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## 研究発表（英語発表）

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The Social Construction of the Self Affecting Figure-Ground Reversal*

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Abstract
The present article addresses cultural or cross-linguistic differences in the mental phenomena of fictive motion based on Figure-Ground reversal. One sometimes feels as if a stationary entity could be into motion, because of one’s movement towards it appearing to be at rest, and one may metaphorically express that in a sentence such as “Shinjuku is approaching.” This phenomenon is deeply concerned with a variety of cognitive functions such as salience, attention, perspective, self (other) recognition, and domain mapping, any of which would be affected by cultural values. Because Japanese people, in comparison to Americans, are said to tend to take a broad or metacognitive view, it is theoretically expected that Japanese speakers would posit a stronger constraint (i.e., more idiosyncratic) on those expressions. In fact, the result of the experiment (situation-based sentence acceptance test) supported that hypothesis.

Keywords: Figure-Ground reversal, metaphor, fictive motion, situation-based sentence acceptance test, idiosyncrasy

1 Introduction
Over time, everything, without any exception, is changing from moment to moment: states, places, and values. As people understand well, any entity around them came into existence at a time, “moves” (in broad sense) in the world, and eventually will fade away from there. Interestingly, human beings uniquely and egocentrically interpret such metaphorical “movements” of entities so as to comprehend the world, by means of, for instance, halting the motion of an entity or putting a stationary entity in motion in their psychology. This is related to a style of construal called “relative motion.” Consider cases where an entity changes very quickly; other entities around it that change slowly may appear to stay immobile completely. More interestingly, people can even view moving themselves to be at rest and instead their surroundings at rest to be in motion. A wide variety of such mental interpretations of movement can be externalized as a linguistic form:

(1) We walked through the night and made it back to Castle Rock a little past five o’clock on Sunday morning, the day before Labor Day. We’d only been gone two days. But somehow the town seemed different. Smaller. (“Stand by me.” Dir. Rob Reiner, Act III Productions, 1986. Film.)
(2) My room felt so much smaller to me. I don’t know. Or perhaps grown quite a bit in the last few months. (“The O.C.” Second season. Episode 1, 2005. TV drama.)

These are cases in which the speakers (selves) were not aware of their own values in size, metaphorically or literally, so they felt that the value of a basically stative object (town or room) was relatively diminished—note that, from their subjective perspective of selves, the object itself seems to “move” its value to the lower point. Cognitive semantics has essentially dealt with this kind of phenomena as a fictive motion based on Figure-Ground reversal (Talmy 2000); above all, a number of cognitive linguists have specially focused on moving-time metaphors such as “Spring has come” and “Christmas is approaching” (Lakoff and Johnson 1980, Moore 2014). Sometimes, the same phenomenon has been treated in spatial domain, where it has been referred to as frame-relative fictive motion, for example, “The Shinjuku station is approaching” and “I was walking through the woods and this branch that was sticking out hit me” (Talmy 2000: 132). Regarding the domain of value, however, it is yet to be discussed, but that should be a similar issue as long as the metaphor mapping between state and place is validly established (Lakoff and Johnson 1980): for example, “many students around me seem to become more and more stupid as my mentality is developed through tough experiences.”

In contrast to this, people can naturally view an object without any relative motion (i.e., moving-ego):
This train is heading for Shinjuku. [place]

We are coming to the end of the year. [time]

I am getting smarter and smarter. [value/state]

That is, neither fictive motion nor F-G reversal functions in these situations, although (4) is concerned with a metaphorical mapping from place to time (i.e., moving-ego metaphor). Note that the domains of the above examples can be overlapped in some ways because (3) evokes the spatial and temporal domains at once and (5) evokes the evaluative and temporal domains alike.

2 Cognitive functions

Linguistic expressions like (1) and (2) are complexly comprised of various cognitive functions: Figure and Ground assignment, their reversal, metaphorical mapping (from place to value), fictive motion, and self (other) recognition.

First, human cognition endows entities in sight with different statuses of salience, perceptually or conceptually, for efficiency of information processing—Figure and Ground (Talmy 1978) or trajector and landmark (Langacker 1987)—which are assumed to affect the way a linguistic expression is formed. For instance, the sentence “a bike is near a house” sounds natural, but “a house is near a bike” does not. Talmy (2003: 312) discusses “the general conceptualization of Figure and Ground in language:”

The Figure is a moving or conceptually moveable entity whose path, site, or orientation is conceived as a variable, the particular value of which is the relevant issue. (ibid)

The Ground is a reference entity, one that has a stationary setting relative to a reference frame, with respect to which the Figure’s path, site, or orientation is characterized. (ibid)

Initially, the problems here are that (i) this distinction is too simple to understand multiple layers of salience in real scenes and that (ii) these descriptions seem to be a stereotype or just a tendency, since one often views a stationary setting as a foreground as well (e.g., setting subject constructions). As shall be stated in the following section, moreover, the psychological custom of seeing a moving entity as a Figure might be unique to Western culture. Such a naive dichotomy based on a bias is likely to be revised to be sophisticated and realistic, although it is a fact that humans are “inclined” to draw attention to an entity changing its state or place. This two-sided relation, nonetheless, sufficiently explains the linguistic level of expressions like (1) and (2).

Second, based on such an assignment of prominence, differently salient entities with different values interact with one another in one’s mind, bringing about a remarkable mental phenomenon—imagine, for example, that you are driving a car on a highway, around which there are many cars moving at various speeds, and you notice a car driving very fast in the opposite lane. You may then have experienced that, ignoring the speed of your car, that car heading for you seemed to be going about twice as fast as it actually was. If your car is granted the status of Figure and the target car is granted that of Ground, then these statuses are replaced with each other (the so called Figure-Ground reversal), so that the movement of self (expanded-self) works as if it was stationary. Note that both entities here (i.e., cars) are basically seen as moving, so the original assignment of salience might be problematic.

However, why is it necessary to posit an original situation before the reversal of Figure and Ground. This is, of course, because an actually moving entity is at rest and a stationary entity is in motion. Consider the example of “Spring has come” as well as the previous instance, where the self (or ego) is seen moving in time toward a spring and feeling as if the frame of season (i.e., spring) would arrive at the place of the speaker. Is this standard analysis plausible without any doubt? It is certain that the speaker will undergo some seasonal changes—for example, feeling warmer, having a stronger reaction to pollen, and seeing cherry blossoms start to bloom—based on which he or she will judge that the spring season is coming. Considering those changes, it is doubtful that only the ego is traveling in time and the frame (spring) is waiting for his or her arrival. Although we are so far unsure of how to validate the truth, we assume that these two different conceptualizations—the season is stative or active—would depend on whether the speaker realizes the mind-
set that the ego moves around the cycle of seasons over and over again. If the speaker does think so, the ego egocentrically moves on these stationary settings from one (season) to the next.

Third, metaphorical mapping between space (place) and state (value) might not be accepted generally, compared to one between space and time. From the standpoint of localism, however, one’s stative condition is linguistically (and conceptually) regarded as a locus or container, illustrated in the sentence “He entered the state of euphoria” (Lakoff and Johnson 1980: 32). As a result, a point of space, time, and value all refer to an abstract locus, as their linguistic expressions behave in a grammatically similar way. If so, a change in either place, time, or state suggests an abstract transition of loci from one to the other in each domain, as shown in Figure 1. Furthermore, Figure 1 depicts two entities (X, Y) that can possess a value, or be located in a locus \( (x_1, x_2, \ldots, x_n) \) in any domain, denoting with the right arrow that entity X (obtaining the status of Figure) changes its locus in any domain to gradually approach entity Y (Ground).

Note that we are never sure that the mapping between domains like this is universal, which is also difficult to prove with linguistic expressions or psychological experiments. Even in Japanese, some phrases find it slightly strange to view a state as a place, as in (8); others find it relatively natural to do that, as in (9).

(8) Kare-wa siwase-na joutai-ni hait-ta. he-TOP happy state-to enter-PST
    “He entered the state of happiness.”

(9) Kare-wa kanashimi-kara nukedasi-ta. he-TOP sadness-from get.out-PST
    “He got out of sadness.”

Moreover, it is much more difficult to demonstrate the psychological reality of this metaphor because this is concerned with linguistic processing, where a concept is put into language, rather than conceptualization or psychological processing before that. It is also unclear whether any feedback exists from language to one’s mentality (i.e., linguistic relativity). This should be studied in further research.

Fourth, the recognition of self-others seems to have a profound effect on the expressions in question, because only the entity back-grounded in those cases is self or selves (or expanded-self): I, we, or my X (e.g., car and train). In other words, the way of construing self and others is associated with the degree of acceptance of F-G reversal that requires a speaker to rescind the movement of self conceptually. Further, this is thus concerned with perspective or subjectivity (objectivity, conversely) (e.g., Langacker 1990, Ikegami 2008), suggesting that the weaker self would be inclined to waive the status of Figure and instead gain the one of Ground, and the stronger self would not. This seems to raise the question of whether the possibility or acceptance of F-G reversal varies according to individual or culture.

On a related note, it is controversial whether the status of Figure should be originally assigned to a self (speaker), despite the self essentially involving the characteristic of background or less salience. Under the situation of phenomenological view, exhibited on the left of Figure 2, the first salience (i.e., Figure) is not provided, not for self but for the object to which he or she faces (i.e, object Y). On the other hand, it is only under the condition of metacognitive view, diagramed on the right of Figure 2, that a self as object X can acquire the status of a Figure, which may descend to that of Ground by taking the egocentric viewpoint (i.e., phenomenological perspective) to attain an F-G reversal. However, it is quite doubtful that in order to utter a related linguistic expression, the speaker needs to actually shift his or her perspective in mind from the latter to the

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Figure 1: Movement in three domains.

Figure 2: Phenomenological and metacognitive views.
former—there might be no psychological reality—, although the metacognitive view is necessary to analyze the phenomenon at hand.

Although cognitive linguistic studies prefer this kind of dichotomous categorization (e.g., Ikegami 2008, Nakamura 2009), there are indefinitely various types and degrees of metacognition because human beings can employ so-called “theory of mind,” project a viewpoint, and broaden their visual sight (Sugaya 2017). Because such a metacognition requires a high-level cognitive faculty and imagination unlike the phenomenological view (i.e., the actual view), it must be seen not as primitive but as secondary, so the F-G reversal from metacognitive to phenomenological views would be unnatural and even impossible in nature. A psychological experience like (1) and (2) by itself could be an initial, intuitive feeling, not based on the (objective) perspective of the third person at all. Thus, there is an ontological problem in the F-G reversal regarding self-others.

3 Social construction of cognition

These cognitive functions may be influenced by cultural values shared in society. Cognitive sciences, including cognitive psychology and linguistics, have long been so apathetic about the cultural impact on cognition that they have barely cast skeptical eyes at the putative universality of human cognition, including perception. Against such a main current, however, cultural psychology has emerged and discovered a variety of facts to prove the hypothesis that culture can form cognition (cf. Bruner 1990, Markus and Kitayama 1991). A number of empirical surveys in that field have revealed the cultural effects on one’s cognitive abilities or behaviors such as emotion, inference, decision-making, perception, attention, and self-recognition.

Take a look at Figure 3, which indicates that culture works not directly on language but on psychological functions that may interact with linguistic production as well. Traditionally, a lot of linguists have ever dealt with culture in relation to language and vice versa, assuming that language is one form of culture—It is well known that structural linguistics, based on cultural relativism, has underscored this aspect. However, even though language study as a cognitive science began half a century ago, the cultural formation of cognition, as has been discovered in cultural psychology, has not been accepted to apply for its investigation—although left- or right-branching of syntactic structures might be seen as one of the cultural constitutions of one’s cognition. Note that Figure 3 does not mean denying the interplay between culture and language or biology at all, and biological components have to support any psychological function that form various linguistic expressions.

The Figure-Ground reversal should be one of the schematic cognitive behaviors that would be affected to some extent by the style of thought formed by culture. To take a clear approach to this, it is better to begin by comparing far more distinct cultures than to do so between close societies, as cultural psychology has often tackled the distinction between Western and East Asian cultures. Fortunately, these large differences of mentality seem to be applicable to the linguistic comparison of English and Japanese too. Conversely, examining these languages as a clue may hopefully elucidate the difference in cognition between cultures, but we should be meticulous about the fact that language cannot have a direct relation to mind. Before putting forward our hypothesis to be proved, we shall introduce an alternative hypothesis, based on cognitive linguistic research in Japan.

The cognitive phenomenon at issue must be associated, as stated above, with subjectivity or objectivity (aka. I-mode of cognition and E-mode of cognition). Japanese cognitive semantics has been eager to insist consistently that, for linguistic expressions, the Japanese language tends to make a subjective perception/conception and English tends to make an objective construal, because the Japanese can grant leeway to express a subject of a sentence (e.g., Ikegami 2008, Naka-
mura 2009). This means that English speakers are like-
lier to locate their perspective outside (i.e., metacogni-
tive view) to acquire a broad sight than the Japanese
speakers (see Figure 2 again). Thus, a theoretical fore-
cast from this assumption would be the following:

(10) (a) English would posit a stronger constraint
on Figure-Ground reversal than Japanese.
(b) Because of (a), English (metaphorical)
expressions of Figure-Ground reversal
would be more highly idiosyncratic than
those of Japanese.

As for (10a), if English normally includes the cus-
tom of external view to observe the self from the out-
side, it is expected to impose a greater constraint on ex-
pressing a fictive motion such as “the Shinjuku station
or the Christmas day is approaching” (place, time) and
“the town gets smaller” (value), as that phenomenon can
never appear from such the realistic perspective. This is
the reason that, in (10b), which is an alternative work-
ing hypothesis for the experiment below, this kind of
linguistic expressions in English would be quite strictly
idiosyncratic. English could admit the sentences for
F-G reversal to a much lesser degree. In contrast, if
Japanese speakers basically have the phenomenological
view, Japanese would be apt to more regularly permit
the expressions for fictive motion.

Cultural psychology has developed the cognitive ba-
sis of cultural differences in an empirical way, unlike
cognitive linguistics. One of them is concerned with
the fundamental method of attention and perception—
Masuda et al. (2008) have found that the Americans and
the Japanese have a different manner in which to per-
cieve and draw attention to the objects, namely, analytic
and holistic attentions, respectively. Moreover, Sugaya
(2017) demonstrated the applicability of this distinction
for the psychological basis of linguistic expressions as
well. Hence, we offer the hypothesis about the phe-
omenon in question such as:

(11) (a) English would posit a weaker constraint
on Figure-Ground reversal than Japanese.
(b) Because of (a), English (metaphorical)
expressions of Figure-Ground reversal
would be less idiosyncratic than those of
Japanese.

4 Experiments

To prove the hypothesis (11) against the null hypoth-
thesis (10), we conducted an experiment with Japanese
and English speakers, based on sentence acceptance in a
given situation, to examine the idiosyncrasy of linguis-
tic expressions containing a fictive motion supported by
F-G reversal. Because this experiment asked the partic-
ipants to imagine a wide variety of situations based on
which to provide a rating judgment for sentences, we
tentatively called it the situation-based sentence accep-
tance test. For the participants to easily understand sit-
uations, we presented some pictures together with con-
textual sentences.

4.1 Method

Participants

All of the participants were recruited over the Internet.
Twenty-eight English native speakers who lived in
the United States or Canada (9 women and 19 men;
$M_{age} = 34.41$ years, $SD_{age} = 12.15$), in addition to
twenty-eight Japanese native speakers who all lived in
Japan (18 women and 10 men; $M_{age} = 38.14$ years,
$SD_{age} = 8.78$), took part in the experiment, receiving
50 cents or 50 yen for participation, respectively.

Materials

The experiment from its design to data-gathering stage
adapted the Qualtrics software,$^1$ which has the advan-
tage of possessing a web version of the platform, so the
participants could run the trial on their own PC or tablet,
accessing the distributed URL to the experiment. Thus,

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1Version 2016 of Qualtrics. Copyright © 2016 Qualtrics. Qualtrics and all other Qualtrics product or service names are registered trademarks or trademarks of Qualtrics, Provo, UT, USA.
they had to bear a smaller burden to participate in the research.

In the experiment, there were eleven different situations and forty-five sentences to be judged in terms of both naturalness and acceptance—in total, the participants were asked to make ninety rating assessments. To examine the degree of idiosyncrasy, or restrictions of F-G reversal, we needed to prepare for non-default situations and sentences or presented different entities for experiencers (Object X) and landmarks (Object Y) as well as manners, as shown in Figure 4. For example, we compared the acceptance of the sentence “Chicago (or Osaka) is slowly approaching” in English and Japanese with the one of the default sentence “Chicago (or Osaka) is approaching” (2 × 2).

All situations behind these sentences concern either a movement or a change of state. Concerning a spatial movement, we basically offered the case of journey or a change of state. Concerning a spatial movement, we basically offered the case of journey (5.3 miles). In the experiment, there were eleven different situations and sentences presented in the experiment and their distinctions between languages (note that the expressions compared in Japanese and English do not completely correspond). More important, Figure 6 indicates the result of cross-language differences (i.e., Japanese and English) of distinctions between two expressions (i.e.,

<table>
<thead>
<tr>
<th>Manner of motion</th>
<th>Direction speed</th>
<th>Speed</th>
<th>slow</th>
<th>fast</th>
<th>little by little</th>
<th>rapidly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>get away</td>
<td>slow</td>
<td>from</td>
<td>get away</td>
<td>slowly</td>
<td>far</td>
</tr>
<tr>
<td>Normal</td>
<td>get close</td>
<td>slow</td>
<td>to</td>
<td>get close</td>
<td>slowly</td>
<td>near</td>
</tr>
</tbody>
</table>

Procedure
After every participant acknowledged the prior explanation about the experiment, he or she accessed the URL to start. First, all participants had to offer personal information on age, gender, the first language, and area of residence. After they answered all of the questions, they were required to evaluate each sentence on a six-point scale (i.e., 0-5), as illustrated in Figure 5, without time pressure.

4.2 Results
Because the purpose of the experiment was to reveal the distinction between Japanese and English or between default and extension (non-default), we used (unpaired) Welch’s t-test for test of statistical significance. First, there is almost no difference between the two standards, acceptance and naturalness (their means are 2.56 and 2.58, respectively, in Japanese and 3.18 and 3.15, respectively, in English), so this section shall indicate only the results of acceptance due to space limitations.

Take a look at Figure 6, which shows the results of all the sentences presented in the experiment and their distinctions between languages (note that the expressions compared in Japanese and English do not completely correspond). More important, Figure 6 indicates the result of cross-language differences (i.e., Japanese and English) of distinctions between two expressions (i.e.,
two types of expressions (Japanese case had a significant difference between these "ting close" in both Japanese and English, but only the acceptable) than the sentence "Chicago (Osaka) is get-
close to Chicago (Osaka)" was more well-formed (ac-
default and non-default). For example, consider [a] and

differed between Japanese and English. Because of the
extent of that remarkably differed between Japanese and English. Because of the
default and non-default). For example, consider [a] and

Figure 6: Results of the experiment

against hypothesis (10), the current experiment sup-
ored to Figure 6 for the remaining cases.
4.3 Discussion

Note that we need some replication studies, partly be-
cause the present experiment was designed with limited
linguistic expressions and conducted for a small volume
of participants. Moreover, the hypothesis is associated
with the cognitive or perceptual operation of Figure-
Ground reversal and must require some psychological
method of experiment—language is merely one symp-

default and non-default). For example, consider [a] and
[a'], which means that the sentence "this bus is getting
close to Chicago (Osaka)" was more well-accepted (ac-
ceptable) than the sentence “Chicago (Osaka) is get-
ing close” in both Japanese and English, but only the

Interestingly, most such comparisons from [a] to
[I] have shown in common the fact that extensive expres-
sions—for instance, the case of inserting the ad-
verbs such as “rapidly” and “slowly” (see [b] and [c])—
were less permitted in Japanese than in English, as in-
dicated by the fact that p-values in Japanese were much
lower in all types of expressions except for [g]. Thus,
even in the same category of statistical difference, the
data showed great distinctions between two languages.
For example, consider [j], [k], and [l], all of which con-
cern F-G reversal in the domain of state or value. Al-
though the expressions containing an F-G reversal were
less natural in any type, the extent of that remarkably
differed between Japanese and English. Because of the
space limitations, refer to Figure 6 for the following
cases.

4.3 Discussion

Against hypothesis (10), the current experiment sup-
ported the following hypothesis (=11):

(12) (a) English would posit a weaker constraint
on Figure-Ground reversal than Japanese.
(b) Because of (a), English (metaphorical)
expressions of Figure-Ground reversal
would be less idiosyncratic than those of Japan-
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not be specific with the current topic (i.e., F-G reversal) and instead could be general and applicable for any kind of linguistic phenomenon. That is, the Japanese language basically could, regardless of F-G reversal, less admit novel expressions than English because of those languages’ propensity. We thus might need to compare the idiosyncrasies of other types of linguistic expressions as well in order to accentuate the specialty of the data obtained here.

5 Conclusion

Your time, place, and state are always changing moment by moment, and those of any other things are so as well. The relation between them seems to be significant and even central in his or her mind, because he or she is inclined to, whether consciously or not, compare with other people in various domains like smartness and beautifulness to define self. Thus, it is significant to investigate the relative movement (of values) and its method or bias unique to humans in psychological and linguistic fields. At least, this article suggests not only that three basic spheres (time, place, and state) would conceptually and schematically employ the same system but also that cultural values could affect that system.

Cultural psychology has demonstrated the fundamental distinction in perception and attention between Western and East Asian societies: Japanese like to take a broader view, instead of a local attention, compared to Americans. This research also suggests the possibility that the Japanese metacognitive view would not accept egocentric sight of expressions based on F-G reversal, while English speakers would do so. Moreover, we suspect that such linguistic differences can contribute back to their psychological states as well (i.e., linguistic relativity).

References


