Corpus-based analysis of body-part terms for emotions and feelings
in English and Japanese

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by

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ABSTRACT OF THE THESIS

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Master of Arts in Applied Linguistics
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This study examines the usage and meanings of emotion-related body part terms that are found in metaphorical expressions. By using the data from electronic corpora of written and spoken languages, English head, heart, gut and leg parts and Japanese atama 'head', mune 'chest', hara 'belly' and ashi 'leg' are cross-culturally compared. The goal of this research is two-fold. One is to redefine the communicative function of metaphorical expressions that is conventionally considered peripheral. Another is to highlight potential 'culture specific concepts' by Lakoff and Johnson (1980) behind the metaphorical usages of the English and Japanese body part terms through a microscopic analysis of KWIC (keyword in context) search results. Research results show that English and Japanese
associate different types of emotions/feelings with different parts of the body. For example, English places a center of self in the heart and Japanese places it at the gut. However, it appears that both English and Japanese commonly use Lakoff and Johnson's (1980) 'spatial orientation' (e.g. up and down) to code one's feelings/emotions in the body. My hypothesis is that the locations of the body parts play a role in representing different types of feelings. Specifically, I suggest that upper body represents controllable emotions and the lower body represents more primordial emotions and feelings such as anger and instinct.
The thesis of Keiko Tsurumi is approved.

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Table of contents

1. Introduction 1
   1.1 Metaphor and idiom 2
   1.2 Research goals 3

2. Literature review 4
   2.1 Introduction 4
   2.2 Universal tendencies and language variations 5
   2.3 Metaphors in body part terms 7
      2.3.1 Spatial orientation 8
   2.4 Metaphoric expressions of body part terms in English and Japanese 11
   2.5 Summary 15

3. Methodology 16
   3.1 Previous research methods 16
   3.2 Research method for this study 18
   3.3 Corpus driven approach 19
      Table 3.1: List of digital corpora for English 21
      Table 3.2: List of digital corpora for Japanese 22
   3.4 Triangulation in research 24
      Figure 3.1: KWIC search results for head in COCA 25
      Figure 3.2: KWIC search results for mune ‘chest’ in BCCWJ 25

4. Results 28
   4.1 Introduction 28
   4.2 Quantitative results: metaphoric usage 29
Table 4.1: English body part results 30
Table 4.2: Japanese body part results 30
4.2.1 Issues with spoken corpora data 32
   Table 4.3: SBCSAE results 33
   Table 4.4: MICASE results 33
   Table 4.5: CALLHOME English results 33
   Table 4.6: Sakura Corpus results 34
   Table 4.7: CALLHOME Japanese results 34
   Table 4.8: Written and spoken data comparison in Japanese and English 35
4.3 Qualitative results: metaphoric usage 36
   4.3.1 Head 37
   4.3.2 Atama ‘head’ 41
   4.3.3 Heart 43
   4.3.4 Mune ‘chest’ 46
   4.3.5 Gut 49
   4.3.6 Hara ‘belly’ 51
   4.3.7 Leg parts and ashi ‘leg’ 53
5. Discussion 56
   5.1 Introduction 56
   5.2 Language specific metaphors 57
   5.3 Spatial orientation and distribution of emotions 59
List of abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC</td>
<td>accusative</td>
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<tr>
<td>CAU</td>
<td>causative suffix</td>
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<td>COP</td>
<td>copula</td>
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<tr>
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<td>PASS</td>
<td>passive suffix</td>
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<td>PTC</td>
<td>particle</td>
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<tr>
<td>TE</td>
<td>-te conjunctive form</td>
</tr>
</tbody>
</table>
1. Introduction

As physiology of human body is generally universal, all languages have terms referring to body parts. Due to this unique characteristic, body part terminology has been extensively used in diverse areas of cross-cultural and cross-linguistic research. This thesis looks at English and Japanese examples of body part terms that are used to express human emotions and feelings. Specifically, the focus is a semantic analysis of four sets of body part terms: *head, heart, gut* and words for leg parts in English and *atama* ‘head’, *mune* ‘chest’, *hara* ‘belly’ and *ashi* 'leg' in Japanese in their metaphorical usages. One goal of this study is to understand how often the metaphoric expressions are used and how productive they actually are as a communicative tool. By analyzing the body part expressions found in English and Japanese electronic corpora of written and spoken languages, I attempt to elucidate how the body part terms represent different types of emotions/feelings. Although body part lexicon is found across all languages, the repertoire of body part terms that each language offers often differs. Additionally, how those terms express emotions and feelings are diverse and culture dependent. Language is the means to express concepts shared by members of a language community, including ones for emotions and feelings (Enfield and Wierzbicka, 2002). Given this definition of language, my study also aims to reveal the concepts of emotions/feelings that English and Japanese each embodies. Lakoff and Johnson (1980) claimed that human concepts are highly metaphoric. The analysis used in this paper is partly based on their principles of ‘orientational metaphors’. ‘Orientational metaphor’ defines human spatial
orientation as a tool to “organize a whole system of concepts with respect to one another” in Western societies. For example, the concept, ‘having control is up’ and ‘being subject to control is down’ is seen in a number of linguistic expressions; “I am on top of the situation, he is at the height of this power, he is my social inferior and he is under my control” (p. 15). According to Lakoff and Johnson, metaphoric human concepts create human realities and they are culturally sensitive. The study by Lakoff and Johnson is limited to English examples and Western concepts, but this research expands its boundaries to Japanese and Japanese concepts of emotions and feelings.

1.1 Metaphor and idiom

In this research, the definition of metaphor is according to what Lakoff and Johnson has proposed; “the essence of metaphor is understanding and experiencing one kind of thing in terms of another” (p. 5). Metaphor is sometimes confused with idiom, another type of non-literal expression. However, metaphor and idiom are fundamentally different in nature. Online Oxford dictionary states that idiom is “a group of words established by usage as having a meaning not deducible from those of the individual words”\(^1\). For example, ‘raining cats and dogs’ is an idiom that refers to heavy rain. However, ‘cats and dogs’ do not reference any relation to ‘rain’. On the other hand, the metaphor, ‘loosing in court’ means receiving an unfavorable verdict in the justice system, where the results of lawsuit are expressed in terms of ‘winning’ and ‘loosing’ in games, when the nature of litigation is about finding the truths. There are also times when idioms

\(^1\)http://www.oxforddictionaries.com/definition/american_english/idiom
are used metaphorically. A good example proposed by John Casning is ‘carrot and stick’. It refers to an action to induce preferred behavior from a horse or donkey by combining rewards (carrots) and punishment (stick). However, Casning explained how this idiomatic expression could also be used as a metaphor in the step-by-step equations below:

(1) *Iran: West’s carrot & stick method fail*

The West is seen as making the following equations:

1. Iran is equated to a donkey, being stubborn and unwilling to change its position
2. Trade incentives are equated to the carrot, aimed at luring Iran from its current position
3. U.N. sanctions are equated to the stick, used to force a change in Iran’s position
4. The West is equated to the farmer, and is assumed by this model to own or control Iran

The Casning’s explanation makes it clear how metaphoric usage and idiomatic expression differ; idiom is a unit of words or a set phrase, which meaning is often non-literal and metaphor is an expression that uses one concept that is utilized to express another situation.

1.2 Research goals

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2 http://knowgramming.com/idiom_and_metaphor_difference.htm
Building upon the findings of previous studies concerning English and Japanese emotion-related metaphors, this research approaches the non-literal expressions as part of the ‘orientational metaphors’ and attempts to investigate why certain emotions and other abstract notions are associated with particular body parts. In this research, the spatial orientation of human concepts is used as key framework to provide a rationale for the distribution of various emotions in the body. As the universal makeup of human body with reference to the body part locations is a significant component, the usage analysis of metaphoric expressions is conducted from head to leg parts, and a key body part in each section of the body is examined. The research aims to determine the relationship among body parts with regard to human emotions by holistically looking at the body parts from the highest to the lowest part of the body: head, heart/chest, gut/belly and leg/foot in English and Japanese.

The study consists of six chapters. Following the introduction, chapter 2 will give an overview of cognitive semantics as well as previous literature on body part terminology. It will also introduce the research on the psychological lexicons of English and Japanese that is specifically associated with body part terms. Chapter 3 will describe the methodology of this study, and explain the rationale for the adopted methods and the validity of the data collected using such methods. Chapter 4 will present key findings from the analysis of the data. Chapter 5 will discuss implications of the study findings, followed by short concluding remarks in chapter 6.
2. Literature review

2.1 Introduction

Humans generally share the same physical construction, and as such, body part terminology provides an ideal domain for lexical semantic studies across languages. All languages have terms referring to body parts whose basic physical functions are the same regardless of what language one speaks. However, available repertoires of body part terms often vary by language and their definitions are widely diverse.

2.2 Universal tendencies and language specific variations

Brown (1976) claimed that all languages have distinct terms for the body, head, arm, eyes, nose and mouth. Brown also proposed that the languages that make a leg-foot distinction also make an arm-hand distinction. However, Brown’s language universals have been challenged by the data from other studies that contradicted his claims. To mention a few, Tidore (Austronesian language in Indonesia) and Kuuk Thaayorre (Indigenous Paman language in Australia) use the term for ‘person’ to express ‘body’ (Van Staden, 2006; Gaby, 2006). Moreover, there is no word for ‘arm’ in Lavukaleve (language spoken on Solomon Islands) nor for ‘mouth’ in Jahai (tribal language in Malaysia) (Terrill, 2006; Burenhult, 2006). Even when Brown’s proposals seem to apply, the typology of body part terminology is complex across languages. Languages such as English and Spanish make a leg-foot and arm-hand distinction, but Japanese and Chinese do not. Rather, they use one term that combines the two body parts.
that are called *leg* and *foot* in English, while having two separate terms for *arm* and *hand*. In the Igbo language family (languages spoken in Nigeria) there is only one general term *ukuwu* for leg/foot and *aka* for arm/hand. Another claim by Brown stated that if a language has terms referring to individual toe (e.g. big toe), it also has terms for individual finger (e.g. index finger). While the languages introduced below have separate terms for both toes and fingers as Brown argued, the distinction of each toe is not clear in many languages. English has commonly used terms for all individual fingers (thumb, index finger, middle finger, ring finger and little finger/pinky), but the individual terms for toes (e.g. big toe and small toe, but the rest is all middle toes) are not clear in colloquial language. Japanese and Russian also have terms for all fingers, but terms for toes are the same as the fingers; both languages differentiate toes by referring them as fingers ‘on the leg’ (e.g. parent finger on the leg = big toe in Japanese). Distinct terms for each toe are not widely recognized in Spanish and Italian, either. What is common among the examples is that toes are much less linguistically salient than fingers in the several languages observed here. It is not surprising that fingers would be given a more prominent place in the lexicon of many languages, as fingers are generally more valuable in the multi-functionality that they offer in human activities. In relation to how body part terms are called, the descriptions of some fingers are also associated with commonly practiced functions of the finger. Both English and Japanese call the second finger from the thumb the index finger, because the finger is used to point objects. In English, the finger next to little finger is called ring finger as it is customary to wear a wedding or
engagement ring there. In Japanese, the same finger is commonly called ‘medicine’ finger because it has been used to apply medicine (ointment). Regionally, it is also called the ‘lipstick’ finger to put on lipstick with. Such functional components of meaning are often salient in idiomatic/metaphoric references to body parts.

2.3 Metaphors in body part terms

Although Brown’s proposal of linguistic universals has been criticized, that does not necessarily mean that there are no common tendencies. Metaphoric references of body part terms are one such example. A number of body part terms have extensional meanings that do not refer to the actual physical body parts, but metaphorically refer to other more abstract notions. Cognitive metaphor theory regards that human thoughts and actions are fundamentally metaphorical in nature; metaphors are not merely poetic or rhetorical expressions, but rather an integral part of language. This approach to metaphors is associated with the principals of cognitive linguistics; cognitive linguistics views language as a communicative tool, with which humans express thoughts, connect with others and establish communities. It emphasizes the language function that plays “the crucial role of conceptualization in social interaction” (Langacker, 1998). Furthermore, cognitive linguistics considers word meaning to be the embodiment of human concepts that are acquired through interactional linguistic experiences. “Our conceptualization of entities in more abstract domains is based on concrete concepts which are more clearly delineated in our
experience" (Lakoff and Johnson, 1980, p.112). Dingemase (2009) explained that the human body, due to its structural commonality, provides an ideal common ground for expressing abstract entities. In fact, a study by Smith et al. (1981) demonstrated that an analysis of figurative language over three centuries proves that the human body is the most frequent source of metaphors.

The examples of cross-linguistic tendencies in the semantic extensions have been introduced by previous studies. (Wilkins, 1996; Hilpert, 2007; Heine, 1997). For example, three linguistically and geographically distant languages, English, Japanese and Yoruba (language spoken in West Africa), all have the expression, to ‘give a hand’, that similarly means ‘assist in an action’ in all three languages. Here, the abstract idea of helping is conceptualized through ‘hand’ as if it is something tangible that one can ‘hand’ out. In his study of metonymies involving body part terms, Hilpert (2007) found that three semantic extensions are globally prevalent: back as the back part of a non-human object, and eye as vision and mouth as speech. As pointed out earlier in this paper, these are the instances where functional components of body parts are utilized and give rise to the meaning of metaphoric expressions.

2.3.1 Spatial orientation

On the other hand, some references to body parts stem from the relationship between human concepts and the spatial make-up of the human body. In Laos, a foot is culturally a dirty and undesirable body part, especially in relation to the head. In this society, it is considered rude to step over food or/and
personal items and it is a social taboo to touch one's head with the foot. This cultural belief is reflected in Laotians' frequent avoidance of the term for foot. Thus, one would say wipe [the] legs on the way in when what needs to be cleaned is feet. Disdain for feet is also observed in profanity. In Laotian, the most insulting language involves feet; idiomatic expressions such as ‘step on [your] neck’, ‘kick [your] neck’ and ‘kick [your] month’ are roughly translated as “[I'll] punch [your] fuckin’ head in”(Enfield, 2006, p.188). This Laotian concept of the foot being dirty or undesirable is also found in Japanese and English. The Japanese expression ashi o arau ‘wash [one's] feet’ means that a person decides to put behind a criminal past and live righteously. It is quite understandable why humans would associate feet and uncleanliness, because if bare-footed, feet would touch the ground. In the present day, feet are tightly tuck into shoes most of the time, and with moisture, they could be a source of unfavorable odor or even fungal infections. However, from a functional perspective, feet play a significant role in human mobility. If so, one wonders why they are associated with such a low level of importance. In English, ‘feet of clay’ means an unexpected fault or weakness that a respected or powerful person has. In Japanese, ashi ga deru ‘leg sticks out’ means financial deficit or that one’s secret or inferiority has been revealed. This negative connotation for feet is most likely part of the ‘orientational metaphors’ proposed by Lakoff and Johnson (1980). ‘Orientational metaphors’ give a concept a spatial orientation; for example, ‘happy’ is up. The fact that the concept happy is oriented upwards leads to English expressions like I am feeling up today (p.14). Similarly, ‘good’
and ‘high status’ are *up* and ‘bad’ and ‘low status’ are *down*; the expressions such as ‘things are looking *up*’, ‘*peak* of the career’, ‘all-time *low*’, ‘*bottom* of the society’ are the instances of the metaphors with a spatial orientation. Lakoff and Johnson’s data is primary from English, however this spatial orientation in human concepts appears to be applicable to other languages where the terms denoting parts from the lower body, (e.g. *feet*), carry a negative connotation. The spatial orientation in metaphors will be the key principle in this research when emotion/feeling-related metaphors through body parts are compared between English and Japanese.

In addition to general tendencies of metaphoric usages, there are also many culture- or language-specific variations. As a result of this, metaphoric gestures and their meanings are not easily understood cross-culturally. For example, ‘middle finger up’ is a sign of insult in many Western countries. The origin of this gesture\(^3\) dates back to the ancient Greek practice that started more than two thousand years ago. In Japan, ‘pinky up’ accompanied by the uttering of the demonstrative pronoun *kore* ‘this’ is a euphemistic reference to a female paramour. Additionally, cutting off the pinky, termed *yubi kiri* ‘cutting [a] finger’, has been practiced by the members of *Yakuza* (Japanese mafia) to show loyalty or responsibility for failure, the origin of which is believed to date back to the Edo period (1603-1868). The examples illustrate that those associations with certain body parts were cultivated over time and are established as a common understanding among the members of given cultures.

Sometimes different languages have the same linguistic expressions, but their meaning is not the same. According to Dingemanse (2009), the Yoruba expression, ‘eye of the needle’ refers to the tip of the needle, not the hole of the needle, as English speakers would interpret it. In Japanese, the expression ‘bird eye’ refers to a person who does not see well in the dark (Sakuragi and Fuller, 2003), while English ‘bird eye’ in the extensional meaning would be associated with ‘(bird eye) view’, an elevated, aerial view of an object. The metaphor expression ‘bad mouth’ in English means an act of speaking ill of others, but *kuchi ga warui* ‘mouth is bad’ in Japanese refers to a sharp tongue or a person whose language is vulgar. Given the wide language variation found across languages, Dimmendaal (1995) suggested that the human cognitive system is greatly localized and reflected in language. In other words, the terms for body parts are often used metaphorically to express concepts and ideology that are relevant in a given speech community.

2.4 Metaphoric expressions of body part terms: examples in English and Japanese

Previous literature on body part terms illustrated how human body is used to express various abstract concepts. The focus of this paper, metaphor expressions of emotions/feelings through body part terms in English and Japanese, has also been investigated. Swan (2009) stated that in English and other Germanic languages, psychological and emotional states are generally expressed metaphorically, often with various body part terms. In English, the
heart and head are frequent sources, but instances in other languages include less familiar parts such as the liver and gall bladder. The heart has been noted as the site of emotions by scholars such as Niemeyer (1997) in her English folk model. In relation to the head and heart, there is a dichotomy of rational and emotional in the Anglophone culture. Swan conducted a diachronic analysis of heart in Old English and Middle/Early Modern English. The study suggested that “the linguistic evidence from the history shows the metaphor system involving the heart has remained relatively stable over the centuries”. However, “the heart has lost its sense of being a mind or soul in a wider sense, that is including intellectual capacity, and now merely refers to various emotions and moral values, love and kindness” (Swan, 2009, p.474). On the other hand, the Japanese equivalent mune ‘chest’ could be the source of intelligence as well as the site of feelings (Hasada, 2002). In English, the term heart describes both the actual organ in a physical sense and an abstract place where emotions are felt. However, in Japanese, sinzo ‘heart’ only refers to the organ in a physiological sense. Instead, the tangible body part where emotions come from is mune ‘chest’. In English, it is the heart that aches when sadness strikes, but in Japanese, it is the chest or kokoro ‘heart’. Kokoro is an immaterial entity that is the site of emotions (Hasada calls it a ‘quasi-body part’) much like the English mind, an immaterial entity in the head. The difference between the two immaterial entities kokoro and mind is that kokoro could be the site of both emotions and intellect and considered to be located in the mune ‘chest’, whereas mind is the site of intellect and considered to be located in the head. It is
interesting that English has the immaterial entity (mind) for the intellect, but does not have an immaterial term for emotions, whereas the Japanese kokoro accommodates both the intellectual and intellectual experiences. This thesis focuses on the actual body parts and their relations with emotions, and will not discuss the topic of ‘quasi-body parts’. However, it suffices to say that the common belief that quasi-body parts are located in the body is another example of our attempt to embody abstract human notions through physical means. Hasada’s study thus presented the role of mune ‘chest’ as the site of emotions and intellect. The following examples from my corpus data, BCCWJ (Balanced Corpus of Contemporary Written Japanese) supports Hasada’s claim:

(2) Emotions

\[
\text{Mune ga jin to suru}
\]
chest NOM feeling ‘jin’ [onomatopoeia]
‘[One is] moved by emotions’

(3) Thoughts

\[
\text{Mune no uchi de tsubuyaku}
\]
chest GEN inside LOC whisper
‘Whisper in [my] mind

(4) Thought process

\[
\text{Mune ni te o atete yoku kangaeru}
\]
chest DAT hand ACC put well think
‘Put a hand on [one’s] chest and think hard/well’
The example (3) suggests that Japanese conceptualize chest to be the site for inner thoughts. For the example such as (4) emotions in the chest are consulted when making a decision. The expression (4) would not be used for solving difficult mathematic questions, which requires scientific computation. The type of decision making that mune ‘chest’ is involved in has to do with philosophical and emotionally charged topics. Additionally, Hasada illustrated how Japanese hara ‘belly’ is also the site of emotions. Dürckheim (1962) argued that Japanese believe that hara ‘belly’ is the center of inner-self, spirit and physical body. In fact, this provides an explanation for the Japanese traditional practice of hara-kiri, an act of honorable suicide by cutting open one’s stomach with a knife or sword. This way of suicide, historically practiced by samurai warriors, symbolizes pride and authenticity as one dies by opening “the seat of [the] soul and show[ing] …[if] it is polluted or clean” (Nitobe, 1969). Hasada claimed that hara ‘belly’ is a site of 1) anger-like feelings, 2) stressful feelings, 3) true intention/thoughts. The following examples (5), (6) and (7) from the BCCWJ corpus illustrate Hasada’s claim.

(5) Anger

\begin{align*}
\text{Hara} & \quad \text{ga} & \quad \text{niekurikaeru} \\
\text{belly} & \quad \text{NOM} & \quad \text{boil heavily} \\
\text{‘[I am] furious’}
\end{align*}

(6) Frustration

\begin{align*}
\text{hara} & \quad \text{nigai} & \quad \text{omoi}
\end{align*}
belly  bitter  feeling
‘bitter feeling’
(7) True intention

**Hara o saguri - au**

belly  ACC  investigate each other
‘Sound out each other’s intentions’

The findings by Swan concerning English *heart* and by Hasada concerning Japanese *mune* ‘chest’ and *hara* ‘belly’ provide a starting point for my research. The specifics of my research, including the aim of the research, theoretical positions and research design will be detailed in the next section.

2.5 Summary

This chapter reviewed literature on body part terms concerned with four interrelated areas prominent in current research: 1) universal tendencies, 2) language-specific variations, 3) metaphoric expressions, and 4) cognitive metaphoric theory and spatial orientation. First, it addressed the rationale behind the value of body part terms in linguistic studies of lexical semantics. Due to the physical universality of the human body, body parts are an ideal domain for cross-linguistic comparison. Through the investigations of body part terms, Brown proposed certain typological language universals. While some of his arguments are applicable to many languages, there are also counterexamples that illustrated language specific variations that cannot easily be generalized. In
addition to describing the actual bodily organs, body part terms often carry extensional meanings and are used metaphorically to express abstract notions. We see the metaphoric usage of body part terms to be both cross-linguistic and language-specific. As in cognitive linguistics, this research looks at metaphors as an integral part of the language, and not merely as a poetic or figurative component of speech. This research conducts a cross-linguistic analysis of metaphor expressions of emotion/feeling in English and Japanese. Following the argument of cognitive theory of metaphor, the findings of the research would suggest how each speech community (English and Japanese) conceptualizes emotions, and where this conceptualization is identical or diverse. The previous studies introduced in this paper focused on the usages of specific body parts (English heart in Swan and Japanese mune ‘chest’, hara ‘belly’, and certain immaterial entities in Hasada) and the interpretations of such usages qualitatively.

3. Methodology
3.1 Previous research methods

As introduced in the literature review chapter, there have been a number of studies conducted on human body part terms. Those studies were conducted for various purposes and in different research environments, and thus they have taken rather random approaches to the collection and analysis of the data. The study of body part terms in indigenous languages is frequently comprised of qualitative research concerned with partonomy (part–whole relationships) and
the semantics of body part terminology. The data collection of lesser-known languages, due to the lack of or limited amount of previous data, usually depends on elicitation in field research, supplemented with field notes and observations (Enfield, 2006; Burenhult, 2006; Gaby, 2006; Majid, 2006; Wegener, 2006). In elicitation, an available number of informants may be small or the informants themselves may change over time, making the collected data less reliable. Moreover, the interpretation of the data largely depends on the researcher, without any cross-reference even when he or she may know little about the language. Therefore, it is usually the case that field research takes an extended period of time to collect reliable data.

When the subject of the study is a language with more available data, researchers are in an advantageous position, as they have an array of possibilities for what data sources they use and how they analyze their findings. Until recent, the most intuitive approach to data collection was author-generated examples (Lakoff and Johnson, 1980; Sakuragi & Fuller, 2003) produced by researchers who consider themselves to have extensive and accurate knowledge of the language for generating the data. Because this data collection method heavily depends on self-generated data, it is usually used when authors are native speakers of the subject languages. The risk involved in this method is that examples would be chosen subjectively without cross-reference as to how they are actually used in the given speech community. Also, as language is constantly evolving, the linguistic knowledge of the researcher(s) needs to be current in order to offer the updated language data. To address such limitations, some
researchers use dictionaries as a reliable source for data. For example, in his study of metaphors in the psychological lexicon of Japanese, McVeigh (1996) used dictionary entries to build and support his ethnotheory about Japanese mental operations. Some researchers (Niemi et al., 2013) collect data from dictionaries and create their own corpus to draw quantitative conclusions from. Dictionaries are some of the most comprehensive and relatively well-balanced collections of lexical data, covering multiple definitions for a single word (if applicable) and word usages in various registers and genres. However, dictionary entries are generally meant to be collections of lexicon and lack the ability to present contextual information on the word usage. With only a few example sentences that are usually listed under each word, it does not suffice to illustrate how words are actually used in a larger context. To meet this limitation, some researchers seek other types of sources to obtain contextualized data. In her qualitative study of Japanese emotion body part metaphors, Hasada (2002) used literary references in addition to quotes from magazines and interviews. Hasada’s multi-source approach is valuable in obtaining contextualized data that includes both written and spoken languages from multiple genres. However, the criticism for this approach would be the size and the balance of the data. Hasada lists 29 literary references for her data, which is a rather small sample to make generalizations from. Also, there is no mention of how and why those 29 references were selected and what genres they represent. The lack of rationale in her methodology leaves open the question of how credible her arguments could be.
3.2 Research method for this study

This research aims to elucidate the relationship between body part terms and human emotions in English and Japanese. Specifically, metaphorical usages of the body parts: head, heart/chest, gut/belly and leg parts were investigated for 1) how those body parts are associated (or not associated) with emotions and 2) if there are general tendencies between the two languages as well as language-specific variations as Hasada (2002) suggested and 3) if there is a systematic relationship among target body parts that are used to express emotions. In order to make persuasive arguments, research findings needed to be anchored in empirical data that is reliable and extensive in size and domains. To overcome the shortcomings of several other research methods introduced in this paper, this research took an inductive approach to the research questions using the data from digital corpora.

3.3 Corpus based approach

The corpus based approach is a relatively new research method that was developed in the 1960s, which uses language samples to test linguistic hypotheses and elucidate the patterns or meanings of language (Hunston, 2006). Digital corpus is a collection of digitally stored data of language samples, which offers a number of advantages over other research methods. First, there is the scale of the data. Currently, a number of large electronic corpora, that are multi-million words in size, are available online. Second is the representation of language variety. Large sized digital corpora are available for written and spoken
languages in various domains, which include academia, literature, magazines, blog entries, presentations, phone conversations and every-day dialogues on diverse topics. Moreover, many digital corpora offer user-friendly Internet interfaces that allow different searches by keyword, collocation, frequency and multiword comparison all online, making the data collection accessible, accurate and efficient. In order to analyze large data that is representative of diverse domains and language forms, this research collected data from a combination of various digital corpora. The selected corpora were: 1) COCA (Corpus of Contemporary American English), 2) MICASE (Michigan Corpus of Academic Spoken English), 3) SBCSAE (Santa Barbra Corpus of Spoken American English) and 4) CALLHOME (English corpus of telephone speech) for English and 1) BCCWJ (Balanced Corpus of Contemporary Written Japanese), 2) Tsukuba Web Corpus (TWC), 3) CALLHOME (Japanese corpus of telephone speech) and 4) TALKBank Sakura Corpus for Japanese (Table 3.1: English corpora and Table 3.2: Japanese corpora).

The written-data dominated COCA (Corpus of Contemporary American English) was used because of its volume (450 million words) and updated entries (the latest set is from 2012). COCA’s data is compiled evenly from TV and Radio transcriptions, fiction, popular magazines, newspapers and academic journals. For spoken language, information was taken from the following spoken corpora: MICASE (Michigan Corpus of Academic Spoken English), SBCSAE (Santa Barbra Corpus of Spoken American English) and CALLHOME English (English corpus of telephone speech).
<table>
<thead>
<tr>
<th>English</th>
<th>Type of language</th>
<th>Size</th>
<th>Genres</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>COCA</td>
<td>Written/Spoken American English</td>
<td>450 million words</td>
<td>TV/radio transcripts Fiction Popular magazines Newspapers Academic journals</td>
<td>Last updated in 2012 Most data is written language</td>
</tr>
<tr>
<td>MICASE</td>
<td>Spoken Academic English recorded at the University of Michigan</td>
<td>200 hours of recording 1.8 million words 152 speech events</td>
<td>Lectures Colloquia Presentations Seminars Lab sessions Office hours</td>
<td>Participants are faculty and students in humanities, social sciences, health and physical sciences</td>
</tr>
<tr>
<td>SBCSAE</td>
<td>Spoken Naturally occurring spoken data recorded across America</td>
<td>250,000 words</td>
<td>Phone Card games Cooking On the job talk Lectures Sermons Story-telling</td>
<td>People of different origins, ages, occupations, genders and socio-economic backgrounds</td>
</tr>
<tr>
<td>CALLHOME</td>
<td>Spoken Ordinary telephone conversations</td>
<td>60 hours of unscripted telephone conversation of native speakers of English</td>
<td>120 calls to family members or close friends on various topics</td>
<td>Developed by Linguistic Data Consortium in 1997</td>
</tr>
</tbody>
</table>

Table 3.1: List of digital corpora for English
<table>
<thead>
<tr>
<th>Japanese</th>
<th>Type of language</th>
<th>Size</th>
<th>Genres/Topic</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCCWJ</td>
<td>Written Contemporary Japanese</td>
<td>100 million words</td>
<td>Books, Magazines, Websites, Newspapers, Internet blog</td>
<td>Data from 1976-2005 Random sampling</td>
</tr>
<tr>
<td>TWC</td>
<td>Written</td>
<td>1.1 billion words from websites</td>
<td>Various websites</td>
<td>Made available in 2012</td>
</tr>
<tr>
<td>CA Bank Sakura Corpus</td>
<td>Spoken Naturally occurring spoken data recorded in Japan</td>
<td>18 vide-recordings (7.5 hours) of mixed gender or single gender group conversation</td>
<td>Part-time jobs Attractive opposite gender</td>
<td>College age men and women in groups of 4</td>
</tr>
<tr>
<td>CALLHOME Japanese</td>
<td>Spoken Ordinary telephone conversations</td>
<td>60+ hours of unscripted telephone conversation of native speakers of Japanese</td>
<td>Calls to family members or close friends on various topics</td>
<td>Developed by Linguistic Data Consortium in 1996-1997</td>
</tr>
</tbody>
</table>

Table 3.2: List of digital corpora for Japanese

Those corpora were chosen with close attention given to the diverse genres the samples represented, to make the research data as comprehensive as possible. For example, MICASE includes utterances of academic spoken English by various members of academia, ranging from undergraduate students to doctoral students to faculty members at the University of Michigan. Speech event types of MICASE cover a wide range of academic settings. Those are advising sessions, colloquia, dissertation defenses, discussion sections, lab sections, meetings and study groups and more. The academic fields that
MICASE includes are also extensive, from physical science to humanities: Engineering, Biology, Chemistry, Business Administration, Classical Studies, Public Policy, Sociology and Linguistics and others. SBCSAE consists of recordings of face-to-face conversations on, but not limited to cooking, storytelling and on the job talk by people of different origins, genders, ages, occupations and ethnic and social backgrounds. One characteristic of spoken data that should be noted here is that the spoken samples in this thesis are occasionally grammatically incomplete or incorrect. That is the reflection of how those utterances were made and transcribed.

For Japanese, BCCWJ (Balanced Corpus of Contemporary Written Japanese) and Tsukuba Web Corpus (TWC) were used to collect written language data. BCCWJ contains approximately one million words from various domains such as books, magazines, newspapers, textbooks and online blog entries. TWC is a collection of 1.1 billion words from Japanese websites from diverse genres including, but not limited to commercial sites, online news, publications and blogs. For spoken language, CALLHOME Japanese (Japanese corpus of telephone speech) and TALKBank Sakura Corpus were used to collect spoken language data. CALLHOME Japanese has 120 unscripted telephone conversations initiated by Japanese speakers in North America to family members in Japan (30 minutes each). All Japanese speakers are native speakers of the language.

Both BCCWJ and TWC contain blog entries, the writing styles of which are sometimes close to spoken language. As Japanese spoken corpora are
significant smaller in scale, the hybrid nature of the two written corpora was thought to be helpful to lessen the impact of the disproportional data that is raised in the next section.

As shown in tables 3.1 and 3.2, there are more spoken corpora (3 written and 6 spoken corpora) selected in this research. That is due to the fact that spoken corpora are usually considerably smaller in size compared to the written ones. Unfortunately, due to the limited availability of spoken corpora, my data still weighs heavily on the data from written language. However, this limitation should not affect the validity of the research findings, as the main focus of the study is not the frequency patterns of the body part terms, but rather the qualitative analysis of lexical semantics. Also, fewer incidences of the metaphoric body part expressions are to be expected in smaller spoken data: because such expressions are usually used in narrow contexts, the risk of insufficient spoken data impacts the frequency.

3.4 Triangulation in research analysis

In examination of the data, this research implements a triangulation approach. Triangulation in research is defined as not relying on a single methodology or framework to collect and analyze data. The basic mission of triangulation is to conduct research from diverse angles to increase confidence in the research findings (Freeman, 1998 used in Bitchener, 2010). Research can be triangulated in different ways: using various data or various methods to collect data, having multiple researchers, and involving different frameworks in analysis.
The triangulation that this study takes to improve the depth of research is to combine qualitative and quantitative methods in analysis, which will be detailed below. The procedures of data collection and analysis are as follows. The target body part terms (English: head, heart, belly and leg parts; Japanese: atama ‘head’ mune ‘chest’, hara ‘belly’ and ashi ‘leg’) are first run by KWIC (keyword in

Figure 3.1: KWIC (keyword in context) search results for head in COCA

Figure 3.2: KWIC (keyword in context) search results for mune ‘chest’ in BCCWJ
Figure 3.3: TWC Keyword search results for atama 'head' showing syntactic patterns by frequency

context) search (Figure 3.1 and 3.2). KWIC search results are displayed randomly, except in COCA, which sorts out the results alphabetically. In addition, TWC is designed to automatically sort out and display syntactic patterns by frequency that occurs with a keyword (e.g. word + preposition, word + verb, word + adjective). Due to this nature of search engine design, TWC data was not a collection of various syntactic patterns as was other corpora data; it was a sampling of the three most frequent patterns that the keywords were used in. Within those patterns, the most frequent 50 collocations were taken and
analyzed for their usage to determine how frequently the body terms are used metaphorically and how those metaphorical expressions are associated with emotions (Figure 3.3).

Considering the scale of this master's thesis, it was decided that 200 tokens from each corpus would be an appropriate number of samplings to determine rough tendencies that I hope will provide a foundation for further large scale research. The first 200 tokens (or the maximum number of tokens available if less than 200) were elicited and divided into groups for literal and metaphoric usages. In this study, literal usage is when the body part words are used to mean a physical body (e.g. I hit my head and it hurts) and metaphorical usage is when the body part words are used to describe other things (e.g. My head hurts because I have so much homework) such as abstract notions, actions and feelings. The exception in this procedure was made for the body part ‘leg’. Because Japanese ashi ‘leg’ refers to English leg and foot/feet, 100 tokens for each leg part was set as a sampling number, aiming to collect 300 tokens per corpus (100 tokens each leg part) in total.

After the collection of data, the percentage of two categories (literal versus metaphoric) was measured. Within the metaphorical group, the percentage of the expressions that were associated with emotions was also noted to quantitatively illustrate how often certain body parts refer to emotions. Additionally, the context, collocation and semantic prosody of the emotion-related metaphors were analyzed to further elucidate their usages.
To reiterate, the body part terms, English *head*, *heart*, *gut*, *legfoot/feet* and Japanese *atama* ‘head’, *mune* ‘chest’, *hara* ‘belly’ and *ashi* ‘leg/foot’, were investigated through KWIC search and syntactic patterns in the usage associated with emotions and feelings. The results for the terms were analyzed individually and comparatively for any notable tendencies, such as a site of emotions/feelings and implicit concepts for body/emotion/feeling relationships both qualitatively and quantitatively.

4. Results

4.1 Introduction

This chapter presents an analysis of the data collected from the selected corpora and addresses the research questions posed in the introduction. The target body part terms, head, heart, gut and leg parts (leg/foot/feet) for English and *atama* ‘head’, *mune* ‘chest’, *hara* ‘belly’ and *ashi* ‘leg’ for Japanese, were ran by the KWIC (keyword in context) search to collect a maximum of 200 tokens (100 tokens each for English leg parts as discussed in methodology) per corpus. However, TWC’s keyword search results are designed to list syntactic patterns by frequency and thus, the data collection procedure was altered. In the case of TWC, the first 50 tokens by frequency were collected from each of the three most frequently used syntactic patterns. In TWC, 50 tokens was set as the target number for data collection (instead of 100 tokens each for English leg parts) because most searched patterns resulted in less than 100 tokens.

4.2 Quantitative results: metaphoric usage
The samples were manually analyzed for their usage types and grouped into literal and metaphorical usages. The raw scores were then calculated in terms of a percentage for contrastive analysis. This procedure was directed to investigate the first research question: how metaphoric are those body parts?

Past literature claimed that the human body is the most frequent source of metaphors (Smith et al. 1981) and that three semantic extensions are globally prevalent: back as the back part of a non-human object, eye as vision and mouth as speech (Hilpert (2007). Particularly, hand, head and eye are the most idiom-prone body part nouns in the five languages: German, Swedish, Finnish, Russian and English (Niemi et al. 2013). The results showed that on average, metaphoric usage of English body parts was 40% and that of Japanese body parts was 37%. The body parts in English were used metaphorically nearly half the time except for leg parts, which were being used only 15% of the time (Table 4.1). By contrast, Japanese body parts showed less uniform results, with hara ‘belly’ (62%) being the most metaphorical word followed by atama ‘head’ (44%), mune ‘chest’ (37%) and ashi ‘leg’ (15%) (Table 4.2).

<table>
<thead>
<tr>
<th></th>
<th>Literal</th>
<th>Metaphor</th>
<th>Metaphor descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head (486)</td>
<td>55% (269)</td>
<td>45% (217)</td>
<td>Leader/lead, mobility, mind</td>
</tr>
<tr>
<td>Heart (365)</td>
<td>52% (189)</td>
<td>48% (176)</td>
<td>Essencecenter, emotions/feelings, locational center</td>
</tr>
<tr>
<td>Gut (206)</td>
<td>48% (100)</td>
<td>52% (106)</td>
<td>Instinct, emotions</td>
</tr>
<tr>
<td>Leg parts (545)</td>
<td>83% (450)</td>
<td>17% (95)</td>
<td>Established position, mobility, idiom</td>
</tr>
</tbody>
</table>

(#{}) = raw scores
Table 4.1: English body parts results

<table>
<thead>
<tr>
<th></th>
<th>Literal</th>
<th>Metaphor</th>
<th>Metaphor descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Atama</strong>&lt;br&gt;‘head’&lt;br&gt;(394)</td>
<td>65%&lt;br&gt;(259)</td>
<td>35%&lt;br&gt;(135)</td>
<td>Intelligence, mind, thoughts, anger</td>
</tr>
<tr>
<td><strong>Mune</strong>&lt;br&gt;‘chest’&lt;br&gt;(308)</td>
<td>63%&lt;br&gt;(194)</td>
<td>37%&lt;br&gt;(114)</td>
<td>Feelings, inner thoughts, memory</td>
</tr>
<tr>
<td><strong>Hara</strong>&lt;br&gt;‘belly’&lt;br&gt;(251)</td>
<td>38%&lt;br&gt;(96)</td>
<td>62%&lt;br&gt;(155)</td>
<td>Anger, decisions, honest, inner thoughts</td>
</tr>
<tr>
<td><strong>Ashi</strong>&lt;br&gt;‘leg’&lt;br&gt;(382)</td>
<td>85%&lt;br&gt;(325)</td>
<td>15%&lt;br&gt;(57)</td>
<td>Mobility</td>
</tr>
</tbody>
</table>

(#) = raw scores

Table: 4.2: Japanese body parts results

Interestingly, gut (52%) was also the most metaphor-prone body part in the English group, although the difference between the literal and metaphoric usages was not as large as those in the Japanese sample. Similarly, leg (parts) was the least metaphorical body part both in English and Japanese (17% and 15%, respectively). These results suggest two conclusions; 1) at least English data shows high percentage of metaphoric usage and 2) the hierarchy of metaphor-proneness is common between English and Japanese, following the order of gut, heart, head and leg (leg parts). The results of raw scores for each body part also support this strong tendency of metaphor-proneness for gut and heart.

Although the target token was 200 for each body part per corpus (except English leg parts to be 300 per corpus), the total collected number of samples
varied by body part because some body parts are used more frequently than others. In fact, the least metaphoric body part, leg parts and *ashi* 'leg' offered the largest number of raw scores in both languages. That means that leg parts are frequently used, but not as a tool to express other things. Conversely, the raw scores for *gut* is less than half the number of leg parts (206), but the word is used metaphorically 52% of the time, indicating its productiveness in semantic extensions. Japanese data also followed a similar pattern: *hara* 'gut' collected the least number of samples (251), but is highly metaphorical (62%). The hierarchy of body parts reverses when looking at the literal usage, which also correlates with the volume of raw scores. The body parts that are used frequently (leg parts, *ashi* 'leg', head and *atama* 'head') are less metaphoric. *Gut* and *heart* are much less frequently used, but when in use, they are highly metaphor-prone. In sum, the third finding from the results is that *gut, hara* 'gut', *heart* and *mune* 'chest' have more semantic extensions than other body parts. Additional analysis of this phenomenon is described later in this chapter.

### 4.2.1 Issues with spoken corpora data

The findings illustrated in the earlier section were from the combined data of written and spoken corpora. While there was a number of large size written language corpora that offered well-balanced data, spoken corpora data had some limitations. Unfortunately, due to the smaller scale of spoken corpora, spoken data alone were limited in number and thus were less reliable when they were used for quantitative analysis. Additionally, spoken data was not well
balanced in the genres. Even with the best intention to accommodate a variety of fields, it is difficult to predict the topics that emerge in unscripted and naturally occurring conversations. When there is a small sampling of data whose genres are limited, it becomes doubtful if the search results are accurate representations of general language use. However, the data from the spoken corpora should not be easily discredited. Spoken data could be a rich source of lexical items and expressions that may not be apparent in the written data. Because of the extensive scale of written corpora, words and phrases have to be significantly frequent in usage in order for the tokens to be found in the search results. Smaller spoken corpora, on the other hand, would offer tokens that may be limited in their usage, yet are valuable nonetheless. For example, the expression, ‘bless one’s heart’ was found only in the spoken data, CALLHOME English. That is possibly because it is a regional expression in the South that is used to soften criticism or express pity. The specialized tokens such as this would be buried in the vast volume of data in the written corpora and difficult to find. When the variations and diversity of the language are concerned, spoken data could be a rich resource that would supplement written data. However, understanding the limited amount of spoken data that is expected, this research set a relatively small target number for collecting tokens to avoid a significant discrepancy in raw scores between written and spoken corpora.
<table>
<thead>
<tr>
<th></th>
<th>Literal</th>
<th>Metaphor</th>
<th>Metaphor descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head (48)</td>
<td>73% (35)</td>
<td>27% (13)</td>
<td>Mind, leader/lead, maturity, mobility, early start</td>
</tr>
<tr>
<td>Heart (70)</td>
<td>71% (50)</td>
<td>29% (20)</td>
<td>Emotions/feelings, self (personality)</td>
</tr>
<tr>
<td>Leg parts (124)</td>
<td>98% (122)</td>
<td>2% (2)</td>
<td>Established position, help</td>
</tr>
</tbody>
</table>

(#) = raw scores  No tokens for gut

Table 4.3: SBCSAE results

<table>
<thead>
<tr>
<th></th>
<th>Literal</th>
<th>Metaphor</th>
<th>Metaphor descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head (206)</td>
<td>47% (105)</td>
<td>53% (101)</td>
<td>Mind, leader/lead, mobility, early start</td>
</tr>
<tr>
<td>Heart (61)</td>
<td>69% (41 )</td>
<td>31% (19 )</td>
<td>Essence/center, emotions/feelings</td>
</tr>
<tr>
<td>Gut (5)</td>
<td>40% (2)</td>
<td>60% (3)</td>
<td>Instinct</td>
</tr>
<tr>
<td>Leg parts (78)</td>
<td>96% (73)</td>
<td>6% (5)</td>
<td>Mobility</td>
</tr>
</tbody>
</table>

(#) = raw scores

Table 4.4: MICASE results

<table>
<thead>
<tr>
<th></th>
<th>Literal</th>
<th>Metaphor</th>
<th>Metaphor descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head (32)</td>
<td>44% (14)</td>
<td>56% (32)</td>
<td>Leader/lead, mobility, mind</td>
</tr>
<tr>
<td>Heart (34)</td>
<td>59% (20)</td>
<td>41% (14)</td>
<td>Mind, middle of, concern, self (personality), idiom</td>
</tr>
<tr>
<td>Gut (1)</td>
<td>0% (0)</td>
<td>100% (1)</td>
<td>Courage</td>
</tr>
<tr>
<td>Leg parts (43)</td>
<td>88% (38)</td>
<td>12% (5)</td>
<td>Established position, mobility</td>
</tr>
</tbody>
</table>

(#) = raw scores

Table 4.5: CALLHOME English results
<table>
<thead>
<tr>
<th></th>
<th>Literal</th>
<th>Metaphor</th>
<th>Metaphor descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Atama</strong></td>
<td>38% (5)</td>
<td>62% (8)</td>
<td>Intelligence, mind,</td>
</tr>
<tr>
<td>‘head’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(13)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mune</strong></td>
<td>100% (5)</td>
<td>0% (0)</td>
<td>N/A</td>
</tr>
<tr>
<td>‘chest’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hara</strong></td>
<td>0% (0)</td>
<td>100% (11)</td>
<td>Hunger, anger</td>
</tr>
<tr>
<td>‘belly’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ashi</strong></td>
<td>100% (8)</td>
<td>0% (0)</td>
<td>N/A</td>
</tr>
<tr>
<td>‘leg’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(#{}) = raw scores

Table 4.6: Sakura Corpus results

<table>
<thead>
<tr>
<th></th>
<th>Literal</th>
<th>Metaphor</th>
<th>Metaphor descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Atama</strong></td>
<td>48% (12)</td>
<td>52% (13)</td>
<td>Intelligence, anger</td>
</tr>
<tr>
<td>‘head’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(25)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mune</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>‘chest’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hara</strong></td>
<td>62% (15)</td>
<td>38% (9)</td>
<td>Anger, hunger, honesty</td>
</tr>
<tr>
<td>‘belly’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(24)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ashi</strong></td>
<td>98% (28)</td>
<td>2% (3)</td>
<td>Mobility, idiom, redemption</td>
</tr>
<tr>
<td>‘leg’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(31)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(#{}) = raw scores

Table 4.7: CALLHOME Japanese results

Even this, however, did not eliminate all of the sampling deficiencies. Another problems was that SBCSAE (Santa Barbara Corpus of Spoken American English) did not have any samples of ‘gut’ while MICASE and CALLHOME English only had 5 tokens and 1 token respectively (Table 4.3, 4.4 and 4.5).
Japanese spoken corpora (CALLHOME Japanese and Sakura Corpus) also showed similar patterns and presented limited results, illustrated in Table 4.6 and 4.7. The overall raw scores in the Japanese corpora were too small to draw a valid conclusion in the analysis, while English spoken data was more comparable to the written data (Table 4.8).

In summary, the results of this research from the spoken corpora alone would not be considered a reliable representation of general tendencies. However, the spoken data should not be entirely discredited. As written and spoken languages are often different in the usage of grammar, lexicon and other areas, the spoken data still makes a valuable contribution to establishing a well-balanced data set.

<table>
<thead>
<tr>
<th>English</th>
<th>Written</th>
<th>Spoken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head</td>
<td>200</td>
<td>286</td>
</tr>
<tr>
<td>Heart</td>
<td>200</td>
<td>53</td>
</tr>
<tr>
<td>Gut</td>
<td>200</td>
<td>6</td>
</tr>
<tr>
<td>Leg parts</td>
<td>300</td>
<td>245</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Japanese</th>
<th>Written</th>
<th>Spoken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atama ‘head’</td>
<td>356</td>
<td>38</td>
</tr>
<tr>
<td>Mune ‘chest’</td>
<td>303</td>
<td>5</td>
</tr>
<tr>
<td>Hara ‘belly’</td>
<td>251</td>
<td>20</td>
</tr>
<tr>
<td>Ashi ‘leg’</td>
<td>343</td>
<td>39</td>
</tr>
</tbody>
</table>

Table 4.8: Written and spoken data comparison in English and Japanese
4.3 Qualitative results: metaphoric usage

This chapter addressed so far the quantitative usage analysis of the target body parts in regard to literal and metaphoric expressions. Now the focus shifts to the second research question: how are the target body parts used metaphorically to express emotions and feelings? In this section, the research results are examined mainly in a qualitative manner. Quantitative figures are still presented to illustrate the frequency of various semantic extensions, but the focus is on the relationship between the semantic extensions and the body parts, rather than on how often they are used. First, results from each corpus were examined and compared among the corpora of the same language to determine the intra-language tendencies. Secondly, cross-linguistic analysis was made to find language-specific metaphorical usages. In the analysis of language-specific metaphors, ethnographic information was supplemented to help elucidate the potential reasons behind the language-sensitive expressions.

Because body parts often have specific functions that they are primarily responsible for, the functional components of body parts are utilized and give rise to the meaning of metaphoric expressions. One example of a functional metaphor is the usage of *hand* to express an offering of help in English, Japanese and Yoruba, as introduced earlier in this paper. The association of *eye* with vision and *mouth* with speech are also examples of the semantic extension that stems from the functions of these body parts. Another factor that is found in semantic extensions is the spatial characteristic of body parts. It is universally understood that the head is located at the top of the body, the heart is in the
middle of the torso and the feet are at the bottom of the legs. Many languages take advantage of this spatial orientation of the body and associate abstract concepts with body parts accordingly. This type of metaphor, the spatial metaphor, is exemplified in Laotian’s disdain for feet that was explained in the literature review chapter. The Japanese expression of ashi o arau ‘washing one’s feet’ (the act of leaving an immoral past behind and starting over) also suggests the correlation of the feet’s contact with the ground and filthiness. The functional and spatial relations of body parts are clear and relatively universal. However, when the referents are such abstract concepts as emotions and feelings, there seems to be more room for interpretation. This is the area of body part metaphors where expressions are more variable and could reflect the beliefs and ideologies of a given speech community. The body parts in this research that are strongly associated with emotions and feelings are heart, mune ‘chest’ gut and hara ‘belly’, but the results are examined in the spatial order, from the head down to the leg parts.

4.3.1 Head

The most frequently used metaphor with ‘head’ was referring to the mind (30% of the head metaphors) as follows.

(8) Ya know how ya get a certain song stuck in ya head

(COCA)
(9) Those words … those are the things that came in my head

(MICASE)

(10) All the little bells went off in my head, but I just thought

(CALLHOME)

(11) It was just a thought that went through my head

(SBCSAE)

The examples (8) through (11) are considered to be functional metaphors because the expressions are largely associated with brain functions such as memory and cognition. The head in the examples above are interchangeable with mind, an immaterial entity that is conventionally thought to be located in the head. One interesting finding is that the data did not show a frequent use of head for intelligence. There were a few examples such as (12) and (13) below that implied intelligence, but nothing explicit. Although mind is not part of this research, one possible reason is that mind is a more frequent choice for expressing one’s intelligence (e.g. brilliant mind, sharp mind, great mind and analytical mind).

(12) She’s a very level-headed eighteen

(SBCSAE)

(13) She’s really got her head screwed on right

(SBCSAE)
The results also showed that *head* was used to describe a leading figure or the action of leading a group or organization (30% of the head metaphors) illustrated in the examples (14), (15), (16) and (17).

(14) *CB Dyshod Cater* head *an experienced crew*  
(COCA)

(15) *She the last few years has been the head pediatric nurse*  
(CALLHOME)

(16) *While she is the head of that household*  
(SBCSAE)

(17) *When I went to Project Serve, Anita Bone who is the head of all of Serve*  
(MICASE)

Unlike the mind examples, the (14) – (17) examples derive the meaning from the spatial orientation of *head*. As briefly described in the literature review chapter, Lakoff and Johnson (1980) argued that humans metaphorically use physical characteristics and experiences as a basis to understand and express abstract concepts. One group of such metaphors is orientational metaphors, which use the human spatial orientation to make sense of intangible phenomena. According to this principle, the head that is at the top of the body is a suitable body part to describe those who are in the leadership position as *up* is conceptualized as good and higher status. The third extensional meaning of
head is mobility. The following expressions (18), (19), (20) and (21) illustrate that head is used to express “moving to or moving forward”.

(18) They do encourage their own faculty to head over for a semester or more overseas (MICASE)

(19) Many head into the city in their cars, causing hellish gridlock (COCA)

(20) He’ll head for Florida (CALLHOME)

(21) John headed west to his new trainer (SBCSAE)

This semantic extension seems to have little to do with the function or location of the head, however the spatial orientation might still be at work. The spatial orientation is not limited to an up-down relationship, but also applicable to other spatial relations such as front-back, forward-backward, on-off and central-peripheral. Because the head is heavily symbolic in its positive connotation due to the high cognitive function of the brain and the highest location of the body, it might also be embodying the concept of forward in the frame of forward-good relation. In addition, many domestic animals have the head in the front where the head-forward concept is more prominent. The domestic animals such as cow, sheep, pig, horse and dog have played/have been an integral part of the human life for thousand of years. If our conceptualization is based on our experiences, it is possible that the spatial orientation of the other species may have contributed to our concepts. For example, head start means 'starting early or ahead' and it is
usually perceived as a desirable act. Therefore, one could argue that the meaning of head start is also coming from the human concept for head as forward and a positive entity.

Applying the example (22) in the Casning’s equation model introduced in the beginning of this thesis, the metaphoric usage of the head as forward-good could be interpreted as follows:

(22) Debbie takes her baby, Jessica, to a special head start program

(COCA)

1. Head is equated to an entity that is good by the spatial orientation framework as the head is in the top of the body

2. Head is also equated to the notion of forward mobility, by the special orientation of the body of the domestic animals

3. Forward is equated as good by the special orientation framework

4. Therefore, head is assumed by the framework to equate good and forward

4.3.2 Atama ‘head’

This section discusses the results for the Japanese equivalent of head, atama. As opposed to English, Japanese does not have an immaterial entity such as the English mind and thus, it is the only terminology available for the body part. Atama is frequently used to express intelligence (20 % of the atama metaphors) followed by mind (14% of the atama metaphors) as illustrated in examples (23) (24) (25) and (26).
(23) *Demo sono ko atama ga ii kara*
   but that kid head NOM good because
   ‘But because that kid is smart’ (CALLHOME Japanese)

(24) *Uchi no hamusuta atama yo katta*
   our ACC hamster head good was
   ‘Our hamster was smart’ (Sakura Corpus)

(25) *Iroirona koto ga atama no naka o yogiri masu*
   various thing[s] NOM head GEN inside ACC
   cross:NONPAST
   ‘Various things cross my mind’ (BCCWJ)

(26) *Onsen o atama ni egaite*
   hot spring ACC head DAT draw:TE
   ‘Picture hot spring[s] in one’s mind’ (TWC)

One noteworthy Japanese variation that English results did not present was that *atama* is a site of anger. The metaphoric expression, *atama ni kuru* ‘anger come[s] to head’ was found in three of the four Japanese corpora and is a widespread expression in Japanese.

(27) *Atashi mata atama ni kite dona tta wa*
   I again head DAT come yell:PAST PTC
   ‘I became angry again and yelled’ (BCCWJ)
What is also unique in this metaphor is that the expression actually does not include the word for ‘anger’. The phrase simply says ‘come[s] to head’ without any mention of the object that comes to the head. However, it is rather a common physical reaction to feel a strong sensation in the head when one feels angry, and this metaphor probably originates from this physical experience that accompanies the feeling of anger.

4.3.3 Heart

The results of the next body part, ‘heart’, also showed a mixture of different types of metaphors. Conventionally, ‘heart’ is perceived as a site of emotions and feelings. While it was also true in my data, another prevalent metaphor in the results was a spatial metaphor of ‘heart’ referring to the central or middle of things that are not the physical heart (15% of the heart metaphors), shown in the examples (30), (31) and (32).
(30) The first food joints ...that were once the heart of the ghetto  (COCA)

(31) We ended up with the studio at the heart of the building  (MICASE)

(32) What’s she doing calling in the heart of the day  (CALLHOME)

The usage of heart as the essence of the matter (5% of the head metaphors) was another metaphoric expression in the data. Building upon its spatial characteristic combined with the orientational concept of “central-good” relation, ‘heart’ is expressing the vitality of things as indicated in the examples (33), (34) and (35).

(33) An overture that leads straight to the very heart of the drama  (MICASE)

(34) Repetition is at the heart of monastic life  (COCA)

(35) Spirituality and the heart of conflict resolution  (COCA)

Predictably, the most prevalent metaphor for ‘heart’ in the data was the heart as the site emotions and feelings. As discussed in this section, heart’s metaphorical role as a central entity for emotions is prominent in English and most likely other cultures, as the heartbeat is a universally experienced physical phenomenon that accompanies a heightened emotional state. In reality, however, strong emotions trigger various physical effects in many other parts of the body. For example, whether it is due to excitement or anxiety, emotions also cause perspiration, tightened throat, stomach ache, crying or light-headedness. It is
argued that the centered-ness of the heart in the body is a crucial attribute that helps establish its role as the center of various emotions. The results of this research suggests that the heart is the site of love, compassion, beliefs, truths, endearment, pain, devastation, fear, resentment and more shown in the examples (36), (37), (38) and (39) below.

(36) On the day of his wedding … gladness in his heart (MICASE)

(37) crying my heart out (COCA)

(38) I had a lot of resentment in my heart (COCA)

(39) By the Spirit that Christ is present in our hearts (SBCSAE)

One prominent characteristic of the heart metaphor for emotions and feelings in the data was treating the heart as a person. Lakoff and Johnson (1980) stated that personification “allows us to comprehend a wide variety of experiences with nonhuman entities in terms of human motivations, characteristics and activities (p.33). Such examples include:

(40) His heart rejoices this morning (SBCSAE)

(41) whatever your little heart desires (MICASE)

(42) Her heart finally betrayed the loving resolve of her thoughts (COCA)

(43) My heart’s been killed and it’s lying in the earth? (COCA)
The examples that treat the heart as another person/entity were also abundant in the data as follows.

(44) *listening to my heart and my gut* (COCA)

(45) *threw myself into it heart and soul* (CALLHOME)

In sum, the high volume of examples in the results indicate that heart is a central entity in English that is highly regarded and valued with reference to human emotional processes and behavior.

4.3.4 *Mune* ‘chest’

The personification of the heart was also found in the metaphors based on its Japanese counterpart *mune* ‘chest’.

(46) *Zensen mune ga itama nai wa*

at all chest NOM hurt:NEG PTC

‘My heart does not ache at all.’ (BCCWJ)

(47) *Shonen no mune o kusugurase mo shita*

boy GEN chest ACC tickle also do:PAST

'[It] also tickled the boy’s heart’ (BCCWJ)
Additionally, many Japanese expressions found in the data often treat ‘heart’ as an object. The examples below illustrate that the heart is something that becomes ‘bad’, gets ‘clogged’, ‘shakes’ or ‘expands’.

(48) **Mune o tsumarase mune ga tsubureru yona omoi**

chest ACC clog:CAU chest NOM crush like feeling

‘Feeling like [a] clogged and crashed heart’

(BCCWJ)

(49) **Yorokobi ni mune ga furuete naki so ni naru**

joy DAT chest NOM shake:TE cry as if DAT become

‘My heart shakes with joy and [I] almost cry’

(TWC)

(50) **Kitai ni mune o fukuramaseto hito**

hope DAT chest ACC inflate:PAST person

‘A person whose heart was full of [inflated with] hope’

(BCCWJ)

This objectification of ‘heart’ was also seen in the English data, most known in the “broken heart” expression.

(51) **I was supposed to be teaching to read who’s breaking my heart**

(CallHome)

(52) **Eyre feels his heart swell**

(COCA)

(53) **Thinking may be my heart would burst**

(COCA)
When ‘heart’ is metaphorically expressed as an object, it appears that the heart is conceptualized as a container, as Swan (2009) argued. Swan’s study was solely on English, but the Japanese data of this research also supports this claim. The results indicate that the heart as a container holds materialized emotions and feelings, which affect the condition of the container; as they may expand, brake or shake it.

One notable Japanese variation of the heart metaphors found in the data that was different from the English counterparts is that mune ‘heart’ was used as a site of inner thoughts or feelings.

(54) *Mune no naka de hitori goto o ii nagara*  
chest GEN inside LOC alone word ACC say while

‘While talking to oneself in the heart’  
(Coca)

(55) *Mune no oku de tsubuyaki nagara*  
chest GEN inner part LOC mutter while

‘While muttering deep in the heart’  
(Coca)

(56) *Kanashimi ya yorokobi o mune ni himete*  
sadness and/or joy ACC chest DAT hide

‘Keeping sadness and joy to oneself in the heart’  
(TWC)

(57) *Sono kangae o mune ni simatteoita*  
that idea ACC chest DAT hide:TE-PAST

‘Hid that idea in the heart’  
(TWC)
Those examples show that *mune* ‘chest’ is also considered to play some cognitive function in Japanese that the head is primarily responsible for in English.

4.3.5 Gut

Anatomically, gut is a lower part of the torso, where the intestines are. Gut is not often regarded to be a site of emotions, as people usually do not link the gut and emotions in the way they look at the heart and emotions. However, linguistically, the results showed that the most prevalent metaphoric usage for ‘gut’ is to express instinctive feelings (33% of the gut metaphors).

(58) *You got any gut feeling about whether this lasts?* (COCA)
(59) *Feel it a little bit in their gut that this is something important* (MICASE)
(60) *I was going entirely on gut instinct* (COCA)
(61) *They believe in their gut is right that’s a conflict that can be resolved* (COCA)

Although the number is rather small (3% of the gut metaphors), the analysis of the results also suggest that ‘gut’ could be a source of various emotions such as tension (62), anger (63), fear (64) and excitement (65).

(62) *Wayfield tried to ease the tension in his gut by running over contingency plans* (COCA)
Contrary to the common perception of the gut, there are a number of medical studies that suggest a strong relationship between mental stress and the medical issues in the gut. For example, the study by the University of North Carolina School of Medicine\textsuperscript{4} claimed that mental stress involving challenge, threat or worry could activate the brain’s stress response system and cause harmful effects to the gut. Common gastrointestinal symptoms due to stress are lower abdominal pain, vomiting and diarrhea. The same study also presented that IBS (irritable bowel syndrome) patients showed increased colon mobility (upset stomach) when they were led to get angry.

4.3.6 Hara ‘belly’

The medical relationship between stress and the gastrointestinal dysfunction interestingly aligns with the metaphoric usage of hara ‘belly’ in Japanese. The results illustrated that hara ‘belly’ is most frequently used to indicate anger (25% of the hara metaphors). The expression, hara ga tatsu ‘belly stand[s] up’ is a very common metaphor to describe one’s anger as seen in the examples (66), (67), (68) and (69).

\textsuperscript{4} https://www.med.unc.edu/ibs/files/educational-gi-handouts
(66) Sore hara tatsu ichiban

that belly stand number one

‘That is upsetting the most’

(Sakura Corpus)

(67) Gyosei no ososa ni mina hara o

government GEN slow DAT everyone belly ACC

tatetoru

stand:PROGRESSIVE

‘Everyone is being upset about slow government [action]’

(CALLHOME Japanese)

(68) Damasarete hara ga tachimashita

fooled:PASS-TE belly NOM stand:PAST

‘Having gotten fooled, [I was] angry’

(BCCWJ)

(69) Yonde te hara ga tachimashita

reading:TE belly NOM stand:PAST

‘[Content of the] reading made me upset’

(TWC)

Given the effect of mental stress on the gut, it becomes more understandable why a connection is made between the physical experience of the gut and the feelings that are expressed by these gut metaphors. However, the mechanism of medical reactions that happen in the gut is hard to determine, and so is the source of instinctive feelings. People may not be fully aware of the effect of anger to the gut, but the Japanese linguistic data clearly points out that the gut is a site of anger. Another key metaphor of Japanese hara ‘belly’ is one’s
true self. A number of Japanese examples in the data indicated that human essence is hidden in the gut, while the English data indicated it to be in the heart.

(70) Yukkuri hara watte hanasu to iu chansu naka tta kedo
slowly belly cut:TE speak PTC say chance NEG PAST although
‘Although there was no chance to talk over [honestly]’
(CALLHOME Japanese)

(71) Hara o watte hanasareta ho ga ii to omoimasu
belly ACC cut:TE speak PTC NOM good PTC think;NONPAST
‘[I] think it is better to speak frankly’
(BCCWJ)

(72) Hara no uchi wa omitoshi da yo
belly GEN inside PTC see through COP PTC
‘Your true intention (inside of the belly) is obvious’
(BCCWJ)

(73) hara ni tamatte iru koto mo haki dasan to
belly LOC accumulate exist things also spit out:NEG if
‘If [one] does not get out the accumulated things [feelings] out of the belly/[mind]’
(BCCWJ)

As the examples above illustrate, Japanese considers one’s true self to be in the gut. Therefore, opening the gut (as opposed to opening the heart) is an act of presenting one’s true intentions as claimed by Dürckheim (1962) and Nitobe (1969).
4.3.7 Leg parts and *ashi* ‘leg’

In this chapter, three body parts in different spatial locations of the body were examined with reference to emotions and feelings. The last body part ‘leg’ appeared in the data most frequently. However, it was the least metaphoric body part among the ones analyzed in this research. When other body parts were metaphoric about 30%-60% of the time, results for leg parts and *ashi* were 17% and 15% respectively. Unlike other body parts, the data did not include any leg metaphors that particularly expressed human emotions and feelings. Nonetheless, the metaphoric usages of ‘leg parts’ and *ashi* ‘leg’ were also functional and spatial in nature, similar to what was observed in other body parts. The first type of leg and *ashi* metaphors was related to mobility or footing, perhaps because the primary functions of leg parts are moving and establishing stance.

(74) *It would give us as Chicago in a much better footing with government*  
(SBCSAE)

(75) *Name may get your foot in the door, but you’ve got to close the deal*  
(COCA)

(76) *Nokori no 20% wa ashi o hippoc*  
remianing GEN 20% PTC leg ACC pull:NONPAST  
‘The remaining 20 % slow [things/people] down’  
(BCCWJ)

(77) *Zehi ashi o hakonde*  
by all means leg ACC carry:TE
Examples (74) to (77) are slightly different in meaning, but they are all functional metaphors that derive from the physical ability of the legs. For example, better footing with government (74) refers to a better relationship (position) and getting a foot in the door (75) is establishing an initial contact. In Japanese, (76) is describing things and people who slow down productivity as if one's leg is pulled, and (77) is visiting a place or person as one walks with legs to the destination.

The second type of metaphors was spatial. Even the heavily idiomatic expression 'footing the bill' for paying money has its origin in the foot, which is located at the bottom of the body. According to Michael Quinion, the author and lexicographer for the Oxford Dictionaries, 'foot' in this expression refers to adding the result of calculation to the bottom of the column in an accounting ledger.

(78) Why are tax payers footing the bill for inappropriate litigation? (COCA)

(79) local governments footing some 85 percent of the bill (COCA)

The ‘footing the bill’ idiom is another example of idiom that is used metaphorically as the ‘carrot and stick’ that was discussed in the introduction.

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5 http://www.worldwidewords.org/qa/qa-foo1.htm
The following is the interpretation of the ‘footing the bill’ equations based on the Casning model.

1. The foot is at the bottom of the human body
2. The accounting uses columns to calculate figures
3. The bottom column in an accounting ledger is the total amount of the charge
4. The charge is equated to the foot by the spatial orientation of the human body

On the other hand, Japanese data showed an expression that is similar to the Laotian concept of foot.

(80) *Ashi [proper name] kara ashi o aratte ne majime ni*

- leg religious group from leg ACC wash PTC serious DAT
  - *yatte iru*
  - do:TE is
  - ‘S/he quit a religious group and is living diligently’

(CALLHOME Japanese)

(81) *yoru no shobai kara ashi o arau*

- night GEN business from leg ACC wash
  - ‘quit nightclub industry’

(TWC)

The examples (80) and (81) clearly indicated the association of *ashi* ‘leg’ and the concept of filth, which represents negativity. This interpretation of leg is
also tied with Lakoff and Johnson’s spatial orientation where “up is good and down is bad”.

5. Discussion

5.1 Introduction

In this chapter, two points are discussed based on the results that were featured in the preceding chapter. The first point is language specific variations of body part metaphors in English and Japanese and what they suggest in terms of conceptualization of emotions and feelings in a given speech community. The second point is how body part metaphors are related to each other with reference to emotions and feelings; relationships of the body parts are examined, and claims are made using the framework of spatial orientation of human concepts by Lakoff and Johnson.

5.2 Language specific metaphors

According to Dimmendaal (1995), the human cognitive system is greatly localized. In line with Dimmendaal's claim, the results of this research presented intriguing variations between English and Japanese metaphors. Studying how those body part metaphors are used helps reveal the concepts and ideologies that are uniquely relevant in a given speech community.

With regard to head, there are two distinctive differences between English and Japanese expressions. First, English head metaphor functions as a symbol of mobility. Movement as an extension of head does not make much sense on
the first glance. However, the spatial orientation theory argues that the human conception regards forward as good and backward as bad. Considering the long Western history of expanding territories as a sign of prosperity, one could argue that the head would be a good linguistic tool to express the forwarding motion, as the functional and spatial superiority of the head clearly identifies the head as a positive entity. Additionally, the head-forward anatomy of the domestic animals may have affected the human conceptualization of the head, as such animals have been closely associated with the human life.

Secondly, although the brain's cognitive function is undeniably associated with the head, there were not as many head metaphors involving intelligence in the data. That is most likely due to the fact that English has a 'head and mind' dualism that draws a divisive line (although the line is not always clear) between the physical head and the cognitive function of the brain. The scope of this research did not include a contrastive analysis of body parts and their immaterial counterparts like the mind. However, I suggest that mind is taking on a larger linguistic role to express human high cognitive function. By contrast, atama 'head' is frequently used to describe one's intelligence as Japanese does not have an equivalent term for mind, the term that seems to be reserved for a cognitive aspect of human brain function in English. The lack of a distinction between head and mind in Japanese does not mean that Japanese is not concerned with the opposition of body versus mind. In fact, Japanese has three separate terms that refer to the heart. Sinzo is an anatomical term that is specifically assigned to the heart as an organ; kokoro is the immaterial entity believed to be located in the
chest area of the body and is responsible for emotions and feelings. *Mune* refers to the chest, but it indicates not only the actual physical area, but also expresses, metaphorically, the emotions and feelings that *kokoro* supposedly processes.

In English, the heart is considered to be the core of a person where one's most inner self resides. This is not a surprising association, as the heart is located near the center of the body and is believed to generate or contain various emotions and feelings. While this approach to the heart is similar in Japanese, Japanese considers the gut to be the site of inner-self. The expressions such as *hara no uchi* 'inside of the belly' and *hara o waru* 'crack the belly in half' suggest that one's true self (as well as true feelings and emotions) is stored in the gut. Although English and Japanese place the center of the self in different locations, they agree in that they do not consider the head to be the core of the human being. These linguistic results suggest that both languages universally regard emotions and feelings to be high value indicators for judging one's worth.

5.3 Spatial orientation and distribution of emotions

In this section, I discuss how the distribution of human emotions in the body is associated with the spatial orientation of the human cognition. One undeniable characteristic that was concluded in this study is that spatial orientation plays a significant role in the attempts to express abstract notions through body part terms. When looking at how emotions and feelings are distributed in terms of location of the body, one common pattern surfaces both in English and Japanese. It is observed that the degree of rationality that is
associated with the body part metaphors decreases as the location of the body part lowers. The head is used to describe the most rational and functional entities of human psyche such as memory and thoughts. The heart is responsible for emotions and feelings that are much more subjective and difficult to measure. When it goes down to the gut or belly, the feelings become instinctive, which is even less rational than other emotions. When emotions are triggered by one’s experiences, instincts are often baseless. Instincts are emotions and feelings that often contradict one’s head or heart’s judgments. However, following one’s instinct is considered a laudable act by many, further suggesting the power of emotions in the human value system.

Needless to say, spatial orientation is not the only factor by which humans use body parts to conceptualize emotions. It is often aided by the functions of the body part and the physical reactions when one feels certain emotions. However, the physical and functional perspectives alone could not fully explain why the gut/belly play a crucial part in human emotions. The human mind is extremely complex and it is too simplistic to generalize a single system that governs how we conceptualize abstract notions. I suggest, however, that spatial orientation is one key component that contributes to the way we understand and express human emotions.

6. Conclusions

This study investigated how human body part terms are used metaphorically in English and Japanese to express emotions and feelings.
Metaphors are often regarded as something that is poetic or rhetorical and hence peripheral to the communicative function of language. However, the results of this research show that metaphoric usages of the body parts examined in this thesis are prevalent and are productively employed to express highly abstract notions pertaining to emotions and feelings. While there are some differences between English and Japanese, one clear conclusion is that both speech communities take advantage of physical experiences and activities of the body to create ways to understand and communicate abstract notions.
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List of corpora

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Balanced Corpus of Contemporary Written Japanese (BCCWJ)  
https://chunagon.ninjal.ac.jp/login

CALLHOME American English Speech (CALLHOME English)  
https://catalog.ldc.upenn.edu/LDC97S42

CALLHOME Japanese Speech (CALLHOME Japanese)  
https://catalog.ldc.upenn.edu/LDC96S37

Corpus of Contemporary American English (COCA)  
http://corpus.byu.edu/coca/

Michigan Corpus of Academic Spoken English (MICASE)  
http://quod.lib.umich.edu/cgi/c/corpus/corpus?c=micase;page=simple

Santa Barbara Corpus of Spoken American English (SBCSAE)  
http://www.linguistics.ucsb.edu/research/santa-barbara-corpus

TALKBANK Sakura Corpus (Sakura Corpus)  
https://talkbank.org/CABank/ca-data.html

Tsukuba Web Corpus (TWC)  
http://nlt.tsukuba.lagoinst.info/search/