Abstract

The purpose of this study is to investigate the semantic extensions from the body part domain to spatiotemporal domains, and what mechanisms are working behind these linguistic phenomena. On the basis of bodily based experientialism, we analyze how the physical experiences in everyday life are figuratively reflected on linguistic conceptualization. We examined data mainly obtained from monolingual and bilingual dictionaries, such as *the Oxford English Dictionary 2nd edition*, *Nihon Kokugo Daijiten 2nd edition,* and *Diccionario del Español Actual 2nd edition*. Through analysis of the collected data, we propose both language-particular items and commonalities in English, Japanese and Spanish.

In order to conduct this research efficiently, we classify body parts into three categories: external body parts, internal body parts, and non-human body parts (observed only in animals and plants). (a) We have observed that a larger number of expressions extended to spatiotemporal domains are observed with external body part terms whose properties serve to interact with entities in the external environment. (b) On the other hand, internal body part terms exhibit a smaller number of expressions to denote spatial meanings and but few expressions of temporal meanings due to the fact that internal body parts which can not be seen from the outside have less salience for our perception, which is less likely to be concerned with the spatial concepts. (c) With regard to animals and plants body part terms where the number of idioms involving body part terms is smaller than that of humans, a smaller number of expressions are extended to spatiotemporal domains in comparison with those of humans. However, motivations peculiar to animals and plants are derived from their properties, such as <EMERGENCE> and <STATUS QUO>.

We propose the motivations of metaphorical mapping are as follows: (a) transportability, (b) accessibility, (c) directionality, (d) positionality, (e) form, (f) emergence, and (g) status-quo. Specifically, motivations from (a) ~ (e) form a group based on spatial concepts of distance and movement. In addition, the typical body parts applicable to each motivation are (a) foot, (b) hand, (c) eye, (d) back, (e) hair, (f) root, and (g) flower, respectively.

In general, expressions in English exhibit a lager number of cases with

the spatial concepts of movement. Put another way, English belongs to the person-focus or do-language type, while the larger number of temporal expressions are observed in Japanese which is considered as a situation focus or become-language type. In Spanish, however, no outstanding characteristic was observed from the data.

2015 年度

博士論文　（指導教授　大月　実）

Semantic Extension from the Bodily Part Domain into the Spatial and the Temporal Domains: A Contrastive Study of English, Japanese and Spanish

（要旨）

大東文化大学大学院外国語学研究科

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本研究は身体領域から時空間領域への意味拡張と、その言語的現象に働くメカニズムを考察することを目的としている。身体基盤経験主義に元づき、Heine Svorou の方法を援用して、日常生活における身体経験がいかにして言語的概念化に反映されるかを考察する。データの分析により、英語、日本語、スペイン語における言語固有性と共通性を示す。

データは主に Oxford English Dictionary 2nd edition, 日本国語大辞典 第2版、Diccionario del Español 2.ª edición actualizada 等から抽出したものを利用した。

この研究では、身体部位は大きくい３つに分類される：人体の外的部位、人体の内的部位、動植物に特有の部位である。取集したデータから、外的部位は内的部位と比べて、より多くの時空間領域へ拡張している表現が見られた。これは外的部位が外的環境において事物に働きかける特性があるためである。一方、内的部位は、少数の空間的意味の事例があるが、時間的意味の拡張はほとんど見られなかった。これは、内的部位が体内に隠れていて知覚されにくく、空間的概念と結びつきにくいためであろう。動植物の身体部位詞に関しては、人間の外的部位と比較すると、時空間領域へ拡張している表現は少なかったことが判った。しかしながら、動植物の特性による特有の「創造性」や「状態性」のような動機もみられた。

身体部位詞の時空間への意味拡張の動機として以下であることを提案する：(a)移動可能性、(b)接触性、(c)方向性、(d)位置性、(e)形状性、(f)創出性、(g)状態性、である。それぞれの動機を示す典型的な部位は、(a) foot, (b) hand, (c) eye, (d) back, (e) hair, (f) root, (g) flower である。

英語は、名詞が動詞として使用される言語的特性に基づき空間概念の移動を伴う表現が多くみられた。言い換えると、英語は人間中心、または、する言語タイプである。その一方、日本語は、多くの時間表現が見られ、状況中心、または、なる言語タイプである。スペイン語に関しては、データから顕著な特性はみられなかった。

Semantic Extension from the Bodily Part Domain into the Spatial and the Temporal Domains: A Contrastive Study of English, Japanese and Spanish

Hidehiko NEGI

A Dissertation
Presented to the Graduate School of
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Chapter 1: Introduction

1.0 Purpose and Scope of this Study

The main purpose of this study is to investigate into the types of motivations for metaphorical transfer from the body part domain to other domains, in particular, those of space and time. It deals with semantic extension (metaphorical transfer) of body part terms (such as *hand*, *foot*, *head*, etc.) and idioms containing such terms (such as *at hand, foot of a mountain, head at*, etc.) in Japanese, English and Spanish within the framework of cognitive linguistics. By comparing and contrasting these three languages with one another, we will be able to confirm commonalities and differences in terms of semantic extensions. We not only examine examples in Japanese and English, the most investigated languages in contrastive linguistics in Japan, but also those in Spanish, a Romance language with a linguistic background different from English, a West Germanic language, thus representing two different linguistic developments within the family of Indo-European languages.

While quite a number of early studies in the semantic extension (metaphorical transfer) of body part terms (Heine 1991, Matsumoto 2000) have been conducted so far, none of them treat spatial and temporal meanings as a whole. The interrelationships between spatial and temporal meanings constitute an important topic in cognitive linguistics. Moreover, on the basis of bodily based experiences interacting with the physical environment in our life such as seeing, hearing, touching, moving, throwing, and so forth, it is important to investigate into an analysis of the ways those experiences are conceptualized in language.

By examination of the data collected, we will show that not all body part terms exhibit polysemy involving spatial and temporal meanings. As far as spatial meanings are concerned, most of the body parts are transferred to spatial concepts to some extent. (In particular, metaphorical transfer to inanimate objects is applied to most body parts.) However, transfer to temporal concepts is restricted. Not all body parts are transferred to the temporal domain. In this respect, the foot (*ashi, foot, pie*) and the hand (*te, hand, mano*) are rather special parts that are metaphorically transferred to

both spatial and temporal domains in all these three languages. We have observed that semantic transfers of the foot and the hand which we focus on in this dissertation have ample examples in all three languages. We will investigate the nature of motivations for the semantic extensions of body part terms and propose several types of them as particularly relevant to such extensions.

1.1 Material

The material used for this research is mainly written material, which is found in authoritative monolingual and billingual dictionaries such as OED 2nd edition, *Nihon Kokugo Daijiten*, *Diccionario Del Español Actual* that exhaustively list examples of idioms and expressions with respect to body part terms in spatiotemporal domains. Moreover, we will verify many of the years of first appearance, making use of dictionaries which list examples in the chronological order.

1.2 Outline of the Dissertation

Chapter 2 surveys previous studies regarding body part terms and their semantic extensions into spatiotemporal concepts. All those works reviewed need to be taken into consideration in our research to one extent or another. Regardless of the body part terms treated in previous studies, these studies still play an important role in understanding the relationships between spatiotemporal concepts and body part terms. With regard to our research, prior to the study of the body part terms, we conducted the research of spatial and temporal concepts arising from the Japanese lexical item, *saki,* which has a complicated mechanism for denoting opposite meanings of time, such as <past>, <earliness>, and <future>. This previous work made a great contribution to our present study of body part terms, enabling it to make progress smoothly with a background knowledge of space and time. Moreover, what we should not forget is the past study of body part terms presented by Heine whose extensive research on a large number of African languages has been most helpful to our research. Our research owes much to previous researchers' work.

Chapter 3 deals with methodology and theoretical framework. In this

chapter, the works of two scholars are used as foundations of our research. George Lakoff advocates bodily based experientialism to account for conceptualization from our physical experience to linguistic representation, which shows an antithesis to objectivism in favor of mind-body dualism where one's body and mind are to be considered as separately functioning. In addition, the conceptual metaphors proposed by him allow us to understand the mechanisms of the metaphorical extension from space to time, and are applicable to our research as concerns the analysis of data. The other is Bernd Heine who proposes the unidirectionality of semantic transfer of the body part terms, and presents detailed research regarding metaphorical transfer from the body part domain to the spatial domain, as shown in examples from African and some other languages, by making use of the anthropomorphic and the zoomorphic models to illustrate effectively the links between spatial position and the body parts. The ideas of these scholars are largely adopted in our study.

Chapters 4, 5, and 6 make an analysis of the data, consisting of idiomatic expressions involving external body part terms. Chapter 4 attempts to present an analysis of expressions and collocations in English (a West-Germanic language), followed by Chapter 5 which gives an analysis of body part expressions in Japanese (an East-Asiatic language). Chapter 6 analyses idioms in Spanish (a Romance language).

Chapter 7 deals with the internal body part terms in English, Japanese, and Spanish. This chapter compares and contrasts external and internal body parts in the three languages. In this section, we deal with not only spatiotemporal examples, but also examples expressing emotion, the majority of expressions being concerned with emotional meanings. Incidentally, some body parts which are located in the inside of the mouth such as the tooth and the tongue can be considered as the internal objects. Those terms, however, are excluded in this category by virtue of the fact that those parts are visible from the outside and are used to interact with entities in the external environment, such as biting, licking, and tasting foods. Also, the way of presenting data is different from the previous chapters 4, 5, 6, where expressions are sorted out by language. The same body parts in the three languages are presented in the same section.

Chapter 8 reviews the terms coming from animals and plants. As in the case with Chapter 7, the same body parts are arranged in the order of

English, Japanese, and Spanish. We attempt to observe the commonalities and the differences between human body part terms and non-humans body part terms.

Finally, Chapter 9 presents conclusions, contributions to the study of the body part terms and cognitive semantics, followed by problems and prospects for further research.

Chapter 2: Review of Previous Studies

2.0 Introduction

This chapter will review and evaluate previous linguistic studies regarding body part terms and spatiotemporal concepts. Since this study deals with metaphorical mappings from the body part domain to the spatiotemporal domains, it is of importance to review relevant earlier works in this field.

One major aspect of the cognitive linguistic study is bodily based experience where we analyze how those physical experiences in ordinary life are reflected in linguistic conceptualization. Major studies concerning body part terms have been treated here. Some of them focus on the polysemy of body part terms which exhibit a wide range of semantic networks developing into other domains. Furthermore, cross-linguistic studies involving body part terms have been reviewed.

The study of space and time is also the primary topic in cognitive linguistics since these two concepts are seamlessly interlocked with each other by virtue of the fact that we understand time in terms of space, and vice versa in some cases. For instance, the distance traveled from point A to point B in space can be mapped onto time spent from point A to Point B in terms of temporal concept. In our perception, time is indirectly understood by interaction with media such as the movement of the second hand of a watch, and sunrise and sunset to inform us of the beginning or the end of the day based on physical experience, but not directly understanding time itself as "the indefinite continued progress of existence and events" (ODE). As is seen in this illustration, the basic idea of the relationship between space and time claimed in cognitive linguistics is that space is the source domain extended to time as the target domain even though there are some counter-examples observable in idiomatic expressions. We take the position of considering the unidirectionality of semantic extensions from space to time by making use of body part terms.

The contents of those previous studies are divided into two categories: one is body part terms, the other is space and time. To our best knowledge, even though many studies have been conducted concerning body part terms,

very few studies have been conducted concerning the semantic extension of body part terms involving temporal concepts. We will thus review major studies in both fields.

2.1 Ando (1986)

In an early work, Ando points out that some lexical items concerning body parts in Japanese and English are defined differently to refer to different regions of the body. This can easily be a factor in giving rise to misunderstanding when the vocabulary items are interactively translated. He examines the usage of this vocabulary, by means of comparison and contrast between English and Japanese.

In discussing hair, Ando points out that the English word corresponds to *kami* and to *ke* in Japanese. That is to say, *ke* growing on the head represents *kami*, which is a different word.

hair	*kami* (hair on the head)
	ke (hair)

(Ando 1986:33)

Thus, "hair" in English referring to all hair in one's body has to be divided into two separate words in Japanese, which are *kami* and *ke*.

Another word Ando discusses is the English *head* which, includes *face*, whereas the definition of *atama* in Japanese does not include *kao* and each word refers to a different part of the body.

head		*atana*
	face	*kao*

(Ando 1986:33)

Therefore, as is often the case with Japanese students, they mistakenly translate 'raise one's head' into '*Atama wo ageru*'. In this case, *kao* or face would correspond to head in English.

1 He raised his head and glared at her.

Kare wa kao (face) *wo agete josei wo niramitsuketa.*

As Ando goes on to discuss, Japanese as a situation-focus language is likely to be expressed in a passive way so as not to give prominence to the agent but to employ the agent as if it were a patient. For instance, the tendency to avoid giving a clear answer in some occasions in Japanese culture might influence the language structure, leading to a certain vagueness in usage that can be the target of criticism from the point of view of non-Japanese: e.g., the use of the phrases "let me think" (instead of yes, no), "it is difficult" (instead of no), or "suggest something" (instead of sell something). On the contrary, English as person-focus language is expressed in an active way to give prominence to the agent with clarity.

Ando's theory that Japanese is situation-focus and English is person-focus would seem to offer an explanation for there being more cases of temporal reference found in Japanese than in English, and more cases of spatial reference with regard to subject movement being found in English than that of Japanese. In other words, the temporal concept can be thought of as passive, indicating a wait-and-see approach, whereas a spatial concept with regard to a motion event is active and can be thought of as indicating the prominence of the agent. In short, situation-focus is relevant to time, and person-focus is relevant to space.

Thus, Ando asserts that many people have pointed out that Japanese language values the logic of "becoming" rather than the logic of "doing" which might be considered as a more aggressive approach. He, therefore, attempts to demonstrate that many cases of difference in syntax can be consistently accounted for by the fact that English is do-language while Japanese is a become-language in terms of linguistic typology. However, he also asserts that there is no absolute opposition between the two languages, only a relative opposition. A classic illustration of these points might be seen in the contrast between the English phrase "Spring has come" and its Japanese equivalent "*Haru ni natta*" which could be more or less literally translated as "It became spring". '△ has become to spring.' 1)

As in (1) a, the entity of 'spring' is expressed in its becoming. In short, the agent as spring takes the action 'to come over here', which is applied to typical sentence patterns in English and reflects Bloomfield's concept of actor-action.

Overall, do-languages profile an agent as the entity acting. In contrast, in become-languages, the agent is not salient and is expressed in order to let things go according to their natural course of events. English, however, as a do-language which is certainly agent-centered, tends to use expressions that are entity-centered. In contrast, Japanese as a become-language tends to use expressions that are situation or matter-centered. To illustrate this, Ando gives the following two examples.

(2) a. I can see a ship in the distance.
b. *Tooku ni fune ga mieru*
(3) a. What do you hear?
b. *Nani ga kikoe masuka*

In Japanese, as in (2) b and (3) b, matter-centered expressions such as *mieru, kikoeru, niou, kigasuru,* can be used, but the agent is not salient.

2.2 Johnson (1987)

The following is a slightly modified summary of Johnson's work (1987:xiv-xv), which is closely associated with our research for the analysis of semantic structure evolving out of the bodily based experientialism.

Johnson points out that, in the traditional view of Objectivism, the body has been ignored and underestimated with respect to the explanation of meanings and rationality since it was believed that the body introduces subjective elements, which is not relevant to the objective nature of meanings. Another reason for the body ignored by Objectivism is that reasoning is too abstract to connect with the human body. Put another way, the body was thought to have no role in the understanding of abstract matters.

In Johnson's view, however, experience of embodiment elaborates imagination and structure for understanding. He introduces two types of imaginative structures, 'image schema' and 'metaphorical projection', in an attempt to account for this linguistic phenomena with an interaction of experience of embodiment. Image schema is a motion pattern which repeatedly appears in our perceptual interaction and motor program, providing our experience with consistency and structure. For instance,

'verticality' schema is derived from a notion of UP-DOWN with a direction for inclination when we understand structure of meaning from our experience. That is, we grasp the structure of 'verticality' on the basis of activity and perception through everyday life, such as going up stairs, the sense of standing up, and so forth.

The second type is metaphor. In order to structure a different type of domain, metaphor is employed to project from an experiential domain to other domains. In this case, metaphor is not a type of linguistic expression but one of primary cognitive structure. In other words, we make use of metaphor to organize abstract understanding in terms of physical experience. In the case of understanding by metaphorical mapping from a concrete entity to an abstract one, physical experience is used in two ways. Physical experience is mapped into the abstract domain, and metaphorical understanding is not an arbitrary projection but constrained due to concrete physical experience.

In agreement with Lakoff, Johnson also makes use of the MORE IS UP metaphor to explain the mechanism of semantic structure with 'vertical schema' which provides abstract understanding with physical basis, as in the example of 'Prices keep going up'.

2.3 Kunihiro (1987)

In the referent of body part terms, region to which the lexicon refers in a given language is not always consistent with other language. According to claim by Kunihiro, there is a case that a certain part of the body represents whole part of the body. This linguistic phenomenon in Japanese is not always consistent with that of English.

1. foot, leg

Foot and *leg* refers to different parts in English, whereas *ashi* (foot, leg) is used as a general term as a polysemous word indicating the limb below the pelvis.

> Kunihiro pointed out that there are many cases in which the names of some human parts represent parts by the whole, such as face representing part of head in English. However, names in Japanese are

not always in parallel with those in English.

Moreover, Kunihiro addresses the definition of hand and arm in Japanese and English dictionary, is distinct from each language.

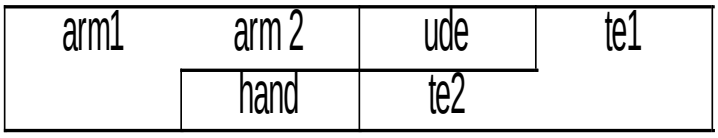
2. *arm, hand, finger*

In English - Japanese dictionaries, *"hand"* is normally translated as *te* (hand), and *arm* is translated as *ude* except with four-footed animals. *Te* refers to human body parts extending from the edge of the shoulder (Iwanami Kokugo Jiten 3rd edition), whereas *hand* does not refers to the same parts. For instance, translation of "*kare ha te ga nagai*"(He has long hands) can be translated as "*Hand*" can be used in this case.

Ude (arm) refers to the part of a person's body extending from the shoulder to the wrist, which does not include the part of a hand. ibid In English, WBD defines as follows : arm 1 the part of a person's body between the shoulder and the hand, sometimes including the latter.

> Arm 1 the parts of a person's body between the shoulder and the hand, sometimes including the latter

This implies that according to Kunihiro the basic sense of *arm* does not include *hand*, and its broad sense includes *hand*. According to other descriptions of in "*Iwanami Kokugo Jiten*", the basic sense of *te* is thought to refer to the whole parts of *hand* and *arm*. Following figure is based on these facts.



(Kunihiro 1987:43-44: Figure 16)

According to Kunihiro, while definition of *te* (hand) in Japanese subsumes *ude* (arm), definition of *arm* in English subsumes *hand*. Despite

the difference of definition in dictionaries, as regards metaphorical transfer, Japanese *te* (including *ude*) is body part symmetrical with English *hand* (not including *arm*). The location of *te (hand)* which is the endpoint of arm leads to contiguity with tangible entity in the external world. Thus, it is assumed that the property of the hand can be held responsible for linguistic expressions.

> In the point view of anatomy, the lower limbs are paralleled with the upper limbs in their shape. As in Figure 20, structure of these lexical items is not equivalent. English has *leg* and *foot.* That is, *leg* gives rise to *leg*[2] . Japanese *ashi* gives rise to polysemy corresponding to leg[1] and foot. In accordance with *Nihon Kokugo Daijiten,* "There is two types of *ashi* distinctive of body parts: *ashi* referring to the flat parts on the endpoint of one's leg, *ashi* referring to the limbs between the pelvis and the ankle. This lexicon, however, is employed for the general term including both parts." While the dictionary illustrates as if the usage corresponding to leg[2] was available, it is questionable whether or not *ashi* is used in this way.

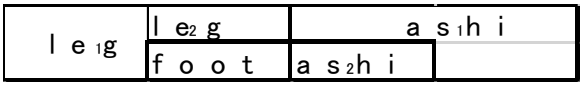


Figure 20

Kunihiro pointed out the differences in the definitions of body parts between Japanese and English. However, he does not explain the motivations causing such differences between the two languages.

2.4 Heine (1991)

The Metaphorical Chain

Heine proposed "metaphorical chain" as showing relative degrees of metaphorical "abstraction" with regard to body part terms. Various semantic concepts are transferred from the body part to other domains, where unidirectionality of metaphorical mappings is observed. Body parts as the source domain are mapped into other semantic concepts,

PERSON > OBJECT > PROCESS > SPACE > TIME > QUALITY

(Heine 1991)

This can be observed in the following cases.

Japanese:

(a) *ashi* (PERSON) > (b) *ashi* (leg of a table: OBJECT) > (c) *amaashi* (beat of rain: PROCESS) > (d) *ashi* (transportation: SPACE) > (e)*ashibayani* (speedily: TIME) > (f) *ashi* (speedster: QUALITY)

Englsih:

(a) *foot* (PERSON) > (b)*leg of a bed* (OBJECT) > (d) *foot* (walking: PROCESS) > (e・f) *swift-footed* (TIME・QUALITY)

Spanish:

(a) *pie* (PERSON) > (b) *pie de una mesa* (leg of a table: OBJECT) > (d) *ir a pie* (walking: PROCESS) > (e・f) *Tienes los pies rápidos.* (TIME・QUALITY)

Ashi ga hayai (fish that quickly get decayed) (NKD[2])

We present here an interesting idiom which can be applied to Heine's metaphorical chain. In Japanese, there is an expression *"ashiga hayai"* which literally refers to "(someone who) can run fast", but in figurative language it denotes the type of fish such as *shirasu* or the young of sardines which quickly get decayed. This idiom is considered to have derived from the following situation. In the past, when transportation was not developed, it was required for people to run and deliver those fish to the market right after unloading fish from a boat.

Heine's degrees of metaphorical "abstraction" can be also applied to this case. *Ashi* (foot) as PERSON is transferred to running as PROCESS (the meaning of space is not found: it is skipped over). Then, this is transferred to the concept of TIME. Lastly, it is transferred to the QUALITY of fish.

Process of metaphorical "abstraction" of the *ashi*

ashi ga hayai

ashi > running > delivery > time limit > freshness

2.5 Seto (1995)

We summarize his view of "spatial metaphor" concerning time.

Source of space

He states that the way of our construal as to spatial and temporal concepts are relevant to 'sensuous expressions' and 'mental expressions' as follows.

Seto proposes that spatial concepts are expressed on the basis of sensuous expressions, which express what we directly perceive with the five senses (the sense of sight, hearing, smell, taste, and touch). In this sense, 'sensuous' is equivalent to 'physical'. We convey perceivable experiences based on expressions with the five senses. Therefore, the basic level of our cognition in the external environment provides foundations of commonality between languages.

As opposed to 'sensuous expressions', 'mental expressions' represent abstract concepts. We indirectly construe abstract concepts on the basis of concrete concepts such as 'space' unlike physical expressions we directly understand with the five senses. In other words, 'mental expressions' of abstract concepts are construed with 'sensuous expressions' of concrete concepts. Thus, spatial expressions play a significant role which allows us to understand abstract expressions. For instance, 'mind' used in the expression of 'in the mind' is conceived of as a container which is spatially perceivable. Also, in the example with 'high quality', 'quality' as an abstract concept is understood by being collocated with 'high' as a concrete concept. (pp.77-78)

Metaphor of time

Seto points out that time as an abstract concept is expressed by concrete concepts. There are two major metaphors regarding time. One is the specific cultural metaphor such as 'time is money', and the other is spatial metaphor which is applied to the definition of time listed in dictionaries such as the indefinite continued progress of existence and events in the past, present, and future regarded as a whole (ODE), and the phenomenon continuously has passed (occurred) from the past to the present, and to the future (KE). In consideration of the definitions above, kinetic metaphor is observed in English and Japanese as in the expressions of 'continued

progress' and 'passed (occurred)' involving spatial movement. (pp.84-85)

Let us consider metaphors used in temporal expressions. For instance, in Japanese, we have observed the following temporal expressions that makes use of spatial metaphor, such as *kyonen* <passed year> (last year), *san nen mae* <three years before> (three years ago), *mirai* <not come yet> (future). To be more specific, *kyonen* refers to bygone days, and *kyo* (gone) is a spatial expression. Spatial metaphor of 'mea' (before) is used in *san nen mae*. *Mi rai* literally means 'something has not come yet', and *rai* (come) refers to space. In the case with English, the use of spatial metaphor is observed as follows: 'always' (consists of 'all', 'way', and 's' as suffix forming adverbs) is concerned with the spatial concept as 'way', 'before' makes use of 'fore' referring to front. Likewise, the word 'previous' is comprised of 'pre' (Lat, front) and 'via' (Lat, way). (p.87)

As we have argued so far, temporal expressions depend on spatial expressions, and harmonize with space in some cases. Spatial metaphor is used even in temporal expressions collocated with some other words. For example, '*a long* / *a short time*', and '*a space of time*' are typical one. Furthermore, the expressions inquiring distance and time are distinctively used, such as '*how far*' and '*how long*'. Depending on situation, they can make use of temporal expressions with inquiry of space: (l) It's half-hour's drive, (m) It's two "sleeps" away. We understand speed in terms of space. (p.90)

Also, this linguistic phenomenon is often observed in Japanese. Temporal expression of 'it's about ten minutes' is used to answer the inquiry of 'how close is your apartment from the station?'

Stationariness and movement

Seto proposes that the spatial structure is reflected on temporal concepts on the basis of place and directionality. The former (place) implies stationary space, and position, form and extension are the key elements. On the other hand, the latter (directionality) implies movement in space, and front-back, right-left, and up-down are the key elements. Note that normally forms are not concerned with temporal expressions. If there is a case concerned with time, it is restricted on the case of time drawing a straight

line or a circle.

In our study, we have crosslinguistically observed that forms of body parts term are extended to the temporal domain, such as *hair* : *by a hair*.

With respect to directionality, temporal concepts mostly arise from the spatial concept of Front-Back rather than up-down. The Concept of Right-Left is least likely to motivate temporal concepts.

Concerning position, which makes use of a preposition (or postposition), semantic transfer to the temporal domain is observed in the example of *ichiji ni* (at one o'clock). Regarding extension, this concept is used in the expressions in *a short (a long) time.* Likewise, extension motivates spatial metaphor, such as *the near future.* (p.91)

Seto lists the expressions of time representing movement as follows: passage of time, course of time, lapse of time, progress of time, process of time, flow of time, flux of time, march of time, step of time, flight of time, time's caravan. (p.91)

As in the above examples, the typical mental image of temporal movement is connected with 'flow', 'flying', and 'step'. Moreover, if time becomes the subject of movement, time corresponds to 'river', 'arrow', and 'traveler', respectively. This idea gives rise to similar proverbs in the West and the East: time flows (river), time flies like an arrow (arrow), time and tide wait for no man (traveler)

Next, we should consider how the movement of time draw a locus. The above examples exhibit a straight line of temporal movement. On the other hand, there is a view which regards temporal movement as circulation. In Japanese, the expression of *kanreki* <circle calendar> (the age of sixty) is concerned with the metaphorical concept that movement of time draws a circle. Opposition and coexistence of 'an arrow of time' and 'a circle of time' are observed in many cultures. (p.93)

e.g. *haru ga mata megutte kita* <spring has again circled and come back again> (Spring is here again) (SPGE)

e.g. *rekishi wa meguru* <history circles> (History repeats itself) (SPGE)

As in the above examples, expressions in Japanese literally exhibit the metaphorical concept of a circle of time by making use of the verb *meguru* (to circle), while some other expressions such as *again* and *repeat* are used in the translations in English.

Front and back of time

If there is unidirectionality of time, what matters is the direction of time. Let us suppose time moves straightforward. In this case, we might consider that time proceeds from the past to the present, and to the future. However, this idea is disproved by linguistic data. Linguistic time moves from the future to the present, and to the past. In Japanese, the expression *izen* (before) refers to a point of time in the past, and shows that the past is in front. 'Past' lies in front of the flow of time, and 'future' lies in the back of the flow of time.

Therefore, the antonym of *izen* will be *igo* (after), and the antonym of *the past* will be *the future* which signifies 'not come yet'. (p.95)

Front-back and movement of time

Let us consider mechanisms working behind expressions of time which exhibit movement. For instance, the expression of *kitaru nichiyoubi* (the coming Sunday) clearly reflects the image that time comes from the future and goes to the past.

So far, Seto has explained that *mae* (front) is related to the past, such as *izen* (before). However, there are counter-examples; *zento* (future) is concerned with the spatial position of *mae* (front) referring to the future unlike the previous example that *mae* (front) is concerned with the past. This case is likely to be based on human intention, and implies involvement of humans, such as '*be going to*'. The followings are other examples implying front as the future.

(c) We look forward to the years ahead.
(d) He looked back on the past. (p.101)

The up-down of time

In this section, let us consider the case in which time is represented by spatial position of 'UP AND DOWN'. Concerning spatial metaphor of UP and DOWN, it is quite limited compared with FRONT-BACK metaphor. Some expressions are familiar with us in Japanese: *jojun* <upper ten days> (the first ten days of a month), *gejun* <lower ten days> (the last ten days of a month). He compares this up-down metaphor to the stream of river where water flows from the upper reaches of a river to the lower ones.

(b) *jidai wo kudaru* <go down the times> (come closer to the present time)
(d) *jidai wo saka noboru* <climb up the times> (go back to the past)

2.6 Matsumoto (2000)

Matsumoto, another researcher doing work relevant to this paper, pointed out that the extension of body-part nouns to object-part nouns develops through metaphor based on resemblance defined by position, form, size, and function. (p.319) In the case of *kuchi* versus *mouth*, things become further complicated in terms of semantic category due to the specialization of movement and the difference of directionality of moving-objects (p.329), as may be seen in the many examples he gives as the usage of *kuchi*. In this context, *mouth* will be seen as having a narrower range of application than that of the Japanese language *kuchi*. For instance, *juko* (pistol mouth) is not translated as *mouth* but as *muzzle* in English. Thus, even if the principle of extension applies equally to two languages, the actual application of words will be found to be different from language to language. (p.330) Furthermore, in the case of *kuchi*, the properties of the word related to objects going in and coming out of it can be a compound noun antecedent. Thus, *nomikuchi* shows a type of causative movement made through the hole represented by a mouth. In addition, the properties indicating the position and the direction in those words (such as *kitaguchi*, *uraguchi)* can be an antecedent. (p.332)

In connection with research on the limitation of metaphorical extension, Matsumoto puts value of the work of Rubba and Langacker (1994), who maintain that, at first, body-part nouns become object-part nouns through the means of metaphor. Secondly, they are understood by

Matsumoto to consider that object-part nouns become words referring to adjacent space by means of metonymy. The space referred to by them is considered as being defined by their position relative to a standard object. Lastly, the positional relationship between a space and a standard object will be reflected in the meaning of a word.

body-parts object-parts adjacent space space relationship
(p.337)

In 2000, Matsumoto argues for the semantic extension from body-part terms to positional nouns or prepositions related to spatial domain. However, he does not address the case of spatial proximity as in the example of 'back to back' extending to temporal domain, something which will be discussed in this paper.

He does assert that, in general, body part terms often extend their meaning to become nouns other than object-part nouns. In comparison with other meanings, the property of extension to object-part nouns becomes more salient.

It is generally acknowledged that body-part terms have developed to preposition or post position in many languages all over the world. This has been observed in languages which are used in Africa, American Indian, and Oceanic languages. Studies with regard to this topic have been conducted in the framework of grammaticalization in cognitive linguistics.

The semantic extension of body-part terms, with extension from body-part terms to object-part nouns to be considered a previous stage, following a unidirectional process of body-part terms → object-part nouns → positional nouns → preposition.

Following the 1994 work by Rubba and Langacker, he maintains that, at first, body-part nouns become object-part nouns by means of metaphor; secondly; that object-part nouns become words referring to the adjacent space by metonymy; that the space referred to here is defined by a position relative to a standard object; and, lastly, that the positional relationship between a space and a standard object is the profile of the meaning of a word. This process may be illustrated by the extension from SIDE to BESIDE where the pattern of body-parts → object-parts → adjacent space → spatial relationship (p.337)

2.7 Honda (2011)

Experiential basis of Temporal Metaphor

In his paper, Honda discusses metaphors on the basis of the theory proposed by Lakoff to the effect that we understand something in terms of another thing. Put another way, we make use of source domains in order to understand target domains. In the case of example (1) involving a spatiotemporal metaphor, time passing (the target domain) is understood based on spatial movement (the source domain).

(1) a. We are approaching the new year.
b. The new year is approaching.

A spatiotemporal metaphor is categorized into two parts: one is Moving Experiencer as (1a), the other is Moving Time as (1b).

Lakoff and Johnson note that Time Orientation Metaphor is abstracted from the relative relation between human beings and time.

1 Issues discussed in his paper

Honda addresses the following questions concerning spatiotemporal metaphor.

(2) a. The location of the speaker
b. The relation between spatial frame of reference and spatiotemporal metaphor
c. Either we construe spatiotemporal metaphor as primary metaphor or compound metaphor.
e. Whether or not it is necessary of assumption of further compound experiential basis.

2 Where is the speaker?

Isashiki (2010:63) states that future is approaching to us, passing us and will have passed in Figure 1. As in Figure 2, we are approaching to future and past is behind us. These ideas correspond to MT and ME in cognitive semantics. However, it is slightly distinct from the point of view that human beings are located on the time axis all the time in cognitive

semantics.

MT : moving time
ME: moving ego
3 Is Speaker moving or is (speaker) stationary: pluralism or monism.
In MT, we construe *time is moving, and we are stationary* in MT
In ME, we construe *time is stationary, and we are moving*
Honda insists that *time is stationary, and we are moving* both MT and ME. That is, ME monism. Casasanto and Jasmin give the following examples. They point out that the experiencer is moving in example (9), and the difference between ME and MT is perspective.
(9) a. Maple Street comes before Elm Street.
b. Elm Street comes after Maple Street.

4 Consequence of pluralism and monism: assumed differences in experiential basis.
(11) a. Christmas is approaching.
b. The bus is approaching.
c. Kyoto is approaching.

While (11 b) corresponds to (11a) as spatial expression in pluralism, (11c) corresponds to (11a) in monism. In pluralism, we construe Christmas itself is movable, whereas we construe Christmas as an unmovable object in monism.

5 Moore's temporal metaphor theory and McTaggart's temporal theory

Moore takes the viewpoint of trialism which consists of two-layer structure as spatiotemporal metaphor.

Moving Time e.g. Christmas is approaching
Moving Ego (experiencer) e.g. We're coming up on Christmas
Sequence is relative position e.g. An explosion followed the flash

McTaggart's temporal theory
series A <past><present><future>
series B (earlier/ later)

Honda questions how series A and series B are related to each other. McTaggart insists that the origin of time is derived from series A. That is, it will be a problem to propose how series B is derived from series A. Thus, McTaggart (1908) introduces series C to account for this process. Series C consisting of order and sequence has no temporal property. Series B arise from the overlapping between series C and series A.

The following points need to be clarified: how sequence in relative position metaphor is related to moving concepts, and how directionality of movement is determined.

6 Consequence of pluralism and monism: Origin of movement of Sequence is relative position on a path

Honda states that Moore does not clarify the mechanism of sequence which links with concepts of movement.

7 Origin of movement concerning ME and MT

With respect to *Christmas is approaching,* Christmas is a point in time. Why is it possible to construe a point in time as a moving object? In other words, as yet the motivation connecting *Christmas is approaching* with *The bus is approaching* has not been positively discussed.

(12) b. Christmas is approaching.
(14) b. Kyoto is approaching.

With the viewpoint from a MOVING EGO, examples (12) and (13) are understandable.
That is, *Christmas* as a point in time accounts for the moving object.

(8a) Monday comes before Tuesday.
(9a) Maple Street comes before Elm Street.

Although Maple Street and Elm Street are unmovable, the moving experiencer perceives these streets coming from the front in this order. Likewise, for an experiencer moving from the past to the future on the time axis, Monday and Tuesday are coming from the front in this order.

8 Significance of classification
9 Examples supporting pluralism and its examinations
(25) b. We and the traffic light are approaching each other.
In the case of example (25b), traffic light is not movable. Thus, it is undeniable that the moving object is an experiencer.

ME monism is simpler than pluralism. That is, as for the structure of spatiotemporal metaphor, ME can give a unified and consistent explanation covering a wide range of phenomena.

2.8 Negi (2013)

Negi (2013) focuses on polysemy containing both the spatial domain and the temporal domain, especially on the Japanese lexemes *saki*, *mae*, and *ato*.

Negi (2013) is based on "TIME PASSING IS MOTION," a conceptual metaphor asserted by George Lakoff (1993). He illustrates this idea with the following key words.

LATER IS FRONT/ EARLIER IS BACK
EARLIER IS FRONT / LATER IS BACK

The Japanese word *mae* represents spatial meaning as "front" and temporal meaning as "before" which is equivalent to the usage of English word "before". EARLIER IS FRONT can be applied to this word creating a spatial position related to temporal order in connection with co-occurrence. The following illustration can clarify this conceptual metaphor. In the situation of the train consisting of several cars, a passenger in the first car moving ahead can physically pass the station or a certain point earlier than one in the any car located behind the first car. Specifically, the passing time of a person in the first car has to be past (earlier) in comparison with the one in the car behind. In this situation, it would be absolute that the time lag between two people in different positions would never happen without the motion of the train going in a certain direction. Therefore, mobility and directionality is the key essence to connect space with time.

Polysemous words of *mae, ato,* and *saki* representing spatial and temporal meaning were chosen for this study. Through a list of sentences where these words are used, this paper discusses the spatial and temporal cognition of each category. For more detail, especially as regards spatial meaning, there is the subcategory word *saki,* which has both intrinsic and non-intrinsic meaning that represents external space growing out of the viewpoint of the subject. Also, a contrastive study of *saki* and *mae* is given in this paper to deeply investigate how the image schema of each word creates temporal meaning.

The major framework of this research is cognitive linguistics advocated by George Lakoff, who insists that semantic extension from spatial to temporal interlocks with the physical movement and directionality of object.

This study basically follows the stance of cognitive linguistics which claims that the prototype of polysemy is the concrete concept as spatial expression. However, a philological review with reference to *Nihon Kokugo Daijiten* (NKD) is used to learn the historical background of lexical items.

2.8.1 The Japanese Word *Mae*

(1) *Eki mae ni aru gogaku gattuko*
Station front (there)in exist(ing) language school
"The language school in front of the station"

(2) *Kami no mae de inoru*
God's front (there) at pray
"Pray before God"

(3) *Neru mae ni ha o migaku*
Sleep(ing) before teeth object marker
"Brush your teeth before going to bed"

(1) and (2) indicate spatial positions. (3) indicates temporal sequence.

Lexical discussion. *Mae*

Of a position or direction: in front, in or on the anterior or fore side
Manyosyu late 8th century

Previous to a past period of time, before the beginning of.

Ohkagami Early 12th century

2.8.2 How to Recognize *Mae*

Prior to a discussion of *mae*, one must confront the question of how human beings recognize and define position in terms of what is in front of them. In general, the space directly in front of one's face, which consists of a complex of sense organs, is most likely to be understood as being *mae* or front. This is concerned with the projection of one's sight directionality. Not only human beings, but any creature with eyes will instinctively move toward the direction their eyes focus on.

Another significant aspect of this conceptual thory is distinction of front and back regarding a certain object. As mentioned above, front and back to creatures who have eyes are easily distinguishable and defined by the direction in which they move. What about non-creatures such as trains, chairs, and so on? Obviously, the space occupying the direction train goes is defined as *mae*, which is same as for living creatures. In the case of an unmovable object, for instance a chair, does not move but is assigned its front according to the side on which a person can take a seat. In this sense, the front of a chair is defined in relative collaboration with the direction in which a man will be seated.

So far, distinguishable objects are discussed, but one should consider an object which has no distinction of front and back such as a ball or a rock. In order to go into this topic, it is necessary to introduce the concept of "canonical encounter" advocated by Clark (1973), that specifies how human beings recognize the front of those objects having no front and back, and demonstrates the result with a experiment. He conducted the experiment with the following method: two round objects with no front-back orientation are put in a series toward subjects, who were asked which object was in front of them. Let us assume object A was close to a subject, and object B was behind object A. According to his article, a majority of the subjects answered object A was located in front of them. Clark points out there are two possible theories:

Ego-opposed theory

A reference point in front of Ego is treated as if it were facing Ego.

Ego-aligned theory

An object is assigned a front and a back as if it were facing in the same direction as Ego.

Incidentally, speakers of the Hausa language mainly spoken in Nigeria, West Africa have been frequently referred as a conceptualizer of Ego-aligned theory which is not really common in the rest of the world.

2.8.3 *Mae* as Baseball Terminology

(4)*Sentā mae ni hitto wo utsu*
Center fielder front (there) at a hit (ball) object marker hit
"Hit the ball in front of the center-fielder."

Mae in its use as baseball terminology is examined. With perceptual space existing in relation to the outfielder confronting a batter, the front of outfielder is recognized not as being defined by the direction of the outfield fence but by the infield one's sight aims at. A standard is created by the direction the batted ball goes with a front-back orientation being the position of fielders facing the batter, because players are human beings, who, as has already been mentioned earlier, have an inherent conception of front and rear.

2.8.4 Gradience of *Mae*

(5)*Mae no eki*
(6)*Tsugi no eki*
the station before next station
"previous station" "next station"

On local buses, there is a panel showing the bus stop inside of the vehicle. To my interest, the deictic expression *mae* used here can be taken as having both a spatial and temporal meaning. Also, the gradient (cline) that is a concept of a gradual intermittent changing object sequence in

linguistics appears on this context. Another definition of this term is as a vague demarcation for polysemy.

These ordinal expressions in life have become deeply embedded in people's minds as normal objects and seem to be simple usages that allow letting people not to think of the complicated semantic cline behind. However, once linguistic analysis of this material is undertaken, it will invoke one's great interest for the purpose of investigating the ground of semantic ambiguity.

2.8.5 The Japanese Word *Ato*

Also, the word *ato* can represent spatial meaning as "back" and temporal meaning as "later" or "after," just the same as the English word "after". The above definition also can be applied to this word using the concept of LATER IS BACK. With comparing two words, exactly the same cognitive concept is found in both Japanese and English.

(7) *Gyoretsu no ato ni tsuzuku*
Line 's back (there) at follow
"Following the line"

(8) *Shukudai o shita ato ni dekakeru*
Homework object-marker Having-done after go(ing)out
"Go out after doing home work."

(7) indicates the spatial position is moving toward a certain direction.
(8) indicates temporal order.

Lexical discussion *Ato*

1. Space behind an object. The back of an object moving forward
Genji around 1001-1014

2. Temporal meaning: later on. In the time flow, a following time zone or specific time in the point of something happening.
Genji around 1001-1014

According to the Nihon Kokugo Daijiten, the first appearance of this word with both spatial and temporal meanings is, at the latest, contemporary with its appearance in the Genji Monogatari. Thus, some languages, such as English and Japanese, have the same word expressing both aspects.

2.8.6 The Japanese Word *Saki*

In every language, examples of polysemy with single lexical units containing two or more semantic meanings are easily found. However, the Japanese lexeme *saki* is peculiar in terms of containing a duality of contradictory metaphor for the past and future with regard to temporal meaning which is not to be found in other languages, such as English, Chinese, Korean, Mongolian, and Ainu. Furthermore, the important role this word plays in Japanese is clearly due to its frequent appearance in daily conversation and as a building block for idiomatic expressions covering a wide range of uses. Moreover, if one notices the usage of *saki* from the viewpoint of frequency, one would clearly see that this word plays an indispensable role with regard to everyday Japanese language.

2.8.7 Spatial Intrinsic Meaning

The spatial meaning of *saki* is roughly divided into two parts: one is its intrinsic meaning, the other its non-intrinsic meaning. According to Nihon Kokugo Daijiten, *saki* indicates the edge of objects which are long and pointed, such as a pencil. A typical image of this word is an object whose edge is finer than other parts. However, not all objects fit well with this theory, including items such as baseball bats, brooms and spoons, whose heads all get wider toward their end.

2.8.8 Spatial non-Intrinsic Meaning

Non-intrinsic *saki* indicates spatial extension from the intrinsic *saki*. It represents spatial position with the directionality of objects moving forward. This semantic extension is derived from the connotation (property) of the word *saki* constitutes directionality toward the top of the object. Moreover,

there are two types of non-intrinsic meaning:

(9)*Kono saki ni gakko ga aru*
Ahead a-school subject-marker exist(s)
"The school is ahead of us."

(10) *Tabisaki de ironna hito ni au*
Destination (there) at various people (there) in meet
"You will meet many people on a journey."

In example (a), physically, the observer might be able to perceive the object from one's position. Thus, *tabisaki* in example (b) literally means "the tip of travel", or metaphorically one's travel destination. It is the case of showing more spatial extension than the observer could hardly perceive object from one's current position. As one can see in the example, the spatial meaning of "saki" originating in the head or edge of objects is confirmed as extending more and more without limit.

2.8.9 Comparison of *Mae* and *Saki*

(a) The mail delivery man is ahead of the policeman.
(b) The mail delivery man is in front of policeman.

As one can see in the example shown above, (a) implies a position with directionality and the motion that emerges is from the viewpoint of objects which are moving toward the post office. Likewise, (b) indicates spatial position, but from the viewpoint of objects which are somehow fixed without motion. This distinction can be thought to be triggered by the definition of the words *mae* without mobility and *saki* with mobility. For native Japanese speakers, the image-schema of the word *mae* is fixed on a certain location without motion, whereas the word *saki* extends toward a certain direction from observer. In other words, the location of the mail delivery man A is a longer distance away compared with the mail delivery man B from the position of the observer.

According to Watanabe (1995), this definition of *saki* is applied to create temporal meaning with a future tense in temporal meaning, while

mae does not have that function. With the concept of LATER IS FRONT, distance moving from point to point is equivalent to time passing. Let's take a look at the following examples.

(11) *Kore wa saki no hanashi da*
This subject-marker the-future 's talk is
"This is a matter for the future."

(12) *Kore wa mae no hanashi da*
This subject-marker the-past 's talk is
"This is a matter for the past."

As it mentioned, distance is the key to extend to temporal meaning. With the use of *saki*, there is a mental image of a certain distance between the observer and the object that accounts for time passing from place to place. Suppose the present position of the observer is now, then reaching toward an object will be later in the process of the concerned motion. In other words, moving forward is a later time or future. On the contrary, with a lack of this meaning in *mae*, an observer is less likely to move forward and reach the object at a certain distance. No movement indicates no time flow or no time passing. The observer perceives moving forward as approaching the future in front of oneself.

2.8.10 On the Use of *Saki* as an Indicator of the Past

One polysemy of temporal meaning of *saki* is it representing the past tense with regard to such words as *sakki* (as modified by a geminate consonant) and *sakihodo* where it is tagged with the modifier *hodo*. These conventional expressions are quite often used in everyday language. Let us consider two examples.

(13) *Sakki meru o okurimashita*
Just-before e-mail subject-marker sent
"I sent out an e-mail a little while ago."

(14) *Sakihodo moushi ageta touri*
Earlier mentioned like
"As I mentioned earlier."

(15) *Sakino souri daijin*
A-former prime-minister
"A former prime minister."

In this cases, *sakki* indicates a not so distant past but a relatively short one. On the contrary, "sakino" indicates a past which can be as long ago as one might wish to consider it, i.e. a year or a decade, for instance.

2.8.11 On the Use of "*Saki*" as an Indicator of the Future

This definition is already explained on the section in which one finds a discussion of the comparison of *mae* and *saki*, so a detailed definition can be omitted here. To come to the point, the conceptualized metaphor of LATER IS FRONT is applied to this meaning with the idea of the conceptualizer being that the approaching object in front of one's sight is mapping out a passage of time in the time lag between the source domain and the target domain.

2.8.12 On the Use of "Saki" as an Indicator of Temporal Order

(16) *Sakki ni yaru*	Previously do (it)	"Do it first"
(17) *Saki no yaru*	(incorrect)	
(18) *Saki ni iku*	Early go	"Leave early"
(19) *Saki no iku*	(incorrect)	

In the above examples, the Japanese case particles (postpositions) *ni* or *no* coming after *saki* have a great influence on meaning. As the above examples show, it has to be *saki ni* in order to make sense as an expression of temporal order. Thus, case particles can be seen to easily influence word meaning.

2.8.13 A Review of Definitions

Nihon Kokugo Daijiten
1. *Shoki* (720) The outermost part of object
2. *Kaburauta* (late 9th century) The space in front of an object. Direction moving toward an object.
3. *Shoki* (720) Before in a temporal sense.
4. *Yagyutokusei hibun* (around 1428) Later on.
5. *Kanchiinbon sanboue* (984) In a temporal sense, a sequence of time. Order

According to *Nihon Kokugo Daijiten*, the era of the first appearances of spatial and temporal meaning are confirmed to be at the same time, which goes against the conventional theory of cognitive linguistics that claims that the prototype of polysemy containing both meanings should be originally spatial. Thus, this data is of interest for cognitive linguistics, as it suggests that a concrete concept does not always have to come first before its associated abstract concept. In countless past studies, many scholars have made light of this type of philological view due to their being heavily dependent on conventional theory. As this might not be solid supportive evidence for the need to create a new theory, it does hint to a need to, at least, reconsider current theory from different angles.

By contrast, as regards polysemous words in English, the historical appearance of spatial meanings are confirmed earlier than that of temporal meanings in accordance with the traditional view of cognitive linguistics.

Throughout the illustrations, it has been found that spatial and temporal expressions are relatively connected to each other and are triggered by co-occurrence. As previous studies show, most definitely the concept of spatial movement is applicable to the passage of time. Plus, the directionality of the subject heading toward something is the key element for semantic extension from space to time.

It is reasonable to hypothesize that invisible objects are expressed by the replacement of visible objects through the physical experience of our ordinary life. Those abstract concepts are everywhere around us and no one would normally pay attention. For instance, the preposition “in” is referred to as a container in cognitive linguistics. Even if one sees the phrase “keep in

mind", one would never be able to physically touch the mind as in putting something into a container. This is certainly an abstract expression, not possessing a physical existence.

In Japanese and English, time is metaphorically described as *jikan no nagare* or "the flow of time" which gives a mental image of one long line that keeps moving from one place to another as if it were connected with one thread. As a part of the mental mapping, this single stream line overlaps with direction in space which gives a physical image of one straight line of an object moving from one place to another. Cross-linguistically, the conception of a human being is more or less similar and the commonality of spatial and temporal cognition is determined by physical and mental perception. From the standpoint of conceptual metaphor TIME PASSING IS MOTION, the Japanese word *Saki* contains mobility causing polysemy of future and past tense while *Mae* and *Ato* are more likely to be stationary entities containing less mobility in comparison with *Saki*.

2.9 Takahashi (2014)

The following is a slightly simplified summary of Takahashi (2014), rendered by the author of this dissertation.

> Idiomatic expressions and cognition of body parts:
> We have observed that language is deeply concerned with human cognition, and human cognition is deeply concerned with the human body (body structures, bodily experiences). Lastly, we confirm the connection between language, cognition, and the body by means of expressions making use of body parts. Whereas every language has body parts expressions, what is the reason for which the number of expressions depends on body parts?
>
> Commonality between English and Japanese (Overall observation)
> 2 The number of idiomatic expressions differs depending on body parts in both English and Japanese.
> 3 Many idiomatic expressions involving the hand, the eye, the head, the foot (leg), and the ear can be found in English and Japanese. The eye and the hand have the largest number of cases in both

languages. In contrast, the throat, the palm, the chin, and the cheek exhibit the smallest number of cases in either language.

4 Body parts whose functions are obvious, have a large number of idiomatic expressions. In contrast, body parts with unnoticeable functions have fewer cases.
The number of idiomatic expressions corresponds to a large extent to the wealth of bodily experiences.

Commonality between English and Japanese (detailed observation)

5 Concerning both the English *eye* and *hand*, and the Japanese *me* and *te*, the number of idiomatic expressions regarding *eye / me* and *hand / te* are much larger than that of *nose / hana* and *ear / mimi.*

6 As regards the English *eye*, and the Japanese *me*, they exhibit many expressions referring to understanding, attention, and judgment based on visual experiences.
Human beings heavily depend on information from the eye.

Eye / me (both the English *eye* and the Japanese *me*) have a small number of idiomatic expressions unconnected with visual experiences.

(6) *Ear / mimi* have many expressions based on hearing.

(7) *Nose / hana* have fewer idiomatic expressions referring to experiences based on the sense of smell. Expressions based on breathing are not found.

There are many cases which refer to experiences other than the sense of smell. Human beings are unconscious of breathing, and depend less on their sense of smell than on sight or hearing.

Differences between English and Japanese:

(1) *Ear* in English provides more idiomatic expressions representing experiences unrelated to the sense of hearing than Japanese does of *mimi* ('ear').

(2) *Ude* ('arm') in Japanese exhibits a large number of idiomatic

expressions referring to skill, whereas not many expressions are found involving *arm* in English.

<English> *cost (pay) an arm and a leg*
keep someone at arm's length
an arm of a river
arm of a chair

Although Takahashi treated idioms involving body part terms, his discussion was restricted to only a part of them. We shall, in this study, examine idioms and colocations involving external body part terms.

2.10 Conclusions

This chapter has reviewed the previous studies concerning body part terms, and metaphorical mappings into space and time, that are relevant to this study. Let us summarize the studies which have made a great contribution to this research, and are applicable to the theoretical framework in semantic transfer of body part terms.

Ando (1986) points out that some body part terms such as *hair* (kami) and *head* (atama) in English and Japanese are used to refer to different regions of the body in accordance with their definitions in given in dictionaries. In addition, he suggests characteristics of languages that English is person-focus or do-language type while Japanese is situation-focus or becoming-language type, respectively.

Johnson (1987) writes that image schemata and metaphorical projection make up the experiential structure of meaning, and are essential to our abstract understanding and reasoning. Metaphorical mapping is not arbitrarily conducted, but highly constrained by physical function and experience. Therefore, we need to interpret 'experience' broadly to cover various domains, such as basic perception, motor program, passion, history, society, and language.

Kunihiro (1987) points out that the references of body part terms in English and Japanese, which do not always match each other consistent. In his study, the lexical item of English *foot* and *hand,* and Japanese *ashi* and *te* are used as examples to explain that definitions given in dictionaries differ

from one language to the other. He does not explicitly present the motivations working behind such differences between the two languages.

Heine (1991) proposes the metaphorical chain of body part terms, which is adopted as one of theoretical tools in this research. The unidirectionality of metaphorical extension proposed by him is PERSON > OBJECT > PROCESS > SPACE > TIME > QUALITY. After examination of the first appearances of idiomatic expressions in each category, we have observed that their chronological orders correspond to the process of this metaphorical chain.

Seto (1995) argues temporal metaphors from the point of view from spatial position, such as <up-down>, <front-back>, and <right-left>. In order to explain motivations arising from the positions of body parts, these spatial concept play an important role in our research. Moreover, he describes how movement is connected with temporal metaphors as in the case of 'flow', 'flying', and 'step': e.g. *toki no nagare* (flow of time), and *time flies.*

Matsumoto (2000) examines typical transfer patterns from the body part terms to relational object parts on basis of resemblance defined in terms of position, form, size and function: e.g. *juko* <pistol mouth> (muzzle). In addition, he illustrates the metaphorical extensions as is the case with the body part terms, for example, *back* to other domains: body parts > object parts > adjacent space > space relationships. However, he does not mention the temporal concepts developing from this term, such as the past in time (e.g. *back in the 70's*), and a continuous temporal event (e.g. *back to back meeting*).

Honda (2011) discusses experiential bases of temporal metaphors by making use of Moving Time (MT) and Moving Experiencer (ME). In brief, his point is that it is not possible to construe a point in time as a moving object, such as *Christmas is approaching with* since no clear explanation has been given on this matter.

Negi (2013) deals with Japanese lexemes, *saki* (ahead), *mae* (before), and *ato* (after) which exhibit polysemy including spatiotemporal domains. *Mae* refers to <the front> as a spatial concept and <before> as a temporal concept, while *ato* refers to <the back> as a spatial concept and after in temporal concept. In particular, *saki* is a special lexical item particularly in that it refers to the polysemy to represent opposite concepts of time, including the future, earliness, and the past in addition to spatial concepts

which denote the front and the tip end of an object. This work is not directly concerned with body parts, but contributes to analysis of motivations from body part terms to spatiotemporal domains in terms of presenting the semantic transfers arising from spatial concepts, such as position of front-back orientation and its directionality.

Takahashi (2014) conducts a contrastive study of body part terms in English and Japanese. According to him, body part terms often employed in idioms in both English and Japanese are concerned with particular body parts: e.g. the hand, the eye, the head, the foot, and the ear, whereas those parts, including the throat, the palm, the chin, and so forth are not much made use of in either language. He has found that body part terms whose function are apparent have many idioms involving these body parts. However, his discussion does not go into detail to examine idioms and collocations involving the body part terms.

The previous studies have revealed semantic development of body part terms and their relationships with space and time. However, research of metaphorical extension from the body part domain to the temporal domain has not been thoroughly conducted in the early studies.

In the next chapter, we will discuss the methodology and the theoretical framework based on metaphorical mappings, including the conceptual metaphors derived from the bodily based experiences where various schemas are produced to account for metaphorical expressions. Furthermore, we will introduce process of semantic extension of body part terms which presented by the metaphorical chain advocated by Heine (1991), and spatial concepts arising from body part terms are illustrated by the zoomorphic model.

Chapter 3: Teoretical Framework and Methodology

3.0 Introduction

In this research, we basically adopt the theoretical framework and methodology proposed by Lakoff (1980, 1993). In section 3.1, we will introduce bodily based experientialism (as opposed to objectivism), which insists that we characterize meaning on the basis of human nature and experiences in the external environment, something which is opposed to objectivism. Next, in section 3.2, we discuss various schema related to our study. In section 3.3, we discuss metaphorical mappings which are applied to semantic transfers we are dealing with. In section 3.4, we propose conceptual metaphors which are helpful to account for the motivations of transfer from the body part domain to other domains. In section 3.5, we mention orientational metaphors which illustrate spatial concepts, such as 'up' and 'down' to characterize meaning on the basis of physical experience. In section 3.6, we deal with metaphorical transfer and metaphorical chain, as proposed by Heine (1991). The former can explain how metaphor motivates transfer of meanings, and the latter shows the unidirectionality of transfer from the body part domain to other domains. In section 3.7, the zoomorphic model is introduced to illustrate how positionality of body parts on the horizontal axis develops into spatial concepts as well as temporal concepts. Lastly, in section 3.8, spatial grams proposed by Svorou (1994) are discussed.

3.1 Bodily Based Experience

In the traditional view of objectivism, thought is abstract, and it has nothing to do with embodiment, since thought is independent of the human body. (Lakoff 1987: xii) By contrast, a typical theory of cognitive linguistics insists that thought is concerned with embodiment. Our conceptual structures and meanings are derived from bodily based experiences. Moreover, the core parts of our conceptual system consist of perception and bodily based experience. (Lakoff 1987: xiii) Bodily based experience is experience of the real world. (Lakoff 1987:324)

A large number of principles of objectivism appear to behave well in

the basic level of bodily based experience. Ordinary people tend to regard objectivism as common sense, and this thought is derived from structures prior to conceptual forms of bodily experience. It is no coincidence that most examples used to justify objectivism are derived from bodily experience at the basic level.

3.2 Experientialism

Experientialism in cognitive linguistics is the idea of characterizing the meanings of signs on the basis of experience and the properties of organisms. Thus, we attempt to interpret meanings of words on the basis of our physical, social, and cultural experience. In particular, we characterize meanings based on embodiment in experientialism. Embodiment is the nature of living organisms and the body is connected with the external world. Meaning in cognitive linguistics is conceptualization. It is proposed that embodiment gives rise to conceptualization. In other words, our approach to the external environment is significantly relevant to the forming of our mind, we assume that this experience develops into categorization and schema which give rise to cognitive bases to understand the world. On the contrary, objectivism as opposed to experientialism, defines the meanings of signs independent of human properties and experiences. Thus, according to objectivism, meanings are not related to embodiment.

The approach of bodily based experientialism, which is different from that of objectivism, attempts to characterize meanings on the basis of the experiences and the nature of organisms. This approach includes not only the experiences and the nature of individuals but also the experiences and the nature of mankind and the society. Therefore, the word 'experience' is not used in the narrow sense of 'having accidentally happened to one individual', but experience is used in the broader sense. Thus, experience means our nature, capacity we have inherited from the ancestors, styles of the activity making use of our body in the world, and our social organizations. In brief, the approach of experientialism includes many things which are considered to be irrelevant to meaning from the viewpoint of the objectivist approach.

The approach of experientialism contrasts with that of objectivism. While objectivism proposes that meanings are independent of human properties and experience, realism is based on experiences characterizing

meaning on the basis of embodiment. Thus, meanings are characterized by our physical and social experiences in the external environment. This issue is divided into two parts: (1) structure, and (2) the embodiment of that structure. With regard to structure, each one of our concepts is not only intrinsically structured, but also structured with each other. This structure enables us to reason, understand, gain knowledge, and communicate. The cognitive model theory proposed by Lakoff is relevant to conceptual structures. However, structures themselves do not give rise to meaningfulness. In addition, we need to explain what makes structures meaningful. Experientialism insists that conceptual structures become meaningful due to embodiment. In short, meaningfulness arises from bodily experiences prior to conceptualization. Conceptual structures are formed by preconceptual structures.

3.3 Schemata

In this section, we will introduce the idea of Lakoff with respect to schemas he has advocated in his early work.

The CONTAINER Schema

Bodily experience: we experience our bodies both as containers and as things in containers (e.g., rooms). (Lakoff 1987:272)

e.g. egg *head*

The PART-WHOLE Schema

We experience our bodies as WHOLES with PARTS. (Lakoff 1987:273)

e.g. *hand* refers to the arm

The CENTER-PERIPHERY Schema

Bodily experience: We experience our bodies as having centers (e.g. the trunk and internal organs) and peripheries (e.g. fingers, toes, hair). (Lakoff 1987:274)

e.g. heart : in the *heart* of the town

The SOURCE-PATH-GOAL Schema

Bodily experience: Every time we move anywhere there is a place we start from, a place we wind up at, a sequence of contiguous locations connecting the starting and ending points, and a direction. (Lakoff 1987:275)

Structural elements: A SOURCE (starting point), a DESTINATION (end point), a PATH (a sequence of contiguous locations connecting the source and the destination), and a DIRECTION (toward the destination). (Lakoff 1987:275)

Basic logic: If you go from a source to a destination along a path, then you must pass through each intermediate point on the path; moreover, the further along the path you are, the more time has passed since starting. (Lakoff 1987:275)

Metaphors: Purpose is understood in terms of destinations, and achieving a purpose is understood as passing along a path from a starting point to an endpoint. Thus, one may *go a long way toward* achieving one's purposes, or one may get *sidetracked*, or find something getting *in one's way.* Complex events in general are also understood in terms of a source-path-goal schema; complex events have initial states (source), a sequence of intermediate stages (path), and a final state (destination). (Lakoff 1987:275)

e.g. *sokuseki* (footprint)

The above expression, *sokuseki* refers to the space left behind from the conceptualizer who moves from point A to point B in terms of a spatial concept. In this case, point A is considered as A SOURCE, and point B is considered as a DESTINATION. Also, distance from point A to B is a PATH. According to NK, *sokuseki* is defined not only as the impression left by a foot or shoe on the ground or a surface, but also as a mark of one's achievement which is related to a temporal event in the past. In short, the passage one

went through is conceived as the past.

> Other image schemas include an UP-DOWN schema, a FRONT-BACK schema, a LINEAR ORDER schema, etc.
>
> -Image schemas structure our experience preconceptually.
>
> -Corresponding image-schematic concepts exist.
>
> -There are metaphors mapping image schemas into abstract domains, preserving their basic logic.
>
> -The metaphors are not arbitrary but are themselves motivated by structures inhering in everyday bodily experience.
>
> We have briefly discussed the first three parts of the argument, and will discuss them further in case study 2. Let us turn to the fourth part. (Lakoff 1987:275)

3.4 Metaphorical Mappings

Lakoff (1980) states that "The essence of metaphors is understanding and experiencing one kind of thing in terms of another." In this research, we understand space and time as target domains and body parts as the source domain.

This can be illustrated by the term *back* as a typical example. The original meaning of this word is the region of the body extending from the shoulders to the bottom. In terms of semantic transfer, the meaning of a word which originally refers to a body part is transferred to part of an object, such as *back seat*. Also, we can find spatial extensions on the basis of spatial position such as in the expression *backyard*. Furthermore, it is transferred to temporal meanings based on the conceptual metaphor of "PAST IS BEHIND" such as *back in the 90s*. Abstract meanings arise from words referring to concrete objects and body parts through semantic transfers.

Lakoff (1993) presents conceptual metaphors with reference to relative spatiotemporal domain as follows. However, not all of the above conceptual metaphors apply to those idioms we are dealing with in this study. Thus, we propose original conceptual metaphors which cover all body parts.

Ontology: Time is underscored in terms of things (that is, entities and locations) and motion.

Background conditions: The present time is at the same location as a canonical observer.

Mapping:

Time can be things.

The passing of time is motion.

Future time is in front of the observer; past time is behind the observer.

One thing is moving, the other is stationary; the stationary entity is the deictic center.

Entailment:

Since motion is continuous and one-dimensional, the passage of time is continuous and one-dimensional.

Special case 1:

The observer is fixed; points in time are entities moving with respect to the observer. Time is oriented with its front in the direction of motion.

Entailments:

If time 2 follows time1, then time 2 is in the future relative to time 1.

The time passing the observer is the present time.

Time has a velocity relative to the observer.

Special case 2:

Times are fixed locations; the observer is moving with respect to time.

Entailments:

Time has extension, and can be measured.

> An extended time, like a spatial area, may be conceived of as a bounded region.
>
> (Lakoff 1993: 216-217)

3.5 Conceptual Metaphor: TIME PASSING IS MOTION

"TIME PASSING IS MOTION," is a conceptual metaphor proposed by George Lakoff (1993:217). He illustrates this idea with the following key words.

LATER IS FRONT/ EARLIER IS BACK
EARLIER IS FRONT / LATER IS BACK

The Japanese word *mae* represents spatial meaning as "front" and temporal meaning as "before" which is equivalent to the usage of English word "before". EARLIER IS FRONT can be applied to this word creating a spatial position related to temporal order in connection with co-occurrence. The following illustration can clarify this conceptual metaphor. In the situation of a train consisting of several cars, a passenger in the first car moving ahead can physically pass the station or a certain point earlier than one in any car located behind the first car. Specifically, the passing time of a person in the first car has to be past (earlier) in comparison with the one in the car behind. In this sense, a time lag between two people in different positions would never happen without the motion of the train going in a certain direction. Therefore, mobility and directionality is the key to connecting space with time.

We will also make use of conceptual metaphors advocated by Lakoff (1993). He gives as an example TIME PASSING IS MOTION, which describes a way of conceptualization in which we understand spatial movement from point A to point B in terms of the passage of time. However, this conceptual metaphor alone cannot treat all types of transfers to temporal meaning. We will, therefore, propose our own conceptual metaphors of temporal extensions below.

Candidates for Conceptual Metaphors

1) TIME (temporal order) IS POSITION (location)
   atama gonashi (in the beginning)
   arrive ten minutes ahead
   shiri ("buttocks": in the end)
   tinene muchos años de experiencia sus espaldas
   (She has many experiences behind her.) (OSD[4])

2) TIME IS DIRECTIONALITY (distance)
   me no mae (in front of one's eye)
   There is a bright future ahead of her
   at hand

3) TIME (temporal order) IS PERCEPTION / CONTACT
   ichiban me ("the first eye": first, top)
   at hand
   second hand

4) TIME (temporal duration) IS DISTANCE
   kan ippatsu ("between one hair": by a hair)

5) TIME IS AN ENTRANCE (passage) OF MOVEMENT
   aki guchi ("autumn mouth": in the beginning of autumn)
   boca de noche ("mouth of night": the early evening) (DSME)

6) TIME (temporal continuum) IS ADJACENCY
   back to back

7) TIME REMAINS
   sokuseki (footprint)

8) TIME FLIES (mobility)
   ashi ga hayai ("foot is fast": swift-footed)
   Tienes los pies rápidos. ("He has fast feet": He is swift-footed) (DSME)

9) TIME IS FORCE/ SPEED
tama ashi (“ball foot”: high speed ball)

With reference to conceptual transfer which cannot be accounted for by conceptual metaphors of Lakoff, we present original conceptual metaphors involving the temporal domain.

A) TIME IS SPATIAL ORDER

B) TIME IS SPATIAL DISTANCE
TIME IS PERCEPTION
TIME IS CONTACT (the sense of touch)
TIME IS DISTANCE
TIME IS MOMENTUM

C) TIME IS PAST
TIME IS WHAT REMAINS
TIME FLIES
TIME IS DECAY

With regard to metaphors which may be considered as applicable to conceptual metaphors as advocated by Lakoff, additional conceptual metaphors is presented. Upper level categories of conceptual metaphors are (A: TIME IS SPATIAL ORDER), (B: TIME IS SPATIAL DISTANCE), and (C: TIME IS PAST). Category A contains no subcategory, but category B contains the subcategories TIME IS PERCEPTION, TIME IS CONTACT (the sense of touch), TIME IS DISTANCE, and TIME IS MOMENTUM. Category C contains the subcategories of TIME REMAINS, TIME FLIES, and TIME DECAYS.

A typical process would be that a body part as a physical entity is extended to be used as an object-part based on a resemblance of shape, with the intrinsic position of the body part giving rise to extrinsic spatial cognition. Lastly, temporal cognition arises from spatial cognition.

Information gathering from dictionaries is a crucial means to back up conventional theory in cognitive linguistics, claiming the unidirectionality of semantic extension from spatial domain to temporal domain. In other words,

analyzing the polysemy of body part terms allows us to understand regularity of semantic extension from concrete concept to abstract concept.

3.6 Orientational Metaphor and their Examples

(a) **HAPPY IS UP; SAD IS DOWN** (Lakoff 1980:15)

In accordance with orientational metaphor proposed by Lakoff (1980), we have observed that metaphorical concepts of spatial orientation such as 'up' and 'down' are shared all the three languages. The former (up) is more likely to be connected with positive meanings, and the latter (down) is more likely to be connected with negative meanings based on our bodily based experience. As Lakoff states, negative feelings such as sadness and depression make our posture droop as in the examples of *droop one's shoulder* (in disappointment) in English and *gakkuri kata wo otosu* <disappointedly shoulder droop> (droop one's shoulder) (ODE) in Japanese. Equally, *abajo* 'down' is used to refer to negative feelings as in the example of *me he venido abajo* <I have lived down> (I have disappointed) (DJS). On the other hand, a positive emotion makes our posture erect. For example, *up* used in the expression of *I'm feeling up* refers to positive emotions. An equivalent expression is found also in Japanese, *kibun wa joujou* <feeling is up up> (I'm feeling up). In Spanish, *arriba* 'up' is used as an interjection referring to a positive exclamation, such as *¡Arriba España!* (viva Spain)(DEM).

> Physical basis: Drooping posture typically goes along with sadness and depression, erect posture with a positive emotional state. (Lakoff 1980:15)

(b) **CONSCIOUS IS UP; UNCONSCIOUS IS DOWN** (Lakoff 1980:15)

According to Lakoff, our posture is more likely to be in the upright position when we are active in the life, whereas we let our body lie down in our sleep. As a matter of fact, this conceptual metaphor is applied not only to the human body but also to entities, such as the sun. The expression *sunrise* is related to the spatial concept of 'up' and implies an activity of the sun diffusing the sunlight while *sunset* related to the spatial concept of 'down'

does not. Let us consider this conceptual metaphor with the following examples. The concept of 'up' is commonly observed in examples referring to consciousness based on our erect posture, such as in *wake up, despertar* (wake up), and *okiru* (wake up). Conversely, the concept of 'down' is related to unconsciousness as in the examples of *fall asleep, nemuri ni ochiru* (fall asleep).

> Physical basis: Humans and most other mammals sleep lying down and stand up when they awaken. (Lakoff 1980:15)

(c) HEALTH AND LIFE ARE UP; SICKNESS AND DEATH ARE DOWN (Lakoff 1980:15)

The concept of 'up' and 'down' serve as a barometer of our physical condition. In the same way as with previous examples, 'up' is concerned with a positive status of our body as in the examples of *be in top condition* (the best condition), *saikou no joutai da* <top of condition be> (be in top condition). On the contrary, the concept of 'down' refers to the negative conditions of sickness and death. Expressions like *fall ill*, *caer enfermo* <fall sick> (fall ill) (DJE), *byouki de taoreru* <illness by fall> (fall ill), crosslinguistically exhibit negative health conditions

> Physical basis: Serious illness forces us to lie down physically. When you're dead. You are physically down. (Lakoff 1980:15)

(d) HAVING CONTROL or FORCE IS UP; BEING SUBJECT TO CONTROL or FORCE IS DOWN (Lakoff 1980:15)

The concept of 'up' is associated with the idea of the control of others while that of 'down' is associated with subjection to control. There are numerous expressions collocated with 'up', which refer to positive meanings, whereas expressions collocated with 'down' refer to negative meanings in the three languages where may be observed in the following examples: *upper-class*, *clase alta* <class high> (upper-class), *jouryu kaikyu* (upper class). Likewise, expressions collocated with 'down' are seen in *a captain is under a colonel* (GEJ), *sufrir bajo la tiranía* (suffer under the tyranny) (DDEM), *kare*

wa watashi no shihai ka ni aru <he is my control under in> (he is under my control).

> Physical basis: Physical size typically correlates with physical strength, and the victor in a fight is typically on top. (Lakoff 1980:15)

(e) MORE IS UP; LESS IS DOWN (Lakoff 1980:15)

If you keep pouring some water into a glass, the level of water goes up. This type of physical experience allows us to understand that the amount of substance increases as the height goes up, and vice versa. Note that this orientational metaphor is applied not only to concrete objects, such as water but additionally to less perceivable objects, such as 'temperature" which also collocate with *go up* or *down.* On the basis of this bodily based experience, we perceive that 'up' is relevant to a greater amount of things, and 'down' relevant to a smaller amount of things, as seen in the examples of *prices are high, a alto precio* (at a high price) (DJS), *nedan ga takai* (prices are high), *prices have gone down* (PJE), *bajan los precious* (prices went down), *kare no shunyu wa ochita* <his income is fell> (his income fell).

> Physical basis: If you add more of a substance or physical objects to a container or pile, the level goes up. (Lakoff 1980:16)

(f) FORESEEABLE FUTURE EVENTS ARE UP (and AHEAD) (Lakoff 1980:16)

As Lakoff states, we conceptualize foreseeable future by the spatial orientation 'up' in English and Japanese as can be seen in the following examples: *A problem has come up* (SPJE), *Nani ga mochi agatte irunoka?* <what is lifted?> (what's up?). Unlike in English and Japanese, we have not confirmed similar expressions in Spanish referring to future events making use of the spatial orientation of *arriba* (up). However, *alto* (high) and *bajo* (low) give rise to the temporal concepts of 'earliness' and 'lateness', respectively, which are not observed in either English or Japanese where front-back orientation is related to temporal concepts. Interestingly, *alto* can express two opposite temporal meanings of earliness and lateness as in the

examples of *Alta Edad Media* <high age middle> (early Middle Ages) (DDEM), *A altas horas de la noche* <at high hours of the night> (late at night) (DDEM), while *bajo* refers to lateness only: *La baja Edad Media* <the low age middle> (the late Middle Ages) (DDEM). With regard to the transfer from *alto* (high) to early, and *bajo* (low) to late, we are not at this point able to accurately propose what motivation is behind this semantic transfer, but at least can give a possible logic to account for this transfer by making use of 'thread' (a group of linked messages posted on the Internet that share a common subject or theme (ODE)) where the earliest message typed appears at the upper end of the screen while the latest message typed appears at the bottom end of the screen. Somehow, this logic can explain that the spatial concept of *alto* and *bajo* are relevant to earliness and lateness, respectively. However, this account is insufficient to explain the appearance of this semantic transfer prior to the Internet era. Moreover, an analysis of the motivation as to the transfer from *alto* to earliness and lateness has been left unsolved.

3.7 Metaphorical Chain: Relative Degrees of Abstraction

Our main concern in this study is an analysis of spatial and temporal meanings involving body parts. First, let us review the semantic extensions (metaphorical mappings) of body part terms proposed by Heine (1991:48) the following order of semantic extensions.

PERSON > OBJECT > ACTIVITY > SPACE > TIME > QUALITY

As Heine states, semantic extensions proceed from concrete, or less abstract concepts to the left to less concrete, or more abstract concepts to the right. Transfer from body parts to inanimate objects is based on metaphorical mapping derived from similarity in shape. In this stage where body parts (e.g. *leg*) are transferred to inanimate objects (e.g. *leg of a table)*, the transfer is made between concrete objects. Movement of body parts can be held responsible for metaphorical transfer of spatial meaning such as *ashi wo nobasu (stretch one's leg)*. With reference to *ashi* (foot), as we stated earlier, movement of body parts is relevant to spatial concepts. Similar expressions in the three languages, *ashi ga hayai, swift-footed, or pies*

rápidos adequately lead to temporal meanings besides space and quality. To be more specific, the order proposed by Heine roughly corresponds to that of historical apperanace of the relevant meanings, especially as regards PERSON > SPACE > TIME.

Here, let us examine whether or not metaphorical chain suggested by Heine can be applied to each body part. In the beginning, typical examples and their meanings with regard to Japanese *ashi* and *te* are illustrated below. (Hereafter, we reproduce the numbers for tables and figures as used by Heine.)

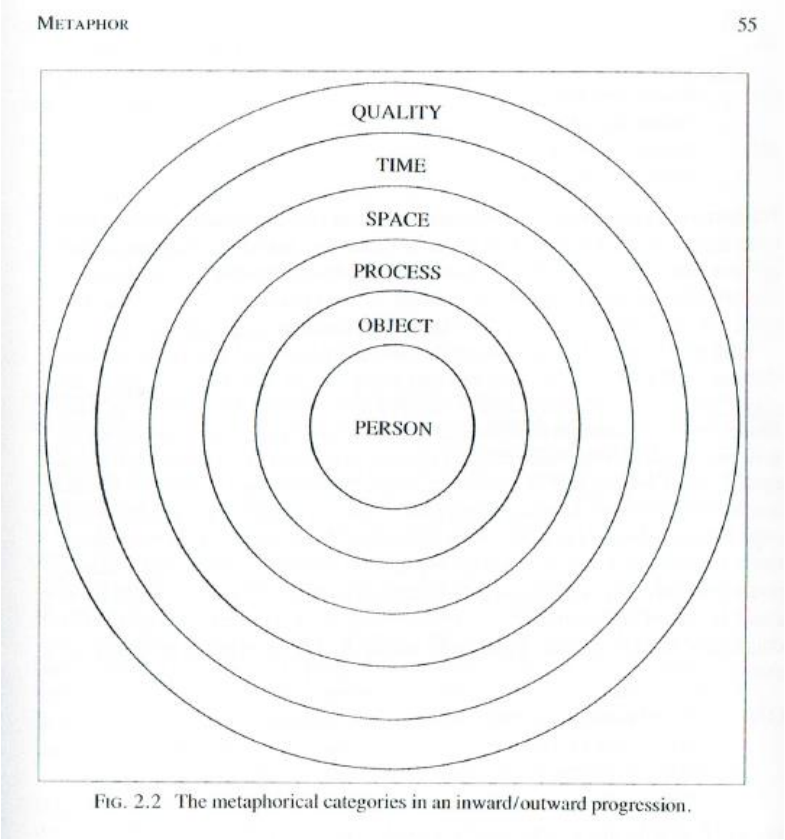


FIG. 2.2 The metaphorical categories in an inward/outward progression.

(Heine1991:48:Figure 2.2)

Subcategorization of Space and Time

Space and time seem to be simple concepts. However, these lexical items contain a variety of concepts used in various situations and scenes. Hence, spatial and temporal concepts are subcategorized into the following subordinate concepts:

In this way, a clear idea will be seen to exist that body part terms have a tendency to extend their meanings related to spatial position when considered cross-linguistically. According to Table 1, semantic extension is less limited in the lexical concept of position when stationary but more limited in lexical concept when having movability.

SPACE: position, location, directionality, change, expansion, movement of experiencer, movement of object

position : sento (head a procession)

location: shoulder (side of a road)

directionality: move ahead

change: beck (getting narrow)

expansion: finger (finger out)

subject movement: head a vessel toward a shore

object movement: hand (she handed me the key)

TIME: earlier, later, duration, future, past, speed, continuum, time, waiting

Earlier: arrive ten minutes ahead

Later: shiri (buttocks)

Duration: a la mano (short time)

Future: mesaki (under one's nose)

Past: back

Speed: ashi ga hayai (swift-footed)

Continuity back to back, matagi

Time: *haradokei*
Waiting: *kubi wo nagaku suru*

This gives us a clear-cut picture of each semantic category, and allows us to understand the properties of each language.

For more detail, the subcategories of semantic extension in SPACE and TIME are presented below. For the category of SPACE, the concept go left to right from more stationary to less stationary with the salience of movement becomes movement that becomes gradually greater. In other words, the concreteness of the lexical concept shifts more and more into abstractedness.

Sources of Data

With respect to conceptual transfers of body part terms and their range, we refer to such dictionaries as *Nihon Kokugo Daijiten, Oxford English Dictionary 2nd Edition*, *Spanish Dictionary 4th Edition* and the like. Concerning the temporal order of appearance of conceptual transfer, we confirm with comparison of the first appearance of instances illustrated in the dictionaries as indicating approximate chronological order. As for Spanish, the years of the first appearance are not available to the author.

We basically adopt the degrees of metaphorical "abstraction" as regards directionality in semantic extension proposed by Heine (1997) who deals with semantic extension of body parts into the spatial domain as well as spatial orientation based on human body parts. According to Heine's study regarding Yucatec (a Mayan language of Mexico), quite a few body part terms are used to denote spatial orientation. For example, *pàach* (back) as body part term is used as a locative marker to *pàach* (behind).

3.1 Deictic orientation

In Yucatec, a Mayan language of Mexico, a number of terms for spatial orientation resemble expressions for body-parts.Yucatec speakers extended the use of some body-part items to also refer to certain spatial reference points, as the table illustrates. (Heine 1997:37)

Table 3-2 Yucatec (Mayan; Goldap 1992:613; Stolz 1994b:61)

Body-part term		*Locative marker*	
pàach	'back'	pàach(il)	'behind'
táan	'front'	táan(il)	'in front (of)'
ich	'eye'	ich-il	'inside'
		ich	'in'
ts 'u'	'marrow'	ts' u'	'in'

(Heine 1997:37)

Table 3-3 Five reference points of deictic orientation

Reference point	*Spatial relations*	*Typical linguistic expression*
'Up'	Top, suprerior	above, up, on, on top (of)
'Down'	Base, inferior	below, down, under, underneath
'Back'	Anterior	before, in front (of)
'Back'	Posterior	behind, back, in back of
'In'	Interior	inside, within, in

(Heine 1997:38)

Table 3-4 Common source models for expressions of spatial orientation

Source models	Expressions of spatial orientation
Body-parts	Uses parts of the human body in its upright position as a model
Landmarks	Uses environmental landmarks
Dynamic concepts	Uses activities

(Heine 1997:38)

In accordance with Heine's diachronic chain, body part terms serve as conceptual templates for spatial orientation. He insists on body parts or landmarks as concrete concepts develop into other domains such as relational concepts, or spatial reference points as less concrete concepts. A semantic network involving body part terms basically exhibits unidirectionality from concrete physical contours to less concrete ones. In the same way, directionality of semantic transfer from space to temporal domain, being our particular interest in this study, is supported by this diachronic chain which accounts for body parts as the source domain extending to other

domains.

> First, wherever there is historical evidence, these relational concepts can be traced back to either body-part or landmark sources. Thus, the diachronic chain involved has the following structure:
>
> body-part or landmark → relational concept → spatial reference point (Heine 1997:39)

3.8 The Zoomorphic Model

We make use of not only the anthropomorphic model based on the vertical axis but also the zoomorphic model based on the horizontal axis that can be exploited to account for semantic extensions of some examples, such as *tail*, *crest*, *nose*, and the like. Whereas Heine focuses on spatial orientation with the zoomorphic model, we apply this model to the temporal domain in order to illustrate the motivations for semantic developments illustrating that any portion of the front part of the body such as *head* corresponds to 'earlier' and any corresponding portion of the rear part of the body such as *tail* and *back* correspond to 'later' in temporal concepts, respectively.

> CONCEPTUALIZATION is anthropocentric:
> Whenever possible, we use human categories to describe and understand nonhuman ones. Accordingly, the human body provides the most important model for expressing concepts of spatial orientation. But, as already indicated in the preceding discussion, there are other models, notably the zoomorphic model, which takes the bodies of animals as a structural template for spatial orientation. (Heine 1997:40)

> Instances of the zoomorphic model have been reported by a number of authors. Svorou (1994:75), for example, found that in Papago the concepts 'front', 'side', and 'inside' are derived from the anthropomorphic model, while 'back' is derived from the zoomorphic model. (Heine 1997:40)

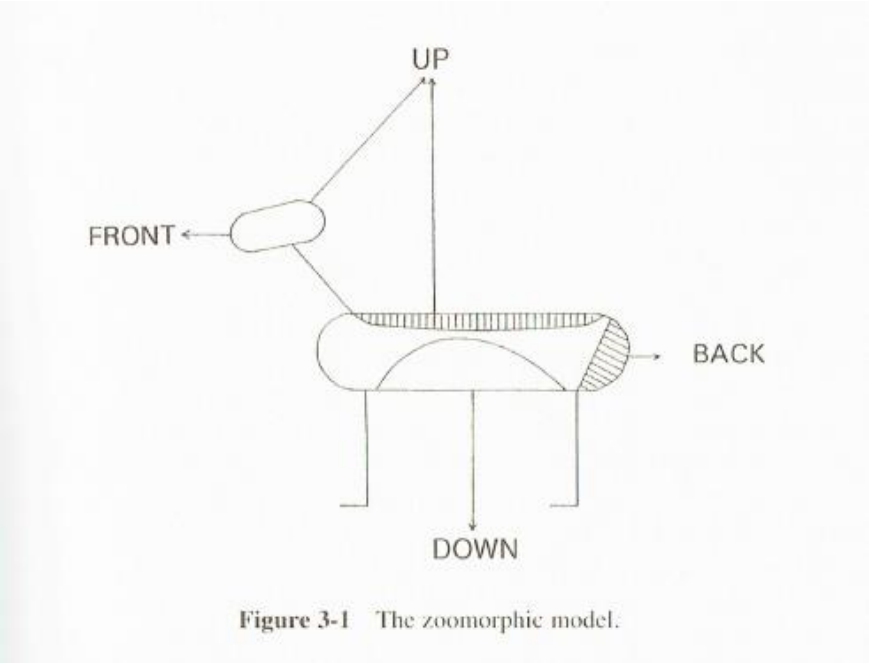


Figure 3-1 The zoomorphic model.

(Heine 1997:41)

Spatial orientation with respect to UP grows out of body part terms including *head, face, shoulder*, etc. In particular, the concept of UP derived from head is held in common with the three languages being considered, such as *overhead*, *zujou* (head above), and *encima de la cabeza* (top of the head). The head located at the upper end of the body in the upright position serves as a conceptual template for semantic development of spatial orientation.

3.1.1 'Up'

Of all possible source concepts, body-parts provide the most important source of expressions for the concept 'up'.

Head, face, shoulder, hair, forehead, back (Heine 1997:41)

The buttocks or the anus is linked with spatial orientation of DOWN due to the location of those parts at the lower end of the trunk based on the anthropomorphic model. In addition, the posture of one sitting down on the ground allows us to understand that buttocks or anus has proximity with the surface of the ground, which gives rise to a clear-cut picture of the spatial concept of DOWN. Incidentally, the lexical concept of *shiri* (buttocks) in

Japanese refers to the bottom of something such as a pot or fruits.

3.1.2 'Down'

Both in Africa and Oceania, 'down' is the only concept looked at here that has environmental landmarks ('earth', 'ground') as its primary source domain. (Heine 1997:41)

In Africa, 'buttocks' or 'anus' constitutes the outstanding body-part, providing the source in 84.6% of all languages having a grammaticalized body-part for 'down'. (Heine 1997:41)

The physical property of human sensory organs converges in the face to give a spatial distinction between front and back. Furthermore, directionality of motion in an organism is heavily concerned with the position of the eyes. Put another way, the front region of entities is grounded in the direction of movement.

3.1.3 'Front'

Environmental landmarks are virtually absent as sources for 'front', the only conceptual template of importance being the body-part 'face': (Heine 1997:42)

The second most important African source is 'eye', which account for 15.7% of all body-part sources for 'front'. (Heine 1997:42)

Breast, forehead, mouth, belly/stomach (Heine 1997:42)

The back is the primary body part extending to other domains. It proceeds from the body part as a concrete concept to the spatial domain as a less concrete concept referring to 'behind', and furthermore the temporal domain referring to the past as an abstract concept. Spatial movement from the behind (back) to the front is conceived of as time flow from the past to the future. In the latter case, some expressions involving *back* in English or *espalda* in Spanish make use of this concept.

3.1.4 'Back'

> As in the case of 'front', environmental landmarks are irrelevant as source concepts. The universal source for 'back' expressions is the body-part 'back' (Heine 1997:42)

Heine states that subregions of the human body (extremities) are less important for semantic transfer in Africa and Oceania. However, as we will show, we have found that extremities of body parts including, *foot, hand, wing,* etc, play a significant role for metaphorical transfer. Specifically, transportability as an inherent property of *foot* and *wing* serves as a conceptual template not only for spatial orientation but also as a temporal concept since spatial movement is relevant to time passing. Abundant examples involving *foot* and *wing* illustrating spatiotemporal domains are listed in Chapter. 4. In addition, accessibility as a property of *hand* serves to interact with tangible objects in the externals. Consequently, close distance between the hand and objects or the time required to reach an object with one's hand can be held responsible for the temporal concept as futurity in the case of the expression, 'at hand', denoting concepts of space and time.

> OF THE THREE MAJOR subregions of the human body (head, trunk, extremities), the extremities are virtually insignificant as a source for the spatial concepts considered: Neither in Africa nor in Oceania do extremities like 'hand' or 'arm' play a major role in expressing any of the spatial concepts looked at above (Heine 1997:43)

As Heine points out, *foot* and *leg* provide spatial orientation for 'down' in this crosslinguistic survey. For instance, the location of *foot* at the lower end of the body develops into a relational concept, such as *foot of a mountain* in English. Interestingly, similar linguistic concepts are observed in Japanese and Spanish, irrespective of the usage of *foot*. For instance, corresponding expressions of *the base of a mountain* are listed as *yama suso* <mountain hem> in Japanese and *falda de una montaña* <skirt of a mountain> in Spanish evolved out of the locative notion concerning the edge of a piece of cloth, respectively. On the basis of the above examples, we suggest that conceptual transfers from objects to relational object part are motivated by the locative notion referring to the bottom region, something held in common between the three languages being studied.

An exception can be seen in the item 'foot, leg', which, at least in Oceania, constitutes an important source for 'down'. (Heine 1997:43)

With the illustration of domains of the body part *back*, Heine proposes that the two main components of semantic transfer is firstly the shift from the object domain to the spatial domain, secondly the shift from spatial region to other domains. The lexical item *back* originally referring to a body part is extended to the back region of inanimate object such as *the back of a chair.* Moreover, the body part term develops into the back region immediately adjacent to an object such as *backyard*. Finally, it is transferred to the space adjacent to, but detached from, the object such as "the hotel is further *back* from the road". Additionally, we present stage 5 as a temporal domain referring to the past (e.g. *back in the 90s*) which is applied to EARLIER IS BACK as a conceptual metaphor proposed by Lakoff (1993).

From body-part to spatial concept: A four-stage scenario
1. Stage 1-a region of the human body
2. Stage 2-a region of an (inanimate) object
3. Stage 3-a region in contact with an object
4. Stage 4-a region detached from the object (Heine 1997:44)
5. Stage 5-a temporal domain referring to the past

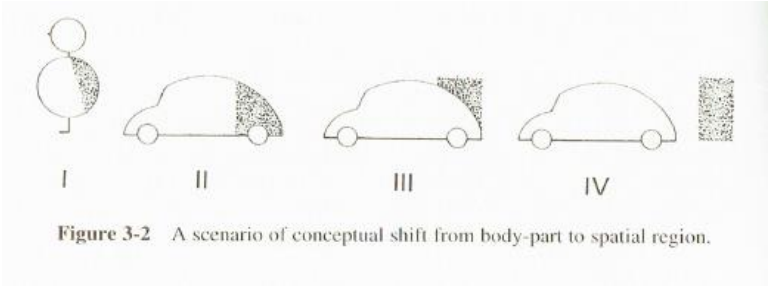


Figure 3-2 A scenario of conceptual shift from body-part to spatial region.

(Heine 1997:44)
Figure 3-2. A scenario of conceptual shift from body-part to spatial region.

We adopt Svorou's lexical concept of eye, as quoted by Heine, providing conceived directedness into space as in the expression of *eyesight.* Directionality as a property of the eye gives rise to the distance between a conceptualizer and the object. This distance serves as a conceptual source for

the semantic shift from space to time. Whereas the conceptual transfer of *eye* is restricted to the spatial domain in English and Spanish, a wide range of the transfer from space to temporal domain is observed in Japanese where an expression concerning the body part term 'eye' as in *menomae* (in front of one's eyes) is used to denote not only the spatial concept as a close distance but also the temporal concept as near future.

> Thus, Svorou (1994:78) observes examples in which the body-part noun for 'eye' develops into an allative marker ('to, toward'), (Heine 1997:45)
>
> The eyes, as an organ of vision, may be metonymically used for eyesight. Thus, the conceived directedness of eyesight makes eye terms eligible as lexical sources of directional grams. (Svorou 1994:78) (Heine 1997:45)

It is generally assumed that this represents unidirectionality in semantic development from concrete concepts such as an object to less concrete concepts such as space, and to abstract concepts such as time. In accordance with Heine's diachronic chain, our standpoint is that body part terms are conceptual sources for other domains.

> TYPICALLY, THERE is a close conceptual association between a given body-part and the corresponding spatial concept. Such an association exists, for example, between the body-part 'back' and the spatial concept 'back', between 'face' and 'front', or between the body-part 'head' and 'up' since in all these cases the former items are the most probable diachronic source for the latter. (Heine 1997:45)

Heine states that some body part terms refer to dual regions regarding spatial orientation, such as 'head' denoting concepts of 'up' and 'front'. According to the anthropomorphic model based on the vertical axis, the human body standing in an upright position is not absolutely perceived as being vertical but rather as leaning forward in the daily activity of walking or running. As Heine discusses the spatial concepts of 'up' and 'front' developing out of 'head', he does not deal with another spatial orientation of

'head' which is directionality related to the posture of the human body leaning toward the direction of movement. Technically, *the head* itself has no directionality, being essentially in a static condition, but the picture of one's body leaning forward in motion would account for the concept of directionality when a person turns his or her head toward the direction of movement such as one finds with the expression of *head at* referring to movement in a specific direction in English. As illustrated in 'the metaphorical chain' proposed by Heine, the body part 'head' as a diachronic source is transferred to other domains that denote not only a region detached from the object but also directionality leading to spatial movement. In this crosslinguistic research, data involving *head* in three languages are exhaustively listed in Chapter 4 which follows and where we present an analysis of semantic shift from space to temporal domains. Here we will lightly touch upon a conceptual association between the spatial concept of 'head' and the corresponding temporal concept. In Japanese, '*atama'* (head) is used in idiomatic expressions and collocations to refer to the beginning of something in temporal meaning such as *shigatsu no atama* < Head of April > (the beginning of April). The location of the head at the upper end of the body is perceived as the edge of an entity such as *the head of a procession* where one in the front is eligible to, for example obtain a service or get in a shop earlier than those who are behind. This spatial concept that the entity in the front region can have the experience of temporal events earlier than one in the rear region would account for the motivation of semantic development denoting EARLIER IF FRONT as proposed by Lakoff.

> the body-part 'buttocks' is treated alternatively as the 'back' or the 'down' region. (Heine 1997:46)

> There is a salient pattern of transfer according to which either 'up' and 'front', or 'back' and 'down', derive from the same body-part source. (Heine 1997:46)

> That the up/down and the back/down regions tend to be associated with the same source concepts which might suggest that the human body in its upright position is not perceived as being absolutely vertical but rather as leaning forward, that is, the way it is situated

> when one is running or walking, rather than when one is standing. (Heine 1997:46)

> According to the second hypothesis, certain body-parts are perceived as having a dual locative potential. (Heine 1997:46)

Heine points out that spatial orientation involving 'nose' has not received much scholarly attention. We, however, deal with semantic transfer from 'nose' to spatial domains where the shape of the nose is observed as a conceptual source extending its meanings on the basis of its inherent property of typically giving an image of a projection on the face linked with extremity and providing directionality into space. For instance, the expression of *under one's nose* refers to an existing entity or events immediately in front of the conceptualizer. In this case, *nose* serves as an allative marker (Heine 1997) for conceived directedness where the entity exists in the direction one turns one's nose to, but in this stage range of semantic transfer is restricted to the way that the conceptualizer is still in a stationary condition without motion. As an example of cases in the next stage, let us consider an expression with semantic development which is less limited for motion but rather aggressive: *The ship nosed between the reefs* (ODE). This expression means that the subject moves cautiously forward. *Nose* as an extremity serves as a source domain for directionality which turns into spatial orientation as movement. Another motivation as to transfer of *nose* is found in the expression: *me to hana no saki* <in front of one's eye and nose> (under one's nose) in Japanese. This is not basically relevant to directionality but the distance between *eye* and *nose* on the face projects the location of an entity within reaching distance. In this idiom, *nose* plays a role as a landmark for producing the concept of the distance when it is used in combination with eye.

> What induces people worldwide to decide that a body-part like face, rather than navel or kneecap, provides the favorite model for developing expressions for the spatial concept 'front'? And why not the body-part nose? Why, in fact, is the nose notoriously ignored as a source concept for spatial orientation? (Heine 1997:47)

Heine quotes Werner (1904:427f.)'s idea that the body's extremities do not make a contribution to spatial orientation. However, extremities of body parts are a major asset to our study due to the fact that a remarkable number of idioms related to extremities have been collected. To give an example, the notion of direction making use of the hand is derived from its location which serves as locative notion used in expressions such as *on your right (left) hand side.* The same conceptual source is found in common in both Japanese and Spanish: *migite wo gorankudasai* (have a look on your right hand side), *vamos dobrar a mano derecha en la próxima calle* (let's turn right (hand) at the next corner), respectively. (Both examples are cretated by the author of this dissertation)

> While the head and the trunk of the human body present a rich pool of templates for expressing spatial distinctions, the contribution of the body's extremities is highly limited. There is one noteworthy exception: The reference points 'left' and 'right' are very likely to have the body-part 'hand' as a conceptual model. (Heine 1997:48)

Heine cites a polysemous word denoting 'midday' and 'south' in some languages, that is temporal and spatial meanings, respectively. He proposes the research question with regard to the mechanism for this semantic network as follows. In this survey, the polysemy of space and time arising from the body part terms is the main theme to investigate when seeking the motivation for this semantic extension.

> In a number of languages there is a word that means both 'midday' and 'south'. (Heine 1997:49)
>
> 1. Why is it that one and the same term serves to designate both the time of day and a cardinal direction, or a wind and a cardinal direction, or a season and a cardinal direction? (Heine 1997:49)

As Heine states, movement and position are the key elements that serve as a conceptual template for semantic development from the body part domain to the spatial domain as well as the temporal domain. In the following Chapter 4, we will exemplify a seamless connection between

movement as spatial orientation and time passing as a temporal concept in given examples involving body part terms such as *foot* and *leg,* which are related to transportability which could be considered as an inherent property of animals. As we already illustrated in the preceding section, the primary function of *foot* and *leg* is movement which we largely depend on in our daily activities. By virtue of the fact that movement from point A to point B takes time, the concept of spatial movement contributes to the linguistic conceptualization of velocity as a temporal concept.

With respect to position, as is already mentioned, 'tail' as a peculiar body part of an animal serves to designate both spatial and temporal domains due to its position in the rear region, as in terms such as *tail end*. In accordance with LATER IS BACK as a conceptual metaphor proposed by Lakoff, we found that when the conceptualizers pass through the space, they conceive of the space left behind as the past in time.

> The movement or position of the sun clearly provides the predominant model for developing terms for cardinal directions. (Heine 1997:50)

Whereas Heine quotes Brown (1983:132) below, he does not explain explicitly what is the relationship between the direction of 'north' and the middle of the night in some languages. As a matter of common sense, we can acknowledge that the position of the sun in the sky allows us to understand the approximate time of the day, such as noon, when the sun is at its highest point in the sky for the day.

> The sun model is suggestive of a conceptualization of space that one would expect north of the equator but not south of it. In Czech and Polish, for example, 'north' is related to the middle of the night or midnight (Brown 1983:132), while 'south' is associated with midday in some European languages. (Heine 1997:51)

As Heine states, deictic orientation involving body part terms are widely observed on the basis of properties of body parts, which are listed as directionality, positionality, and form. To make it clear, we give the definition

of the term given by Heine. What he meant by deictic orientation are spatial concepts denoting left-right, below-above, downward-upward, behind-in front, all of whose meanings are dependent on the context in which they are used. For instance, the spatial concept of right hand side for a teacher standing vis-à-vis his or her students represents the left hand side for those students in terms of deictic orientation.

Let us give some expressions involving body part terms that fit with each property above: <directionality> *menomae, under one's nose* (in front of), <positionality> *shiri, buttocks* (bottom), *se, back, espalda* (behind), temae (this side), *right hand, mano derecha* (right) <form> *the shoulder of a road* (the edge of a road). Here, we skip the details of motivation for semantic transfer regarding deictic orientation since most of the examples above are already illustrated in the preceding section except with the last one, *shoulder*. The expression referring to the side of a road is possibly derived from the linear contour of the shoulder which overlaps with the straight line of a road, though this cannot be categorically asserted. Accordingly, another possibility for this transfer can be suggested, being that positionality of the shoulder located at both sides of the body parts between the arm and the neck might have been conceptualized as the side of a road.

> We have distinguished a number of patterns of spatial orientation.
>
> 1. Expressions for deictic orientation may derive from terms for body-parts or environmental landmarks but never from terms for celestial or atmospheric phenomena. (Heine 1997:57)

Although Heine proposes that there is no conceptual relationship between body-parts and landmark orientation in Table3-9, we have found that some expressions in Japanese involving *te* (hand) represent landmark orientation, such as *yamate* <mountain hand> (mountainside), and *umite* <sea hand> (seaside). In this case, positionality of *te* (hand) has served as a conceptual source for this semantic development.

> The conceptual relationship between source and target domains is described in table 3-9, and the transfer patterns from source to target domain are illustrated in figure 3-9. As figure 3-9 shows, conceptual transfer leads from the ontological category OBJECT, the domain of

physically perceptible items, to the category of SPACE. (Heine 1997:57)

Table 3-9 The main sources for spatial orientation (n.a. = not applicable)

	Target domain		
Main source models	*Deictic orientation*	*Landmark orientation*	*Cardinal orientation*
Sun	–	–	+
Wind	–	–	+
Deictic orientation	n.a.	+	+
Landmarks	+	+	+
Body-parts	+	–	–

(Heine 1997:57)

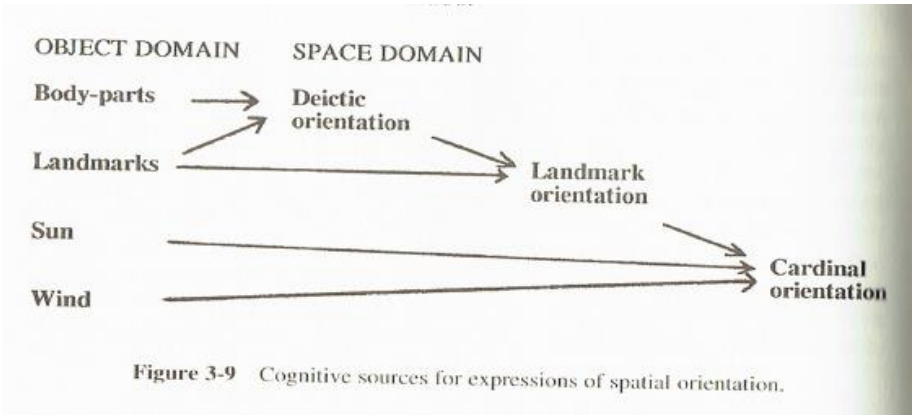


Figure 3-9 Cognitive sources for expressions of spatial orientation.

(Heine 1997:58)

As Heien suggests, we have found that spatial orientation deriving from body part terms can be used as adverbs or adpositions, such as *atama* (head) denoting the front region or the edge of an entity. However, body parts are also used as nouns, such as *retsu no atama* (head of a procession). In this case, atama denotes the front as a noun.

> Once nouns denoting body-parts or landmarks are pressed into service for the expression of spatial orientation, their morphosyntactic status is likely to change: Linguistic items that refer to spatial orientation are typically found as adverbial material, that is, they are likely to belong to the adverbial phrase. Thus, concepts of deictic orientation, like 'up', 'down', and the like, almost

> invariably occur as either adverbs or adpositions (prepositions, postpositions, or ambipositions). (Heine 1997:58-59)

Whereas Heine states that the spatial concept of in or inside is commonly derived from body part terms, to our best knowledge, there are few terms denoting those concepts.

> Locative markers for 'behind' and 'in front' are not commonly derived from body-part terms like 'back' and 'face' / 'front', respectively. However, the Yucatec data also showed that there are limits to the universality of the process. For example, while items denoting 'in' or 'inside' are quite commonly derived crosslinguistically from body-part terms, the number of languages using body-parts like 'marrow' or 'eye' for this purpose is probably quite limited. Thus, there are both universal and regionally restricted forces that account for the structure of conceptual transfer. (Heine 1997:62)

As Heine suggests, we have observed that expressions involving *eye* are crosslinguistically used to refer to the front region of a conceptualizer, such as *meno mae* (in front of one's eyes).

> The question of why 'eye', for instance, has ultimately given rise to terms for 'in front' in quite a number of languages, while in Yucatec (*ich*) it appears to have developed into an expression for 'in', is left to further research. (Heine 1997:62)

From objects to body-parts

So far, we have illustrated conceptual transfers from the body part domain to other domains. In this section, the cases of transfer from other conceptual sources to the body part domain will be examined. In Japanese, *komekami* (temple), referring to the flat part of either side of the head between the forehead and the ear (ODE) literally means "rice" (*kome*) "bite" (*kami*), and is derived from the fact that the temple moves when one bites something. The name of this body part is associated with function. Another case is found in the example of *mizukaki* (web) referring to a membrane

between the toes of a swimming bird or other aquatic animals (ODE), which means "water" (*mizu*) "paddle" (*kaki*) in literal language. The name of a tool (paddle) is used to refer to an animal body part that has a similar function.

The English iris and the Spanish iris are both etymologically derived from the Greek ' Ιρις' (iris) which denotes something curving. This lexical concept serves as a structural source for the semantic transfer to an entity, such as a rainbow whose arched shape is associated with the word origin as curving. Moreover, the lexical concept of a rainbow (*iris*) is extended to a body part as the iris refers to a part of the eye that exhibis several colors in common with the colors of rainbow. In order to clarify the process of this transfer, we reiterate that the original concept of a curving entity proceeds to something similar in shape such as a rainbow, and then the concept of this colorful entity proceeds to something a resemblance in color such as iris.

Arch (of a foot) is an interesting body part from a crosslinguistical view point in showing how the concepts of other domains serve to denote the term referring to the inner side of the foot. In English, *arch* originated from Latin, '*arcus*' (curve) and is employed to refer to a part of the foot which is similar in shape. In Spanish, *puente,* which means "bridge", is used, having its origin in the fact that arched shape of a bridge is similar in shape to that body part. Whereas the concept of the shape of objects is used to refer to a certain part of the foot in English and Spanish, in Japanese use is made of the expression *tsuchi fumazu* which means 'not stepping on the soil', denoting a property of the arch of a foot which enables it not to touch the ground when the body is in an upright position.

> Terms for body-parts belong to the most conservative domains of the lexicon. In the historical reconstruction of earlier language states, items like 'eye', 'head', or 'back' are likely to prove more resistant to language change than many other words. Still, even body-parts tend to be derived from other domains of conceptualization; French tête 'head', which is derived from Late Latin *testa* 'pot', or English *vagina*, which goes back to a Latin word for 'sheath', are not uncommon examples. (Heine 1997:132)

As Heine states, *pupil* is etymologically derived from Latin *pupillus* or 'little boy' by virtue of the fact that a small man is mirrored in one's pupil.

> Terms for 'pupil' (of the eye)' are most likely to be derived from nouns denoting a small human like a baby, or a child, or a diminutive humanlike object like a doll. (Heine 1997:132)

Japanese does not have a term specifically referring to the digits of the foot such as *toe* in English, but *yubi* (finger) is used to refer to the fingers of the hand and the toes of the foot. As Heine suggests, the lexical concept of *oyayubi* which literally means 'parent finger' is similar to thumb and big toe in view of kinship-terms in that *oyayubi* is literally referred to as the parent of the remaining digits.

Moreover, in Spanish, too, unlike in English, there is no separate term referring to the digits of the foot, and *dedo* (finger) is used to denote both fingers of the hand and toes of the foot. In addition, *dedo* is collocated with *pie* (foot) in phrases such as *dedo del pie* (finger of the foot). With respect to the term expressing thumbs and big toes, *dedo gordo* which literally means 'fat finger' is used for both. Interestingly, its origin is similar to the English *thumb* whose original meaning was 'swollen finger'.

> There are contrasting transfer patterns for thumbs and big toes on the one hand and the remaining digits on the other: Whereas the former are likely to be built on kin-terms of an older, ascending generation (e.g., 'mother of the hand/foot'), the remaining fingers and toes tend to be derived from expressions involving terms for offspring or other younger relatives (e.g., 'child of the hand/foot') (Heine 1997:132)

As Heine states, round shape objects including 'egg' serve as a conceptual source for 'testicle' crosslinguistically. In Spanish, *huevo* 'egg' is employed for that expression. In a similar fashion, the use of *tama* 'ball' is observed in reference to 'testicle' in Japanese.

> For the concept 'testicle', by far the most widespread source is provided by terms for 'egg' , alternative options being 'stone', 'peddle", 'seed', and 'fruit' (Brown & Witkowski 1981; Wilkins 1993:12; see section 7.5) (Heine 1997:132)

> Perhaps the most salient one is that of basic human role-relation like father, mother, and child. Animals appear to provide another domain, and finally there is also a range of inanimate items that provide an additional domain. Probably the most frequently employed parameters for selecting objects are similarity in shape and function, where the source item provides a conspicuous, eye-catching model for naming a less conspicuous body-part. (Heine 1997:133)

Extensions from one part of the body to another

As Heine notes, there are crosslinguistically some body parts referring to other body parts in examples involving such parts as *throat, neck*, and the like. Japanese calls the uvula *nodo chinko* 'throat penis' due to the similarity in shape, and the wrist *te kubi* 'hand neck', on the basis of a narrow shape of the neck which somehow resembles the part of the body connecting the hand to the arm. Likewise, the expression *ashi kubi* 'foot neck' is used to refer to the ankle, the narrow part of the foot. Moreover, a similar idea is observed in Spanish where the ankle is called *garganta del pie* 'throat of the foot', because of the narrow shape of the throat, which is extended to the part of the foot.

So far, we have observed examples arising from the property of form in body parts. Now, let us look at semantic transfer concerning the positionality of a body part. For instance in Spanish, *corazón* 'heart' located at the central part of the body is employed to express *dedo del corazón* 'middle finger'. In the case of *the kidney* referring to the waist in English, this may be also the location of the kidney, but we can not assert at this point that they are related to each other.

Cases of semantic extension from body part terms to inanimate items are innumerable, and we can not present all of them in this limited section. In accordance with the data in Chapter 4, most of the body part terms develop into inanimate objects based on similarity in shape. We make use of body parts to denote entities as already existing terms instead of creating new ones.

In this research, relational object parts derived from resemblance to the form of body parts, with a typical example being *bottle neck*, should be

considered as spatial concepts based on the philosophical notion that space consists of the shape of entities in the environment. In other words, space itself is perceived as 'nothing' but is formed by its surrounding objects. For instance, the concept of a room is hardly created in an open space where no entities exist, but is produced in a space where a room is surrounded by a wall and a set of furniture is installed. Consequently, the contour of tangible objects is interrelated to the mental image of the space.

> On the basis of the conceptual transfer patterns they are associated with, body-parts may be divided into basic and less basic ones. Basic parts are likely to exhibit the following properties: (Heine 1997:134)
> 3. They may serve as structural templates to denote other body-parts, as well as other items not connected with the human body -- that is, concepts which are perceived to be related to the former with reference to shape, location, and /or function (Schladt 1997:69ff.). (Heine 1997:134)
>
> My interest here is, above all, with property (3): There are certain parts of the body that tend to be employed for the expression of other body-parts, while other parts hardly ever are. (Heine 1997:134)

In this section, we demonstrate the semantic development of body parts which is associated with a locative marker denoting a specific place. The concept of *the artery* which is derived from its long and narrow shape is crosslinguisyically transferred to a main road as a locative marker, such as *the main artery of Edinburgh's Golden Mile* (ODE). The example concerning positionality can be given for the heart whose location in the middle part of the body serves to encode the central part of something, such as *the heart of a city*, something held in common between the three languages. Furthermore, *lung* in English and *plumon* (lung) in Spanish refer to the body part whose function in producing oxygen is extended to a spatial concept denoting the vacant lot or a green tract of land area where you can breathe fresh air. Another semantic transfer regarding locative notion is observed in the mouth whose property as a gate where other entities pass through serves as a source domain for a locative marker resembling a doorway, such as *the mouth of a river*. In particular, the semantic developments of *boca* 'mouth' in

Spanish and *kuchi* (mouth) in Japanese are extended to not only the spatial domain but also the temporal domain denoting the early evening, such as *boca de noche* 'mouth of night', and *yoi no kuchi* <mouth of night>, respectively. In this case, the locative marker as the gate of a starting point of a movable entity develops into the beginning of a temporal event.

> The unidirectionality principle observed, for instance, in the development from body-part to numeral or locative marker is also at work when a given body-part serves as a model to also refer to other body-parts. (Heine 1997:134)

> 7.2.1 Top-down strategy
> According to top-down strategy, transfer proceeds from upper to lower parts of the human body – that is, the lower half of the body tends to be conceptualized in terms of the upper half. (Heine 1997:134)

Heine proposes that the body parts of the upper half of the body serve as conceptual templates to denote those of the lower half of the body, such as 'fingers of the foot' instead of saying 'toes of the hand'. However, this distinction is not observed in that in Japanese that there is no distinction regarding the usage of *yubi* 'finger' between the hand and the foot, as we stated in the preceding section.

While he insists that the example in German of *Handschuh* <hand shoe>, meaning 'glove', is not an exception to the 'top-down principle' because of the fact that this term involves not a body part but a manufactured product, the Japanese *nodo chinko* <throat penis>, meaning 'uvula', may be presented as a counter-example that *penis*, a part of the lower half of the body, refers to the uvula, a part of the body located in the inside of the mouth, which is a part of the upper half of the body. As we already mentioned, similarity in shape between body parts (*penis* and *uvula*) is the source for this semantic extension. This term concerns only body parts and is unlike the 'hand shoe' formation found in German to mean 'glove'. Incidentally, the English 'uvula' is etymologically derived from the Latin *uva* 'grape'. In this case also, the semantic extension probably arises from the resemblance in the shape of the objects.

In addition, Heine states that 'covering one's feet for protection is crosscultually much more common than covering one's hand. It is therefore more likely that terms for footwear are recruited as models to refer to "hand-wear" than the other way.' (p.135) However, the Japanese *tebukuro* ('hand bag') 'glove' is not concerned with footwear, but directly expresses a relationship between the hand and the product.

Heine does observe a few examples in which parts of the lower half of the body refer to body parts located in the upper half, such as the Hausa *gwiwar hannu* <knee of arm> (elbow). This is based on an alternative principle called "the front-back-strategy" that accounts for the transfer in which parts located in the front of the human body (the knee) tend to refer to parts located at the back side (the elbow), but not the other way round. (p.135) Here again, a doubt arises as to this strategy if we consider the Japanese *eri ashi* <nape foot> (the hairline at the nape of the neck) in which the foot as the lower end of the body refers to the edge of a person's hair between the ear and the back part of the neck (NKD). In this case, it is difficult to assert that either the foot is located at the front or the back of the body, though the largest part of the foot is located in front of the leg.

As to the range of *eriashi,* this part not only refers to the back side but also the side part of the hairline according to the definition in given in the dictionary NKD. Hence, the front-back strategy pointing out that the front parts of the body refer to the back ones cannot be precisely applied to all expressions, something we have illustrated here in this section.

We present the example where the top which is applied to top-down strategy. The term for 'nipple' *chikubi* literally means 'neck of breast' in Japanese.

1. If in a given language there is a separate term for 'leg' (as opposed to 'foot'), then there is also a term for 'arm' (as opposed to 'hand'). (Heine 1997:136)

7.2.2 Part-to-whole strategy

While the top-down strategy appears to be based on similarity in shape or function, the part-to-whole strategy has to do with physical contiguity. Not infrequently, a body-part receives its name from an immediately adjacent body part. In most cases, this process involves

unidirectional transfers from a part to its whole. (Heine 1997:136)

In accordance with the 'part to whole strategy', we have observed that Japanese has a common term for *ashi* for both the leg and the foot. One should note, however, that these two meanings can be distinguished using the Chinese character 脚, meaning <leg>, and 足, meaning <foot>. Likewise, *te* can refer to both the hand and the arm. *Te* is defined as the part of the body extending from the shoulder to the endpoint of the fingers in a broad sense, and the end part of a person's arm beyond the wrist in a narrow sense. *Ude* refers to the part from the shoulder to the wrist. Both terms *ashi* 'foot' and *te* 'hand' in a narrow sense located at the end of the body cover a wider area of the body than the word pair of *ashi* meaning 'leg' and *ude* meaning 'arm'.

Spanish also has a separate term for 'leg', *pierna* (as opposed to *pie* 'foot'). Specifically, *pierna* refers to the part from the knee to the ankle without including the thigh in a narrow sense, but it encompasses the whole part of the limb from the knee to the foot in a broad sense. The usage of *pierna* is different from that of *leg* in English and *ashi* (leg, foot) in Japanese that it does not contain the thigh as a part of the limb in either a narrow or a broad sense. Moreover, the term *pierna* is extended to refer to *pie*

The Spanish *pie* refers to the part below the ankle, but it is not metonymically extended to refer to the leg, unlike the English *foot* or the Japanese *ashi* (leg, foot). Whereas the part-to-whole strategy is applied to the lexical item (*pierna*) in Spanish, the term *pierna* is used to refer to *pie* 'the foot' as an adjacent body parts, thus differing from the data presented by Witkowski and Brown (1985;203) which shows the expansion of 'foot' to include 'leg' in 42 out of 109 languages.

As for *hand*, Spanish has a separate term for *brazo* 'arm' (as opposed to *mano* 'hand'). Specifically, *brazo* refers to the part from the shoulder to the elbow, but in general it refers to both the upper arm and the forearm. With reference to *mano*, there is no definition in the dictionaries to account for *mano* 'hand' which encompasses *brazo* 'arm' unlike the cases of English and Japanese. However, we can see that *mano* encompasses *brazo* in an example; *alzar la mano* (raise the hand). The gesture of raising one's hand is perceived as physically consisting of the movement of not only the hand but also the arm. In this sense, the usage of *mano* in Spanish is in common with that of

their counter parts in the other two languages.

> Wilkins's reconstructions are supported by Witkowski and Brown (1985;203), who observe that the hand/arm polysemy, which they found in 50 out of 109 languages worldwide, typically develops by expansion of 'hand' to encompass 'arm'. Similarity, the foot/leg polysemy, found in 42 out of 109 languages, develops by the expansion of 'foot' to include 'leg'. They conclude that expansion in the opposite direction is not common. These authors consider 'hand' and 'foot' to be "high salience referents" and 'arm' and 'leg' to be relatively "low salience referents." (Heine 1997:136)

As Heine states, shape properties of the body parts are primary sources for semantic extension from the body part domain to other domains such as relational object parts based on similarity in shape. For more detail, the specific properties of shape are listed (p137-138). For instance, (2a(a)) the "pointed extremity" of the nose is extended to a projecting part of something such as the front end of an aircraft, car, or other vehicle; *keep the nose up* (NEJD), *la nariz del avión* (the nose of the aircraft). In Japanese, (2a(b)) "protrusion of a three-dimensional depth" is applied to *hana* 'nose', which is extended to *kobushibana* 'fist nose' referring to the front end of the beam protruding from the pillar of a *torii* (archway to a Shinto shrine). Another example is *mouth* whose property of (2b (a)) "edge or outline of a two-dimensional plane" is extended to an opening or entrance to a hollow, concave, or enclosed structure with *The mouth of a cave* (ODE), *boca del río* (mouth of a river), and *kakou* (mouth of a river) appearing in eac language, respectively. In the case of *neck*, (2c) "narrow section" gives rise to semantic transfer to inanimate objects: *the neck of a bottle*, *cuello de botella* (the neck of a bottle), *binkubi* (the neck of a bottle). With respect to *ear*, (2d) "flattened protrusion" is observed in examples: *ear shaped handle* and *oreja de una taza* (handle of a cup).

In Japanese, (2b) develops into *pan no mimi* (ear of a bread) referring to the brown outside of a loaf of bread. In reference to *head*, (2e) "protrusion with more gently curved, circular outline" serves as a conceptual source for the tip of objects, such as *the head of a mountain*, *cabeza de un alfiler* (the head of a pin), and *kugi no atama* (the head of a nail). Concerning *lower leg*,

and *foot*, (2f) "relatively large protrusion" is extended to the parts of an object, including *leg of a table, pie de una mesa* (leg of a table), and *tsukue no ashi* (leg of a desk).

The shape of Tzeltal terms is that used in possessed forms.

1. From body-part to object part where shape properties are transferred. The following appear to be examples of this transfer:

(2) a. *s-ni'* 'nose' > (a) pointed extremity or extremity having a sharp convexity:
(b) protrusion of three-dimensional depth

b. *s-ti* 'mouth' > (a) edge or outline of a two-dimensional plane;
(b) three-dimensional ring or band (cf. lips);
(c) orifice, or closure or 'stopper' of orifice

c. *snuk'* 'neck' > narrow section, e.g., of a container

d. *x-chikin* 'ear' > flattened protrusion

e. *s-jol* 'head' >protrusion with more gently curved, circular outline and only minor concavities on either side of the outline.

f. *y-akan* 'lower leg, foot' > relatively large protrusion

(Heine 1997:137-138)

According to Heine, positionality of body parts is the source domain extended to space properties as reproduced below. For instance, the location of the buttocks in the lower half of the body is transferred to spatial concepts concerning the bottom or back region: *buttock* (the stern of a ship), *en la parte trasera* (in the back part), *nabe no shiri* (the bottom of a pan). In a similar way, "the back", which is the rear surface of the body is extended to (2(3)b) "the reverse end of the surface": *backyard*, *espaldas de un edificio* (back of an building), *isu no se* (back side of a chair). The spatial property of *lower leg* and *foot* is (2(3)c) "projections near the base" which gives rise to the semantic extension observed in such examples as *foot of a mountain, al pie de la colina* (at the foot of the hill) (ESDM), and *ashi* (foot of a mountain).

As for *face* in section (2d), (a) the head which "ends in a wide flattened rectangular or oval surface" is concerned with semantic development denoting the surface of a thing, especially one that is presented to the view or

has a particular function (ODE) : *The north face of the Eiger* (a vertical or sloping side of a mountain or cliff (ODE)), *escalar la cara sur de la montaña* (climb the south face of the mountain (DDEM)). *tsuki no kao* (face of the Moon (NKD)). In our study, we observe that the spatial property of *belly* is thought of as being connected to the lower half of the body. "The belly" crosslinguistically refers to the rounded underside of a ship or aircraft: *Bull came up from the belly of the ship* (ODE). *vientre del barco* (the belly of a ship), *sen puku* (the belly of a ship). With regard to *hand* and *arm*, examples related to the spatial property of (2f) "multiple projections near the head" is not found in any of the three languages.

Tzeltal terms are used as exapmles.

2. From body-part to object part where, in addition to *shape* properties, space properties are transferred:

(3) a. *y-it* 'buttocks' > bottom end, the reverse end of *s-jol*
b. *s-pat* 'back' > the reverse end of the surface of *y-elaw* and *x-ch'ujt*
c. *y-akan* 'lower leg, foot' > multiple projections near the base
d. *y-elaw* 'face' > (a) the head ends in a wide flattened rectangular or oval surface;
(b) the opposite end of *s-pat*
e. *x-ch'ujt* 'belly' > the opposite end of *s-pat*
f. s-k'ab 'hand/arm' >multiple projections near the head
(Heine 1997:138)

The head and the buttocks as extreme ends. Here the head appears to be conceptualized typically as a protrusion or sharp convexity, or as located opposite the flattest, most "squashed end, and the buttocks are defined as constituting the spatial opposite to the head.
(Heine 1997:139)

Crosslinguistically, the body part "tail" is observed as a source for the semantic transfer concerning the location of part of an object, such as *the tail of a plane* (GEJ). As Heine suggests, the transfer in this case proceeds from concrete to abstract meanings, from spatial to temporal concepts; *the tail end of a story.* While Heine focuses on the spatial concepts evolving out of the body part terms, the main purpose of this research is to explore the

motivations of semantic development for spatiotemporal domains. We have found that there are a few animal body part terms (including *tail*) which are semantically extended to the temporal domain. For instance, the crest located at the upper end of the head develops into the spatiotemporal concepts denoting the top of a mountain or hill: *She reached the crest of the hill* (ODE). As to the temporal concept, the location of the crest at the top of the body is metaphorically mapped into the peak of the temporal event in the example of *at the crest of the sales boom* (GEJ).

So far, we have seen transfer based on the location of body parts. Next, let us consider examples with its status quo as a motivation for the transfer to the temporal domain. Flower is crosslinguistically observed to figuratively refer to the best period of time on the basis of its appearance: *in the flower of youth* (GEJ), *estar en la flor de la juentud* (to be in the flower of one's youth) (OSED), *ima ga jinsei no hana da* 'now is in the flower of one's life' (be in the best days of one's life) (NKD).

> To be sure, there are clear cases of zoomorphic transfer. It is common that the location of part of an object is described as the 'tail' of that object, and in such cases there is every reason to claim that a zoomorphic model has been at work. (Heine 1997:140)

We have observed the typical pattern of semantic extensions involving body part terms, and their details are listed as follows (1)-(5).

1. Other objects → body parts
2. Function → body parts
3. Body parts → inanimate objects (similarity in shape)

(a) Independent entities
(b) Relational object parts

4. Body parts → other body parts
5. Body parts → spatial position (front, back, up, down)

In addition to spatial orientation concerning the body part terms proposed by Heine, We have analyzed and listed the transfer from the body part domain to the temporal domains on the basis of several assumed motivations derived from the properties of the body parts.

6. Body parts → spatial movement (distance, speed)
7. Body parts → temporal domain
(a) Transportability (the foot, the leg, the wing)
(b) Accessibility (the hand)
(c) Directionality (the head, the nose, the eye)
(d) Positionality (the back, the head, the tail)
(e) Form (the hair)
(f) Emergence (the root, the trunk, the egg)
(g) Status quo (the flower)

(a) Movement from point A to point B is relevant to the concept of velocity, which turns into a temporal domain. In this case, the property of the foot and the leg serves as the conceptual source for the semantic extension.

> (b)Why people across languages and cultures regularly describe body-parts in terms of other body-parts, and inanimate objects in terms of body-parts. (Heine 1997:141)
>
> Obviously, certain body-parts are highly likely to serve as templates on account of their shape, size, and /or spatial characteristics.
> (Heine 1997:141)
>
> Terminology employed to describe the shape, size, and spatial contours of inanimate items is taken from the human body.
> (Heine 1997:141)
>
> The shape of an object part resembles that of the body-part with which it shares the name. Thus, small protrusions on objects are referred to as *s-ni'* 'nose' (Tzeltal) and larger ones as *y-akan* 'foot' (Tzeltal).
> (Heine 1997:141)
>
> Work on grammaticalization has shown that the evolution of grammatical categories is unidirectional -- that is, it proceeds from lexical to grammatical forms, from open-class to closed-class categories, from concrete to abstract meanings, and so on.

(Heine 1997:144)

Terms for body-parts are not only derived from other body-parts or objects; they may also be derived from terms for activities relating to the functions of the body-parts concerned. (Heine 1976:145)

3.9 Spatial Grams

Whereas Svorou does not clearly define what is spatial grams, Corum (2015:42) give a definition as follows: all of the grammatical morphemes used for the expression of space as spatial grams.

Svorou (1994) states that "mouth" is used as a postposition like 'at' with locative meaning in (9) in Abkhaz, a North Western Caucasian language. In a similar way, we have found that "mouth" is commonly used as a locative noun referring to an opening or entrance to a hollow, concave (ODE) on the basis of affinities in shape, in English, Spanish, and Japanese. For instance, expressions involving "mouth" are as follows: *the mouth of a river*, *boca de un río* (mouth of a river), *kawa no kakou* "(mouth of river)". In addition, mouth is extended to the temporal domain referring to early evening in expressions such as *boca de noche* <mouth of night> (early evening), and *yoi no kuchi* <mouth of night> (early evening). This transfer is grounded on the fact that the function of the mouth serves as a starting point which entities go through, and the mouth as a locative notion is conceived of as the beginning of a temporal event such as early evening.

Abkhaz (Caucasian language) (Hewitt 1979:125)
(9) *a-vok'zàl a-ç'ə də -q'o-w+p'*
The-station 3SGPRO-mouth he-be-(STAT)
'He is at the station' (Svorou 1994:66)

While 'heart' is used as a postposition in Abkhaz meaning 'in' as in example (10), in the three languages we are dealing with, 'heart' is employed to refer to the middle or the core of something, which is slightly different from the usage of example (10) derived from the location of the organ inside of the body. Our finding is that the location of the heart in the central part of the body is extended to the spatial domain such as in *the heart of Africa*

(NEJ), *corazón de la manzana* (heart of the apple) (SDEJ), *yusou no shinzou wa berurin ni aru* (the heart of transport is in Berlin) (NKD).

Similarly, in !Kung, a Khoisan Language of Africa, the noun !x'a "heart" is used as a postposition with locative meanings, as in example (10).

!Kung (Snyman 1970:109)
(10) *'Eu ge-ya g!u !x'a*
fish liver-tr water heart
'The fish live in the water' (Svorou 1994: 66)

'Head' located at the upper end of the body gives rise to transfer into the spatial domain not only 'on top of' in the vertical axis but also the front in the horizontal axis. The former is related to the example: *the head of a mountain* (NEJ), and the latter is related to the following examples: *march at the head* (NEJ), *cabeza de viga* (the point of a beam) (DDEM), *retsu no sentou* "(head of procession)" (NKD).

Car (Austroasiatic language) (Braine 1970:126)
(11) *mik patíːʔ cin fƐːn, i kúːy rɔːŋə*
see house I four on head hill
'I see four houses on top of the hill' (Svorou 1994:66)

In accordance with the example (12), the usage of 'buttocks' which refers to the bottom, the back, and the underside region is observed in the following examples: *buttock lines* (ODE), *culo de una botella* (the bottom of a bottle) (DDEM), *koushin no shiri ni tsuite iku* (follow the buttocks of a procession) (DDJ).

Halia (Allen & Allen 1965:26)
(12) *ema kaney i kopi-y-na luwma*
not is LOC underside-ADV house
'It isn't under the house' (Svorou 1994: 67)

3. Nominal sources

Heine lists the most related string to the spatial grams, such as nouns

categorized as four major classes with respect to their meanings.

- The body-part class (face, head, chest, back, waist, buttocks, etc.)
- The environmental landmark class (sky, canyon, river, field, etc.)
- The relational object-part class (front, edge, side, middle, back, etc.)
- The abstract spatial notion class (proximity, length, direction, etc.) (Svorou 1994:70)

In addition to spatial grams, we examine semantic transfer from the body-part domain to the temporal domain. For instance, the head related to the front or the top region in spatial concept is extended to temporal earliness, such as *atmata kara* <from head> (from the beginning). In the case of 'back', this part related to the rear region is extended to past time, such as *back in the 70s'.* As to *buttocks,* The bottom region concerning the location of the buttocks is extended to temporal lateness as in the example of *don ketsu* <last buttocks> (the last).

Body parts

Svorou states that 'The most common spatial notions that body-part terms give rise to have to do with spatial relations that emerge out of the partitioning of exterior regions of entities.' (p.70) The following illustrate the evolution of spatial grams from specific body-part terms.

> FRONT-REGION (eye, face, forehead, mouth, head, breast, chest)
> BACK-REGION (back, buttocks, anus, loins)
> TOP-REGION grams (head, back)
> BOTTOM-REGION grams (buttocks, hips)
> SIDE-REGION grams (flank, ribs, abdomen, heart, ear)
> Location on the EDGE of a landmark (mouth, forehead)
> The interior region (heart, stomach, blood, mouth, neck)
> Medial relations (chest, waist) (Svorou 1994:72)

> The body-part class (face, head, chest, back, waist, buttocks, etc.)
> The environmental landmark class (sky, canyon, river, field, etc.)
> The relational object-part class (front, edge, side, middle, back, etc.)
> The abstract spatial notion class (proximity, length, direction, etc.)
> (Svorou 1991:70)

Most sensory organs which concentrate in the face are related to the spatial orientation of the front. The eye is employed to refer to the front region which is relatively close to the conceptualizer on the basis of the distance between the eye and an object one turns to, and the conceived directedness arising from the eye, as in the examples: *before one's eyes* (NJED), *ante los ojos* (before the eyes) (DJS). In particular, the Japanese expression *'me no mae'* (before one's eyes) refers to not only a spatial concept but also a temporal concept regarding the near future on account of the metaphorical extension that a concrete concept as an object in front of one's eyes can be transferred to an abstract concept as a temporal event, such as *shiken wa me no mae d*a <the exam is in front of one's eyes> (the exam is close at hand). As for this expression, English does not make use of 'eye' but 'hand' whose spatial concept is proximity to the conceptualizer. This fact allows us to understand that the way of linguistic conceptualization is similar to each other even though different expressions are in use.

In the case of the breast, the location of this body part in the front region is concerned with the direction one moves forward, and the semantic transfer proceeds from the position to directionality involving movement, such as *I watched him the breast the wave* (ODE), which denotes 'face and move forwards against or through (something) (ODE).

With respect to the chest, we have not found a transfer from this lexical item to the front region in these three languages. However, the expression describing the chest as a container is observed, such as in *on one side of the room there were a few boxes and chest of storage* (ODE).

While 'hips' is listed in the BOTTOM-REGION grams, unlike 'buttocks', the semantic extension from 'hip' to space is not found. We have found transfer to a relational object part, which is the sharp edge of a roof from the ridge to the eaves where the two sides meet as in *Did you know that the hip tiles on this roof were arris hip tiles?* (ODE).

As Svorou states that 'flank', referring to the side of a person's or animal's body between the ribs and the hip (ODE), is extended to signifying the side region of an entity in the three languages as in the examples: *the flank of the hill* (NEJD), *en los dos costados de la calle* (in the two sides of the street) (DDEM), and *fune no yokobara ni ana ga aku* (there is a hole in the flank of a ship) (NKD).

Whereas the SIDE-REGION involving 'ribs' has not been confirmed, it

is extended to relational object part due to similarity in shape. The rib referring to each of a series of slender curved bones articulated in pairs to the spine (ODE) is reflected on a long raised piece of strengthening or supporting material, in particular: *This boat then had 11 ribs added to strengthen the hull* (ODE), *madirle a persona las costillas* <hit someone with a rib> (hit someone with a stick) (DSJ), and *abara kin* <rib tendon> (a reinforcing rod) (NKD).

Svorou proposes that these body parts (heart, stomach, blood, mouth, neck) are related to the interior region. However, we have not confirmed semantic extension from the body part domain involving the above items to the spatial domain concerned with the interior region.

Two Models for the Evolution of Body-Part Terms to Spatial Grams

Svorou states that 'Body-part referring to the same part of the body may evolve to become spatial grams of different types'.

> Head (FRONT-REGION, TOP-REGION)
> Back (BACK-REGION, TOP-REGION)
> Buttocks, anus (BACK-REGION, BOTTOM-REGION)
>
> (Svorou 1994:73)

With regard to TOP-REGION involving *back,* we have not confirmed the transfer from back to TOP-REGION in the three languages, although BACK-REGION is confirmed in a number of examples. According to Svorou, the term "back" concerning TOP-REGION does not refer to the human back, but the back of a four-legged animal.

In addition to the human body part model, Heine (1989) postulated a "pastoralist" model which makes use of animal anatomy to explain the correspondence between body part terms and spatial relations. Afterwards, this model was more appropriately renamed as the zoomorphic model. The zoomorphic model is applied to this study in order to analyze the transfer from the body part domain to spatial and temporal domains. As we illustrate in the section of Heine, the zoomorphic model based on the horizontal axis might be helpful to account for the motivations for the semantic extension of

some examples involving not only animal body parts but also human body parts, such as *tail* referring to the BACK-REGION, and *head* referring to the FRONT-REGION. Consequently, spatial grams related to each body part of animals are presented below.

The Zoomorphic Model

Body parts	Spatial grams	Motivations
wing	> SIDE-REGION	positionality
tail	> BACK-REGION	positionality
crest	> TOP-REGION	positionality
horn, fang, crest, beak	> Protrusion	shape
fin, gill, web	> Flattened part	shape
hump	> Convexity	shape
egg	> Rounded shape	shape

Body parts	Temporal grams	Motivations
wing	>Velocity	transporatability
tail	> Later	positionality
egg	> Early	order of emergence
crest	> Period of time	positionality

This research suggests a 'Botanical Model', which corresponds to the configuration of the plant body parts in addition to the anthropomorphic model, which corresponds to the configuration of human body parts, and the zoomorphic model, which corresponds to the configuration of a four-legged animal body.

The Botanical Model

Body-parts	Spatial grams
trunk, tronco, miki	CENTER-REGION
stem,	ORIGIN-REGION
branch, rama, eda	DIVERGENCE-REGION
leaf, hoja	RELATIONAL OBJECT PART
root, raíz, ne	SOURCE-REGION, BASE-REGION
seed, semilla, tane	ORIGIN-REGION

Body-parts	Temporal grams
tronco	ORDER OF EMERGENCE
stem	ORDER OF EMERGENCE
root, raíz	ORDER OF EMERGENCE
flower, flor, hana	THE BEST PERIOD
seed, semilla	ORDER OF EMERGENCE

As a matter of fact, the zoomorphic model that Heine and Svorou propose does not deal with the semantic development of those body parts particularly observed in animals, but argues for the development of spatial grams on the basis of an animal model in the horizontal axis. Here again, the major distinction between their studies and this is the latter exhaustively explores metaphorical extensions with respect to temporal domains evolving from body part terms concerning animals and plants.

Svorou (1994:76) mentions that the relative location of the body parts to express particular spatial relations is framed by an orientation field provided by our vertical and horizontal eye movement and depth focusing, as well as our personal kinesthetic space. Each spatial gram is distinguished as follows:

> Upper front region from head to chest
> Upper back region from neck to loins
> Top region from head to shoulders
> Bottom region from hips to the feet (Svorou 1994:76)

Svorou states that 'spatial contiguity constitutes polysemy and derivation of body-part terms as lexical items. E. Anderson (1978) attributes polysemy and derivational relations to two principles: a) structural similarity and b) spatial contiguity.'

a) the Hebrew *etzbaot* "finger, toe"
b) the Tarascan *nari* "eye, face"
the Russian *ruka* "arm, hand" (Svorou 1994: 77)

As to a) structural similarity referring to more than one part of the body, we have observed the semantic transfer of some body part terms based on

the physical similarity, as is the case of the Japanese *yubi and* the Spanish *pie* which are used to refer to the finger and the toe, respectively, while the English *finger* and *toe* are distinctively used. Next, as regards b) spatial contiguity derived from the location of body parts adjacent to one another, such as hand and arm, we observe that the Japanese *te* (hand) encompasses the arm. Moreover, the usage of *head* and *atama* (head) referring to the hair is commonly observed in the two languages, as in the examples of *comb one's head* (GEJ), and *atama o karu* 'trim head' (trim one's hair) (DD). Another case is that the English *heart* is used to refer to one's breast (*press a child to one's heart* (ODE)), but not vice versa (*breast* does not refer to the heart as an organ.) On the other hand, *corazón* (heart) and *shinzo* (heart) are not extended to refer to other body parts.

> Such derivations suggest that directionality of evolution is from a smaller body part to a larger one. In that respect, and considering their spatial contiguity, the derivation involves an expansion of the region that the term referred to originality to include the next largest bounded area. (Svorou 1994:78)

As Svorou mentions above, those examples we illustrate in the preceding section are in accordance with the transfer pattern from a smaller body part to lager one. This fact allows us to understand that crosslinguistically spatial contiguity serves as a conceptual source for semantic transfer.

3.10 Conclusions

In reference to experientialism proposed by Lakoff, we have observed that meanings are characterized not arbitrarily but are based on human nature and physical experiences in the surroundings.

Various schemas related to bodily experiences are presented to account for the metaphorical transfer from the body part domain to other domains. Moreover, we make use of metaphorical mappings defined by Lakoff as 'we understand one thing in terms of another', which is applied to understanding the transfer from spatial domain to temporal domain. The former (space) is a more concrete concept we can perceive with our five

senses, and the latter (time) is a less concrete rather more abstract concept we conceive in our mind.

In order to analyze mechanisms of semantic extension, conceptual metaphors are introduced to explain motivations working behind semantic extension. In particular, the conceptual metaphor of 'TIME PASSING IS MOTION' describes the fact that movement consists of some elements, including moving objects, distance, and duration. Conceptual metaphors make a significant contribution to our study where we are dealing with relationships between space and time.

With regard to spatial concepts, orientational metaphors are employed to account for the positional relationships of 'up' and 'down' which are metaphorically transferred to other meanings. Also, some expressions are listed to show the transfer to the temporal domain based on orientational metaphors.

The metaphorical chain proposed by Heine explains the unidirectionality of transfer from body part terms which are polysemous to other domains, including the spatial and temporal domains. This unidirectionality allows us to understand that semantically speaking, lexical items originally derived from body parts are extended to other domains.

The zoomorphic model is used to refer to the positionality of body parts in this model which is extended to the spatial domain in expressions involving body part terms. While Heine and Svorou focus on spatial concepts on the basis of the zoomorphic model, we make use of this model to explain the transfer from body parts to temporal concepts.

Lastly, we have introduced spatial grams proposed by Svorou which present motivations of metaphorical transfer, maintaining that positionality and directionality emerging out of body part terms are relevant to spatial concepts in a large number of the languages she investigated.

On the basis of the theoretical framework and methodology we have adopted in this chapter, in the next chapter we will present data and procede with an analysis of expressions and idioms involving body part terms in more detail in English, Japanese and Spanish.

Chapter 4: Analysis of Semantic Extension of External Body Part Terms in English

4.0 Introduction

In this chapter, we will examine idioms and collocations involving body part terms in English. Although English is known as a language influenced by many other languages which have brought numerous words into English, most of body part terms used today are derived from old English. The body part terms treated in this chapter are basically put in the order of the position of each part from the top region to the bottom region of the body: starting from the head and going to the foot. Examples of metaphorical extensions are presented in the order of spatial concepts to temporal concepts. To be more exact, exemplification of data proceeds from a relational object part to other category of spatial domains: position, location, directionality, and movement. Moreover, the order of examples is related to the unidirectionality of the transfer pattern, from basically concrete concepts to less concrete concepts, or less abstract concepts to more abstract concepts in accordance with the metaphorical chain proposed by Heine (1991) with examples regarding temporal domain coming after space in the following presentation of examples.

4.1 *head*

spatial reference

4.1.1 *head at/to/for* *Where are you heading at/to/for?*

spatial movement

Normally, the front of one's head faces toward the direction showing movement. The directionality of the head actively extends to space and motivates subjective movement, which does not emerge in Japanese. Put another way, English is here, too, a more active language than Japanese in terms of giving rise to moving objects in space.

4.1.2 *ahead* *the road ahead*

spatial position

I went ahead of the others on the road

Arrive ten minutes ahead of schedule	temporal order
Wonderful things are ahead of her	futurity

Interestingly, the word 'ahead' contains polysemy in temporal concept covering order as earlier time and futurity as later time, which appear to be opposite in meaning. It would seem peculiar that the same word could express contradictory concepts in time. According to OED, the prototype definition of ahead is, etymologically speaking, the spatial meaning representing a position or direction pointing forward. An illustration below will exemplify the elapse in time arising from spatial movement.

This phenomenon is motivated by the different perspective of the observer in the following cases. In space, the time observer, in moving forward from a certain point, will from his or her own perspective see the sought for objective as being later, that is, in the future. Thus, an observer being in position of front in a line moving toward one direction can experience time as earlier upon reaching a certain point more quickly than those who are behind in a line, thus experiencing temporal order as being something earlier. In sum, spatial domain and temporal domain are, by their very essence, connected with each other.

4.2 *hair*

Period of time

By virtue of the shape of a hair, the fine thread-like strands, it is used to refer to a very small quantity or extent, such as *by a hair* (e.g. I missed being engulfed in the blaze by a hair. GEJ), which denotes the short time span.

4.3 *face*

4.3.1 *The hotel faces the sea.*

The face is seen as a frontal body feature, thus giving rise to the possibility of the metaphorical mapping of the entrance to a building according to the physical objects in front of it. Here a spatial concept in connection with the sea is indicated.

4.4 *eye*

4.4.1 *the eye of a typhoon* position

4.4.2 *one's eyes* (keep an eye on your valuables) directionality

In example 4.4.1, the visual resemblance of the object can be associated with this body part as a result of metaphorical mapping. As one might imagine, the center of a typhoon is circular in shape, thus giving the appearance of an eye.

4.4.2 is seemingly a very simple expression appearing in many languages. However, it has a figurative maening. The literal construal of 4.62 with eye as a spherical object actually serving to look out on one's belongings does not actually come that strongly to mind, rather what does is the observational property of eye when enables one to better guard oneself or something. This type of metaphor is deeply pervasive in one's thoughts and not noticeable as metaphor. What is important bear in mind is that it is almost impossible for us to use language without metaphors.

4.5 *nose*

4.5.1 *The ship nosed between the reefs* spatial movement

4.5.2 *follow one's nose* directionality

4.5.1 exhibits the movement arising from the directionality associated with the shape of nose, and shows a typical semantic process from source domain to target domain, which is OBJECT (source) → DIRECTIONALIY (process) → MOVEMENT (goal). This property of activeness, providing spatial movement of objects in semantic extension in English, is not observed in Japanese language with *hana* or nose. In this sense, the contention that English is to be construed as a do-language or person-focus language related to spatial reference rather than to temporal reference as one often observes with regard to Japanese lexical concepts. From the view of comparative culture study, also, a distinction of cultural background is sometimes made with Westerners represented originally as a hunting people who kill animals moving in space, whereas Orientals are represented as being an agricultural people who gather crops unmovable in nature. This, too, might suggest a path by which the language concepts might be influenced.

4.6 *mouth*

4.6.1 *mouth of the Thames*

4.6.1 shows illustrates that the property of the mouth spitting out objects can be used to describe that part of the landscape where water flows, coming out from the river as it goes into a sea or lake.

4.7 *ear*

Relational object part

Ear refers to objects resembling in shape, such as a handle.

e.g. *ears of a pitcher* (Random House Dictionary)

Also, ear is used to refer to a decoration in the upper part of foot of furniture. (RHD)

4.8 *tooth*

Relational object part

Tooth refers to a projecting part on a tool or other instrument, especially one of a series that function or engage together, such as a cog on a gearwheel or a point on a saw. (ODE)

e.g. Or a garden that had plants with teeth, rather than pretty petals. (ODE)

4.9 *tongue*

Relational object part

Tongue refers to a thing resembling or likened to a tongue, in particular: a long, low promontory of land (e.g. Beneath the cries of curlews, low tongues of land balance precariously between sea and marsh.), a jet of flame (e.g. A tongue of flame flashed from the gun.), a strip of leather or fabric under the laces in a shoe, attached only at the front end (e.g. What's stupider, putting extra tongues in your shoes or trying to skate in extra-tight women's pants?), and so on. (ODE)

4.10 *lip*

Relational object part

Due to similarity in shape, the lip is transferred to the edge of a hollow container or an opening: *The lip of the cup* (ODE), and refers to a rounded, raised, or extended piece along an edge: *After five minutes, we*

decided to move along the lip (ODE).

4.11 *cheek*

Relational object part

Cheek refers to either of the buttocks: *They slapped the cheeks of their buttocks and made facial parodies that I found embarrassing* (ODE). In addition, it refers to either of two side pieces or parts arranged in lateral pairs in a structure or an instrument: *You then slice off the fat cheeks on either side of the stone* (ODE), and *the cheeks of a vise* (NEJ).

Spatial proximity

On the basis of the proximity between the body parts, *cheek* is extended to spatial proximity as being close together: *They lived cheek by jowl in a one-room flat* (ODE).

4.12 *jaw*

Relational object part

Jaw refers to the gripping parts of a tool or machine, such as a wrench or vice:

Cover the jaws of wrenches or vices with electrician's tape (ODE).

Based on the shape, it refers to an opening likened to a mouth: *A passenger stepping from the jaws of a car ferry* (ODE).

4.13 *chin*

No data available

4. 14 *temple*

Due to the position of the temple, *temple* refers to each of the side-members or limbs of a pair of spectacles, which clasp the sides of the head of the wearer (OED).

4.15 *neck*

On the basis of proximity, neck is used to denote the part of a garment that is around or close to the neck (e.g. *Her dress had three buttons at the neck undone.*) ODE

Relational object part

Neck refers to a narrow connecting or end part of something, in particular: the part of a bottle or other container near the mouth (e.g. *Instead, she fitted a funnel attachment to the neck of the red bottle.*) ODE, a narrow piece of land or sea, such as an isthmus or channel (e.g. A narrow neck of land at the southeast corner of the peninsula connects it with the adjacent upland.) ODE, the part of a violin, guitar, or other similar instrument that bears the fingerboard (e.g. *A European bowed string instrument with a neck and resonator carved from a single piece of wood.*) ODE

Distance

As to transfer to spatial distance, position of the nose serves as conceptual source to denote the length of a horse's head and neck as measure of its lead in a race (e.g. *Dolpour won by a neck from Wood Dancer*) ODE.

Narrow space

On the basis of its shape, *neck* is reflected on forming a narrowed part at a particular point when subjected to tension. (ODE)

4.16 *chest*

Container

Chest refers to a large strong box, typically made of wood and used for storage or transport (e.g. *On one side of the room there were a few boxes and chest of storage, but Josie didn't mind.*) ODE

4.17 *breast*

Location

Due to the position of the breast in the center region of the body, it refers to the halfway of a mountain or a hill such as the breast of a hill (NEJ).

Relational object part

Owing to its shape, *breast* refers to a protruding part of something such as *chimney breast* (NEJ).

Spatial movement

On the basis of directionality, *breast* is verbalized to refer to face and move forwards against or through something (e.g. *I watched him breast the wave*) ODE, and reach the top of (a hill) (e.g. It turned out to be the highlight of the expedition, the day they breasted the icecap). ODE　According to NEJ, *breast* is used to refer to action to climb the slope.

4.18 *shoulder*

a part of a garment covering the shoulder:　ODE
e.g. *A jacket with padded shoulders*

A part of something resembling a shoulder in shape, position, or function ODE
e.g. *The Optra has a wedge shape with clearly accentuated shoulders.*

A point at which a steep slope descends from a plateau or highland area: ODE
e.g. *The shoulder of the hill sloped down*

another term for HARD SHOULDER:　ODE
e.g. *My partner and I had parked on the shoulder of the highway and began to chat.*

[with object. and adverbial of direction] push (someone or something) out of one's way with one's shoulder:　ODE
e.g. *She shouldered him brusquely aside*
e.g. *shoulder* one's way through a crowd　NEJ

4.19 *arm*

4.19.1 a sleeve of a garment：ODE
e.g. *He was still wearing a surf suit that day, though one with short sleeves at the arm and legs coming to his knees.*

4.19.2 a thing resembling an arm in form or function, in particular　ODE
e.g. *The completed machine could roam around and had a fully functional arm.*

A side part of a chair or other seat on which a sitter can rest their arm: ODE
e.g. *Cole immediately threw the stand with the chess set and grabbed hold of the arms of Sara's seat.*

A narrow strip of water or land projecting from a larger body: ODE
e.g. *The breach consisted of a 300-foot-long bridge-covered opening in the causeway near Lakeside, which allowed the rapid flow of south-arm water into the north arm.*

4.19.3 a branch or division of a company or organization: ODE
e.g. *The political arm of the separatist group*

an ability to throw a ball skillfully OAD (Oxford American Dictionary)
e.g. *He has a good arm.*

Keep someone/thing at arm's length (at a distance)
e.g. *She said that they still talked, but she kept him at arm's length; they were not as close.*

e.g. *hold a picture at arm's length* NEJ

4.20 *elbow*
RELATONAL OBJECT PART: a thing resembling an elbow, in particular a piece of piping bent through an angle: ODE
e.g. *Use ridged flex aluminum or ridged four-inch elbows and straight vent pipe to vent your dryer.*

ROXIMITY: very near: at a person's [the] *elbow* NEJ

SPACE: elbow room (informal) enough room to move in: OXFORD IDIOMS DICTIONAR
October is a good time to visit as there are fewer tourists and more elbow room in the restaurants.

MOVEMENT: move by pushing past people with one's elbows ODE

e.g. *He elbowed his way through the crush*

4. 21 *hand*

hand (boy part) Vesp. Psalter C825	PERSON
the hour hand	OBJECT
at hand	SPACE
at hand	TIME
handmade	QUALITY

hand

Spatial domain： position

4.21.1 *at hand*

My daughter lives close at hand.

Distance within the immediate reach of an object extrinsically transfers to short distance as in (7.1).

Direction

4.21.2 *all hands* 1. in all directions, everywhere
2. by all people

Hand of (4.21.2) referring to person is synecdoche mentioning a part to whole. As presented in the preceded section, *hand* as subordinate concept subsumes the body as superordinate concept by virtue of the salience of *hand* arising from its property working on objects above any other body parts in the outside world.

Order

Earlier 4.21.3 *second hand*

The employment of *hand* in (4.21.3) is derived from the temporal event that second hand item is already in use with making contact of the previous owner and the present owner shall be the second person who comes in contact with that item. Property of hands is more prominent than other body parts in terms of contact with objects.

Future 4.21.4 *at hand*

With the examination close at hand

As (4.21.4) applied to conceptual metaphor of TIME IS DISTANCE,

spatial concept as distance between hand and objects transfers to temporal concept.

Continuum
4.21.5 hand-running (consecutively)
He won ten times hand running.

4.22 *finger*
RELATIONAL OBJECT PART
An object that has roughly the long, narrow shape of a finger:
The finger of a clock NEJ
A finger of land GE

SPACE
By a finger's breadth GE

HURRY
Hurry up: *pull [take] one's finger out* NEJ

pull one's finger out
(idiomatic) To stop wasting time in preliminaries, and concentrate on the important task

> *You've been sitting there all week, it's time you sorted yourself out and pulled your finger out!*

4.23 *nail*
RELATIONAL OBJECT PART
A small metal spike with a broadened flat head, driven into wood to join things together or to serve as a hook:
e.g. *I also need a hammer and nails, picture hooks and the step ladder.*

Length ODE
A medieval measure of length for cloth, equal to 2 1/4 inches. ODE

TIME

Immediately: (down) on the nail G Eiwa
On the nail (of payment) without delay: OX IDOM
They're good customers who always pay on the nail.

4.24 *palm*

RELATIONAL OBJECT PART
The back of ski NEJ

LENGTH
A measure of length for 7.6cm to 10cm

4.25 *wrist*

RELATIONAL OBJECT PART
(also wrist pin) (in a machine) a stud projecting from a crank as an attachment for a connecting rod: ODE
e.g. *The flat four's assembly process is different from a standard in-line engine's, so the wrist pins must be full-floating units.*

4.26 *knuckle*

A joint connecting two parts of a mechanism, in which a projection in one fits into a recess in the other ODE

4.27 *fist*

Handwriting: fist NEJ
e.g. *know a person's fist*

SPEED
quickly: *hand over fist* ODE
e.g. *make (or lose or spend) money hand over fist*
(make (or lose or spend) money very rapidly)

4.28 *abdomen, belly*

Spatial position
4.41 belly (front) The front as opposed to the back
The position of body part reflects space in front of one's sight.

4.29 *navel*

LOCATIVE NOTION

The central point of a place:

The Incas saw CUZCO as the navel of the world ODE

4. 30 *back*

spatial domain

4.30.1 *the back of a chair*

4.30.2 *sit in the back of the car*

4.30.3 *look back*

4.30.4 *I will be back*

4.30.5 *back a car into a parking place*

As it is exemplified in previous studies, 4.30.1 is a typical example showing extension to object-part noun with metaphorical mapping. At the next stage, as in 4.30.2 it can, when joined with other prepositions, function as a positional preposition arising from metonymy in spatial proximity. The property of lexical concept shifts to abstractness from concreteness in comparison with 4.30.1 as an object-part noun. Moreover, example 4.30.3 as 'back' collocated with the verb 'look' providing directionality in space relevant to motion while 4.30.2 is stationary. In literal language, the physical action of 'look back' refers to looking at a physical entity by turning around one's head. Also, in figurative language there is a usage referring to abstract entity as temporal event in the past (i.e. look back on one's high school days), which is applied to conceptual metaphor as EARLIER IS BACK and is addressed by Lakoff. In examples in 4.30.4 and 4.30.5, spatial movement extending from directionality is observed: subject movement in 4.30.4, object movement in 4.30.5. Examinations of each example allow us to understand semantic extension in the unidirectionality from concrete to abstract lexical concept.

4.30.6 *back to back* temporal domain

(a) *sit back to back with O*

(b) *back to back homerun*

(c) *back to back life sentence*

A temporal concept is not found in 4.30.6(a) showing proximity of two physical entities lined in space. There is a slight distinction in 4.30.6(b)

which is an item of baseball terminology indicating that two batters hit a homerun in a row. Due to profiling, it does not represent a single entity but a series of events regarding two consecutive homeruns involving the elapse of time, with the property of a temporal concept emerging in this example. 4.30.6 (c) as 'back to back' collocated with 'life sentence,' referring to a length of time, gives prominence to a temporal concept in comparison with (a) and (b). Throughout section 4.30.6, the temporal domain arises from a continua of physical entities in space replacing a continua of a series of events relevant to time.

4.31 *waist*

RELATIONAL OBJECT PART
A narrow part in the middle of something
The waist of a violin, bell, etc NEJ

The middle part of a ship, between the forecastle and the quarterback:
He stood nonchalantly next to the quarter-deck rail looking into the waist. ODE

STATUS CHANGE
become narrow in the middle of something GEJ

4.32 *hip / buttocks*

RELATIONAL OBJECT PART
the sharp edge of a roof from the ridge to the eaves where the two sides meet:
Did you know that the hip tiles on this roof were arris hip tiles? ODE

buttock
RELATIONAL OBJECT PART
each of a series of longitudinal lines or curves marked on a plan of a ship to show its fore-and-art sections at various distances from the center line:The basic idea is to mark off a grid on the ground under the boat for *buttock line* and the frame stations.

English *foot (leg)*
foot (body part) *Beowulf* 745 PERSON

the foot of a bed　*Cursor* 1300　OBJECT
on foot　*Cursor* 1300 SPACE
swift-footed　SHAKESPEARE *Sonnet* 1600　TIME / QUALITY

4.33 *leg / foot*

Spatial domain : Movement
4.33.1 *on foot*
4.33.2 *stretch one's legs*

Property of foot (leg) serving as structural template for spatial movement of an experiencer can be held responsible for (4.31) and (4.32).

Temporal domain
Past
4.33.3 *footprint*

From the perspective of experiencer moving forward, behind one has already passed is conceived of as past in temporal domain.

Spatiotemporal domain
4.33.4 *put foot* (hurry)

(6.4) is ambiguous in terms of being categorized in either spatial or temporal domain. Action of hurry referring to speedy movement of object contains both domains.

4.33.5 *the first leg of a trip* (the first itinerary of a trip)

As for (6.5), transportability of *leg* serves as a conceptual source for reaching a destination in the journey.

4.33.6 *drag your feet* (slowly work) time/quality

Example (6.6) is metonymically derived from the action that one could move slowly with dragging one's legs.

4.33.7 *shake a leg*　(hurry up)

Movement of one's leg gives rise to one's movement in space which can be held responsible for the action to hurry up.

4.33.8 *find one's feet* (to walk, to stand, to get up)

He's found his feet in the business world. (He finally made a success of his business) weblio

In the case of (4.33.8), the source concept to find existence of the foot in literal language is metaphorically transferred to the target concept to make use of the property of the foot serving as transportability in figurative language. Moreover, as (4.33.8) presents, conceptual transfer leads from concrete concept of moving around and standing up in space to less concrete concept of succeeding in the business.

4.33.9 *have legs* prolonged time

This latest scandal *has legs* - you'll probably still be reading about it in a year's time.

Schematic image arising from the shape of leg extending in space is related to (4.33.9) which holds the abstract concept of an event extending in temporal space as being prolonged.

4.33.10 *set foot in*

I'll never set foot in his house again.

Weblio http://ejje.weblio.jp/content/set+foot+in

As we stated in the preceding section, property of foot supports ones' movement.

4.33.11 *on the front foot* (in a dominant position)

4.33.12 *on the back foot* (in a defensive posture)

Chelsea saw out the half firmly ***on the front foot*** *and had three further chances to take the lead.*

Wordow.com

http://www.wordow.com/english/dictionary/?t=on%20the%20front%20foot

A 'blatant' handball put Burnham FC on the back foot in Saturday's 2-1 defeat at Truro City

Maidenhead Advertiser

http://www.maidenhead-advertiser.co.uk/Sport/Football/Burnham-FC/Blatant-handball-puts-Burnham-FC-on-the-back-foot-at-Truro-City-05022015.htm

A pair of those expressions used, inter alia, for football are relevant to the present position of players in which depends on the situation that they are in an opponent side area across halfway line when they are in a dominant position, on the other they are in the area of their side before halfway line when they are in a defensive posture. The foot as the primary body parts made used of in football is metonymically transferred to a player as the whole body. In this expression, the usage of *front* and *back* is based on the spatial orientation from the player's point of view. In other words, area in front for one team can be area in back for the other team, and vice versa.

6.33.13 to foot it (hurry up, walk)

6.33.14 to leg it (run)

6.33.15 have a leg

4.34 *thigh*

No data available

4.35 *calf*

No data available

4.36 *knee*

RELATIONAL OBJECT PART

An angled piece of wood or metal frame used to connect and support the beams and timbers of a wooded ship:
The deck and hull are through bolted on an inward flange and structural knees and bulkheads are securely attached. ODE

An abrupt obtuse or approximately right-angled bend in a graph between parts where the slope varies smoothly ODE

EARLIER
at one's mother's (or father's) knee (at an early age:)
The shop was staffed initially by her five children, who all learned the business and a service mentality at their mother's knee. ODE

4.37 *shin*

SPATIAL MOVEMENT Verb
(shin up/down) climb quickly up or down by gripping with one's arms and legs:
He used to frighten us all by *shinning* up lamp posts, or climbing up into the loft or on to our porch.

4.38 *ankle*

Verb SPATIAL MOVEMENT
walk: Property of the ankle used for wall serves as a conceptual source for movement.
We both ankled out of the theatre once Udo Kier was up there making love. ODE

4.39 *toe*

RELATIONAL OBJECT PART
the lower end, tip, or point of something, in particular:
Instead of just latching together via a single bar at the toe, these components make a second connection that stabilizes the ski. ODE

Something resembling toe in shape or position
the toe of Italy NEJ

SPATIAL MOVEENT
(toe in/out) walk with the toes pointed in (or out) ODE

SPEED
a player with plenty of toe (a player with a fast speed) NEJ

VIS-à-VIS
toe to toe (cf. FACE to face, Nose to nose) NEJ

4.40 *heel*
RELATIONAL OBJECT PART
A thing resembling a heel in form or position, in particular:
the part of the head of a golf club nearest the shaft:
Irons from the 1930s, for example, had a center of gravity high on the clubface and well toward the heel.

SPATIAL MOVEMENT
at (or on) the heels of
following closely after:
He headed off with Sammy at his heels ODE

TIME
cool (or (Brit.) kick) one's heels
be kept waiting:
Their ages meant they were part of the groups of teenage boys who hung around, kicking their heels and getting bored. ODE

LATAER
in the heel of the hunt
(Irish) at the last minute; finally:
In the heel of the hunt, the outcome of the match was decided by a penalty ODE

MOVEMENT
take to one's heels (run away):
They stopped and searched the youth, finding nothing, but he was so frightened by the confrontation he took to his heels. ODE

DIRECTION
turn on one's heel
turn sharply round:
Her friends were there now so she just turned on her heel and walked away

round the corner. ODE

4.41 *sole*

RELATIONAL OBJECT PART

the undersurface of a tool or implement such as a plane or the head of a golf club:

Allow the sole of the sand wedge to do what it is designed to do- slide under the ball and propel it out on a cushion of sand. ODE

LOCATIVE NOTION

the floor of a ship's cabin or cockpit:

To their credit the builders have used bulkheads that are watertight between the hull and cabin soles to divide the boat into three separate compartments. ODE

4.42 *arch*

Body part term referring to the foot of an arch is derived from Latin origin, *arcus* representing a curved line.

A shape resembling an arch: *The delicate arch of his eyebrows*

4.44 *skin*

An outer layer or covering, in particular:

Meanwhile, thick layers of slate-colored skins began covering their exposed muscles. ODE

by (or with) the skin of one's teeth:

barely make it: *We made the last train by the skin of our teeth* NEJ

4.45 The Number of Idioms Involving the External Body Part Terms

The following is a list of the number of idioms regarding external body-part terms in each language. As can be seen, some body part terms with a large number of idioms are common throughout the three languages, and the hand, the eye, and the head are typical examples exhibiting metaphorical transfer by virtue of salient functions in the outside world, which are

perceivable with one's eye. From these lists, it would be safe to say that human beings conceptualize expressions through the bodily based experience.

Table 4.1 The Number of Idioms in each Language

	English (GEJ)		Japanese (KE)		Spanish (DDEM)	
1	head	178	atama	41	cabeza	108
2	hair	45	kami	11	pelo	14
3	face	86	kao	41	cara	64
4	eye	121	me	214	ojo	108
5	nose	63	hana	57	nariz	34
6	mouth	27	kuchi	106	boca	69
7	ear	60	mimi	61	oreja	24
8	tooth	45	ha	34	diente	28
9	tongue	36	shita	24	lengua	41
10	lip	27	kuchibiru	7	labio	8
11	cheek	6	hoho	0	mejilla	0
12	jaw	10	ago	10	madíbula	1
13	chin	13			barbilla	0
14	temple	1	komekami	0	sien	0
15	neck	34	kubi	32	cuello	13
16	chest	8	mune	52	pecho	23
17	breast	10	chibusa	0		
18	shoulder	28	kata	22	hombro	17
19	arm	28	ude	21	brazo	17
20	elbow	11	hiji	5	codo	19
21	hand	195	te	146	mano	165
22	finger	60	yubi	15	dedo	24
23	nail	19	tsume	14	uña	8
24	palm	7	tenohira	3	palma	4
25	wrist	2	tekubi	0	muñeca	0
26	knuckle	8	genkotsu	0	nudillo	0
27	fist	3	kobushi	2	puño	12
28	abdomen	0	hara	77	vientre	3
29	belly	12			barriga	5

30	navel	3	heso	3	ombligo	1
31	back	121	se	8	espalda	28
32	waist	1	koshi	29	cintura	5
33	hip	11	shiri	41	trasero	0
34	buttock	1	ketsu	4	nalga	0
35	leg	62	ashi （脚）		pierna	7
36	foot	90	ashi （足）	67	pie	86
37	thigh	0	momo	2	muslo	0
38	calf	0	fukurahagi	0	pantorrila	0
39	knee	22	hiza	20	rodilla	3
40	shin	1	sune	8	espinilla	0
41	ankle	4	kurubushi	0	tobillo	1
42	toe	19	tsumasaki	1		
43	heel	36	kakato	0	talón	2
44	sole	1	ashinoura	0	planta	4
45	arch	0	tsuchifumazu	0	puente	2
46	skin	44	hada	13	piel	14
total		1559		1191		962

4. 46 Conclusions

In English, a larger number of idiomatic expressions involving external body part terms have been observed in the dictionaries we make use of for this research. Due to the characteristics of modern English that a noun can be used as a verb, one of the features of the data obtained from English is the large number of metaphorical transfers to spatial movements, such as *head for* and *foot it*. That is, English is a more aggressive language than the two other languages in terms of spatial movement of a subject entity. Other than that, typical transfers to relational object parts are widely observed with the majority of terms we have dealt with: e.g. *leg of a table*. Overall, the number of idioms concerning spatial domains is larger than that of temporal domains.

ROP: relative object part　　SM: subject movement　OM: object movement

Table 4.2 Idioms regarding Spatial Domains

		ROP	position	place	direction	distance	alteration	container	SM	OM
1	head	○	○						○	
2	hair	○				○				
3	face	○	○							
4	eye	○	○		○					
5	nose	○			○				○	
6	mouth	○	○							
7	ear	○								
8	tooth	○								
9	tongue	○								
10	lip	○								
11	cheek	○				○				
12	jaw	○								
13	chin									
14	temple	○								
15	neck	○			○					
16	chest							○		
17	breast	○	○						○	
18	shoulder	○	○							
19	arm	○	○		○					○
20	elbow	○			○	○			○	
21	hand	○			○	○				
22	finger	○				○				
23	nail	○				○				
24	palm	○				○				
25	wrist	○								
26	knuckle	○								
27	fist	○								
28	abdomen									
29	belly	○	○							
30	navel	○	○							
31	back	○	○		○					○
32	waist	○					○			
33	hip	○								
34	buttock	○								
35	leg	○				○			○	
36	foot	○	○			○			○	
37	thigh									
38	calf									
39	knee	○								
40	shin								○	
41	ankle								○	
42	toe	○	○						○	
43	heel	○							○	
44	sole	○	○							
45	arch	○								
46	skin	○								

PT : point of time

Table 4.3 Idioms regarding Temporal Domains

		earliness	lateness	duration	future	past	speed	continua	period	PT	prolong	waiting
1	head											
2	hair								○			
3	face											
4	eye											
5	nose											
6	mouth											
7	ear											
8	tooth											
9	tongue											
10	lip											
11	cheek											
12	jaw											
13	chin											
14	temple											
15	neck											
16	chest											
17	breast											
18	shoulder											
19	arm											
20	elbow											
21	hand	○			○			○				
22	finger						○					
23	nail									○		
24	palm											
25	wrist											
26	knuckle											
27	fist						○					
28	abdomen											
29	belly											
30	navel											
31	back					○		○				
32	waist											
33	hip											
34	buttock											
35	leg						○				○	
36	foot					○	○		○		○	
37	thigh											
38	calf											
39	knee	○										
40	shin											
41	ankle											
42	toe						○					
43	heel		○				○					○
44	sole											
45	arch											
46	skin								○			

Chapter 5: Analysis of Semantic Extension of External Body Part Terms in Japanese

5.0 Introduction

This chapter will review idiomatic expressions involving body part terms in Japanese. In the same way with the analysis in English idioms, the order of body parts terms treated here is in accordance with the position of body part from the top region to the bottom region.

Results
Abbreviation CM: Case Marker

5.1 *atama* (head)

5.1.1 spatial reference

retsu no atama	line CM (subject) head	the head of the procession

5.1.2 temporal reference

atama kara	head from	from the beginning

In this section, we exemplify each case of the semantic extension of body part terms. As in 4.11, the position of the head at the top of the body motivates spatial reference of position of the object, which is conceptualized in the same way in both languages as 4.11 shows.

In Japanese, the position of *atama* extends temporal order as has been mentioned earlier. This is accounted for in theory with an example of a motion event such as that of the first carriage of the train going one direction passing a certain point earlier than the other carriages. In short, front in space is metaphorically mapping to earlier in time. Furthermore, *atama wo toru* or win the first game in the series as in the everyday language of Japanese baseball is a good illustration of this study that applies the same logic.

In line with Heine's concept of unidirectionality, it may be observed that originally the head as a body part expressing a concrete concept shifts to

a position in space and becomes part of the object, finally extending to a temporal reference as an abstract concept.

5.2 *kami* (hair)

Temporal expressions involving *kami* or *hair* are commonly observed in all the three languages we have investigated. The extreme narrow width of a hair gives rise to the idiomatic expression, such as *kan ittu patsu* <space one hair> (by a hair) which refers to the temporal concept as being just barely on time. In this case, distance of the hairbreadth is mapped into the temporal domain as a moment. That is to say, motivation of form is applicable to this body parts.

5.3 *kao* (face)

5.3.1 *kao wo awaseru*	face CM look	look at each other	position
5.3.2 *tsuki no kao*	moon CM face	surface of the moon	place

As in 5.3.1, *kao* as part of the body functions as partonymy which is subcategory of metonymy. Kao is the primary means for distinguishing one from another through its features, and it is plausible that *kao* provides a more salient landmark for identifying one as compared with other body parts.

From 5.3.2, one can intuitively see that face and surface are related concepts and, in fact, both have a common Latin origin. Thus, one finds a cross-linguistic similarity of sorts between Japanese and English, though the match is not a perfect one. In any case, some facial features are flatter than others and some are more chiseled, much as one would find with regard to the moon, where some parts of surface are flat, and some bumpy.

5.4 *me* (eye) spatial reference

5.4.1 *me no mae, (mokuzen)*	position
5.4.2 *me saki,*	direction
5.4.3 *me sen*	direction

In one's external environment, *me* as sensory organ, is the body part whose primary importances lies in its being capable of body visually perceiving objects from a certain distance. Perception with *me* will trigger a determination of whether or not it is safe enough to physically approach an

object or touch it. The eye itself does not have mobility to move around in space, but exhibits directionality with regard to concepts arising from the space between the eye and the object seen, much as if there were an invisible line emerging from eye.

Hence, directionality extrinsically extending to space is the key point illustrated in the above examples. 5.4.1 represents a spatial position in front of the observer. Although one may suppose that other body parts can be employed for pointing out things in front of the observer, (e.g. *te no mae, atama no mae*, etc), the property of *me* to perceive an object at a distance and grounded in a certain position precludes such developments, at least with regard to Japanese.

As in 5.4.2 and 5.4.3, figurative expressions are conceptualized on the basis of directionality starting from eye of the perceiver and reaching the object perceived. In their semantic usage, direction to look at a concrete object metaphorically extends to abstract objects such as thoughts or ideas or one's way of thinking of something. In that sense, *mesaki wo kaeru* originally, changing one's direction to look at something takes on the meaning of changing one's way of thinking.

Temporal reference

5.4.4 *ichibanme*	the first place	temporal order earlier
5.4.5 *mokuzen (menomae)*	right before one's eyes	near future

As in 4.5.4, *me* is collocated with an ordinal number to indicate a sense of temporal order by virtue of its property to visually perceive objects earlier than any other sensory organ. Incidentally, there is a similar expression with *te* or hand which is *ichibante,* meaning *the one comes first*. *Te* originally refers to a person, and this arises from the synecdoche representing the whole for the part or the part for the whole. The same logic can be applied to the prominence of this property of *te* in functioning to physically touch objects rather as opposed to touching by other parts.

Although Example 4.5.5 already appears with as a spatial reference in Example 4.5.1 above, it would not be out of place to illustrate the temporal reference extending from the spatial. With the process of semantic extension, directionality has an important role to play in the conceptualization of space between an observer and objects. Furthermore, the spatial concept extending

to the temporal is tantamount to the cognition of movement from one point to another being simultaneously linked with the elapse of time. Distance perceived with the eyes is limited. Thus, the less the distance, the less the passing of time passing. For that reason, as a lexical concept, it is associated with the near future. To be more specific, reaching a certain point with one's eyes from the position of the observer would be equated with the near future.

5.5 *hana* (nose)

Spatial distance

5.5.1 *me to hana no saki* eye and nose CM right in front of one (literally, one's eyes and nose)

5.5.2 *hana no sa* nose CM difference by a nose

5.5.1 exhibits close distance from the standpoint of the observer. Specifically, the lexical concept of spatial distance arises from the proximity of the distance between eye and nose. Interestingly, cognition of usage in Japanese is slightly distinct from that of English. The former is the cognition of the distance of body parts being conceptually projects in space. The latter is the cognition that directionality emerges from the shape of nose with a sharp point extending into nearby space where an object or objects exist, assuming one is in an upright position, directly in front of one with the projection of vertical axis on condition of human standing on the ground. The same body part can, on occasion, generate a distinct lexical concept, as would be the case of the English phrase "be under one's nose" where the meaning would be that of an object which cannot be easily found even though it must be very close by. In this case, a racial feature, that of the nose being often larger among Englishmen than among Japanese, might lead to an association with a meaning which would not be likely to appear in Japanese.

The usage of 5.5.2 is limited to horse races and refers to a win in close competition determined by the length of horse's nose at the finish line. With the fact that the history of horse races in Japan is shorter than in the western world, the example of 5.5.2 might possibly a loan translation from English. In terms of bodily-based experientalism, the idea of nose being the first body part to pass the finish line is salient for this example's use.

Temporal reference

5.5.3 debana out nose at the start, as soon as

5.5.3 refers to the moment you start to do something. As a spatial reference, it refers to a projection at the edge part of something, like a mountain. *Debana* would literally indicate one's nose protruding into space, thus metaphorically marking an end to one's sense of self and the beginning of otherness. From this, it would be but a short step to use this word with a temporal meaning having the sense of start or beginning.

5.6 *kuchi* (mouth)

5.6.1 *iriguchi* entering mouth entrance
5.6.2 *deguchi* going out mouth exit

Kuchi or mouth is an opening to the digestive organ, allowing foods and drink to enter the body. For this reason, the mouth itself does not possess movability across space. With metaphorical mapping, mouth may be construed as the origin of a passage where entities as food and drink go through, thus allowing the conduit metaphor to be applied to this lexical concept. The passage that starts from the mouth leading to the throat, the gullet, the stomach, the intestines, etc. seems to be one tube going through the body. Examples 5.6.1 and 5.6.2 arise from the lexical concept of mouth being a point that entities come and go through.

5.63 *akiguchi* fall (autumn) mouth in the beginning of fall (autumn)
5.64 *yoinokuchi* evening mouth in the early evening

As demonstrated above, the starting point of passageway being a lexical component of *kuchi* gives rise to the source domain concept of where objects first come and go in space. Therefor, the concrete concept of objects in motion metaphorically maps to the abstract concept of temporal order as in example in 5.6.3 and 5.6.4, indicating the beginning of temporal event.

5.7 *mimi* (ear)

Mimi is transferred to something resembling in shape and relational object parts: the hole to thread a needle (e.g. *hari no mimi* <ear of needle>

(eye of a needle)), the handle of an article (e.g. *nabe no mimi* <ear of a pan> (handle of a pan) DD, and the side region of an object or its hard part (e.g. *pan no mimi* <ear of bread> (the crust of a piece of bread)) NKD. Interestingly, different body parts are used to describe the part of a needle between Japanese (ear) and English (eye).

5. 8 *ha* (tooth)

In the same way as English *tooth*, ha is used to refer to a projecting part on a tool or other instrument, especially one of a series that function or engage together, such a cog on a gearwheel or a point on a saw (e.g. *nokogiri no ha* <tooth of saw> (the teeth of a saw)NEJ. In addition, *ha* is used for the generic name for the wooden parts of *geta* or Japanese wooden clogs.

5. 9 *shita* (tongue)

Shita is transferred to something similarity in shape, such as *abumi no shita* <tongue of stirrup> (a stirrup) NKD, an iron reed attached to *gagattuki* or a percussion instrument used in playing the court music of Japan (EDR), and *koban* or a small size of an oval gold [silver] coin used in the *Edo* period (AD 1603~1867).

5.10 *kuchibiru* (lip)

Kuchibiru refers to a petal.

5.11 *hoho* (cheek)

No data is available

5.12 *ago* (jaw or chin)

Relational Object part

In the same way with English *jaw, ago* is used to refer to the gripping parts of a tool or machine, such as *manriki no ago* (jaws of a vice). However, due to the fact that definition of this usage is not found on the dictionaries, this is possibly a loan translation from English.

With reference to metaphorical transfer to other body parts*, ago* refers to *era* or the gill of fish on the basis of the position of the body part on the face.

5.13 *komekami* (temple)

No data is available.

5. 14 *kubi* (neck)

In the same way as English *neck, kubi* refers to the part of a shirt, dress, or other garment that is around or close to the neck, such as *tatoru nekku no seeta no kubi* (the neck of a turtleneck sweater) ODE. Also, it refers to a narrow part of something, resembling a neck in shape or position (e.g. *bin no kubi* <neck of bottle> (the neck of a bottle) NEJ).

5. 15 *mune* (chest)

In addition to the front surface of a person' or animal's body between the neck and the stomach, *mune* can be metonymically used to refer to the internal organs including the lever, the heart, and the lung protected inside of the ribs (e.g. *yamai wa mune.* <illness is chest> (a disease of the chest) *makura no soshi* 10C 188 (NKD)). Unlike *chest* in English which does not refer to the breast, *mune* metonymically refers to *chifusa* or the breast: *mune ga okii jyosei* <woman has big chest> (woman has big breasts). As to a relational object part, it refers to the part of a garment that is around or close to the chest (e.g. *koromo mune no atari* <around the garment chest> (the chest of a garment) *tsurayuki syu* (around 945) NKD).

5. 16 *chibusa* (breast)

There is no idiomatic expressions available with regard to *chibusa,* since *mune* is undiscriminatingly used to refer to both the chest and the breast in Japanese.

5.17 *kata* (shoulder)

RELATIONLA OBJECT PART

kata (forelegs of an animal)

LOCATINE NOTION

A part of something resembling a shoulder in shape, position or function

kata: a flat part of a mountain from the top downward NKD

a, arega, N-dake no kata dana (Tokyo no 30 nen: 1917)

<That, N mountain of shoulder is> (That is the shoulder of Mount N, isn't it?)
rokata (the shoulder of a road)

kyoken (strong arm: baseball term mainly used to refer to a baseball player who can throw a fast ball in the long distance, in particular with an outfielder who attempts to get a runner out by throwing a ball back to the plate and the like.)

5.18 *ude* (arm)

RELATIONAL OBJECT PART
ude (arm of a chair) NKD

5.19 *hiji* (elbow)

RELATIONAL OBJECT PART

A part of something resembling an elbow in shape, position or function NKD
hijigane an elbow-shaped metal bar on a door, which swivels in a [hinge socket] NJE
hijiki an ancon; a bracket; a corbel piece NJE (Kenkyusha New Japanese English)

5.20 *te* (hand)

te (body part) Nihonshoki 720 PERSON
mago no te (a back scratcher) *Makurano soushi* end of 10th century OBJECT
yukute (movement in the direction) *Genpeiseisuiki* 14th century ACTIVITY (PROCESS)
yamate (the hilly section(s) of a city) *Genpeiseisuiki* 14th century SPACE
ichibante (the first person) *Kabuki Meika notokumimasunotamagaki* 1801 TIME
Kono te no mono (this sort of thing) *Banpouzensho* 1694 QUALITY

As presented above, the first appearance of most example with respect to each body part is consistent with the order of metaphorical chain of Heine.

Spatial domain

Position

5.20.1 *yamate* <mountain hand> (the hilly section(s) of a city)

5.20.2 *umite* <sea hand> (place by the sea)

Te is employed as a locative marker to express the place close to mountain. On the other hand, foot referring to the bottom of something is in use, such as English (foot of a mountain) and Spanish (al pie de una montaña), respectively. In this case, body part terms used in figurative expressions in Japanese are distinct from that of English and Spanish.

Directionality

5.20.3 *migite wo gorankudasai* (take a look on your right hand)

(5.20.3) does not refer to the right hand itself, but is extrinsic transfer to refer to the object in the direction of the right hand points out. In English, hand is also in use to refer to a certain object in space such as *"on his right hand side"*. In contrast, *hand* is not made used of pointing out the direction such as *"Veras una casa blanca a la derecho"* (You can see a white house on the right).

Movement of object

5.20.4 *tewatasu* (hand over to)

Hand is considered to be the primary body part which is highly likely to have effects on objects in the external environment. Hence, function of *hand* provides metonymical relationship with regard to hand over something. The usage of *hand* in English and Spanish is in common with figurative language as to *"She handed me the key"* and *"llegar a manos de～"* (hand over to～).

Temporal domain

Earlier

5.20.5 *ichibante* < the first hand> (the first person)

The unit fighting with enemy in battle, A leader

The ground that an ordinal number and *te* is collocated with is, as we

stated in the preceded section, the function of *hand* acting on objects. As a definition of (5.20.5), *hand* as being subordinate to whole body parts gives rise to the salience. (Within the framework of body parts, *hand* as subordinate concept dominants the person as superordinate concept). Let us apply this thing to the situations in sports. In swimming, the moment that a swimmer touches one's hand to the wall is to finish the race. When a runner on baseball try to come home in risky timing, there might be the case that one will use the hand to touch home plate faster than using foot. Thus, hand can be perceived as body part which can reach the certain point earlier than any other body parts. This function of hand leads to transfer of earlier in temporal domain.

Period

5.20.6 *tema* <hand space> (time)

Tema denotes "hand space" in literal language whereby using hand for the work is related to time passage. In general, human beings work on something based on the use of hands. For instance, even interface (a connection between a person and a computer) of manipulating the cutting-edge smart phone is still dependent on the use of hands. The process of semantic transfer of (5.7) proceeds from body parts as source domain to work involving time as target domain. As to corresponding expression in English and Spanish, *hand* and *mano* are not employed for this expression instead of using time and *tiempo*, respectively.

Speed

5.20.7 *tettori bayaku* <hand swift> (in short)

While in Japanese the use of *te* is observed in (5.206) figuratively referring to finish off work quickly, lexical items of *promptly* in English and *exepeditivo* (swift) in Spanish are employed.

5.21 *yubi* (finger)

DIRECTIONALITY

yubisashi (pointing at)

5.22 *tsume* (nail)

RELATIOAL OBJECT PART

tsume (a pick used for playing koto; a zither-like Japanese musical instrument) NKD

tsume (a hook; instrument or device to hook something) NKD

taka no tsume <a hawk of nail> (a type of red pepper) NKD

PAST EVENT

tsume ato (nail mark) (it is figuratively used to refer to the after-effects of big incidents such as disasters and wars)

e.g. *sensou no tsume ato ga mada nokotte iru* <war of nail mark case marker still left be> (There are still scars left from the war.) NJE

5.23 *kobushi* (fist)

RELATIONAL OBJECT PART

kobushi bana <fist nose> The end point of a beam protruding from a pillar NKD

5.24 *tenohira* (palm)

RELATIONAL OBJECT PART

tenohiraimo (flattened potato resembling palm in shape) NKD

5.25 *tekubi* (wrist)

No data is available

5.26 *kurubushi* (ankle)

No data is available

5.27 *hara* (abdomen)

Spatial container

5.27.1 *kuufuku* empty belly hungry

5.27.1 refers to a type of hungriness indicating that literally one's stomach is empty without having had food for a while. Interestingly, a body part term is not employed for this in Spanish.

5.27.2 *haradokei* stomach clock

One's stomach tells O it's about time to have a meal

5.27.3 *asattupara* morning stomach in the early morning

In the example in 4.52, the status of stomach when one feels hungry is compared to a clock as an object telling you the time to have a meal. In contrast, the stomach is personified as an agent in English as illustrated. 5.27.4 *asappara* is derived from a geminated consonant of *asahara* referring to being hungry before breakfast or early in the morning. In general, it is used in negative situations for something which is thought to happen later on unexpectedly happens earlier. The status of stomach is related to temporal events in that having breakfast is thought to normally be early morning.

5.28 *heso* (navel)

RELATIONAL OBJECT PART

Small convexity on the surface of something, or concave part of something:
e.g. *Anpan no heso* <a bean-paste bun of navel> (cave-in part of a bean-jam bun) NKD

LOCATIVE NOTION

Center part of something, or crucial part of a matter
e.g. *Nihonrettou no heso* <the Japanese Archipelago of navel>
(center part of the Japanese Archipelago) NKD

5.29 *se* (back)

5.29.1 *yama no se* back of mountain the line of a mountain ridge
5.29.2 *senaka awase* back to back

The lexical concept of 5.29.1 arises from the metaphorical mapping of shape and position whereby the back of mountain (the line of a mountain ridge) is compared to the line of one's back of a human lying on ones stomach.

Example in 5.29.2, which provides the lexical concept of a series of entities next to each other, is distinct from 5.29.2 (b) and (c) from the view of not extending to a temporal concept. For instance, 5.29.2 (b) is translated into *nisha renzoku homuran* or two batters hitting consecutive homerun, or *avec homuran*, literally with a homerun (a word coined from a mix of French

and English) which originally developed in Japanese. As to 5.29.2 (c), there is no such lexical item in Japanese by virtue of a different system of law. In English, there is more cases where 'back to back' is collocated with a word related to temporal events than cases with *senakaawase* (meaning "back to back").

5.30 *koshi* (waist)

RELATIONAL OBJECT PART

5.30.1 *koshi* (the part of a garment around or covering the waist) NKD

LOCATIVE NOTION

5.30.2 *koshi* (the lower part from the center such as wall, a shoji(a paper sliding door), a vehicle, a book.) NKD

5.30.3 *koshi* (the foot of a mountain) NKD
e.g. yama no koshi wo meguru michi DD
<mountain CA waist CA go around way>
(the road to go around the foot of a mountain)

ON THE WAY in temporal concept
koshi wo oru (interrupt at a critical point in one's story while one is speaking) NKD
e.g. *kokokara ga juyou nandakara hanashi no koshi wo oranaide kure.*
<here from CA important so story CA waist CA break do not>the
(This next bit is important, so don't interrupt.) NJE

koshi ga kudakeru <waist breaks> (be not able to continue to work on something halfway) NKD
e.g. *hossoku irai hantoshi de hayakumo koshi ga kudakete shimatta* DD
<inception since half year CA already waist CA suffered have>
(The project have already suffered a setback within the half year since its inception)

5.31 *shiri* (hip, buttocks)

POSITION

Posterior portion of something

e.g. *Koushin no shiri ni tsuiteiku* (follow the rear of a procession) DD (digital Daijisen)

The rear of things, words, time, order, procession, and the like
e.g. *shiri kara nibanme no seiseki* <buttocks from the second of grade> (the grade next to the bottom)

the end point of a long object
e.g. nawa no shiri wo motsu <rope of buttock grab> (grab the end of a rope) DD

Bottom part of a container or a fruit
e.g. nabe no shiri <pan of buttocks> (the bottom of a pan) DD

5.32 *ashi* (foot, leg) NKD

ashi (body part) *Kojiki* 712 PERSON
ashi (leg or foot of a table) *Nihonsyoki* 720 OBJECT
ama ashi (the beat of the rain) *Makurano soushi* 10th century ACTIVITY
Ashi wo nobasu (stretch one's leg) *Utsuho monogatari* 970-999 SPACE
Ashi ga hayai (swift-footed) *Kinenhi* 1955 TIME
Ashi (ashi refers to the ability of baseball player runs fast) QUALITY
e.g. Ichiro has *ashi* (Ichiro runs fast)
Ashi ga tsuyoi (speed of ship is fast) *Yokyoku Funabenkei* around 1516

Analysis of instances

5.32.1 Japanese: *ashi*

Spatial domain: Movement of experiencer

5.32.2 *ashi wo nobasu* (stretch one's leg)

5.32.3 *hi ashi* < leg of the sun> (movement of the sun from the east to the west)

(5.32.2) arises from the movement of leg in experiencer's motion. *Nobasu* literally refers to making one's body or part of one' body straighter and longer. While source domain of this expression specifically exhibits one's body movement of joint, it transfers to target domain as spatial movement

that continuum action of stretch is connected with movement of experiencer.

(5.32.3) is the expression personified by construal of the sun as creature, depicting the movement of the sun with legs. While the equivalent expression in English is “The days are getting closer”, and the one in Spanish is “Los días se a alargan”, neither of them contain the personified usage such as *hiashi* (leg of the sun). Incidentally, this expression provides temporal domain as well, and we will discuss it in another section below.

Movement of object

5.32.4 *ama ashi* <leg of the rain> (beat of the rain)

Example (4.4) is personified toward the natural object. Incidentally, the use of body part model is not observed in English expression “The beat of the rain gradually quickened”, Spanish expression “Es un alluvia torrencial.”

Distance

5.32.5 *hito ahsi* <one foot> (a stride, or short distance)

While distance of stride provides conceptual transfer in Japanese, the length of body parts in English *foot* and Spanish *pie* is source for transfer. This expression also extends to temporal domain.

Temporal domain

Period

5.32.6 *hi ashi* <leg of the sun> (day time, period from the sunrise to the sunset)

5.32.7 *hito ashi* <one foot> (short time)

As applied to conceptual metaphor of Lakoff, transfer of (4.6) is relevant to the time spent for movement of object, distance of movement as to (4.7) provides transfer in temporal domain, respectively. Whereas the length of *foot* and *pie* in English and Spanish give rise to only spatial domain with static property, transfer of *ashi* in Japanese on the basis of movability (flexibility) without stationary property pleads to temporal domain.

Past

5.32.8 *ashi* <foot> (fluctuation of the market price in the past)

Footstep left in space metaphorically extends to past in time. This conceptual transfer is applied to the conceptual metaphor of EARLIER IS BACK referring to the idea that behind in space is earlier from the perspective of an experiencer. While *ashi* in Japanese itself denotes past, footprint in English is a compound noun which does not refer to past by sole item *foot.* Huella (footprint) in Spanish is not relevant to body part model.

Speed and Quality

5.32.9 *tama ashi* <foot of the ball>

(velocity or momentum of the ball in baseball and golf)

5.32.10 *ashi ga hayai* < foot is fast> (swift-footed)

5.32.11 *ashi ga hayai* < foot is fast> (speedy decay of fish)

(5.32.9) is personified expression likewise *amaashi* and *hiashi.* Put another way, foot (leg) is the primary parts leading from human or object to spatial movement.

(5.32.10) is conceptual transfer in common with three languages whereby *swift-footed* in English and *los pies ràpidos* in Spanish are observed. Is fast speed of running relevant to fast movement of legs? Suppose, it would not be impossible that person with long stride runs fast with slow movement of one's legs. Even if movement of leg is not fast, strong power to kick the ground might be held responsible for running speed. In consideration with this thought, fast movement of legs is not necessarily linked with speed of run. In sum, *ashi* is the proximal body part which serves as spatial template to help run, and leads to metonymic transfer.

(5.32.11) is a figurative expressions meaning a speedy decay of fish such as *shirasu* (young sardine) based on the following story. In the past

that transportation was not available to deliver fish from a port to market, quick delivery with manpower was required on time so as not to spoil those fish. Let us examine the process of conceptual transfer below.

foot > running > delivery > time > status quo / decay

Process from source domain to target domain is transfer from concrete concept to abstract concept. Moreover, this process is applied to metaphorical chain of Heine.

PERSON (body part) > SPACE (movement) > ACTIVITY (delivery) >

TIME (time spent for delivery) > QUALITY (condition of fish)

We are dealing with body part *mata* which is related to the foot, and present the semantic development observed in Japanese while *crotch* as a corresponding term in English and *bragadura* in Spanish do not provide dynamic development.

5.33 *mata* (crotch)

5.33.1 *Matagu* <cross over something> action in spatial domain
5.33.2 *Sekai wo mata ni kakeru* <travel all over the world> PJE
5.33.3 Inning *matagi* <step across the inning>
(pitch more than two innings) duration in temporal domain
5.33.4 CM *matagi* <step over CM>
(event in TV program continues between commercials)
duration in temporal domain

Mata, referring to the part of the body between the tops of the legs is relevant to spatial movement and causes metaphorical transfer like the foot and the leg.

Action verb *matagu* (跨ぐ) referring to stride across something derives from the body-part term *mata* (股). Etymologically speaking, the time of the first appearance of *mata* is found in *Ryoiki* AD810, and that of *matagu* is found in *Sonofukuro* AD1690. In principle, body-part terms or nouns in Japanese are hardly converted into different parts of speech unlike in English where conversion from nouns to verbs is an ordinal linguistic

phenomenon observed in the following cases : *head, hand, arm, shoulder,* etc. While in Japanese, the process (conversion) of *matagu* derived from *mata* is a rare case. We have verbs involving a body-part as *tewatasu* or "to hand something to someone".

In the case of (5.33.4), we make use of this expression in baseball referring to a relief pitcher who is supposed to pitch only one inning relieves more than two innings in some occasions such that there is shortage of players pitching late innings.

As in example (4.33.5), CM *matagi* is one of the tactics often used to attract TV viewers in order to keep them stay tuned after the commercials. For instance, in a quiz show, the crucial part of giving an answer is postponed until after the commercials.

The action of stepping over the objects in the spatial domain is transferred as a temporal event in both cases as the result of metaphorical mappings.

5.34 *momo* (thigh)

No data available

5.35 *fukurahagi* (calf)

No data avaialble

5.36 *hiza* (knee)

LOCATIVE NOTION

hizamoto <knee under> (close distance)　NKD

e.g. oya no hizamoto wo hanareru

<parents CA knee under CA move away>　(move away from one's parents)

SPATIAL MOVEMENT

hiza wo susumeru (get close to someone) NKD

e.g. hiza wo susumete kogoe de hanasu

<knee CA move on a low voice CA speak>

(draw closer on one's knees and speak in a low voice.)

5.37 *sune* (shin)

No data is avaialbe

5.38 *tsumasaki*

No data is avaialbe

5.39 *kakato* (heel)

kakato (the back part of a shoe)　NKD

e.g. *kakato ga suriheru* <heel CA wear down> (The heels of shoes are worn out)

5.40 *ashinoura* (sole)

No data is available

5.41 *tsuchifumazu* (arch)

SPATIAL MOVEMENT

Going somewhere by transportation without any walk. NKD

5.42 *hifu / hada* (skin)

hifu (surface of something)　NKD

5.43 Conclusions

Our finding is that Japanese exhibits a larger portion of the expressions extended to the temporal domain in comparison with English. According to Ando (1986), Japanese is regarded as a situation-focus or become-language that describes human actions as the course of nature on the basis of the weaker salience of the agent as is seen in the example of *haru ni natta* < (something) has become spring> (Spring has come). Due to the typical structure of Japanese language, where a sentential subject is optional, implies that something happens naturally instead of expressing aggressive actions on the part of the subject. Put another way, passage of time is a natural phenomenon that is not related to the existence of the subject. In this sense, temporal concepts can be conceived of as being passive, which might be held responsible for development to the temporal domain in a Japanese language environment. On other hand, English is regarded as a human-focus or do-language that makes use of action verbs on the basis of the salience of the agent, such as *Spring has come*, or *Spring is beginning* (GED). Overall, we assume that the linguistic characteristics of Japanese

make a contribution to the development of temporal concepts in that language.

Table 5.1 Idioms regading Spatila Domains ○Engish ● Japanese

		ROP	position	place	direction	distance	alteration	container	SM	OM
1	head/atama	○●	○●						○	
2	hair/ kami	○				○				
3	face/kao	○●	○●							
4	eye/me	○●	○●		○●					
5	nose/hana	○●			○●	○●			○	
6	mouth/kuchi	○●	○●							
7	ear/mimi	○●								
8	tooth/ha	○●								
9	tongue/shita	○●								
10	lip/kuchibiru	○●								
11	cheek/hoho	○				○				
12	jaw/ago	○●								
13	chin									
14	temple/komekami	○								
15	neck/kubi	○●			○					
16	chest/mune	○●						○		
17	breast/chibusa	○	○						○	
18	shoulder/kata	○●	○●							●
19	arm/ude	○●	○		○					○
20	elbow/hiji	○●			○	○			○	
21	hand/te	○●	○●		○●	○				○●
22	finger/yubi	○●			●	○				
23	nail/tsume	○●				○				
24	palm/tenohira	○●				○				
25	wrist/tekubi	○								
26	knuckle/	○								
27	fist/kobushi	○●								
28	abdomen/									
29	belly/hara	○	○							
30	navel/heso	○●	○							
31	back/se	○	○●		○					○
32	waist/koshi	○●	●				○			
33	hip/	○								
34	buttock/shiri	○●	●							
35	leg/ashi	○				○			○	
36	foot/ashi	○	○			○●			○●	
37	thigh/momo									
38	calf/fukurahagi									
39	knee/hiza	○	●						●	
40	shin/sune								○	
41	ankle/kurubushi								○	
42	toe/tsumasaki	○	○						○	
43	heel/kakato	○●							○	
44	sole/ashinoura	○	○							
45	arch/tsuchifumazu	○●								
46	skin/hada	○●								

Table 5.2 Idioms regading Temporal Domains

		earliness	lateness	duration	future	past	speed	continua	period	PT	prolong	waiting	time
1	head/atama	●											
2	hair/ kami								○●				
3	face/kao												
4	eye/me	●			●								
5	nose/hana	○●											
6	mouth/kuchi	●											
7	ear/mimi												
8	tooth/ha												
9	tongue/shita												
10	lip/kuchibiru												
11	cheek/hoho												
12	jaw/ago												
13	chin												
14	temple/komekami												
15	neck/kubi												
16	chest/mune												
17	breast/chibusa												
18	shoulder/kata												
19	arm/ude												
20	elbow/hiji												
21	hand/te	○●			○		●	○	●				
22	finger/yubi						○						
23	nail/tsume					●				○			
24	palm/tenohira												
25	wrist/tekubi												
26	knuckle/												
27	fist/kobushi						○						
28	abdomen/												
29	belly/hara	●											●
30	navel/heso												
31	back/se					○		○					
32	waist/koshi									●			
33	hip/												
34	buttock/shiri		●										
35	leg/ashi						○				○		
36	foot/ashi					○●	○●		○●		○		
37	thigh/momo												
38	calf/fukurahagi												
39	knee/hiza	○											
40	shin/sune												
41	ankle/kurubushi												
42	toe/tsumasaki						○						
43	heel/kakato		○				○					○	
44	sole/ashinoura												
45	arch/tsuchifumazu												
46	skin/hada								○				

Chapter 6: Analysis of Semantic Extension of External Body Part Terms in Spanish

6.0 Introduction

This chapter will review the idiomatic expressions involving the body part terms in Spanish. In comparison with English and Japanese, the volume of the data obtained from dictionaries is smaller. However, there is still a certain number of examples we can make use of in accounting for semantic development. In accordance with Chapter 4 and Chapter 5, the order of body part terms presented in this section is based on the position of body parts from the upper to the bottom regions.

6.1 *cabeza* (head) Spatial position

Relational object part:

In the same way of metaphorical transfer observed in English *head* and Japanese *atama,* the location of the head in the end of the body on the horizontal axis serves as a conceptual source to denote the tip of an entity, such as *vagón de cabeza* <*car of head*> (lead vehicle) DDEM, and *cabeza de cerilla* <head of match> (match head) DDEM. By virtue of the fact that the head passes the point earlier than rest of the body parts in the motion event such as a horse race, the property of the head gives rise to a spatial concept of the short distance as in the case with *ganar por una cabeza* <win for a head> (win by a head) DDEM.

Locative notion

The crucial function of the head to govern the whole body is metaphorically mapped into a spatial concept to denote the area where the city or town that functions as the seat of government and administrative center of a country or region (ODE): *cabeza de partido* <head of district> (state capital) DMJE.

Direction

In the case with *Cabeza abajo* <head down> (upside down) DDEM,

the position of the head in the upper end of the body on the vertical axis contributes to a direction of an entity, such as *Colgar el cuadro cabeza abajo* <hang the picture head down> (hang up the picture upside down) DDEM.

Earliness in time

With regard to temporal concepts, the position of the head perceptible to the tip of the body is extended to the beginning of a temporal event as in the example of *ésta sacando la cabeza la primavera* <is taken out the head the spring> (Spring is just around the corner) DDEM, which is applicable to the conceptual metaphor of EARLIER IS FRONT.

Salience of the body part

In the expressions of *sacar la cabeza por la ventana* <take out the head for the window> (show one's face from the window) DDEM, Spanish *cabeza* is profiled against the building as a body part sticking out from the window. However, in Japanese, a typical translation of the body parts used in this sentence would be *kao* (face) or *kubi* (neck) that sounds natural to the native speaker of Japanese, such as *mado kara kao (kubi) wo dasu.*<take out face (neck) from the window> (show one's face from the window).

6.2 *cabello / pelo* (hair)

As in common with two other languages, hairbreadth is extended to the temporal concept to denote a moment, such as *por los pelos* <be the hairs> (by a hairbreadth) DDEM. Spatial distance derived from narrow width of this body part is mapped into the temporal domain as an instant.

6.3 *cara* (face)

Flat part of an object

The following expressions involving *cara* arise from a flat surface of this body part: *escalar la cara sur de la montaña* <climb the face south of the mountain> (climb the south face of the mountain) DDEM, *seis caras de un cubo* (six faces of a cube) DDEM, and *Escribir por una sola cara (por las dos caras) del papel* <write for solo face (for the two faces) of the paper> (write one side (both sides) of the paper) DDEM,

In accordance with the abstract chain proposed by Heine (1991),

metaphorical extension from the body part domain to NATURE is observed in the following expression: *es un cara [dura]* <be a face hard> (iron mask : a poker face) DDEM.

6.4 *ojo* (eye)

Relational object part

The round shape of the eye is transferred to objects resembling in form:

ojo de pez < eye of fish> (a fish-eye lens) DDEM

ojo del huracan <eye of the hurricane> (the eye of a typhoon : the center of issue) DDEM

Space related to the shape of *ojo* (eye) DDEM

The following expressions involving *ojo* can be considered as a part of an objects, but still refer to the space:

ojo de la cerradura <eye of the lock> (a keyhole) DDEM

ojo de patio <eye of patio> (a courtyard) DDEM

ojo de la escalera <eye of the stairs> (a stairwell) DDEM

Spatial position

The property of the eye serves as a conceived line between a conceptualizer and an object within the close distance as in the examples: *Ocurrió delante de mis propios ojos* <occurred in front of my own eyes > (happened in front of my eyes) DJS, and *en los ojos de persona* <in the eyes of person> (in front of someone) DDEM.

Directionality

A conceived directedness arising from the eye provides a conceptual source to describe one's visibility as the following examples:

Apartar los ojos de... < move away the eyes of > (take one's eyes off) DDEM

Alzar los ojos al cielo <raise the eyes at the sky> (lift one's eyes) DDEM

Bajar los ojos <go down the eyes> (look down) DDEM

Con los ojos bajas <with the eyes down> (avert one's gaze) DDEM

Pasar los ojos por <pass the eyes for> (look over) DDEM

Temporal concepts

Quick movement to open and shut the eyes is transferred to denote

point in time, such as *En un abrir y cerrar de ojos* <in an open and close of eyes> (in the twinkling of an eye) DDEM.

Nature

Ojo is used to refer to the ability to judge something or the emotion to describe sadness: *tener buen ojo para* <have good eye for> (to be tactful) DDEM, and
ojos de besugo <eyes of red bream> (popped-out eyes (description of a sad expression)) DDEM, respectively.

6.5 *nariz* (nose)

On the basis of its shape, *nariz* refers to a protruding part of something: *nariz de un avión* <nose of a plane> (the nose of a plane) OSD, and *Esa costura hace una nariz* <That sewing do a nose> (That seam is thick) DDEM.

Spatial position

A projecting shape of the nose gives rise to directionality in front of a subject, and *nariz* is used to denote the position of an entity which is relatively close to a conceptualizer, such as *en sus propias narices* <in one's own noses > (in front of) SDEJ: e.g. *Tienes el libro delante de tus narices* <have the book in front of your noses> (The book is under your nose) SDEJ.

Movement / directionality

The following expressions involving *nariz* arise from the directedness as a property of the nose, and develop into the spatial movement:
caerse de narices <fall of noses> (a vertical descent) DDEM
nos dimos de narices contra un árbol < us give of noses against a tree> (we went smack into a tree) OSD
se dio de narices contra el suelo < it gave of noses against the ground> (he fell flat on his face) OSE

Nature

The sense of smell as a typical property of the nose is figuratively extended to the idiomatic expressions to describe one's insightful ability to judge something: *me da en las narices que no le ha gustado* <me give in the

noses which no it had liked> (I get the feeling she didn't like it.) OSD
tener buena nariz <have good nose> (have a keen nose) DDEM

6.6 *boca* (mouth)

Relational object part

As a typical metaphorical extension, *boca* is transferred to something resembling in shape:

boca de barril <mouth of barrel> (a bung) DDEM
boca de fusil <mouth of rifle> (the muzzle) DDEM

The mouth of humans and animals functions as a gate where food and drink are taken in and vocal sounds are emitted. That is, a property of *boca* as a source domain contributes to denote a specific location in space:

boca de una calle <mouth of a street> (a way in the street) DDEM
boca de un río <mouth of a river> (the mouth of a river) DJE

Direction of the body (objects)

As has been seen in the following expressions, the mouth located on the face serves as a direction of the body. Metaphorical transfer involving *boca* is simply explained by the bodily based experience as in the case that one lies on one's stomach, the position of the mouth is on the ground, and in the opposite way that one lies on one's back, the position of the mouth is not on the ground. Interestingly, the body parts referring to the same concept is distinct from Spanish (*boca*) and English (*stomach* and *back*).

boca abajo/ arriba <mouth down / up > (on one's stomach / on one's back) OSD
échate boca abajo <throw mouth down> (lie on your stomach *o* front) OSD
Duerme boca arriba <sleep mouth up> (he sleeps on his back) OSD
Puso los naipes boca arriba <put the cards mouth up> (she laid the cards face up) OS

Spatial distance

a boca (de) jarro <mouth (of) pitcher> (close distance)
e.g. *Rodri salvo en su salida el disparo, casi a bocajarro, de Bueno.*
<Rodri unharmed in his exit the shot, almost to close, of good> (Rodri had an narrow escape from the gun shot) DEA.

Temporal concepts

The source domain evolving out of *boca* is relevant to earliness in time, such as *a boca de* < at mouth of > (the beginning): e.g. *a boca de noche* < at mouth of night > (the early evening) DDEM. As a matter of fact, temporal transfer involving *kuchi* (mouth) in Japanese is commonly observed with *yoi no kuchi* <night of mouth> (the early evening). However, *mouth* in English is not extended to the temporal domain.

6.7 *oreja* (ear)

With regard to relational object parts, *oreja* is transferred to something resembling in shape, such as *oreja de una taza* <ear of a cup> (handle of a cup) OSE, and *oreja de un sillón* <ear of an arm chair> (wing of an armchair) OSE, and *oreja de mar* <ear of sea> (an abalone; an ear shell) SDSJ.

6.8 *labio* (lip)

Relational object part

Labio refers to the edge of something: *labios de una herida* <lips of an injury> (a wound) SDEJ.

6.9 *mejilla / cachete* (cheek)

No data available

6. 10 *mandíbula* (jaw)

Due to the similarity in position and function, *mandíbula* refers to animal's bill (SDEJ).

6.11 *barbilla* (chin)

Barbilla refers to other body parts of animals, such as the fin of flat fish (SDEJ), and the wing of a bird (DEA).

6.12 *sien* (temple)

No data available

6.13 *diente* (teeth)

In the same as English *tooth* and Japanese *ha,* on the basis of form and function of this body part, *diente* refers to one of the sharp or pointed

parts that sticks out from the edge of an instrument, such as *diente de una sierra* < tooth of a saw> (teeth of a saw) OSD, and *diente de un tenedor* <tooth of a folk> (prong of a folk) OSD.

6.14 *lengua* (tongue)

Lengua is employed to refer to something similarity in its slender shape: *lengua de fuego* <tongue of fire> (flame) DDEM, and *lengua de tierra* <tongue of land> (promontory) DDEM.

6.15 *cuello* (neck)

On the basis of proximity and shape of the body part, *cuello* refers to the part of a piece of clothing that fits around the neck: *una chaqueta sin cuello* <a jacket without neck> (a collarless jacket) OSE. In other case, a narrow shape of neck serves as a conceptual template to denote the part of an entity, such as *cuello de botella* <neck of bottle> (bottle neck) OSE. In addition, this idiomatic expression is figuratively extended to refer to some other meanings: an obstacle, traffic jam, and a narrow passage (SDSJ) based on the limited space derived from its shape. Moreover, *cuello* is used to refer to other body parts, such as *cuello uterino de la matriz* <neck uterine of the womb> (uterine cervix) DDEM. In fact, this usage of neck is commonly observed in English (*the neck of a tooth* (NEJ)), and Japanese (*shi kei* <tooth neck> (the neck of a tooth (NKD)).

6.16 *pecho* (chest/ breast)

Extensively, *pecho*, the body part between the neck and the belly, refers to the lung as an organ, and heart (not as an organ) in a sense of the center of a person's thoughts and emotions (DEA). As to a spatial concept, a surface of the chest on the horizontal axis is transferred to a steep hill (DDEM).

6.17 *hombro* (shoulder)

With respect a relational object part, *hombro* refers to a part of a garment around the shoulder: *La cazadora me queda ancha de hombros* <The jumper I remain wide of shoulders> (shoulder part of the jumper is big for me) SDEJ.

6.18 *brazo* (arm)

RELATIONAL OBJECT PART

brazo de molino <wing of windmill> (windmill blade)

brazo de la cruz <arm of the cross> (transom)

DDSM (dictionario del español modern)

LOCATIVE NOTION

brazo de mar <arm of sea> (an arm of the sea)

brazo de río <arm of river> (a tributary) DDSM

6.19 *codo* (elbow)

LOCATIVE NOTION

(on the road) corner, (sea and river) bight DDSM

LENGTH

length from the elbow to the tip of a middle finger (42 cm) DDSM

6.20 *mano* (hand) PERSON

tener una buena mano (have a good hand) OBJECT

llegar a manos de (be delivered to) SPACE

Tienes el éxito en tus manos (Your success is close at hand) TIME

tener mano para la administración (have ability of management) QUALITY

With examination of examples in each language, metaphorical transfer of each body part item is confirmed except with category of ACTIVITY (PROCESS).

Directionality

Due to the fact that hand is used to point out an entity, a property of hand serves as an allative marker to denote the direction in the example of *A mano izquiera ven ustedes el palacio* <at hand left see you the palace> (you can see the palace on your left hand-side) DDEM.

Movement of object

6.20.1 *llegar a manos de~* (hand over to~)

(6.20.1) is conceptualized by the property of hand making the first contact

with an item one receives.

Position / Distance
a la mano (close at hand) :
Lo tiene a la mano <it have at the hand> (keeps it at hand) DDEM
Likewise English, short distance within the reach is transferred to spatial distance.

Temporal domain
Order Earlier
hora yo soy mano <now I am hand> (the first move)
ganar a persona por la mano < gain at person for the hand> (have the first move) DDEM

A property of the hand which enable us to interact with objects makes contribution to the above examples regarding the first movement by making use of the hand in an event.

de primera mano <of first hand> (a brand-new article, direct, original) DDEM

By virtue of accessibility of hand which serves to interact with an entity in the external environment, *mano* is used to refer to a new item (e.g. *el coche de primera mano* <the car of first hand> (a brand–new car)), and information which have directly reached someone such as *información de primera mano* <information of first hand> (firsthand information) DDEM.

de segunda mano (second hand) DDEM

As *second hand* in English, the concept of (4.64) arises from the physical experience with reference to second hand item that a current proprietor has the item made use of by a former proprietor.

Future
Tienes el éxito en tus manos : have the success in your hands
(Your success is close at hand)
Ya practicamnte tenemos la victoria en nuestras manos.
<Already practically have the victory in our hands>
(We already have the victory in our hands) Wasei Jiten

An idiomatic expression in Japanese as to *seiko wo te niiretamo douzenda* referring to "making a success almost in your hands" corresponds to (4.65) which constitutes the conduit metaphor describing *hand* as a container where not concrete entity but abstract entity is held. In the case of holding a concrete entity in one's hand, concept of this expression would not transfer to temporal domain. For instance, even if one holds an orange in one's hand, it would be inadequate to say "your orange is close at hand". Abstractness motivates conceptual transfer in this regard.

caer a mano <fall at hand> (nearby) DDEM
Te llevo en coche, me cae a mano <you carry in car, me fall at hand> (I give you a ride, because it is close) DDEM
Moment of action
con las manos en la masa <with the hands in the mass> (in the moment of crime)
e.g. *El lardón, sorprendido con las manos en la masa* <the thief surprised with the hands in the mass> (the thief was found in the moment of a crime) DEA.

In accordance with the metonymy to refer the part to whole, *mano* is metonymically extended to denote a person. Put another way, a part of the body refers to the whole body on the basis of salience of hand to have an effect on objects in the daily life: *cambiar de manos* <change of hands> (the owner is changed) DDEM.

In a figurative language, a thing passed down by the hands is not only a tangible object, but also can be less a concrete or abstract concept such as a temporal event. Succession of a tradition like a festival is conceived of as an achievement by making use of the hands as in the example of *La fiesta ha llegado de mano en mano hasta nosotros.* < The festival has arrived of hand in hand until us> (the festival has been handed down to us from generation to generation).

6.21 *dedo* (finger)

LENGTH
Width of a finger (1.9cm)

En la bottella quedan dos dedos de vino DDSM
<In the bottle remain two fingers of wine> (Two fingers of wine remain in the bottle)

LOCATIVE NOTION
Estar a dos dedos de… <be at two fingers of…> (come near)
SDE (Shogakukan Diccionario Español)
Seu concorrente está a um dedo de distância
<Seu concorrente is at um finger of distance>
http://www.istoedinheiro.com.br/blogs-e-colunas/post/20140925/seu-concorrente-esta-dedo-distancia/4883.shtml

MOMENT
estar a dos dedos de… <be at two fingers of …> (be an within an ace of) DDSM
Estuvo a dos dedos de caerse del tren. <He was two fingers of fall oneself of the train>
(He was about to fall out from the train) DDSM

6.22 *uña* (nail)
RELAIONAL OBJECT PART
uña (pincers)　DDSM

SPEED
A uña de caballo <at nail of horse> ((ride on horseback) at full speed) DDSM

6.23 *palma* (palm)
RELATIONAL OBJECT PART
palma (palm: plant) DDSM
palma (fin: an underwater swimmer's flipper) DDSM
palma (the back of horseshoe)　DDSM

6.24 *puño* (fist)
LOCATIVE NOTION
Como un puno (small, narrow)
Una casa como un puño <a house like a fist> (small house)

DSEJ (Diccionario Shogakukan Español-Japones)

6.25 *vientre* (belly) / *barriga* (abdomen)

Spatial position

6.25.1 *Vientre de un buque* the side(s) of a ship

The position of the belly is conceptualized as being to the front in space by virtue of a man's sensory organs which are located in the front of the body. Specifically, this lexical concept refers not to the front but to the side of an object. As one might imagine, the shape of a ship is thinner toward the bow which is not equivalent to the flat bellies of many men, especially young ones. Spatial cognition of front-back is, thus, probably not to be applied to example 4.61, but spatial cognition, pointing out a peripheral part of a physical entity, can be applied.

6.26 *ombligo* (navel)

LOCATIVE NOTION

central part of something:

ombligo del mundo financier <navel of the world financial> (center of the financial world)

DDSM

el ombligo del mundo: the center of the universe;

se creen que Paris es el ombligo del mundo (They think that Paris is the center of the universe o that the universe revolves around Paris; OSD

6.27 *espalda* (back)

6.27.1 (a) *Me sente quendando espalda con espalda con el.*

<I sit back to back with him>

(b) *espalda con espalda homerun* <back to back homerun>

6.27.2 *caminaba con el sol a sus espaldas*

<He was walking with the sun behind him>

6.27.3 *a espaldas de* <hiding, place where nobody>

hablar a espaldas de alguien <talk about [sb] behind their back>

< She talks something behind his back>

6.27.4 *tiene muchos años de experiencia a sus espaldas*

<She has many years of experience behind her.>

6.27.1 (a) shows the proximity in space which is the same as English. Also, the usage of (b) is the same as English 'back to back' indicating that it is most definitely a loan translation from English in consideration of baseball having been born in America and introduced to Lain America later on with a fully developed set of baseball terminology.

6.27.2 is a typical example that is related to cross-linguistically observable universalness arising due to the property of back as a body part providing position and directionality.
6.27.3 is a more advanced case of 4.32 in terms of conceived situation. In 4.32, the position of the sun is still perceivable as representing the conceptualizer (the person walking) in spatial distance, while the position of the entity (she) is not recognizable from the position in space of the conceptualizer (he) in 6.27.3 as a result of the spatial extension of directionality.

This phenomena indicate not the extension of physical distance in space but the extension of spatial cognition. In reality, the distance between one walking a path and the sun is, that is the space between the earth and the sun is an astronomical number that human beings are not able to reach. In contrast, the distance between the she and he who are on the earth is physically shorter than one 6.27.2, albeit the distance is indeterminant consider the situation of the conceptualizer.

6.27.4 is based on the conceptual metaphor that future time is one's front and past time is to one's back. The lexical concept of *espalda* in this example is distinct from English in that 'behind' is collocated with experience and in Japanese *se* (meaning back) is not collocated with temporal relevant words.

6.28 *cintura* (waist)

On the basis of a form and position, *cintura* refers to a part of garment that is around or covering the waist, e.g. *la cintura del patalón.* <the waist of the pants> DEA.
In addition, *cintura* refers to a narrow part in the middle of something, such as a guitar: *cintura de una guitarra* (waist of a guitar) OSD.

6.29 *nalga* (buttock)

No data available.

6.30 *rasero* (buttock)

Originally, *trasero* refers to back and rear in space. However, spatial concepts of this item are transferred to denote a body part, buttocks in euphemism, as opposed to the metaphorical transfer of *back* in English which develops from the body part domain to the spatial domains.

6.31 *pierna* (leg) / *pie* (foot)

8.15 *estirar (extender) las piernas* <extend the legs> (stretch one's leg: walk) DDEM movement

As comparable expressions observed in Japanese and English, (8.15) is typical metaphorical transfer based on action of stretch one's leg leading to spatial movement.

pie

pie (body part) PERSON
pie de una mesa (foot of a table) OBJECT
ir a pie (on foot) SPACE
Tienes los pies rápidos (one runs fast) TIME / QUALITY

A property of legs serves as a transportation to move from here to there as in the examples of *hacer piernas* <do legs> (to have a walk) DDEM, and *por piernas* <for legs> (run, in a hurry) DDEM.

Spatial domain
Part of object
6.31.1 *pie de una mesa* (foot of a table)
(6.31.1) is a typical transfer deriving from the similarity in shape and is observed across other languages: *tsukue no ashi* (leg of a desk) in Japanese and *the leg of a table* in English.

Position 6.31.2 *al pie de la montaña* (foot of the mountain)
(6.31.2) refers to the bottom part of the mountain in correspondence with the position of foot in the upright position.

Spatial movement 6.31.3 *ir a pie* <go at foot> (go on foot)
With the usage of foot serving for spatial movement, commonality is observed across three languages.

6.31.4 *meter el pie* <put the foot> (set foot in) movement

Concept of (6.31.4) is comparable with an expression of *set foot in* with reference to property of foot serving as transportability.

6.31.5 *Mi pillas con un pie el estribo* <me catch with a foot the stirrup> (be about to leave)

I was just on my way out *o* about to leave OXS

Conceptual source of (8.5) is related to the picture of one riding on the horse with one's foot in the stirrup and just about to start moving.

6.31.6 *irse por pies* <go for feet> (run away quickly) DDEM

In comparison with idiom of *ir a pie* denoting go on foot, (6.31.6) refers to quick movement.

6.31.7 *no poner los pies en el suelo* (do not put the feet on the ground) hurry up

DDEM

It is imaginable that one's foot in motion would not touch on the ground. For more specific, the idea of (6.31.7) arise from the motor experience that technically, there should be the moment that sole of foot is in the air.

6.31.8 *poner (los) pies en polvorosa* (run away quickly) DDEM

to take to one's heels, make oneself scarce, hotfoot it OSD

6.31.9 *por pies* (run away quickly) hurry speed DDEM

6.31.10*por su pie* (unaided, without any help) OSD

6.31.11 *hacer piernas* to have a walk OSD

As a rule, these expressions(6.31.8~6.31.11) are derived from the property of the foot and the leg. Interestingly, our finding in this section is that plural's' representing a pair of limbs as feet and legs is in common with above expressions relates to spatial movement. From this fact, we suggest that our perception as to walk consisting of legs or feet is reflected upon linguistic conceptualization.

6.31.12 *al pie* (Colombia) very close, just around the corner

6.31.13 *volver pie atrás* (go back foot back)　turn back

Literally, (6.31.13) refers to the direction of the foot moving back the way one comes.

Temporal domain
Speed
6.31.14 *Tienes los pies rápidos* (has swift-footed)

Concept of 6.31.14 is in common with Japanese and English.
con un pie en el estribo <with an foot in the stirrup> right before going out OSD

6.32 *muslo* (thigh)　No data available

6.33 *pantorilla* (calf)　No data available

6.34 *rodilla* (knee) No data available

6.35 *espinilla* (shin)
Due to form, espinilla refers to leg guards (DDEM).

6.36 *tobillo* (ankle)　No data available

6.37 *talón* (heel)
RELATIONAL OBJECT PART
talon de compra <heel of purchase> (receipt, sales slip) OSD
(de un neumàtico) rim　(contour of tire)　OSD
apretar los talons <press the heels> (start running) DDSM
pisar los talones a + person <step the heels to + person> (follow someone) DDSM

El policía le iba pisando los talones.<The police him went stepped the heels> (The police followed him) DDSM

pisarle a alguien los talones　(to be hot on somebody's heels) OSD

6.38 *planta* (sole)

In Spanish, *planta* is a polysemous word to denote plant, plan and so on. As a part of the semantic network, it is used to refer to the undersurface of a person's foot: *planta del pie* <sole of the foot> (sole) OSD.

6.39 *puente* (arch)

Originally, *puente* refers to bridge, and is extended to the arch as the inner side of the foot on the basis of similarity in shape (DDEM). This is the case of metaphorical extension from the object to the body part terms.

6.40 *piel* (skin)

As to relational object part, *piel de toro* <skin of bull> refers to the Iberian Peninsula based on the resembling in form (DDEM).

In common with English and Spanish, piel is used to refer to not only the natural outer layer of a person's or animal's body part, but also fruit's body part: *quitar la piel de un melocotón* <remove the skin of a peach> (peel the skin of a peach)DDEM.

6. 41 Conclusions

We have not identified what can be regarded as the outstanding characteristics of Spanish on the basis of the data we have collected. What we have found is that the number of idiomatic expressions in Spanish is smaller than those of the two other languages. One might expect that English and Spanish which belong to the Indo-European language family will share similarity and commonality with each other in their metaphorical transfer rather than that with Japanese. However, in fact, similarity between English and Spanish is less apparent than similarity between English and Japanese in terms of the number of idioms classified by the same concepts in space and time.

In comparison with the three languages, we have observed that the body part terms in English, such as *knee, toe, heel*, exhibit temporal menaings, which can not be found in Japanese and Spanish.

Table 6.1 Idioms regarding Spatial Domains

○ English ● Japanese ◎ Spanish

		ROP	position	place	direction	distance	alteration	container	SM	OM
1	head/atama /cabeza	○●◎	○●◎		◎				○	
2	hair/ kami/pelo	○ ◎				○				
3	face/kao/cara	○●◎	○●◎							
4	eye/me/ojo	○●◎	○●◎		○●◎					
5	nose/hana/nariz	○●◎	◎		○●	○●			○ ◎	
6	mouth/kuchi/boca	○●◎	○●◎		◎	◎				
7	ear/mimi/oreja	○●◎								
8	tooth/ha/diente	○●◎								
9	tongue/shita/lengua	○●◎								
10	lip/kuchibiru/labio	○●◎								
11	cheek/hoho/mejilla	○				○				
12	jaw/ago/madíbula	○●◎								
13	chin	◎								
14	temple/komekami/sien	○								
15	neck/kubi/cuello	○●◎	◎		○					
16	chest/mune/pecho	○●◎	◎					○		
17	breast/chibusa	○	○						○	
18	shoulder/kata/hombro	○●◎	○●							●
19	arm/ude/brazo	○●◎	○ ◎		○					○
20	elbow/hiji/codo	○●	◎		○ ◎	○			○	
21	hand/te/mano	○●	○●		○●◎	○				○●◎
22	finger/yubi/dedo	○●	◎		●	○ ◎				
23	nail/tsume/uña	○●◎				○				
24	palm/tenohira/palma	○●◎				○				
25	wrist/tekubi/muñeca	○								
26	knuckle/	○								
27	fist/kobushi/puño	○●	◎							
28	abdomen/ / vientre		◎							
29	belly/hara/ barriga	○	○							
30	navel/heso/ombligo	○●◎	○●◎							
31	back/se/espalda	○	○●◎		○					○
32	waist/koshi/cintura	○●◎	●				○			
33	hip/ / trasero	○								
34	buttock/shiri	○●◎	●							
35	leg/ashi/pierna	○				○			○ ◎	
36	foot/ashi/pie	○●◎	○ ◎			○●◎			○●◎	
37	thigh/momo/muslo									
38	calf/fukurahagi/pantorrila									
39	knee/hiza/rodilla	○	●						●	
40	shin/sune/espinilla	◎							○	
41	ankle/kurubushi/tobillo								○	
42	toe/tsumasaki	○	○						○	
43	heel/kakato/ talón	○●◎							○ ◎	
44	sole/ashinoura/ planta	○ ◎	○							
45	arch/tsuchifumazu/ puente	○●◎								
46	skin/hada / piel	○●◎	◎							

Table 6.2 Idioms regarding Temporal Domains

		earliness	lateness	future	past	speed	continua	period	PT	prolong	waiting	time
1	head/atama /cabeza	●◎										
2	hair/ kami/pelo							○●◎				
3	face/kao/cara											
4	eye/me/ojo	●		●					◎			
5	nose/hana/nariz	○●										
6	mouth/kuchi/boca	●◎										
7	ear/mimi/oreja											
8	tooth/ha/diente											
9	tongue/shita/lengua											
10	lip/kuchibiru/labio											
11	cheek/hoho/mejilla											
12	jaw/ago/madíbula											
13	chin											
14	temple/komekami/sien											
15	neck/kubi/cuello											
16	chest/mune/pecho											
17	breast/chibusa											
18	shoulder/kata/hombro											
19	arm/ude/brazo											
20	elbow/hiji/codo											
21	hand/te/mano	○●◎		○●◎		●	○	●				
22	finger/yubi/dedo					○						
23	nail/tsume/uña				●	◎			○			
24	palm/tenohira/palma											
25	wrist/tekubi/muñeca											
26	knuckle/											
27	fist/kobushi/puño					○						
28	abdomen/ / vientre											
29	belly/hara/ barriga	●										●
30	navel/heso/ombligo											
31	back/se/espalda				○ ◎		○ ◎					
32	waist/koshi/cintura								●			
33	hip/ / trasero											
34	buttock/shiri		●									
35	leg/ashi/pierna					○				○		
36	foot/ashi/pie				○●	○●◎		○●		○		
37	thigh/momo/muslo											
38	calf/fukurahagi/pantorrila											
39	knee/hiza/rodilla	○										
40	shin/sune/espinilla											
41	ankle/kurubushi/tobillo											
42	toe/tsumasaki					○						
43	heel/kakato/ talón		○			○					○	
44	sole/ashinoura/ planta											
45	arch/tsuchifumazu/ puente											
46	skin/hada / piel							○				

Chapter 7: Analysis of Semantic Extensions of Internal Body Part Terms in English, Japanese, and Spanish

7.0 Introduction

Many idioms involving body parts make use of metaphorical transfers as proposed by Heine (1991), including OBJECT, PROCESS, SPACE, TIME, and QUALITY. Heine, however, does not deal with internal body part terms. Thus, we investigate the conditions of metaphorical change of internal body parts where spatial and temporal meanings are very rare, and also compare metaphorical extensions of internal body parts with those of external body parts where spatial and temporal meanings are widely observed.

7.1 Examples: Idioms Involving Emotions

Firstly, internal body part terms which are productive (i.e. have a large number of idioms) in the three languages are basically concerned with such parts as (a) the heart, (b) the stomach, (c) the gut and (d) the liver. Idioms regarding each part are listed as follows and will be discussed concerning each organ in that order.

(a) 1) *heart* : *a heart of gold* GEJD[4]
2) *kokoro (shinzo)* : *kokoro atata maru* (heart-warming) DA
3) *corazón* : *gran corazón* (generous heart) DSME

We have found that idioms involving *heart, kokoro, and corazón* express emotional feelings since the heart is considered as the organ that not only sends blood around one's body but also the one that controls one's emotion. As to *kokoro* in Japanese, we note that it mostly refers to one's emotions but not to the organ itself as *heart* or *corazón* does, and it is distinguished from *shinzo* which largely refers to the organ. Many body

terms, including *zou* (organ), are more likely to be used as technical terms and are productive of few idioms. This applies to other idioms such as *kimo* (liver) which exhibits more idioms and *kanzou* (liver specifically as an organ) which exhibits few idioms.

(b) 1) *stomach* : *sick to one's stomach* GEJD[4]
2) *hara* : *hara ga tatsu* < stomach is standing > (get angry) DA
3) *estómago* : *revolver el estómago a + person* < stir the stomach>
(get someone angry) DSME

The stomach is conceived of as a container where one's emotions become pent-up, and the effect of the emotions built up there can motivate a metaphorical transfer toward emotional meanings. Thus, regarding example (b) 2) *hara ga tatsu*, it literally means *stomach is standing*, and example (b) 3) *revolver el estómago* can be literally translated as to stir the stomach (emotion).

(c) 1) *gut* : *hate sb's gut* GEJD[4]
gut feeling / reaction / instinct CLD
2)-1 *harawata* : *harawata ga nie kaeru* < gut boils>
(It makes my blood boil to think of it.) PJED[3]
2)-2 *harawata no kusatta ningen* < rotten gut human>
(a person with a corrupt heart) PJED[3]
3) none: *intestino* (intestine), *barriga* (belly)
hombre m de corazón corrompido. (a person with a corrupt heart) DSME

Interestingly, *gut* can denote emotions and an instinct as in example (c) 1), whereas *harawata* solely exhibits emotional meanings without containing the sense that an instinct is involved.

Incidentally, idioms involving *harawata* are usually translated using other body parts in English (*blood* and *heart*) as examples (c) 2)-1 *harawata ga nie kaeru*, (c) 2)-2 *harawata no kusatta ningen* show. The commonality of example (c) 2)-1 *harawata ga nie kaeru* may be thought to be concerned with the human body functional system in that one's temperature goes up when one gets excited, which can be applied to ANGER IS HEAT as a conceptual metaphor (e.g. *heart is filled with anger.*) proposed by Lakoff (1987). In other

words, we have an idea that anger is generated from inside of the body with it heating up. However, different body parts are used from language to language. We observe *harawata* used in example (c) 2)-2 *harawata no kusatta ningen* as it relates to humanity in Japanese, but the same usage of *gut* is not applied in English and Spanish, which, instead, use *heart* and *corazón.*

In Spanish, there is no lexical item corresponding to *gut*. Example (c) 3) *hombre m de corazón corrompido* translated from the Japanese sentence makes use of *corazón* (heart) as English.

(d) 1) *liver : be chiken-livered, be lily-livered* GEJD[4]
2) *kimo (kanzou)* :
2)-1 *kimo ga chiisai* <liver is small> (be chiken-livered) PJED[3]
2)-2 *kimo ga suwatteru* (liver is steady> (he was nerves of steel.) PJED[3]
2)-3 *kimo ga futoi* <liver is thick> (have guts) PJED[3]
2)-4 *sensei no chukoku wo kimo ni meijita* <to take a teacher's warning to the liver> (I took my teacher's warning to heart.) PJED[3]
3) *hígado* :
3)-1 *tener hígado* (have guts) DSME
3)-2 *hasta los hígado* <until the liver> (extremely intensive) DSME
3)-3 *malos hígado* <ill liver> (ill-natured) DSME
3)-4 *ser un hígado* <to be a liver> (to be a pain in the neck) OSD[4]

According to example (d) 1) *be chiken-livered, be lily-livered*, idioms in English involving *liver* are restricted to meanings of cowardice while more extensions are observed in example (d) 2)-1 *kimo ga chiisai* with regard to *kimo*, being (d) 2)-1 *kimo ga chiisai* as cowardice, (d) 2)-2 *kimo ga suwatteru* as bravery, (d) 2)-3 *kimo ga futoi* as being bold, and (d) 2)-4 *sensei no chukoku wo kimo ni meijita* as to bear in mind. *Kanzo* as a synonym of *liver* mainly refers to the organ, and emotional expressions are not observed. In Spanish, there are some idioms involving *hígado* representing emotion.

7.2 Examples: Idioms Involving Spatial Concepts

As we mentioned earlier, many of the idioms making use of internal

body parts involve emotional meanings. Compared with external body parts many of which exhibit spatio-temporal transfers, semantic extensions of internal body parts are restricted within a narrower range where spatial and temporal meanings are very rare. With respect to the conditions of semantic extensions, forms and functions of internal organs are reflected in their spatial extensions. Thus, *artery* denotes an important route for traffic and *heart* denotes the center of something.

Here, we discuss internal body parts involving idioms which metaphorically transfer to spatial meanings in three languages. This will be illustrated by (e) *throat*, (f) *heart*, (g) *artery,* (h) *lung*, and (i) other parts.

(e) 1) *throat* : *the throat of a chimney / vase* GEJD[4]
2) *nodo*: (vital parts) DA
3) *garganta* : (gorge, ravine) DSME

Examples (e) 1) *the throat of a chimney* and (e) 3) *garganta* are typical idioms of metaphorical transfer deriving from the form of the throat whose shape is long and narrow. Example (e) 2) *nodo* is relevant to the function of the throat which is a vital spot as the passage inside one's neck.

(f) 1) *heart* : *Her office is in the heart of Tokyo.* (the center of something) GEJD[4]
2) *shinzo* : *toshi no shinzou bu* <the heart of city>
(the center of something) DA
3) *corazón*: *corazón de una ciudad* <heart of a city>
(the center of something) DSME

We observe similar lexical concepts where the location of the heart in the central part of the body and its crucial function in maintaining one's life give rise to semantic extensions as spatial position associated with the above examples (f) 1) *Her office is in the heart of Tokyo,* (f) 2) *toshi no shinzou bu*, (f) 3) *corazón de una ciudad.*

(g) 1) *artery* : (an important route for traffic) GEJD[4]
2) *domyaku* : (an important route for traffic) DA
3) *arteria* : (the city's main arteries) DSME

On the ground of the metaphorical transfer in examples (g) 1) *artery,* (g) 2) *domyaku,* (g) 3) *arteria,* common throughout three languages, the function of the *artery* as any of the tubes that carry blood from the heart to other parts of the body is compared to a route for traffic that moves from one direction to the other. Interestingly, *vein* whose function is the opposite of that of artery does not provide any idioms in this regard for some still-to-be-explained reason.

(h) 1) *lung* : (a park or vacant land where one can breathe in fresh air) GEJD[4]
2) *hai* : none
3) *pulmón*: (green belt, a place producing fresh air) DSME

Metaphorical transfer in examples h) arises from the function of lung used for breathing. As to Japanese, idioms involving *hai* are not found.

We present other idioms regarding spatial domains in English.

(i) 1) *diaphragm* : (partition) GEJD[4]
2) *backbone* : *The car industry remains the backbone of the area's economy.* (the main or strongest part of something) CLD
3) *gut* : *the very guts of his paper* (the main or strongest part of something) GEJD[4]
4) *intestine* : (inside, domestic) GEJD[4]
5) *appendix* : (appendices being separate parts at the end of a book, article, etc which contain extra information) CLD

As to example (i) 1) *diaphragm*, the form of the organ transfers to an object as a partition that divides something into two parts such as the *diaphragm* between the lungs and the stomach. With respect to example (i) 2) *The car industry remains the backbone of the area's economy*, *backbone* as a support for one's body is considered as a significant part which extends to a more abstract concept such as (i) 2) rather than a spatial concept. Also, example (i) 3) *the very guts of his paper* exhibits the same meaning as (i) 2) by virtue of *gut* as a crucial internal body parts. Except with the conditions of form and function for metaphorical mappings, as concerns example (i) 4) *intestine*, the position of this organ (*intestine*) inside of the body reflects a

spatial concept of this expressions. Regarding example (i) 5) *appendix*, organs attached to the intestine are compared to an object such as the appendix at the end of a book. In that sense, positioning of the organ is relevant to the formation of this usage.

7.3 Examples : Idioms Involving Body Parts

Finally, we treat idioms involving body part terms which refer to other body parts.

(j) 1) *kidney* : *have a chill in one's kidneys* (waist, the lower back) GEJD[4]
2) *garganta* : *garganta del pie* <throat of the foot> (ankle) DSME
3) *corazón* : *dedo corazón* <finger heart> (middle finger) DSME
4) *nodo* : 4)-1 *nodokubi*, <throat neck> (throat) DA
4)-2 *nodochinko* <throat penis> (uvula) DA

In the case of (j) 1) *have a chill in one's kidneys*, *kidney* refers to the waist (the lower back). As for (j) 2) *garganta del pie*, the slender shape of *garganta* (throat) is related to the ankle which is thinner toward the foot. Incidentally, the ankle is expressed in Japanese by making use of *ashikubi* (leg-neck) on the basis of its shape resembling the form of the neck. Concerning (j) 3) *dedo corazón*, the position of *corazón* (the heart) in the center of the body is connected with the position of the middle finger. Finally, with regard to (j) 4)-1 *nodokubi*, the expression *nodokubi* (throat neck) referring to the front part of the neck in Japanese. Moreover, there is another idiom involving *nodo,* which is (j) 4)-2 *nodo chinko* (uvula) used in everyday language which conceptualizes the shape of the uvula as a flaccid penis.

7.4 The Number of Idioms

With respect to body part terms which do not provide metaphorical transfer, technical terms such as *gallbladder* or *pancreas* are less likely to be extended into other domains, perhaps due to the relative infrequency of their usage, whereas such common words as *gut* or *stomach* tend to have more extensions.

As can be seen in Table 1, not all internal body part terms have

idioms, and terms having idioms are limited. Regarding the number of idioms, English has the largest number of idioms with internal body part terms, as well as with external body part terms, as compared with either Japanese or Spanish.

Table 7.1

The number of idiomatic expressions involving internal body parts

I / idiom E / emotion S / space

	English	I	E	S	Spanish	I	E	S	Japanese	I	E	S
1	throat	16	4	1	garganta	1	1	1	nodo	3	1	1
2	stomach/belly	15	5	0	estómago	12	6	0	hara (i)	24 (1)	25	0
3	lung	3	0	1	pulmón	1	0	1	hai	0	0	0
4	heart	88	50	1	corazón	28	26	1	kokoro (shinzou)	118 (3)	118	1
5	diaphragm	1	0	1	diafragma	0	0	0	oukakumaku	0	0	0
6	liver	12	2	0	hígado	4	3	0	kimo (kanzou)	14(0)	12	0
7	pancreas	0	0	0	páncreas	0	0	0	suizou	0	0	0
8	kidney	11	0	0	riñón	0	0	0	zinzou	0	0	0
9	gallbladder	0	0	0	vesícula	0	0	0	tannou	0	0	0
10	rib	5	3	0	costilla	1	0	0	rokkotsu	0	0	0
11	backbone	3	0	1	columna	0	0	0	sebone	0	0	0
12	gut	17	5	1	intestino	0	0	0	harawata (naizou)	5	5	0
13	artery	1	0	1	arteria	1	0	1	domyaku	5	0	1
14	vein	1	0	0	vena	4	3	0	jyomyaku	5	0	0
14	trachea	0	0	0	tráquea	0	0	0	kikan	0	0	0
15	intestine	1	0	1	intestino	0	0	0	cyo	0	0	0
16	appendix	2	0	1	apéndice	0	0	0	cyusui	0	0	0
17	bladder	9	0	0	vejiga	0	0	0	boko	0	0	0
18	blood	75	13	0	sangre	37	20	0	chi	20	12	0
19	brain	27	1	0	cerebro	3	1	0	no	2	0	0
20	bone	33	2	0	hueso	19	1	0	hone	23	2	0
	total number	320	85	9		111	61	4		223	175	3

GEJD4 DSME DA

Table 7.2
The number of idiomatic expressions involving external body parts

	Engish		Spanish		Japanese	
1	hand	178	mano	118	te	133
2	head	178	cabeza	74	atama	33
3	eye	121	ojo	85	me	161
4	back	121	espalda	25	se(senaka)	6
5	foot	90	pie	73	ashi	48
6	face	86	cara	39	kao	33
7	nose	63	nariz	28	hana	28
8	leg	62	pierna	5	ashi	
9	ear	60	oreja	20	mimi	57
10	finger	60	dedo	22	yubi	11
11	tooth	45	diente	26	ha	21
12	heel	36	talón	2	kakato	0
13	tongue	36	lengua	35	shita	19
14	neck	34	cuello	9	kubi	29
15	arm	28	brazo	14	ude	15
16	shoulder	28	hombre	15	kata	19
17	mouth	27	boca	54	kuchi	105
18	lip	27	labio	6	kuchibiru	7
19	toe	19			tsumasaki	1
20	chin	13	mandibula	0	ago	9
21	elbow	11	codo	19	hiji	5
22	palm	7	palma	4	tenohira	0
23	cheek	6	carrillo	1	hoho	0
total number		1336		674		740

GEJD4 DSME DA

7.6 Conclusions

In sum, body part terms used in everyday language tend to extend to other domains, whereas technical terms with less frequency of their usage tend not to do so. Compared with idioms concerning external body part terms, the overall number of idioms concerning internal body parts is smaller by virtue of invisible locations of internal body parts from the outside world and the giving of less prominence to the perception in terms of bodily based experience.

As to semantic extension of spatio-temporal domains concerning internal body part terms, there are some idioms which contain spatial

domains based on the conditions of body parts' form, function, and position. However, idioms providing temporal concepts are not confirmed for internal body part terms. We assume that external body parts (e.g. *foot*, *ashi*, and *pie*) have certain functions which have an effect on the movement one might experience in space, and would, therefore, contain certain conditions of movability, directionality and position, which motivate semantic extensions into not only spatial domains but also into temporal domains. On the other hand, internal body parts are less likely to be concerned with functions of that type since they are located on inside of one's body.

Chapter 8: Analysis of Semantic Extensions of Non-Human Body Part Terms of Animals and Plants in English, Japanese, and Spanish

8. 0 Introduction

This chapter investigates into the metaphorical extensions of body part terms in particular of animals and plants based on their contrastive analysis of English, Spanish and Japanese. In general, polysemous body part terms are crosslinguistically observed. In fact, a majority of terms develop into other domains to a greater or lesser degree, inter alia, relational object parts evolving from similarity in shape such as *a leg of the table* as a typical instance. Following the zoomorphic model of semantic development of the early work of Heine (1997) and Svorou (1994), we have surveyed in depth conceptual transfer from body parts to the spatial domain.

The combination of spatial and temporal domains is viewed as a pair of relative concepts in cognitive linguistics. Namely, temporal concepts constitute spatial concepts on the basis of the fact that movement of a concrete object can be representative of the passage of time. Similarly, physical experience in the external world is relevant to the conceptualization in languages of what may be called bodily based experientialism in cognitive semantics. However, the studies of temporal domains with regard to body part items have not somehow drawn much scholarly attention in this respect, and this topic does not seem to have been explicitly argued so far. The purpose of this paper is to exemplify conceptual transfer from body parts to temporal domains as well as spatial domains and to examine the primary motivation which might have given rise to such metaphorical extensions.

We have found that there are limitations to conceptual transfer from body part terms as a source domain to temporal concepts as a target domain. As Heine proposes, the unidirectionality of transfer proceeds from concrete to less concrete concepts, or less abstract to more abstract concepts. Alternatively, in the process of semantic transfer, the more abstract lexical concepts are, the strong the restrictions on semantic extensions become.

8.1 Previous Studies

Svorou(1994) states that 'adpositions, affixes, case inflections, and even spatial adverbs form part of the grammars of natural languages. I will refer to all these grammatical forms of languages which express primarily spatial relations as spatial grams.' (p.31) She categorizes nouns as the most common part of speech to become spatial grams in four major classes with respect to their meanings.

Svorou states that 'Body-part referring to the same part of the body may evolve to become spatial grams of different types'.

Head (FRONT-REGION, TOP-REGION)
Back (BACK-REGION, TOP-REGION)
Buttocks, anus (BACK-REGION, BOTTOM-REGION)

Note that the TOP-REGION term 'back' is generally derived from the back of a four-legged animal.

In this reserch, we propose the 'Botanical Model', which corresponds to the configuration of the plant body parts in addition to the anthropomorphic model, which corresponds to the configuration of human body parts, and the zoomorphic model, which corresponds to the configuration of a four-legged animal body.

8.2 The Botanical Model

Body-parts	Spatial grams
trunk, tronco, miki	CENTER-REGION
stem,	ORIGIN-REGION
branch, rama, eda	DIVERGENCE-REGION
leaf, hoja	RELATIONAL OBJECT PART
root, raíz, ne	SOURCE-REGION, BASE-REGION
seed, semilla, tane	ORIGIN-REGION

Body-parts	Temporal grams
tronco	EMERGENCE
stem	EMERGENCE
root, raíz	EMERGENCE
flower, flor, hana	THE BEST PERIOD
seed, semilla	ORIGIN

As a matter of fact, the zoomorphic model that Heine and Svorou propose does not deal with the semantic development of those body parts particularly observed in animals, but argues for the development of spatial grams on the basis of an animal model in the horizontal axis. Here again, the major distinction between their studies and this is that the latter exhaustively explores metaphorical extensions with respect to temporal domains evolving from body part terms concerning animals and plants.

Svorou (1994:76) mentions that the relative location of the body parts to express particular spatial relations is framed by an orientation field provided by our vertical and horizontal eye movement and depth focusing, as well as our personal kinesthetic space. Each spatial gram is distinguished as follows:

Upper front region from head to chest
Upper back region from neck to loins
Top region from head to shoulders
Bottom region from hips to the feet

Svorou states that spatial contiguity constitutes polysemy and derivation of body-part terms as lexical items. E. Anderson (1978) attributes polysemy and derivational relations to two principles: a) structural similarity and b) spatial contiguity.

a) the Hebrew *etzbaot* "finger, toe"
b) the Tarascan *nari* "eye, face"
the Russian *ruka* "arm, hand"

Incidentally, the same pattern of the evolution is observed also in Japanese.

a) the Japanese *yubi* "finger, toe"
b) the Japanese *te* "arm, hand"

8.3 Methodology

Hereby, we suggest our own conceptual metaphors of temporal domains which account for the process of semantic developments with respect to idioms involving each body part item.

TIME FLIES (wing)
TIME IS BACKWARD-ORIENTED (tail, crest)
TIME IS EMERGENCE (egg, trunk, root, seed, stem)
TIME IS STATUS (flower)

Note that the TIME FLIES we are proposing here is distinct from the proverb "Time flies". The former denotes that a temporal concept arises from a spatial concept with the functional property of wings which lets birds fly over the sky, and the latter figuratively tells that time goes by quickly like a flying object.

8.3.1 The Zoomorphic Model

On the basis of the zoomorphic model proposed by Heine, we present below the temporal domain concerning animal body parts in addition to the spatial domain: The body parts in the back region is extended to later in time, such as *tail* referring to the end of something in the temporal domain.

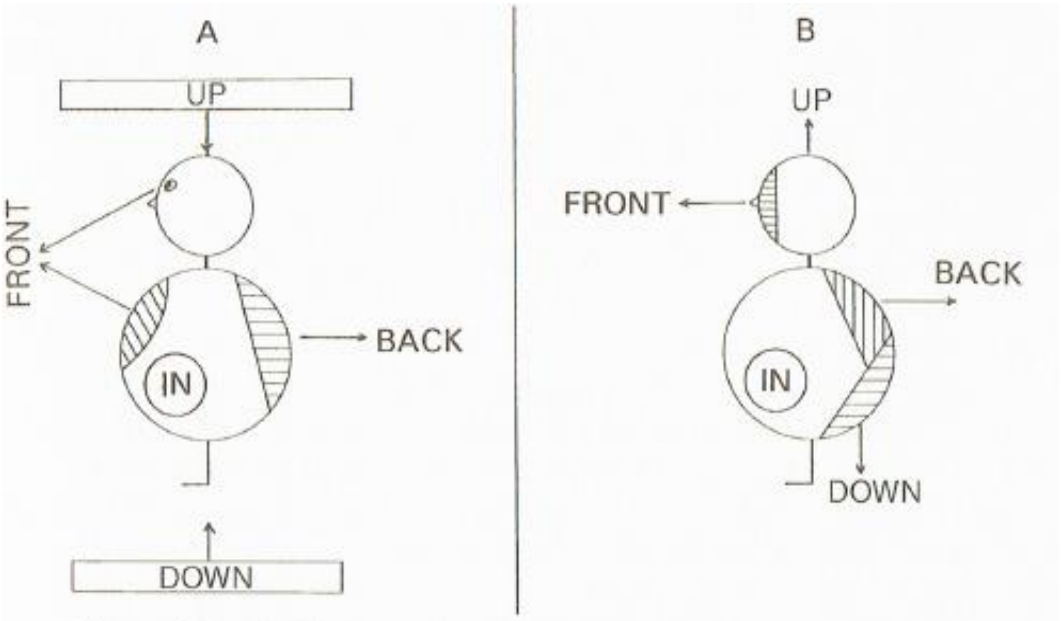


Figure 3-6 (A) The Bantu Model and (B) the Western Nilotic Model.

(Heine 1997:49)

8.4 Analysis of Data: Animals' Body Part Terms

As for human body parts, Negi (2014) shows that the foot and the hand are primary body parts, whose functional property is transportability, serving as the motivation for metaphorical transfer into space and time. Similar body parts exhibiting transportability with regard to animal body parts would correspond to the wings, the two flat parts of a bird's body made use of in flying. Let us consider semantic transfer with this item.

English

8.4.1 *wing*

(8.4.1.1) *The wings of the nose* ODE

Relational object parts :

(8.4.1.1) is a typical example of conceptual transfer referring to a body part as a relational object part. As we stated in the preceding section, metaphorical transfer based on resemblance of form is widely observed in a large number of body part terms. In this case, not only the shape but also the location of the wings at the sides of the trunk is mapped into the body parts

located on the sides of the nose.

(4.1.2) *the wing*

e.g. *watch the performance from the wing* ODE

Locative notion:

(8.4.1.2) refers to a locative notion as the offstage located at the sides of the main stage and which is out of the sight of the audience. The spatial notion emerging out of the *wing* from a bird's body in a horizontal axis can be held responsible for the spatial concept of this idiom describing a space horizontally adjacent to the stage.

(8.4.1.3) *find one's wings* (fly on one's own, be independent) ODE

e.g. *a bird finds one's wings*

The source domain of (8.4.1.3) refers to finding the existence of the wings in literal language being metonymically extended to the target domain by making use in figurative language of the property of wings enabling birds to fly. Incidentally, there is a similar expression concerning foot (find one's foot(ing) <to be able to walk with confidence>).

(8.4.1.4) *wing an arrow at the mark* (shoot an arrow at the mark) ODE

(8.4.1.4) refers to movement of an object (arrow) based on the property of the wing in comparison with (8.4.1.3) providing spatial movement of a subject (bird).

(8.4.1.5) *take to itself wings* (disappear) ODE

As in (4.1.5), transportability of the wings serves as a conceptual source for movement related to the action of one's disappearance.

(8.4.1.6) *on the wing* (in flight)

e.g. *The birds are on the wing.* SJED

(8.4.1.6) is used to refer to the bird in flight on the basis of the property of wings causing movement.

(8.4.1.7) *A sudden fear winged my steps* (A sudden fear made my steps fast) NEJD

Spatial movement with the salient concept of temporal speed developing from (8.4.1.7) is confirmed. In the transition of semantic transfer,

it is not clear to assert that the usage of *wing* in (8.4.1g) shows temporal concepts but it does contain property of time.

(8.4.1.8) *on the wings of the wind* (quickly move)
e.g. *He fled on the wings of the wind* SJED

(8.4.1.8) is a personified expression stating that the wind has the wings. The picture of entities blown away by the wind is metaphorically extended to the usage of the quick movement of the objects.

As has been seen in the semantic development of examples (8.4.1.1)~(8.4.1.8), in the first stage, a concrete concept as a relational object part as in (8.4.1.1) is transferred to a less concrete concept referring to a locative notion as in (8.4.1.2). In the next transition, it moves into the concept of spatial orientation with reference to movement of entities as appear in (8.4.1.3)~(8.4.1.6). Furthermore, in the last process, the transfer of lexical concepts as in (8.4.1.7) and (8.4.1.8) is extended to spatial movement with temporal property which is conceived of as a more abstract concept than previous examples in (8.4.1.3)~(8.4.1.6). In accordance with the metaphorical chain proposed by Heine, gradualness of conceptual transfer from concrete concepts to abstract ones is observed in the examples involving *wing*.

Spanish
8.4.2 *ala* (wing) DDSM
(8.4.2.1) *ala* (brim) object

(8.4.2.1) is an example of a relational object part developing from convexity in shape: parts protruding from a certain object such as brim, the flat edge around the bottom of a hat that sticks out, resemble the wings.

(8.4.2.2) *ala* (the wing of the nose)
e.g *ahuecar el ala* <hollow out the wing> (to beat it) OSD

As we illustrated in the case of (8.4.1.7) and (4.1.8), (8.4.2.2) is derived from the transportability of wing serving as a driving force for one's quick movement.

(8.4.2.3) *volar con sus propias alas* <fly with one's own wing> (become independent of) OSD

In a similar way to (8.4.1.3), an expression as *flying with one's own wing* is metaphorically transferred to "becoming independent of".

Japanese

8.4.3 *tsubasa* (wing)

(8.4.3.1) *ichiyoku* <one wing> (one bird, one's role, one's post) NKD

(8.4.3.1) is a synecdoche mentioning a part of the whole such as the wing to refer to a bird in a prototypical sense.

(8.4.3.2) *jiyoku* <ear wing> (pinna of the ear) NKD

(8.4.3.2) is an example of a body part of one creature referring to the body part of another, in this case to the external part of the ear in humans and other mammals on the basis of similarity in shape.

(8.4.3.3) *koyoku* <flutter wing> (flutter one's wings) NKD

(4.3.3) refers to one's movement with wings

(8.4.3.4) *uyoku* (left wing), *sayoku* (right wing) NKD

objects part position

(8.4.3.4) is a case commonly used across three languages in terms of the development of semantic extension. The left (or right) wing originally referring to parts of a bird or airplane is extended to the meaning of the position of the left (or right) side of a team on the field in soccer, rugby, and field hockey. Moreover, it is widely acknowledged that these words came to refer to the conservative or reactionary section of a political system as opposed to its more liberal and innovative side due to the seating habits of the members of the National Assembly in France (1789-91), where the nobles sat to the president's right and the commons to the left (ODE). In an analysis of semantic transfer, it proceeds from concrete objects as body parts to the position of players in space, or players themselves. Similarly, in its use as a political term, spatial position is extended to refer to people with the certain ideology.

English

8.4.4 *tail*

(8.4.4.1) *tail* (buttocks) ODE

(8.4.4.2) *the tail of the eyes* (the corner of the eye) ODE
relational object parts

The slender shape of the tail extending downward or outward is related to the tail of the eyes where the small line of a wrinkle resembling the shape of a tail can be observed.

(8.4.4.3) *the tail of a plane* (the rear part of an aeroplane, with the tailplane and rudder) ODE

Positionality of the tail located on hindmost part of animals gives rise to the conceptual transfer to the rear part of an airplane.

(8.4.4.4) *at the tail of the procession* NEJD position

Spatial orientation of the tail develops into the persons (objects) at the end of the line.

(8.4.4.5) *tail* (a person secretly following another to observe their movement)
e.g. *A strange man tailed us* ODE

The location of a tail on the backside serves as a landmark for the one chasing another. This lexical item is verbalized to refer to the spatial movement of an experiencer.

(8.4.4.6) *turn tail* (beat a hasty retreat) ODE

In the case of one eluding someone or something, one turns around to run away from that situation, thus running in the position one's tail formerly was with the position of the tail being at one's rear.

(8.4.4.7) *the tail end of* (last part of something)
e.g. *the tail end of the eighties* CLD
position (LATER IS BACK)

(8.4.4.7) is made by referring to not only a concrete object such as *the tail end of a queue*, but also an abstract concept involving temporal event, *the tail end of the turn*. The rear in space is conceptualized as being later in time.

Spanish

8.4.5 *cola* (tail)

(8.4.5.1) *cola* (line)

e.g. *Había muchas personas en la cola* <there many persons in the line> (Many people are in the line) DDEM

Conceptual transfer of (cola) is derived from the relational part object represented by the linear shape of a tail.

(8.4.5.2) *cola* (end of something) spatiotemporal

(a) *ponerse en la cola* <put oneself in the tail> (line up at the end of a line) DDEM

(b) *estar en la cola de la clase* <be in the tail of the class> (<one's grade>be at the tail end of one's class) DDEM

(c) *venire en cola* <come in tail> <come lastly> DDEM

As was mentioned in section (8.4.4.6), the metaphorical mapping of (8.4.5.2) proceeds from a concept which is more (8.4.5.2a) or less (8.4.5.2) concrete to an abstract concept in (8.4.5.2c) which denotes a temporal concept in accordance with the conceptual metaphor of LATER IS BACK.

Japanese

8.4.6 *o / shippo* (tail)

(8.4.6.1) *o* (foot of a mountain)

e.g. *Yama no o yori yama no ue ni noboru hito ar*i

<mountain of tail from mountain of top for climb people are>

(There are people climbing from the foot of a mountain to the top) NKD

Specifically, (8.4.6.1) refers to the foot of a mountain gently extending outward. The line of a mountain ridge and the linear shape of a tail overlap on a horizontal axis.

(8.4.6.2) *o* or *bi* (end of something)

(a) *hon no matsubi* (the end of a book) NKD

(b) *jyugyou no matsubi* (end of the class) NKD

As the same pattern of semantic transfer with reference to the usage of tail in temporal domain is observed as in previous sections, one can say that space to the rear is conceptualized as later, this being something in common

among the three languages being examined.

English

8.4.7 *horn*

(8.4.7.1) *horn* (peak of a mountain) ODE

(8.4.7.1) is a typical transfer developping from the resemblance in form between the horn and a sheer peak as the name of the Matterhorn is considered to be derived from that of a precipice.

(8.4.7.2) *around the horn* (double play) NEJD

The example (8.4.7.2) is a baseball term used to refer to a situation, especially a double play, where the third baseman throws the ball to the second baseman, who then throws to the first baseman. In short, the movement of the ball drawing the two sides of a triangle via the second base gives the picture of an angle roughly associated with the shape of a horn.

Spanish

8.4.8 *cuerno* (horn)

(8.4.8.1) *cuernos de la Luna* (both sides of the moon) DDEM

As lexical concept of (4.8.1) is relevant to the shape of the crescent moon, the image schema of *cuerno* being thus associated with the outer extremity of an object.

Japanese

8.4.9 *tsuno* (horn)

No examples related to the spatiotempral domain have been confirmed.

fang/tusk

English **8.4.10 fang*/tusk*:** No example has been found

Spanish **8.4.11 *colmillo* (fang)**: No example has been found

Japanese **8.4.12 *kiba* (fang)**: No example has been found

English

8.4.13 *fin*

(8.4.13.1) *fin* (s small flattened projecting surface or attachment on an aircraft, rocket, or a car, for providing aerodynamic stability) ODE

(4.13.1) is derived from the relational part object having similarity in flattened shape.

(4.13.2) *fin* (swim under water by means of flippers) movement ODE

The function of the fin used for propelling, steering, and balancing evolves into the spatial domain as movement of an object.

Spanish

8.4.14 *aleta* (fin)

(8.4.14.1) *aleta* (the wings of the nose) DDEM

The similarity of shape between the fin and both sides of the nose is associated, respectively.

Japanerse

8.4.15 *hire* (fin)

The side region emerging from the fin protruding from both sides of the trunk serves as a spatial source for conceptual transfer to denote the great width of a fat body, or the obese. NKD

English

8.4.16 *gill*

gill (the vertical plates arranged radially on the underside of mushrooms and many toadstools.) ODE

Spanish

8.4.17 *agalla / branquia* (gill) No example has been found

Japanese

8.4.18 *era* (gill)

era bone (maxillary bone) NKD

The face of a fish can be compared to some people who have a prominent maxillary bone sticking out of their cheek.

English

8.4.19 *scale*

Something resembling a fish scale in appearance or function, in particular a thick dry flake of skin, a rudimentary leaf, feather, or bract, and

the like. ODE

Spanish **8.4.20 *escama* (scale)** No example has been found
Japanese **8.4.21 *uroko* (scale)** No example has been found

English
8.4.22 *web* ODE

The origin of the word, web, referring to the membrane between the toes of a swimming bird or other aquatic animal is derived from a network of fine threads constructed by a spider.

Spanish **8.4.23 *membrana* (web)** none
Japanese **8.4.24 *mizukaki* (web)** none

English
8.4.25 *crest*
(8.4.25.1) *crest* (the top of a mountain or hill) ODE
e.g. *She reached the crest of the hill* Spatial domain
e.g. *at the crest of the sales boom* Temporal domain

The transition from the spatial to temporal domains of the above examples is accounted for by the assumption that the upper region arising from the position of the crest is transferred to a temporal concept with positive meanings in accordance with the conceptual metaphor of MORE IS UP as proposed by Lakoff (1980).

Spanish
8.4.26 *cresta* (crest)
(8.4.26.1) *cresta* (ridge)
(8.4.26.2) *seguir la cresta* (follow the ridge)

A notched line of a crest is reflected on that of a mountain ridge.

Japanese
8.4.27 *tosaka* (crest)
(8.4.27.1) *tosaka nori* <crest seaweed> (Meristotheca papulosa) NKD
The example in (8.4.27.1) is named so due to it having a similar color and serrated shape to that of the crest of a chicken.

English

8.4.28 *beak / bill*

The Slender and flattened shape of the bill is transferred to not only the relational part of the object denoting the peak of a cap and the like but also to locative notion representing a narrow promontory such as Portland Bill. ODE

Spanish

8.4.29 *pico* (bill)

(8.4.29.1) *pico* (mouth) *¡y tú cierra el pico!* (and you can shut up!) OSD

Pico may be metonymically extended to refer to other body parts, in this case the mouth which corresponds to the bill of a bird.

(8.4.29.2) *pico* (spout) *pico del botijo* (spout of the kettle) OSD

The similar horny projecting shape is seen reflected on an inanimate object.

(8.4.29.3) *pico* (steep, vertical)
e.g. *el acantilado caía a pico* <the cliff fell a bill>
(the cliff fell steeply or sharply away) DDEM

The directionality of the bill turning downward gives rise to a spatial concept describing a landscape on a vertical axis.

Japanese

8.4.30 *kuchibashi* (bill)

(4.30.1)*kuchibashi ga kiiroi* <bill is yellow> (young and immature) NKD

This is derived from the fact that bill color of a baby bird is often yellow.

English

8.4.31 *hump*

(8.4.31.1) *hump* (a rounded raised mass of earth or land) ODE
(8.4.31.2) hillock, mound
e.g. *fly over the hump from France to Spain* NEJD

The shape of a hillock or mound is relational part object which overlaps the hump as a body part.

(8.4.31.3) *Get a hump on* (hurry up) GE
(8.4.31.3) *Hump it* (travel around) GE

Spanish
8.4.32 *giba, joroba, chichon* (hump)
examples none

Japanese
8.4.33 *kobu* (hump)
kobu (knot) Relational part object is derived from a similar shape. NKD

English
8.4.34 *shell*
(8.4.34.1) *shell* (something resembling or linked to a shell because of its shape or its function as an outer case:) ODE
(8.4.34.2) *shell* (the auris externa) ODE
(8.4.34.3) *shell* (the walls of an unfinished or gutted building or other structure:)
e.g. *The hotel was a shell, the roof having collapsed completely*. ODE

Spanish
8.4.35 *concha* (shell)
(8.4.35.1) *concha* (cove) locative notion DDEM
Shell is related to shape in describing a curving landscape in example (8.4.35.1)

Japanese
8.4.36 *kara* (shell)
It is metaphorically transferred to the outer wall protecting or partitioning off oneself.

English
8.4.37 *egg*
(8.4.37.1) *egg* (a thing resembling a bird's egg in shape: Chocolate eggs, number zero.) ODE
(8.4.37.2) *In the egg* (in the early stages) temporal relation

e.g. *The rebellion was crushed in the egg.* NEJD

The temporal concept of an example (4.38.2) develops from the emergence of an egg in the early stage of one's life.

Spanish

8.4.38 *huevo* (egg)

(8.4.38.1) *huevo* (testicle) relational part object OSD
(8.4.38.2) *pisar huevo* <step egg> (slowly move on) DDEM
(8.4.38.3) *tocarse los huevos* <touch the eggs> (idle away) DDEM

Japanese

8.4.39 *tamago* (egg)

(8.4.39.1) *tamago* (at the beginning of something) temporal relation. NKD

As I mentioned in the section on egg, the appearance of the egg coming into existence at the moment of birth is relevant to the temporal concept mentioned earlier.

8.5. Analysis of Data: Plants' Body Part Terms

English

8.5.1 *trunk*

(8.5.1.1) (a) *Trunk* (the main part of an artery, nerve, or other anatomical structure from which smaller branches arise) ODE
(b) The trunk of the Amazon GE
(c) The nerve trunk GE

(8.5.1.2) *trunk line* (telephone line between two cities) NEJD

The slender shape of the trunk as a part of a tree extends to linear objects connecting one place to another.

(8.5.1.3) *live out of a trunk* (travel around)
e.g. *I've been living out of a trunk* NEJD spatial movement

The concept of example (5.1.3) arises from the idea that, on a trip, one sustains oneself with what one finds in one's suitcase. It is from this that the idea of moving around from place to place develops.

Spanish

8.5.2 *tronco* (trunk)

(8.5.2.1) *tronco ascendiente* <trunk ancestor> (ancestor) DDEM

In figurative language, the family founder is seen as a trunk, while branches growing out from the trunk or other branches represents the founders descendants in chronological order.

Japanese

8.5.3 *miki* (trunk)

(8.5.3.1) *miki* (main part of something) NKD

(8.5.3.2) *keikaku no miki* <trunk of a plan> (main part of a project) NKD

The lexical concept is that the central part of a tangible entity may be used to refer to the main part of a project.

English

8.5.4 *branch*

(8.5.4.1) *branch* (a lateral extension or subdivision extending from the main part of a river, road, or railway.)
e.g. *branch office* ODE

(8.5.4.2) branch off (diverge from the main route or part:) spatial movement
e.g *The road branched off at the market.* ODE

(8.5.4.3) *branch out* (extend or expand one's activities or interest in a new direction:)
e.g. *The company is branching out into Europe.* ODE

An expression of *branch off* serves as a spatial concept to encode one's movement from the main route to a side road, comparably diverging from the trunk to the branch, whereas the example of *branch out* metaphorically extends to one's direction as an abstract concept.

Spanish

8.5.5 *rama* (branch)

(a) rama (a branch family or a sect) OSD
(b) rama de la familia (a branch of the family) OSD

(c)rama de la raza semítica (a branch of the Semitic race) OSD
Actualmente la electrónica es la rama más importante de la física
(Actually, electronics is the most important field of the physics.) DDEM

The lexical concept of the branch diverging from the trunk gives rise to entities subdivided from the main parts as in the above examples.

Japanese
8.5.6 *eda* (branch)
(8.5.6.1) *eda* (diverging from the main parts)
e.g. *four legs of animals* NKD

(8.5.6.2) *eda* (descendent) NKD
The property of *eda* (branch), extending from the trunk to all the directions in space is transferred to a person descending from a particular ancestor.

English
8.5.7 *leaf*
(8.5.7.1) *leaf* (a thing that resembles a leaf in being flat and thin)
a single thickness of paper, especially in a book with each side forming a page.
e.g. There stood my 'sister", and a small box containing a single *leaf* of paper. ODE

Spanish
8.5.8 *hoja* (leaf)
(8.5.8.1) *hoja* (a piece of paper)
e.g. *Pon tu nombre en esta hoja de papel.* <Put your name in this leaf of paper> (Write your name on this form) DDEM

Japanese
8.5.9 *ha* (leaf) No example has been found

English

8.5.10 *root*

(8.5.10.1) *root* (the basic cause, source, or origin of something) ODE

(8.5.10.2) *roots* (family, ethnic, or cultural origins)

e.g. It's always nice to return to my roots. ODE

(8.5.10.2) is related to the temporal concept that the origin of something is earlier in time in terms of the order of emergence.

Spanish

8.5.11 *raíz* (root)

(8.5.11.1) *raíz* (origin, ancestor)

e.g. *tienes sus raíces en la Alta Edad Media*

(It has its roots in or it dates back to the Early Middle Ages) OSD

The same lexical concept with (5.10.2) is applied to *raíz* in the temporal domain.

Japanese

8.5.12 *ne* (root) (the basic cause, source or origin of something) NKD

e.g. *ne mo ha mo nai uwasa* <a rumor without any leaf or root> (a groundless rumor) NKD

In the case of (*ne mo ha mo nai uwasa*), a conceptual transfer of *ne* (root) is conceived of as source or origin.

English

8.5.13 *flower*

flower (prime)

e.g. *In the flower of one's age [life]* GE

Flowering as an optimum stage of development of plants is metaphorically mapped onto the height of prosperity or a golden age in the temporal domain.

Spanish

8.5.14 *flor* (flower)

(8.5.14.1) *Flor* (shower head) a relational part object OSD

(8.5.14.2) *flor* (one's heyday)

Estar en la flor de la juventud (to be in the flower of one's youth) OSD

Japanese

8.5.15 *hana* (flower)

(8.5.15.1) *hana* (golden age)　NKD

e.g. *Toki no hana wo kazasu kokoro bahenia*　(In the flower of one's age with a flower in season fastened in the hair)　*Eiga monogatari* (1028-around92)

In a way similar to the conceptual transfer of *flower* and *flor*, a concept of *hana* referring to a golden age is compared to the beauty of plants in full blossom.

English

8.5.16 *seed*

(8.5.16.1) *seed* (cause (something) to begin to develop or grow)

e.g. *His interest in public service wais seeded when he was a child*　ODE

(8.5.16.2) *seed* (descendent)

e.g. *the seed of Abraham*　GE

Spanish

8.5.17 *semilla* (seed)

(8.5.17.1) *semilla* (cause)

e.g. *semilla de la revoluciÓn* (seed of the revolution) DDEM

Japanese

8.5.18 *tane* (seed)

(8.5.18.1) *tane* (descendent) NKD

(8.5.18.2) *tane* (cause of something or origin)

e.g. *nayami no tane* <seed of worry> (a source of worries) NKD

Across the three languages, the commonality of the usage of *seed* in semantic development can be attributed to the original lexical concept that seeds are a tangible entity and that the development of which results in birth.

English

8.5.19 *stem*

(8.5.19.1) *stem*: relational part object (a long, thin supportive or main section of something)

e.g. *The main stem of the wing feathers* ODE

(8.5.19.2) *stem from* (originate in or be caused by)

e.g. *Many of the universities' problems stem from rapid expansion.* ODE

(8.5.19.3) *stem* (family stock)

e.g. *to be descended from an ancient stem* ODE

Spanish

8.5.20 *tallo* (stem) none

Japanese

8.5.21 *kuki* (stem)

(8.5.21.1) *kuki* (a thing that resembles a stem being so styled.)

e.g. *inkei* (penis) NKD

Table 8.1 illustrates the semantic transfer extending to spatial and temporal domains in each body part term in three languages:
○English ●Spanish ◎Japanese

Tanble 8.1

	body parts	spatial domains			temporal domains			
	animals	object	position	movemnet	speed	later	early	state
1	wing	○●◎		○●◎	○			
2	tail	○●◎	○●◎	○		○●◎		
3	horn	○●		○				
4	fang	○						
5	fin	○●◎		○				
6	gill	○◎						
7	scale	○						
8	web	○						
9	crest	○●◎	○					○
10	beak	○●						◎
11	hamp	○◎		○				
12	shell	○●◎						
13	egg	○●◎					○●◎	
	plants							
14	trunk	○●◎		○			●	
15	branch	○●◎		○		○●◎		
16	leaf	○●						
17	root	○●◎					○●◎	
18	flower	○●◎						○●◎
19	seed	○◎				○◎	◎	
20	stem	○◎					○	

Table 8.2 illustrates the number of idioms involving body part terms each languages.

Table 8.2

The nuumber of idiomatic expressions involving body part terms						
	English		Spanish		Japanese	
	animal body parts					
1	wing	41	ala	10	tsubasa (yoku)	1 ・ 33
2	tail	35	cola/ rabo	7・3	o (shippo)	12・ 5
3	horn	16	cuerno	14	tsuno	8
4	fang/tusk	1・2	colmillo	2	kiba	4
5	fin	4	aleta	0	hire	1
6	gill	10	agalla/ branquia	0	era	1
7	scale	7	escama	0	uroko	1
8	web		membrana	0	mizukaki	1
9	crest/ comb	2・3	cresta	3	tosaka	1
10	beak / bill	0 2	pico	16	kuchibashi	4
11	hamp	9	excrecencia	0	kobu	2
12	shell	26	concha	3	kai	1
13	egg	41	huevo	19	tamago	7
	plant body parts					
14	trunk	11	tronco	1	miki	0
15	branch	9	rama	3	eda	10
16	leaf	33	hoja	1	ha	3
17	root	38	raíz /cepa	4・2	ne	20
18	flower	15	flor	14	hana	43
19	seed	27	semilla	0	tane	13
20	stem	5	tallo	0	kuki	0

8.6 Conclusions

Differences and commonalities are observed in animals' body part terms which exhibit metaphorical transfer to spatiotemporal domains based on motivations that are applicable to human body part terms. Transportability evolving out of the property of the foot, serves as a conceptual template for semantic transfer to a temporal concept in the sense of speed is found to be something in common among the three languages we have dealt with in this research. However, the wing of a bird which functionaly corresponds to the foot of an animal, does not exhibit temporal meanings in either Japanese (*tsubasa*) or Spanish (*cola*), whereas the

English *wing* has a temporal meaning. This fact shows that motivation commonly observable in human body part terms does not always guarantee the same with regard to non-human body part terms. However, the tail commonly exhibits the temporal meaning of lateness in all three languages, such as the *tail end of a story*.

Our findings show that the motivation particularly observed with animals and plants are <emergence>, as in the case of *root, trunk*, *branch* and *egg*. In the case of animal body parts, basically the body of a human is already formed with each body part observable from birth, and the order of appearance of each part is not perceptible from the outside since it develops in the uterus of mother. On the other hand, the appearance of each body part of plants can be perceived according to stages of growth which proceed from the root to the trunk (the stem), or the branch to the leaf. This appearance order, being exposed to the outer world, gives rise to the motivation of <emergence> to develop into temporal concepts such as <earliness> and <lateness>. Moreover, we have observed motivation of <status quo> which can be only applied to the flower that is metaphorically mapped into the temporal meaning of the golden age due to its being the best condition of the body part. However, this motivation is observable solely in the case of the flower. Overall, the motivations observed in the plant body part terms are classified into different categories whereby temporal concepts arise from the appearance order and the condition irrespective of motivations observed in human and animal body part terms which develop from spatial concepts including position, direction and movement.

9. Conclusions

9.0 Introduction

We have investigated the polysemy of body part terms, in particular with the spatial domain and the temporal domain, where the former is considered to include concrete concepts we can perceive with the five senses, and the latter is considered to include abstract concepts we cannot perceive in a similar fashion. In accordance with METAPHORICAL CHAIN proposed by Heine (1991), we basically adopt the unidirectionality of semantic transfer from the spatial domain to the temporal domain. To put it another way, it proceeds from the more concrete concept to less concrete concept, or less abstract concept to less abstract concept. In our research, unidirectionality from space (concrete concept) to time (abstract concept) is evident from the chronological order of the data in the dictionaries (OED, NKD) showing that the first appearance of spatial expression is earlier than that of temporal expression in the case of some of the examples (e.g. *back*, etc).

9.1 Conclusions and Contributions

In accordance with the data, we have found most body part terms among the three languages exhibit extended meanings of spatial concepts such as relative object parts (*foot of a mountain,*etc), on the basis of resemblance in shape between body part and object. This fact allows us to understand that body part terms which we are deeply familiar with are efficiently employed to express a part of the objects around us instead of using unfamiliar terms. On the contrary, transfers to temporal concepts are quite limited in terms of the number of examples found to date. The more abstract a meaning is, the smaller the number of expressions is. In this sense, spatial expressions are unmarked while temporal expressions are marked. Among the three languages, a larger number of temporal expressions is found in Japanese.

We will not go over all body part terms we have dealt with. Instead, we will reiterate typical examples to explain the relationship between the properties of body parts and the motivations leading to semantic extensions.

The major contributions of this study lie in having examined what mechanisms are working behind metaphorical transfer and in having clarified what types of motivations contribute to semantic extensions from the body part domain to the spatiotemporal domains. We have proposed the following motivations: (a) transportability, (b) accessibility, (c) directionality, (d) positionality, (e) form, (f) emergence, and (g) status-quo. On the basis of the conceptual metaphor of TIME PASSING IS MOTION advocated by Lakoff (1993), the motivations (a)~(e) form a group and are relevant to spatial concepts involving movement, distance and duration, while (f) develops out of the chronological order of body parts coming into existence, and, as for (g), the physical condition of body parts is metaphorically extended to a certain period of time. Incidentally, (f) and (g) are solely observed with the body parts of plants.

For more detail, typical body part terms applied to (a) are *foot (leg), ashi (ashi), and pie (pierna)* in common with the three languages where both spatial and temporal meanings are observed. An inherent property of *foot* is that it serves to move around in space, something which gives rise to a spatial concept of movement such as *go on foot, soko e iku ashi ga nai* <there is no foot to go there> (no transportation is available to reach there), and *ir a pie* (go on foot). Also, it is acknowledged that movement from point A to point B is related to velocity, and this temporal concept is used to express speed as in the examples of *swift-footed, haya ashi,* and *los pies rapidos*, respectively. With respect to body parts of animals, the wing can correspond to the foot in terms of transportability. However, metaphorical mapping into temporal domain is observed with only *wing* in English.

As for (b) accessibility, an inherent property of the hand serves to interact with tangible objects in the external environment. With action to reach the hand, distance between the hand and the object is metaphorically mapped into not only spatial concept but also the temporal, as in *at hand* referring to *he is close at hand* (spatial proximity), and *the exam is close at hand* (near future).

Concerning (c) directionality, most of the sensory organs including eye, nose, mouth, and ear are concentrated on one side or other of the face, and

we tend to move forward the way the face and the head turns. In English, directionality of *head* is extended to refer to spatial movement, such as *head at* (e.g. *Where are you heading at?*). By virtue of the language particularity of English whereby a noun can be verbalized, expressions of movement involving body part terms in English are larger in number than is the case of either Japanese and Spanish.

Conceived directedness emerging out of body parts develops into distance between body parts and object. For instance, the eye, (each of a pair of globular organs of sight in the head of humans and vertebrate animals,) spatially projects line of sight whose directionality refers to the location of the object close to the conceptualizer as in the examples: *a building before one's eye, me no mae no tatemono, un edificio ante de los ojos.* In this case in which the subject is a tangible object, the extended meanings of *eye* are restricted to a spatial concept. However, in Japanese, the meaning of *eye* is metonimically extended to a temporal concept by making use of a temporal event as a subject, such as we find with *shiken wa mokuzen da* <exam is before one's eyes> (the exam is close at hand). Unlike the two other languages, Japanese has a tendency to extend their meanings to temporal domains. Interestingly, different body part terms are used to express an event coming up in the near future between Japanese (eye) and English (hand), but the basic idea deriving from the proximity of the object (temporal event) and the body parts is linguistically conceptualized in a similar way.

Another pattern of metaphorical transfer emerging out of directionality is applied to *nose* whose protruding shape gives rise to directionality in the frontal direction, and the following expressions are used to denote the close distance between an object and the conceptualizer as in *under one's nose, en sus narices* (in one's nose).

As we mentioned in the preceding chapters 4, 5 and 6, directionality is observed in the property of *mouth* which serves as a conceptual template of the gate where entities (food and drink) come in and out. For this reason, this term is used as a locative marker to denote the source domain of a place, as in *mouth of a river, boca de un río,* and *kakou*. Moreover, on the basis of the property of the starting point, it is extended to temporal meaning at an early stage as in the examples of *boca de noche, yoino kuchi* <mouth of night> (early in the evening). Passage of entity is metaphorically mapped into passage of time.

With regard to (d) positionality, the location of the head in the upper end of the body serves as a locative marker and is extended to the spatial concept that denotes the tip of an object and the condition of being ahead of something, such as *head of a golf club* and *march at the head,* respectively. Furthermore, in Japanese the head as the anterior portion of the body parts on the basis of the zoomorphic model is metaphorically mapped into the temporal concept that denote earliness: *rai getsu no atama* <head of the next month> (beginning of the next month). The conceptual metaphor of EARLIER IS FRONT is applied to this expression. Incidentally, *ahead*, being derived from *head*, has polysemy to express not only spatial meanings of further forward in space (e.g. *the road ahead* ODE) but also temporal meanings of further forward in time, and in the near future (e.g. *we have to plan ahead.* ODE, and *the brilliant future is ahead of her*). Likewise, in Spanish *cabeza* (head) provides the spatial concepts of the endpoint of an object such as *cabeza de un alfiler* (head of a pin), and being at the top of (*cabeza de un desfile* (head of a march)).

Crest at the head of animals develops into the temporal domain to refer to the the peak of something (e.g. *be at the crest of popularity* RANDOM HOUSE). Whereas the head and the crest are commonly located at the top region of the body, the referent of temporal domain differentiates between them. The former refers to earliness in Japanese (e.g. *atama kara* <from head> (from the beginning)), while the latter refers to a certain period in English. On the basis of the conceptual metaphor of MORE IS UP (proposed by Lakoff (1980)) which suggests that the upper part is linguistically conceptualized to be superior to the lower part, *head* also signifies the superiority of social status (e.g. *at the head of the class* NEJ). However, in this sense, it is not extended to temporal meaning as one finds with *crest*.

The position of the back in the rear part of the body makes a great contribution to a wide range of semantic transfer to spatiotemporal domains where it is extended to the space right next to the body (e.g. *the back of the mouth* NEJ), and in the next stage it is extended to the space detached from the body, such as *a yard at the back of a house* (NEJ). Furthermore, the spatial concept "in the behind" is mapped into the temporal domain in the past (e.g. *The USA declared her independence back in 1776* NEJ) on the basis of the conceptual metaphor of EARLIER IS BACK proposed by Lakoff. Another development of temporal concept involving *back* is to refer to lapse

of time by making use of a series of temporal events collocated with *back,* such as *back-to-back meeting*. In this case, metaphorical mapping to time arises from not concrete entities next to each other but abstract concepts as a consecutive event. Interestingly, this linguistic phenomena regarding temporal domain has not been observed in the expressions involving the combination of other body part terms as in *nose to nose battle, face-to-face meeting,* and *heart-to-heart talk.* The meanings of body part terms in these expressions are not extended to temporal domain but retain the meaning of body parts as a physical entity or function of the body parts, while *back* is figuratively extended to an abstract concept to refer to a temporal event.

Next, let us take a look at the case in Japanese. *Se* (back) is used to refer to a relational object part the same as in English as with *isu no se* (back of a chair). Also, *se/hai* is collocated with *go* (behind) and is transferred to spatial concept to denote the behind: *tatenomo no haigo* <building of back behind> (behind the building). However, with respect to *se*, transfer to temporal meaning in the past is not observed as with the English *back*. The difference of usage between *back* and *se* is salient in terms of transfer to the temporal domain concerning the expressions of *back to back* and *senaka awase* (back to back). While *back-to-back* is collocated with a temporal event as we mentioned, *senaka awase* is used to refer to relative spatial position between two objects such as *senaka awase no ie* <back-to-back houses> (houses right next to each other) instead of being extended to the temporal domain by making use of a temporal event. Incidentally, *back-to-back meeting* can be best translated as *renzoku no kaigi* (consecutive meetings) in Japanese without the use of *se* (back).

As for *espalda* (back) in Spanish, a typical transfer to object part is observed as in the expression of *espalda de una silla* (back of a chair), and is extended to a spatial concept representing the behind such as *espalda de un edificio* <back of a building> (behind the building). In addition, an expression of *volver la eslapda* <return the back> (escape) denotes spatial movement on the basis of the position of the back. Other semantic extension involving *espalda* is accounted for by the case of *espalda con espalda* which denotes spatial position of two entities aligned, such as *sentados espalda con espalda* (sitting back-to-back). For more detail, we have observed *espalda con espalda homerun* used as an item of baseball terminology referring to continuation of events, and can be construed as time passing. However, we assume that this

metaphorical extension is unlikely to have developed naturally in Spanish language environment, but must have been a loan translation from English due to the fact that baseball was introduced from America into Latin-America.

In accordance with the zoomorphic model, *buttocks* refers to the bottom region in the larger number of languages Heine has investigated. However, he does not mention the temporal domain involving *buttocks* in his work published to date. Our findings with respect to this body part is that metaphorical transfer to the temporal concept of lateness involves Japanese *shiri* (buttocks) (e.g. *don ketsu* <very bottom> (tail end)) , whose position at the posterior portion of the horizontal axis serves as a conceptual template to denote being later in time on the basis of conceptual metaphor, LATER IS BACK. In a motion event whereby a moving entity such as an animal goes in one direction, certain body parts such as the head or the nose pass any given point earlier than the rest of the body parts (e.g. there is the case of the horse race, where a winner can be judged as having won by a nose when reaching the finish line first is something close). In support of this logic, the buttocks located in the rear part are associated with a motion event in terms of passing any given point later than the head or the nose. As we have already mentioned, Japanese language has a tendency of metaphorical extension to develop into the temporal domain as in the case with *shiri*, whereas *buttocks* in English and *trasero* in Spanish are not transferred to the temporal domain but are restricted to a spatial domain referring to the bottom or the rear region in space.

The body parts of animals corresponding to the back or the buttocks can be tail which exhibits a transfer from the body part domain to the spatiotemporal domain, a feature held in common among the three languages. Motivation of the semantic extension involving tail is due to the same mechanisms as positionality working on *shiri*, something already described. The posterior portion of this body part is reflected in the spatial domain of the end point or the back part of an entity, which is extended to the temporal domain of lateness, in examples such as *tail end of a story, o wo hiku* <drag tail> (an event continues later), and *venire en col0a* <come in tail>(come last).

With respect to the motivation of (e) form, the typical example is hair, the extreme thinness of hairbreadth consisting of the fine thread-like

strands being transferred to the temporal domain to denote a few seconds in the example *escape by a hairbreadth, kan ippatsu* <interval one hair>, and the example *por los pelos* <for the hairs>, respectively.

With the exception of egg which is an animal body part (or its early stage), the motivation of (f) emergence is mainly observed in plant body parts. The process of coming into existence is related to temporal concepts concerning earlier and later in time. For instance, eggs appear at the moment of conception or birth of a living organism, and are figuratively extended to earliness in cases such as *in the egg* (in an early stage), and *taifu no tamago* <egg of a typhoon> (a tropical depression which tends to develop into typhoon). In a similar way, roots, which appear in an early stage of plant development are relevant to temporal domain of that which is earlier in time. Thus, we see *root* (origin of something), *ne* <root> (source or origin of something), and *raíz* (origin, ancestor). On the other hand, the appearance of the late stage of plant development is transferred to lateness in the case of the body part of branch. We, therefore, have branch (a lateral extension or subdivision extending from the main part of a river, or railway), *eda* <branch> (descendent), and *rama* <branch> (a branch family or a sect).

The motivation of (g) status-quo is ad hoc and is applied to only flower / bloom as a particular body part of plants. The beauty of a flower that typically consists of a brightly coloured corolloa and a green calyx is metaphorically mapped into being in or upon reaching an optimum stage of development. Thus, there is *in full flower* (a golden age) ODE, *be in the bloom of youth* GE, *hana zakari* <flower flourish> (be in full bloom) NJE, and *en la flor de la edad* <in the flower of the age> (in the flower of one's age) GE.

In order to conduct the research effectively, we have classified body parts into three categories: external body parts, internal body parts, and non-human body parts (animals and plants). As a matter of course, the majority of the data has been obtained from external body part terms where expressions involving external items widely exhibit metaphorical extensions to spatial and temporal domains. As we stated earlier, the properties of those external parts such as foot, hand, and eye enable us to move around in the space and serve to interact with tangible objects in the outside world on the basis of the physical experience we have related to them in our life. Spatial concepts emerge out of the distance between a conceptualizer and an object, and movement to reach the object is relevant to speed in time by virtue of the

fact that distance we have moved is an amount of time. This is the mechanism to account for the close relationship between space and time. That is, salience of the external body parts is perceptible and is likely to be linguistically conceptualized. Note that some body parts appearing to be internal parts, such as teeth and tongue are included in external ones since those parts are perceivable from the outside and can be used to interact with other entities.

As to the internal body part terms, the number of idiomatic expressions are quite smaller than those of the external body part terms. In reference to the data we have collected, internal items exhibit a large majority of expressions concerning emotional meanings rather than spatiotemporal meanings. In folk theory (conceived situations), emotions are still conceived of as products from inside the center of the body even though science has proved that emotions are generated from the brain. Interestingly, few emotional expressions involving the brain have been observed in the three languages. Concerning spatiotemporal domains of internal items, there are few expressions extended to spatial meanings such as the heart representing the center of something due to its position of the center region, and arteries representing traffic routes based on their long and narrow shapes. However, metaphorical transfer to temporal meanings is restricted within space by virtue of the inherent properties of internal body parts so that the internal locations give less salience to our perception as opposed to the external ones.

With respect to the non-human body parts, we have found that there is a difference in semantic development between human body part terms and animal body part terms, as may be seen with regard to such typical terms as *foot* and *wing*, which possess the property of <transportability>, motivating transfer from spatial to temporal concepts in accordance with spatial movement related to velocity in the temporal domain. To be more specific, spatiotemporal extensions involving *foot, pie, ashi* are cross-linguistically observed in a rich pool of examples. However, no temporal extensions involving *ala* (wing) in Spanish and *tsubasa* (wing) in Japanese have been confirmed, while in English *wing* provides extensions in both domains. Although <transportability> plays a significant role as a motivation for semantic transfer in human body part terms, it is not observed in the case of animal body part terms in any of the three languages. Another finding is that metaphorical extension containing both spatial and temporal domains is

cross-linguistically observed in expressions involving *tail, cola, o (shippo)* that originally refer to body parts in the back region. In this case, the location of the tail at the back region of the body serves as a conceptual source for semantic shift, not only with space (e.g. *the tail of a plane* GEJ) but also <later time>.

The major distinction in semantic development between body part terms of animals (including humans) and those of plants is the property of <emergence> that is observed in such parts as *tronco* (trunk), *root, seed,* that are used to refer to ancestors on the basis of the chronological order of their appearance in development which makes them earlier than *leaf* and *branch.*

Owing to the fact that plants are basically in a stationary condition and unlike animals that freely move around in space, they do not have the property of transportability that faciilitate metaphorical extension regarding animal body part terms. That is, the number of expressions involving spatial movement is extremely small. Overall, there is a small number of idioms involving body part terms of animals and plants in comparison with those of humans. In particular, the number of expressions extending to the temporal domain is severely limited.

9.2 Problems and Prospects for Further Research

One of the major problems of this research is the paucity of the data in Spanish compared with the other two languages. Both monolingual and bilingual dictionaries are used to obtain data for each language, with the *OED* (2nd edition) being published in 20 volumes, and *Nihon Kokugo Daijiten* (2nd edition) being published in 13 volumes. On the other hand, the data we have obtained from those Spanish dictionaries which we were able to refer to (*Oxford Spanish Dictionary* and *Diccionario del Español Actual*) are quite limited in terms of quantity and quality as no earliest years of appearance for the idioms recorded are available. We have, thus, been unable to confirm the year of the first appearance of examples listed in the dictionary, which would have been supporting evidence for the semantic development of each term in a diachronic study.

Secondly, we would have liked to make use of linguistic corpora which could have been an efficient way to collect a large amount of data to back up our research. We are well aware that discerning readers will surely agree

with us that we should have conducted the research at least in part with the use of corpus tools, but representing a different academic field and due to time constraints have so far been unable to accomplish.

Thirdly, we have not used informants who could have given us practical information with regard to the usage of terms from the viewpoint of native speakers, something which was impractical in our case. Instead of doing so, we have relied solely on the data given in dictionaries on the assumption that the general level of accuracy will be enough to justify conclusions as to established usage.

For our future study, we would like to make use of the methodologies we have not used at this time, including the use of corpora and native speaker informants, so as to improve the quality of our research. In addition, other languages should be investigated to obtain more data and observe linguistic universals and differences.

9.3 Concluding Remarks

This is a cognitive linguistic study to investigate the semantic extensions of the body part terms to the spatial and the temporal domains, and clarify that the specific motivations working behind these linguistic phenomena are derived from the properties of each body part. Our findings show that physical experiences involving body parts are mapped into metaphorical expressions based on spatial concepts generating movement, distance, and position arising from body parts, and those spatial concepts are associated with temporal concepts in consideration of the fact that moving space is time passing.

Classifying body parts into three categories, being external, internal, and non-human, we haved examined the characteristics of body parts in each category showing that a relatively larger number of idioms transferred to spatiotemporal domains are observed in external body part terms. With reference to internal body part terms, a large number of idioms regarding emotion and disposition are observable while idioms extending to spatiotemporal domains are infrequent. As for non-human body part terms, animal body part terms exhibit commonalities and differences of transfer pattern in comparison with those of humans. Those of plants possess particular motivations which are hardly found in other categories.

Through analysis of the data, we observe that each language shows its own defining characteristics. English is a human-focused language, a do-language type which involves a comparatively large number of cases of subjective movement in spatial concepts. Japanese is a situation-focused language, a become-language which involves a comparatively large number of cases of temporal concepts. Spanish, however, has fewer cases of either spatial or temporal concepts.

What we have presented in this research as a cross-linguistic study which is hoped will prove to be applicable to the study of other languages. As we are standing on other researchers' shoulders, it is hoped that this study will make a certain contribution to their research, too.

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