Applying Cognitive Grammar to Pedagogical Grammar: The Case of "*To*"

Noriko Matsumoto
Doshisha Women's College of Liberal Arts

Abstract

In foreign language pedagogy, promoting learner's insight means reducing the perceived arbitrariness of the foreign language system. The learner perceives something as arbitrary if he/she can see no reason why it should be as it is. For this reason, it is not enough to merely inform the learner that a particular element belongs to a given formal category and not to another. Rather, we need to explain to the learner why the foreign language should be as it is. This paper will apply cognitive grammar insights to grammatical instruction in foreign language pedagogy, searching for descriptively adequate, intuitively acceptable, and easily accessible formulations of the preposition "*to*." Many cognitive linguists have argued that many of the multiple uses associated with a preposition are related in relatively straightforward, systematic ways. Their cognitive linguistic approaches have the potential to provide at least some pedagogical benefits for learners. However, even such cognitive linguists have assumed that the interpretation of the preposition is due to the preposition itself. This paper will go a step further and demonstrate that other elements which collocate with the preposition "*to*" bear on its interpretation in context on the basis of the SOURCE-PATH-GOAL schema. The cognitive linguistics approach on the basis of the SOURCE-PATH-GOAL schema has great potential in offering a more teachable account of the multiple interpretations assigned to the preposition "to," and also illustrates how understanding of prepositional meanings can be presented to second language learners with a minimum of technical jargon or grammatical explanation.   The language teachers, armed with the insights provided by this cognitive account, can provide more coherent, insightful explanations of the various meanings associated with the preposition "to," and thus move beyond the instruction to simply commit the various meanings to memory.

1. Introduction

Second language pedagogy is a truly multidisciplinary endeavor, because a matter of pedagogy is a matter of linguistics as well as a matter of acquisition. Every linguist does recognize how essential every experience and substantial knowledge in the area of language pedagogy is. One of the fundamental matters on which we linguists disagree is whether or not our research is helpful and productive. Generative linguistics has focused on pure scholarship for its own sake. The only motivation is a desire to understand language better. This tradition is most clearly represented by Chomsky, who denies that linguistics has, can have, or indeed should have any relevance to language teaching.[1] However, any major innovation in linguistic theory is bound, sooner or later, to have an impact on the teaching of grammar in foreign language pedagogy. Cognitive linguistics has claimed that the practical benefits are partly evident (e.g., Achard & Niemeier, 2004; Langacker, 2001; Taylor, 1993). One of the motivations is a desire to improve language teaching at school to some extent. The aim of this paper is to defend the latter idea that linguistics contributes substantially to language teaching, though I will not of course indicate that every part of academic research has a clear payoff in terms of practical benefits. Specifically, this paper will apply cognitive grammar insights to comprehensive grammatical instruction not only on the preposition "*to*" but also on the infinitive marker "*to*" in foreign language pedagogy.

---

[1] Chomsky claims that linguistics is useless not only in teaching but in any sphere of practical life: "You're a human being, and your time as human being should be socially useful. It doesn't mean that your choices about helping other people have to be within the context of your professional training as a linguist. Maybe that training just doesn't help you to be useful to other people. In fact, it doesn't." (Olson et al., 1991, pp.30)

2. Cognitive Linguistics

In order to give my cognitive grammar approach an appropriate context, it is necessary first to discuss cognitive linguistics. Cognitive linguistics originally emerged in the 1970s and arose out of dissatisfaction with dominant formal approaches to language at that time. Some researchers such as Fillmore (1975), Lakoff & Thompson (1975), and Rosch (1975) rejected the dominant ideas that syntax is separate from other aspects of language, and that language is separate from cognition. Moreover, cognitive linguistics has always strongly influenced by theories and findings from the other cognitive sciences as they emerged during the 1960s and 1970s, particularly cognitive psychology and Gestalt psychology (e.g., Fillmore, 1975; Lakoff, 1987; Langacker, 1987; Talmy, 2000a, 2000b). Such cognitive linguists therefore acknowledge that language is part of, dependent on, and influenced by human cognition, including human perception and categorization, and that language develops and changes through human interaction and experiences in the world.

Cognitive linguistics practice could be roughly divided into two main areas of research: cognitive semantics and cognitive grammar. Cognitive semantics is concerned with investigating the relationship between experience, the conceptual system, and the semantic structure encoded by language. In other words, cognitive semantics is concerned with modeling the human mind as much as it is concerned with investigating linguistic semantics. Cognitive grammar is concerned with modeling the language system rather than the nature of mind itself. However, it does so by taking the conclusions of research in cognitive semantics. This means that meaning is central to cognitive grammar. It should be noted here that although the study of cognitive semantics and cognitive grammar are occasionally separate in practice, this by no means implies that their domains of inquiry are anything but tightly linked.

2.1. Cognitive Semantics

Cognitive semantics is not a single unified framework, but there are four guiding principles that collectively characterize cognitive semantics: (i) Conceptual structure is embodied, (ii) Semantic structure is conceptual structure, (iii) Meaning representation is encyclopedic, and (iv) Meaning construction is conceptualization. Some significant theories and approaches in cognitive semantics best exemplify the four guiding principles.[2] In this paper, one of the significant theories and approaches, image-schema theory, is essential. Image-schemas are dynamic recurring patterning of our mundane bodily experiential interactions. They are embodied, and that is why they can be meaningful for us at a non-propositional level. They derive from and are linked to human pre-conceptual experience. Image-schemas indeed are psychologically real and functional in many aspects of how people process linguistic and non-linguistic information (Gibbs & Colston, 1995). Thus it most transparently reflects the thesis of embodied cognition, and the first guiding principle of cognitive semantics which holds that conceptual structure is embodied.

The SOURCE-PATH-GOAL schema is one of the image-schemas and one of the most common structures that emerge from our constant bodily functioning (Lakoff, 1987, p.275; Johnson, 1987, p.28).[3]

---

[2] The significant theories and approaches include image-schema theory, encyclopedic semantics approach, categorization and Idealized Cognitive Models (ICMs), cognitive lexical semantics approach, conceptual metaphor theory, conceptual metonymy approach, Mental Spaces theory, and conceptual blending theory.

[3] According to Mandler (1996, p.373), the first image schema that infants form is the image schema PATH, which represents any object moving on any trajectory through space. Mandler (2004) describes the process of forming image schemas in terms of a redescription of spatial experience via a process that she labels perceptual meaning analysis. She points out that "one of the foundations of the conceptualizing capacity is the image schema, in which spatial structure is mapped into conceptual structure (Mandler, 1992, p.591)." She further suggests that "basis, recurrent experiences with the world form the bedrock of the child semantic architecture, which is already established well before the child begins producing language (Mandler, 1992, p.597)."

The SOURCE-PATH-GOAL schema has certain typical characteristics, as in (1).

(1) a. Because the beginning and end points of a path are connected by a series of contiguous locations, it follows that, if you start at point A and move along a path to a further point B, then you have passed through all the intermediate points in between.
   b. We can impose directionality on a path.
   c. Paths can have temporal dimensions mapped onto them. I start at point A (the source) at time T_1, and move to point B (the goal) at time T_2. In this way, there is a time line mapped onto the path. (Johnson, 1987, p.114)

In my model, in the SOURCE-PATH-GOAL schema, the source corresponds to the trajector (TR), and the goal to the landmark (LM), as in Figure 1.[4] To put it another way, the elements before "*to*" roughly corresponds to the source, "*to*" to the path, and the elements after "*to*" to the goal. The SOURCE-PATH-GOAL schema itself forms a special type of domain, that is, the domain matrix, including sentential context, background knowledge, pragmatic inferences, and so forth, and also is topological because a path can be expanded, shrunk, or deformed (Lakoff and Johnson, 1999, p.33).
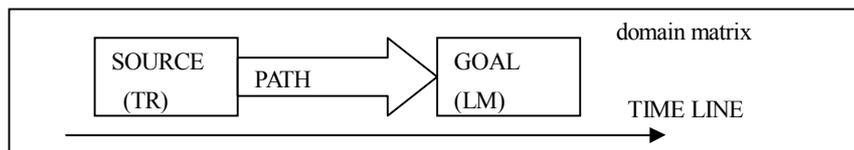

Figure 1.

The path could emerge from the relationship between the TR and the LM, and the domain matrix, depending on the situation. This paper proposes that prepositions code for conceptual spatial relations between two entities, one in focus, that is, the TR, and one in background, that is, the LM. With the result that the path emerges, directionality optionally could emerge. Owing to time, the asymmetry of the starting point and the ending point gives the path directionality. Moreover, naturally enough, in addition to the TR-LM relationship and the domain matrix, the meaning of a sentence depends on what element in the SOURCE-PATH-GOAL schema is profiled. Meanings as conceptual content can be abstracted away from recurring such spatial scenes, giving rise to a highly abstract and schematized representation, that is, the SOURCE-PATH-GOAL schema, and thus the SOURCE-PATH-GOAL schema is closely related to the primary meaning.

2.2. Cognitive Grammar

Cognitive Grammar assumes cognitive semantics and builds a model of grammar which is consistent with the assumptions and findings of research in cognitive semantics. In addition to this, the two guiding principles of cognitive grammar are (i) the symbolic thesis, and (ii) the usage-based thesis. The symbolic thesis holds that the fundamental unit of grammar is a form-meaning pairing, that is, a symbolic unit. All linguistic forms, from single morphemes to words, phrases, idioms, clauses, and sentences, contribute to and express meaning. Cognitive grammar is based on the assumption that meaning must be the primary focus of study. Cognitive grammar has also revealed that much that has

---

[4] The term trajector (TR) and landmark (LM) come from Langacker's (1987) Cognitive Grammar. A TR is the focal participant in a profiled relationship, while the LM is the secondary participant. Moreover, the TR is likely to be the smaller motile entity, which is located by virtue of the LM which serves as a backdrop to locate it.

been deemed idiosyncratic and arbitrary under the traditional view of language is, in fact, systematic.

The usage-based thesis, that is, the usage-based model or the usage-based approach, is primarily concerned with the characterization of language as it is spoken and understood, as well as with the dynamics of its use.[5] Langacker (1987, p.494) describes usage-based models as follows: "Substantial importance is given to the actual use of the linguistic system and a speaker's knowledge of its use; the grammar is held responsible for a speaker's knowledge of the full range of the linguistic conventions, regardless of whether those conventions can be subsumed under more statements." The usage-based approach constitutes a non-reductive approach to linguistic structure that employs fully articulated schematic networks and emphasizes the importance of low level schemas (Langacker 1987, p.494). The goal of a usage-based model is not to achieve mathematical elegance, but to depict the complexity of language use.

3. Applying Cognitive Grammar to Pedagogical Grammar

Cognitive linguistics claims that the learner's interlanguage resembles a child's grammar where it is composed of an assortment of eclectic constructions at various levels of systematicity, abstraction, and productivity. Second language learners are attempting to master the specific array of symbolic units that represents the linguistic conventions of the target language. The difference between the two comes from the conditions under which second language speakers comes to learn native conventions. In developing second language system, the target units are in direct competition with the native ones because they both represent alternative ways of construing the same reality. Second language learning can therefore be viewed as a gradual process by which the target system gains more and more differentiation and autonomy from the native one. Mental experience must be organized so as to conform to the conceptual structures symbolized by the available symbolic units. Thus, learning a foreign language will involve not only learning the forms of the language but simultaneously learning the conceptual structures associated with these forms.

The nature and purpose of pedagogical grammar requires that it focus on learning problems. The function of pedagogical grammar is to promote learner's insight into the foreign language system. In essence, promoting learner's insight means reducing the perceived arbitrariness of the foreign language system. For this reason, it is not enough to merely inform the learner that a particular element belongs to a given formal category, and that he/she behaves in this way rather than that. Also, it is not enough to merely state that such-and-such an expression is grammatically correct while other word formations are grammatically incorrect. The nature of grammatical instruction obviously depends critically on the teacher's view of the nature of rules and overall organizations of the target system, as well as his/her beliefs about the specificity of grammatical knowledge to language acquisition. However, the potential of learner corpora in a data-driven learning approach explicitly makes a positive contribution to such grammatical instruction. Learner corpora are strongly related to the usage-based thesis. Learner corpora could be applied to pedagogical material in at least three different ways: (i) they can help to decide what features should be particularly emphasized in teaching or even lead to the introduction of hitherto to neglected elements, (ii) results from learner corpus studies can give indications on how to teach certain features, and (iii) results on developmental sequences can help to determine in what order language

---

[5] The usage-based thesis is central not only to cognitive grammar but also to language acquisition which takes a cognitive linguistic perspective. Tomasello (2000a, p.237-238) argues that usage-based models constitute strong theoretical frameworks for the description of child language acquisition because they do not demand that a child's grammar be identical to the adult system. In a usage-based model, the goal of child language acquisition research is to characterize the steps by which the child's inventory of conventionalized units comes to resemble the adult's. It predominantly involves the investigation of the development of the cognitive abilities that allow children to eventually master the adult system.

features should be taught.

In a usage-based approach to language, the notion of "entrenchment" is well known. "Entrenchment pertains to how frequently a structure has been involved and thus to the thoroughness of its mastery and the ease of its subsequent activation" (Langacker 1991, p.45). Entrenchment is interrelated with input. Specifically, entrenchment can be identified by an adjustment of the connection weights, brought about by the occurrence of a specific pattern of activation which renders more likely the occurrence of the same or a similar pattern. Linguistic constructions are seen as being abstracted from usage events by the reinforcement of recurring commonalities. In second language acquisition, the role of entrenchment has been accepted by many as one of the most decisive factors in acquiring a second language.[6]

Compared to data-driven analysis on the basis of one native speaker corpus, this paper shows some significant result in data-driven analysis on the basis of one learner corpus. No one will doubt any longer that native speaker corpora are indeed useful for the improvement of language teaching. They are useful mainly because they can reveal what native speakers of the language in question typically write or say either in general or in a certain situation better than native speaker intuition. In deciding what content we should teach, we teachers not only need to focus on patterns revealed in the data shown in native-speaker corpora as showing target frequencies, but also need to focus on the data shown in learner corpora as showing learning gaps and relative stages in mastery. For language teaching, nevertheless, it is not only essential to know what native speakers typically write or say, but also what the typical difficulties of the learners of a certain language, or rather of certain groups of learners of a certain language are.

4. The Semantics of "*To*"

Traditional accounts have represented the semantics of English prepositions as highly arbitrary. However, a number of cognitive linguists have argued that many of the multiple uses associated with a preposition are related in relatively straightforward, systematic ways.[7] Their cognitive linguistics approaches have the potential to provide at least four pedagogical benefits for the learners. First, the multiple meanings associated with "*to*" form a principled polysemy network organized around a central meaning, rather than a list of unrelated meanings. Second, the network reflects the learners' own experiences with the external, spatio-physical world, rather than linguistic propositions. Third, the multiple meanings are represented as being more gestaltlike and schematic in nature. Fourth, the principled nature of the network model would seem to provide a solid foundation for the learners from which to infer the meanings of unfamiliar uses of "to" when they are encountered in context.

Even such cognitive linguists tend to assume that the interpretation of the preposition is due to the preposition itself. However, this paper will go a step further and demonstrate that on the basis of the SOURCE-PATH-GOAL schema other elements which collocate with the preposition "*to*" bear on its interpretation in context, background knowledge, pragmatic inference, and so forth. In this paper, the elements before "*to*" roughly corresponds to the source, "*to*" to the path, and the elements after "*to*" to the goal. The meaning of a sentence with "*to*" depends on what element in the SOURCE-PATH-GOAL schema is profiled. This paper uses the graphic representations to provide visual rubrics that may be useful presentational tools for the teachers and useful aids for the learners. Moreover, this paper will

---

6 Tomasello (2000b, p.70) points out that an important aspect of first language learning is some form of imitative learning and that "it is also important that children seem to have special difficulties in going beyond what they have heard when they have heard it multiple times, that is, when it is entrenched."

7 See Brugman (1988), Herskovits (1986), Kreitzer (1997), Lakoff (1987), Rice (1996, 2003), Sandra & Rice (1995), Tyler & Evans (2001, 2003), Vandeloise (1994). With respect to teaching, see Boers & Demacheleer (1998), Lindstomberg (1996, 1997), Lowie & Verspoor (2004), Tyler & Evans (2004).

illustrate that the SOURCE-PATH-GOAL schema can recapture the *to*-infinitives that convey various kinds of meanings in the same way as the preposition "*to*."

4.1. The Prototype for "*To*"

This paper uses the NICT JLE (Japanese-speaking learners of English) Corpus as one learner corpus and the NICT NATIVE Corpus as one native speaker corpus.[8] The Japanese-speaking learners of English in the NICT JLE Corpus are divided into three groups according to SST, that is, Standard Speaking Test. Each group obviously has a different degree of understanding of the word "*to*," and at the same time it is shown that what learners at each level need to learn, as in Table 1.[9]

Table 1. Frequencies of "*to*" in the NICT JLE Corpus and the NICT NATIVE Corpus

	The NICT JLE Corpus				The NICT Native Corpus (6 persons)
	level 1-3 novice (12 subjects)	level 4-6 intermediate (12 subjects)	level 7-9 advanced (12 subjects)	sum (36 subjects)	
preposition - SUM	20 (55.6%)	28 (50.0%)	30 (36.1%)	78 (44.6%)	68 (45.6%)
direction	12 (60.0%)	17 (60.7%)	16 (53.3%)	45 (57.7%)	30 (44.1%)
non-direction	8 (40.0%)	11 (39.3%)	14 (46.7%)	33 (42.3%)	38 (55.9%)
to-infinitive - SUM	16 (44.4%)	28 (50.0%)	53 (63.9%)	97 (55.4%)	81 (54.4%)
VERB + *to*-infinitive	14 (87.5%)	18 (64.3%)	25 (47.2%)	57 (58.8%)	39 (48.1%)
AUX + *to*-infinitive	0 (0%)	2 (7.1%)	9 (17.0%)	11 (11.3%)	22 (27.2%)
VERB+NP+*to*-infinitive	2 (12.5%)	6 (21.5%)	18 (34.0%)	26 (26.8%)	17 (21.0%)
wh-word + *to*-infinitive	0 (0%)	2 (7.1%)	1 (1.8%)	3 (3.1%)	3 (3.7%)
TOTAL	36	56	83	175	149

In other words, teachers decide what they should teach their students at each level. This is because comprehension precedes production, and the students should not be pushed to speak before they are ready to speak. Speaking ability is viewed as naturally emerging from exposure to reading and listening input. The contents that we select should never be arbitrary and biased. For teachers, especially non-native teachers, they should be based on the well-established, objective reasons through the corpora. Consequently, it is obvious that the central meaning of the preposition "*to*" is related to direction, as in (2), and that the central construction of *to*-infinitive is "VERB+*to*-infinitive," as in (3). Also, this paper treats the preposition "*to*" that represents direction as the prototype.

(2) a. She went to the window and looked out.
    b. He made a second visit to Italy.
(3) a. I want to quit smoking.
    b. He managed to do it.

4.2. The Case where the SOURCE, the PATH, and the GOAL Are All Profiled

The word "*to*" can express allative and purposive relations, as in (4)-(6), where the source, the

---

[8] The NICT JLE Corpus and the NICT NATIVE Corpus are cited on Izumi et al. (2004).

[9] In this paper, 12 subjects are selected at random from all the subjects. The interview is between one examiner and one subject. Each subject needs to make a short story about stray cats on the basis of some pictures expeditiously and to tell the examiner the story for two or three minutes.

path, and the goal are all profiled, as in Figure 2.[10] In (4) and (5), the TR is directed with respect to the LM, and that this LM constitutes the TR's goal or purpose. As a result of the motion verb "*go*" in junction with the word "*to*," path and directionality emerged, and the TR did indeed arrive at the place.

(4) I went to Tom's house.
(5) I went to take photos of Tom.
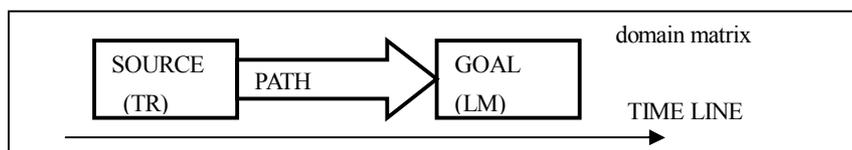(6) I brought a camera to take photos of Tom.

Figure 2.

In (6), the TR is directed with respect to the LM, and that this LM constitutes the TR's purpose. Although the purposive meaning is clear beyond doubt in (6), the action is not inherently directional despite the motion verbs "*bring*" and "*take*" in the domain matrix. It should be emphasized here that while the word "*to*" itself does not function for dynamism, it participates in evoking complex conceptualization, which often is dynamic. Although the allative preposition "*to*" and the infinitive marker "*to*" are homonyms at first sight, they are demonstrably related. How could this relation best be described and what cognitive mechanisms play a role in extending from one usage to the other?

According to Haspelmath (1989), the first step in the development from allative to infinitival is the extension from allative to purposive "*to*" in Old English. The link between the allative and the purposive usages of "*to*" is often described in terms of the conceptual metaphors PURPOSES ARE DESTINATIONS (Johnson, 1987).[11] However, while the metaphorical link between purpose and spatial goal without doubt exists, it is based in the first instance on the conceptual contiguity of the notions, spatial goal and purpose, as in (7).

(7) a. They came to our rescue.
    b. They sat down to dinner.
    c. We were out to breakfast.
    d. I am going to be married.

In (7), the allative function of "*to*" indicating the TR's motion in the direction of and reaching the LM combines with the notion of purpose. Rather, both notions co-occur. As Cuyckens (2002:261-262) points out, in (7a), the TR traverses a path and reaches the place where we need to be rescued, but at the same time, the very intention of reaching that spatial goal is rescuing us. Because of the contiguity between spatial goal and purpose, the relation is initially metonymic. While "*to*" was initially used as an allative preposition, "*to*" quickly came to denote "spatial goal + purpose," as in (7), and later developed an exclusively purposive function, as in (4). This contiguity-based semantic extension can be described as

---

[10] The term "allative" means "to indicate movement to or towards some location."

[11] Conceptual metaphors bring into two corresponding domains of knowledge. One is typically a well-delineated, familiar physical domain, and the other is typically a less well-delineated, less familiar, abstract domain. The first is called a source domain, and the second is called a target domain. The source domain is typically applied to provide understanding about the target.

metonymy-based transfer.[12]

Using the metonymy-based approach, we capture the resultative sense "*to*" inclusively, as in (8). In this sense, as "*to*" denotes a relation in which the LM is the result of the TR, the source, the path, and the goal are all profiled. In (8), two sub-events, the first-event as the TR and the second sub-event as the LM, are unquestionably arranged in chronological order. Thus we can construe (8) in the same way as (4)-(7) on the basis of the SOURCE-PATH-GOAL schema.

(8) a. The drunken man awoke to find himself in a ditch.
 b. We stopped to have a rest.
 c. She lived to see her first grandchild.
 d. He sang the child to sleep.
 e. She danced herself to fame.
 f. Wait until the lights change to green.

Moreover, in (9), the source as the actor actually made an effort to carry out the infinitival event at the end of the path. At the end of the path, the path and the goal are unified.

(9) a. I finally managed to push the huge dog away.
 b. The letter failed to arrive.

"*Manage*" and "*fail*" with *to*-infinitives imply that a certain result was or was not obtained only after considerable perseverance. In (9a), the effort succeeded, while in (9b), the effort did not succeed. We can construe (9) in the same way as (8). In (8) and (9), the speaker conceives the whole situation which "*to*" is capable of signifying. It should be noted here that there is another type of *to*-infinitive in which the speaker conceives on the initial part which "*to*" is capable of signifying, as in (10).

(10) a. The spectators began to arrive.
 b. The clock began to strike twelve.

Although these *to*-infinitives are still construable holistically, they denote the very beginning of the activity, that is, the first arrivals in (10a) or the first stroke in (10b). However, in (10b) the subject is not the actor. This is not a problem, because we can construe the clock as if it were an actor. In (10), the source, the path, and only the beginning of the goal are profiled. In this type, the path shrinks and there is very little time lag between the path and the goal.

4.2.1. The Case where the PATH Is Backgrounded

(11) and (12) are equivalent to the idea that certain property of the path may be segregated off as background properties, although the speaker conceives the whole situation which the source, the path, and the goal are capable of signifying, as in Figure 3. (11) is equivalent to (9), and (12) is equivalent to (10). In (11) the speaker conceives the passage of time as the path. In (12), however, he or she cannot conceive such a passage of time because there is no time lag between the path and the goal because of the unifying effect.

---

[12] Metonymy is distinguished from metaphor in such a way that metonymy is characterized as typically involving one conceptual domain, rather than two distinct one, as is the case for metaphor. Metonymy also involves a "stand for" conceptual relationship between two entities within a single domain, while metaphor involves an "is" or "is understood as" relationship between two conceptual domains.

(11) a. This all goes to prove my theory.

    b. In time she came to love him.

(12) a. Herr Schikenader, the former proprietor, chanced to see me perform one evening.
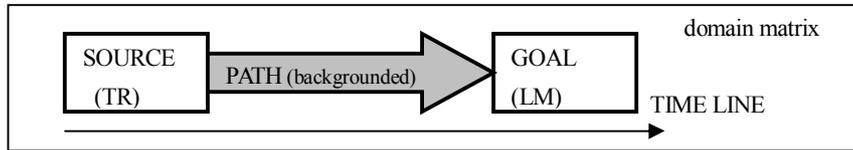
    b. I happened to see James in town.

Figure 3.

Moreover, in (13), "*to*" denotes a relation where the TR is located with respect to the LM, but the TR is not oriented towards the LM. In this case, as the passing of time is not specified, the time line is abstracted. In the case where the time line is abstracted, the location is generally indicated.

(13) a. There are mountains to the south.

    b. In this picture, Tom is standing to my right.

4.2.2. The Case where the PATH Connotes Emotional Warmth

In (14), "*to*" denotes that the LM is relatively important for the TR through pragmatic inferences and sentential contexts. Although the speaker indeed conceives the whole situation which the source, the path, and the goal are capable of signifying, the path which emerges from the SOURCE-PATH-GOAL schema is emotional, as in Figure 4. In other words, it is the mental path. Lindstromberg (1997:172) points out that there is a clear connotation of emotional warmth, and that (15) is not grammatical. (16) is parallel to (14).

(14)   He looked to her for support.

(15)   *Look to her with distain.
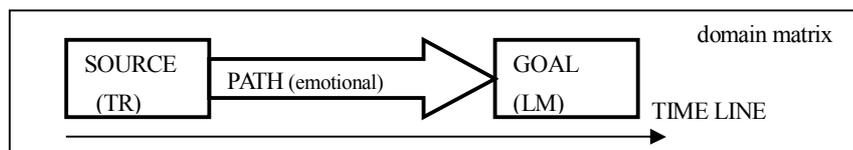
(16)   The Queen smiled and waved to the crowd.

Figure 4.

Thus, "*to*" fits poorly into contexts which do not imply that the TR feels some emotional connection with the LM. As "*to*" also emphasize the positive, directed, active nature of a TR-LM relationship vividly, "*to*" is sometimes used, as in (17).

(17)   He's been a good friend to us over the years.

Through pragmatic inferences and sentential contexts, "*to*" appears to have more vivid, dynamic connotations.

4.2.3. The Case where There Is a Gap between the Path and the Goal

With motion verbs, "*near*," "*close to*," and "*next to*" semantically represent the LM, but in fact the place that such phrases physically represent is the gap before the LM, as in Figure 5. The gap is actually profiled between the path and the goal in the SOURCE-PATH-GOAL schema. The speaker conceives that the source, the path, the gap and the goal are profiled. Thus (18) denotes that "I want to get to a point which is near the window and stay there, that is, stay the gap place, at least for a while." (19) is also construed similarly.

(18) I want to go <a. near / b. close to / c. next to > the window.
(19) She swam <a. near / b. closer to > the shipwreck then returned to the yacht.
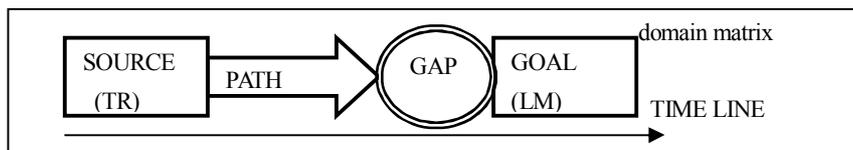

Figure 5.

In contexts which imply movement and do not physically focus on the endpoint, the path approaches the LM from the source. Thus the gap exists because the path does not contact the LM. Similarly, as for time, "*close to*" means "especially near," as in (20).

(20) My sister's birthday is close to mine.

However, in this case, as the passing of time is not specified, the time line is abstracted.

4.3. The Case where the Goal Is Projected or Inferable

(21) describes Jim as the actor, the TR, hurrying only towards the LM, probably when he realized that his dinner would be taken away if he did not eat everything before the bell sounded. (21) is used to describe an action directed toward the LM as a goal. Thus, (21) demonstrates that the source and the path are profiled, but the goal is vague, yet projected or inferable, as in Figure 6. (22) is parallel to (21).

(21) Jim hurried to eat up his dinner.
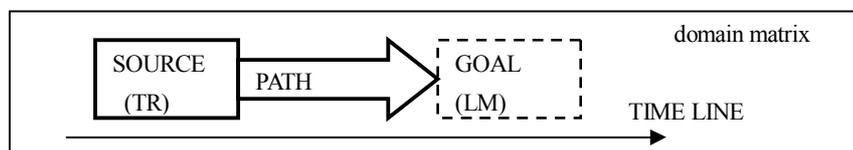(22) I taught linguistics to them, but they didn't understand it.

Figure 6.

The *to*-infinitive also expresses that the subject's action expressed by the main verb directly causes the action expressed by the *to*-infinitive. The action expressed by the *to*-infinitive is not taking place yet, but is projected, as in (23). In this respect, (23) seems to be the same as (21) and (22), but in fact (23) is different from (22) and (23).

(23) a. ? I promised to help her, so I did, not because I promised, but because I decided to.

b.　I promised to help her, so I did, because I promised.

In (23), the subject is the attributor, not the actor, and the verb is stative, not dynamic. The semantic change from the dynamic to the stative verb means a domain change from physical to epistemic. Similarly, in (24a) the subject did not move his leg but also has the intention to carry out the infinitival event as the LM. Thus (23) and (24) imply that the subject had a prior intention.

　　　　(24) a.　He tried to move his legs.
　　　　　　 b.　I intend to buy a new car.
　　　　　　 c.　We expected to organize a football club.

(25) has a prospective meaning, stating that he knew he had to involve himself in an activity. The subject is the attributor, and the verb is stative. In this respect, (25) is similar to (23) and (24), but (25) is a little different from them.

　　　　(25) The doctor remembered to examine Mary Johnson.

To understand (25), we require pragmatic inference that he did examine her. As a result, the source and the path are profiled, but the goal is vague, but inferable.

4.4. The Case where the Path Is Reduced to Zero
　　　　Three groups belong to the case where the source and the goal are profiled, and the path is reduced to zero, as in Figure 7. First, "*to*" denotes contact between the TR and the LM, as in (26).

```
┌─────────────────────────────────────────────────────┐
│  ┌────────────┬────────────┐      domain matrix       │
│  │ SOURCE     │ GOAL       │                          │
│  │ (TR)       │ (LM)       │      TIME LINE            │
│  └────────────┴────────────┘                          │
│  ──────────────────────────────────────────▶         │
└─────────────────────────────────────────────────────┘
```
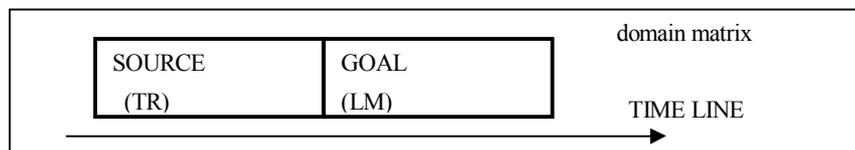
Figure 7.

　　　　(26) a.　He held the knife to her throat.
　　　　　　 b.　Apply the cream sparingly to your face and neck.

The TR is oriented towards the LM that is construed as a goal. As in (26), literally any sort of physical connection between two objects could emerge. Further, we will tend to use the word "*to*" in this sense when we transference of something such as electricity in one direction, as in (27).

　　　　(27) a.　There is computer connected to the Internet.
　　　　　　 b.　Connection to the gas supply was delayed for three days.

As a result of such a connection, in either situation, there is still a clear distinction between the TR and the LM. Thus, the source and the goal are profiled, but the path is reduced to zero.
　　　　Second, "*to*" denotes a relation where the TR is attached or joined to the LM. To put it another way, the TR forms a part of or is contiguous with the LM. As there is no clear distinction between the TR and the LM, Tyler and Evans (2003:152) explain that the notion of physical attachment entails one entity being physically fixed or joined with another in a quasi-permanent way. In many cases, the attachment

correlates with the TR having first been oriented with respect to the LM, and then undergoing contact, as in (28).

(28) a. Attach a recent photograph to your application form.
  b. Shall I add your name to the list?

Moreover, as Tyler and Evans (2003:152) points out, through pragmatic inferences, the notion of attachment has come to be associated with "*to*," as evidenced by a socio-legal relationship, as in (29), rather than a purely spatial one, as in (28).

(29) Chris and Elizabeth are married to each other.

Third, "*to*" denotes a relation where the TR is located with respect to the LM, but the TR is not oriented towards the LM, as in (30). In (30) the TR is actually attached to the LM.

(30) My garden is next to theirs.

In this case, as the passing of time is not specified, the time line is abstracted. The location that the TR adjoins the LM is generally indicated.

4.5. The Case where the SOURCE Subsumes the GOAL

(31) implies that the fact that the man was a worthwhile risk was deduced from some personal evaluation of his behavior on the job, extending through some span of time. As in Figure 8, extending through some span of time, the speaker identifies the source with the goal. The path is rather mentally construed through time.

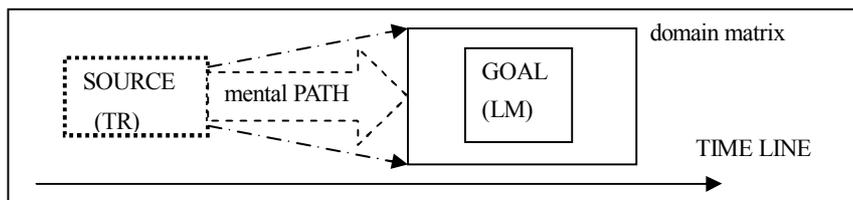(31) He proved to be a worthwhile risk.

Figure 8.

In (32), the path no longer has any role in tracing a mental path through time. The time line is abstracted, and also only the resultant state is construed, as in Figure 9.
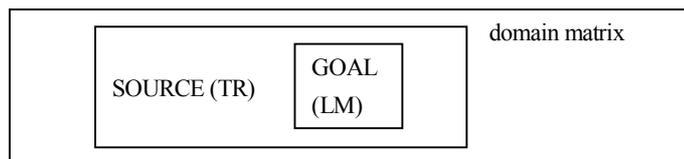

Figure 9.

(32) a. This belongs to you.
  b. Pairing items correspond to each other.

c. The promotion proved to be a turning point in his career.

d. His greatest pleasure is to sit in the pub talking to his friends.

Some ELT grammarians tend to assume that the semantics of prepositions are too complex and unsystematic to warrant a thorough investigation either in or out of the classroom.[13] They also claim that prepositions are largely to be learned narrow context by narrow context, often phrase by phrase. No doubt there is some unavoidable approach leaning to be done. However, their claims could have relatively little to offer us. Obviously, such semantic approaches, especially the collocational approach (e.g., Nattinger & DeCarrico, 1992; Sinclair, 1987), greatly underestimate the extent to which prepositional semantics is systematic. It thus compels second language learners to do too much item-by-item learning. More unfortunately, this must frequently lead to uneconomical use of learner's time both in and out of the classroom.

We believe that the approach to the word "*to*" in this paper has the potential to provide a number of pedagogical benefits for second language learners and to provide a more systematic, explanatory account of the semantics of the word "*to*" than traditional approaches. All the examples from (2) to (32) mentioned above seem to belong to different categories, and their linguistic forms are also different, respectively. However, they are all anchored in one common cognitive processing, that is, the SOURCE-PATH-GOAL schema. Therefore, the cognitive linguistics approach that this paper has emphasized has great potential in offering a more teachable account of the multiple interpretations assigned to the word "*to*," and also illustrates how this understanding of the meanings can be presented to second language learners with a minimum of technical jargon or grammatical explanation. The language teachers, armed with the insights provided by this cognitive account, can provide more coherent, insightful explanations of the various meanings associated with the word "*to*", and thus move beyond the instruction to simply commit the various meanings to memory.

5. Concluding Remarks

There are many ways of explicating linguistic forms, functions, and meanings. Even when various kinds of phenomena can be subsumed with effort under a highly limited number of rules, cognitive linguists cannot accept that such phenomena have thus been explicated. They have emphasized that only when linguistic phenomena and human conceptual structures are plausibly connected can such phenomena be explicated. Specifically, this paper has emphasized that interpretation of the English preposition "*to*" does not solely originate in the preposition itself. Rather, through the SOURCE-PATH-GOAL schemas, other form classes which collocate with the preposition bear on its interpretation in context, background knowledge, pragmatic inferences, and so forth. This paper also reinforces the idea that meaning is the result of integration of linguistic prompts at the conceptual level. Meaning is embodied, as it can ultimately be traced back to how we actually experience our world and the nature of our bodies which in part constrains and delimits the nature of the world for us. Consequently, this paper maintains that the cognitive interpretation of one image-schema, the SOURCE-PATH-GOAL schema, has enhanced research into pedagogical grammar. One fascinating aspect of the SOURCE-PATH-GOAL schema is that linguistic facts which used to be taken for granted but were in

---

[13] Another group of linguists such as Ruhl (1989) acknowledges that many words seem to have quite different meanings in different contexts, but such linguists argue that virtually all polysemy is an illusion, there being rather a strong tendency for every word to have a single general meaning. However, many prepositions patently do have a wide range of different uses. Cognitive linguists do not consider polysemy to be unnatural, and conclude that such generative approaches are of limited importance. This is why cognitive linguists never see how a pedagogically useful definition of a particular preposition could result from such generative approaches.

fact unexplained can now be interpreted as manifestations of the image schema which is embodied.

Cognitive linguistics offers a way out of the dilemma between helpful, productive linguistics and helpless, unproductive linguistics in pedagogical grammar. It should be emphasized here that grammatical knowledge does not constitute the absolute core of language learning, but merely represents one dimension of linguistic knowledge. Indeed, we need to explain to the learner why the foreign language should be as it is. Therefore, this paper will apply cognitive linguistics insights to grammatical instruction in foreign language pedagogy, searching for descriptively adequate, intuitively acceptable, and easily accessible formulations of the word "*to*," and will provide a descriptively adequate, intuitively acceptable, easily accessible account of how the word "*to*" functions and how widely various uses of the word "*to*" are systematically related to one another.

References

Achard, M. & Niemeier, S (Eds.). (2004). *Cognitive linguistics, second language acquisition, and foreign language teaching*. Berlin: Mouton de Gruyter.

Boers, F., & Demecheleer, M. (1998). A cognitive semantic approach to teaching prepositions. *ELT Journal*, 52(3), 197-204.

Brugman, C. M. (1988). *The story of over: Polysemy, semantics, and the structure of the lexicon*. New York / London: Garland.

Cuyckens, H. (2002). Metonymy in prepositions. In H. Cuyckens, & G. Radden (Eds.), *Perspectives on prepositions* (pp.257-266). Tübingen: Max Niemeyer Verlag.

Fillmore, C. (1975). An alternative to checklist theories of meaning. *BLS*, 1, 123-131.

Gibbs, R. W., & Colston, H. L. (1995). The cognitive psychological reality of image schemas and their transformations. *Cognitive Linguistics*, 6, 347-378.

Haspelmath, M. (1989). From purposive to infinitive – a universal path of grammaticization. *Folia Linguistica Historica*, 10, 287-310.

Herskovits, A. (1986). *Language and spatial cognition: An interdisciplinary study of the prepositions in English*. Cambridge: Cambridge University Press.

Izumi, E., Uchiyama, K., & Isahara, H. (2004). *The NICT JLE Corpus*. Tokyo:ALC.

Johnson, M. (1987). *The body in the mind: The bodily basis of meaning, imagination, and reason*. Chicago: The University of Chicago Press.

Kreitzer, A. (1997). Multiple levels of schematization: A study in the conceptualization of space. *Cognitive Linguistics*, 8, 291-325.

Lakoff, G. (1987). *Women, fire, and dangerous things: What categories reveal about the mind*. Chicago: University of Chicago Press.

Lakoff, G., & Thomson, H. (1975). Introduction to cognitive grammar. *BLS*, 1, 295-313.

Lakoff, G., & Johnson, M. (1999). *Philosophy in the flesh: The embodied mind and its challenge to Western thought*. New York: Basic Books.

Langacker, R. W. (1987). *Foundations of cognitive grammar, vol.I: Theoretical prerequisites*. Stanford: Stanford University Press.

Langacker, R. W. (1991). *Foundations of cognitive grammar, vol.II: Descriptive application*. Stanford: Stanford University Press.

Langacker, R. W. (2001). Cognitive linguistics, language pedagogy, and the English present tense. In M. Pütz, S. Niemeier, & R. Dirven (Eds.), *Applied cognitive linguistics I: Theory and language acquisition* (pp.3-39). Berlin: Mouton de Gruyter.

Lindstromberg, S. (1996). Prepositions: Meaning and method. *ELT Journal*, 50(3), 225-236.

Lindstromberg, S. (1997). *English prepositions explained*. Amsterdam / New York: John Benjamins.

Lowie, W., & Verspoor, M. (2004). Input versus transfer? – the role of frequency and similarity in the acquisition of L2 prepositions. In M. Achard, & S. Nieneier (Eds.), *Cognitive linguistics, second language acquisition, and foreign language teaching* (pp.77-94). Berlin: Mouton de Gruyter.

Mandler, J. M. (1992). How to build a baby II: Conceptual primitives. *Psychological Review*, 99, 567-604.

Mandler, J. M. (1996). Preverbal representation and language. In P. Bloom, M. A. Peterson, L. Nadel, & M. F. Garrett (Eds.), *Language and space* (pp.365-383). Cambridge, MA: Bradford Books.

Mandler, J. M. (2004). *The foundations of mind: Origins of conceptual thought*. Oxford: Oxford University Press.

Nattinger, J., & DeCarrico, J. (1992). *Lexical phrases and language teaching*. Oxford: Oxford University Press.

Olson, G. A., Lester, F., & Chomsky, N. (1991). Language, politics and composition: A conversation with Noam Chomsky. *Journal of Advanced Composition*, 11, 1-35.

Rice, S. (1996). Prepositional prototype. In M. Pütz, & R. Dirven (Eds.), *The construal of space in language and thought* (pp.135-165). Berlin / New York: Mouton de Gruyter.

Rice, S. (2003). Growth of a lexical network: Nine English prepositions in acquisition. In H. Cuyckens, R. Dirven, & J. R. Taylor (Eds.), *Cognitive approaches to lexical semantics* (pp.243-280). Berlin / New York: Mouton de Gruyter.

Rosch, E. (1975). Cognitive representations of semantic categories. *Journal of Experimental Psychology: General*, 104, 192-233.

Ruhl, C. (1989). *On Monosemy*. New York: State University of New York Press.

Sandra, D., & Rice, S. (1995). Network analyses of prepositional meaning: Mirroring whose mind – the linguist's on the language user's? *Cognitive Linguistics*, 6, 89-130.

Sinclair, J. (Ed.) (1987). *Collins COBUILD English language dictionary*. London: Collins.

Talmy, L. (2000a). *Toward a cognitive semantics, vol. I: Concept structuring system*. Cambridge, MA: MIT Press.

Talmy, L. (2000b). *Toward a cognitive semantics, vol. II: Typology and process in concept-structuring*. Cambridge, MA: MIT Press.

Taylor, J. (1993). Some pedagogical implications of cognitive linguistics. In R. A. Geiger & B. Rudzka-Ostyn (Eds.), *Conceptualizations and mental processing in language* (pp.201-226). Berlin: Mouton de Gruyter.

Tomasello, M. (2000a). Do young children have adult syntactic competence? *Cognition*, 74, 209-253.

Tomasello, M. (2000b). First steps toward a usage-based theory of language acquisition. *Cognitive Linguistics*, 11, 61-82.

Tyler, A., & Evans, V. (2001). Reconsidering prepositional polysemy networks: The case of *over*. *Language*, 77, 724-765.

Tyler, A., & Evans, V. (2003). *The semantics of English prepositions: Spatial scenes, embodied meaning and cognition*. Cambridge: Cambridge University Press.

Tyler, A., & Evans, V. (2004). Applying cognitive linguistics to pedagogical grammar: The case of *over*. In M. Achard & S. Nieneier (Eds.), *Cognitive linguistics, second language acquisition, and foreign language teaching* (pp.257-280). Berlin: Mouton de Gruyter.

Vandeloise, C. (1994). Methodology and analyses of the preposition in. *Cognitive Linguistics*, 5, 157-184.