

Reconsiderations of 'over' in Cognitive Grammar from the View Point of Teaching English as a Second Language.

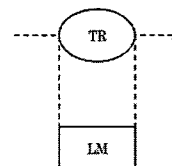
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Students of English as a foreign language (here after EFL) find it hard to learn and use properly the polysemic word *over*. One problem for EFL learners is bias that occurs during vocabulary building. This paper will focus on solutions to this problem in EFL learning, especially using the cognitive linguistic approach schema of Yukio Tuji, adopting definition of schema from the cognitive linguistic dictionary.

The paper will begin with the image schema of 'over' from George Lakoff. For getting a handle on each *over* schemas, we describe Trajector(TR) and Land Mark(LM) in schemas. But Lakoff (*Women* 1987) doesn't sufficiently distinguish between the prepositions *over*, *above* and *across*. So, we consider whether the prototype schema from Tayler and Evans (*the semantic* 2001) is suitable for the *over* schema or not. Second, we ascertain that Keiko Takehana (*Cognitive grammar and prepositional polysemy*, 2002) has claimed that the prototype schema is unsatisfactory explained. In other words, they have derived the prototype schema with insufficient cognitive evidence said Takehana. In addition, she conducted psychological experiments which a native English speaker took part in. As a result, she has offered that TR mental path (i.e. TR's direction) must be needed in the *over* schema. Hence, we adopt an *over* core image from E-gate English dictionary which is included in TR's mental path. Next, we address that when and how the learner's bias occur based on the cognitive acquisition model from Shigenori Tanaka (*English Curriculum Frameworks* 2005). Finally, as a way to resolve the bias, we refer to the description of Mitsugi Makoto [Practice of polysemous word.2018] about how to solve these three biases. we reconsider whether the core image schema is useful or not at the EFL education.

Lakoff's schema

George Lakoff shows a schema which is a typical example of a schema for *over*. Before explaining this, it is necessary to described David C. Bennete's idea that given that a lexical item has a sense, it is possible to extract core significance and



1. The ABOVE-ACROSS Schema (Lakoff, 1987, p. 419)

explain the sense derivation from the lexical item (qtd. in Mitsugi 2018 pp17-18). For example, Bennett has analyzed the word *over* as a represent polysemic word and he has extracted a common meaning in illustrative sentences. However, he utilized only 6 sentences, therefore, it was at issue that not all instances of ‘over’ were covered. Furthermore, he did not describe the distinction between over, across and above, hence Bennett’s analysis has been criticized for failing to take on the unique semantic features of ‘over’. Lakoff objects to Bennet’s theory. Lakoff has shown original idea which mixes two core significances of over ‘above’ and ‘across’ namely ‘The Above Across Schema’. See figure 1. In cognitive studies, spatial prepositions indicate the relation between two arguments *trajector* (TR) and *landmark* (LM). Lakoff mentioned as below :

How TR and LM relate to each other in space. More specifically, in a large number of cases, spatial prepositions describe the place/location of TR (in other words, they assign TR to a particular place)by using the argument LM as references or still, they serve to locate TR with respect LM, or rather, the place of LM(1987 p.188).

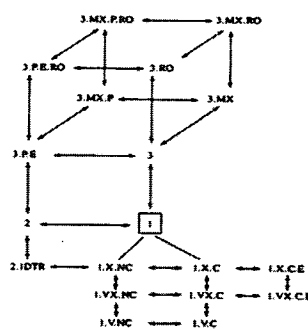
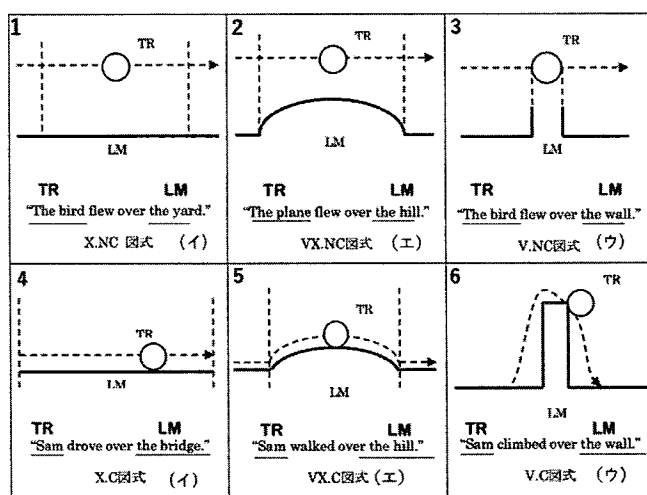
For instance,

(1) The plane flew over the the mountain

On (1), *The plane* and *the mountain* corresponds to TR and LM respectively. On figure 2-1, TR locates above and includes to move to the side with *Path*. Lakoff has shown this image schema as prototype, by doing so, many divided ‘over’ schemas are shown(Figure 2 and 3).

2 (Lakoff 1987 pp. 421-422)

3 (Lakoff 1987 p431)



In figure 2, 6 schemas are explained under given conditions below. And for these sentence, the following abbreviations have been used.

- I. LM is a point
- II. LM is extended =X
- III. LM is vertical =V
- IV. LM is both extended and vertical =VX
- V. TR does not contact LM = NC
- VI. TR contacts LM = C

He has linked each schema in Figure 2. And Figure 2 shows a way to explain multiple meaning with the semantic network 3. Lakoff has explained :

Figure 27 (here Figure 2) shows what is meant by a radial structure. Schema 1 (here figure 2-1) occupies a central position; it and its instances are of primary importance in the system of links. The links corresponded to what Wittgenstein called "family resemblances." The links are sometimes defined by shared properties, but frequently they are defined not by shared properties, but by transforms or by metaphors.(1987)

But as you may see, figure 3 has a complicated structure for invoking sense which we use in general conversation. Moreover, Tanaka and Matumoto [*Expression of space and movement* 1997] has claimed that this network schema is described with two prepositions 'above' and 'across', therefore it is not able to explain the semantic differences between above and across. Some apparent counter example can be found in Lakoff 1987.

(2) Sam drove over the bridge.

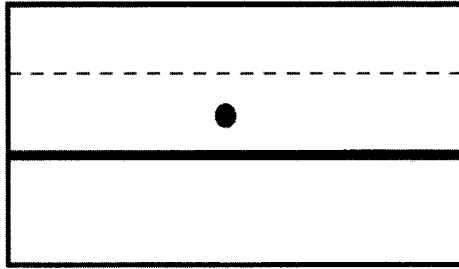
(3) Sam drove across the bridge.

Because both sentences of LM have XV and contact with TR. It is inadequate for the distinction between 'across' and 'over'.

Tyler and Evans prototype

In Tyler and Evans 2001, the schema was criticized as being fragmented too much and they have shown new prototype over schema which has been reconsidered about the relevance of two prepositions 'over' and 'above'. Figure 4 is the prototype in in Tyler and Evans 2001,

In figure 4, the point is marked as TR. The bold line under the TR is marked as LM. Relevance of TR and LM is delimited by the dotted lines. The area for the spatial of TR is restricted. Therefore, as a conspicuous feature, they characterized this prototype "A TR



4. Over Prototype (Tyler & Evans, 2001:111)

being located higher than but potentially within reach of LM". (4) is cited from Kreitzer (1997)

(4) ⚡The birds are somewhere over us. (Kreitzer 1997)

In this case, TR is located higher than LM in an unclear position, 'above' is better to use for the sentence, since TR is not within reach of LM, it is hard to accept this sentence. For this reason, the mental representation of 'above' indicates that TR is located extremely higher than LM and no possibility to reach each other. It is going to be clear by comparing the following two sentences,

(5) The cross-country skier skimmed over the snow.

(6) ⚡The cross-country skier skimmed above the snow.

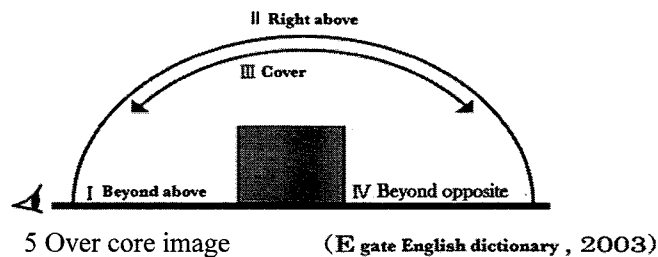
In general conversation, (5) evokes a default knowledge from skiing which is the contact between skier and the surface of snow and (6) evokes an extremely special case of knowledge which is possibility about ski jump since the sentence indicates no contact between skier and surface of snow. Therefore, a native speaker thinks that (6) is dubious. The Tyler and Evans distinguish successfully between 'over' and 'above' with prototype which is delimited by the dotted line under the condition that there is a width between TR and LM.

Psychological path of over.

On the other hand, Keiko Takehana 2002 claimed that Tyler's prototype has been derived from the prototype schema with insufficient cognitive evidence, since the analysis is rooted from structural linguistics like generative grammar, therefore their cognition evidence of idea is lacking (see Keiko Takehana pp.63-64). In addition, she adopted a psychological

experiment(see pp.64-66) which showed the image schema 'over'. And it claimed that the important feature is a psychological path for TR. Therefore, she concluded that Lakoff's schema is more reflective of cognitive essence and *over* feature. However, core theory in core analysis is just an approach from Tanaka and Matumoto in 1997. It is possible to derive a core sense from a core image and by cognitive operation and derive different meanings. Hence even if it extracts just core, it is not ignored that cognitive operation which is through human experience, background knowledge and perception. To distinguish sentences (5) and (6), a knowledge of how to ski(i.e. more specifically, skier need to contact with snow surface) is necessary. And cognitive operation for understanding the sentence (or utterance as well) reflects knowledge from intellectual experiences about skiing. From these observation, I claim that the process of making Tyler and Evans schema is not wrong at all. But the importance of the path ,which was indicated by Takehana, must not be forgotten. Let us consider the Figure 5 core image (Tanaka,Shigeori 1990).

Over core image schema



In order to understand the sense of 'over' based on this core image, it is necessary to do cognitive operations i.e. focalization, vantage point shift, schema rotation. Focalization gives the point of core image a cognitive prominence. A point in Figure 5 was focused as cognitive prominence figure, and other points was not focused. These became grounds. In Figure 5, it has explained about semantic derivation with four focalizations.

- (7) The cat jumped over the fence. <focus I>
- (8) The plane is flying over the Pacific Ocean. <focus II>
- (9) The king had strong control over his people. <focus III>
- (10) There is a castle over the mountain. <focus IV>

It is easy to understand the relevant multiple senses under a condition that the *over* image

schema defines when TR moves over LM, it draws an arc as a spatial concept and it is caused by a vantage point shift(I to IV). In (7), LM is over the fence and focus I , in (8), LM is the Pacific Ocean in focus II . In (9), this *over* is somewhat abstract, but it is a physical, spatial image covering the whole. It projects the abstraction of ‘rule’. It is assumed that the repetitive operation, which is included in roll over and turn over, has been evoked by human rolling cognitive operation. In Tanaka and Matumoto (1997) showed that roll operation in Figure 6.

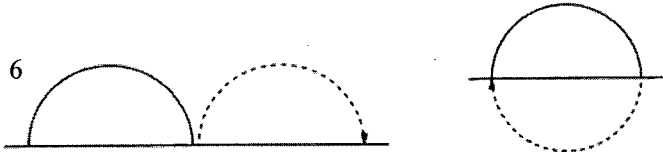
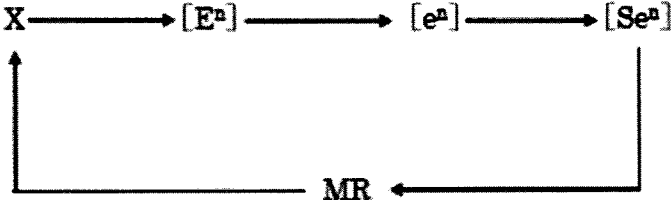


Image schema ‘roll’ ⑥ turn over (left) and roll over (right)
 (Tanaka · Matumoto, 1997, p.83)

Implication for teaching English

Finally, we decide the core image which should be used. Therefore we are going to consider the implication for teaching English with the core image. But before addressing it, let us see the learner’s bias which has assumed that it occurs while learning polysemous words.

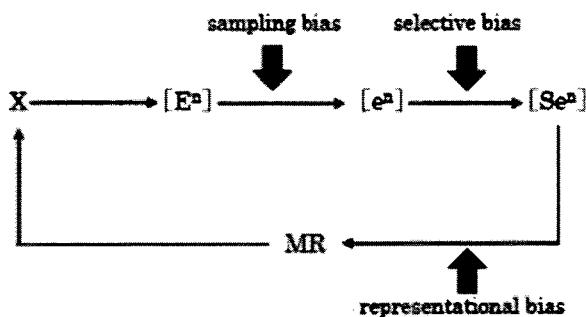
If we assumed that learning polysemous is a process, the bias, which disturbs the ESL learner, must happen. In other words, biases must be found when the ESL learners try to learn English polysemous words. SLA (second language acquisition) process has been structured by ‘data-gathering’ and ‘rule-forming’. Namely, Learners make the hypothesis about lexical meaning, so-called ‘hypothesis-making’, during their experience with many instances of the lexical item. Then, they validate the hypothesis repeatedly (Schmitt, 1988). Sigenori Tanaka 2005 showed a model of SLA process as Figure 7 which was based on cognitive position and considered the learning process of ESL(i.e. data-gathering, rule-forming, hypothesis-making, hypothesis-testing).



7 Cognitive acquisition model (Tanaka etc, 2005 p192)

The usable range of polysemy word X is [En], which is an example that polysemy word X can have. Since the learner is unlikely to use all the examples, the learner usually uses the example set [en] which is a partial set. However, due to the influence of the mother language, there is a high possibility of a preferential use. That is recognizing meaning which is easy to understand for themselves and meaning frequently uses in an everyday conversation at the stage of input (learning) in [en]. In other words, not all of the meanings which were shown to learner, and then, 2types of lexical item are yielded that are easy for the learner to learn and difficult to learn. Selective learning is done at the stage of [en]. As a result of this selective learning, the sample group acquired (intake) becomes [Sen] and moreover becomes a subset of the [en] which was shown to the learner. Finally, the learner constructs [MR] (mental representation) as the whole image of the meaning of the polysemous word X based on the meaning grasped through [Sen]. This is a vocabulary learning model of the second language based on the cognitive stance. This model is affected by 3 biases.

This is Figure 8 which is described with 3 biases. The first one is the sampling bias



8 Cognitive accusation model and Three biases (Morimoto, 2015b, p.77)

that occurs in the transition from [En] to [en]. For example, the teacher extracts [en] from [En] in consideration of some educational intention to encourage learning. Simply put, the teacher samples and shows it to the learner, it generates bias in capturing the meaning of the word already. The second one is the selective bias which occurs between [en] and [Sen]. This is a bias of selective learning which is preferentially selected by personal choice in learning but another is excluded. Thirdly, representational bias is caused by processing the lexical item which has been learned, and the learner personally creates the overall images of the meaning. The learner tries to understand the meaning of the target word based on the examples which have been given. But at the same time, information is processed from the knowledge due to the influence of the mother tongue. In other words, the lexical

filter[Sen], which has been learned through the mother tongue, is processed. As a result, the personal whole image [MR] creates meaning. For example, if a polysemous word X is the verb *break*,

(11) Break furniture in someone's house

is given a correspondence word of the mother tongue and [MR] is provided. [MR] is understood as [break = kowasu]. In this representation, some of the other examples may be processed. However, also difficult examples can be found such as

(12) The day will break [break= akeru].

This problem is caused by this bias. In other words, Japanese learners of English can not understand the situation of (12) and do not know how to use break. As a countermeasure to these biases, usually, a method of increasing vocabulary acquisition for corresponding to the meaning of the mother language is adopted, but it is assumed that the bias can not be solved by just remembering the words mechanically.

Solving the three biases with Makoto Mitsugi 2018

We refer to the description of Makoto Mitsugi [Practice of polysemous word.2018] about how to solve these three biases. First of all, it describes about how to reduce sampling bias. The fact is that the learner can not experience all the examples of the word which has been acquired. However, in core theory, it derives the core meaning for all existing examples. Therefore the learner can create a base to judge a core meaning in any particular case. Secondly, the selective bias places emphasis on existing knowledge which the learner possesses. Therefore, examples should have bias. In this case, what kind of mental representation the learner has on a word is an important factor. In the example given earlier,

(8) The plane is flying over the Pacific Ocean.

(9) The king had strong control over his people.

since either one is mentally acquired as a mental representation, it is difficult to find the relevance to the other meaning and to select another meaning as a lexical to be acquired. Core mining has a wide range of adaptation, hence it has relevance to nearly all examples that the word has, depending on the range of its application. If the learner can learn core

mining as a mental representation, they are able to find relevance in every example and to reduce the selective bias. Thirdly, the mental representation is biased when a lexical learning mediates Japanese. There has been a risk that the learner would structure a mental representation with a narrow range of adaptation due to the influence of the mother language. In order to reduce a representational bias, it is necessary to understand the meaning of the target word and to grasp the mental representation without the mother tongue as much as possible. Learning with core means attempting to understand the original meaning of English by grasping the relationship between English and Japanese with core mining as a mediator. In particular, since core meaning includes expressions with core images, the necessity to intervene through mother language during mental representation is kept to a minimum. In addition, since the core image has a mental representation which can be applied to all examples, it is possible to grasp the meaning of the target word by minimizing the influence of the mother language through learning by core mining. The likelihood that a representational bias will occur is low. Reduction of bias by core meaning usage based on Mitsugi's proposal can apply not only to closed class words which do not expand frequently like prepositions, but also to nouns with ambiguous elements.

Conclusion

As has been noted, it can be seen that core meaning is the property of cognitive grammar which is highly versatile in English education. In the future, we will explore whether core image is possible to use in the teaching method of English grammar as a lexical learning. Also we will consider the way to give a experience which is a perception of an English native speaker (as core meaning) to EFL from the viewpoint of cognitive linguistics.

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