This paper is dedicated to Donald Arthur Norman, professor emeritus

at the University of California, San Diego and Northwestern University

on the occasion of his 80th birthday (December 25, 2015)

The *head/shoulder/flank/foot* of a mountain: The metaphorical projection of human bodies to objects

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ABSTRACT

As Lehrer (1974: 135) writes: "It is not surprising to find that languages have semantic extensions similar to those in English", body-part terms are metaphorically used in languages around the world. Looking at some expressions using body-part nouns, it should be noted that there are almost the same meanings among some languages. For example, it is known that there are expressions relatively common in English and Japanese such as 'the *head* of a nail/page/screw/bed', 'the *face* of a wall/building/house/card/coin/document/mat', 'the *eye* of a needle/typhoon/rope', and 'the *mouth* of a pitcher/bottle/cave/pit/harbor/bay/well/cannon/trumpet'. Observing these examples, it is found that they include a specific body-part term such as the head, face, eye, and mouth on the basis of individual partial similarities between body parts and object parts. On the other hand, it can be noticed that there is another type of metaphorical expression which is an extension of the entire Figure of a human being with several body-part terms to one whole object. For instance, expressions such as 'the *leg*/*arm*/*back* of a chair', 'the *mouth*/*neck*/*ear*/*trunk* of a pot', 'the *mouth*/*trunk*/*bottom* of a bowl', 'the *head*/*neck*/*belly*/*waist*/*body* of a guitar', and 'the *head*/*shoulder*/*flank*/*foot* of a mountain' are included in this type. Concerning this type of metaphor, that such object-part terms are derived from the projection of the whole body to the entire object as a prior condition of mapping is discussed. This paper investigates how this type of the extension of the full Figure of the human being is projected to the entire shape of an object in terms of our cognition. This type of projection is made in our daily lives and seen in natural surroundings, religious rituals, and basic needs such as food, clothing, and shelter. The observations are based on the cognitive linguistic view that we conceptualize our experiences in figurative ways, and that the principles underlie the way we think, reason, and imagine. The ultimate purpose of this paper is to explore our conceptualization.

0. Introduction

Looking over metaphorical expressions around us, we notice that there are a large number of inanimate objects with body-part terms in English such as 'the *head* of a nail', 'the *face* of a card', 'the *eye* of a needle', 'the *nose* of a vehicle', 'the *mouth* of a well', and 'a vessel with two *ear*s'.

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Interestingly, also in Japanese these examples can be translated into 'kugi no *atama*' (literally, nail's *head*), 'torampu no *omote*' (card's *face*), 'hari no *me*' (needle's *eye*), 'kuruma no *hana*' (car's *nose*), 'ido no *kuchi*' (well's *mouth*), and 'sō-*ji* no tsubo' (two *ear*s amphora), respectively. The postpositional particle 'no' in Japanese indicates the genitive case and used in the form of [noun + 'no']. Here, 'no' is used as the possessive particle in the first five examples and as the modifying particle which turns any noun into to a modifier in the last one. It is no wonder that there are similar expressions used the same body parts between English and Japanese from the viewpoint of cognition. In fact, 'the *head* of a nail' can be translated into 'la *tête* d'un clou' (lit., the *head* of a nail) in French, 'dīng-*tou*' (nail *head*) in Chinese, and 'kugi no *atama*' in Japanese. 'The *foot* of a mountain' can be translated into 'le *pied* d'une montagne' (the *foot* of a mountain) in French, 'shān-*jiǎo*' (mountain-*foot*) in Chinese, and 'san-*soku*' (mountain-*foot*) in Japanese. 'The sur*face* of a wall' can be rendered into 'sur*face* d'un *mur*' (the sur*face* of a wall) in French, 'tīng-qiáng-*miàn*' (wall sur*face*) in Chinese, and 'heki-*men*' (wall sur*face*) in Japanese (Okimoto 2009a). As to the semantic similarity between English and French metaphors, Lehrer (1974: 135) points out that '*tête* d'une lit' corresponds to '*head* of a bed' and that '*leg* of a table' to '*jambe* d'une table' in spite of the fact that the words '*tête*' and '*jambe*' are not etymological cognates of the English translations. Our organic nature influences our experience of the world, and this experience is reflected in the language we use. Body-part terms are metaphorically used in various ways in languages with the reflection of human behavior. Considering Lehrer (1974), it seems that our conceptualization of the outer world often provides motivation to make similar extension of body-part nouns to object-part nouns in different languages and different cultures (Okimoto 2009a).

Matsumoto (1999) insists that this sort of extension will be made in terms of the similarities of location, shape (and/or size), and function between body parts and object parts without each part-whole relation. This paper treats another type of extension. It is the extension of the entire Figure of a human being and the body-part terms to the whole form of an object and the object-part terms as seen in the example of 'the *head*/*shoulder*/*flank*/*foot* of a mountain'. I will regard 'the *head*/*shoulder*/*flank*/*foot* of a mountain' metaphor as the typical instance of this and view this type of extension as our cognitive strategy for understanding of the outer world.

1. Extended meanings of the human body to objects

Extended meaning of human body-part terms has been studied on the basis of similarities between body parts and object parts. I will mainly discuss examples of English and Japanese languages in this paper, although I will show some examples from other languages. Well-known examples of body-part terms extended to parts of inanimate objects are seen in the examples of *face* in 'the *face* of a clock', *mouth* in 'the *mouth* of a river', *eye* in 'the *eye* of a potato', and the like. These kinds of projected body parts in general are restricted in number to one or two for an object because the mapping is based on partial observation (e.g., Ullmann 1962; Levinson 1994; Allan 1995). This is the type of the extension of a single body-part term to a single object-part term based on similarities of parts regardless of part-whole relation, that is to say, without any relation to imagery of the entire body. In short, it is a mapping on the basis of individual partial similarity between our bodies and objects.[1]

In this paper I assert that there is another type. It is that the whole body be extended to the entire shape of an object in the first stage and then the body-parts be introduced on the basis of part-whole relation and extended to the object parts in the second stage. As to the whole body

projection to the entire shape of an object, there are examples seen in the nicknames of the Eiffel Tower in France, the Cathedral of Málaga in Spain, a single white birch tree in Odashiro-ga-hara (Odashiro-field) in Japan, and so on. The Eiffel Tower is nicknamed 'La dame de fer' in French which means 'Iron Lady'. The Cathedral of Málaga is called 'La Manquita' in Spanish meaning 'The One-Armed Lady'. The sole big white birch grown in Oku-Nikkō Marshland is called 'Odashiro-ga-hara no Kifujin' in Japanese which means 'The Odashiro-ga-hara Lady' because of its beauty.

Concerning 'the *head*/*shoulder*/*flank*/*foot* of a mountain' type, the application of this type of metaphor to land and society has been employed since Inca times in the Andes. For instance, Mount Kaata can be regarded as a human body in Bolivia. The summit of the mountain is seen as the head, the central slopes as the chest and shoulders, and the two rivers branching from below the central slopes are seen as the crotch and legs (Bastien 1978). There are a number of mountains viewed as human beings in Japan. For example, 'Nantai-san' (Mount Nantai) means 'mail-body mountain', 'Tsukuba-san' (Mount Tsukuba) has two peaks, 'Nyotai-san' (female-body-mountain) and 'Nantai-san' (male-body-mountain), and 'Iwate-san' (Mount Iwate) is known as a male god in 'Iwate-san densetsu' (the legend of Mount Iwate). In the story, 'Iwate-san' is said to have tried to break up with his wife 'Himekami-san' (Mount Himekami), female deity, because of his new love for 'Hayachine-san' (Mount Hayachine), beautiful female deity (Hirano 1976: 77-78). This sort of legend originated from ancient mountain worship and seen in various districts of Japan.[2] A similar legend is seen in Europe. Mount Eiger, Mönch, and Jungfrau are excellent views, popular with tourists in the Alps of Switzerland. Contrary to the beautiful scenery, the name of Eiger comes from 'Oger' in German. The German names of Mount Eiger (the ogre), Mönch (the monk), and Jungfrau (the maiden) are said to have originated from an old story. According to the story, it is said that the Monk (4,107 m) stands between the Maiden (4,158 m) and the Ogre (3,970 m) for the purpose of defending her against him. All of these examples are based on the metaphor A MOUNTAIN IS A PERSON.

Although I will not deal with the distinction between "metaphor of personification" and "anthropomorphous metaphor" as Perekhvalskaya (2008: 54) does, it is interesting to note that she opposes formulating "the basic metaphorical concept represented in 'the *foot* of a mountain' as A MOUNTAIN IS A PERSON". Perekhvalskaya (2008) claims:

> A mountain is not personified; it is pictured not as a person with 'motivations, goals and actions' but as an object whose 'body' consists of the same parts as the human body, as having the same physical constitution. (54)

Examining South Mande languages in West Africa, Perekhvalskaya (2008) also writes:

> It is not characteristic of European languages to present objects as having human bodies. However, it is a common thing in the languages of West Africa. Expressions of this type represent basic metaphoric concept of animals, plants and inanimate objects as having the same physical structure as humans. At the same time they are not personified, as in European languages. While Europeans tend to ascribe human thoughts, feelings and emotions to objects and abstract notions, Africans view everything as having the human body. Thus, it is necessary to distinguish METAPHORS OF PERSONIFICATION and ANTHROPOMORPHOUS METAPHORS. (54)

Although it may be important to consider this distinction, I have dealt with this sort of metaphorical extension on the basis of Matsumoto's view that the extension is made in terms of the similarities of location, shape (and/or size), and function between body parts and object parts (Matsumoto 1999, 2000).

As with the expression of ‘the *head*/*shoulder*/*flank*/*foot* of a mountain’ in English, there is an expression of ‘yama no *itadaki*/*kata*/*hara*/*se* or san-*soku*’ (mountain’s *head*/*shoulder*/*belly*/*back* or mountain-*foot*) in Japanese. Examples of this type of extension with two stages are also seen in objects such as chair, pot, bowl, and guitar. In these objects, there are several body parts which are applied to an object as in ‘the *leg*/*arm*/*back* of a chair’, ‘the *mouth*/*trunk*/*bottom* of a bowl’, ‘the *head*/*neck*/*belly*/*waist*/*body* of a guitar’, and ‘the *mouth*/*neck*/*ear*/*trunk* of a pot’ in English (Friedrich 1969; Lehrer 1974; Rault 2000). In the same way, there are expressions such as ‘isu no *ashi*/*hiji* or *ude*/*se*’ (lit., chair’s *foot*/*elbow* (or *arm*)/*back*), ‘cha-wan no *kō*-en/*dō*/*koshi*’ (tea-bowl’s *mouth*-rim (or *lip*)/*trunk* (or *body*)/lower *back*), ‘gitā no *tō*-bu/*kubi*/*dō*-*tai*’ (guitar’s *head*-part/*neck*/*trunk*-*body*), and ‘tsubo no *kuchi*/*kubi*/*mimi*/*dō*’ (pot’s *mouth*/*neck*/*ear*/*trunk* [or *body*]) in Japanese. I have dealt with this type of extension (Okimoto 2009a, 2010, 2013).

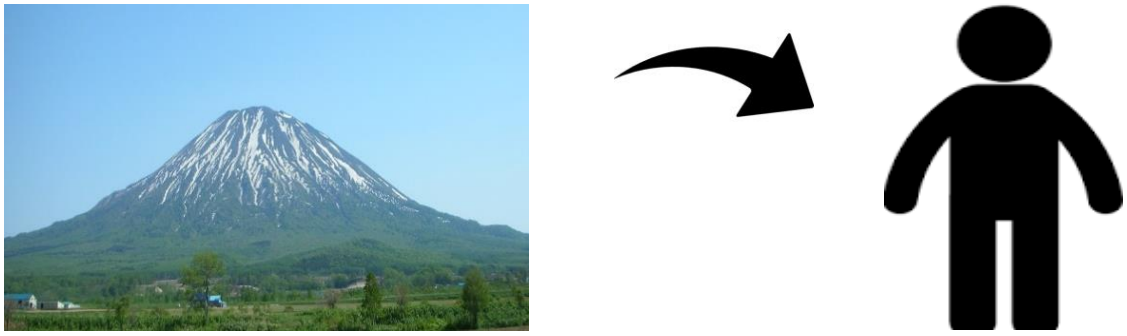

FIGURE 1. The structural comprehension of a mountain (Photo by author)

In the case of a mountain, first, its whole shape of it can be transcribed into the entire body of a human being in terms of a figurative view (see Figure 1). Second, the parts of a mountain can be

FIGURE 2. S&B Glass Spice Bottles with Faces (Photo by author)

reinterpreted as body parts from the viewpoint of similarities of location, shape (and/or size), and function. A well-known example of this type is the Coca-Cola bottle designed by Earl Dean in 1916. It was called the "Mae West" bottle because the design was inspired by Mae West's shapely figure. Mae West was a famous American actress and the bottle was introduced her anthropomorphic form. It may be easy to understand each part of 'the *mouth*/*neck*/*shoulder*/*body* of a bottle' when associated with the human shape. In the same way, the part-whole relation seen in 'the *leg*/*arm*/*back* of a chair' may be easily understood by taking a look at Isozaki Arata's 'Monroe chair' inspired by the body shape of Marilyn Monroe. In fact, Yamaguchi Masao, famous Japanese anthropologist, has admired the design inspired by her attractive Figure (Yamaguchi 1997: 61). The fundamental motivation of projection comes from our way of regarding objects as humans (i.e., anthropomorphism). Another example is the S&B glass spice bottles, whose faces were intentionally drawn by Okimoto Yū (Figure 2). It is interesting that similar bottles with eyes (eye-like stickers) were sold by S&B Foods later (starting in October, 2010) because the firm aimed to have its customers become familiar with its products.[3] Through the interpretation of objects as humans, it seems that we can understand structures of things which are difficult to grasp or unknown to us. Of course, although there may not be total comprehension, we can catch outlines of them at least in terms of metaphors. My observations are based on the fact that it is comparatively easy to understand the structure and/or function of objects if metaphors are applied to them appropriately, just like computer metaphors of "the Apple Desktop Interface" (Apple Computer 1987; Lakoff and Johnson 1999).

2. Extension to objects and understanding the outer world

Is there any reason why body-part terms such as the arm, back, ear, eye, face, foot, and head are extended to refer to object-parts? Cognitive linguists have regarded the reason as a result of our cognition. Linguistic structures are related to and motivated by our conceptual knowledge and bodily experience. The eminent geographer Yi-Fu Tuan (1977: 89) states that the human body is the part of the material universe, which we know most intimately, and that it is an accessible object whose properties we can always observe; we understand the world outside ourselves primarily from our own body and bodily experiences. Analyzing the Neolithic corporeality and burials in Southeast Europe, Naumov (2010: 235) also relates: "Anthropocentrism has played its role in a common world perception in which it was explicated with the inner space, functions, dimensions and symmetry of the human body". Thus, certain body parts such as the back, belly, face, and head can be used as structural templates to express the structure and function of objects.

It may be worth pointing out, in passing, that an animal body was metaphorically used on the frontiers of science. The staff of the Japan Aerospace Exploration Agency (JAXA) used this way of mapping to refer the structure of an asteroid in a room in 2005 (Kawaguchi 2010). They were at the forefront of science. When Hayabusa (literally, Peregrine Falcon), a space probe of JAXA, was hovering over the asteroid Itokawa in September 2005 which is about 180 million miles from the earth, the geographical features of the asteroid were roughly caught by using the body-part terms of a sea otter in the control room in some cases. It is fascinating that the staff members engaged in the forefront of science and technology frequently used these metaphorical ways in the control room in addition to talismans of the temple Tobi Fudōson (Flying Deity) stuck on their computers. For example, the scientists in the room informally indicated spots on Itokawa with the expressions of 'the left *flank* or the *bottom* of a sea otter' instead of geographical terms such as latitude and longitude. It is because the shape of Itokawa looks like a sea otter floating on its back with two large chunks fused together, a large body with a small head.

If the shape of Itokawa resembled a person, how would they have expressed capturing the geographical features of the asteroid? As seen above, extension of body-part terms to object-part terms is one of the conceptual abilities we have lived with. It should be much easier to understand the structure of objects around us from the viewpoint of human body because we have extensive knowledge of the human body and can comprehend a wide variety of experiences with inanimate objects form the viewpoint of human motivations, characteristics, and activities. The physical object specified as being a person can be comprehended from the aspects of our knowledge and experience (Lakoff and Johnson 1980: 33-34).

In the case of a chair, the structure is designed in terms of the sitting posture of a human, and therefore a chair itself can be associated with a seated person. It seems that the chairs in Giorgio de Chirico's 'Furniture in the Valley ('Mobili nella valle' in Italian)' series provide a mental association with persons (see Figure 3), and that thrones or executive office chairs are closely associated with the dignity of the persons sitting on them (Czikzentmihalyi and Rochberg-Halton 1981; Taki 2006). With the help of our grasp of the human body, this imagery can allow us to use object-part terms as seen in 'isu-no *ashi*' (lit., chair's *leg*), 'isu-no *hiji*/*ude*' (chair's *elbow*/*arm*), and 'isu-no *se*' (chair's *back*) in Japanese. It may be easy for English speakers to understand all of these literal translations since there are similar expressions such as 'the *leg*/*arm*/*back* of a chair' in English.

On the other hand, there is another instance in which the shape of an object does not resemble that of a human being. In the case of a book, although it would be difficult to see it as a human being or animal, it might be possible to view a book as a living thing because there are metaphorical expressions such as 'a walking/living dictionary', 'a sleeping dictionary', 'a talking book', and 'a human library' in English and 'iki-jibiki' (living-dictionary, i.e., walking dictionary) in Japanese.[4] In fact, there are some object-part terms used for a book, such as '*head* band', '*head*', '*tail*', and

FIGURE 3. Furniture in the Valley (Chirico 1927)

'*spine*' in English. In Japanese these four terms are expressed as 'hana-gire' (flower-cloth), 'ten' (sky), 'ji' (earth), and '*se*' (back) in order (Adcock 2003: 49). There are further expressions in Japanese, '*nodo*' (throat) and '*kuchi*' (mouth) as in 'mae-ko-*guchi*' (front-small-*mouth*), which refer to the 'gutter' and 'fore-edge' of a book, respectively in English (see Figure 4). In cases where the

expressions ‘hon-no *nodo*’ and ‘hon-no mae-ko-*guchi*’ are used in Japanese, it would be very difficult for most Japanese people to understand what ‘the *throat* and *mouth* of a book’ mean, respectively.

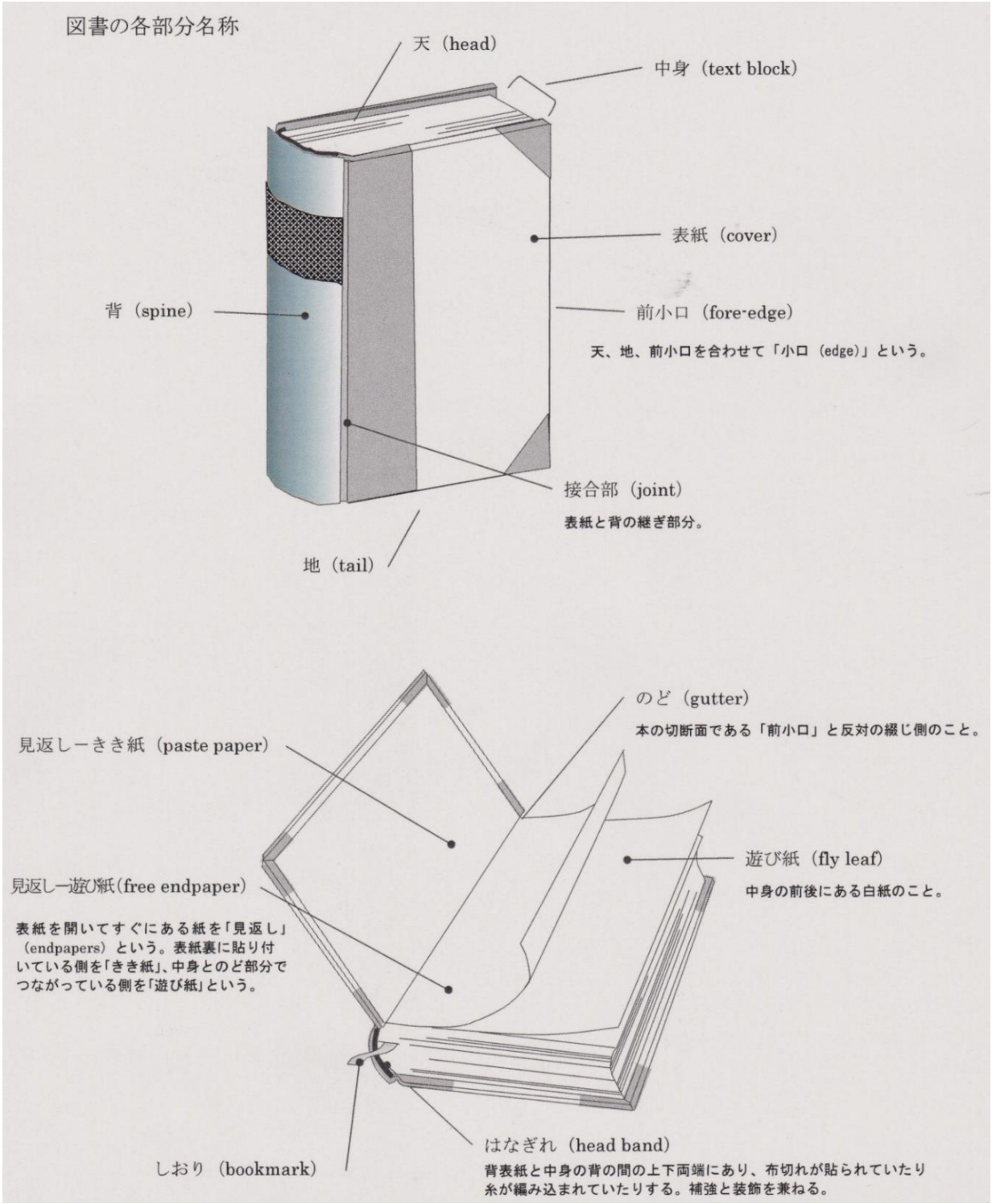

FIGURE 4. Parts of a Book (Adcock 2003: 49)

Compared with these, the words with body-part terms such as 'the *head*/*tail*/*spine* of a book' in English and 'hon-no *se*' (lit., book's *back*) in Japanese are supposed to be understandable as well as 'jaketto' (jacket, i.e., book jacket) and 'obi-gami' (kimono-sash-belt paper, i.e., the strip of paper looped around a book) in Japanese. These two terms for clothes may be the features for human beings distinct from objects with a few body-part terms, as seen in the expression of 'the *head*/*tail* of a coin', on the basis of individual partial similarity between bodies and objects. This also means that books can be seen as persons and the extended book parts can be understood in terms of the part-whole relation through projection.[5]

It seems reasonable to conclude that the structural coincidence in general between body parts and object parts is a key to create the type of 'the *head*/*shoulder*/*flank*/*foot* of a mountain' metaphor. Shortly, this type of extension will be made in terms of the similarity of the structure from the viewpoint of part-whole relation in principle. Similarities of location and shape (and/or size) can be seen with a certain arrangement between body parts and object parts. More precisely, there is an arrangement of the head, body (with arms), and foot (or feet) in vertical order (i.e., top to bottom) between body parts and object parts, even though some parts are missing or other factors are added. Above all, the word 'structure' itself entails the physical constitution of something made up of a number of parts. In many cases, the physical formation plays a functional role, for example in the field of architecture. There are body-part terms seen in the field, such as 'façade/facade' (from Latin 'facies' [face]), 'un*face*d concrete', '*skelton*', '*body* force', '*foot*ing', '*head* jamb', and '*head* rail'. A structural unit such as beam and wall is called a '*member*'. The word 'member' originally comes from the meaning of 'a limb of the human body' (from Latin 'membrum').

Matsumoto (1999, 2000) investigates the basis of the extended meanings of human (and/or animal) body-part terms to non-human object-part terms in Japanese. He insists that a large number of such extensions will be made in terms of the similarities of location, shape (and/or size), and function between body parts and object parts, and that a small number of them will be made in terms of other relationships as space adjacency or contact. It seems that his view is also true of English in principle. Based on the similarities, utterances including body-part terms as in "a bird on the *head* of the utility pole" or "a squirrel at the *foot* of the tree" may be understood in a moment, even in English. In fact, they are common expressions in Japanese. The utterances including these two expressions are easy to understand, and the expressions can be translated as "denchū no *atama*=ni tomatte-iru tori" (lit., utility pole's *head*-on being bird) and "ki no *ashi*-moto=ni iru risu" (tree's *foot*–at is squirrel), respectively in Japanese. The verb 'tomatte' in Japanese corresponds to 'stop/stay/perch', while the verb 'iru' in Japanese corresponds to existential 'be'. The particle 'ni' indicates a location. That is to say, the location of the bird or squirrel can be instantly grasped. It would be possible to understand expressions such as 'a *face*/*head*/*neck*/*body*/*foot* of a desktop computer/floor standing fan/standing microphone', although they are not generally used in both English and Japanese. In addition, expressions as in 'a building *skeleton* structure' or 'structural *members*' (such as beams, floor slabs, columns, and load-bearing walls) can be easily understood in terms of structure and function through body metaphors, as well as expressions such as 'the *brain* of a company' and 'the *heart* of a city'.

Lakoff and Johnson (1980: 52-55) state that examples such as 'the *foot* of a mountain', 'a *head* of cabbage', and 'the *leg* of a table' are marginal (i.e., dead metaphors) and that these expressions are isolated examples of metaphorical concepts in English.[6] This statement is not true of Japanese because some of these word formations with body-part terms are useful and comprehensible, as seen in the instance of Hayabusa, a space probe. Rather, it seems that the typical examples of 'dead metaphors' are expressions based on the similarity of shape such as 'a *head* of cabbage' or 'the *eye* of a needle' in English and 'uo no *me*' (lit., fish's eye, i.e., corn on the sole of a foot) or 'ami no *me*'

(net's *eye*, i.e., meshes of a net) in Japanese. Even in English, the extension of body-part terms to object-part terms based on the similarities of location and/or function can play an important role in understanding the structure of objects in many cases. It is no wonder that mountain climbers speak of 'the *head*/*shoulder*/*flank*/*foot* of a mountain' in climbing, as Perekhvalskaya (2008: 53) states. All of the expressions containing this sort of extension should not be called 'dead metaphors'. In fact, it is possible to say that some of them are productive in special contexts in English as well as in Japanese. Moreover, there are a great number of examples in English such as 'the *head* of a pier/bay/periscope', 'the *body* of a vehicle/cello/cathedral', and 'the *foot* of a bed/citadel/stairs' with regard to similarity of location, and 'the *mouth* of a bay/cannon/trumpet' and 'the *eye* of a robot/camera/Hubble' with respect to similarity of function.

3. Metaphorical extension and our conceptualization

I will take the position that language reflects important aspects of human conceptualization and that recurring patterns of embodied experience motivate our systematic patterns of linguistic structure and behavior (Gibbs 2006). People conceptualize their experiences in figurative ways, and such molded patterns in the mind make metaphorical extensions in many cases. A large number of objects can be described in relation to top/bottom, front/back, and sides (and/or ends). In the case of the human body, the principal generating axis is vertical with respect to their growth and bipedal walking, and the two axes for orientation are horizontal and determine front/back and sides in terms of their sensorimotor activity. Contrary to this, in the case of the animal body, the principal axis is horizontal in terms of their growth and four-legged locomotion (or moving of crawling, swimming, flying, and so forth), although the two axes for orientation are the same with the human case (Marr 1982; Landau and Jackendoff 1993). For instance, boats can be regarded as animals (including fish and birds) and used with animal body-part terms as in 'the *head*/*body*/*stern* of a boat' in English and 'sen-*shu*/*tai*/*bi*' (lit., boat's *neck* [i.e., *head*]/*body*/*tail*) in Japanese. In the same way, airplanes are used with expressions such as 'the *nose* of an airplane' and 'the *tail* assembly of an airplane'. Allan (1995) argues about the meaning of the English word 'back' from the viewpoint of anthropocentricity. He observes the front and back direction of inanimate objects without intrinsic fronts in relation to the human viewers. In such cases, that part or region of the object facing the viewer is named the front, and that part or region on the opposite side or end of the front is named the back. His observation is fundamentally the same as the way of determining the front and back direction, which is referred to as "the bodily projection" (Lakoff and Johnson 1999).

Related to the way the body shapes conceptual structure, Lakoff and Johnson (1999: 34-35) discuss the decision of the directions of objects in terms of projection. According to them, our body is the standard to establish the directions of things around us. We have inherent fronts and backs originating from our sensorimotor system. In other words, we can see the prototypical human being as an anthropomorphic model in an upright stance confronting the world by looking forward and walking forward. The concept of front and back directions is determined based on the basis of our bodies. Lakoff and Johnson (1999) consider that the concepts of front and back directions are applied to objects in terms of our bodies. English speakers regard the front of a moving object such as a car, a boat, and an airplane as the part of the object which confronts the direction of the normal movement. In addition, they project fronts onto stationary objects without inherent fronts such as rocks, trees, and mountains. That is, the front of a stationary object can be seen as the part of it which faces the speaker. More precisely, for example, the front of a refrigerator is the part facing the person who is just about to use one, namely to open the door of one, the front of a desk is the part

facing the person who sits at the desk and can open the drawers, and the front of a mountain is the part facing the person who looks at it or the place where the speaker stays or lives. Hence, fronts are determined on the basis of intention of the speaker who uses or thinks of objects, when the users are generally facing one side of them and looking at them.

In accordance with remarks on "the bodily projection" (Lakoff and Johnson 1999) and anthropocentrism (Allan 1995), I consider our perception and cognition to be constrained by the human mind and body, leading to providing a standard of understanding other animals and objects around us. From this point of view, it can be speculated that most of the semantic extensions with bodily terms originate with the human being, extend to animals, and to objects or inanimate objects with certain appropriate characteristics from an anthropocentric view, although some extensions seem to originate from the parts of vegetable bodies (Levinson 1994; Miyaji 1982). Accordingly, in the case of the space probe, Hayabusa, first, staff members made an extension of the human body to a sea otter; second, they applied the shape of the sea otter, grasped on the basis on the human model, to the asteroid Itokawan; last, they understood the geographical features of Itokawa through metaphors.

4. Pottery and Human Body Projection

Lakoff and Johnson (1999: 6) state: "We have embodied minds that our conceptual systems arise from, are shaped by, and are given significance through human bodies". That is to say, our conceptualization of the outer world has a relationship to our bodies. Concerning the projection of body parts to object parts, the *mouth* is occasionally employed. It is located at the intermediate position of internal and external spaces. The projection of it is on the basis of the similarity of location. It is also an opening or orifice, which can allow us to make extensions on the basis of the similarity of shape. Moreover, it can lead to other extensions on the basis of function because it plays a role of putting something in/taking something out.

As is the case of functions of the mouth, the human body itself is a container which air and nutritious food is put into and waste is taken out of. We orient containers from the viewpoint of our bodies. We observe surroundings such as towns, buildings, and rooms. Even a bed can be regarded as a container. Interestingly, Czikzentmihalyi and Rochberg-Halton (1981: 214) point out that the etymology of the word 'bed' refers to the Indo-European base '*bhedh-', whose meaning is 'to bury' or 'a sleeping hollow in the ground' (i.e., 'to dig a hollow for sleeping'). We spend a lot of time in our daily lives putting things into and taking them out of containers. The notion of CONTAINMENT is based on our own bodily experience of things going in and out of the body, and of our bodies going in and out of domains. Therefore, certain domains such as space and states can be regarded as containers. For example, the notion can motivate us to project abstract containers onto areas in space. Hence, just like towns, buildings, and rooms, we understand spatial relations as in the instances of "He is IN a hurry" or "The train went OUT OF control" in English, and "Kanojo=wa utsu-jōtai=ni *hai-tta*" (She=TOP depression state=LOC *enter*-Past, i.e., "She ENTERed a state of depression") or "Sore=wa mondai-*gai*-da" (That=TOP question *out*-COP is, i.e., "That is OUT OF the question") in Japanese. The particle 'wa' in Japanese indicates the topic of a sentence. The stem form of the copula 'da' indicates 'is/are' in informal use. In short, if an object can be seen as a container, it may be regarded as a human being.

One of the typical examples of regarding containers as human beings is seen in the expressions regarding pots and bowls. Naumov (2008) reports that there are vessels with the features setting up an association with parts of the human body in the Neolithic Balkans (see Figure 5). He indicates in the abstract that archaeologists often use words from human anatomy to describe parts of vessels

found in the Balkan region, such as *body*, *mouth*, *neck*, *throat*, *shoulder*, *belly*, *foot*, and *leg* (Naumov 2008: 93). He adds, "The use of these terms suggests that vessels can and have been conceptualized as human bodies--regardless of whether or not their shape actually resembles that of a human". It is interesting that Naumov refers to the link between shape and female character of vessels. Neolithic ceramic objects modeled in the form of the human body provide information on the social relations which women established in a given community (Naumov 2008, 2010).

FIGURE 5. Anthropomorphic vessels excavated in Turkey (Naumov 2008: 96)

Perterson (2008) points out that body-part terms are used in pottery (see Figure 6). 'The *mouth*-rim' is the open upper edge of the pot, which is also called 'the *lip*'. 'The *neck* of the pot' is the section between *mouth*-rim and *shoulder*. 'The *shoulder*' is the area in which there is a fairly

FIGURE 6. Pottery (Peterson 2008)

obvious and sharp delineation under the *neck* or *mouth*. 'The *waist* of a pot' is the part between the outward swelling of the upper and lower sections which it joins together. 'The *belly*' is the widest outwardly swelling section on the center of a pot. 'The *foot*-rim' is a projecting ring around the base of a pot. In the case of a pot with a handle or two handles such as the amphora, the handle(s) can be called the *ear*(s). Juwaki (2008: 17) also shows the body-part terms of a Japanese 'sake' (liquor)

pitcher called ‘tokkuri’. There are ‘*kuchi*’ (mouth), ‘*kubi*’ (neck), ‘*kata*’ (shoulder), ‘*dō*’ (trunk or body), and ‘*koshi*’ (lower back) in order from the top of the pitcher (see Figure 7). In the same way, this viewpoint is roughly true of Tarascan pottery in Mexico (Friedrich 1969). For example, the *lip*

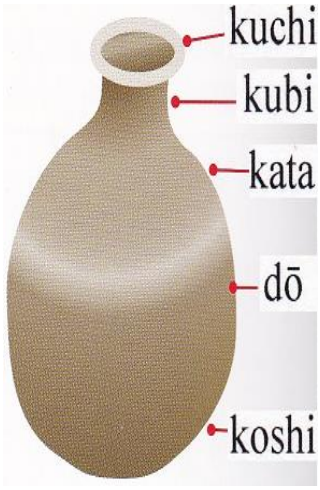

FIGURE 7. The Sake Pitcher (adapted from Juwaki (2008: 17))

or part attached to ‘the *neck* of a pot’ is Tarascan suffix ‘*mu*’, the curve between the *mouth* and *belly* ‘*ča*’ (outer neck), the inside of a pot *belly* ‘*ŋaṛi*’ (whole body), the *bottom* quarter of a pot ‘*ču*’ (bottom), and the *feet* of a pot ‘*ndu*’ (lower leg below knee) in order from the top of a pot (see Figure 8).

Here, it is also noticed that there are the similar expressions in various languages, because language and thought emerge from recurring patterns of embodied activity which constrain intelligent

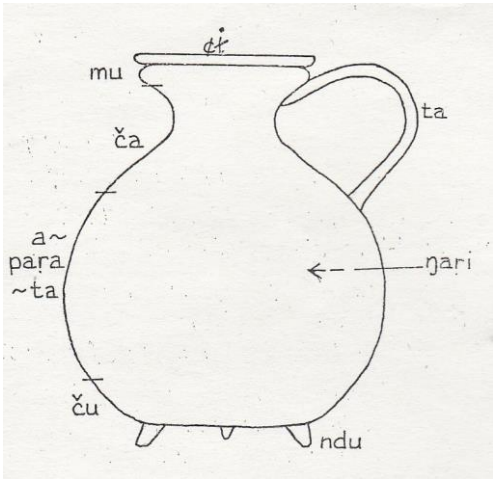

FIGURE8. The Pot (Friedrich 1969: 39)

behavior (Johnson and Lakoff 1980; Johnson 1987; Lakoff 1987; Lakoff and Johnson 1999; Gibbs 2006). I have considered this type of projection as “Human Body Projection” (this term was coined

by the author [see Chapter 5]). I have maintained that we have a cognitive way through body metaphors to interpret our outer world. Based on the projection, we understand the characteristics of objects, show empathy with and cherish them, or give them the role of a bridge between the physical world and the mental world (Okimoto 2009a, 2010, 2013a, 2013b, 2014).

Matsumoto (1999) points out that extension is based on compound similarities in most cases in Japanese. For instance, '*kutchi*' (mouth) is used to indicate a cavity that opens into the internal space of an object. Someone or something moves into and out of the cavity, as mentioned above. Accordingly, 'the *mouth* of a bottle' can be translated as 'bin-no *kutchi*' (lit., bottle's *mouth*) in Japanese in terms of the similarities of location, shape, and function. '*Kubi*' (neck) as in 'bin-no *kubi*' (bottle's *neck*) is used to indicate the narrow part of a bottle near the top, which is based on the similarities of location and shape (see Figure 7). These compound similarities can be seen in English, Japanese, and other languages.

5. Western Apache automotive terminology

In relation to the type of 'the *head*/*shoulder*/*flank*/*foot* of a mountain' metaphor, it is worthwhile to observe how the Apache people of North America name the parts of motorized vehicles (Basso 1969, 1990). Basso closely describes a system of naming the parts of automobiles in the language of Western Apache of east-central Arizona, a member of the Athabascan language family. In Western Apache there are five mutually intelligible dialects: San Carlos, Cibecue, White Mountain, and Northern and Southern Tonto. His linguistic data come from five Apache men living in a community at Cibecue. Among them, the extension of human and animal body-part terms to the parts of cars and pickup trucks has been made since their first acquiring cars in the early 1930s (see Figure 9).

Observing the semantically extended object-part terms with body-part terms from an anthropocentric view, it is possible to understand the reason why a large number of the same body-part terms are used to refer to different body parts of different animals. For example, applied to humans, the term '*bikee*" denotes *foot*; applied to horses, *hoof*; to bears, *paw*; and to cars and trucks, *tires* in terms of anatomical metaphors, namely, the similarities of location (and/or shape) and function. According to Basso (1969, 1990), it is because the Western Apache have a common classified category that includes humans, quadrupeds, birds, reptiles, fish, insects, plants, and several engine-driven machines from the viewpoint of capability of generating and sustaining their own movement, in short, the similarity of function. In this structural metaphor, the hood is '*bichịh*' (nose), the headlights are '*bidáá*' (eyes), and the windshield is '*bita*' (forehead). The term '*bínii*' (face) covers the area from the top of the windshield to the front bumper, so the car's *face* includes the hood and windshield. The front wheels are '*bigan*' (hands and arms), and the rear wheels are '*bikee*" (feet).

It is to be noted that the extension of the human body is made to the outward appearance of an automobile based on the similarities of location and shape in Western Apache. Similar extensions are made in English and Japanese. Namely, it is known that there are expressions such as 'the *nose*/*face*/*head*light of a car' in English and 'kuruma no *hana*-saki/*kao*/*heddo*-raito/bodī/*hara*/*ashi*-mawari' (car's *nose* tip/*face*/*head*light/*body*/*belly* [i.e., bottom]/surroundings of the *feet* [i.e., rolling chassis or undercarriage]) in Japanese. In Okimoto and Norman (2010), cognitive scientist Donald A. Norman states the following:

> Every car has a unique personality, much like every person, and with cars as with people, we infer the personality from three components: visceral, which is mainly looks;

behavioral, which is mainly behavior; and reflective, which is mainly reputation.

The grille is visceral. As with people, it is facial expression that often initiates the impact. The grille and headlights are the most dominant parts of the face. The 1939 Mercury grille is especially distinctive, with its pointed front and its sneering smile. Two gleaming sets of stripes that exudes power, confidence, and superiority.

The grille dominates the car's facial expression, and establishes the cars' personality for all to see--and cower before. Some grilles are meek, some timid, others are bold and assertive. The 39 Merc exudes superiority and cockiness. Chrysler's new 300C may be equally imposing, but it isn't nearly as cocky. Just a sneer. The Merc had a pointy, v-shaped face. The Chrysler is flatfaced. (14)

Western Apache (body part)	**Extended meanings**
biwos ('shoulder')	'front fender(s)'
bigan ('hand and arm')	'front wheel(s)', 'tires'
biyedaa' ('chin and jaw')	'front bumper'
bikee' ('foot', 'feet')	'rear wheels', 'tires'
bínii' ('face')	'area extending from top of windshield to front bumper'
bita' ('forehead')	'windshield'
bichíh ('nose')	'hood'
bighán ('back')	'bed of truck'
bik'ai ('hip and buttock')	'rear fender(s)'
bizé' ('mouth')	'opening of pipe to gas tank'
bidáá ('eyes')	'headlights'
bits'ǫǫs ('veins')	'electrical wiring'
bibiiye' ('innards')	'all items under hood'
bizig ('liver')	'battery'
bibid ('stomach')	'gas tank'
bijíí ('heart')	'distributor'
bijíí'izólé ('lung')	'radiator'
bich'í' ('intestines')	'radiator hose(s)'
bi'ik'ah ('fat')	'grease'

FIGURE 9. The list of the major body-part nouns in Western Apache (Basso 1990: 17)

It is assumed that on the premise of the anatomical metaphors shown in Figure 9, the Western Apache people metaphorically regard motorized vehicles as human beings in terms of the similarities of

location, shape, and function just the way English and Japanese speak of people in some cases (Norman 2004).

There are several internal organs under the hood. The battery is '*bizig*' (liver), the electrical wiring '*bitsǫǫs*' (veins), the gas tank '*bibid*' (stomach), the distributor '*bijíí*' (heart), the radiator '*bijíí'izolé*' (lungs), and the radiator hoses '*bich'í*'' (intestines). When the automobile was first introduced, the ability to move itself surprised Apaches and made them perceive a crucial attribute of that common classified category including humans, quadrupeds, etc. In addition to mobility, associated with the similarities of location, shape, and function between body parts and car parts, they have introduced these anatomical metaphors into automobiles. As Allan (1995) sees the English word 'back' as an anthropocentric or human centered view, it is assumed that the Western Apache perceive animals and motorized vehicles from a human point of view and that they regard human beings as the standard and basis for judging all else in the universe (Gibbs 2006).

With reference to Figure 9, Gibbs (2006: 79-80) points out that under the structure there is a conceptual metaphor, MOTOR VEHICLES ARE HUMAN BODIES, which leads people to find correspondences between the parts of human beings and the parts of cars and trucks. In association with automobiles being the target domain and human bodies being the source domain, the constituent parts and topological relations of vehicles are mapped into body parts in this conceptual metaphor. The naming of vehicle parts with the human body-part nouns preserves the anatomical structure of relationships among the parts. Thus, both the car body and the human body have common visceral organs, and people can presumably identify certain features or attributes of objects, as seen in the metaphorical utterance of "Pickup trucks have two eyes, four feet, rev up the engine, and run" in association with the expression of "Bears have two eyes, four paws, roar, and run". In this way, concepts and categories are defined by their relations to objects in the external world. Meaning-extensions of the parts of motorized vehicles are common to all the members of the Athabascan language family (Adams 1970).

As stated above, I have discovered that there is a mapping type where the whole body is firstly extended to the entire shape of an object and, if necessary, the body part is secondly extended to the object part based on the first projection (i.e., based on the whole body as the cognitive domain). In the projection, each of the body parts can be profiled on the base of the whole body, just as ARC presupposes the conception of CIRCLE (Langacker 1987, 2008). The relation of ARC to CIRCLE applies to that of the *shoulder* to the contour of a mountain regarded as the human body by both Japanese and English speakers.[7] In the same way, this relation applies to that of the gas tank '*bibid*' (stomach) to the structure of a pickup truck seen as the human body for the Western Apache. Accordingly, it can be easy to understand the meanings of body-part terms such as 'the *neck* of a bottle', 'the *back* of a chair', and 'the *head* of a lute'. I have called this conceptualization "Human Body Projection" because our body is the foundation of such mapping. I have considered this sort of projection to be concerned with natural surroundings (including landscapes, rocks, and trees), religion (e.g., temples, musical instruments), and basic needs such as food (more precisely, containers for food and drink), clothing, and shelter (i.e., houses). From the viewpoint of "Human Body Projection", the typical examples of the necessities of living are towns/cities, houses/buildings, vehicles, furniture, musical instruments, household items, clothes, books, and so on (Okimoto 2009a, 2010b, 2013a, 2013b, 2014; Okimoto and Norman 2010).

6. 'SHICHIDŌ- GARAN', 'SAO RIA', and 'TONKORI'

Among the examples in which “Human Body Projection” has been discussed, there are objects with the multiple nest structure on the basis of macro-cosmos (the universe) and micro-cosmos (the human being) such as lands, nations, districts, towns, cities, houses, buildings, rooms, beds, and clothes,[8] which are located between the universe and the human body (Ichikawa 1984; Kadono 2005; Tuan 1977). More precisely, as to towns or cities, human models have been applied to the following: Kyoto, whose landscape is related to Feng Shui; Paris, which was renovated in the early 19th century under the influence of Greek antiquity (i.e., the human body served as a model of ideal city planning); and Chandigarh in India, which was designed by Le Corbusier, employing the metaphor of the human being, the three major orders of ancient Greek architecture--the Doric, Ionic, and Corinthian, which were compared to a male, female, and young girl form, respectively. The Japanese temple building layout of the Zen sect called ‘shichidō-garan’ (seven chief buildings) can be compared to an image of Buddha. Lio’s traditional house ‘sao ria’ (big house) is said to represent a mother’s body in Flores Island, Indonesia.[9] Furthermore, human models have been seen in motorized vehicles such as airplanes, boats, and cars; furniture such as desks, chairs, and beds; musical instruments such as lute, flute, and ‘tonkori’, which is a plucked string instrument played by the Ainu people; and household items such as earthenware and glassware.[10]

In Japan, Zen temples in Japan have traditionally been composed of seven chief buildings called ‘shichidō-garan’ for the sections of the temple. The layout which was originally introduced

FIGURE 10 The Zen Temple Building Layout of Zuiryū-ji (Photo by author)

from the Zen religious school in China includes ‘san-mon’ (main gate), ‘butsuden’ (Buddha hall), ‘hattō’ (lecture hall), ‘sōdō’ (meditation hall), ‘kuri’ (temple’s office or a kitchen), ‘tōsu’ (toilet), and ‘yokusitsu’ (bathroom). The layout has been regarded as the human body or an image of Buddha in some cases (Mujaku 1909). In the reconstruction picture of the temple building layout of Zuiryū-ji at the ‘sō-mon’ (first gate), eight temple-building terms are shown, such as ‘hōjō’ (head), ‘hattō’(chest), ‘butsuden’ (heart), ‘san-mon’ (lower abdomen), ‘kuri’ (left hand), ‘sōdō’ (right hand), ‘yokusitsu’ (left foot), and ‘saijō’ (or ‘tōsu’) (right foot) from top (north) to bottom (south) (see

Figure 10). In general, the ‘hattō’ is regarded as the head without mention of the ‘hōjō’ (abbot’s chamber), as seen in the case of Eihei-ji, one of two head temples of the Sōtō Sect of Zen Buddhism. Master priests have explained the character of each building by using this metaphor. Moreover, such a body model has been used by master temple architects to grasp the layout of a temple in a simplified manner (Ōta 1971). It has been maintained that there is no such model in China and that it is a unique model, restricted to Japanese Zen temple architecture. Okimoto (2013b) regards ‘Shichidō-garan’ or an image of Buddha as a symbolic medium between the world of Lord Buddha and the world of Zen monks.

FIGURE 11 ‘Sao Ria’ (Reprinted with permission from Satō (2007))

The ‘sao ria’ is identified with an image of the mother’s body as well as a boat (see Figure 11). It is said that the house is built on the model of the posture of a woman sitting to give birth (see Figure 12) and that the Lio people fix ‘the body of the mother’ in their language in the time when they

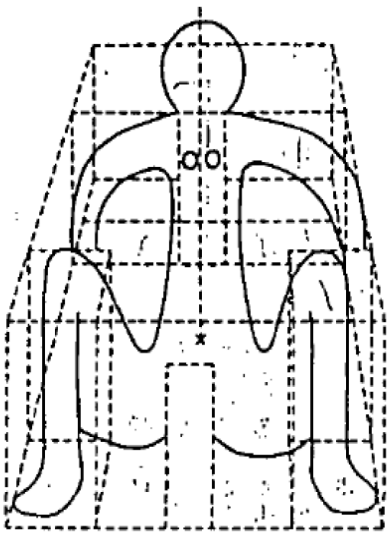

FIGURE 12 ‘Sao Ria’ regarded as a woman (Yamaguchi 1989: 482)

perform the ceremony for repairing the roof. Yamaguch (1989) mentions:

> The Lio use the image of the snake as a metaphor for a basic social unit. This metaphoric snake possesses '*ulu*' (head), '*ékó*' (tail), and '*pusu*' (navel) as a mediating point. The island of Flores is described as consisting of a *head* (i.e., the East), a *tail* (i.e., the West), and a *navel* (i.e., the sacred mountain 'Lépé Mbusu' located in the center of the island). The village also has its *head* and its *tail*, while its *navel* refers to 'tubu musu maze' (the megalithic monument) located in the village center. (480)

This '*head-tail*' principle is applied to various categories including 'sao ria', although snakes (i.e., reptiles) have no navels.[11] Yamaguch (1989) also writes:

> As the house occupies a central position in Lio cosmology, it is not surprising that 'head-tail' principle is also applied here. The rear of the house is called *head*; it is occupied by the elderly members of the family. This part contrasts with the *tail* of the house, the opening through which one enters the interior part of the house from the veranda. Inside the house a thick rope is suspended from the center of the ceiling. This rope called '*pusu até*' (navel heart) is the '*pusu*' itself. It mediates between above and below, front and rear, people and gods, between what is in this **w**orld and what is in another one. Because it is under this rope that people should be born and die, the rope represents how being located under the '*pusu até*' implies being re-united with the cosmos. (480-481)

FIGURE 13 'Tonkori' (Photo by author with permission from Hokkaido Museum)

'Sao-ria' or the mother's body can be regarded as a symbolic medium between this world and another world.

Among a number of musical instruments with body-part terms, the author will focus on the 'tonkori' here (see Figures 13). The 'tonkori' is the traditional stringed musical instrument of the Ainu who are an indigenous people of Japan (Hokkaido) and Russia (Sakhalin and the Kuril Islands). It is noted that there are a large number of anatomical terms for the body parts, such as '*sapa*' (head), '*siki*' (eye), '*kisara*' (ear), '*rekuh*' (neck), '*tapera*' (shoulder), '*netopake*' (trunk), '*sampe*' (heart or

soul), '*hanka-puy*' (bellybutton), '*setur*' (back), '*enkip*' (genital area), and '*enkipi-puy*' (vaginal orifice) (see Figures 14).

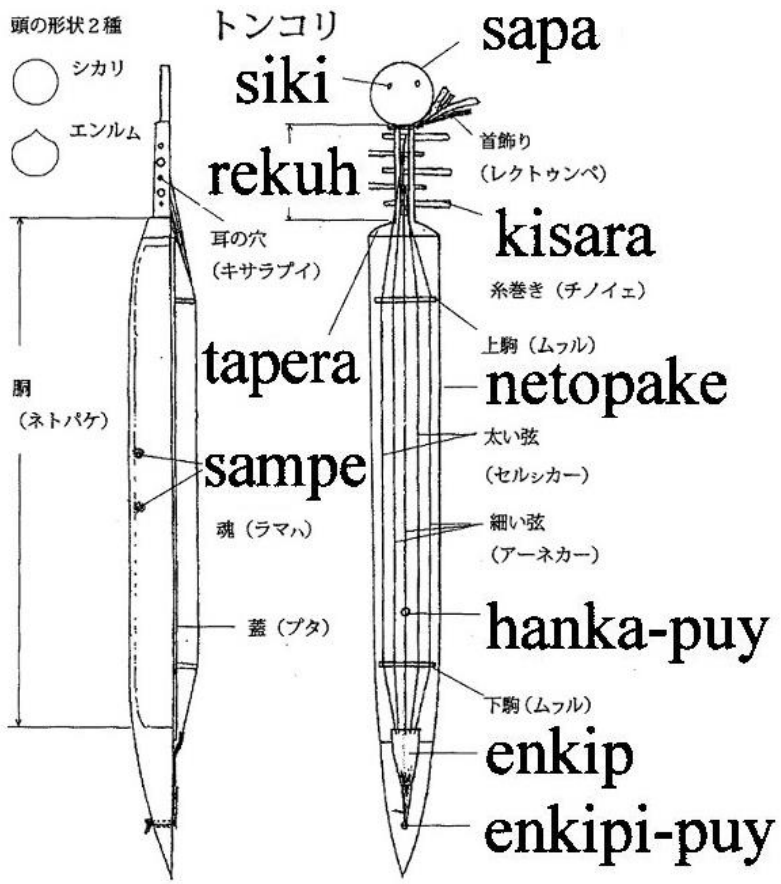

FIGURE 14 Parts of 'Tonkori' (adapted from Tomita (2014: 14))

Some researchers regard a link between the 'tonkori' and 'tusu' (shamanism). According to them, the 'tonkori' was one of the musical instruments of shamans in Karafuto (Sakhalin) as well as 'mukkuri' (jaw harp) or 'kacho' (dram) in ancient times (Chiri 1973b; Kubodera 2004). The Ainu played the 'tonkori' as a spiritual practice in their traditional culture.[12] Although other researchers doubt views that there is the relationship between the 'tonkori' and shamanism, it is consistent with the view that the role or purpose for 'tonkori' playing has changed and that it has come to be an everyday musical instrument for personal enjoyment or putting babies to sleep. Assuming Chiri's and Kubodera's views of a link between the 'tonkori' and shamanism to be accurate, it is possible to consider that the 'tonkori' has some relationship between macro-cosmos and micro-cosmos. Examining usage of old examples in the Ainu language, Chiri (1973a: 161-162) describes 'oyna' (spiritual music) as having a relation to shamanism and that the meaning of 'a shaman entering a trance state' is included in the word 'oyna'. Kubodera (2004: 16) points out that Ainu musical practice is performed without the accompaniment of musical instruments in general. In other word, the original purpose for playing the 'tonkori' seems to be tied to spiritual practices in Ainu traditional culture (Uyeda 2015). It is necessary to examine musical instruments of the world in detail in order to support this supposition.

7. Musical instruments with human bodies

Rault (2000: 80-83) views the musical instrument as a physical extension of the musician. She points out that the shape of musical instruments clearly shows stylistic features based on the human body in many cases (see Figure 15). Anthropomorphism is often seen in musical instruments such as "arched harp with six plant fiber strings" (Figure 15-1); "arched harp with fiver strings made of plant fiber, representing a male Figure" (Figure 15-2); "lamellaphone of the thumb piano type, with eleven thin strips of vegetable material on a sound box" (Figure 15-3); and "earthenware bell representing a woman whose long neck serves as a handle, while the full dress forms the skirt of the bell and the legs serve as clappers, dating from Greek antiquity" (Figure 15-4). Rault (2000: 80) gives the following description: "A harmonious relationship exists between the human body and the instrument, for the one cannot operate without the other. Without his instrument, a musician may be likened to an amputee or a rider without his horse. Both are made up of body and soul and together they become like two human beings whose identities merge in the playing". Similarly, Fushiki (2011) reports that the bamboo flute 'seling gambuh' is regarded as a living thing with a soul and that there can be seen a mental link between the 'seling gambuh' and the player in Bali, Indonesia, which evoke a 'mut' (fighting spear) for the Nuer (Evans-Pritchard 1956).

1 2 3 4

FIGURE 15 Anthropomorphism (Rault 2000: 86-87)

In reference to Rault (2000: 80-83), it is necessary to consider Belk (1988). Belk refers to the physical extension using the term, "Extended Self" (Okimoto 2014: 11). Her description of viewing an instrument as a physical extension of the musician may be explained in terms of "Extended Self". Referring to Czikzentmihalyi and Rochberg-Halton (1981), Belk (1988) proposes the concept. According to Belk (1988), possessions are regarded as a part of self and as a means to extend, expand,

strengthen, and enhance the sense of self. Since body parts are among the most central parts of the extended self and normally central to conceptions of the self, the acquisition of new body parts and the abilities (e.g., of musical instruments, motorized vehicles, clothes, or houses) is tantamount to obtaining one's own identity. Although it can be easily understood to obtain abilities by those things, "Extended Self" cannot by itself explain the reason why the whole human body is required, as stated in "Both are made up of body and soul, and together they become like two human beings whose identities merge in the playing" (Rault 2000: 80).

An illustration from Rault (2000: 106-107) may be informative. Showing a photograph taken in 1882 in which there is an old shaman in Siberia with his drum sitting on something, Rault (2000: 106) gives the following description: "In his role as intermediary between the earthly world and the realm of the spirits, the shaman derives his powers from playing his frame drum, the vehicle by which he enters a state of trance". Moreover, in the explanation of a frame drum from Lapland, Rault (2000: 107) points out: "The drum is struck with a bone stick, symbolic of the vital principle, as a means of summoning the spirits, and to accompany various rituals led by the shaman". Perhaps it is right to say that in various cultures, religious rituals have often been performed with music. Taking Rault's descriptions into account, it is no exaggeration to say that a certain sort of musical instrument can be regarded as a medium between macro-cosmos and micro-cosmos (or "what is in this world and what is in another one"). Similar cases have been observed in the examples of the 'sao ria' in Flores Island and the 'shichidō-garan' of the Zen sect in Japan, both of which have body images (Okimoto 2013a, 2013b, 2014). If it can be assumed that a musical instrument plays an important role in religious rituals, and that there are the similarities of location, shape (and/or size), and function between body parts and object parts, it is no wonder that an extension will be made comparatively easily. In short, it seems that, in addition to the similarities, human characteristics such as religious behavior, knowledge, intelligence, and affection reinforce the mapping between human beings and objects, as described in the example of a book. To take another example of human characteristics facilitating the mapping, a certain religious custom is known to people in Japan. 'Hari-kuyō' is a memorial service held at Shinto shrines or Buddhist temples for broken or disused needles, as if they were the departed. In the ceremony, people display gratitude towards objects which are a source of livelihood. Such memorial services also take place in Japan for eye-glasses, dolls, etc. (Okimoto 2014). Namely, those objects can be seen as human beings in a figurative way for people in Japan. Thus, it is reasonable that the 'tonkori' can be linked with the human body, and that its parts can be reinterpreted as human body parts based on the hypothesis that the 'tonkori' is the instrument which was originally deeply concerned with shamanism. In short, the Ainu people regarded shamanism as corresponding to a medium between this world and another world. In the same way that the 'sao ria' is the place to connect the Lio people with their spiritual world, the 'tonkori' is a means to link the Ainu people with their spiritual world.

Some objections can be anticipated to this description. "Bodies are not culture-free objects, because all aspects of embodied experience are shaped by cultural processes. Theories of human conceptual systems should be inherently cultural in that the cognition that occurs when the body meets the world is inextricably culturally based" (Gibbs 2006: 13). I am in agreement with this view. The culture of the Ainu is different from that of the Japanese. Although there are differences in cultures that should be paid much attention to, it is important to consider recurring patterns of embodied activity in common among some languages. Okimoto (2012: 6) states: "Grady (1997) has analyzed the experiential grounding of primary metaphors that conventionally associate basic concepts. Primary metaphors are part of the cognitive unconscious. We acquire them automatically and unconsciously via the normal process of neural learning. When the embodied experiences in the world are universal, then the corresponding primary metaphors are universally

acquired". Okimoto (2012) analyzes 83 metaphors from the list in the appendix (Grady 1997: 281-299) and compares them with various Japanese expressions. As the result, similar expressions have been found in Japanese regarding all of the 83. Therefore, "it is not surprising to find that languages have semantic extensions similar to those in English" (Lehrer 1974: 135). In short, there are recurring bodily experiences which constitute similar image schemas among some languages.

8. Conclusion

In this paper, I have claimed that 'the *head*/*shoulder*/*flank*/*foot* of a mountain' type of metaphor is a projection based on the basis of the human body in principle, and that this type of metaphor is the reflection of recognizing the part-whole relation of objects. I have also claimed that "Human Body Projection" is employed for objects relevant to human characteristics and abilities, as well as objects with a multiple nest structure on the basis of macro-cosmos and micro-cosmos. The main findings presented in this paper can be summarized as follows.

(1) There are two types in the extension of body-part terms to object-part terms. The difference of the two sorts of mapping can be explained in terms of the presence or absence of a part-whole relation. One is the type that the extension is based on similarities of parts regardless of part-whole relation and restricted to the mapping on the basis of individual local (i.e., partial) similarity between a body and an object. The other is the type that the extension of the whole body and the body parts is made on the basis of a part-whole relation between the human body and an object. In this type, the whole body is extended to the entire shape of an object in the first stage and then the body-parts are introduced in the basis of part-whole relation and extended to the object parts in the second stage. I have named this projection 'the *head*/*shoulder*/*flank*/*foot* of a mountain' type and regarded it as our cognitive strategy for understanding of the outer world.

(2) Persons involved in the forefront of science and technology have used the metaphorical ways in their workplaces in Japan. Extension of body-part terms to object-part terms is one of the conceptual abilities seen in our everyday life. This extension makes us understand the structure of objects comparatively easily because we have extensive knowledge of the human body and can comprehend a wide variety of experiences with inanimate objects in terms of human motivations, characteristics, and activities.

(3) "Human Body Projection" has been employed in objects with multiple nest structure on the basis of macro-cosmos and micro-cosmos such as lands, nations, districts, towns, cities, houses, buildings, rooms, beds, and clothes. In term of their roles and functions for human beings, "Human Body Projection" has also been made with motorized vehicles such as airplanes, boats, and cars; furniture such as desks, chairs, and beds; musical instruments such as lutes, flutes, and 'tonkori'; and household items such as earthenware and glassware. This projection can be viewed as extension of the functions of our body parts. In addition, it seems reasonable to conclude that human characteristics such as religious behavior, knowledge, intelligence, and affection reinforce the mapping between human beings and objects.

(4) We have a cognitive way of interpreting the outer world through body metaphors. Accordingly, it is no wonder that metaphors similar to 'the *head*/*shoulder*/*flank*/*foot* of a mountain' can be seen in different languages and cultures, although there are differences in meaning and forms, to be precise. Observing body metaphors referring to mountains, chairs, books, pots, buildings, music instruments, and so on, it is clear that they have often played important roles in a common world perception for communities. Thus, it is not surprising that similar extension of body-part terms to object-part terms can, on occasion, be made in different languages and cultures.

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NOTES

1. One of the oldest descriptions for the mapping in Japanese is 'kawa-*kuchi*' (river-*mouth*) in 'Izumo-fudoki' (Izumo regional gazetteers) compiled in 733.
2. 'Nantai-san' has been considered 'go-shin-tai' (sacred body of the god) and worshipped at Futara-san Shinto Shrine. Similarly, Tsukuba-san Shrine is located in the middle of 'Tsukuba-san' and the whole mountain is considered as a body of deity. Both of the mountains are well known to people in Japan.
3. Okimoto Yū drew dots and lines on the caps of the bottles in the kitchen with amusement when he was young. It was a story before the bottles with eye-like stickers were brought to market by S&B Foods (see Figure 16). The dates of "BEST-BEFORE (i.e., BEST-IF-USED)" can been seen on the labels of the bottles (e.g., 'APR 27, 2009' on the second bottle from the left). This is stated in the e-mail from S&B 'Okyaku-sama Sōdan Sentā' (Customer Support Desk) at S&B

FIGURE 16. "BEFORE-BEST DATES" on the Bottles with Faces (Photo by author)

Foods Inc. Personal communication, December 2, 2014 at 3:06 PM (Subject:SPICE & HERB Series 'Eye Sticker' <sb_soudan@sbfoods.co.jp>), (cf. http://www.sbfoods.co.jp/spice-herb/product/sb/cinnamon/index.html, accessed November 28, 2014). It is interesting to compare a yellow spice bottle for sale in Figure 17 with Okimoto Yū's bottles in Figure 2 and 16.

FIGURE 17. A Spice Bottle without Face (Photo by author)

4. The term "Sleeping Dictionary" is a nickname for young Indian women who slept with British colonialists and taught them about Indian culture and language in early 20th century (Massey 2013: 279-280). Sujata Massey writes such a story in her book under the title "The Sleeping Dictionary". "The Talking Book" is a device for the blind and physically handicapped. It is an audio book in which a spoken text is recorded. The term "Human Library" is "an event that aims to create dialogue and understanding between people. Individuals volunteer as human 'books' and participants in the event can 'read' the book -- meaning they would have a one on one conversation with the volunteer and share in a dialogue about that individual's experience" (retrieved from http://www.humanlibrarychicago.org, accessed February 8, 2016).
5. Furthermore, books stand in a row on a shelf and are regarded as the best source of knowledge in some cases. Similarly, people stand and have much knowledge.
6. Although metaphors regarding objects as having a human body and/or body parts are considered marginal for the European culture, industrial products used the metaphors are often seen in USA. For example, 'Omega Mega Mouth Juicer (BMJ330)' by Omega Products in Pennsylvania is a juicer whose feed chute is big and wide. "The Mega Mouth does have a big *mouth*, so we could easily shove in medium-size whole pears with no problem" (retrieved from http://www.chowhound.com/reviews/mega-mega-mouth-juicer-bmj330-74, accessed February 1, 2016). Similar examples can be seen below. 'SuperEar Sound Amplifier' by Sonic Technology Products, USA is an assistive listening device (retrieved from http://www.sonictechnology.com/superear.htm, accessed February 1, 2016). The London Eye completed in 1999 is a giant Ferris wheel near the Thames in London. On the other hand, products with body-part nouns are often seen in Japan. 'Mitsubishi Chubu rīk monitā Haya-mimi-kun (MLTLM-1997)' (Mitsubishi Tube Leak Monitor: Mr. Sharp Ears) is a tube leak monitor which can discover high-pressure steam or

water leaks. 'Shun-soku' (moment-foot, i.e., swift-footed) by Achilles is the name of popular sport shoes which have been developed for children's footraces. 'Magikku-hando' (Magic-hand) is a manipulator capable of holding an object in a distant place.

7. I have asserted that "languages have semantic extensions similar to those in English" (Lehrer 1974: 135). Although there seems to be parallel in form in languages, it should be noted that the extended meanings do not often coincide in details (Perekhvalskaya 2008: 54). As Yamanashi (1988: 150-151) points out that there are essential differences between Japanese and English expressions of 'the *head*/*shoulder*/*flank*/*foot* of a mountain'. Whereas the definition of the word 'mountain' in English is a considerable mass much higher than 'hill' with steep sides, that of the word 'yama' (mountain) in Japanese often indicates 'hill' also. Therefore, people in Japan look at mountains different from those in Europe in many cases, even though the same mountain metaphor is employed. In this case, the difference arises from that of prototype in cultures.
8. Koester and Bryant (1991: 29) describe: "Jacket length used by consumers refer to body landmarks such as waist, hip, crotch, and thumb".
9. Francesco di Giorgio Martini (1439-1502) was an outstanding architect, painter, sculptor, and military theoretician in the Italian Renaissance. He was known to have applied the human model to designs of civil and military architecture.
10. Keith Allan writes: "I would guess that trees are more often anthropomorphized than mountains simply because they are more similar in form to a human than is a mountain" (personal communication, August 10, 2014). This is true of the Japanese view. However, the expressions like 'yama no *itadaki*' (the *head* of a mountain), 'yama no *se*' (the *back* of a mountain), and 'san –*puku*' or 'yama no *hara*' (the *belly* of a mountain) are employed much more frequently than those such as 'ki no *ashi*-moto' (the *foot* of a tree) and 'ki no *ude*' (the *limb* of a tree) in Japanese. I have described earlier: after the first projection, "if necessary, the body part is secondly extended to the object part based on the first projection". Considering the body model of 'Odashiro-ga-hara no Kifujin', it may be difficult to reinterpret complex parts of a tree as a simple body-part model in Japanese.
11. Although Yamaguchi (1986, 1989) writes "(the image of) snake", it is called 'tana' which is a mysterious creature lying on the whole island of Flores. According to Aoki (2006), 'tana' itself is identified with the island. She also points out that some people regard it as a snake and that others see it as a whale.
12. Concerning instruments with little or no apparent relationship with music, Rault (2000: 135) describes: "The fact is … that many African bells are not first and foremost instruments for the creation of resonant sound, but above all symbols of authority and power, used to invoke the king's ancestors".

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