analysis of the metaphor examples found. Chapter three describes the results of the spoken data from Lancaster Los Angeles Spoken Chinese Corpus (LLSCC) and discusses such aspects as metaphor frequency and types, locus of thinking in metaphors and the expression of metaphors in language. Chapter four discusses search results of three non-spoken corpora, such as Academia Sinica, Chinese Internet and LCMC metaphor search results are discusses and compared to the previous search in the spoken Mandarin Chinese corpora.

Chapter five raises some questions for further research and discussion, such as different metaphor choice for the same concepts in different languages, influence of cognition on grammar and vice versa, techniques for teaching the metaphorical elements of Mandarin Chinese grammar. The conclusion summarizes the findings of the research, claiming that Modern Mandarin Chinese Language about thinking is largely metaphorical and unconscious, with grammar playing an important part in formation and fixation of the metaphoric expressions about thinking.

I believe that the findings of this research will change the view not only on understanding the conceptual system of thinking and Chinese but also the approaches to Chinese language teaching, translation to and from Chinese and advertising aimed at Mandarin Chinese speakers.

\textsuperscript{8} See Boroditsky 2011 and 2001.

\textsuperscript{9} Pritzker 2007.

\textsuperscript{10} See Penny Lee 2003.

\textsuperscript{11} See Amberber 2003, 195-219.
1.1 Basics of conceptual metaphor

This paper discusses metaphors of thinking. However, what do we mean by the word metaphor? According to Lakoff and Johnson, metaphors are mappings across conceptual domains that structure our reasoning, our experience and our language. Metaphors allow mental imagery from sensorimotor domains (like seeing things, moving, using containers) to be used for domains of subjective experience (like thinking, understanding), such as the gesture that refers to something going over our heads if we fail to understand. Correlations in everyday life inevitably lead us to acquire primary metaphors. We see that the water level in a bucket goes up when there is much water, so we connect more and up. As children, we feel warmth when we are close to our parents so the connection is made: affection is warmth. Most abstract concepts are defined by conceptual metaphor.

There are primary and complex metaphors. Primary metaphors are molecular. They have a minimal structure that arises naturally, automatically, unconsciously through everyday experience by means of conflation, during which cross-domain associations are formed. Primary metaphors are grounded in experience. Happy is up, time is motion, mind is a container - these are the examples of primary metaphors.

Complex metaphors are results of conceptual blending, and can consist of several primary metaphors. Complex metaphors do not have an experiential grounding of their own, but they are grounded because their parts - primary metaphors are grounded. Thinking Is Eating is a complex metaphor, it is constructed of several primary metaphors: mind is a container, ideas are food.

Usually, multiple metaphorical mappings are needed for a rich domain of experience because each mapping is limited. Only a small conceptual structure in the source is mapped onto a small

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12 Lakoff and Johnson 1999, 47-50.
13 Ibid. 47-48.
14 Lakoff and Johnson 1999, 46.
15 Ibid. 71.
conceptual structure in the target domain. Therefore use of multiple metaphors for a single concept is common.\textsuperscript{16} For example, there are different metaphors for thinking: thinking as moving, thinking as eating, thinking as seeing. Conceptual metaphor is one of the central tools of our reasoning about the world, especially about unstructured domains as space and time\textsuperscript{17}. Conceptual metaphor analysis, by mapping the source domain (embodied, evoked unconsciously while reasoning) onto abstract concept, allows to observe the skeleton structure of the concept, embodied and grounded in the experience.

Metaphors are embodied in three ways: correlation arises from our embodied function in the world, source domain comes from body's sensorimotor system, correlation is instantiated in the body via neural connections.\textsuperscript{18} Metaphors are alive as we can use them in a systematic way to understand new extended metaphors automatically and without reflection. Importantly, metaphor allows new ways of reasoning about concepts.\textsuperscript{19} For example the metaphor “mind is a computer” allows us thinking about our thoughts as a software, that can be copied, re-loaded or erased. Or it can let us think of a persistent thought as a computer virus that damages our “system”. Conceptual metaphor analysis therefore uncovers the conceptualization processes that allow us to see what we think, how we think and why we do it in the particular way.

1.2 Metaphor variation

Embodied nature of human thinking means that the source domains for its metaphors come from our embodied experience. However this does not mean that conceptual metaphors would necessarily be identical in any culture on the basis that we as humans share the same bodily structure and live in the same world. Culture plays an important role in shaping the metaphors. Zoltán

\textsuperscript{16} Lakoff and Johnson 1999, p.76.

\textsuperscript{17} Slingerland 2004, p.11.

\textsuperscript{18} Ibid. p.52.

\textsuperscript{19} Lakoff and Johnson 1999, pp.45-80.
Kövecses notes that cognitive linguists so far have paid little attention to the diversity of metaphorical conceptualization across and within languages and cultures compared to its universal aspects. He defines the main types of metaphor variation and notes the possible reasons for metaphor differences between different cultures. According to Kövecses, the main variations of metaphor lie in cross-cultural and the within-culture dimensions.

Cross-cultural variation. There is an argument about which metaphors shape our understanding of the world: universal or cultural metaphors. For Fernandez, for example, from his, non-objectivist point of view, metaphor plays “a comparatively minor role in constituting our understanding of our world, and that a relatively major role in constituting this understanding is played by cultural models of that role”\(^{21}\). In other words, he says that it is the cultural variations that primarily build our understanding of things, not the universal metaphors. He accepts though, that there might be an underlying structure for the cultural models “metaphoric or image schematic, I am not prepared to say\(^{22}\)”. In addition, Fernandez blames Lakoff for committing himself “prematurely to one theoretical scheme of things\(^{23}\)”, without considering the context of their use. Fernandez claims that if we do so, we will not be in a position to interpret new evidence anymore.

On the contrary, Kövecses believes that some metaphors may be near universal but functioning on a very general level, for example “mind is a container for thoughts”. It does not specify many things: type of container, its use and contents, and so on. Such metaphor is a generic schema or, as Kimmel defines it, a mapping\(^{24}\) with its details filled by the cultures that use the metaphor. Such metaphor with filled specific details gets a unique cultural content at a specific level. In other words, a generic-level conceptual metaphor is instantiated in culture-specific ways at a specific level. This is


\(^{21}\) Fernandez 1991, 91.

\(^{22}\) Ibid., 93.

\(^{23}\) Ibid.

\(^{24}\) Michael Kimmel 2004, 281.
one kind of cross-cultural variation. For example, Ning Yu points out that the PRESSURIZED CONTAINER metaphor in Mandarin Chinese uses a version in which the excess qi (i.e., energy that flows through the body), that corresponds to anger, is not a fluid - like in English - but a gas.\textsuperscript{25}

Kimmel also believes that source domains can be considered another type of universal metaphors. He adds that much comparative anthropological research focuses on prevalent metaphorical source domains, such as the human body, its functions and products, as well as houses, nature and animals.\textsuperscript{26}

Alternative metaphors. As Kövecses notes, type metaphor variation sometimes can be caused by differences in the range of source domains that languages and cultures have available for the conceptualization of particular target domains. For example, life is commonly and primarily conceptualized as STRUGGLE, WAR, PRECIOUS POSSESSION, GAME, JOURNEY, and in several other ways by Americans and Hungarians. But among the speakers of Hmong (spoken in Laos and Thailand) life is viewed as a 'string' that can be cut and broken. The word ‘cut', tu, can also mean 'to give birth', 'to die', and 'to kill'. The author notes that this serves as an evidence that metaphor arises not only from language but also from social behavior.\textsuperscript{27} Kimmel adds that such variations can also be caused by different domain productivity (or how many mappings the metaphor has), different framing of a target domain (what is mapped onto the target and how), imagery and other\textsuperscript{28}.

Michael Kimmel stresses that the cognitive function of metaphors is determined by how they are embedded in cultural discourse\textsuperscript{29}. So, “identical metaphors may have opposing emotional, evaluative, and normative entailments or accomplish opposing ideological functions: Chinese and German idioms of the heart both reveal it to be a locus of emotional action. In both cultures the heart is

\textsuperscript{25} For more details and examples of anger metaphor see Kövecses 2004, 265. and Ning Yu, 1998.

\textsuperscript{26} Kimmel 2004, 280.

\textsuperscript{27} Kövecses 2004, 265.

\textsuperscript{28} Kimmel 2004, 285-286.

\textsuperscript{29} Kimmel 2004, 284.
conceptualized as a container which can become agitated. Yet, while in German the heart joyfully pounds, beats or jumps, this positive rhythmic action is missing in Chinese. When it palpitates this is considered to be negative, characteristic of a heart in fear or danger, because the Chinese ideal of quietness and harmony constructs a heart that is canonically still and empty.30

Similarly, it could be possible that different cultures could choose different source domains for the concept of thinking.

Within-culture variation. The third type of metaphor variation, the within-culture variation, is caused by the variety of language. Steen and Gibbs31 specified another case of metaphor variation in literature which the author considers to be a special case of within-culture variation. The within-culture variation occurs in several dimensions. Social dimension includes differentiating people according to gender, age, and social class. Kövecses notes that there are some indications that people belonging to different social groups use different metaphors in everyday communication. The subcultural dimension refers to variations of new metaphors or special use of metaphors in subcultures (mentally ill people, gamers, addicts and so on). One example of such metaphor is DEPRESSION IS A CAPTOR, which is an in-group metaphor used by emotionally-mentally ill people, though some other metaphors could be common in and out of a group.32 For example, it could be possible that speaking about thinking mentally ill people or gamers would more frequently use certain types of metaphors for mind not normally used by other people. For this reason Sonya Prizker suggested that it is necessary to frame the metaphors within the context of the individual narrative process of meaning-making.33

Aspects of metaphor variation. Conceptual metaphor has a variety of components, such as experiential basis, source domain, target domain, relationship between the source and the target, metaphorical linguistic expressions, mappings, entailments, blends, nonlinguistic realization and

30 Ibid.
32 Ibid.
33 Pritzker 2007, p. 269.
cultural models. Different formation of one of these components can lead to metaphor variation. For example, Kövecses notes that different construals of the same source domain may lead to cross-linguistic metaphor variation. So, verbs for walking in English are manner-centered but are direction-centered in Turkish. 34 Another example demonstrates metaphor variation based on the use of entailments. Kövecses notes that while “both English and Zulu have FIRE as a source domain for anger, speakers of Zulu have entailments like ‘extinguish (-ing) somebody's anger’ by pouring water on him or her” 35

Speaking about the causes of metaphor variation, Kövecses suggests that though human beings do share bodily experience and some universal metaphors, this universal basis may not be utilized the same way across cultures and languages. Different cultures may choose different aspects of their bodily functioning in relation to a target domain, and value these bodily functions differently. Conceptualization of anger in English and Chinese can be seen as a case of such differentiation. While increase in skin temperature and blood pressure are universal physiological correlates of anger, ANGER IS HEAT metaphor is more prevalent in English and in many other languages, while in Chinese, according to Ning Yu, the aspect of pressure is more highlighted. This indicates that speakers of Chinese have relied on a different aspect of their physiology in the metaphorical conceptualization of anger than speakers of English. Kövecses notes that the major point is that in many cases the universality of experiential basis does not necessarily lead to universally equivalent conceptualization. 36 Such cases could suggest that the concept of thinking in Mandarin Chinese could as well have some aspects highlighted or underplayed when considering the choice of metaphor for thinking.

34 Pritzker 2007, 269.
35 Kövecses 2004, 268.
Overall, Kövecses seems to highlight that while many metaphors have a universal embodiment aspect, it does not mean that the metaphors will be built, implied or even understood the exact same way. Different experience, elevating some aspects instead of others, using different source domains or structuring the metaphor differently, this all can change the meaning and implications of a metaphor. Kimmel proposes to define the relation between cultural discourse and the body as something fully bi-directional, where grounding of culture in the body requires a complementary focus on how our everyday bodily awareness and vice versa\textsuperscript{37}. Therefore to understand the use of a metaphor in a language or culture it is particularly important not only to do conceptual metaphor analysis to see the key elements of the metaphor, but also to have some knowledge about the cultural background of a certain metaphor of concept.

1.3 Locations of metaphor

Gibbs, in one of his articles\textsuperscript{38}, discusses the relationship between the debate about the “location” of metaphor and its relation to culture. The notion of an inborn structure in the minds of people would imply identical conceptual metaphors for the same concept, for example the concept of thinking. However, this does not seem to be the case and experiments listed in this paper show that people use different metaphors or highlight different aspects of the same metaphor for abstract concepts like anger, life, mind and so on.

Gibbs comments that his view of metaphor in language has mostly embraced the individualistic role of cognition. Much of his empirical research on the “embodied nature of metaphorical thought and language use generally assumes that people create embodied, metaphorical representations from their phenomenological experience in the body and their sensori-motor experience with the physical

\textsuperscript{37} Kimmel 2004, 294.

\textsuperscript{38} See Gibbs 1999, 145-166.
However he states that “people’s metaphorical understanding of certain abstract concepts are intimately tied to image schemas that partly arise from recurring bodily experience”. Gibbs notes that there are currently many cognitive theories which insist that the cognitive structures are not “in the head”, but are systems of “structural couplings”, which model people’s interaction with the world.

So, in the socio/cultural approach, metaphor is a result of internalization of the information and structure from the environment and the externalization of the internal representations into the environment (e.g., “off-loading”) (Leontiev 1981, Luria 1976, Vygotsky 1978, 1986). The situational cognition approach claims that knowledge can be considered as a relation between an individual and the situation (Greeno 1989, Suchman 1987). Many of these scholars claim that cognition is not “in the head” but is “wide” or “distributed”, in the sense of being spread out into the world (Hutchins 1995; Wilson 1994). Under this view, cognition is what happens when the body meets the world, therefore one can not discuss cognition separately from the cultural world. Gibbs stresses that psycho-linguistic work is missing an explicit acknowledgement of culture’s defining role in shaping embodiment and metaphorical thought. One of the examples of culture’s role could be “off-loading” some aspects of conceptual metaphor into the cultural world, so that people need not rely exclusively on internal mental representations when solving problems, making decisions, using language and so forth. It can be therefore concluded that while there may be some preexisting structures based on embodied experience that shape abstract concepts like thinking, when they meet with the culture they may undergo some modifications and information exchange.

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39 Gibbs 1999, 151-152.
40 Ibid.
41 Ibid.
42 Gibbs 1999, 152.
43 Gibbs adds that the concept of cultural world here includes the physical world and the interactions with it. See Gibbs 1999, 153.
44 Gibbs 1999, 153.
Interestingly, Gibbs notes that to a certain extent both cognitive and cultural models are similar “in that each is assumed to provide the substrate for various linguistic and nonlinguistic behaviours”.45 Culture itself can be viewed as located externally or internally in relationship to an individual. The cultural model of a concept like anger shared between the same language speakers can be more rich that the cognitive model. Therefore the emphasis within cognitive linguistics on conceptual systems underlying the speech “may better be viewed as capturing something about the supra-individual, or social/cultural, basis for metaphor rather than anything about the psychology of individual speakers (Steen 1994)”.46 Therefore he claims that, even though he himself used to support an individualistic view of cognition, modern psychologists and linguists should be very careful not to assume that (a) cognitive models must be explicitly represented in people’s heads, and (b) that conceptual metaphors, as a significant part of these cognitive models, are only represented as internal mental structures.47

To go further, Gibbs stresses that one of the implication of the “wide” or “distributed” view of cognition is that even image schemas, which arise from recurring embodied experiences, and which often serve as the source domains for conceptual metaphors, might have a strong cultural component to them, especially when some aspects of embodied experience are viewed as meaningful in people’s life.48 Similar to Kövecses49, he claims that people instill cultural meaning to bodily processes such as breathing, blushing, birth, sex, and value products of the body differently in cultural contexts. He states that a series of studies (p.155), “demand that cognitive linguists and others acknowledge that embodied metaphor arises not from within the body alone, and is then represented in the minds of individuals, but emerges from bodily interactions that are to a large extent defined by cultural world”.50

46 Ibid.
47 Ibid.
48 Ibid.
49 Kövecses 2004, 263-274.
50 Gibbs 1999, 155.
1.4 The meaning behind the structure of image schemas

When someone comes to see a metaphorical analysis of a concept, it can seem very schematic and dry, and one might even wonder why it is so important whether one views the mind as a path or a container, as being inside or outside. Though there has not been a general agreement on the definition of image schema, Joseph Grady comments that “it is universally agreed that image schemas are mental patterns associated with broad classes of concepts or experiences.” What can be added from Lakoff’s definition of image schemas is that the are “simple structures that constantly recur in our everyday bodily experience: CONTAINERS, PATHS, LINKS, FORCES, BALANCE and in various orientations and relations: UP-DOWN, FRONT-BACK, PART-WHOLE, CENTER-PERIPHERY.” It thus can be concluded that generally image schemas are not some patterns of cognition that randomly appear in certain situations, they are related to our everyday bodily experience and can serve as structural parts of a number of conceptual metaphors.

Mark Johnson agrees that there is a down side to our standard way of describing image schemas, particularly its exclusive focus on recurring structures or patterns of organism-environment sensory-motor interactions.

It doesn’t mean that we do not need the structure. On one hand, it produced a lot of success in conceptual metaphor theory application, particularly some of the most striking and significant successes have come in the areas of lexical semantics and the theory of inference structure. Image schema analysis gives us precise details of the semantics of terms and expressions in natural languages, while metaphor analysis takes us a long way toward understanding abstract inferential structure.

51 Throughout the paper I am going to use path schema in a broad sense which will include the locations in space and bodily projections. For reference, see Lakoff 1999, 32-34.

52 Grady 2005, 36.


However, Johnson stresses that “if you attend only to structure, you necessarily ignore the nonstructural, more qualitative aspects of meaning and thought”. This “skeletal structure” of schematic representation, while important, may leave us without the flesh and blood of embodied understanding. One will then lose, or at least overlook, the very thing that gives image schemas their life, motivating force, and relevance to human meaning, their embeddedness with value-laden experience. He claims that for now, this meaning aspect is left out of our theory, and without it image schemas can not play their crucial role in conceptualization and reasoning. For Johnson, conscious life is very much an affair of felt qualities of situations. The human experience of meaning concerns both structure and quality. However, beyond phenomenological description, “there appear to be no philosophical or scientific ways to talk adequately about the fundamental role of quality in what is meaningful and how things are meaningful. We can name the qualities, but we cannot even describe them adequately. When we describe the image-schematic structure alone, we never capture fully the qualities that are the flesh and blood of our experience”.

To illustrate how qualitative differences are missed out, Johnson gives examples of several image schemas. So, SOURCE-PATH-GOAL image schema is directly related to the experience of motion along a path, there are always qualitative differences for different types of motion. So differs rapid acceleration and gradual starting up. There is also a particular quality of motion of the pulses one feels in a movement that consists of repeatedly starting and stopping a particular movement, as well as sense of completion as you gradually roll to a stop. For the CONTAINER schema these are felt qualities that you experience if you are held tightly in someone’s arms, or are constrained within the confines of a small room. There are various ways it feels to leave a closed area and to enter an open expanse. Similarly, it could be a different qualitative experience to conceptualize thinking like moving along the path or taking things out of the container. These are not only distinctive qualities for each of

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56 Johnson 2005, 40.
these experiences, but there are also possibly several layers of values and norms that characterize our interest and depth of engagement in these experiences. These values cannot be reduced to image-schematic structure. Johnson believes that the reason for us to be easily seduced lies into the habit of thinking only about the structural aspects of meaning and thought, since it is principally the identification of discrete structures that allows us to discriminate features, to find meaningful gestalts, and to trace out relations among elements. However, the total content of meaning is not only the matter of how we understand situations, people, things, and events, but also a matter of values, felt qualities, and motivations as it is about structures of experience.

Johnson suggests that, if image schemas are a principal key to the way all meaning grows from bodily experience, then the qualitative dimension is surely a crucial part of the process. Therefore we should at least keep in mind that image schemas are not abstract imagistic skeletons. Rather, they are patterned, embodied interactions that are at once structural, qualitative, and dynamic.

Summary of the chapter

Generally, the research discussed above shows some important aspects we should remember while analyzing metaphors:

- Conceptual metaphors are embodied, for conceptualization of some abstract notions, the source domain from our embodied experience is mapped onto the abstract concept. Primary metaphors that arise from our embodied experience can be universal or close to universal.
- Many details not specified by the embodied structure of metaphor may be “filled” by culture, or may vary at the individual level. It is therefore necessary to pay attention to the details of the metaphor and its cultural context as well as to the main “skeleton” structure and mappings.

57 Johnson 2005, 40.
58 Johnson 2005, 41.
59 Ibid.
Metaphorical structures are meaningful, they modify the way we feel about the concept, change our experience. Therefore using different metaphors for a concept does not only mean that it has a different conceptual structure, it reflects a different experience of the world.
Chapter 2. Metaphors of Thinking. Previous Research

In this chapter I am going to discuss the works that have been previously done in regard to the topic of human thinking and metaphors for thinking in different languages. The only detailed work describing metaphors of thinking in Mandarin Chinese seems to be that of Ning Yu. He discusses and explains cases of metaphors for thinking in Mandarin picked from different sources and focuses on “thinking as seeing” and “thinking as moving”. I will also discuss work of Lera Boroditsky because of her focus on influence of language on thinking through metaphors, Penny Lee’s research that discusses the mental differentiation between thinking and feeling, and Sonya Pritzker, with her research referring to cultural metaphor variation and noting the specific ways thinking is conceptualized and places where it is thought to be located. I also mention a research written by Mengistu Amberber who notes how grammatical shifts in Amharic change the meaning of the verb “think” and broaden it to include feelings, thinking, planning and decisions. My research analyses words for thinking in Mandarin Chinese but it differs in many ways from the one done by Ning Yu. First, it includes a limited amount of linguistic expressions, focusing only on four commonly used verbs for thinking. Secondly, it uses the data from the corpora of modern spoken and written Mandarin, therefore it takes into account which metaphors are more common compared to others. In comparison, Ning Yu’s research makes use of various examples from various modern and premodern sources, and therefore can not be considered a demonstration of modern conceptualization of thinking in Mandarin Chinese. Another difference is that the present paper provides a basic metaphorical analysis, where mappings allow the reader to see how thinking can be conceptualized in a certain way.

Below I discuss the works mentioned above and highlight some important aspects that can be relevant to the current research topic.
2.1 Ning Yu. Metaphors for thinking in Mandarin Chinese

Ning Yu notes that in English and other Indo-European languages, the central metaphor about the mind and thinking is THE MIND IS A BODY (Sweetser 1990; see also Jäkel 1995; Radden 1996; Turner 1991; etc.). Because this metaphor is very broad and general, something that Lakoff and Johnson would call a complex metaphor, consisting of several primary metaphors, it would seem likely that it could exist on a universal level. This metaphor system has four special cases: (1) THINKING IS MOVING, (2) THINKING IS PERCEIVING, (3) THINKING IS OBJECT MANIPULATION, and (4) ACQUIRING IDEAS IS EATING (Lakoff and Johnson 1999). The MIND AS BODY metaphor consists of some general mappings shared by its four special cases. Some examples of the mappings Ning Yu provides for THINKING IS OBJECT MANIPULATION in Mandarin Chinese: sixiang jiaoliu [thought exchange] ‘exchange of thoughts/ideas’, sixiang huohua [thought sparks] ‘sparks of thoughts/ideas’, wa-kong xinsi [dig-empty thoughts/ideas] ‘rack one’s brains’, sixiang baofu [thought bundle] ‘load weighing on one’s mind’, sixiang geda [thought knot] ‘a knot or hang-up on one’s mind’, jiu sixiang-de shufu [old idea’s binding] ‘the binding of old ideas’. As one might notice, Ning Yu explains the mappings by putting the expression translations in inverted commas to show how the literal meaning in the expressions relates to the meaning implied. He also gives some explanation below the example expressions:

“Thoughts and ideas can be “exchanged” and when they are in contact they can produce “sparks”. When purposefully ignoring some thoughts or ideas, one “tosses them to the back of one’s brain”. Sometimes thinking is mining, in which one tries to “dig out” all the thoughts or ideas. The “bundle of thought” is the load weighing on one’s mind and, as such, one can continue to carry it or throw it away. One’s thoughts and ideas, like strings, can get entangled

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60 Ning Yu 2003, 142.
61 Ibid.
into one or more “knots”, which will bother the mind and inhibit one’s thinking if not disentangled. What is even worse is that old ideas and concepts can “tie up” one’s mind and restrict its function.\textsuperscript{62}

Ning Yu also gives some examples for another special case, ACQUIRING IDEAS IS EATING, with such expressions in Mandarin as jingshen shiliang [spiritual grain] ‘nourishment for the mind’ (for new thought or ideas); ru-jì shì-ke [like-hungry like thirsty] ‘(acquiring ideas) with great eagerness’ (acquiring ideas is eating and drinking), chen-káng lán-gú [stale-chaff rotten-millet/unhusked rice] ‘old ideas or stale topics’ (for ideas that make you sick).\textsuperscript{63}

Ning Yu analyses metaphor “thinking as moving”, noting that he hopes that his analysis will reveal the Chinese way of talking about thinking in particular, and contribute to the understanding of the embodied mind in general.

He states that under the metaphor THINKING IS MOVING, the mental activity of thinking is conceived of as the physical activity of moving in space. Following Lakoff and Johnson’s (1999) claim, he believes that the basis of this metaphor is the fact that in real life we often obtain information by moving about in the world. He also uses their list of mappings for this metaphor: Thinking Is Moving; Ideas Are Locations; Reason Is A Force; Rational Thought Is Motion That Is Direct, Deliberate, Step-By-Step, And In Accord With the Force Of Reason, Being Unable to Think Is Being Unable To Move, A Line Of Thought Is A Path, Thinking About X Is Moving In The Area Around X, Rethinking Is Going Over The Path Again.\textsuperscript{64}

He briefly discusses the mappings that can take place in the metaphor, saying that “on analogy with spatial movement, the metaphor THINKING IS MOVING involves a starting point, a path, and

\textsuperscript{62} Ning Yu 2003, 142.
\textsuperscript{63} Ning Yu 2003, 143.
\textsuperscript{64} Ning Yu 2003, 144.
an end point”. So, for example, successful thinking moves from the starting point, along the right path, and to a desired end point. He also notes that the agent of movement can be either the thinking person or his/her thoughts/mind, but doesn’t mention that this happens because another metaphor is involved and mind is spoken of as a living agent. Some examples of “thinking is moving” metaphor include:

- xiang-dao [think-reach] ‘think of; call to mind; occur to one’s mind, expect something to happen’, xiang-tong [think-through] ‘straighten out one’s thinking; become convinced’, xiang-chu [think-out] ‘think out; think up’, xiang-kai [think-open] ‘accept a situation; not take it to heart’, and other.

At one point Ning Yu points out that in one of the examples “thoughts and ideas are understood as being in a container” but he doesn’t note what is being thought as a container, or point out that there are quite a few examples with the container schema.

Analyzing the metaphor THINKING IS SEEING, Ning Yu highlights that the metaphor focuses on the result of thinking. People think in order to understand, and they know after they understand. Therefore, closely related to this metaphor are its twin versions UNDERSTANDING IS SEEING and KNOWING IS SEEING. It is also related to some other metaphors.

Ning Yu notes that in many cases, like in the example below, to a certain degree, the metaphors of thinking as moving and seeing are similar to each other:

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65 Ning Yu 2003, 144.
66 Ibid.
67 Ning Yu 2003, 145.
68 Ning Yu 2003, 149.
69 See the list of metaphors in Lakoff and Johnson 1999, 238.
Wo kan-tou le ta-de xinsi. I see-pass through PRT her state-of-mind ‘I gained an insight into her mind.’

Here seeing/thinking is viewed as a type of movement that can pass the barriers. Or, as we could add, another metaphor is present in this expression: “thinking is penetrating” and probably also “mind as a container”.

Ning Yu also mentions examples where heart is thought of as a locus of thinking: xin-si [heart-thought] ‘thought; idea; thinking; state of mind’, xin-xiang [heart-think] ‘think; think to oneself’, xin-suan [heart-calculate] ‘mental arithmetic; doing sums in one’s head’.

Ning Yu believes that heart as a locus of thinking is one of the cultural varieties in thinking metaphors. He states that in Chinese, xin is “the heart and the mind in one” and can be distinguished from the predominant Western belief that the heart, the seat of emotions, contrasts with the mind, the locus of thoughts.\(^70\) He also emphasizes that the commonality regarding MIND IS A BODY metaphor exists at the conceptual level, while at the linguistic level, the specific expressions that manifest the underlying conceptual metaphors may or may not be similar. Therefore the fact that both Chinese and English transfer the overall logic of both spatial movement and vision into the abstract domain of mind and mental activities, therefore sharing metaphors in a systematic way, supports the cognitive status of these metaphors as primarily conceptual, rooted in common human experiences.\(^71\)

Some important findings in Ning Yu’s work are: identifying some major metaphors for thinking and testing them in Chinese Language that proves that the metaphors exist on the universal level. At the same time Ning Yu notes that linguistic expressions for thinking metaphors differ in English and Chinese due to cultural variations. He also notes that locus of thinking is often ascribed to the heart rather than the brain due to the different concept of the heart in Chinese. However while Ning Yu notes he would like his research to represent “the way Chinese speak”, the data he uses comes from widely

\(^{70}\) Ning Yu 2003, 162.

\(^{71}\) Ibid.
separated time periods and different sources including dictionaries, articles, speech examples and others, therefore it does not show the tendencies in metaphors for thinking in the real speech. The present paper develops these findings and discusses the most common metaphors for thinking used in written and spoken Mandarin and means of their formation in language, as well as performs metaphorical analysis of the metaphors.

2.2 The Ways language affects thought

Lera Boroditsky analyzes the way English and Mandarin speakers talk about time, and performs several experiments to support her findings. Her major claim is that speakers of English and Chinese think and speak of time differently—English predominantly talks about time as if it were horizontal, while Mandarin commonly describes time as vertical. This difference between the two languages reflects the ways their speakers think about time.\(^{72}\) This claim leads her to question other possible outcomes: difference in thinking in different languages, possible changes of thinking patterns learning new languages may bring, specifics of polyglots’ thinking in different situations. Boroditsky notes that while aspects of time that are extractable from world experience appear to be universal across cultures and languages, there are many aspects that are not observable in the world. It is unclear which direction time moves, if it moves past us or do we move through it. Boroditsky believes that these details are added in languages through conceptual metaphor. Because these aspects of time that are not constrained by our physical experience with time and therefore are free to vary across languages. Our conceptions of them may be shaped by the way we choose to talk about them.\(^{73}\)

In English, mostly front/back terms are used to talk about time. One can talk about the good times ahead of us or the hardships behind us. We can move meetings forward, push deadlines back, and eat dessert before we are done with our vegetables. On the whole, the terms used to order events

\(^{72}\) Lera Boroditsky 2001, 1.

\(^{73}\) Boroditsky 2001, 4.
are the same as those used to describe asymmetric horizontal spatial relations (e.g., “he took three steps forward” or “the dumpster is behind the store”) 74.

In Mandarin, front/back spatial metaphors for time are also common, spatial morphemes 前 qia´n (“front”) and 后 ho´u (“back”) to talk about time. However Mandarin speakers also systematically use vertical metaphors to talk about time (Scott, 1989). The spatial morphemes 上 sha`ng (“up”) and 下 xia` (“down”) are frequently used to talk about the order of events, weeks, months, semesters, and more. Earlier events are said to be sha`ng or “up,” and later events are said to be xia` or “down.” Although in English vertical spatial terms can also be used to talk about time (e.g., “hand down knowledge from generation to generation” or “the meeting was coming up”), these uses are not nearly as common or systematic as is the use of sha`ng and xia` in Mandarin (Chun, 1997a, 1997b; Scott, 1989). 75

There are several important findings Boroditsky proves with the experiments. One of them is a claim that the cognitive pattern of thinking may change depending on the language a person is exposed to. In Experiment one, Mandarin speakers relied on a “Mandarin” way of thinking about time even when they were thinking about English sentences. Mandarin speakers were more likely to think about time vertically when deciding whether “March comes earlier than April.” This result is predicted by the way Mandarin talks about time. 76 Experiment two showed that acquiring a habit of thinking about time in a specific way decreases with the age at which second-language exposure begins. Experiment three demonstrated the change of patterns of thinking about time from horizontal to vertical in English speakers who were briefly trained to talk about time using vertical terms. To Boroditsky, this experiment proves the differences in thinking about time are caused by language, not cultural differences. Altogether these findings make a strong case for language shaping habitual thought. 77

74 Boroditsky 2001, 4.
75 Boroditsky 2001, 5.
76 Boroditsky 2001, 19.
77 Boroditsky 2001, 18.
In a more recent article\textsuperscript{78} Boroditsky notes that results using this paradigm have been challenged, but more recent work using a variety of methods has confirmed these cross-linguistic differences. For example, Mandarin speakers arranged temporal sequences in pictures in vertical arrays 30\% of the time whereas English speakers never did so. In a 3D variant of this task, Mandarin speakers (tested in Mandarin) arranged time on the vertical axis 43.6 \% of the time, whereas English speakers did so only 2.5 \% of the time. The studies also found that participants more proficient in Mandarin were more likely to arrange time vertically, while Mandarin-English (ME) bilinguals arranged time horizontally or vertically depending on the language of testing.\textsuperscript{79}

Examining whether metaphor use plays a casual in-the-moment role in how people construct representations of time Lai and Boroditsky proved by another experiment that Mandarin speakers flexibly reorganize time along front-back or up-down axis depending on the time metaphors they process. So, they are more likely to construct front-back representations of time when understanding front-back metaphors, and more likely to construct vertical representations of time when understanding vertical metaphors. There is also evidence that people automatically initiate spatial representations of time that are consistent with the set of spatiotemporal metaphors in their linguistic environment, even in nonlinguistic tasks.\textsuperscript{80}

Boroditsky explains the difference between a more universal conceptualization of color and language-bound conceptualization of time by the earlier development of perception before language.\textsuperscript{81}

Overall there are several important points proved by Boroditsky that are relevant to the present research:

- There are some abstract concepts that can be represented differently in the language and thought patterns of different language speakers.

\textsuperscript{78} See Boroditsky 2011, 333-341.
\textsuperscript{79} Boroditsky 2011, 335.
\textsuperscript{80} Boroditsky 2011, 335.
\textsuperscript{81} Boroditsky 2001, 19.
Language shapes thought, as well as the learnt languages may change thought patterns. Therefore even when speaking the same language, people may think differently depending on other languages they are exposed to or are cognitively available to them.

Having been formed, our patterns of thinking about a certain concept are applied in a linguistic as well as non-linguistic environment (gestures, mental and physical representations and so on).

Generally, as Boroditsky states, Language can be a powerful tool for shaping abstract thought. When sensory information is scarce or inconclusive (as with the direction of motion of time), languages may play the most important role in shaping how their speakers think.82

2.3 Thinking with your heart and brain

Continuing the topic mentioned by Ning Yu about heart and brain metaphors for thinking, Sonya Pritzker’s studies research the use of the metaphors in spoken Mandarin. She extracts and examines the metaphors from the recorded talk of forty nine participants about mental health and examines the types of metaphors most commonly used.

Pritzker notes that the heart was certainly used more frequently in metaphors of feeling, and the heart and head or brain were both commonly used to metaphorically describe thinking. In total, 92% of participants used metaphors of the heart to express both thinking and feeling, and 37% of participants in the study also used brain metaphors to express both thinking and feeling. Importantly, she notes that no informants referred solely to their brains in their narratives.83

Some of the important metaphor examples she notes are Heart/Head as a Container for Thinking and Feeling (Zhe naozi li lao xiang zhe ge• This brain inside always think this CT• In my brain I always think of this), Heart or Head as “ACTOR” or “ACTIVE EXPERIENCER” of feeling and thinking activity (Wo xin xiang, wo shi mama• I heart thinks, I is/am mother• My heart thinks, “I

83 Pritzker 2007, 257.
am a mother.”), Heart as “SELF” or “CENTER OF SELF” (Queshi cong xinli wang wai mei you jin• Actually from heart-inside directed out don’t have strength• Actually I don’t have any strength (from my heart outwards)).

Pritzker stresses that in all three narratives, that were a part of the experiment, “although the heart retains a primacy that the brain does not—the heart, once affected, can rapidly cause both cognitive and emotional problems in the brain—the heart and brain are intimately connected”. She concluded that the metaphors found in the research prove both heart and brain can think and feel, affecting each other.

While Prizker makes it clear that heart metaphor is certainly used more frequently to speak about feelings or thoughts, it is unclear what the proportion would be if thinking was regarded separately. Chapter 2 of this research will look into this issue.

Pritzker suggests that the move toward examining culturally informed metaphors within a narrative structure has implications for the future study of metaphor and culture. The way in which cultural models are understood to affect the conceptualization of experience can benefit from looking at the way in which metaphors derived from multiple cultural models are drawn upon to understand and express experience.

2.4 The divide between feeling and thinking

Similarly to Pritzker, Penny Lee examined the conceptualization of feelings and thoughts of the participants. However, her focus was mainly to find out the categorization and differentiation of certain words used for mental activities (starting with the obvious think, believe, consider to some phrasal verbs like weigh up, take into account and emotional terms like love, hate, esteem, wish, dread). Lee

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84 Pritzker 2007, 258.
85 Pritzker 2007, 268.
86 Pritzker 2007, 269.
believes that differentiation of mental activities into “feelings” and “thoughts” and their location in either heart or brain can differ on an individual level. In the experiment, the participants, all native English language speakers from different countries, were asked to group the cards with diverse mental predicates (see table 1 of the cited research) and “think aloud” about the reasons the words are together. In some cases participants were asked questions to encourage them to talk about the subject.\textsuperscript{87}

The study demonstrates that the schematization inherent in the English verbal lexicon relating to mental activity provides a scaffold on which users of the language are able to build coherent personal models of mental experience.\textsuperscript{88} However, even configurationally similar categories are internally organized in different ways by different individuals and constructed with very different boundaries, though in the category of “thoughts”, different types of thinking are consistently differentiated from each other. The study also shows that feeling is conceptualized as occupying much of the cognitive domain, featuring not only emotions, but also intentions, wishes, contemplative thought, fantasizing, and dreaming.\textsuperscript{89}

Penny Lee notes that if intuitions shared by the participants are broadly representative of the mental models of English speakers, analytical thought is conceived as definable, and separable from other internal behavior. On the contrary, “feelings and other kinds of thinking, especially contemplative activity, seem less easily definable and separable from each other.\textsuperscript{90}” Though feeling and thinking processes can be experienced as separable at some basic level, they operate together to a very significant degree in day-to-day life. Moreover, even after reasoning strategies become established in the formative years, their effective deployment probably depends, to a considerable extent, on a continued ability to experience feelings.\textsuperscript{91}

\textsuperscript{87} For detailed organization of the experiment, see Penny Lee 2003, 227-229.

\textsuperscript{88} Penny Lee 2003, 247.

\textsuperscript{89} Ibid.

\textsuperscript{90} Penny Lee 2003, 247.

\textsuperscript{91} Penny Lee 2003, 248.
The current study suggests that in lived models of mental life, emotions and feelings are indeed very much part of thinking. It is therefore important for the present study to consider categorizing of thinking processes before analyzing how it is metaphorically conceptualized.

2.5 Grammatical changes to the semantics of “thinking”

Mengistu Amberber was concerned about the thinking and feeling divide when he started his research about grammatical encoding in Amharic. While Penny Lee sometimes avoided “basic verbs”: think, know, and feel which are realizations of three of the four semantic primes, as she thought of them as “obvious candidates”, Amberber analyses the semantic primes, mainly THINK and the changes the verb undergoes in root-and-pattern morphology transformations. Interestingly, what he finds is, these morphological transformations can change the meaning of the verb “think” to something that could be considered belonging to completely different categories, verbs like feel, plan or analyze. Amberber notes that he is following the natural semantic metalanguage (NSM) hypothesis (cf. Goddard and Wierzbicka 2002), that THINK is a semantic prime as it cannot be explicated further in a noncircular manner. He assumes that conceptual primitive THINK in Amharic is assebe, and therefore analyses how the semantics of the verb changes when undergoing different grammatical changes.

In one example, adding an ad-positional phrase changes the meaning of “think” to something more emotive, similar to English “worry” (sile-ihit-u asseb-e, about-sister-POSS.3M think.PF-3M, ‘He thought about his sister.’; ‘He worried about his sister.’). In another case, a causative construction with think acquires meaning similar to English “to call attention” to or even “recommend”, while the passivized version can be used in the sense of ‘be of concern’, ‘be taken into consideration’ (ye-mes’haf-u me-t’fat bet’am POSS-house-DEF INF-loss.INF very as-asseb-e-w CAUS-

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92 Amharic (known to its speakers as amariñña) belongs to the Ethiosemitic branch of the Semitic language family, see Amberber 2003, 4.

93 Penny Lee 2003, 238 citing Goddard.

94 Amberber 2003, 198.
think.PF-3M-3MO ‘The disappearance of the book worried/concerned him very much.’).\textsuperscript{95} He adds more examples where the construction with assebe (think) can have such meanings as “intend”, “plan to”, “wish” and so on.\textsuperscript{96} He also notes that when the verb assebe can take the detransitivizer prefix, it derives a number of related meanings, but can also mean ‘be calculated’. This fact confirms Fortescue’s (2001: 29) claim that “calculating” is one of the four types of metaphorical expressions for thinking, alongside “weighing”, “observing”, and “wanting”.\textsuperscript{97}

Amberber mentions that, one way of expressing the notion of thinking equivalent to the English understand involves the use of the verb gebba ‘enter’:

assab-u gebba-ññ
thought/idea-POSS.3M enter.PF.3M-1SO
‘I understood his idea.’

This productive use of the verb gebba ‘enter’ to express the domain of “understanding” and thinking is consistent with Fortescue’s (2001: 20) claim that the metaphoric or metonymic use of words which express “understanding” is more transparent than is the case with other subdomains of thought.\textsuperscript{98}

The study shows the consistent pattern between grammar and meaning. We can observe that even such semantic primitives as “know” can undergo grammatical changes that blur the semantic distinction between verbs of thinking and verbs of emotion or other states. Though there is a distinction in the meaning of the verb and one can not use the same pattern to express the different meanings, this experiment proves that the conceptualization of words as belonging to the category of thinking or feeling is quite flexible.

\textsuperscript{95} Ibid.

\textsuperscript{96} Amberber 2003, 200.

\textsuperscript{97} Ibid.

\textsuperscript{98} Amberber 2003, 210-212.
Summary of the chapter

- Language influences our thought. The way we conceptualize certain abstract notions is partially developed by our language. Learning different languages may also change our thinking patterns about certain concepts.

- Universal metaphors of thinking, the primes, can be found in Chinese as well as in many other languages, however the linguistic expressions and some aspects of the metaphor will often differ.

- Thinking can be conceptualized as located in the heart (Chinese) or brain (English), however many languages, including English demonstrate that the conceptualization of the divide between thinking and feeling is flexible.

- Grammar may play an important role in conceptualization of such concepts like thinking. It may transform the meaning of the word, for example taking it from the category of thought to the category of feelings. One should find the right balance between the universal embodiment and a specific cultural variation of a metaphor.
Chapter 3. Metaphors of Thinking in the Corpora of Modern Mandarin Chinese

3.1 Method and process of research

To ensure more accurate results and various language contexts, the data for this research was collected from several modern Mandarin databases. The corpus search for this paper was performed in two steps. The first one, described in this chapter, looked at the spoken data from Lancaster Los Angeles Spoken Chinese Corpus. The database search was done for 想 xiang, 认 ren, 认为 renwei, 觉得 juede in Spoken Mandarin Chinese. The mentioned characters were chosen because they are used to express a mental activity, and allow to observe monosyllabic and polysyllabic words and different grammatical combinations they are used in. The second step described in Chapter 4 involves the search for 想 xiang, 认 ren, 觉得 juede in Academia Sinica (transcribed in traditional Chinese characters), Chinese Internet (transcribed in simplified characters) and LCMC corpus (transcribed in simplified characters).

Because of the database search limitations (for the spoken database, character search can not be performed, which excludes the possibility of examining certain words when they are grammatically separated by suffixes etc.), certain words for thinking could not be considered. Note that initially other words such as 看 kan “see, think”, 思 si, 觉 jue and 思考 sikao were involved. However 看 kan and 觉 jue were not considered because the majority of occurrences were not related to thinking or a cognitive process. So, defining all metaphorical instances for 看 kan used for thinking would be technically problematic. 思 si was omitted because the search did not show the character as a part of a word about thinking (examples like 思考 sikao “think”, 思路 silu “steam of thoughts”, 思想 sixiang “thoughts”) but only showing it as a separate word si 思 used almost exclusively in Classical Chinese. Therefore 思 si and 思考 sikao word pair were substituted in this search with 认 ren and 认为 renwei, which also denote cognitive processes, even though semantically stand farther from 想 xiang.
The results received through the language corpus search were then examined and conceptual metaphors were selected from the list of expressions. I would like to note that the examples were taken from the corpora “as is” and therefore could have some mistakes in spelling, incomplete sentences and so forth. The examples of expressions about thinking were divided into two groups, namely metaphorical and non-metaphorical. The data where conceptual metaphor was used to talk about thinking will be classified according to the frequency of its occurrence and the types of metaphors used, such as container, path metaphors, thinking as seeing etc. Mappings between the source and target domain are then mentioned in each particular type of metaphor. Metaphor analysis of most common metaphors will be done to show the consequences of understanding thinking: the way the speaker (or writer in the case of written Mandarin Chinese) reasons about thinking and what difference this understanding makes. Later, some particular aspects are discussed: why does particular metaphor or an image schema occur more often than the other and what could have influenced its persistence in language? General outcome and questions for discussion are raised.

Note that a large number of metaphoric expressions about thinking are realized by the addition of a resultative to the verb. According to Sproat and Shih, Resultative Compounds are the most productive class of verbal compounds in Mandarin are the resultative compounds. These are formed by the suffixation of a resultative marker to the stem. Some common resultative markers are:

进 jìn ‘enter’
出 chù ‘(go) out’
起来 qǐlà ‘inchoative
回 hú ‘return’
过 guó ‘pass, across, beyond’
开 kà ‘open’

99 Conceptual metaphors are identified based on the criteria mentioned in Lakoff and Johnson 1999, 235-236.
完 waˊn ‘finish’
到 daˋo ‘reach’
好 haˇo ‘good, complete’
死 sˊi ‘die’
见 jiaˋn ‘see, perceive’ poˇ ‘break’
清楚 qˇingchuˇ ‘clearly’

Sproat and Shih state that the exact meaning of many of these affixes depends upon the verb it combines with. Resultatives are grammatical particles that carry partial semantic meaning, among which are result, achievement, direction.

It should be mentioned that there is currently no substantial research data on metaphor frequency in expressions about thinking in either English or Chinese. Sonya Pritzker uses some data in her research, stating that in her experiment, involving 49 Chinese individuals, the two primary metaphors through which participants expressed their cognitive and emotional experience included metaphors of the heart (xin ) and brain (naozi/tou nao)\(^{101}\). She comments that 92% of participants used heart metaphors, while 37% also used brain metaphors to talk about thinking and feeling. However, she does not note what is the correlation between the non-metaphorical and metaphorical expressions and how often do container metaphors used for thinking, such as heart or head, appear in the speech compared to other metaphors of thinking.

Alice Deignan notes that “within both elicitation-based and experimental work, there is occasional reference to the frequency of the metaphorical and literal senses of words\(^ {102}\)” . However she adds that the claims about frequency are usually not supported with empirical data and it is expected that people can identify most frequent senses of words relying on their own personal experience of language. However, such assumptions and expectations about metaphor frequency can often be

\(^{101}\) Pritzker 2007, 269.
\(^{102}\) Alice Deignan 2005, 117.
misleading\textsuperscript{103}. Therefore I believe it is significant to obtain the actual language data to make claims about metaphor use in general and conceptualization of thinking in particular.

3.2 “Xiang” in spoken Mandarin Chinese

One of the main questions to be answered throughout the data search was the specifics of metaphor choice in the language of thinking generally, and spoken Mandarin in particular. The hypothesis made previously to the research was that metaphors for thinking verbs, while bearing general similarities, would have differences in the spoken and written languages due to easier accessibility\textsuperscript{104} of certain metaphors. Particularly, it can be predicted that primary metaphors would be more often used in spoken language because of the shorter neural connection (as primary metaphors can be most often observed in everyday embodied experience: containers, path, directions and so on). The variety of the metaphor choice in spoken Mandarin is also likely to be more limited because certain primary metaphors, associated with the concept more often, become embodied via neural connections and therefore are evoked unconsciously. On the contrary, complex metaphors are less likely to be used because it would require a longer conceptualization time, and therefore are less accessible during the immediate conversation.

The search of 想 ("xiang", think) in the Lancaster Los Angeles Spoken Chinese Corpus (LLSCC) has shown 1371 occurrences. The data search has shown that in the large number of expressions about thinking, more than 24\% is metaphorical. Significantly, most conceptual metaphors that are found here are primary metaphors, like “thinking is motion”, “thinking is seeing”, “quantity is quality”.

\textsuperscript{103} See Alice Deignan 2005, 117-118.

\textsuperscript{104} By accessibility I mean shorter path to the neural connection comparing to other metaphors. See Masako K. Hiraga, Chris Sinha and Sherman Wilcox 1995, 108. talking about the grammaticalization and partial loss of meaning of such metaphors as “quantity is quality” which resulted in not perceiving them as metaphors.
“Quantity is quality” metaphors. In such metaphors the concept of quantity (normally used with concrete things, such as two spoons, many people) are employed to represent qualities of abstract concepts (I don’t have much time, thinking a lot). Most frequent metaphors (about 11%) for thinking are “quantity is quality” metaphors for thinking. In all cases the quality of the abstract concept of thinking is expressed in terms of quantity, with various means applied to express the quantity. See the examples and the explanation below, quantity expressions underlined:

a) 我 想 一 下 ， 三 十 号 走 ， 啊 ？

\text{wo xiang yixia, sanshi hao zou, a?}

\text{I-think-one-time, thirty-number-go, a?}

I just thought, we are leaving on 30th, right?

b) 我 想 想 算 了 ， 大 概 也 没 什 么 必 要 了 。

\text{Wo xiang xiang suan le, dagai ye mei shenme biyao le.}

\text{I think-think forget about it, probably also no-any-need.}

I thought about it, OK. Forget about it, there is probably no need in this.

c) 我 一 想 你 昨 天 晚 上 没 打 ， 我 想 呀 他 挺 好 。。。 

\text{wo yi xiang ni zuotian wangshang mei da, wo xiang ya ta ting hao...}

\text{I once-think-you-yesterday-evening-not-call, I-think-he-really-good...}

Once/when I think you did not call last night, I think, he is really nice...

d) 多 想 点 儿 别 的 办 法 。

\text{Duo xiang dian er biede banfa.}

\text{More-think-little other methods.}

Think more about other ways (to deal with this).

As can be seen in the examples above, the quantity of the thinking process is realized by same word repetition as in (b) 想想 xiang xiang “think－think”, using measure words and numbers as in (a) 一下
yixia “one-time” and (c) 一想 一想, “one-think” (or, sometimes 一个想 “yi ge xiang” one-measure word-thought) or using words like 多 “duo” more (多想 “duoxiang” “think more”). In all cases either word duplication or words used for measuring physical quantity is used to talk about the quality of the abstract concept of thinking. In this metaphor, the “size” or “quantity” of an abstract concept like thinking represents its importance and continuity.

Thinking as moving or path metaphor is the second most common metaphor found in the Spoken Mandarin corpus. It accounts for 5% of all expressions used and 20% of all metaphorical occurrences. I would like to stress that while “thinking is moving” is a universal metaphor, and generally describes a movement to a destination, locations in the space, the particular examples from spoken Mandarin show that there is not just simple linear movement but a large variety of detail in which this movement is described. Particularly, there are many instances in a three-dimensional description of the movement. See some examples below:

a) 我 现在 才 想 起来 。。。 

wo xianzai cai xiang qilai...

I-now-only-think-rise-come

It only occurred to me just now.

b) 最 主 要 在 你 们 思 想 上 。。。 

zui zhuyao zai nimen sixiang shang...

Most-important-at-you-thoughts-on...

Most importantly, in your mind...

c) 他 们 都 觉 得 很 那 个 想 不 通。

Tamen dou juede hen nage xiang bu tong.

They-all-think-very-that-think-not-through.

105 Examples like this mostly occur due to the false starts and separate disconnected phrases often occurring in speech.
They all felt they really could not understand it.

d) 什么 事情 你 要 东 想 西 想...

shenme shijing ni yao dong xiang xi xiang...

What-thing-you-need-east-think-west-think...

What is it you need to think over and over?

e) 我 本 来 一 直 想 五 月 初 ， 学 校 结 束 以 后 ， 我 要 去 找 他。

wo benlai yizhi xiang wu yue chu, xuexiao jieshu yihou, wo yao zhao ta.

I-at first-one straight-think-fifth month-beginning, school-end-after, I-need-go-find-him.

At first I had been thinking of visiting him when school is over in early May.

f) 我们 都 在 想 反 正 在 想 啦。

women dou zai xiang fanzhen zai xiang la.

We-all-were-thinking-opposite-right-side-thinking.

We were all thinking, anyway, thinking it over and over.

From the examples above, we can notice that movement up and towards the speaker represents recollecting something from the memory\textsuperscript{106} as in (a) 想起来 xiang qilai “think rise-approach”. Thinking in (b) is located on the top: 思想上 sixiang shang “on thoughts” (as opposed to “in my thoughts” in English). The movement “through” applied to thinking stands for understanding, as in (c) 想 不通 xiang bu tong “can’t think through”. Directing thinking either to east and west (or left and right 左想右想 zuo you xiang, another common example), represents its repetitive nature, thinking over and over as in (d) 东 想 西 想 dong xiang xi xiang “think east think west”. On the other hand, movement along a straight line in thinking, as in (e) 一直 想 yi zhi xiang “one straight think” represents its continuity, while thinking front and back could mean viewing something from different angles as in (f) 反正 在 想 fan zhen zai xiang “back-front-thinking”. Overall the examples show that

\textsuperscript{106} Note that this paper examines all instances with “thinking verbs” referring to a broad range of expressions. They are generally equivalents of English “think” but can also include expressions that describe any cognitive, sometimes even emotional state or action.
the metaphors used in spoken Mandarin change the meaning of the abstract and general “think” to highlight certain aspects of thinking and sometimes even transform it to something what would seem a different cognitive function, like “recollect”.

Thinking is Seeing is another metaphor that accounts for 3.3% of all occurrences. This metaphor demonstrates how thinking is thought of in terms of seeing but includes not only expressions that include “see” (看 kan) and the qualities of sight, such as clear or blurred (清楚 qingchu, 模糊 mohu). It also includes demonstrative pronouns such as “this” 这么 zheme and “that” 那么 name, and the word “imagination” (想象 xiangxiang) which, if you read characters separately, would mean “think images”, therefore suggesting its relation to vision. See some examples of “thinking is seeing” metaphor and explanations below:

a) 所以 你 要 想 清楚 ， 哈 。

suoyi ni yao xiang qingchu, ha.

That’s why-you-need-think-clear, ha.

That’s why you need to make it clear/think it through, ha.

b) 就 是 这么 想 那 一 次...

jiu shi zheme xiang na yi ci...

Just-be-way-think-that-one-time...

That is how I thought (about it) at that time...

c) 没 有 你 想象 这么 可怕 。

mei you ni xiang xiang zheme kepa.

Not-have-you-think-image-this-scary.

It is not as scary as you imagine.

Clarity, a quality observed through sight, is an extension of the main “thinking is seeing” metaphor, demonstrated in (a) “think clear” (想 清楚 xiang qingchu). In (b) an “image” of thought is created in
the memory, which allows the speaker to say “think this way” (这么 想 zheme xiang), as if pointing to an object to compare. This case of the metaphor is very similar to (c) where a mental image from one’s imagination is compared to the image observed in real life. Interestingly, the construction of the word “imagination” (想象 xiangxiang) suggests that it means thinking in images.

Another important metaphor for thinking is container metaphor which was quite frequently found in Mandarin speech, about 2.2% of total occurrences. There were two main instances of the metaphor: describing the manner of thinking and the location of thinking. As Ning Yu correctly notices, heart is generally considered to be a locus of thinking, though head as locus of thinking, a later metaphor, functions side by side with the heart metaphor. Significantly, the spoken Mandarin data search has not shown a single instance of head as a locus for thinking, which suggests that heart metaphor must actually be more common. See some examples below:

a) 关键 是 心里 是 怎么 想。

    guanjian shi xinli shi zenme xiang.

    Crucial-is-heart-in-is-how-think.

    What is crucial is how you think of it.

b) 想 什么 心事 啊？

    xiang shenme xinshi ne?

    Think-what-heart-things?

    What are you thinking about?

It can be seen that in (a) thinking occurs “inside” the heart (心里 xinli), while in (b) the thoughts-things are described to belong to the heart (“heart things” 心事 xinshi). Similarly to Sonya Pritzker’s findings, the research shows that heart sometimes functions as an active experiencer, it is spoken of performing the action of thinking:

107 Ning Yu 2003, 159-162.

108 Pritzker 2007, 256.
c) 我心想算了，不给他们打了。
   wo xin xiang suanle, bu gei tamen da le.
   I/my-heart-thinks-forget, not-give-them-call.
   My heart thinks, forget, don’t call them.

d) 他就觉得心老想了，哎哟，可能不是。
   ta jiu juede xin lao xiang le, ai you, keneng bu shi.
   He-thinks/feels-heart-old-think, oh, probably-not-right.
   He feels (his) heart always thinks, oh, probably (it is) not right.

In the examples (c) and (d) above the heart performs the role of an agent, particularly in (d) it is clear that the speaker is the agent of the first action of “feeling/thinking” (觉得 juede), while heart-mind is the agent of the main action of thinking (想 xiang).

Another instance of container metaphor is realized through grammatical resultative “come-out” (出来 chulai), ” and “open” (开 kai) that is used with “think” (想 xiang) and shows the direction and manner of thinking:

e) 然后又想出一个办法来。
   ranhou you xiang chu yi ge bangfa lai.
   Then-coming-again-think-out-one-method-come.
   Then again (I) came up with another idea.

f) 想的开一点，你，你也不根本不用去管他。
   xiang de kai yi dian, ni, ni ye genben bu yong qu guan ta.
   Think-open-little, you, you-also-at all-not-need-go-care-him.
   Take it easy, you should not care about him at all.
In example (e) “come out” 出来 is a container schema, thoughts/ideas “come out” of the heart-mind similarly to things (such as a present) coming out of the container (gift box). In (f) “open” 开开 refers to “not taking things too close”, “taking it easy”. This metaphor can be represented in the following way:

“Think open is to take it easy”:

- heart-mind is a container.
- thoughts are things in the container.
- releasing things enclosed in the container is releasing thoughts that are kept in the heart-mind.

Overall, container metaphors are particular not only to the verb 想 xiang “think” but to most words and expressions about thinking and feeling. Therefore the mappings can be expanded further depending on the situation and expressions examined.\(^{109}\)

Another metaphor for thinking that accounts for the total of 1.2% of all occurrences is “thinking is object manipulation”. In this category can be found metaphors that describe thinking as an action performed on a physical object, or regard the thinking or thought itself a physical object. See the examples below:

a) 我 再 给你 想 办法 打。
   wo zai gei ni xiang banfa da.
   I-again-give-you-think-method/way-call.
   I will think of another way to call you again.

b) 我 的 新 想法 就 这个。
   wo de xin xiangfa jiu zhege.
   My-new-thought/idea-is-this.
   This is my new idea.

*\(^{109}\) See more about container metaphor for thinking in part 3.3 of this paper.*
erqie xianzai gen zhege taiwan-jiechu de sixiang xin de dongxi ye bu shao.

Moreover-now-with-this-Taiwan contacting-thoughts-new-things-also-not-few.

Now with Taiwan we also came into contact with lots of thoughts and new things.

In example (a) the “way to call” that the speaker will think of is expressed as being “given” (给 gei) to the addressee, the same as a physical thing could be given to someone\(^1\). In (b) the thought/idea is presented as “new” (新 xin), which could suggest that thought is being viewed as a physical object that has qualities such as old and new. In (c) “contacting thoughts” (接触 的 思想 jiechu de sixiang) are suggesting that thoughts are viewed as things that come into contact (with Taiwan or presumably Taiwanese thoughts in this example), and suggests that contact means exposure.

Generally some consistency of metaphor interpretation can be observed and the following mappings can be identified in the “thinking as moving” metaphor in Mandarin Chinese:

Thinking is Moving:
- understanding is through;
- recalling is up and approaching;
- continuous is straight;
- repeating is directing to opposite directions (left and right, east and west);
- producing as an idea is coming out;
- to take it easy, to stop taking something too seriously is to open;

Summary. While the percentage of each case of metaphors for thinking is not significant, the total result of the spoken data search suggests that a considerable amount of what we say about thinking, as much as every fifth 想 xiang “think” word is realized metaphorically. Quality is quantity, “thinking is moving” and “thinking is seeing” are the leading metaphors that occur most frequently. While these

\(^1\) See Ning Yu 1998, 219-220 about gei being a metaphor on a metaphor on linguistic/grammatical level.
metaphors are universal, the mappings that were outlined for the metaphors are often unique for Mandarin Chinese, and sometimes even established in grammar as in the case of resultatives 出来 chulai “come-out” and 起来 qilai “up and towards the speaker”.

Below you can find the data about the metaphors of thinking in Spoken Chinese corpus. Chart 1 is showing the metaphors according to their categories and the frequency of their occurrence. We can see from the chart that the variety of metaphors is limited, and the total number of metaphorical expressions is quite significant. However, such high occurrence of metaphors in the corpus could be explained by the most frequent use of the word “xiang” and its relevant grammatical flexibility in combining with various combinations and grammatical parts. Whether the same is true for other words of thinking will be examined in the next part of this chapter.

Chart 1. Metaphors for thinking “想” xiang in spoken Mandarin Chinese
3.3 Other words for thinking

As a next step of this research, several other common verbs for thinking were examined: 觉 jue “think, feel, consider”, 认 ren “recognize, think”, 觉得 juede “consider, think that”, 认为 renwei “think, believe that”. It is important to notice that in the case of 觉得 juede, the meaning is often shifting between the English equivalent of “feel” and “think”. Therefore while sometimes the change in the meaning is noticeable and can be detected easily as in the case of 我觉得冷 (“I feel (not think) cold”, in some other cases it might not be as clear: 我觉得我是个好妈妈 (“I think/feel I am a good mother”). Semantic ambiguity of 觉得 juede that allows it to be understood as both think and feel, similar to what Mengistu Amberber noted happening in Amharic\(^{111}\). Therefore this paper considers all instances of the verb believing that it does describe a particular kind mental activity, which could be categorized as thinking.

Generally, an important result of the spoken Mandarin corpus search of 觉 jue, 觉得 juede, 认 ren and 认为 renwei is that metaphor occurrence is much lower, particularly because of lesser semantic and grammatical flexibility. For example, 觉得 juede and 认为 renwei both take a predicative complement phrase that they describe after them:

a) 我们 觉得 他们 太 死板。

women juede tamen tai siban.

we-think-they-too-conservative

We think (that) they are too conservative.

b) 我 认为 一个 人 完全 可以 完成。

I-believe-one-person-completely-can-finish.

wo renwei yi ge ren wanquan keyi wancheng.

I think/believe (that) one person certainly can complete it.

\(^{111}\) See Amberber 2003, 195-219.
Therefore one of the view places where the description of verb meaning can be located is before the verb phrase, in the adverbial complement:

c) 我心里觉得安排得还挺好。

wo xin li juede anpai de hai ting hao de.

I heart-inside-think/feel-arranged-very well.

In my heart, I believe I made a good arrangement/plan.

d) (从)个人表现方面，我们评判认为。

(cong) ge ren biaoxian fanmian, women ping pan renwei...

(from) the point of personal behaiviour, our judge believes ...

From the point of view of personal behaviour, our judge believes that...

Because of these grammatical and semantical limitations, the frequency of metaphorical expressions is considerably lower: 3% for 认 renwei, 2.5% for 觉 juede, 25% for 觉 jue (with the total occurrence of only 10 examples), and 31% for 认 ren, see Chart 2 below for description. The results confirm the observation above that grammatical function of the verb affects the frequency of its metaphoric use (monosyllabic verbs tend to be used in metaphoric expressions up to 10 times more often than the polysyllabic ones).
As we see from the chart above, metaphor frequency for 聼 jue and 认 renwei is about ten times less than metaphor occurrence for 觉 jue and 认 ren. However, it is important to discuss the types of metaphors in all cases. The types of metaphors for the verbs are presented below.

Metaphors of thinking for 认 renwei and 聼 jue. The corpus results for 聼 jue and 认 renwei show that there are two metaphors that dominate, taking 40% to 60% of all metaphoric occurrences. These are container and path metaphors. In the case of 聼 jue the two metaphors are distributed equally, with 52% for container metaphor and 45% for the path metaphor. However for 认 renwei path metaphor takes 60% while container metaphor only 10%. See some examples of path and container metaphors for 聼 jue and 认 renwei:

container, 聼 jue:

a) 心里觉得没有底了。

    xin li jue mei you di le.
In (my) heart, (I) felt no confidence.

b) 我觉得 特 满足。

wo juede te manzu.

I-feel-very-contented.

I feel very satisfied.

c) 都 从 心 眼 里 觉得 自己 错 了。

dou cong xin yan li juede ziji cuo le.

All-from-heart-eyes-inside-think-self-wrong.

Everyone honestly felt they did wrong.

path 觉得 juede:

d) 反正 觉 得 他 应该 比 我 强。

fanzhen juede ta yinggai bi wo qiang.

opposite-right (side)-think-he-should-compare-me-strong.

This way or another way, (I) think he should be stronger than me.

In example (a) heart is a container, the words like “the bottom” and preposition “in” are making it clear. In this metaphor the bottom of a container in the source domain (container) is mapped onto confidence in the target domain (heart-mind and mental states). In (b) the indicator of the container metaphor is “contented” 满足 manzu, which also could be translated like “fulfilled”, referring to be filled with something is the same way as a container can be filled with, for example, liquid. Interestingly, in (c) container metaphor refers not only to the heart-mind but also to eyes. It seems that eyes are in a way connected to the mind, therefore the people are said to feel/think “from inside their heart and eyes” 从 心 眼 里 cong xin yan li. In example (d) 反正 fanzhen “right or opposite side” points to the spatial nature of thinking in this expression.

path, 认为 renwei:
As for the path metaphor in 认为 renwei, it can be either shown with a grammatical resultative “arrive” 到 dao as in (b), or a saying like 一向认为 yi xing renwei “one direction thinking/belief” as in (a), that suggests another mapping of the “thinking is moving” metaphor: movement in one direction is a constant thinking/belief. Example (c) shows a common expression of the container metaphor through the use of preposition “in”. Thinking is (c) is described as located “in the heart” 心里 xin li, while other expressions (such as 心中 xin zhong ”in the midst of the heart”) are also possible.

Other metaphors for 觉得 juede and 认为 renwei are very few, each mostly only having one or two examples. Therefore for 认为 renwei the rarely occurring metaphor was “thinking is object manipulation” that can be seen in (a) through the use of word “pick” 挑 tiao, in “pick one (example) I consider/think” and (b) with the phrase “to flip/turn (something) over” below :
I will pick one (example) which I consider to be the best.

b) 可反过来说呢，啊，认为过去有这么个说法。
   keshi fan guo lai shuo, a, renwei guoqu you zheme ge shuofa.
   But-turn-over-say, a, think-before-have-this-saying.
   But, to turn it another way, I believe before there was such a saying.

For 觉得 juede other metaphors are single instances of “thinking／feeling is food”, where feelings or emotions also have taste, as in “feeling very bitter” (觉得特别苦 juede tebie ku).

Metaphors for 认 ren and 觉 jue. The metaphor search for 觉 jue and 认 ren mostly repeated the results of 觉得 juede and 认为 renwei above, showing that metaphors used most often are path and container metaphors. Particularly for 觉 jue container metaphor constituted 80%, with the rest of 20% being path metaphor. Most of path metaphor occurrences are represented by the combination of jue with the resultative 到 dao “reach”:

a) 对，我觉得美国耶。
   dui, wo jue dao meiguo ye.
   Correct, I-feel/think-reach-America.
   Yes, I felt America/reached America in my thoughts.

Unlike using 到 dao with 想 xiang “think” that was discussed earlier in this chapter, there is considerable shift from “thinking” to “feeling”, as 觉到 juedao can be interpreted in both ways here.

The same is true for the container metaphor in 觉 jue, that it can be read as either thinking (observation, awareness), or feeling. It is mostly represented by expressions of 觉 jue with resultative 出 chu “out” as in (b), though some other examples are present, as in (c):

container:
As it can be seen from the examples above, both mappings, the grammatically evolved “feel/think-out” (觉出 jue chu) in (b) and the metaphor of a heart as a container for thinking expressed by “in heart” (心里 xin li) in (c) demonstrate once more that container metaphor is regularly used with thinking verbs in Spoken Mandarin Chinese.

For 认 ren “thinking is object manipulation metaphor is used most often, accounting for 33% of all metaphor occurrences:

a) 可惜 有些 字 认 不得。
   kexi you xie zi ren bu de.
   Sadly-have-some-characters-recognize-not-get.
   Unfortunately, (I) can not remember/recognize some characters.

b) 我 没 计划，连 字 也 认 不 全 还 订 计划?
   wo mei jihua, lian zi ye ren bu quan hai neng ding jihua?
   I-don’t have-plan, even-characters-recognize-not whole-still-arrange-plan?
   I don’t have a plan, how can (I) set a plan if I don’t even know all characters?

As the example above shows, the action of remembering is understood as “getting” something (probably a mental image of the object or person?). In this specific of the semantics and grammar is
similar to another Chinese verb “remember (记 ji), where verb 记 ji “remember” means the action of remembering and记得 jide “remember-get” means the successful result of remembering. It can be concluded that within the metaphor “thinking is object manipulation”, a mapping seems to be present “successful recognizing is getting”.

Another frequently used metaphor is the container metaphor which accounts for 28% of occurrences. In the spoken Mandarin corpus search, all occurrences of container metaphors for 认 ren are represented by the spatial image schema “come out”, that is embedded in grammar and therefore is used in language mostly unconsciously:

b) 罗玉现在都快认不出来了。

Luo Yu xianzai dou kuai ren bu chulai le.


Now I almost can not recognize Luo Yu.

As demonstrated in (b), recognizing someone is conceptualized as taking something out, which leads us to “mind is a container for thinking” metaphor.

Another case of a metaphor use in 认 ren is “recognition is a physical effort”, represented by two cases of expressions “难 认” and “好 认” and accounting for 22% of occurrences:

c) 比真是学外语还难，他不好认.....

bi zhen shi xue wai yu hai nan, ta bu hao ren.

Comparing-really-learning foreign language-even-difficult, he-not-good/easy-recognize.

(It is) even more difficult than learning a foreign language, (it is) not easy to remember...

As it is shown in (c), remembering or recognizing something is conceptualized as a physical work/action that can be more or less “easily” performed.
Path metaphor accounted for 18% of occurrences and is represented by spatial action or location (such as exact position/location):

d) 字母 能 认 下 来 。。。 

zimu neng ren xia lai...

Letters-can-recognize-down-come...

(He) can recognize the letters.

e) 我 认 准 了 新 影 乐 团 啦。

wo ren zhun le xin yin le tuan la.

I-recognize-exactly-Orchestra of the Central Newsreel and Documentary Film Studio.

I set my mind on Orchestra of the Central Newsreel and Documentary Film Studio.

We can see that in (d) the act of remembering/recognizing is conceptualized as going down, and setting one’s mind on something is conceptualized in (e) as placing something in the exact position, as 准 zhun (exact, correct) generally refers to putting something into exact/correct spatial position, such as planting the tree in the middle of the yard or hanging the picture in a correct position on the wall.

It should also be noted that corpus search for 认 ren accounted for a number of metaphorical expressions where physical recognition is used to describe intended accepting of a concept or a relationship. Such cases include 认 命 ren ming “recognize/accept destiny”, 认 帐 ren zhan “recognize/accept a debt”, 认 她 是 我 妈 ren ta shi wo ma “recognize her as my mother.”

Generally the corpus search results have shown that most frequently uses metaphors for used in verbs for thinking such as 觉 jue, 觉得 jue de, 认 ren and 认为 renwei are container and path metaphor, with container metaphor slightly more common. See Chart 3 below for the result and description below:
As it can be observed from the results in the chart, the most common metaphor for the verbs of thinking is the container metaphor, accounting on average 49% of all metaphoric occurrences. It is followed by the second most widespread, the path metaphor, with an average of 35%. “Thinking is object manipulation” has only 13% of occurrences and the other two metaphors identified, “time is quantity” and “thinking is a physical effort”, have less than 10% frequency.

To summarize, it was discovered that metaphor occurrence in language depends highly on grammatical and semantic flexibility that allows thinking verbs to be modified by grammatical suffixes, complement phrases and words that provide a more detailed information about the thinking verb. Thinking is described as being located in the heart-mind. The container metaphor is the most frequently used, on average accounting for almost half of all metaphorical cases, while the path metaphor occupies next place in frequency, accounting for 35% of occurrences. Importantly, the examples of the corpus search for 觉 jue and 觉得 juede have shown that the words are used interchangeably for feeling and thinking, with some cases where such division becomes blurred and
unclear. This proves that in Chinese, as well is in English\textsuperscript{112}, thinking and feeling can be distinguished on some level, but become interrelated in many particular cases.

3.4 Conclusion

The results of Spoken Mandarin corpus LLSCC proved that a large amount of expressions with thinking verbs are metaphorical. About one fourth of all expressions involving the researched words for thinking were metaphorical. The locus of thinking in the metaphorical expressions for all five observed words for thinking is the heart-mind. Metaphor of head was not present in this search, probably due to the standardization of heart metaphor use in Mandarin Chinese.

Metaphors used in expressions about thinking were mostly primary metaphors. For 想 xiang “think” the most frequent metaphors were “quantity is quality” and “thinking is seeing”, while for other words for thinking container and path metaphors were most common. It was observed that the types of metaphor and metaphor frequency depend on grammatical functioning of a word. Therefore the more flexible the word is in its position in the sentence and its ability to form combinations with other words and phrases, the more likely that this word will have bigger metaphor frequency. It was also noted that monosyllabic words have bigger metaphor frequency that polysyllabic, because the latter are less likely to have grammatical flexibility in the sentence.

Ways of realization in language. A large number of metaphorical examples is realized through a standardized grammatical pattern. The primary metaphors, such as container and path metaphors, became suffixes that are used with the thinking verbs. These suffixes contain image schemas like “in” and “out” (such as 出来 chulai “come out” resultative), “up” and “down” (as in 下来 xialai “come down”. A large number of the metaphors are realized through the standard grammatical patterns and therefore are mostly unconscious. However, a number of lexical metaphors and a larger variety of metaphors is found in expressions with 想 xiang “think.”

\textsuperscript{112} See the experiment done by Penny Lee 2003, 221-250.
It was observed that in some expressions, words for thinking could be interpreted as feeling, which supports Penny Lee’s finding that there is only general level distinction between feelings and thoughts and related activities.

Overall, the corpus data search suggests that expressions about thinking in Spoken Mandarin Chinese are largely metaphorical and unconscious, commonly used metaphors are primary metaphors that are related to our basic embodied experiences, such as moving through space, using containers, manipulating objects. Further research of other non-spoken corpora will examine how much metaphor choice and frequency changes if the language tools do not have to be immediately accessible as in spontaneous speech.
Chapter 4. Metaphors of Thinking in Other Modern Mandarin Chinese Corpora

This chapter discusses a similar search done in other three Chinese corpora: Academia Sinica Corpus of Modern Chinese, Chinese Internet corpus and LCMC corpus of Modern Mandarin Chinese. While the search words are mostly the same, the character 觉 jue “think/feel, consider” was excluded from the search because a large number of examples in the three corpora showed 觉 jue as a part of 睡 觉 shuijiao “sleep”, which is not relevant to the current research and was therefore excluded.

During the metaphor search in the Spoken Mandarin Corpus it was predicted that in Spoken Mandarin the variety of metaphors will be more limited. Therefore it is expected that in this part of metaphor search for the three corpora metaphor variety will be greater. It is possible that the choice of metaphors could also be different because of increased metaphor availability.

4.1 Metaphors of thinking for 想 xiang in Modern Chinese Corpora

Corpus search for 想 xiang “think” for the three corpora combined showed a total number of 6759 occurrences, out of which 1418 are metaphoric (21%). It can be observed that the total occurrence of metaphors did not visibly change compared to the results of the Spoken Mandarin Chinese Corpus search. Similar to the results of the spoken corpus, the three leading metaphors are path metaphor (41%), container metaphor (19%) and “quantity is quality” metaphor (27%). However it can be seen that the number of “quantity is quality” metaphors decrease while the number of path metaphors increase, which could be explained by an easier availability of the first compared to the latter. As Sally Rice, Dominiek Sandra and Mia Vanrespaille\(^{113}\) note, due to grammaticalization, some metaphors lost part of their meaning, in such a way as “quality and quantity representations ascribed to mental lexicon” but are not perceived as metaphors by a modern speaker. Therefore it could be assumed that the quality and quantity metaphors became more subconscious, instantiated neurally, and therefore immediately available for use in spontaneous speech. However in the written language,\(^{113}\) Masako K. Hiraga, Chris Sinha and Sherman Wilcox 1995, 108.
where immediate response is not required, a greater flexibility of expression is allowed and a person has more time to reflect on the concept he/she is about to use, so the “grammaticalized” metaphors become less vital and less useful.

Other metaphors that appeared are physical effort (8%) and other metaphors that accounted for approximately 5%. See Chart 4 below for more details.

Chart 4. Metaphor frequency for 想 xiang in non-spoken Modern Chinese Corpora

- path
- other: thinking is eating, thinking is seeing, thinking is object manipulation
- physical effort
- quality is quantity
- container
While it can be observed that there is no visible change in the metaphor variety between the two searches, there is a particular difference in the aspects of each metaphor revealed in the examples and a complexity of metaphorical expressions used. Some substantial changes for metaphor representation, particularly path and container metaphors, are discussed below.

While the path metaphor stays one of the dominant metaphors for thinking, there are more aspects of movement through the space are shown. Along with examples like 东西想 “east-west thinking” 想起来 “think come back” 一直想 “one straight thinking” discussed in the previous corpus search, there are numerous examples of the expressions that were found, defining the following aspects of path metaphor:

direction:
- thinking forward/back (think about future/past) 想（向）前/后  xiang qian/hou
- thinking straight (continuously thinking)  一直想  yi zhi xiang
- thinking towards bad/good place  望最坏/好的地方想  wang zui huai/hao de difang xiang
  (expect the worst/best)
- thinking-going (start thinking, think)  去想  qu xiang
- thinking-returning (come back to a thought again)  回（来）想  hui (lai) xiang
- thinking left (thinking) right (repeated thinking)  左（思）右想  zuo si you xiang
- thinking down (to continue thinking)  想下去  xiang xia qu

Manner and speed of thinking:
- thinking step (by step) (gradually thinking)  一步（一步）想  yi bu (yi bu) xiang
- thinking over (thinking was completed)  想过  xiang guo
- think through (to understand/ stop thinking)  想通  xiang tong
- think without stopping (continuously thinking)  不停（地）想  bu ting de xiang
- thinking fast/slow  快/慢慢想  kuai/man man xiang
- think **stepping back** (think from a different angle, re-think) 退一步想 tui yi bu xiang
- think **too far** (planning too much ahead) 想得太遠 xiang tai yuan
- **flip over** and think (think from another point of view) 反過來想 fan guo lai xiang
- think **from one side** (think from one point of view) 一方面想 yi (fan) mian xiang

As we see from the examples above, the search demonstrates that there are many more aspects of path metaphor represented. Such elements of path as dimensional space, movement through space, speed, manner of movement (walking, stepping and so on) are mapped onto the concept of thinking allowing more freedom of conceptualization and expression, and adding more information about the abstract concept.

As for container metaphors, while “heart is container for thinking” was the most frequent metaphor, some examples of “head is container for thinking” were also observed (193 examples of heart metaphor against 13 examples of head metaphor). Some examples of head metaphor are:

- **Full head thinking** 滿腦子想 man naozi xiang
- Think **inside the head** 腦袋裡想 naodai li xiang
- Think **inside the head** 腦筋裡想 nao jin li xiang

We can see from the examples above that container metaphor is also broadened here to include more mappings that add information about the container. Together with approximate location of thinking as “inside the head,” there are metaphors that describe the content of the container-head as “full head” or the precise location of thoughts in the container-head “inside the head.”

Among other container metaphors that were not found in the Spoken Mandarin Corpus were some unique metaphors:

- **Bee hive -like thinking** 一窩蜂地想 yi wo feng di xiang

This is a more complex metaphor that describes a group thinking. Here the container for thinking is not head or heart, but a group of people. Therefore the bee hive is group thinking. To better understand the
metaphor, the mappings for the metaphor between the source domain of bee-nest and target domain of head are outlined below.

thinking is bee hive-like:
- bee hive is a group of people
- bees are people
- bees produce noise as people produce disordered thoughts
- movement of bees is the disordered busy thinking.

Another such metaphor is 再(在)想法躲114 zai xiang fa duo “to hide in the thoughts.” Here the thoughts are conceptualized as containing the agent of the thinking115. The meaning is that the agent occupied him/herself with thought to avoid the reality. Here the agency is split into two entities: the subject of the thinking that experiences consciousness and the self that is person hiding, which represents the body and social roles. Moreover the self is located “inside” the subject of thinking. The metaphor could be represented in the following way.

to hide in the thoughts:
- thoughts are a container
- the agent is a object in the container
- hiding is avoiding the people/reality

There are also some container metaphors that emphasized the aspect of depth and the degree of depth. The first example demonstrates “deep thinking” generally, while the second example adds the degree of depth with the spatial concept of “level”:

To go think deeply 深入地想 shen ru de qu xiang
Think one more level deeper 更深一層地想 gen shen yi ceng di xiang

114 the original example is “不錯，快追，先把女娃娃捉到，再想法躲”, from Academia Sinica.
115 Note that I disagree about Rouzer’s claim (Rouzer 2000, 5) that 中 zhong (in, inside, in the middle of) is not a mapping of the container metaphor. I believe that 中 zhong carries the three-dimensional meaning of location in space, similar to 里 li, unlike 中间 zhongjian (center, middle), which was probably what Rouzer was referring to.
Another metaphor of thinking worth mentioning relates to container metaphor and “thinking is eating” metaphor. See below:

Think/want-one-slip-heart-things  想一吐心事  xiang yi tu xin shi

The metaphor implies “spitting out” the thoughts out of the heart-mind. It can be represented as the following;

Thinking of spitting out thought from the heart-mind:

- heart-mind is a container;
- thoughts are food for heart-mind;
- heart-mind is a stomach;
- getting rid of thoughts is spitting out/pouring out thoughts.

As it was mentioned above, in this example the container metaphor is present as the thoughts are contained in the heart-mind. However “thinking is eating” metaphor is also present, which can be confirmed by the fact that the thoughts are thought to be “spit out” of the heart-mind just as food could be spit out of the mouth or stomach.

Similar changes towards defining more aspects of a metaphor and the ways of its realization can be also seen in the metaphors “thinking is seeing”, “thinking is object manipulation” and “thinking is a physical effort.” However these tendencies are not observed in the “quantity is quality” metaphors, the examples found are the same expressions including word repetition and adding phrases of quantity to the word of thinking. The absence of change towards bigger variety of linguistic expressions could be explained by the simple organization of the metaphor and the limited information it gives.

The examples of “thinking is object manipulation”, listed below, defined the following mappings of the metaphor:

- thoughts are things
- thinking is manipulating things
While in examples (b) and (c) thoughts are conceptualized as materials or non-living objects that can be “connected” as parts of a whole or “untied” as a knot, in (a) the thoughts are objects that are discovered and in (d) they could be living things that are being manipulated by being “released”.

A metaphorical expression 在别人肩膀上想東西 zai bie ren jian ban shang xiang dongxi (thinking things on someone’s shoulders) can be considered an example of “thinking is object manipulation.” Because this example is given in the data out of context, the meaning of the whole phrase could not be interpreted. However, 想東西 xiang dongxi or “thinking things” is metaphorical as thinking here is conceptualized as manipulating “things”. It could be outlined through the following mappings:

Thinking is manipulating things
- things are thoughts.

The examples of “thinking is seeing” metaphor show such mappings as ability and inability to see (a and c), clarity of vision (b, e, f, g) and ability to define objects (f and d) and the manner of looking (h):

a) 瞎想 xia xiang blind thinking
b) 想清楚 xiang qingchu think clearly
c) 在眼前想 zai yan qian xiang think in front of (one’s) eyes
Another metaphor to be discussed is “thinking is a physical work” which was not identified in the spoken corpus search. As many as 96 examples were found. The expressions highlight the effort or energy needed to perform the act of thinking and conceptualize mental action as a physical work:

a) 全力想  quan li xiang  full-strength-think  Think hard.
b) 不忍想  bu ren xiang  not-endure-think  Can’t bare to think.
c) 努力地想  nu li de xiang  effort-think  Think hard.
d) 替你想  ti ni xiang  replace you-think  Think for you.
e) 吃力的想  chi li de xiang  eat-effort-thinking  Think with a great effort
f) 思想 工作  sixiang gongzuo  thoughts-work  Ideology work
g) 细想  xi xiang  detailed/thin-think  Think carefully

As we can see above, some examples accentuate the energy or effort that is needed for thinking (a, c, e), that is mostly expressed with the word 力 li (power, energy, effort). Particularly in example (e) the energy that is consumed during the act of thinking is expressed with the help of another metaphor “thinking is eating” as thinking here is said to “eat energy” 吃力 chi li. In (f) the action of thinking is generally conceptualized as a physical work, therefore the expression “mental work” 思想 工作 is used. Example (b) shows the difficulty of the work and (d) demonstrates the possibility of passing or performing the work for someone.
Among other metaphors that accounted for less than one percent of occurrences are “thinking as a physical force” represented by expressions like “can’t keep from/stop thinking” 忍不住想 ren bu zhu xiang, demonstrating that the force of thinking can not be stopped. “Thinking is eating”, can be expressed by referring to the qualities of thinking that are conceptualized as tasted, like in “sweet thinking” 甜甜的想 tian tian de xiang. Only a single example of “rational thinking is cold” is found, “cold calm thinking” 冷靜地想 leng jing de xiang, where emotional thinking is conceptualized as “hot” while rational as “cold.”

Generally, the search of word 想 xiang “think” across three non-spoken modern Mandarin Chinese corpora showed that while the metaphor type variation used in the expressions remains relevantly stable (except a slight decrease of “quantity is quality” and increase of container metaphors). The main three metaphors for thinking are path, container and “quantity is quality” metaphors. However, it was demonstrated that the expressions in non-spoken Mandarin Chinese corpora showed more mappings to most metaphors, which allows to use more aspects of a particular metaphor and give a more detailed information about thinking. Also, while the spoken corpus examples showed mostly primary metaphors, the non-spoken corpora has a number of complex metaphor examples that consist of several primary metaphors or mappings. The locus of thinking is represented as both head and heart-mind, and total number of metaphoric versus non-metaphoric expressions remain the same in both spoken and non-spoken corpora.

4.2 Other words for thinking in the three non-spoken Mandarin Chinese corpora

This section discusses the metaphors of thinking for the verbs 认 ren “recognize,” 认为 renwei “consider,” and 觉得 juede “think/believe that” in the three corpora of non-spoken Modern Mandarin Chinese. As the results of each corpus were not numerous the results given are the combined result for
the three corpora. Examples presented for each metaphor will be taken each of the three corpora as well to demonstrate more possible ways a metaphor can be used.

Search for 认 “recognize” in the three non-spoken Mandarin Chinese corpora showed that the metaphor occurrence, though slightly higher, is comparable to its occurrence in spoken corpus (37% in non-spoken compared to 31% in spoken data). Most common metaphors were container (39%), “thinking is seeing” (25%) and path metaphors (16%). “Thinking is object manipulation” accounted for 10% of metaphoric occurrences, “quantity is quality” only 7%, and other metaphors only 3%. See the chart below:

Chart 5. Metaphor frequency for 认 ren in non-spoken Mandarin Chinese corpora

As we can see from the results in the chart, metaphor variety has increased greatly, as well as the choice of metaphors. The “Thinking is seeing” metaphor, which was not observed in the spoken results was not only present in the written corpora, but accounted for 25% of all metaphoric occurrences. Container metaphor shifted to the foremost position, accounting for 39% (compared to
28% in the spoken data). At the same time the frequency of “thinking is object manipulation” metaphors reduced significantly, a shift from 33% to 10%. The frequency of path metaphor remains relevantly unchanged (17% in the spoken and 16% percent in the written data). Below some examples of each metaphor types are discussed.

For container metaphor in expressions with 认 ren, the general pattern of metaphor formation remains the same as in the spoken corpus search: most metaphoric expressions are formed by verb-complement resultative constructions of direction, see the following:

| 认不出 (来) | ren bu chu(lai) | recognize-not-come out | Can not recognize |
| 认中 | ren zhong | recognize-middle | to be recognized |

Similar metaphor formation through resultatives of achievement, direction and result are also most effective in path (a), “thinking is seeing” (b) and “thinking is object manipulation” (c) metaphors:

a) 认识 到 renshi dao recognize-arrive (realize) achievement resultative

| 认过 | ren guo | recognize-pass (used to recognize) directional resultative |
| b) 认清楚 | ren qing(chu) | recognize-clear (recognize clearly) achievement resultative |
| c) 认不得 | ren bu de | recognize-not-get (unable to recognize) resultative of result |

At the same time, some complex metaphors occasionally appear, such as “good recognition is ripe”: 连北京的路也没认熟呢。

lianj beijing de lu ye mei ren shou ne.

even-Beijing-road-also-not-recognize-ripe.

He haven’t even remembered the directions in Beijing.

Similarly to the results of the spoken corpus search, some expressions with 认 ren “recognize” are used metaphorically with the meaning of “accept”, “agree”:

It can be concluded that for ren the non-spoken corpora search showed greater variety of metaphor types and occasional presence of more complex metaphors, “quantity is quality” metaphor used tends to decrease and “thinking as seeing” metaphor to increase in frequency in non-spoken corpora. Metaphor formation patterns remain consistent with resultatives being present in the larger part of the metaphoric expressions.

In the search for 觉得 juede “think, consider, feel” across the three non-spoken 5276 examples of expressions were examined. On average, 6.4% of expressions were metaphorical. It should be noted that the frequency is considerably higher than in the spoken data search (compare to 3% in the spoken corpus search). Container and path metaphors remained the leading metaphors, “thinking is seeing” metaphor appears in the search results. “Quality is quantity” metaphor decreases to a few examples.

See the chart below:

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The complete sentence: 彭嫌見其先生不在，係認大好機會，遂進入其房間.
It can be noticed from the chart, that while the container metaphor slightly increases in use (58% compared to 51% in the spoken corpus search), “thinking as seeing” is found in 9% of all metaphor occurrences, which is almost one out of ten metaphors. Path metaphor, while still frequently used, is largely outlined by the container metaphor. See some examples of the metaphors from the search below.

Path metaphor expressions with 觉得 juede highlight such aspects of the metaphor as distance, direction, manner of movement, spacial characteristics:

- **distance:**
  - 永遠覺得 yong yuan juede
  - 最近覺得 zui jin juede

- **manner:**
  - 我倒覺得 wo dao juede

- **contrary think**

  - always-far-think
  - most-close-think
  - I-turn over-think
  - forever think/believe
  - recently-think
  - I still/ on the
Container metaphor formation is not radically different from those in the spoken corpus search, however, like in the case of 想 xiang “think,” more mappings are used. One of such mappings is depth of the container, as in 深刻的觉得 shenke juede “deeply think.” However, because 觉得 juede and 认为 renwei are transitive verbs that can not form resultative complements and, as was already mentioned, can not only take a complement phrase in a position before them. Therefore the metaphors most often used are simple metaphors with the “in” image schema, as in 心里 xin li, 内心 nei xin, 心中 xin zhong (all meaning “in the heart-mind”). All container metaphor expressions indicated that the locus of thinking is in the heart, however in one expression it was a “body and heart”:

身心自然會覺得輕鬆。

shen xin zirang hui juede jingsong.

body-heart-naturally-will-think/feel-easy.

(Your) heart and body will naturally feel easy/relaxed.

In the example above, however, the heart and body are the agents of the thinking/feeling action rather that the locations of the feeling/thinking.

“Thinking is seeing metaphor is mostly presented by the demonstrative pronouns and expressions such as “like” and “looks like” 好像 (hao) xiang, “same” 一樣 yi yang, as these qualities are generally characteristic of seeing:

a) 這樣覺得 zhe yang juede this-type-think think like this
b) 像我覺得 xiang wo juede like/image-me-think think like me
Generally it can be said that the examples from the three non-spoken data prove that the metaphor occurrence increases in the non-spoken Mandarin Chinese, container metaphor becomes more widely used and “thinking and seeing” metaphor becomes used. The general metaphor formation patterns remain the same while allowing more mappings to be highlighted in the expressions.

The tendencies found in 觉得 juede expressions are also true for 认为 renwei. The metaphor frequency here increases to 6%, which is two times more than in the spoken corpus. Of all metaphor occurrences 50% is path metaphor, 8% (relevantly stable compared to 60% and 10% in the spoken corpus), but, as well as in other words for thinking, there appears “thinking is seeing” metaphor which takes 13% of all metaphorical occurrences. See the chart below:

Chart 7. Metaphor frequency for 认为 renwei in non-spoken Mandarin Chinese corpora
The metaphor formation patterns for 觉得 juede are also characteristic for 认为 renwei. The container metaphor is presented in expressions like 心中/里认为 xin zhong/li renwei “inside the heart”, path metaphor formation remains unchanged and “thinking as seeing metaphor is realized through demonstrative pronouns, such as in 这样 认为 zhe yang renwei “think this way”.

4.3 Summary of the chapter

It can be said that the examples from the three non-spoken data show that the metaphor occurrence increases in the non-spoken Mandarin Chinese, container and path metaphors remain the leading and their frequency remains relevantly stable, while “thinking and seeing” metaphor appears. More frequent use of “thinking is seeing” metaphor in non-spoken corpora could be explained that the speakers need to visualize their thoughts before presenting them, unlike the situation with the immediate conversation. The general metaphor formation patterns remain the same while allowing more mappings to be highlighted in the expressions. Metaphor use for the transitive verbs of thinking that can not form resultative constructions also increases in non-spoken corpora search. For both spoken and non-spoken corpus search results it is true that metaphoric expressions are an important part of our talking and reasoning about thinking and account up to 30% of all expressions about thinking.
Chapter 5. Metaphors for Thinking in Modern Mandarin Chinese: Application and Questions for Further Discussion

In this chapter I discuss some questions for further discussion of the topic and possible application of the results of present research. It was demonstrated in the previous chapters that our language about thinking is largely metaphorical, therefore our conceptualization and the process of thinking itself depends on a certain set of metaphors. How does it affect speakers of different languages, how can we use this information in our own and foreign language? These and some other questions are discussed below.

5.1 Questions for further discussion

First of all, it is significant that the most frequently used metaphors in Mandarin Chinese expressions about thinking are container and path metaphors. While both metaphors exist in English and Chinese and container metaphors in many cases outnumber other metaphors, I believe it could be true that the container metaphor does not prevail in English. On the other hand, it would seem likely that path metaphor is most frequently used in English expressions about thinking. It would be interesting to know the relationship between the metaphor proportions in English as it would mean that the speakers of a particular language are most sensitive to the metaphor most frequently used in their native language or the language they are most exposed. A good example is the UBC slogan “a place of mind” which makes use of the most frequent, or at least as I believe, one of most frequent, metaphors for thinking: path metaphor.

In addition, I think it is possible that container metaphors in English do not function in the same way as they do in Mandarin Chinese. Some container expressions in English seem to have negative associations, such as constraint, restriction and so on. See for example “think outside the box”: it implies that you are restricted by “the box” meaning your way of thinking or your mind, or “it
is all in your head” implying that there is separation between the “inside” and the “outside” of the speaker, and the logical next thing to do is to “come out of your head” in some container metaphors, generally not found in mandarin Chinese\textsuperscript{118}.

Another thing that needs to be mentioned is the influence of language on cognition. Boroditsky claimed that the more the learner of a certain language is exposed to a language, the more he/she accepts some cognitive patterns from the language (such as “up and down” time-space relationship can be adapted from Chinese)\textsuperscript{119}. Judging from the results of the present research showing that a large number of metaphorical expressions about thinking are realized grammatically, it could be possible that part of those cognitive structures are adapted unconsciously through the foreign language grammar.

The present research has demonstrated that grammatical constructions in Mandarin Chinese such as resultatives often affect metaphorical meaning of thinking expressions. Mandarin Chinese grammar is largely built on some cognitive patterns which can not be familiar or easily accessible to the foreign learner. Particularly, the metaphorical resultative constructions often used in expressions about abstract concepts, such as thinking or feeling, can be unfamiliar to a foreign learner. Some suggestions about how grammatically expressed metaphoric expressions in Chinese can be taught to foreign learners are discussed below.

5.2 Teaching resultatives in Mandarin Chinese

Metaphors in different languages have been analyzed and compared, including English and Chinese, however some important aspects have hardly been touched. The large part of the work in the

\textsuperscript{118} Note that such expressions as “come up to my mind” and “I could not dream it up“ are not considered container metaphors, because they are based on are the schemas of vertical movement: up and down, and is here considered a part of path metaphor, as it does not have the meaning of containment.

\textsuperscript{119} Boroditsky 2011, 335.
field of conceptual metaphor in Chinese is about analyzing the texts and the speech. Janet Xing\textsuperscript{120} mentioned in her research about spatial terms in space in time that we have to discuss cognitive and discourse functions whenever pedagogical grammar is the issue. Zhao Shengyong\textsuperscript{121} even discusses application of metaphor theory to English Language teaching in China. Haidan Wang notes that there are few articles on the topic of teaching resultatives and particularly metaphoric resultatives, and that generally the textbooks do not do a very good job in applying the theoretical knowledge to the teaching methods\textsuperscript{122}. suggests that metaphoric grammatical expressions should be taught separately as a part of “focus on form \textsuperscript{123}” method. However most are leaving behind the value of application of conceptual metaphor theory to teaching Chinese as a foreign language. Some people overlook the universal aspect of metaphor and its local variations. Particularly Rouzer claims that container metaphor in Chinese is rare as compared to English: “the metaphoric elaboration of metaphoric objects is thus constrained in Chinese”, so that “it could be the case that objectivization itself is problematic in Chinese, ...as container generally requires a concrete physical basis in literal 3-dimensional space\textsuperscript{124}”. Rouzer’s problem was that he compares the metaphors used in the same linguistic expressions instead of looking for the ways of realization of a particular metaphor in a foreign language. Also, he considers the word 里 li “in” to be the only expression of the container metaphor, overlooking other words such as 内 nei (inside) 外 wai (outside), not even mentioning resultatives like 出来 chulai (come in). Certainly, as we observed in previous chapters, container metaphor is one of the most frequent in expressions about thinking, an abstract concept that does not have a “literal 3-dimensional space”, which proves that container metaphors in Mandarin Chinese exist as well as in English, but can be expressed differently and used differently in particular linguistic expressions.

\textsuperscript{120} Xing, Janet 2006, 76-76.
\textsuperscript{121} Zhang Shengyong 2007.
\textsuperscript{122} Haidan Wang 2002, 188-189.
\textsuperscript{123} Ibid., 196.
\textsuperscript{124} Rouzer 2000, 3.
5.3 Problematics and value of the conceptual metaphor theory in language teaching

Though Chinese as a foreign language gains more popularity, it is not always obvious to a Chinese Language teacher, particularly a native speaker, that some grammatical constructions in the language might be of considerable difficulty to the students. A good example is verb-complement, or resultative constructions in Chinese, like 想不起來 xiang bu qilai (can’t remember) or 說下去 shuo xiaqu continue talking. Often, students consciously or unconsciously avoid using the structures in their active vocabulary because they do not feel comfortable using them, unsure of their usage or simply feel it is a “foreign” aspect of the language to them. As a result, the language of a foreign language learner often resembles a more or less good translation of their native language to Chinese. Some educators realize that the verb-complement resultative constructions have metaphorical element in them, but explain it as “Chinese think of this in a following way...”, which is often accepted as something exceptional, unusual and therefore unacceptable. However I believe that conceptual metaphor analysis improves students’ understanding of certain grammatical patterns like verb-complement resultative constructions. Therefore the students are more aware of their language use, which makes their language not only more fluent, but more natural and native-like. Below are some suggestions for teaching Chinese as a Foreign Language using a simple conceptual metaphor analysis and cross-language comparison.

5.4 Metaphor is Chinese teaching tradition

Though conceptual metaphor theory is quite recent, conceptual metaphors were used in teaching since the ancient times. Xunzi uses heart as water metaphor to teach his disciples about the nature of moral cultivation\textsuperscript{125} using the water metaphor human to talk about heart-mind. Bruce Lee, talking about

\footnote{125}{See Xunzi, translation by Erin M. Cline 2008, 339.}
practicing kungfu in his interview used fighting as water flowing metaphor to explain the way one should move when fighting and his saying “be water, my friend” became famous. Though these people are separated by thousands of years, there is one similarity in their sayings: they use concrete, visible things to talk about abstract ones. Therefore they make it clear how the conceptual metaphor mentioned works.

I propose a similar idea of teaching directional resultatives that constitute a large number of metaphoric expressions about thinking and often have a large number of rules to regulate their use. Using metaphors is teaching explanation and analyzing the metaphors can ease the teaching process and make the learning more enjoyable for students.

Most primary metaphors are similar through the languages, cultures and times as they are embodied in our everyday experience: we use containers, so we use container metaphors (I can feel it in my heart), take things in and out of them (can’t take it out of my head), move in the space in different directions (it never came up to my mind). These metaphors can be found in each language, however metaphorical expressions for each language might be different. These primary metaphors can serve as a bridge between the languages and cultures. Below I explain how cross-language conceptual metaphor comparison and analysis can be used for teaching purposes.

5.5 Metaphor analysis and verb-resultative constructions

Some resultative constructions can be easily explained when they are used with the concrete verbs: 坐下去 zuo xia qu “sit-down-go” (sit down) or 拿起来 na qi lai “take-up-come” (pick up) can be explained identifying 去 xiaqu “go down” as a motion from the speaker and down, and 起来 qi lai “up-come” as motion up or starting and towards the speaker. However, this becomes more problematic with abstract verbs:

126 See interview with Bruce Lee at http://www.youtube.com/watch?v=iO3sBuIXpVw
It can be seen in the examples 1-3 that there are indications of movement in space in Chinese verb-complement constructions: direction to and from speaker (来去 lai qu), up and down (上下 shang xia), rising (起 qi) or exiting (出 chu). What may causes those indications of movement through space in expressions where resultatives are used with abstract verbs? Tong King Lee came to a conclusion that “The semantic evolution of LAI from a motional and deictic verb/co-verb to a full grammatical marker is a result of metaphorical extension” 127, but did not explain that this understanding of LAI is caused by the metaphorical understanding of the verb it is related to. We can use spatial schemas that can be observed to describe their use in abstract processes. See an example of container metaphor:

Mind is a Container
-ideas, thoughts are things
-ideas can move in and out of the container

Processes performed with containers:

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127 Tong King Lee 2008, 1.
English: I took the present out of the box. (direct meaning)

I can’t take him out of my head. (metaphorical meaning)

Chinese: 数数从帽子理拿出来了一只兔子。An uncle took a rabbit out of his hat. (literal)

叔叔从帽子里拿出来了一只兔子。

我想不出来办法怎么说服他。 I think not out way how convince/persuade him. (metaphoric)

我想不出来办法怎么说服他。

As we see from the examples above, primary metaphors such as container metaphor and image schemas such as “in” are used in both English and Chinese grammar. Because primary metaphors are evoked by our embodied experience, they are relevantly the same throughout the languages. Therefore metaphor analysis can be helpful to understand metaphorical expressions in grammar of a foreign language by finding relevant metaphorical expressions in the native language.

Difficult as might it seem, metaphor is one of the easiest ways to explain an unfamiliar concept. Imagine we tried a new exotic fruit and want to describe the way it tastes or looks, how can we do it without comparing it to something the person is already familiar with? So we say something like: “it looks like a potato and tastes like an apple”. The same thing is happening to us when we are learning new concepts. Therefore conceptual metaphors can also help to understand Chinese directional resultatives. Teaching verb-complement constructions (动补结构 dong bu jiegou) the following method can be used:

1) Raise conceptual metaphor awareness saying that, for example, we sometimes think of our mind as a container, like a box, or a cup.

2) Native language example: Provide examples from the students’ native language, for example

English: “my heart was filled with joy”, “what do you have in your head.”

\^Supposed to be 叔叔 “uncle.”
3) Relate it to the foreign language:

Say an example of the particular construction used in Chinese, explain the approximate meaning carried by the metaphor: e.g.: 我想出來一箇辦法了 wo xiang chulai yi ge bangfa “I thought out a way (to do something).

4) Compare with the source domain of the metaphor: provide a sentence in Chinese that would imply a similar meaning in the source domain (such as container metaphor if talking about “mind is a container” metaphor), accompany the example with a visual example or a movement if appropriate:

他拿出來一張名片給我。

ta na chulai yi zhang ming pian gei wo.

he-take-exit-come-one-business card-give-me.

(he took out a business card and gave it to me).

5) Confirmation: Conclude that when coming up with ideas is like taking out thing out of our minds, repeat the original example of the verb-complement construction.

Fixing with practice: provide some similar examples from Chinese and let students think of sentences where the meaning from the source domain is implied:

- Think of a sentence about movement that would correspond this example: 我想起來了 wo xiang qi lai le (I-think-up-come) “I just remembered” (Possible suggestions could be: he起床了 ta qi chuan le “he got up from the bed,” 飛機飛起來了 feiji fei qilai le “the airplane flew up”, 起來! qi lai “get up!”)

Note that you should not use complicated theoretical terms with the students, that will complicate students’ understanding and not bring a positive effect. However, do not underestimate students’ ability to understand metaphors, traditional explanation of verb-complement structures as a grammatical structure may be not as easy for comprehension as the metaphorical explanation.
Such exercises may help not only to deepen the understanding of lexical and grammatical material but provide the students with necessary skills of language analyzing. The students will be able to more easily understand new phrases, concepts, culture.

To summarize, conceptual metaphor theory and recent discoveries in cognitive science provided us with information and methods for research concerning our language and thinking. These methods can be also successfully used for language teaching and foreign language instruction. Using the metaphor allows a better understanding of a concept, as it connects us with our embodied everyday experience. Verb-complement constructions in Chinese sometimes often have a metaphorical nature. However, it is not indicated in the current language teaching resources. Metaphor analysis therefore can be helpful to make a connection between the native language of a learner and a foreign grammatical concept in the foreign language. Using appropriate knowledge, an educator can not only clarify a particular grammatical aspect, but also help students raise conceptual metaphor awareness, supply the students with the necessary cognitive skills for the future language analysis.
Chapter 6. Conclusion

This paper has presented findings of the search and analysis of over ten thousand expressions about thinking containing words 想 xiang, 认 ren, 觉 jue, 觉得 juede and 认为 renwei in Modern Mandarin Chinese corpora. The study demonstrates that our spoken and non-spoken language about thinking is largely metaphorical. Generally about one fourth of the expressions about thinking are metaphoric in nature.

Conceptual metaphors used for thinking are often primary metaphors and therefore are used in the language mostly unconsciously. Moreover, the research has indicated that a number of mappings of the two most frequent metaphors in Modern Mandarin Chinese, container and path metaphor, were fully integrated in the standard grammar and therefore can hardly be avoided.

The research also showed that in the expressions about thinking the locus of thinking is generally the heart-mind. However there also exists a small amount of expressions where thoughts are described as being located in the head, which could indicate the influence of foreign languages on the conceptualization of thinking.

Though the metaphor frequency, typology and formation is relevantly similar in spoken and non-spoken Mandarin Chinese search, some difference in the use of metaphors has been observed between the spoken and non-spoken corpora results. First of all, there is a tendency to use primary metaphors in the spoken Mandarin Chinese expressions about thinking. Due to easier accessibility of the primary metaphors, complex metaphors are usually avoided and the preference is given to the most used metaphors, such as path or container metaphor, or easily constructed metaphors like “quantity is quality” that can be done by simple word repetition. Secondly, in non-spoken Mandarin Chinese expressions about thinking the metaphor preference does not significantly change but there is a tendency to use fewer “quantity is quality” metaphors and start using more “thinking is seeing” metaphors, which could be either indicating the visualization of the concept takes place or the showing the influence of the written language, that is physically visible, on our concept of thinking. It was also
noted that more mappings for the same metaphors were introduced in the non-spoken examples, and more complex metaphors were used.

This paper proves that though some metaphors may be used universally there can be differences in the metaphor choice and functioning in different languages. Cultural variation of thinking metaphors in Modern Mandarin Chinese appeared to be in a preference to certain metaphors of thinking, such as container and path, and a distinct preference to conceptualized thinking as located in the heart-mind instead of a head. Another distinct feature of Modern Mandarin Chinese metaphors for thinking is its frequent realization through grammatical constructions, such as verb-complement resultative constructions.

These findings point out that, in many spheres of cross-cultural and cross-language communication and language teaching, the difference in conceptualization of abstract construct such as thinking should be considered. Choosing different metaphors for a concept does not mean thinking the same things in a different way, it means a different understanding of a concept. To paraphrase Mark Johnson, whether you use container, path or thinking as seeing metaphor makes a big difference, it changes the whole embodied experience of the concept. Therefore I believe that metaphor awareness and metaphor analysis can at least help us to broaden our experience of the multiple concepts we reason with and enhance the understanding and learning of foreign languages and cultures.
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