

The Polysemy of *Over* and Its Spatial Configuration*

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1. Introduction

As is well known, the English preposition *over* is a polysemous word and it is used in various senses as in (1)-(13).

- (1) Spatial relation: above or higher than something, without touching it
 - a. A lamp hung over the table.
 - b. The sign over the door said 'Mind your head'.
- (2) Covering sense: on something, so that it is covered
 - a. Over the body lay a thin white sheet.
 - b. She wore a large jacket over her sweater.
- (3) Spatial Path sense: from one side of something to the other side of it
 - a. Somehow the sheep had jumped over the fence.
 - b. The road over the mountains is steep and dangerous.
- (4) On the other side:

We live over on the other side of town.
- (5) Down from the edge of something:
 - a. Apparently the car fell over a cliff.
 - b. The shirt was hanging over the back of the chair.
- (6) Multiple entities:
 - a. I've traveled over most of Europe but my favorite place was Austria.
 - b. They said they had cleaned up but there were bottles all over the place.
- (7) Emotional sense: be over STH to feel better after an illness or bad situation:

I think I'm over the worst of it now.
- (8) Control sense:
 - a. He rules over a large kingdom.
 - b. In this office there is one manager over a staff of 15 workers.
- (9) Excess sense: more than a particular number, amount or level:

* I am really indebted to the following people, Yukio Hirose, Katsuo Ichinohe, Toshihiro Tamura, Yuko Kobukata, Yurika Kanbe, and Ken'ichi Kitahara. All remaining errors and inadequacies are of course my own.

- a. I've lost over 3 kilos in weight.
 - b. Children over 12 are not allowed in the swimming area.
 - c. The driver was found to have over the legal alcohol limit in his blood.
 - d. a social club for the over-60s
- (10) Temporal sense: during
- a. Will you be home over the Christmas vacation?
 - b. Over a period of ten years he stole a million pounds from the company.
 - c. Can we talk about this over dinner?
- (11) Device sense: using something such as a telephone or radio:
I don't want to talk about this over the telephone.
- (12) Particular subject sense:
He's having problems over his income tax.
- (13) Excess sense:
He gets a travel allowance over and above his existing salary.

As these examples show, *over* has various senses and many researchers have tried to capture this semantic diversity from the perspective of cognitive linguistics (Brugman (1988), Lakoff (1987), Dewell (1994), Kreitzer (1997), Tanaka (1997), Ando (2001), Tylor & Evans (2001), (2003)). But there is no consensus as for the meaning of this preposition.

The ultimate goal of this research is to give an account for the polysemy of *over* and build a theory to account for polysemy in general. As the first step of this difficult work, a preliminary work is needed. The aim of this paper is to find a way to extract the central concept of *over* by eliminating semantic/pragmatic factors expressed by other constituents in the sentence. Particularly in this paper, I will concentrate on eliminating the superfluous elements from the meaning of *over* itself.

2. Previous Studies and Their Problems

Semantic approaches to the polysemy of *over* are divided into largely two types in that the central sense of *over* is abstract or informationally rich. Roughly speaking, Lakoff (1987), Kreitzer (1997), and Tyler and Evans (2001,2003) (hereafter T&E) are included in the former type on the one hand, Dewell (1992), Taknaka (1997), and Ando (2001) the latter type on the other.¹

¹ As for positing the abstract schema, Ruhl (1989) may also be included in the former type.

These analyses, of course, have differences from others. What the analyses of the former type have in common is that they posit the abstract central schema, to which various senses are connected by schema transformation, and build a semantic network.

In the case of latter type, they posit the core schema (in their term), which is informationally richer than the central schema of the former type, and derives various senses by profile. What is in common in the latter type is that the arc Path is included in the core schema of *over* as in Figure1-3.

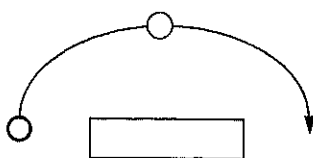


Figure 1. Dewell (1994: 353)

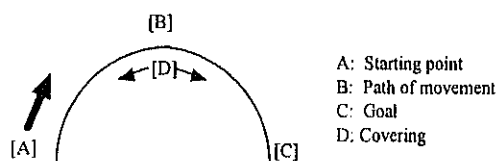


Figure 2. Tanaka (1997: 77) (translations are mine)

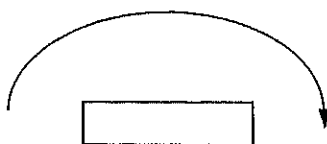


Figure 3. Ando (2001)

For comparison, let us take one example of the former type from T&E (2003). They settle the more abstract schema (“proto-scene” in their term) as in Figure 4 and it is the central schema of the semantic network of *over*. They persuasively argue that the central schema of the preposition must be defined by eliminating superfluous information. In other words, information of other lexical items such as the shapes of Trajector (TR hereafter) and Landmark (LM) is excluded from the schema of *over* itself. What is represented in this schema is just the spatial relation in which TR (shaded sphere) is in the proximal area of LM (thick line), which is delimited by the dashed line.

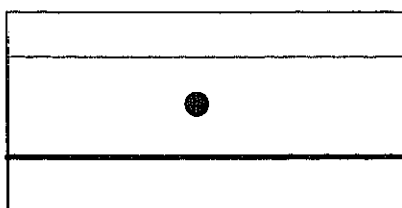


Figure 4: Proto-scene for *over* (Tyler & Evans 2003)

I agree on the elimination of the superfluous information from central schema of *over* itself. In what follows, I point out some problems of previous studies.

The elimination of extra information stems from the argument against Lakoff (1987). Lakoff offers various schema transformations corresponding to the shape of LM and relation between TR and LM. Let us see the examples.

- (14) a. The bird flew over the yard. (X.NC)
- b. The plane flew over the hill. (VX.NC)
- c. Sam drove over the bridge. (X.C)
- d. Sam walked over the hill. (VX.C)

(Lakoff 1987)

Lakoff uses the semantic specifications X, V, C, and NC as a part of the meaning of *over*. X and V mean EXTENDED and VERTICAL respectively, and specify the shape of LM. C and NC mean CONTACT and NON-CONTACT, respectively, and specify the relation of TR and LM.

These specifications should be, however, attributed to the meaning other than *over*. The property EXTENDED is included to the meaning of the noun phrases *the yard*, *the bridge*, and *the hill*. These specifications are not the concepts that *over* itself has. The same thing holds for the specification C and NC. They should be attributed to the verbs *fly*, *walk*, and *drive*. Apparently, we know that *fly* means a movement in the air and the bird goes without contact on the ground and that *walk* or *drive* is a movement with our feet, or tires in contact on the ground. So they also are not to be included in the meaning of *over* itself. These specifications are excluded from the meaning of *over* itself. Otherwise we could derive the unlimited senses according as the shape of LM varies.

The exclusion of the shape of LMs and the relation between TR and LM lead to the exclusion of the shape of the Path. The shape of Path changes

relative to the shape of LM. In other words, the shape of Path is determined depending on the shape of LM. That is to say, the shape of Path is not settled without the information of the shape of LM. TR must move keeping the upper position of the LM and its Path must not penetrate the LM itself as far as *over* is used. Talmy (2000) notes that if we consider the mountainous figure as a sort of plateau within which the Path resides, then the preposition *across* is appropriate as illustrated in Figure 5.

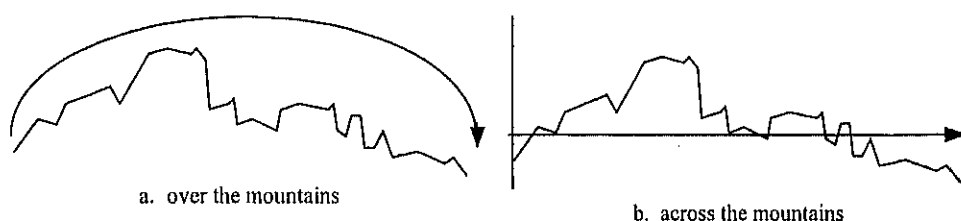


Figure 5: Talmy (2000: p.228)

Therefore, including the arc Path into the schema of *over* is inappropriate. Other than the reason described just above, there is another reason for setting the arc Path schema as a central sense of *over* is inappropriate. A static sense of *over* must be derived by the profile of the highest point on the middle of the arc Path though the static sense is thought as the primary sense. Conversely, most basic sense is derived from the more peripheral sense. The arc Path is not included into the schema of *over* itself. Theoretical process of deriving the static sense from the Path sense is not correct diachronically. According to the OED, the static sense is about 200 years earlier than the emergence of the dynamic sense.

Of course, the arc Path is likely to be associated with the various events expressed by the sentence with *over*. Simply because it is a relatively frequent example doesn't mean it is essential to the meaning of *over*. The arc Path is not included in the meaning of *over*, but is construed so by virtue of the sense of *over*, a verb in the sentence and default assumption in sentence interpretation.

(15) The dog jumped over the fence. (Ando2001)

In interpreting this sentence, a movement of the subject noun *the cat* surely traces an arc Path. This is, however, result of the processing of our cognition and our encyclopedic knowledge. We know the meaning of the verb *jump*, in which something moves in the air from the ground and it ends to the ground again by virtue of the knowledge of gravity. We also know *fence* is a vertical

object and realization of the spatial relation *over the fence* with *jump* results in arc Path configuration. This kind of interpretation is considerably usual in the language use. To say it conversely, this interpretation largely depends on the situation which is described in the sentence. In other words, it is the meaning of the sentence with *over*, but not the meaning of *over* itself.

3. Central Sense of *Over*

To capture the various senses of *over*, how do we define the central sense of *over* and how other various senses are derived? As the first step, it is useful to see the distinction proposed by Tyler & Evans (2003), because it is relatively well-sorted out, but contains dubious way of derivation.

They firstly distinguish largely five senses from the central sense (1. Proto-scene) as in below (single numbered) and derive other senses from them. Among these derived five senses, A-B-C-Trajectory Cluster (numbered as 2) and Up Cluster are different from the other three and named "Cluster". A Cluster also functions as a root of other various senses.

1. TR is HIGHER than LM (Proto-scene)

- (16) a. The picture is over the mantel.
- b. The bee is hovering over the flower.

2. A-B-C Trajectory Cluster

- (17) The cat jumped over the fence.

2A. On-the-other-side-of

- (18) a. Arlington is over the Potomac River from Georgetown.
- b. The old town lies over the bridge.
- c. John lives over the hill.

2B. Above-and-beyond (Excess I)

- (19) a. The allow flew over the target and landed in the woods.
- b. Most students wrote over the word limit in order to provide sufficient detail.

2C. Completion

- (20) a. The cat's jump is over.
- b. The film/game/play is over.

2D. Transfer

- (21) a. Sally turned the key to the office over to the janitor.
- b. The old government handed its power over (to the newly elected officials).

2E. Temporal

- (22) a. The festival will take place over the weekend.
- b. The friendship has remained strong over the years.
- 3. Covering
 - (23) a. The table cloth is over the table.
 - b. They put a transparent plastic sheet over the painted ceiling of the chapel during repairs.
- 4. Examining
 - (24) a. Mary looked over the manuscript quite carefully.
 - b. The mechanic looked over the train's undercarriage.
- 4A. Focus-of-Attention
 - (25) a. The little boy cried over the broken toy.
 - b. She thought over the problem.
- 5. Up cluster
 - 5A. More
 - (26) a. Jerome found over forty kinds of shells on the beach.
 - b. John is over fifty years of age.
 - 5A1. Over-and-above (Excess II)
 - (27) a. The heavy rain caused the river to flow over its bank.
 - b. Lou kept pouring the cereal into the bowl until it spilled over and onto the counter.
 - 5B. Control
 - (28) She has a strange power over me.
 - 5C. Preference
 - (29) a. I would prefer tea over coffee.
 - b. I like Beethoven over Mozart.
- 6. Reflexive
 - (30) a. The fence fell over.
 - b. He turned the page over.
- 6A. Repetition
 - (31) After the false start, they started the race over.

This distinction is diagrammed as the following, Figure 6. This diagram shows the multiple path of derivation and the whole network of the various senses of over.

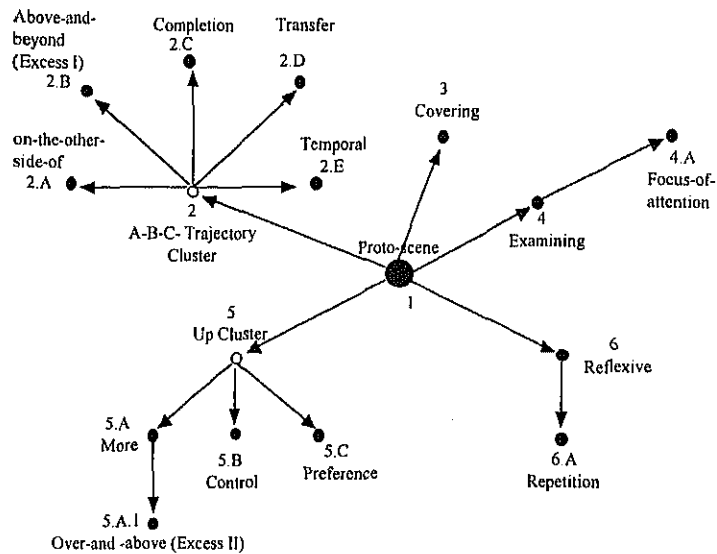


Figure6: The semantic network for *over*

While their argument for the Proto-scene is well-defined and persuasive, the way of derivation is somewhat dubious.

For example, as for the reflexive sense, in particular, there seem to be no difference from Lakoff's analysis in that TR and LM is regarded as the identical entity. But it is dubious because it is possible to say that the stereotypical LM is implicitly understood. As in (32c), we can represent such LM explicitly.

- (32) a. The fence fell over.
 b. The boy fell over and started to cry.
 c. Some of them fell over the ground and died martyrs for the Prophet's grandson.

In addition, it is doubtful that the repetition sense is derived from the reflexive sense. As for the repetition sense, Rice (1999) argues that it is derived metaphorically from the Path sense comparing *over* in this sense with the synonymous word *again*. She also notes that there is a grammatical difference between *over* and *again* as in the following examples.

- (33) a. He tried to fix it {*over/again}.
 b. I repeated myself {*over/again}.
 c. They saw each other {*over/again}.
 d. He failed the exam {*over/again}.
 e. He fell asleep {*over/again}.
 f. She burst into tears {*over/again}.

(Rice 1999)

The difference in grammaticality between them is the difference in aspectuality. In these cases, *over* indicates a single, second occurrence of action in a slightly different way and sensitive to the aspectuality of the verb of the sentence. Moreover, it requires volitionality and different outcome. On the other hand, *again* has no such sensitivity and indicates simple iteration. She notes that this sense is derived from the spatial sense of retraversing an established Path. It means that this sense is derived from the dynamic Path schema with metaphorical extension. That is, the repetition sense is directly derived from the spatial Path sense by replacing the spatial object LM with the metaphorical Path of the first action. It is more reasonable and economical way than T&E's way. From the discussion so far, the repetition sense can be derived not from the dubious reflexive sense but from the spatial Path sense.

Other than these senses, it is difficult to say to what degree these senses are entrenched and stored in the lexicon. If the information in the lexicon is large, a burden of processing is small, and if the former is small, the burden of the latter is large. It seems possible to account for other senses by the processing of lexical information other than *over* and general cognitive processes such as Endpoint Focus, Subjectification, conceptual mapping (metaphor), etc. This point is touched upon later, in section 4.

How, then, is the central meaning of *over* defined? The examples which regarded as prototypical and used frequently are divided into two types of realization.

- | | | |
|---------|----------------------------------|---------------|
| (34) a. | The picture is over the mantel. | (T&E 2003) |
| b. | The dark cloud is over the city. | |
| c. | A lamp hung over the table. | = (1) |
| (35) a. | The plane flew over. | (Lakoff 1987) |
| b. | John walked over the hill. | |
| c. | She drove over the bridge. | |

The examples in (34) describe a static relation between TR and LM. What these examples have in common is that the entity with a range is in the upper position of LM. This is the static relation of *over* and it is schematized as in the left of the lower part in Figure 7. In (35), an entity moves along the space above the LM and the Path of this movement traverses from the one side of the LM to the other. Information about the shape of TR or LM given by the verb or noun phrase is eliminated since it is not the meaning of *over* itself as discussed in section 2. The relation is schematized as in the right lower part

of Figure 7.

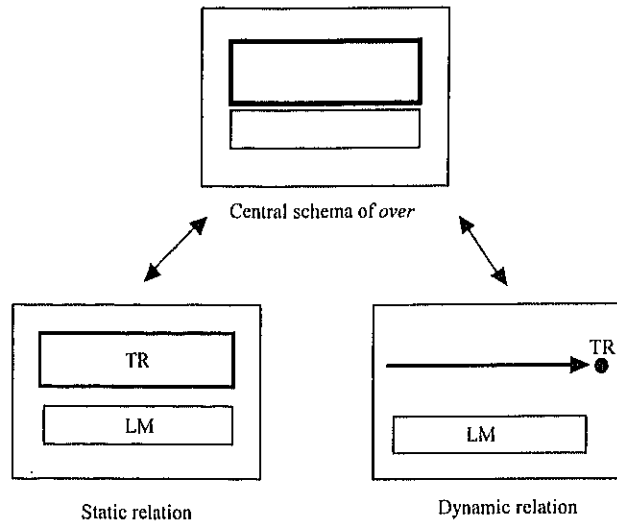


Figure 7: The central schema of *over* and relation between TR and LM

Then, *over* itself must have an inclusive capacity for these two relations. The spatial specification of *over* must be at least two-dimensional space, because though TR itself can be understood as one-dimensional linear entity, such TR must be located relative to LM based on the vertical axis. It is schematized as the central schema of *over* as above. Again, the shapes of TR and LM are not specified since they are complemented by the information of the lexical items other than *over*.

What is needed to define the central sense of *over* is the relational specification between TR and LM in addition to the spatial definition. We can see the distributional difference between *over* and *above*.

(36) a. 4,800 meters above sea level

b. * 4,800 meters over sea level

(37) a. The birds are somewhere above us.

b. ? The birds are somewhere over us. (Kreitzer 1997)

Expression like (36a) is possible while (36b) is impossible. In this case, *above* can be used because it means only the spatial relation between something and its upper space. When *over* is used, however, there must be some kind of influence on each other. Obviously we can see no influence between the point 4,800 meters and sea level. The distance between them is

not compatible with the sense of *over*. In (37), a vagueness of location expressed by *somewhere* causes a crash between *over*, which denotes the relatively specific space from the LM, while *above* does not.

In addition to the examples above, the difference between *above* and *over* is expressed in (38).

- (38) a. A tiny bulb is above the large table.
b. A tiny bulb is over the large table.

In these sentences, it is said that *above* and *over* is interchangeable. According to the native speaker, there is a subtle difference between them. While the sentence with *above* means only the spatial relation between the bulb and the table, the sentence with *over* takes much notice of the influence of the light of the bulb on the table. The relational description of *over* is defined as follows.

- (39) TR and LM must have a relation in which we perceive as there is some kind of influence on each other.

What is to be noted here is whether the relational description is built into the schema of spatial relation. T&E (2003), for example, illustrate the influence between TR and LM by the dashed line and it is crucial to distinguishing *over* and *above*. Then, they settle the schema in Figure 8 as a Proto-scene of *above*. This is, however, misleading in that it seems that *above* must be out of the space of potential influence from LM. *Above* is just unspecified as to the relation since it is compatible with *over* to express the same situation in the real world. In other words, the dashed line is moved or ignored arbitrarily. It seems difficult, if not impossible, to build such specification into the schema. It might be the limit of the two dimensional schematization.

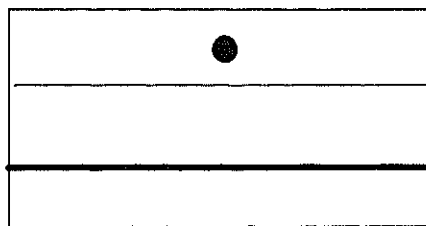


Figure 8: Proto-scene for *above* (Tyler & Evans 2003)

4. Other Cognitive Processes and Pragmatic Factors

In this section, I make some speculation as to the possible alternative to

explain the senses which are not referred so far. As noted in the previous section, some of the senses can be explained by general cognitive processes (cf. Croft & Cruse 2004). This concerns with the issue that to what degree and how many senses are included in the whole semantic network of *over*. The more senses explained by the lexical information and general cognitive processes, the more burden of lexicon is mitigated. For example, ON-THE-OTHER SIDE sense and COMPLETION can be explained by Endpoint focus, Mental Path, or Subjectification. To explain the senses containing evaluative meaning such as CONTROL, PREFERENCE, and EXCESS are inevitable to refer to the role of metaphors. Metaphor (or Conceptual mapping) is concerns with the TEMPORAL sense and it connects to the REPETITION sense, which is discussed in section 3. These cognitive processes and pragmatic factors are applicable not only to the analysis for polysemy in prepositions but also to the analysis for the polysemy in general. Therefore, the senses which are explained by these factors are not to be included into the lexical network.

Some senses are, of course, regarded as distinctive senses by entrenchment or pragmatic strengthening. For example, the covering sense is considerably independent from the spatial sense of *over*.

- (38) a. The plate's on the table.
 b. pictures stuck on the wall
 c. A spider is on the ceiling.

In the case of the covering sense, the spatial arrangement of TR and LM on the vertical axis can be cancelled. It suggests that *over* is used frequently to express the covering situation arranged on the vertical axis and only the semantic aspect of covering is entrenched as T&E (2003) argue. In interpretation of this sense other factors such as Vantage point or pragmatic information such as pre-existence of the entity come into the picture. But now, I cannot give an answer of why such entrenched meaning is predominant over the essential spatial sense. This problem is remained for the future research.

5. Concluding Remarks

To know how the preposition *over* contributes to the meaning of the whole sentence, it is necessary to know what the meaning of *over* is. In this paper, I discussed how the central sense of *over* should be defined. In the course of the discussion, information which is not essential for *over* itself is to be eliminated from the central schema of *over* and abstract the pure and simple

schema of *over*. As for the various senses of *over*, I made some statements on the issue of the economical way of explanation by the general cognitive processes and pragmatic factors. This is a preliminary work for the larger comprehensive study of the preposition *over*. More detailed discussion will be needed not only about the prepositional use, but also about various uses as an adverb, particle, and prefix.

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