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Author(s)	Yu, Mingzhu
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MINGZHU YU

MEANING EXTENSION OF ‘HEAD’ IN ENGLISH AND CHINESE

1 INTRODUCTION

In literature, names of body-parts have significant figurative meaning (Hilpert, 2006). As Handl (2011) proposes, when using figurative language, people prefer experientially familiar, concrete sources to abstract ones, and the human body appears to be a good source domain. Meanwhile, another fundamental influence on our language and thought is the cultural model. In the study on the conceptualizations of body organs, Sharifian et al. (2008) state that metaphors not only reflect cultural models, but can also root from them. It turns out that body and culture both deeply affect our use of language, and we can regard the former as a source and the latter as a filter (Yu, 2008a).

In both English and Chinese, ‘head’ (*head* in English and *tou* in Chinese) is the richest in figurative meaning among all other body-parts. Both these lexical items have a large number of metonymic as well as metaphorical extensions. Therefore, here, I will compare the extensional meanings of *head* and *tou*. While universal embodiment, based on our bodily experiences may seem to produce cross-linguistic similarities in our uses of the terms, the gap between Western and Eastern cultures has caused some differences in their English and Chinese usage.

To find out how these factors interact and affect the uses of ‘head’, I will categorize *head* and *tou* according to the figurative mappings involved. Thus, the meanings of ‘head’ will be analyzed from the perspective of cognitive linguistics, and corpora data will be used for the quantitative comparisons. Based on Radić-Bojanić and Silaški’s (2012) study on body and culture, I hypothesize that in English and Chinese, our basic metonymic and metaphorical conceptualizations of ‘head’ should not differ much, and the differences will mainly be found in the specific linguistic instantiations.

This thesis consists of five chapters. In chapter 2, the metonymic extensions of ‘head’ will be discussed, with a focus on how people conceptualize its function differently under the influence of culture. The metaphorical extensions of *head* and *tou* are compared in chapter 3. Also, as both *head* and *tou* have acquired spatial and temporal meanings derived from their location-based metaphorical extensions, the grammaticalization of ‘head’ will be analyzed in chapter 4. Chapter 5 concludes this study.

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2 METONYMIC EXTENSIONS

Most previous studies on metonymy and metaphor quote the definitions provided by Lakoff and Johnson (1980). It is widely acknowledged that metonymy uses one entity to refer to another related entity, as in sentences like *John is the ham sandwich*, wherein we use the food to refer to the person who ordered it. On the other hand, a metaphor uses one entity to refer to another, based on a similar trait. A typical example would be *John is a pig*, wherein the species is not used to refer to a person named John, but instead the animal here indicates some feature of the person in question, e.g., fat, lazy. Therefore, metonymy is usually regarded as being referential, while metaphor is considered to be predicative.

However, Croft (2002) does not consider this to be the most decisive difference between the two figures of speech. He proposes that a referential shift only occurs in the most typical cases of metonymies, but there are others that do not necessarily involve referential shifts. To him, there is a continuum between metonymy and other lexical ambiguities, and the most important function involved here is domain highlighting – making a secondary domain primary in the literal meaning of the lexical item. Domain highlighting thus, highlights an important facet of a concept. The word *ham sandwich* is the name of a food item, and can be considered the primary domain of the lexical item. In our conceptualization of the word, however, there are other concepts that are closely related to the food, including the person who orders a ham sandwich in a restaurant, making it the secondary domain of the lexical item. In the sentence *John is the ham sandwich*, we metonymically make this secondary domain primary, and *ham sandwich* can be used to refer to the person who orders the food.

Another example of domain highlighting is *John had his car washed*. In this case, the lexical item *car*, originally referring to a vehicle, is used to refer to its exterior only. Some studies regard this as an instance of whole-for-part metonymy, but here I agree with Langacker's (1984) view, that the connection between the two concepts are so close that it is not a typical metonymy, but an example of *zone activation* – a type of lexical ambiguity.

I do not completely follow Lakoff and Johnson's definition and introduce the concept of domain highlighting in this thesis, as represented in sections 2.2 and 2.3, because some uses of *head* and *tou* cannot be suitably explained if we only recognize them as typical referential metonymy, and ignore other less typical ones, by simply regarding them as expressions of the literal meaning.

This chapter is organized as follows: Sections 2.1 and 2.2 look at how referential metonymies function in the meaning extensions of *head* and *tou*. Examples of WHOLE-FOR-PART (TARGET-IN-SOURCE) metonymy will be discussed in 2.1, and PART-FOR-WHOLE (SOURCE-IN-TARGET) metonymies are to be analyzed in 2.2. 2.3 further discusses other uses of *head* and *tou* that involve domain highlighting. The last section looks at the category shift of *head* from noun to verb, and compares the conversion mechanisms of body-part terms in English and Chinese, to understand why *tou* cannot be used as a verb.

2.1 Whole-for-part mappings

In metonymies instantiated by WHOLE-FOR-PART mappings, we use a concept A to refer to another concept B which can be considered a part of A. A typical example is to use ‘head’ to refer to one’s hair or hairstyle.

2.1.1 Head for hair In English, *a curly dark head* actually refers to curly dark hair; in Chinese, 洗头 (lit. to wash one’s head) does not denote the action of washing one’s head, but instead, mainly washing the person’s hair. Similarly, the object of the phrase 梳头 (lit. to comb one’s head) is again the hair instead of the head.

Using this mapping, we can also use ‘head’ as classifiers in both languages. *A head of long hair* and *a head of black hair* both have corresponding expressions in Chinese, 一头长发 (one head long-hair) and 一头黑发 (one head black-hair).

When we apply WHOLE-FOR-PART mappings to *head* and *tou*, hair is the only concrete part of the head that can be referred to; other parts such as the face and other organs cannot be referred to using ‘head’. Therefore, it can be seen that hair is cognitively salient part of the head, and thus stands distinguished from other parts. Hence, HEAD FOR HAIR metonymy has become entrenched in both languages.

2.1.2 Head for its length The second metonymic use of ‘head’, instantiated by WHOLE-FOR-PART mapping, refers to its length. Unlike the case of hair which is apparently a physical part of the head, the length of the head is a rather abstract concept. This mapping is called BODY PART FOR THE SALIENT ATTRIBUTE, a subcategory of the OBJECT FOR THE SALIENT ATTRIBUTE mapping (Radden and Kövecses, 1999). In this case, both *head* and *tou* are used as units of measurement:

- (1) a. John is taller than Mary by a head.
b. That horse won by a head.
- (2) a. 约翰 比 玛丽 高 一个 头。
John compare Mary tall one head
“John is a head taller than Mary.”
b. 那匹 马 以 一头之差 获胜。
that horse with one head’s difference win
“That horse won by a head.”

It is clear that an object or a body-part has many attributes, including physical properties like length and weight. However, length is the only attribute of the head that can be used in such metonymic expressions. Besides, when the body-part-for-the-salient-attribute mapping is applied to other body-part terms such as ‘foot’ and ‘arm’, length is still the typically involved attribute.

Cognitive salience can still help account for this observation. Although an object can

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have a large number of physical properties, length is usually the most salient and easily observed attribute. Although width is also an observable feature, its salience seems to be weaker than length. English uses *feet* as a unit of measurement, which only refers to the length of an average foot and not its width; people often use the length of their arms to roughly measure objects, but the width of arms is usually ignored. This indicates that taking cognitive salience into consideration is crucial when analyzing the metonymic extensions of body-part nouns.

2.1.3 Head for mind Using *head* to refer to mind-related concepts appears to be the most frequent and productive metonymic use of the English body-part noun. We can thus use *head* to highlight many different facets of mental activity:

- (3) a. to think in one's head
- b. to have a good head for math/business/...
- c. heady
- d. to lose/keep one's head
- e. A picture came into her head.
- f. the voice/sound/noise in one's head

While the head is conceptualized as the center of thinking in (3)a, (3)b emphasizes its function as the center of intelligence, and in (3)c, the center of emotion. In (3)d, the head is regarded as the center of reasoning, and in (3)e-f it is where visual or audio information is processed. These uses together have a frequency of 5.8% in the British National Corpus (BNC) among all the occurrences of *head*, making HEAD-FOR-MIND the most frequent metonymic use of *head*.

Several researchers have discussed the specific mapping involved in this metonymy, and many quote Dirven's (2003) metonymic chain:

- (4) head for brain — brain for grey cells — grey cells for thinking or thought processes — thinking or thought processes for mind — mind for thought — thought for intelligence

This analysis is questionable. As Hilpert (2007) proposes, all the intermediate links in a metonymic chain should have attested, authentic examples. However, for example, we rarely use *brain* to refer to *grey cells*. It turns out that the productivity of the links in (4) is doubtful. Also, suppose the chain in (4) is the true answer, it is so long and complex that it would require immense cognitive effort for people to use and understand HEAD-FOR-MIND expressions. Such meaning extensions initiated by multiple cognitive steps should not be expected to be highly entrenched (Handl, 2011), even though it is much more frequently used metonymic extension of *head*. Therefore, I prefer Barcelona's (2002) proposal that a body-part noun can directly refer to the typical function of its referent. Typical functions of a

human head include manipulating various mental activities such as thinking, reasoning, producing emotion and processing visual and audio information, hence the possibility of HEAD FOR MIND mapping.

Strictly speaking, the above functions are all functions of the brain, which is a part of the head. Then how can we directly regard the functions of brain as the typical functions of head? Why cannot *tou* refer to such mind-related concepts?

The significant cultural difference between English and Chinese is the answer here – English culture believes in cerebrocentrism, while Chinese culture leans closer to cardiocentrism (Niemeier, 2008; Yu, 2008a). According to Niemeier, English speakers tend to conceptualize the head as the center of rational judgement and the heart as the center of emotions, and the following two sentences from BNC can verify her point:

- (5) a. Whatever Rosemary's head was saying, in her heart she still loved Travis very much.
- b. Don't let your heart rule your head.

Contrastively, Yu points out that the Chinese *xin* (heart) is the combination of heart and mind in English culture. Chinese considers the heart to be the locus of both emotions and thoughts. For instance, there are phrases like 心计 (heart-plan) “scheming”, 心情 (heart-emotion) “mood” and 心声 (heart-sound) “thinking”.

Scientifically speaking, the head (brain) is where both emotions and thoughts are manipulated. Therefore, neither the English nor the Chinese conceptualizations conforms to our modern scientific knowledge, though the English one is closer to the truth. It can be thus, concluded that both types of linguistic conceptualizations of the head and the heart show strong cultural preferences.

There are several other metonymic uses of ‘head’ that show the influence of cultural models. *Head* can refer to ‘headache’ as in *I woke up with a bad head* or ‘oral sex’ as in *to give head*, and *tou* can denote ‘kowtow’ as in 受头 ‘accept one’s kowtow’. The BODY-PART-FOR-PERCEPTION mapping is involved in HEAD FOR HEADACHE, while in the other two cases ‘head’ is used to refer to an action related to the body part. However, neither of these uses associates the body part with its typical feature or function. Therefore, such senses should be considered as culturally construed and not likely to be shared across languages.

2.2 Part-for-whole mappings

Contrary to WHOLE-FOR-PART metonymies, PART-FOR-WHOLE metonymies use a smaller concept to refer to a larger one. Since the head is a body-part, this lexical item can cross-linguistically be used to refer to the whole.

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2.2.1 HEAD for a person or an animal When we use 'head' in PART-FOR-WHOLE metonymies, the body-part noun is frequently used as a classifier. We can *count heads* or 数人头 (lit. count human-head), but what is actually being counted is not just the body part, but people. Also, in both English and Chinese, people usually use 'head' to count the number of cattle in expressions like *X head of cattle* and X头牲口 (lit. X head cattle). Other languages such as Japanese also have similar phrases. That 'head', instead of any other body part, can be used to count the number of humans or animals in different languages shows that it is universally the most salient body part. This is probably because although the head is not the biggest body part, we mainly distinguish an individual by looking at its head (in most cases, its face), and its location (uppermost for humans and frontmost for animals) also makes the head more visually salient than other parts.

2.2.2 'Head' for people of a specified type Besides counting individuals, 'head' has another special meaning extension – it can refer to a certain kind of person:

- (6) a. brutal head, hothead 'reckless person', bull head 'stubborn person'
- b. 'stupid person': dickhead, squarehead, asshead, dumbhead
 'smart person': longhead
- c. 'addict': acidhead, cokehead, smackhead

In the expressions in (6)a, *head* refers to a person through the application of PART-FOR-WHOLE mapping, while *brutal*, *hot* and *bull* describe the temper of the person. In the case of (6)b, what is being focused is the intelligence level of the person in question. In (6)c, *X-head* refers to a person who is addicted to a specific kind of drug.

The behavior of *head* in these examples cannot be explained by PART-FOR-WHOLE metonymy alone. If we analyze these applying a simple PART-FOR-WHOLE mapping to *head*, and that the adjacent element modifies *head* to enable the whole expression to refer to people of a specified type, then we should be able to use this composition rule to make up more compounds or phrases like **beautifulhead*, **tallhead*, **gentle head*, **fast head*, etc., but these expressions do not make sense.

Thus, all these (6) cases are related to a mental aspect of the person in question. (6)a and (6)b talk about features which are both processed and manipulated in the head. As for (6)c, people are addicted to drugs for neurological reasons, also related to the brain. As we have mentioned in section 2.1.3, English culture strongly relates mental activities to the head, and thus, HEAD FOR MIND metonymy has become possible. This indicates that the examples in (6) are also related to the same cultural factor.

One may analyze this as a metonymic chain involving the interaction between HEAD FOR MIND metonymy and HEAD FOR PERSON metonymy, but this is incomprehensible. These two mappings cannot be directly connected to form a longer chain, nonetheless, the expressions in (6) all refer to a person. The mind-related concepts cannot become the referent, but only function as a modification, i.e., there is no referential shift initiated by the WHOLE-FOR-PART mapping here. Therefore, I suggest that these examples should be analyzed

from the perspective of domain highlighting.

As Ruiz de Mendoza Ibáñez (1997) has pointed out, a PART-FOR-WHOLE metonymy does not simply use a part to stand for a whole, but rather picks out a very important feature of that part and then attributes it to the larger entity. Therefore, the part we single out in a PART-FOR-WHOLE metonymy determines the aspect of the whole we want to focus on. Because manipulating various mental activities is regarded as a predominant feature of the head in English culture, a PART-FOR-WHOLE metonymy of *head* naturally focuses on the mental aspects. In this case, it is not the interaction between two metonymic mappings that is functioning, but a PART-FOR-WHOLE metonymy determines the nature of the referent (human), and domain highlighting tells the addressee what aspect of the referent the addresser wants to focus on.

Tou can also refer to people of a specified type, but here the person's mind is not the focus. 光头 (smooth-head) refers to people with a bald head, 平头 (flat-head) refers to people with a crew cut, 蘑菇头 (mushroom-head) refers to people with a mushroom haircut, and 洋葱头 (onion-head) refers to people with an onion shaped head. All these expressions highlight the hairstyle of the person.

One may argue that *head* can also focus on a person's hairstyle in compounds like *skinhead/baldhead* for "people with a bald head" and *redhead* for "people with red hair". However, such uses are much less productive than when *head* is used to highlight mind-related concepts. Incidentally, red is the only color that is frequently attested in such compounds, and in my corpus study, no other color can be composed with *head* to refer to a person with that hair color. Thus, while all the Chinese examples focus on the hairstyle, most English examples focus on the mind. This presents us with a significant linguistic difference worth further discussion.

Barcelona (2002) has noticed that each body part is associated with different human qualities. In English, "*John has a good hand*" means John's manual skill is excellent, *to have good legs* focuses on a person's walking or running capacity, and *to have good eyes/ears* highlights the person's sharpness in vision/hearing. The human qualities related to these body parts in English and Chinese are quite similar. However, in the case of 'head,' there appears to be some linguistic variations:

- (7) a. John has a good head.
- b. ??约翰的头很好。

While (7)a means John is very intelligent, its Chinese equivalent does not make any sense. This contrast reveals a lot. First, although we have seen that *head* can highlight either mind or hairstyle when it refers to a specific type of person, *to have a good head* cannot refer to people with a 'good' hairstyle. This shows that the association between head and mind is much stronger than that of head and hairstyle in English. Second, even though *tou* can only highlight the hairstyle, the Chinese equivalent of *to have a good head* still fails to refer to people with a good hairstyle. This does not indicate that *to have a good body-part* is incomprehensible in Chinese, since we can say 他的眼睛很好 (His eyes are good) and 他

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的耳朵很好 (His ears are good), but shows that a hairstyle is not a feature typically associated with the head, however, the cognitive salience of hair, as proved in the previous section, makes it possible to cross-linguistically use 'head' to focus on a person's hairstyle in some scenarios.

2.3 Domain highlighting

In section 2.2.2, we looked at the interaction between referential metonymy and domain highlighting. Now, we will discuss some uses of 'head' that only involve domain highlighting. The examples analyzed here are generally regarded as expressing the literal sense of 'head', but I argue that they are somewhat different from purely literal uses.

2.3.1 Highlighting of the face When we *raise/lower one's head* (or 低头/抬头 in Chinese), although the whole head participates in the action denoted by the verb, we generally refer to only the face; the other half of the head is pointed toward the opposite position. Therefore, focusing on the involvement of the face is important for people to understand the nature of the action. Also, when a preposition is used, the highlighting of the face becomes even more apparent. Compare the following two sentences:

- (8) a. John turned his head.
b. John turned his head back.

(8)a does not necessarily involve domain highlighting of the face, because the speaker may be simply telling the listener that John changed the position of his head. Contrastively, (8)b would normally be understood as focusing on John's face. It might be that John turned his head to look at or talk to someone behind him, but if John turned his head to make the back part of his head face backwards, asserting (8)b would be unnatural. Similar examples include '*He was keeping his head pointed firmly downwards* (BNC)'.

The face can be highlighted by using 'head' because it is the perceptual apparatus of humans and animals. When we use verbs and prepositions containing information about direction in a sentence, the object should have some distinct feature for people to determine where it is facing, and the perceptual apparatus is a good choice. In both English and Chinese, people usually use 'face' to indicate direction:

- (9) a. She turned and faced him. (OED)
b. 她 转 身 面 朝 他。
she turn body face toward he
"She turned and faced him."

Therefore, when ‘head’ is the object of a sentence and the other elements denote concepts related to direction, the domain highlighting of the face tends to be a cross-linguistically common phenomenon. Whereas most of the ‘literal’ uses of ‘head’ tend to highlight a certain aspect, the highlighting of the (direction of the) face appears to be notably frequent, according to my observation on the corpora data.

2.3.2 Highlighting of the upper head If someone has a *bald head* or 光头, it does not necessarily mean that he does not have hair all over his head. In the case of a bearded man, if he has no hair on the crown of his head, he can be said to be bald. Also, *headband* specifically refers to a band tied around the upper head of a person. When you feel a *headache* or 头疼 (head pain), it is usually the upper part of your head that hurts. If any other part of the head is in pain, we would use expressions that would specify the source of pain, e.g., *to have a toothache*, *to have a sore eye*.

There are two reasons for the highlighting of the upper head, in both English and Chinese. On the one hand, the upper head makes up a large part of the head in both size and weight, hence it can be considered as a salient feature. On the other hand, while other parts of the head, including ears, eyes, nose, mouth, face, etc., have their own lexical items in most languages, neither English nor Chinese has a particular word to refer to the upper head. As a consequence, people may have no choice but to use ‘head’ when they actually want to talk about the upper head.

2.3.3 Discussion In section 2.1, some examples of HEAD FOR HAIR metonymy have been analyzed. Since hair, face and upper head are all parts of the head, you may wonder why the use of ‘head’ to talk about the latter two parts cannot be analyzed as metonymies. In the English and Chinese dictionaries, using *head* or *tou* to refer to hair/hairstyle is commonly recognized as a distinct sense of the lexical items, while no lexicographer regards HEAD FOR FACE or HEAD FOR UPPER HEAD mapping as creating a distinct sense of ‘head’. Thus, in most dictionaries, examples of the latter two uses are included in the literal sense of *head* and *tou*.

I earlier mentioned that typical metonymies and other types of domain highlighting form a continuum. Classifying intermediate examples can be difficult and subjective, but Langacker (1987, cf. Ruiz de Mendoza Ibáñez, 1997) insightfully proposes that the difference has to do with the extent to which the highlighted domain is considered to be intrinsic to the concept. When the highlighted target is extrinsic to the source, the mapping is more likely to be analyzed as metonymical. A typical example is using the *ham sandwich* to refer to the customer, because the food and the person are obviously two objects that are independent from each other. Inversely, when the target is an intrinsic part of the source, Langacker calls it *zone activation*. In the phrase *to wash the car*, only the exterior of the car is activated to draw people’s attention, but because this part of the car is a highly intrinsic, inseparable part of the whole entity, a metonymic analysis is not as convincing.

Langacker’s approach renders a reasonable explanation for the differences among the three parts of the head that can be highlighted. The hair can easily be separated from the head, and a head with no hair is still a complete head. Thus, the hair can be considered as a

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extrinsic part of the head. However, the face and crown can hardly be separated from the whole, as a head without the face or the upper head is no longer a complete head. Therefore, 'head' expressions focusing on these two intrinsic parts are closer to zone activation in the domain highlighting continuum, and such uses are not considered as creating new senses of 'head'.

The choice of domains that can be highlighted are also universally limited. In both English and Chinese, salient parts of the head, including hair, face and upper head, can be highlighted through the vehicle 'head,' while other less salient parts such as eyes, ears and nose cannot. The degree of salience seemingly depends on the size of the part, i.e., when we talk about the salience of something, we mainly look at it visually.

So far the biggest difference between *head* and *tou* is that *head* can be used to highlight concepts related to mental activities. In section 2.1, there are examples of HEAD-FOR-MIND metonymy; in section 2.2, *head* can refer to a person while at the same time highlighting the mind. Furthermore, the highlighting of the mind has also appeared to be accessible in some zeugmatic expressions of *head*:

- (10) a. a stupid, glossy head
 b. to have a sensible head on one's shoulders (BNC)

While the adjective *glossy* in (10)a and the PP *on one's shoulders* in (10)b show emphasis on the physical aspect of the head, the adjectives *stupid* and *sensible* focus on the mental aspect. Such zeugmatic tests fail when we try to highlight the hair or the face. The sentences in (11) do not sound as natural as those in (10), and no similar use has been attested in the corpus:

- (11) a. ?He has a lowered head on his shoulders.
 b. ?He has a curly head on him.

However, as the previous analyses have shown, 'head' can be used to highlight these parts in other non-zeugmatic expressions. Then what makes them different from the mind? In my opinion, the zeugmatic test tells us which part of the head is considered to be most important for the whole. Because of the preference for cerebrocentrism in English culture, the mind is regarded as the most important concept for the head. Therefore, it can be highlighted in many kinds of *head*-constructions including zeugma. In Chinese, however, because no function is typically related to the head at the linguistic level, the highlighting of a certain part using zeugmatic expressions of *tou* is not possible.

2.4 Conversion of head

In the previous chapters, we have mainly discussed the body-part ‘head’ as a noun and its metonymic extensions. This section will focus on the verbal uses of ‘head’, initiated by metonymy as well. Previous studies on noun-to-verb conversion recognized the category shift as a special type of metonymy (Kelly, 1998; Baeskow 2006; Wechsler, 2015), because the source noun usually denotes a concept of the ICM (Idealized Cognitive Model) of the action denoted by the converted verb.

2.4.1 Denominal verb head While *tou* cannot be converted, *head* has a variety of senses when used as a verb, and they can be classified into the following categories:

- (12) a. to point or move in a specified direction, e.g., *head for London*
- b. to be at the head of
 - (i) to be at the top of, e.g., *head the list*
 - (ii) to be at the front of, e.g., *head the army*
 - (iii) to be in charge, e.g., *head the government*
- c. to strike with the head, e.g., *head the ball*

In (12)a, the original noun *head* denotes the direction of the action verb being described, because our perceptual apparatus provides information about direction. In (12)b, the uses are activated by metonymic chains. The OBJECTS AS HUMAN BEINGS METAPHOR, which will be discussed in details in the next chapter, enables the noun *head* to represent concepts such as the ‘head’ of a(n) list/army/government. Then a metonymy within the action ICM makes it possible for *head* to express the meaning ‘to be at the head of’, and the source noun denotes the position of the agent. For instance, *John heads the army* is equivalent to *John is at the head of the army*, and in the latter expression *head* metaphorically represents the person who is at the very front of the army. As for (12)c, the body-part is the instrument of the action denoted by the denominal verb *head*, as we usually see in football-related scenarios.

Besides these above uses, the verb *head* has other, now rarely used, applications, including ‘to cut off or remove the head of something’, and ‘to provide or fit with a head’. In both cases, the source noun denotes the theme of the action, that is, to attach or remove the head-like part of an object.

2.4.2 The reason why *tou* cannot be converted: The previous section indicated that the denominal verb *head* has a bunch of different senses. Then why cannot *tou* be converted while it is so easy for *head*? In fact there are some Chinese body-part nouns that can become denominal verbs, however, on comparing the examples in English and Chinese, it is apparent that English body-part nouns are much more likely to be used as verbs:

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- (13) a. English body-part terms that can be converted:
eye, mouth, jaw, shoulder, elbow, cheek, leg, ankle, foot, toe, tiptoe, heel, knee, stomach, arm, hand, finger, neck, nose, back, thumb, face, belly, palm, tail
- b. Chinese body-part terms that can be converted:
 背 'back', 指 'finger', 跟 'heel', 掌 'palm',
 面 'face', 肩 'shoulder'

There are 26 English body-part terms that can be used verbally, while in Chinese there are only 6. Therefore, my hypothesis is that there are distinctive differences in the conversion mechanisms of body-part nouns between the two languages.

Kelly(1998) and Wechsler(2015) have both insightfully pointed out that in English, noun-to-verb conversion is an innovative process, and the converted verbs usually exhibit semantic idiosyncrasies. The different senses of *head* listed above can illustrate this view, and as a matter of fact, most of the nouns in (13)a also have a large number of senses when used as verbs, and those are not fully predictable if we only consider the source noun as a body part, e.g., *head* 'to be at the front of'. The Chinese nouns in (13)b, however, have only one sense when being converted:

- (14) a. 背 'back' => 背 'to hold something on one's back'
 b. 指 'finger' => 指 'to point at something'
 c. 跟 'heel' => 跟 'to go after someone'
 d. 掌 'palm' => 掌 'to hold something in one's hands'
 e. 面 'face' => 面 'to face toward'
 f. 肩 'shoulder' => 肩 'to hold something on one's shoulders'

In his study on noun-to-verb conversion, Baeskow (2006) notices that conversion largely depends on our extra-linguistic knowledge about the referents of the base nouns, and particular functions or predominant features of the referents are usually focused by the converted verbs. Looking at (14), the meanings of the verbs are all closely related to the typical functions of the corresponding body-parts. For instance, when a person uses his back, it is most likely to hold something, and the verb converted from the Chinese 'back' means 'to hold something on one's back'.

This explains why *tou* cannot be converted. The previous sections note that in Chinese culture there is no typical function associated with the head. Therefore, under the conversion mechanism which requires a body-part's referent to have a typical function to activate conversion, *tou* fails to meet the requirement. For English, although the culture has assigned a function – to manipulate mental activities – to the head, the conversion mechanism of the body-part does not take this as a necessary condition.

The denominal verb *head* does not have a sense related to mind even though it has so many other senses, because as Kelly (1998) proposes if a verb already represents the meaning X, then a noun will probably not develop a verb to convey X. Most mental activities

already have corresponding lexical items that can denote the actions, e.g., *to think*, *to reason*, *to hesitate*, and English denominal verbs possess semantic idiosyncrasies, thus the verb *head* has not developed a mind-related sense.

This chapter, thus concludes that the most crucial factor that has caused the differences between *head* and *tou*, is that, English culture strongly associates mental activities with the head, while Chinese does not consider the head to be related to a typical function. This leads to the metonymic uses of *tou* to be less variable and flexible. Besides, we have seen that cross-culturally, hair is regarded as the most salient extrinsic part of the head. Hence the highlighting of this part can trigger metonymic extensions. While the face and crown are also salient parts of the head, their intrinsic qualities prevent the creation of distinct senses, upon being highlighted.

3 METAPHORICAL EXTENSIONS

While metonymy is mainly based on the contiguous relation between two concepts, metaphor is based on similarities. Therefore, it is widely believed that the metonymic meaning extensions of a lexical item are more likely to have cross-linguistic similarities than those based on metaphorical mappings. For example, while there universally exists a certain *relation* between a food and its customer, how we conceptualize the *similarities* between a person and pig exhibits cultural differences. In English, *John is a pig* usually means John is dirty or greedy (Handl, 2011), but in Chinese it reads differently such as the person is stupid, lazy or eats a lot.

However, this chapter discusses the special qualities of metaphorical extensions of body-part nouns. Compared with the metonymic extensions as discussed in the previous chapter, it is true that the metaphorical extensions of *head* and *tou* exhibit more differences, but there are still some similarities that can be captured and many generalizations made.

As mentioned earlier, an important concept for the meaning extension of body-part nouns is embodiment, because we humans use our own bodies to perceive and understand the world around us. In his study on body-part terms, Hilpert (2007) has discovered that a large proportion of meaning extensions beginning with objects are human beings metaphors. By comparing an object, and its parts, to a human body and parts, we can understand the structure of the object more easily. For instance, in many languages including English and Chinese, ‘arm’ can refer to a long narrow part of an object or a machine, ‘foot’ can refer to the base or bottom of something, and ‘leg’ can refer to the long thing parts that support an object.

The flexibility of metaphor as well as the universality of embodiment, make the metaphorical extensions of body-part nouns a hot topic in cognitive linguistics. Yu (2008b) has divided metaphors into two major types. There are primary metaphors that derive from our experience (usually bodily experience) and are more likely to be universal. And there are complex metaphors which combine primary metaphors and cultural beliefs or assumptions, and tend to be culture-specific.

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This chapter, will first focus on some major similarities between the metaphorical extensions of *head* and *tou*, and then use specific examples to illustrate their differences, so that we can see how the two contradicting factors, culture and embodiment, interact and affect each other. As Matsumoto (1999) has noticed, the meaning extension from body-part nouns to object parts can be based on similarities of location, shape, function and so on. Based on his theory, section 3.1 will discuss the location-based metaphorical extensions of ‘head’, section 3.2 the shape-based ones, and section 3.3 the function-based ones. In section 3.4, data from the corpora will also be used to compare cross-linguistic similarities and differences.

3.1 Location-based extensions

Matsumoto (1999) and Wierzbicka (2007) have both noticed that the location of a body part plays an important role in our conceptualization, as long as the location of the body part is clear and salient. The location of the head in the whole body is apparently a very salient one, and we can conceptualize it as:

- (15) a. the uppermost part
- b. the frontmost part
- c. the end

Most English and Chinese dictionaries define ‘head’ as denoting the uppermost part of the body, but we can also conceptualize it as the frontmost part of the body. Obviously, it is not the case for all animals, like snakes, for whom the head is more frequently considered the front part of the body. However, most researchers do not take this as the reason to regard the head as the frontmost body part, because humans typically consider our bodies to have a vertical axis, i.e., the standing posture is more basic than the lying one (Wierzbicka, 2007).

According to Clark (1973), there are several reasons to why the head is associated with the front. As she claims, ‘the front is normally the end of the object containing the perceptual apparatus, or the end that leads when the object is in typical motion’. As mentioned in chapter 2, our perceptual apparatus (most importantly, our viewpoint – eyes) are situated in the face, and the face is a salient part of the head. Hence, most humans and animals move in the direction they face, except for creatures like crabs. Therefore, it is mainly our head that determines the direction of our motion, and for this reason it can be considered the front of one’s body.

Based on our conceptualization of the location of the head as shown in (15), when we employ the objects as human beings metaphor to ‘head’, it can refer to the uppermost part or the frontmost part of an object. Also, when an object has no part that can typically be regarded as the uppermost or frontmost part, we can also use ‘head’ to refer to its end(s). For all the three subcategories of location-based extensions, there are examples in both English

and Chinese:

Table 3.1.1: HEAD for the uppermost part of an object

	object	head	tou
1	mountain	√	√
2	stairs	√	×
3	beer	√ (the foam)	×
4	milk	√ (the cream)	×
5	wall	×	√
6	tidewater	×	√

As we can learn from Table 3.1.1, although we have examples from both languages, the choice of objects that can be compared to humans in this case differs drastically from language to language. While *head* can refer to the top of stairs, a cup of beer or a cup of milk, *tou* cannot; we can say 墙头 ‘the top of a wall’ or 潮头 ‘the top of tidewater’ in Chinese, but English speakers do not usually use the expressions *the head of a wall* or *the head of the tide*.

Nevertheless, it should be noted that Chinese native speakers would not find it hard to conceptualize the top of stairs or the foam on a cup of beer to be the ‘head’. On the contrary, most people, if not everyone, would be able to understand the English expressions with no difficulty even when they hear them for the first time. This is because embodiment enables both English and Chinese speakers to conceptualize the top of an object to be its ‘head’, while cultural influences lead to the differences in the choice of object parts that can actually be referred to by *head* and *tou*.

Table 3.1.2: HEAD for the frontmost part of an object

	object	head	tou
1	car	√	√
2	boat	√	√
3	ship	√	√
4	army	√	front or end
5	queue	√	front or end

As quoted from Clark’s study, the end that leads when an object is in typical motion can be regarded as its front. Therefore, when ‘head’ refers to the front of an object, it is usually required to be moving, or at least potentially moving, otherwise we would not be able to recognize its front and thus use ‘head’. For instance, a car has a front even if it is not moving, and we can refer to its front by using *head* or *tou*. However, inherently stative objects such as trees or rocks make it difficult to tell which part is the front. Thus, *the front of the tree* does not make sense except in certain contexts where there is a reference point.

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As we can see, the objects in the table satisfy the condition that they should be (potentially) moving, and we can divide them into two groups. Vehicles including cars, boats, ships and planes can be compared to human beings, owing to their typical function of moving in a certain direction and thus, both *head* and *tou* can refer to the front part, in most cases. Contrastingly, ‘head’ can also refer to the front of a (potentially) moving group of people or animals, wherein, the group of individuals is conceptualized as a whole, and the *head* is the individual that leads the group.

However, it should be noted that *tou* does not always refer to the front in this case. For instance, I once took the subway to visit a famous Japanese shrine on January 1st, but as I arrived at its entrance, tens of thousands of people were already lining up on the street. In the end, it took me about 20 minutes to arrive at the *head(end)* of the queue to join them. As for the *head* of an army, if you are a Chinese general trying to protect your city from the invasion by another nation, and you are shocked by the scale of enemy troops coming to your city gate. At that moment, you would probably think: “Damn, I can’t even see the ‘head’ of the troop!”

From these two scenarios, it can be learned that in Chinese, when a speaker is an on-stage reference point, and they are facing the opposite direction of the moving group of individuals, it is possible for *tou* to refer to the end of the group. Since both ends can be referred to as the ‘head’, a correct judgement relies on the discourse context. As for *head*, it seems that English tends to focus on the direction of the moving group itself, regardless of whether there is a reference point that may cause confusion.

Table 3.1.3: HEAD for the end(s) of an object

	Object	head	tou
1	Rope	×	either end
2	Bridge	either end	either end
3	Cave	the innermost end	either end
4	river, stream	the source	either end

For objects such as bridges or caves that are neither vertical nor have a typical front, ‘head’ can refer to their extreme end(s), because the head is situated at the end of the body. Both ends of a bridge are usually identical, and in both languages ‘head’ can refer to either side. However, as illustrated earlier, cultural influences dictate how different languages choose objects for the same type of metaphor. A rope is similar to a bridge as it also has identical ends, but only *tou* can refer to the end(s) of a rope.

There are objects that have two different ends, e.g., cave, river. Here, while Chinese speakers can use *tou* to refer to either of the ends in different contexts, English tends to select one of the ends as the *head* – the head of a cave is its innermost end, and the head of a river or a stream is its source.

Besides, conceptualizing the head as an extreme end of the body seems to be the basis of most meaning extensions of ‘head’ that are motivated by the objects as human beings

metaphor. As we see from the above tables and in the following sections, I have not yet found an example where ‘head’ can refer to an object-part that is not situated at its end, even if it has other head-like characteristics, such as being spherical.

Sometimes, the object compared to a human body need not be concrete. It is possible to ‘map the structure of the human body onto that of an institution (Dirven, 2003)’ and use ‘head’ to refer to the person in charge:

- (16) a. head teacher, the head waiter, the heads of government
- b. 工头 construction-head ‘ganger’
 捕头 arrest-head ‘(ancient) chief constable’

There are two possible ways to account for this ‘leader’ meaning of ‘head’. First, ‘head’ can refer to the individual at the front of a moving group, we can thus conceptualize the group in a more abstract manner; when the group is not physically moving in a certain direction, but working together to achieve a common goal, we can regard the leader as the ‘head’. Second, a group of people working together usually constitute an institution, wherein the members can be graded, with the leader is often at the top, according to the control-is-up metaphor proposed by Lakoff and Johnson (1980). As has been mentioned, ‘head’ can refer to the uppermost part of an object, so when an institution is the object, the person with the highest position is the *head*.

Some may argue that this is a metonymic extension. Ruiz de Mendoza and Díez (2002) argue that a PART-FOR-WHOLE metonymy as well as domain highlighting is involved in the above example, because “a *head* is a person who has the intellectual abilities that enable him to make decisions, organize, devise plans, etc.” However, as proven in section 2.2, *tou* does not allow this, and *head* in this case usually requires an adjective to indicate which aspect is to be highlighted and attributed to the whole. Also, a person who has outstanding intellectual abilities is not necessarily the person in charge of an institution. Therefore, to analyze ‘head for leader’ as a metonymic meaning extension, one will need more persuasive evidence. At present, a metaphoric analysis seems to be more convincing.

3.2 *Shape-based extensions*

Another major basis for the metaphorical meaning extension of ‘head’ is its shape. The head of a human being is typically rounded and is bigger than the part next to it (the neck). Both *head* and *tou* can refer to objects or parts that have similar features:

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Table 3.2: 'head' for the rounded part of an object

	Object	Head	Tou
1	Garlic	the bulb	the bulb
2	onion	the bulb or the flower	the bulb
3	a cluster of leaves/flowers	√	×
4	cabbage	√	√
5	Lettuce	√	√
6	Fungus	√	√

As this table shows, English and Chinese again differ in the use of 'head' to refer to some object parts. While both *head* and *tou* can refer to the bottom part of vegetables like garlic, onion, cabbage and lettuce, only *head* can refer to the mass of leaves or flowers at the end of a stem. Thus, when we compare an onion to a human being, *head* may refer to either the flower at the top or the bottom part which is often used for flavoring.

Matsumoto (1999) has noticed a significant difference between the location-based and shaped-based meaning extensions of body-part nouns, and he claims:

Location-based categories have an object part conceptualized as a thing defined in relation to the larger whole, whereas shape-based categories tend to have an object part conceptualized as a thing in itself.

In the case of 'head', his observation runs true. When we think of the head of a mountain or a bridge, we usually need to picture the whole object in our minds to know which part is being talked about. Contrastively, when we talk about the head of a garlic, it is likely that people would immediately think of the bottom part without picturing the whole plant. Also, we can directly use *head* or *tou* to count the number of (the edible part of) lettuces or cabbages as in expressions like *a head of lettuce* and 一头包心菜 'a head of cabbage', whereas using 'head' to count the number of corresponding plants is less natural.

This difference has emerged because, on the one hand, determining the location of an object requires one to stress the existence of a reference point; and on the other hand, if an object has a distinct shape such as being rounded, separating it from the whole can be predicted to be effortless. Therefore, in the shape-based extensions of 'head', the object parts being referred to tend to be regarded as independent objects.

3.3 Function-based extensions

As we can see from the following table, both *head* and *tou* can refer to the functional part of an object, mostly that of tools:

Table 3.3: 'head' for the functional part of an object

	Object	head	tou
1	axe, arrow, hammer, etc.	√	√
2	matchstick	√	√
3	Pen	√	√
4	machine, e.g., printer, recorder	√	√
5	pin, nail	the rounded end	the rounded end or the point

Whereas using 'head' to refer to an object's functional part indicates that the head is conceptualized as important, it raises the question of what makes it important for English and Chinese speakers, because in chapter 2 we have seen that only English associates the head with a typical function of manipulating mental activities. Therefore, I suppose that the head as the locus of reasoning and thought did not make this function-based meaning extension accessible in both languages, but that our perceptual apparatus is situated in the head seems to be a better explanation, because this knowledge is shared by people who speak different languages.

However, one may argue that this reasoning is not sufficient to regard head as the most important body part and use the corresponding lexical item to refer to the functional part of an object, because other body parts also have important functions. I agree with this view, and the low frequencies of the function-based extensions of *head* and *tou* (0.5% and 0.4% respectively) somewhat show that the cognitive motivation of this type of metaphorical extension is not as strong as the location-based ones.

The fifth row of the table shows an exception, where 'head' refers to a part of a pin or a nail. While *tou* can refer to either the rounded end or the point (the functional part), *head* only refers to the rounded end. This reminds me of the cases of river and cave as discussed in section 3.1. When an object has two ends that both have some head-like feature, English prefers to choose one of them to be referred to by using *head*, while *tou* can refer to either of the ends in different contexts. In the case of pins and nails, it seems that English prefers to choose the end that resembles the head in shape instead of the function.

It should be noted here that location, shape and function, as bases, are not completely dependent on each other. Instead, many examples involve different combinations of location, shape and function (Matsumoto, 1999). For instance, English uses *headquarters* or *head office* to refer to the most important, controlling part of an institution. While this extension can be considered to be location-based involving the CONTROL IS UP mapping, , we can also analyze it as being function-based, because just as how the head is functionally important for a person (in English culture), the headquarters is also crucial for an institution. Also, when we use *head* to refer to a cluster of leaves or flowers on the top of a plant as in Table 3.2(3), this meaning extension is based on a complex metaphorical basis which combines location and shape. As for the case of *the head of a matchstick* or 火柴头 (matchstick head) as in Table 3.3(2), shape and function together form the basis of the mapping. There might be other examples that are based on the combination of location, shape and function, but these

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help show the close interrelation between different types of bases.

3.4 Comparisons and Discussion

So far, we have discussed three types of basis for the metaphorical meaning extensions of 'head' – location, function and shape. Corpora data have shown that location is the most important base in both English and Chinese, whereas function- and shape-based meaning extensions have much lower frequencies:

Table 3.4.1: Frequencies of different metaphorical bases

		Head	Tou
1	location	33%	8.9%
2	function	0.5%	0.4%
3	Shape	0.1%	0.2%

The frequencies of the three bases differ prominently because while the location of a part in relation to the whole is rather objective, our conceptualization of the function or shape of something may be influenced by many factors. As we have seen in chapter 2, English and Chinese differ in how they conceptualize the function of head. Also, Wierzbicka (2007) has proposed that shape-concepts can differ in different languages.

Indeed, the influence of the location-based meaning extensions of 'head' is much more fundamental than the table shows. The next chapter analyzes the spatial and temporal uses of 'head', which are believed to have been derived from the location-based metaphorical extension.

Moreover, Table 3.4.1 shows that the frequency of the location-based extensions of *head* is extremely high. While different uses of *tou* are not distinct in their frequencies, *head* has the following three uses that are highly entrenched, and are instances of location-based extensions:

Table 3.4.2: The most frequent metaphorical uses of *head*

		Frequency
1	head for the person in charge	17.3%
2	head for the 'head' of a writing	5.6%
3	headquarters, head office	5.6%

In the above three uses, the objects compared to a human body are not concrete – at least not as concrete as a wall or a tool. This indicates that we humans naturally and frequently use our own bodies to perceive and understand not only the concrete objects around us but also

other abstract concepts. The English corpus data tell us that using embodiment to improve our understanding of abstract concepts can be even more important.

Here, it has been proven that our basic conceptualizations of the location, shape and function of the ‘head’ in English and Chinese culture are quite similar. The linguistic instantiations have shown that both languages consider the head as being a rounded, top/front part that is functionally important for the whole body. Alternatively, we can also learn that the specific choices of the objects that can be compared to a human being differ among languages. This reflects the influence of culture and shows the irregularity of metaphors.

Overall, the metaphorical meaning extension of body part nouns appears to be more regular than that of other nouns. Although in many cultures, a person can be compared to an animal such as pig, the meaning expressed by such a metaphor is very likely to show cultural differences. However, if an object can be compared to a human being in different languages, the part that can be referred to by ‘head’ tends to be the same, unless the object happens to have two different head-like parts.

4 GRAMMATICALIZATION

In chapter 3, we discussed how body-part nouns like ‘head’ can refer to object parts through the objects-as-human beings metaphor. Based on this extension, Matsumoto (1999) and Hilpert (2007) have further proposed that body-part nouns can become deictic spatial markers through the PART-FOR-ORIENTATION metonymy, and then acquire temporal meanings through the TIME IS SPACE metaphor. This transformation is considered the grammaticalization of body-part nouns.

Matsumoto has provided a model to explain how body-part nouns become spatial adpositions. After a body-part noun has become an object-part noun, it can turn into a locative noun denoting the space occupied by the object part or the space projected from that part. A body part whose location is clear and salient is more likely to allow this extension. For instance, the English term *back* is very frequently used as a spatial marker – it can refer to the back part of an object, and can denote the backward direction, as in to step back. As for ‘head’, it has been mentioned earlier that we associate it with the front mainly because the perceptual apparatus is located in the head, and the typical human motion. These factors have made it even easier for ‘head’ to acquire spatial meanings, because our perceptual apparatus receives information from the space projected from the face, and our typical motion inherently includes information about direction.

Researchers have studied on the mechanism of the TIME IS SPACE metaphor mapping, as it is so frequently used in various languages. Boroditsky’s (2000) discusses the unidirectionality of this metaphor using behavioral experiments to show that ‘spatial cues appear to be useful for reasoning about time, but temporal primes appear not to be used when reasoning about space’. Also, it turns out that different cultures use the TIME IS SPACE metaphor differently. Clark (1973) has noticed that the only relational prepositions used for time in English are those derived from front and back, whereas Boroditsky (2011) points out

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that Chinese speakers use not only horizontal terms but also vertical terms (e.g., 上次 (up-time) ‘last time’, 下个月 (down-month) ‘next month’) to talk about time.

The Chinese term *tou* does not change in form when it is used to express spatial or temporal meanings, but English mainly attaches the prefix a- ‘in, on, at’ to *head* and then uses *ahead* for the grammatical extensions. In section 4.1, we are going to look at the spatial senses of *ahead* and *tou*, and then discuss their temporal meanings in 4.2. Data from the corpora presented will also illustrate cultural similarities and differences. Also, as a special linguistic phenomenon, the Chinese affix *tou* will be analyzed in section 4.3.

4.1 Spatial senses

4.1.1 *Spatial senses of ahead* The spatial senses of ahead can be divided into the following three types:

- (17) a. verb + adverb *ahead* ‘forward, to the front’
 - (i) go forward
 forge/push/run/move ahead
 - (ii) in a position facing forward
 stare/look/gaze/face/point ahead
- b. noun + adjective *ahead* ‘in the front’
 the way ahead, 5 miles ahead, a clear view ahead
- c. in the preposition phrase *ahead of* ‘before, in front of’
 A is ahead of B

In the object-part senses of *head* as discussed in chapter 2, *head* can refer to the front part of a moving/moveable object or a group of individuals. In (17), *ahead* can denote the direction toward which an entity is moving or facing. In this transition from object-part senses to spatial senses, the biggest change is how ‘head’ metonymically changes from the space occupied by the head-like part to the space/direction projected from it.

Nevertheless, what has not changed is that *ahead* also requires a certain participant in the described event to be (potentially) moving. In the case of (17)a, the subjects of the phrases in (i) are supposed to be those with typical motion, and the phrases in (ii) generally require the subjects that have perceptual apparatus. In (17)c, *ahead of* is typically used to show the relative position of two moving/moveable entities, or at least one of them should fulfill the condition. Compare the following sentences:

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- (18) a. John is ahead of Mary.
 b. The hospital is right ahead of you.
 c. ?The tree is ahead of the rock. [off-stage vantage point]
 The tree is ahead of the rock. [on-stage vantage point]

In (18)a and (18)b, the sentences are felicitous because John, Mary and ‘you’ are all human beings, who have typical motion. However, the sentence in (18)c is infelicitous when the utterer is off-stage, because neither a tree nor a rock has typical motion. In order to make the utterance of (18)c felicitous, there needs to be an on-stage vantage point such that the speaker, the tree and the rock are aligned. Because of the presence of a moveable entity, there is a ‘head’ in this scenario for us to describe the relative location of the two objects.

4.1.2 *Spatial senses of tou* Whereas the prefix *a-* enables ahead to be used as an adverb or adjective, the spatial uses of the body-part noun *tou* are more limited. *Tou* is mainly used to denote direction:

- (19) a. 三辆 车 分头 驶 向 新疆、 西藏、
 three cars separate-head drive towards Xinjiang Tibet
 内蒙古。
 Inner Mongolia
 ‘Three cars separately head for Xinjiang, Tibet and Inner Mongolia.’
 b. 她 掉 头 开 车 回 家。
 she change head drive car back home
 ‘She turned around and drove back home.’

Although both *ahead* and *tou* can denote concepts related to direction, we can learn from (17) and (19) that they are used quite differently. In English, *ahead* and *back* are used as a pair to refer to the forward and backward direction respectively, whereas in Chinese only *tou* is used to denote directions more generally. *Tou*’s antonym *wei* ‘tail’ can refer to the back part of an object as in 车尾 (car-tail) ‘the back of a car’, but is yet to refer to the space or direction projected from the back of objects. In my point of view, the spatial uses of Chinese body-part terms have more restrictions because they can hardly be used as adverbs or adjectives, and what differentiates *tou* from *wei* is the location of the perceptual apparatus in the face, that allows projected usage more easily.

4.2 *Temporal senses*

People tend to use more concrete concepts to help understand abstract ones, and spatial concepts are more concrete than temporal ones. However, in previous studies on space and

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time, there still lacks a sufficient explanation on how we relate the two concepts to each other. Before we look at the typical temporal uses of 'head', I will first present some examples from the BNC that show the intimate connections between space and time.

4.2.1 From spatial to temporal senses As (17)a has shown, *ahead* can be used after motion verbs or perception verbs to refer to the forward direction. In some cases, however, the phrases are used figuratively to convey non-spatial senses:

- (20) a. Just go ahead and do the job. (BNC)
 b. He was looking ahead and planning for the future. (BNC)

In (20), *go ahead* means 'continue or start to do something', and *look ahead* means thinking about the future. Here the LIFE IS A JOURNEY metaphor is employed so that we can use concrete expressions to describe abstract concepts. We humans are considered to be 'walking' along a long road, and the future is ahead of us. This metaphoric mapping is crucial for human beings to conceptualize life experiences.

Also, when used for spatial senses, the adjective *ahead* means 'in the front', but in (21) it means 'in the future' because of the LIFE IS A JOURNEY metaphor:

- (21) The economy still faces a tough road ahead. (BNC)

The next example shows the relation between space and time from another perspective:

- (22) He arrived at the front door ahead of her. (BNC)

This sentence can be construed either in a spatial way or from a temporal perspective. On the one hand, we shall imagine a scene where the man is walking several meters 'ahead of' the woman. On the other hand, if the distance between them is unchanged, the man will possibly arrive at the destination a couple of seconds 'ahead of' the woman. In this scenario, *ahead of* has two different interpretations that are closely interrelated because of the connection between space and time.

4.2.2 Moving time, moving ego Clark (1973) and Lakoff and Johnson (1980) have pointed out that there are two ways of conceptualizing the interaction between humans and time. One is the MOVING TIME metaphor, and the other is the MOVING EGO metaphor.

When we use the MOVING EGO metaphor, we are considered to be moving forward past a series of stationary events. In this scenario, if we want to use the spatial concepts 'front' and 'back' to talk about time, the front is the future, and back refers to the past.

Contrastively, the MOVING TIME metaphor 'views events as moving forward past a

stationary ego (Clark, 1973)'. Therefore, when we regard the moving series of events as a whole, what is in the back is the future, and the past is in the front.

Because the head is cross-linguistically associated with the concept of front, its corresponding lexical items should be able to either refer to the future under the MOVING EGO metaphor, or refer to the past when the MOVING TIME metaphor is employed. The following sections will analyze the temporal senses of *ahead* and *tou* and discuss if languages differ in their preferences for the two mappings.

4.2.3 Temporal senses of *ahead* *Ahead* has two uses that involve the employment of the MOVING TIME metaphor. *To book tickets ahead* means to book tickets in advance, and the preposition phrase *ahead of* as in *ahead of schedule time* means 'before'. In (23)a, there are two future events, i.e., go to Tokyo and book tickets, and what is supposed to be done earlier is described as being 'ahead'. In (23)b, an event that has taken place earlier than predicted is also considered to be 'ahead of' its schedule time.

- (23) a. If you're going to Tokyo, you need to book tickets ahead.
 b. The mail arrived six hours ahead of the scheduled time. (OED)

When the MOVING EGO metaphor is employed to *ahead*, future-related meanings can be expressed. In (24), individuals are figuratively considered to be traveling along a path, and *the years ahead* refers to the next few years. Similarly, *to have a busy day ahead of us* means to be busy in the near future, and cannot convey the meaning 'we were busy during the past few days'.

- (24) a. May our work be affirmed and expanded in the years ahead. (BNC)
 b. We have a busy day ahead of us. (BNC)

From my corpus study on *ahead*, it can be inferred that when the MOVING TIME metaphor is involved, the preposition phrase *ahead of* is usually followed by a noun denoting a future time or event; when the MOVING EGO metaphor is employed, *ahead of* is followed by words like *us*, *him/her*, *one's time* which indicate taking the ego in question (and the times in which he/she lives) as the reference point. Also, in the former case, *ahead* tends to be used as an adverb as in *book ahead*, whereas in the latter case the adjective *ahead* is frequently used after temporal nouns to refer to a future time.

4.2.4 Temporal senses of *tou* *Tou* also allows the employment of both mappings. Through the application of the MOVING TIME metaphor, *tou* can be used nominally to refer to the beginning as in (25)a. As for (25)b, the determiner *tou* is followed by a temporal noun, and it refers to the beginning period of a continuous event or a period of time:

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- (25) a. 从头开始 from-head-start ‘start from the beginning’
 b. 头几天 head-several-day ‘the first few days’

Besides, *tou* can also refer to what is at the beginning of an event, though such uses are much less frequent. The ‘determiner *tou* + temporal noun’ construction can not only refer to the beginning period as in (25)b, but may also refer to a period before as (26)a shows. Also, we can use *tou* as a preposition as in (26)b, where *tou* means ‘right before’:

- (26) a. 头几天 head-several-day ‘the previous few days’
 b. 头吃饭要洗手。
 head eat meal IMP wash hand
 ‘Wash your hands right before having meals.’

As we can see, *tou* has various uses that involve the MOVING TIME metaphor, and as the body-part term is used to convey abstract temporal meanings, it is possible to use *tou* as a determiner or a preposition. When we employ the MOVING EGO metaphor to *tou*, however, the use is limited – *tou* can only be used nominally to refer to the end in phrases like 到头来 (reach-head) ‘in the end, finally’, 一年到头 (one year reach-head) ‘all year round’, etc.

4.2.5 Corpora data By comparing data from BNC and CCL, we can see how *head* and *tou* differ in the entrenchment of their grammaticalized meanings. As the table below shows, both *sahead* and *tou* are more frequently used to convey temporal meanings, though the spatial senses of *ahead* seem to be more entrenched than those of *tou*.

Table 4.2: Frequencies of the spatial and temporal senses of HEAD

	ahead		tou	
Spatial	4.2%		1.1%	
temporal (moving time)	6.1%	1.2%	3.7%	3.2%
temporal (moving ego)		4.9%		0.5%

To me, as a rather concrete concept, space does not have to be understood with the help of embodiment. However, because concepts related to time are very abstract, people may find it better to use body-part terms to help describe time-related concepts.

Nevertheless, a big cultural difference that can be observed from the above table is that English and Chinese appear to differ observably in their preferences for the two types of metaphorical mappings involved in our conceptualization of time. English prefers to regard time as being stationary, and humans move through it toward the future. On the contrary,

Chinese frequently regard time as an object moving towards us.

Although the cultural reasons that have caused this cross-linguistic variation is unclear, based on Radden's (2003) analyses of the cognitive motivations and advantages of the two mappings, my hypothesis here is that under the influence of Confucianism, Chinese consider events to be evolving and occurring by themselves, while we watch the passing of time and 顺其自然 'let nature take its course'. Oppositely, English culture seems to emphasize the subjective initiative or intentionality of human beings, and tends to regard individuals as advancing toward a destination.

4.3 Affixation of *tou*

In Lehmann's (1985) study on grammaticalization, he proposes that when being highly grammaticalized, relational nouns can not only become adpositions, but may also develop into affixes. In the previous sections, we have seen how *ahead* and *tou* can be used as spatial/temporal adpositions, and as a matter of fact, *tou* can be used as a suffix as well.

In Zhang's (2008) analyses on the origin of the affix *-tou*, it is proposed that the phonological changes of Chinese have brought many affixes into existence. Whereas ancient Chinese has a complex pronunciation system which is similar to present-day Cantonese with its nine tones, contemporary Chinese has been simplified and only has four tones. Meanwhile, because there were a large number of monosyllabic words in ancient Chinese, more homonyms have appeared to cause misunderstanding in oral communication. To solve this problem, some monosyllabic words are combined with another to form disyllabic words that convey compositional meanings, and attaching an affix to monosyllabic words is another solution.

However, this theory does not sufficiently explain the function of *-tou*. It is true that *-tou* seems to lack semantic meanings, as it has gone through phonological reduction and changed from the second tone to an unstressed one. Nevertheless, it can be attached to words in different lexical categories and can function quite differently. In this section, I will analyze the uses of *-tou* and discuss its relation to the body-part noun *tou*.

Since around the 5th century, *-tou* is seen to be attached to locational nouns. Nowadays it can derive the following words:

- (27) 上头 'above' 下头 'below' 里头 'inside' 外头 'outside'
 前头 'front' 后头 'back' 东头 'east' 西头 'west'
 南头 'south' 北头 'north'

While these locational nouns can be used in written language without the suffix, omitting *-tou* would make them sound unnatural in oral language, and this shows the contribution of the affix at the phonological level. Nevertheless, *-tou* is not the only affix that can be attached to locational nouns. *Mian* 'face' can replace *tou* in this case. This clearly shows that

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the use of *tou* in (27) is closely associated with its spatial senses. As I have illustrated, *tou* can denote ‘direction’, and this meaning came into use mainly because the location of the perceptual apparatus in the face. This explains why *tou* and *mian* are the only two body-part nouns that can be used here. Additionally, although the English body-part terms head and face cannot be used as affixes, English speakers use expressions like *the north face of the mountain*, in which *face* can also be omitted without affecting the overall meaning. It is possible that there are other languages that can place ‘face’ or ‘head’ after locational nouns as well.

While the above use of *-tou* appeared in early history and is partially motivated by embodiment, the other affixal uses of *tou* came into use many centuries earlier. The one with the highest productivity as well as frequency (74.6% of all the affix uses) is noun-*tou*. Typical examples include:

- (28) 石头 ‘stone’ 拳头 ‘fist’ 骨头 ‘bone’ 指头 ‘finger’
 枕头 ‘pillow’ 舌头 ‘tongue’ 木头 ‘wood’ 罐头 ‘can’
 砖头 ‘brick’

In these cases, the suffix can also be omitted without affecting the meaning of the words, but people would find it strange if there is no suffix. However, this use is different from the former one as the affix *-tou* here does not seem to be related to any of the semantic meanings of *tou*, and it cannot be substituted by any other affixes.

Besides, we can even attach *-tou* to some adjectives or verbs to derive nouns. In the following cases, the suffix cannot be omitted if we want to keep the meaning unchanged:

- (29) 甜 ‘sweet’ => 甜头 ‘benefit’ 苦 ‘bitter’ => 苦头 ‘setback’
 准 ‘accurate’ => 准头 ‘accuracy’
 (30) 念 ‘think’ => 念头 ‘thought’ 行 ‘travel’ => 行头 ‘outfit’
 赚 ‘earn’ => 赚头 ‘profit’ 来 ‘come’ => 来头 ‘background’
 说 ‘speak’ => 说头 ‘topic’

As we can see, the uses of *-tou* in (29) and (30) exhibit semantic idiosyncrasies. When it is attached to adjectives, it may change or limit the meaning of the original - 尝到甜头 (lit. taste sweetness) cannot be used when you are talking about a dessert, but it means you benefit from something, and the same applies to 尝到苦头 (lit. taste bitterness). As for the verb-*tou* construction, the referent of the derived noun is usually a concept related to the action denoted by the original verb. However, the choice of the referent of the derived noun do not appear to obey any rule predicting the compositional meaning of the combined verb and suffix, especially for cases like 行头 (travel-*tou*) ‘outfit’ and 来头 (come-*tou*) ‘background’. Also, it is hard to consider the two uses of the affix *-tou* to be related to the meanings of the body-part noun *tou*.

While *tou* has four types of uses as an affix with a total frequency of 17.8%, only one of

them, the locational noun-*tou* construction, appears to follow the grammaticalization pattern proposed by Lehmann. Although I believe that in the other three cases, *tou* must have been chosen for some reason, the present study is not yet able to render a reasonable explanation for them. Even if there is some relation between the semantic meanings of *tou* and these affixal uses, it is too weak to be captured. Therefore, we can regard the affix -*tou* as a homonym of the object-part noun.

5 CONCLUSION

This thesis shows that our conceptualizations of ‘head’ are mainly based on embodiment, and this has led to general cross-linguistic similarities between *head* and *tou*. In both English and Chinese, the head is considered one of the most salient parts of an individual, and we can thus use ‘head’ to refer to a person or an animal. Also, some parts of the head, such as the hair and the face, are universally regarded as cognitively salient. Consequently, some WHOLE-FOR-PART metonymic uses as well as cases of domain highlighting have been derived from such a conceptualization. Also, based on our knowledge of the essential features of the head, *head* and *tou* both have location-based, shape-based and function-based metaphorical extensions in which the objects-as-human beings mapping is involved. Finally, because of where our perceptual apparatus is, ‘head’ can not only refer to object parts, but is also universally associated with the front. Hence, *head* and *tou* have acquired spatial and temporal meanings.

However, the different cultural models in English and Chinese have also caused some cross-linguistic variations in the linguistic instantiations I have investigated. First, the preference for Cerebrocentrism in English enables *head* to have a large number of mind-related senses, while the same does not apply to *tou* because of the preference for Cardiocentrism in Chinese culture. Second, because the two languages have different conversion mechanisms, *head* can be used as a denominal verb whereas *tou* cannot. Third, it can be seen from chapter 3 that languages differ in their choices of the objects that can be compared to a human being when we try to use a body-part term to refer to an object part. Last, from the frequencies of the temporal senses of ‘head’, we have learned that English prefers the MOVING EGO metaphor, while Chinese uses the MOVING TIME metaphor more often, although the reasons for this phenomenon is still unclear.

On the whole, it can be seen that the meaning extensions of body-part terms are highly conventionalized. The frequencies of the literal sense of *head* and *tou* are 40.5% and 34.6% respectively, which means their figurative uses take up more than a half of all the occurrences of the lexical items. This shows that the metonymic and metaphorical uses of body-part terms are essential to our communication, as our bodily experience helps us perceive things in an easier way.

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