英語と日本語における身体語彙の意味拡張: 首から上の部位に関して

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Semantic Extensions of body-part terms in English and Japanese With special reference to those parts located above the neck

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要旨

本稿では身体部位詞の意味拡張を、認知言語学の比喩写像の枠組みにおいて考察する。取り扱う部位は、首から上の、頭、顔、目、鼻、口である。一般的に身体部位を表わす語は多義性を有していて、その多くに、身体部位と物の形状の類似点にもとづいた、物体の一部への意味拡張が確認できる。今回は、包括的に全ての意味範疇は扱わずに、空間的・時間的意味に特化して議論する。意味拡張する動機は、語彙概念のもつ空間上に外在的に拡張する方向性や、身体部位の位置であることを主張する。また、2言語を対照させた結果、英語は空間的意味の移動への拡張が多くみられ、日本語は時間的意味への拡張が多いことが確証できた。このことから、英語は積極的な人間中心言語であり、日本語は能動的な状況中心言語であると解釈できる。

1. Introduction

Within the framework of cognitive linguistics, this paper investigates semantic extensions of body-part terms (head, face, eye, nose, mouth, ear),

and their commonality and differences in usage, contrasting two languages: English and Japanese.

As a rule, cognitive linguistics concerns itself with analyzing how bodily-based experience, including ordinary physical actions such as seeing, touching, throwing, moving, etc. contribute to the conceptualization of language. Lexical concepts are built up on the movement of the body involving our perception. Experience comes first before meaning emerges, and not vice versa. In other words, body and mind may be seen as two sides of the same coin functioning together, something which conflicts with a commonly held belief in the Western world claiming that body and mind are distinct from each other.

Normally, body-part terms form a wide semantic network extending to a variety of meanings in their usage. For instance, typically most terms are observed to metaphorically have spatial meaning referring to part of the object based on a resemblance of form between body part and the object, as in the leg of a table. My attempt is not to comprehensively cover all meanings but is to discuss the limited semantic categories of SPACE and TIME.

Before going into detail, let us conceive of the perspective of the semantic extension of body-part terms. From the standpoint of gramaticalization, Heine et al. (1984) illustrates the unidirectionality of semantic extension of body-part terms: PERSON > OBJECT > SPACE > TIME > PROCESS > QUALITY. At first glance, the abstractness of the lexical concepts would seem to increase in unidirectionality from left to right. Thus, the boundary of the lexical concepts of concreteness and abstractedness seems to be located on the border between SPACE and TIME, that the former concerns itself with the five senses, but that the latter does not. That is to say, space and time appear to be two

contradictory concepts. However, it does not mean there is no connection between these two concepts. Semantically speaking, semantic extension is not arbitrarily formed, but is motivated by logical connection to meaning. In principle, temporal reference is conceptualized by spatial reference. This is compatible with the idea (concept) that the motion in space is representative of speed in time. In particular, this study focuses on semantic extensions of spatial domain and temporal domain that are thought to be major aspects of cognitive semantics in consideration of their links with each other.

In this paper, I argue that the primary motivations for semantic extension are the position of the body-part and the directionality of body-part as it extends into space.

2. Previous studies

2.1 Ando

In an early work, Ando (1986) 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.

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P.33 (1)

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

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

P.33 (2)

head		atana
	face	kao

Therefor, 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 jyosei 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". (Spring CA became)

'△ 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.

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

(What CA hear is?)

In Japanese, as in (1) b and (2) b, matter-centered expressions such as mieru, kikoeru, niou, kigasuru, can be used, but the agent is not salient.

2.2 Matsumoto (2000)

Matsumoto, another researcher doing work relevant to this paper, pointed out that the extension of body-part nouns to object-part nouns is developed through metaphor based on resemblance defined by position, form, size, and function. (p.319) In 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 of 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, jyuko (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 (1994) and Langacker, 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 relative position with a standard object. Lastly, the positional relationship between a space and a standard object will be reflected in the meaning of a word.

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

3. Methodology

3.1 I referred to authoritative dictionaries, including *Nihon Kokugo Daijiten* and $OED 2^{nd}$ edition for the examination of semantic extension. Furthermore, the chronological order of appearance of sematic extension was taken from dated examples given in the two dictionaries mentioned above.

3.2 For more detail, the subcategories of semantic extension in SPACE

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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 gradually greater. In other words, the concreteness of

the lexical concept shifts more and more into abstractedness.

SPACE

position, place, directionality, alteration, expansion, momentum

subject movement, object movement

TIME

Earlier, later, duration, future, past, speed, continuation, time, standing by

3.3 With regard to metaphors which may be considered as applicable to

conceptual metaphors as advocated by Lakoff, an original conceptual

metaphor 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.

4. Results

Abbreviation CM: Case Marker

4.1 atama or head in Japanese

4.11 spatial reference

retsu no atama line CM head

the head of the procession

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4.12 temporal reference

atama kara

head from

from the beginning

In this section, I 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.

4.2 Head in English

spatial reference

4.21 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.

4.22 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 phenomena 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.

4.3 kao or face in Japanese

4.31 Kao wo awaseru face CM look look at each other position
4.32 Tsuki no kao moon CM face surface of the moon place

As in 4.31, 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 4.32, 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.

4.4 Face in English

4.41 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.

4.5 me or eye in Japanese spatial reference

4.51 me no mae, (mokuzen) position

4.52 me saki, direction

4.53 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. 4.51 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 4.52 and 4.53, 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
4.54 ichibanme the first place temporal order earlier
4.55 mokuzen (menomae) right before one's eyes near future

As in 4.54, 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 4.55 already appears with as a spatial reference in Example 4.51 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.

4.6 Eye in English

4.61 the eye of a typhoon position
4.62 one's eyes (keep an eye on your valuables) directionality

In example 4.61, 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.

4.62 is seemingly a very simple expression frequently appearing in ordinary language. However, it is figurative in nature language. 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.

4.7 hana or nose in Japanese

Spatial distance

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

4.72 hana no sa nose CM difference by a nose

4.71 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 4.72 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

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western world, the example of 4.72 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

4.73 debana out nose at the start, as soon as

4.73 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.

4.8 nose in English

4.81 The ship nosed between the reefs spatial movement

4.82 follow one's nose directionality

4.81 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) → DIRECTIONALITY (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.

4.9 kuchi or mouth in Japanese

4.91 *iriguchi* ("entering mouth") entrance 4.92 *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 4.91 and 4.92 arise from the lexical concept of mouth being a point that entities come and go through.

4.93 *akiguchi* fall (autumn) mouth in the beginning of fall (autumn) 4.94 *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 4.93 and 4.94, indicating the beginning of temporal

event.

4.10 mouth in English

4.101 mouth of the Thames

4.101 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.

List of semantic extensions

O Japanese • English

Table 1

		space				
		position	place	directionality	subject movement	distance
4.1	atama	O retsunoatama		move ahead	• head a vessel	
4.2	head	<head a="" of="" procession=""></head>			toward a shore	
		• head a procession			• head at	
4.3	kao	O kaowoawaseru	O tsukinokao	They face each		
4.4	face	<face each="" other=""></face>	<surface moon="" of="" the=""></surface>	other		
		The hotel faces the sea	• the face of the water			
4.5	me	O menomae		O mesaki		
4.6	eye	 before one's nose>		<under nose="" one's=""></under>		
		• the eye of typhoon		O mesen		
				<one's eyes=""></one's>		
				one's eyes		
4.7	hana	O iwahana		• follow one's nose	The ship nosed	O metohananosaki
4.8	nose	<pre><point of="" rock="" the=""></point></pre>			between the reefs	<under nose="" one's=""></under>
		 under one's nose 				O hananosa
						 by a nose>
						• by a nose
4.9	kuchi	○ iriguchi / deguchi		O urekuchi		
4.10	mouth	<entrance exit=""></entrance>		<outlet></outlet>		
		mouth of the Thames				

Table 2

		time					
		earlier	later	future	speed		
4.1 4.2	atama head	O atamakara < from the beginning > arrive ten minutes ahead of schedule		● There is a bright future ahead of her			
4.3 4.4	kao face						
4.5 4.6	me eye	O ichibanme <the first="" place=""></the>		O mesaki <foresight> O mokuzen <close at="" hand=""></close></foresight>	O menimotomaranu <not able="" catch="" due="" eyes="" speed="" the="" to="" with=""></not>		
4.7 4.8	hana nose	O debana <at start="" the=""></at>					
4.9 4.10	kuchi mouth	O akiguchi < in the beginning of fall > O yoinokuchi <in early="" evening="" the=""></in>	O atokuchi <aftertaste, later=""></aftertaste,>				

5. Conclusion

In the foregoing, I have argued the polysemy of bodily part terms, focusing on the domains of space and time. In this paper, lexical items with salience of semantic extension were chosen to present their dynamic development. However, it was found that not all terms hold both spatial and temporal concepts in their meanings due to restrictions against semantic extension of lexical concepts.

Throughout cross-linguistic research, the primary motivation of semantic extension arises from the directionality of body parts extrinsically extending into space as a motion event, and to their position as the tip of those body parts physically passing a point in motion earlier than other parts. Directionality refers to motion along a path.

My findings are that there is certain distinction between two languages such as Japanese and English in terms of extensions of spatial and temporal domains. As one can see in table 1, examples of subject movement related to activeness in spatial domain, in English one can

observe this phenomena, while one cannot in Japanese. In the previous study, Ando addresses English as person-focus language giving prominence to the agent in language structure. In fact, motion in space would not occur without one's intention. That is, spatial movement is relevant to person.

In contrast, large numbers of examples in the temporal domain are observed in Japanese while one finds few examples of this in English. These results show that, as in Ando's study, Japanese is a situation-focus language which, unlike English, does not tend to make the agent salient, unlike English. Moreover, Japanese tends to discreetly express something in a euphemistic way that will not try to directly point out a responsible entity but leave things to take their own course.

For instance, there is only one kind of first person singular in English, 'I', whereas Japanese has a multitude of expressions such as watashi (formal), boku (casual yet polite), ore (very casual), etc., all corresponding to 'I' and with each being used in its own time and place. In doing so, Japanese concerns itself with the speaker considering himself or herself objectively from the viewpoint of the listener to ensure that the right expression will be chosen in harmony with the situation at hand.

The primary view of current linguists often seems to be that cultural background does not have an influence on language structure. Nevertheless, I have claimed that results exhibit semantic development associated with cultural aspects to some extent.

Dictionaries

Kitahara, Yasuo. (ed.) *Nihon Kokugo Daijiten*. 2nd edition 2006. Tokyo: Shogakukan. Simpson J. A. and E.S.C. Weiner (eds.) *Oxford English Dictionary*. 2nd edition 1989. Oxford: Oxford University Press.

Takebayashi, Shigeru. (ed.) *New English-Japanese Dictionary*. 6th edition 2002. Tokyo: Kenkyusya.

Watanabe, Toshiro. (ed.) New Japanese-English Dictionary. 5th edition 2003. Tokyo:Kenkyusya.

References

- Ando, Sadao. 1986. Eigo no Ronri Nihongo no Ronri. Tokyo: Taishukan.
- Clark, Herbert H. 1973. "Space, Time, Semantics and the Child" in Timothy E. Moore (ed.) Cognitive Development and the Acquisition of Language. pp.27-63. New York: Academic Press.
- Evans, Vyvyan. 2013. Language and Time: A Cognitive Linguistic Approach. Cambridge: Cambridge University Press.
- Heine, Bernd. 1991. Grammaticalization: A Conceptual Framework. Chicago: University Press.
- Kunihiro, Tetsuya. 1997. Risou no Kokugojiten. Tokyo: Taishukan. Kunihiro, Tetsuya. 1987. Imi to Goi. Tokyo: Taishukan.
- Lakoff, George. 1993. "The contemporary theory of metaphor." Andrew Ortony. (ed.) Metaphor and Thought, 2nd Edition, pp.202-251. Cambridge: Cambridge University Press.
- Lakoff, George and, Mark Johnson. 1980. *Metaphors We Live By*. Chicago: The University of Chicago Press.
- Matsumoto, Yo. 2000. "Nihongo niokeru shintaibuishi kara buttutaibuishi eno hiyukakucyo." *Ninnchigengogaku no Hatten* pp.317-346. Tokyo: Hituzi Syobo.
- Moore, Kevin E. 2006. "Space-to-Time Mappings and Tmporal Concepts." Cognitive Linguistics 17-2. pp.199-244.
- Seto, Kenichi. 1995. Kuukan no Retorikku. Tokyo: Kaimei Sha.
- Shinohara, Kazuko. 2008. "Jikanyouhoni okeru saki no youhou to chokujiteki jikan kaishaku." *Kotoba Kukan Karada* pp.179-213. Tokyo: Hituzi Syobo.