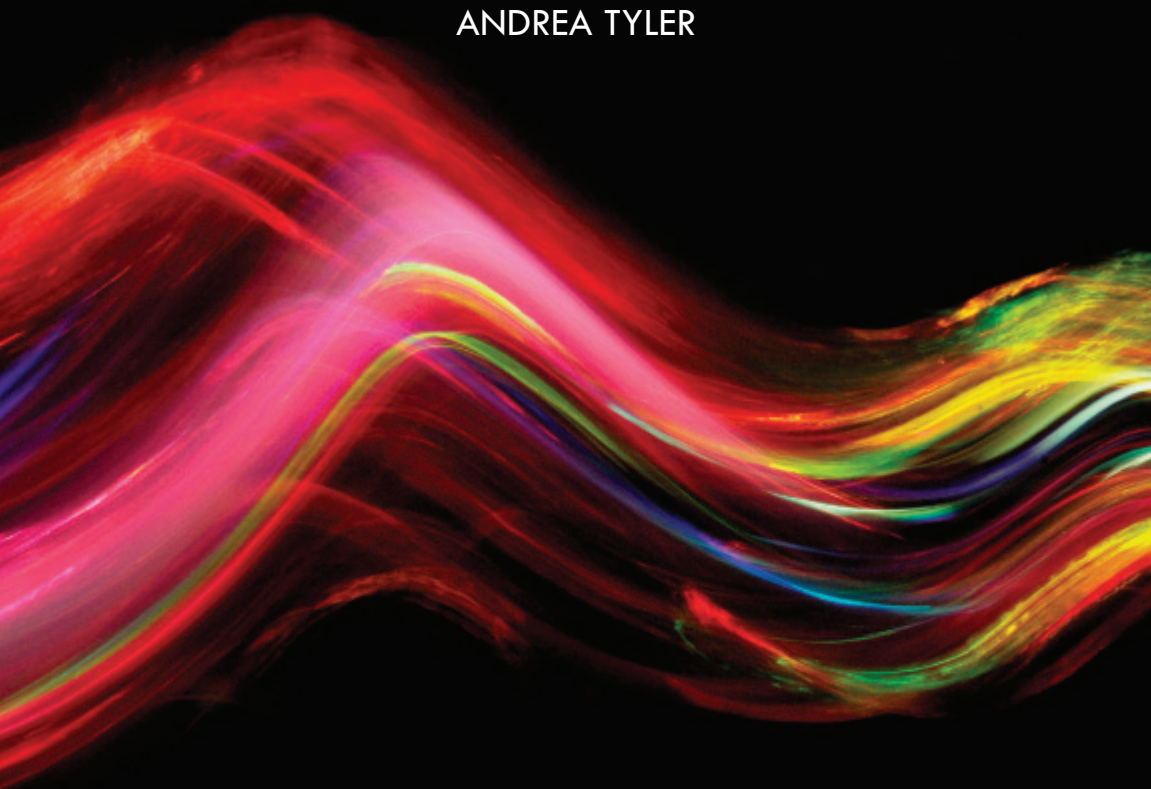


COGNITIVE LINGUISTICS AND SECOND LANGUAGE LEARNING

Theoretical Basics and Experimental Evidence

ANDREA TYLER



COGNITIVE LINGUISTICS AND SECOND LANGUAGE LEARNING

This book illustrates the ways that cognitive linguistics, a relatively new paradigm in language studies, can illuminate and facilitate language research and teaching. The first part of the book introduces the basics of cognitive linguistic theory in a way that is geared toward second language teachers and researchers. The second part of the book provides experimental evidence of the usefulness of applying cognitive linguistics to the teaching of English. Included is a thorough review of the existing literature on cognitive linguistic applications to teaching and cognitive linguistic-based experiments. Three chapters report original experiments which focus on teaching modals, prepositions, and syntactic constructions, elements of English that learners tend to find challenging. A chapter on “future directions” reports on an innovative analysis of English conditionals. Pedagogical aids such as diagrams and sample exercises round out this pioneering and innovative text.

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Experimental Evidence

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This book is dedicated to my parents, Don and Jean Tyler, whose love of learning and language set me on my own path and who provided the morning quiet that allowed this book to take shape.

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PART I

The Basics of Cognitive Linguistics

1

INTRODUCTION

Where Have We Been and Where Can We Go?

1. Why Should I Read this Book? No Silver Bullets

Learning a language is one of the most complex accomplishments humans achieve. We have known for many years that the story of children mastering their first language effortlessly in a short three- or four-year period is just that, a story. Research has long established that children learning their first language take at least eight years in an immersion situation to master many of the more complex grammatical constructions of their language. They generally do not gain productive control over much of derivational morphology until they are 10 or older. Many aspects of pragmatics take even longer. Given the length of time and attention needed for first language learning, it stands to reason that no new model of the structure of language can radically reduce the difficulty facing adult second language (L2) learners. However, the task of the adult L2 learner in the instructed L2 learning situation has been made even more difficult by the fact that important elements of systematicity that exist in language have not been captured by the traditional view of language. This view has been the mainstay of both descriptive and pedagogical grammars that underlie most modern L2 learning research and English language teaching (ELT) textbooks and materials for the past 50 plus years.

This book introduces a new and very different approach to pedagogical grammar – a **cognitive linguistics approach** (CL).¹ This approach to L2 grammar and

1 The use of the word “approach” is quite deliberate. Cognitive linguistics is not a monolithic theory of language. There are a number of contending analyses for various aspects of language. For instance, in my explication, I primarily focus on Adele Goldberg’s (1995, 2006) version of construction grammar. However, Croft (2001) and Bergen and Chen (2005) have developed alternative models of construction grammar.

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lexis does not offer an easy, guaranteed shortcut for helping L2 students become near-native speakers. What it does offer is a different understanding of the nature and organization of language, one which is more accurate, explanatory and more complete than the traditional view.

The traditional view treats language as a system separate from other cognitive and social abilities, an entity separate unto itself. Being an isolated system, disconnected from general cognitive processes and conceptual structure, language has traditionally been understood as operating under its own set of rules and properties, most of which have been assumed to be largely arbitrary, idiosyncratic and mysterious. This view tends to represent language as a set of rules (often attempting to represent “alternating,” “synonymous” sentence patterns, such as so-called **dative alternation** or active–passive alternation, as transforms of a basic pattern), a list of vocabulary items that plug into the rules, and a list of exceptions to the rules. The approach to language learning that accompanies this view of language emphasizes the need for the learner to master the rules and memorize the exceptions.²

A CL account differs radically from the traditional perspective by emphasizing that language is best understood as a reflection of general cognitive processes, the highly social nature of humans as a species, and the unique ways that humans experience and interact with the physical world. This last point is the notion of **embodied meaning**. In addition, CL emphasizes the recurrent organizing principles that are found at all “levels” of language. So, for example, in the traditional approach, metaphor is understood as only pertaining to limited aspects of non-literal language and is largely treated as outside the domain of systematic investigation. In contrast, the CL approach treats metaphor (i.e., understanding entities, actions, or events, in one domain, the **target domain**, in terms of entities,

Ron Langacker (e.g., 1987/1991) developed *cognitive grammar*, a fully articulated theory that focuses on the spatial nature of human thinking, successfully using concepts such as Focus and Ground to explain basic sentence structure and force dynamics in what Langacker calls the “action chain” model. Each of these models represents a unique and important perspective on just how grammar works. However, all these approaches also agree on certain fundamentals, first and foremost being that syntactic patterns, like all aspects of language, are symbolic units which consist of form–meaning pairings and, thus, are meaningful in themselves.

- 2 With the communicative, focus on form and task-based approaches there has been a shift in emphasis to implicit learning through rich input, meaning negotiation, and pushed output. These L2 teaching methodologies do not overtly relate to any particular model of language and do not overtly attempt to explain the patterns of the target language. In theory, most learning of the target language takes place implicitly. However, studies show that most language teachers do offer explanations for the grammar, and certainly most ELT texts, even those purporting to take a communicative approach, offer rules. These rules are generally based on the traditional view. It is likely that the trend of explicit presentation of rules will continue, especially in light of Norris and Ortega’s (2000) extensive review of the relevant literature which demonstrates that L2 learners appear to benefit from a combination of both explicit presentation of grammatical patterns and communicative manipulation of the language.

actions, or events in another domain, **the source domain**) as a fundamental aspect of human cognition, which is pervasively reflected in language.

Under a CL account, the same principles of metaphorical extension, force dynamics, and sensory perception that account for semantic extension of open-class lexical items, such as *grasp* and *head*, and semantic extensions of closed-class lexical items, such as prepositions, are also central to a systematic, principled account of verb argument structure and the particular syntactic patterns in which individual verbs occur. (This will be discussed extensively in Chapter 6.) Relatively recently, the traditional approach has acknowledged another layer of the language system which involves functional or pragmatic aspects of language use. Examples of this layer include politeness formulas and their contexts of use (e.g., in making a polite request, use *could* instead of *can*, *Could I ask a favor?*); speech act formulas (such as set phrases for offering an apology or making a complaint); and register differences (e.g., using *sweat* in more informal contexts and *perspire* in formal ones). While I applaud the language teaching approaches and materials that include pragmatic and discourse aspects of language use, I reject the notion that pragmatics should be largely treated as an “add-on,” disconnected from the formal grammatical and lexical structure of the language. Within a CL approach, pragmatic inferencing is understood as a ubiquitous cognitive process fundamental to how we interpret the world that surrounds us, one component of which includes language. CL analyses present pragmatic inferencing as integral to any interpretation of language, to semantic extension and grammatical extension. Moreover, many aspects of politeness, for instance using *could* and *would*, rather than *can* and *will*, turn out to be motivated aspects of a principled system.

As we will see, a significant disadvantage of the traditional perspective is that it fails to take into account our everyday interactions with and understanding of the world and their effect on language. One significant consequence of this perspective for pedagogical grammars, upon which ELT teachers rely and ELT textbooks are based, is that functions associated with distinct grammatical constructions, e.g., the full range of different functions associated with tense (e.g., time-reference, attenuation, counterfactuals, etc.) have been at worst ignored, or at best, presented in piecemeal fashion, with no indication that these functions are related to one another and so motivated (see Tyler & Evans 2001a).³ Hence the traditional grammars fail to inform the L2 researcher and the language teacher of significant regularities and systematic connections in the language.

This book takes a quite different perspective, one which asks you, as a professional in the area of L2 learning, to set aside your established ways of thinking

3 Criticizing pedagogical grammars for failing to present organized systems, such as the multiple functions of tense, in a piecemeal fashion should not be taken as criticizing ELT texts for not presenting students with all aspects of the system in one go, rather than in a selected and graded fashion. The point is that the researcher and the teacher need to understand the system in order to make informed choices about appropriate experimental materials, sequencing and teaching materials.

about the nature of language. Rather than thinking about language as a set of rules, each with a set of exceptions for L2 learners to memorize, the CL approach asks you to consider the social and physical world you operate in every day, general human cognitive processes, and the connections between that social–physical world and the structure of language itself. Here is a simple example: Everyday co-occurrences we observe between the rising level of a river and an increased amount of rainfall or the rising level of liquid in a measuring cup and an increase in amount of liquid, turn out to be reflected in language use.

We find many instances of language that literally refer to physical elevation being used to talk about increases in amount. For instance, in a sentence like *The price of that stock is up*, in which the monetary amount the stock is worth is held to have increased, we find language that literally refers to physical elevation, *up*, being used to refer to an increase in a rather abstract area, monetary value. In fact, this connection is so strongly conventionalized in English that it is often difficult for us not to talk, and think, about an increase in the amount of something without talking, and thinking, in terms of an increase in height. The two parameters of our experience of the external, physical world (quantity and vertical elevation) are clearly distinct. An increase in amount of liquid can result in a bigger puddle without resulting in an increase in height; similarly, an increase in amount of weight can result in an expanded waistline which extends horizontally rather than vertically. Nevertheless, quantity and physical elevation do correlate with one another in everyday experience in an extremely tight and recurring fashion. After all, every time we fill a glass, as the height of the liquid increases so does the quantity. Returning to *The price of that stock is up*, the point is prices do not literally rise in elevation, but we talk about such an increase as if they did. In other words, we use language that relates to our experience of the physical world to understand and talk about more abstract notions, such as the increase in value of some stock. This is a form of metaphor which cognitive linguists call **experiential correlation**. (We will discuss experiential correlation in more detail in Chapters 2, 3 and 5). In this example, cognitive linguists call the domain of vertical elevation the **source domain** and the domain of the abstract notion amount as the **target domain**. The **target domain** is understood and talked about in terms of the **source domain**.

This exemplifies one fundamental way in which language reflects social–physical experience. In the sentence described above we have seen that *up* is interpreted as having a meaning of “more” rather than literally relating to vertical elevation. The traditional view would represent this non-literal use of *up* as idiomatic. In contrast, rather than treating this non-literal, additional meaning as an exception to be memorized, a CL approach treats such multiple meanings of lexical items as being systematically related and therefore explainable. No theory of language can eliminate the need for language learners to memorize a good deal of vocabulary. However, a CL approach allows us to represent the multiple meanings and uses of lexical items as **motivated**, that is, reflecting a **principled**

pattern. Although understanding the systematic motivation for extensions of word meaning (through recurrent processes such as experiential correlation) does not automatically allow the learner to predict which extended meanings the target language has developed, it does provide a set of principles that can act as a schema for organizing and acquiring new lexical information. Work in psychology has long established that humans learn new information more easily and reliably when they can relate it to established schemas (e.g., Rummelhart, 1981; Wilson & Anderson, 1986). Presumably once language learners have a systematic, motivated explanation for **meaning extension**, it will be easier for them to interpret and remember related lexical items that they encounter. Importantly, a CL approach explains much more than the related meanings of lexical items. We will see in the chapters that follow that a CL approach offers a coherent account of a number of the most difficult aspects of (English) grammar – from prepositions to modals to which verbs occur in the double object construction. It also offers insightful explanations for many functional and discourse patterns, for instance, why languages tend to use past tense to indicate politeness.

2. Where Have we Been?

Over the past 60 years, there has been a dizzying array of different L2 teaching approaches. These have often appeared to vary greatly. Such approaches include, but are certainly not limited to, the audiolingual approach, Total Physical Response, the functional–notional approach, the generative-based “cognitive” approach, numerous varieties of the communicative approach and the task-based approach. These have represented important advances in L2 teaching. For instance, the audiolingual approach emphasized the use of certain carefully monitored kinds of question–answer interactions between the teacher and student, repetition by the student and oral drills of various kinds, all of which were in service of mastering the accurate production of a particular chunk of language (which involved pronunciation as well as a grammatical structure) before a new grammatical structure could be introduced. This was an important advance over the grammar translation approach in that it included spoken, everyday language. However, the learning of particular language forms was often disconnected from their meaning. In contrast, the communicative approach has stressed the importance of meaningful communication, rather than focusing on accuracy at the expense of other aspects of L2 learning. Consequently, student–student as well as student–teacher interactions focusing on goal-directed (i.e., communicative) interactions have been encouraged. These activities are often based on naturally occurring text or real-world encounters.

However, while the approaches have changed, the view of the nature and structure of language that underpins these approaches has not. What is remarkable is that the pedagogical grammar adopted by all these approaches is strikingly similar and has changed very little over the past 70 years. For instance, when we compare many of the exercises and explanations of specific grammar points in Lado’s (1957)

book, which exemplifies the audiolingual approach, to those in Azar's *Fundamentals of English grammar* (2002), which takes a strictly descriptive approach, or those in Larsen-Freeman's *Grammar dimensions* (2000), which is oriented with respect to a communicative and discourse perspective, we find a startling amount of overlap.

In order to illustrate this point let's take two concrete examples from modern textbooks which address points of grammar. My purpose here is to illustrate how such texts are reliant on the traditional view of language. To do this, let's look at how prepositions and modals have been treated.

Our first illustration comes from Azar's (2002) treatment of prepositions in her *Fundamentals of grammar* series, which has three levels. The challenge for the language learner in mastering English prepositions involves at least two aspects. One problem is learning the many meanings associated with each preposition, as illustrated for *over* in the following:

- (1.1) a. *The lamp is over the table.* (above meaning)
 b. *The teller at the central bank switched the account over to a local branch.* (transfer meaning)
 c. *The film is over.* (completion meaning)
 d. *The ball landed over the wall, in the neighbour's garden.* (on-the-other side)
 e. *She has strange power over me.* (control meaning)
 f. *She has a veil over her face.* (covering meaning)
 g. *The relationship changed over the years.* (temporal meaning)

This problem is amplified by the fact that non-spatial uses of prepositions are ubiquitous in naturally occurring discourse produced by native speakers of English. Thus, any time language learners venture outside the realm of the ELT text they will encounter this multiplicity of meanings.

A second major problem in mastering prepositions involves the complex ways they combine with verbs to create phrasal verbs. The following represent a small subset of the range of phrasal verbs associated with *over* as illustrated in the *Collins cobuild dictionary of phrasal verbs* (1989):

- (1.2) a. *ask over, flick over, roll over* (movement and position)
 b. *boil over, drool over, cry over* (overflowing and overwhelming feelings)
 c. *fall over, keel over, knock over* (falling and attacking)
 d. *cloud over, frost over, paper over* (covering and hiding)
 e. *brood over, pour over, think over* (considering and communicating)

Azar (2002) approaches this highly complex area by introducing a limited subset of the prepositions through diagrams, which represent the spatial relations coded by each preposition, e.g., a picture of an object located higher than another to illustrate *over* (the "above" sense in 1.1a, and accompanying example sentences.

This introductory material is followed by a series of fill-in-the-blank sentences, in which the learner is asked to supply the appropriate preposition. At more advanced levels, more prepositions are introduced through illustrative sentences without explanation of their individual interpretations. Prepositions are often presented in sets, e.g., *by*, *near*, *beside*, with the information that they share the same meaning for certain of the spatial uses. This representation is only roughly accurate even for spatial meanings, e.g., one can reside *near* a city without residing *beside* the city, and highly problematic for additional meanings, e.g., *We decided to travel by car*, but not *near car* or *beside car*. At the most advanced level, over 50 prepositions appear in a single list followed by several pages of fill-in-the-blank exercises. Except for the temporal uses, the non-spatial meanings of the prepositions, e.g., the transfer meaning and the completion meaning for *over*, etc., are not addressed. The explanation for temporal uses is not presented as being systematically related to the spatial use. Thus, language learners (and the L2 professional) are presented with a quite incomplete and even inaccurate picture of the many meanings that native speakers regularly assign to prepositions. Moreover, learners are not provided any systematic overview or tools of analysis to help them as they encounter natural discourse which inevitably contains numerous instances of non-spatial meanings of prepositions, as well as contexts in which the meanings of certain prepositions, e.g., *by*, *near*, *beside*, appear to converge and other contexts in which the meanings of the same set of prepositions appear to diverge.

Phrasal verbs are introduced in completely different sections, without reference to the meaning of the preposition participating in the phrasal verb construction, and in the form of idiosyncratic pairings whose meanings must be memorized. Again, fill-in-the-blank sentence completion exercises are provided to give the learner practice linking the form with its meaning.

As we will see, a CL approach treats the many meanings associated with each preposition as being systematically motivated and grounded in basic human experience of the physical world. This perspective allows for a more motivated, organized representation of the network of meanings associated with each preposition. The representation does not relieve learners of all memorization, as the particular spatial system developed in their L1 will inevitably vary from that of English and those differences will have to be learned. For instance, learners whose native language is Spanish will have to learn that spatial relations represented by *en* are represented by both *in* and *on* in English. However, the teacher, armed with an accessible account of the systematic meaning differences between *in* versus *on*, can help provide the L1 Spanish learner with learning strategies beyond memorizing lists of uses. Based on a more complete analysis of the many meanings associated with each preposition, the CL approach is also able to provide a systematic account of a large percentage of phrasal verbs.

Modal verbs are another particularly challenging area of English grammar. Like prepositions, each modal seems to have a range of meanings and uses. Consider the uses of the two modals *can* and *could*:

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- (1.3) *Can you go to the library this afternoon?*
a. *My mother just said I could go to the library.* (permission)
b. *My mother just said I can go to the library.* (permission)

Here *can* and *could* are basically interchangeable.

In contrast, in the example in 1.4b, *could* is acceptable but *can* is not because *could* is functioning as the past tense of *can*:

- (1.4) a. *They say Bill can cook better than his wife.* (ability + present)
b. *They say Bill could cook better than his wife.* (ability + past time)

In 1.5 *can* and *could* both relate to ability and again seem interchangeable:

- (1.5) *How many sandwiches should we take?*
a. *I can easily eat two sandwiches for lunch.*
b. *I could easily eat two sandwiches for lunch.*

However, when speaking of generic truths, *can* is acceptable but *could* sounds odd:

- (1.6) a. *Camels can survive in arid conditions.*
b. *Camels could survive in arid conditions.*

Can and *could* can also assume a possibility meaning:

- (1.7) a. *Even an expert driver can make mistakes.*
b. *Even an expert driver could make mistakes.*

In other contexts involving predictions based on inferences *could* works, but *can* does not:

- (1.8) a. *I've just seen the lights go on; John could be home.*
b. **I've just seen the lights go on; John can be home.*

When indicating a hypothetical situation, in certain instances, commonly referred to as the Conditional uses, *can* and *could* can both appear:

- (1.9) a. *If you can meet me at the corner, I can/could give you a lift.*
b. *If you could meet me at the corner, I can/could give you a lift.*

However, in other hypothetical situations, only *could* is acceptable:

- (1.10) a. *If turtles could fly, they could travel a lot faster.*
b. **If turtles can fly, they can travel a lot faster.*

These last examples are commonly labeled the Unreal or Counterfactual uses.

In addition, there is a difference in terms of what has been called “tentativeness” or politeness, with *could* being understood as being more polite.

- (1.11) a. *Could I borrow some money?*
 b. *Can I borrow some money?*

Clearly, sorting out the complex patterns of usage involved with the pair *can* and *could* presents a real challenge for both the language learner and the teacher, who must accurately present the complexity while offering an accessible account which emphasizes any points of systematicity. As if this were not enough, when the entire modal system is taken into account the situation is even more complicated, as the exact pattern exhibited by *can* and *could* is not replicated. For instance, while *could* constitutes the past time form of *can* in certain contexts, *might* and *should* do not currently form the past time counterparts of *may* and *shall*. Moreover, the interpretation of various modals changes when they occur in negation and interrogative constructions.

A representative approach to the teaching of modals is provided in Werner and Nelson’s (1996) *Mosaic two: a content-based grammar*. Like many others, they categorize the modals in terms of a number of broad functions or speech acts. For instance, *may/might/could* are represented as relating to ability and possibility; *may/can* as relating to granting permission; *may/could/can* as relating to asking for permission; *would/could/will/can* as relating to asking for assistance. Other categories include advice, suggestions, lack of necessity, prohibition and expressing preferences. An example of Werner and Nelson’s presentation, which concerns how modals are used for advice and suggestions, is given in Table 1.1.

TABLE 1.1 Modals Used to Give Advice and Make Suggestions

<i>Advice and Suggestions</i>	
<i>Present</i>	
Had better	You had better study more
Should	You should try harder
Ought to	You ought to go
<i>Past (Unfulfilled)</i>	
Should not have	You should (not) have helped us
Ought not to have	You ought (not) to have gone earlier
<i>Present</i>	
Could	You could hire a tutor
Might	If your cold doesn’t get better, you might see a doctor
<i>Past (unfulfilled)</i>	
Could (not) have	You could (not) have gotten up earlier
Might (not)	You might (not) have gotten up earlier

Source: after Werner and Nelson (1996, p. 163).

Students are given practice manipulating the forms through short dialogues and fill-in-the-blank exercises. A consequence of this approach, in which a wide range of meanings represented by modals are presented in relation to isolated speech acts, is that there is no attempt to relate the various meanings. Moreover, gaps in the paradigm are introduced without any explanation; notice, for instance, that the appearance of “had” (typically understood as the past tense form of *have*) in the present form of “had better” goes unexplained as does the absence of a past form with “had better.” Hence, any systematicity between the multiple functions remains unexplored. This results in a fragmented picture of the lexical class in question, leaving the learner with the impression that the various uses are arbitrary and with the learning strategy of rote memorization.

Perhaps even more problematic is the inaccuracy introduced by presenting the modals in this particular paradigmatic fashion. Such broad functional categorizations lead to the inaccurate impression that the modals within each category, as in the examples from Werner and Nelson, *had better*, *should*, *ought to*, *could* and *might*, are largely interchangeable. That this is inaccurate is illustrated in the following sentences, in which the modals have clearly distinct interpretations:

- (1.12) a. You **could** use an ATM card instead of traveller's checks.
 b. You **should** use an ATM card instead of traveller's checks.
 c. You **might** use an ATM card instead of traveller's checks.

The informed teacher, of course, might be able to make the functional approach work, but this presupposes an accurate and systematic understanding of the modal system. Unfortunately most pedagogical grammars, even the more recent ones, simply do not provide such an overview.

In contrast, a CL approach offers an analysis of the modals based on general concepts from the realm of force dynamics, such as force used to propel motion along a path and barriers to forward motion. An analysis of modals grounded in force dynamics allows CL to offer not only a principled, explanatory representation of the semantics of these modals, but also a more accurate and complete one. Thus, a CL approach provides a motivated explanation for the patterns of usage that is not captured by the overly general functional representation. We will consider this more thoroughly in Chapter 5.

Celce-Murcia and Larsen-Freeman (1999) provide an important exception to this general pattern among pedagogical grammars. They offer several important insights into modal usage by attempting to sort out some of the meaning differences associated with each of the modals. They do so primarily by providing scales of strength in both root and epistemic uses. However, even their more sophisticated account relies primarily on unmotivated lists and fails to give a full accounting of the semantics of each of the modals.

As we will see in Chapter 4, by grounding its analysis in general cognitive principles, such as embodied experience and force dynamics, a CL approach

provides a way of seeing the multiple functions associated with the modals as being related in a systematic fashion. A CL approach to modals offers the teacher a unified explanation that the experimental evidence suggests facilitates more effective teaching and learning.

Perhaps a partial explanation for the continued domination of the traditional view is that most of the language teaching methodologies and much of the research in Second Language Acquisition (SLA) have tended to have their sources in psychology, sociology, or educational psychology rather than theoretical linguistics (Larsen-Freeman, 1996). An important exception to this trend was the so-called “cognitive,” with a small c, approach, which was influenced by early Chomskian linguistics. However, as Chomskian theory has explicitly claimed to be creating an abstract, formal (mathematically based) model of language without any direct link to psychological reality, finding connections between the tenets of this particular theory of grammar and practical applications to language learning and teaching has proved elusive. Since the dominant trends in L2 language learning and teaching have focused on more effective methods of presentation of language materials or psychological conditions for enhanced learning, the traditional representation of language has gone largely unchallenged.

We see this same reliance on the traditional perspective in even the newest, most comprehensive corpus-based grammars such as the *Collins cobuild English language grammar* (1990) or Biber et al. (1999) – grammars which explicitly claim applicability to ELT textbooks and teachers. For instance, the full range of functions associated with tense are not presented, or else presented in non-unified fashion, with no attempt to relate the various functions. This will be discussed more fully in Chapter 2. The key point is that the infusion of a massively larger database, with its obvious potential insights into how particular language patterns function and the relationship between the functions, does not in and of itself fundamentally affect the underlying view of language and the nature of its representation.

To this point, I have sketched a general picture of the traditional view and indicated some of its limitations. Now I turn to a more detailed characterization of the basic concepts that make up this view:

- Language is understood as a separate system made of up a number of compartmentalized subsystems, i.e., phonology, morphology, syntax, the lexicon, and semantics. More recent versions of this approach have also assumed an independent pragmatics component. The language system is treated as being uninfluenced by ordinary human interaction with and experience of the spatio-physical world. (By this I do not mean that all previous approaches have ignored the communicative and pragmatic aspects of language use, but they do not represent pragmatic aspects, such as the forms politeness phenomena actually take, as being a systematic representation of our general understanding of the world.)

- Language is acquired, not learned. This is a central claim arising from the tenet that language represents an encapsulated component in the brain which has no interaction with other cognitive processes. Basic to this perspective is the hypothesis that the language module is evolutionarily set to particular parameters. Once the young child has been exposed to the appropriate language, the morpho-syntactic parameters are set. Because the possible morpho-syntactic configurations of language are biologically preset, no actual learning of syntax occurs. Chomsky and his followers refer to this as language acquisition. Tomasello (e.g. 2003, 2008), in particular, has critiqued this view and has emphasized the importance of distinguishing between constructing (or learning) a language and “acquiring” a language.
- One consequence of the traditional view is the representation of syntax as being separate from the lexical and semantic components and therefore as having no independent meaning in its own right. So, linear arrangement and closed-class (or so-called functional) elements are seen as not contributing to the meaning of the sentence. Linear ordering and closed-class (functional) elements simply provide a structuring framework for lexical items. For instance, *Mary gave the coat to John* is represented as having the same (truth conditional) meaning as *Mary gave John the coat*, although a number of the more sophisticated accounts do acknowledge important discourse or functional differences. As we will see in the following section, and later in the book, this representation results in a number of unexplained exceptions or inaccuracies. For instance, representing these two sentences as semantically equivalent does not account for why *I taught Lou Italian* and *I taught Italian to Lou* have somewhat different interpretations, i.e., *I taught Lou Italian* entails that Lou actually learned Italian, while *I taught Italian to Lou* does not.
- The many meanings associated with a particular form are largely unrelated and must be learned one by one. This is reflected in the traditional **dictionary view** of word-meaning in which each meaning is listed, without any attempt to identify recurring patterns of meaning extension.
- Non-literal language is peripheral. Metaphor and other figurative language are seen as being part of the poetic use of language, rather than as a fundamental property of human thought, reasoning and understanding. Thus, under the traditional view, the use of *up* to convey the notion of an increase in amount is either not addressed at all, or else is treated as arbitrary.

As I have already intimated, a CL approach offers a radically different perspective. CL constitutes a more humanistic, holistic approach by virtue of viewing language as an integrated aspect of human cognition. As we will see in detail throughout this book, this is an approach that has a great deal to offer L2 researchers and teachers. CL is an approach to language that is in many respects compatible with current L2 teaching practices and findings in L2 research. The emphasis on form–meaning linkage, which is foundational to CL, places it squarely

in line with recent trends in L2 learning, such as focus on form (e.g. Doughty & Long, 2003; Long, 1991) and task-based learning (e.g. Robinson & Gilabert, 2007). Over the last 15 years several publications have appeared which suggest how CL may benefit second language teaching. Even though Nick Ellis pointed out that CL insights were potentially useful for the field of SLA in 1998 and 1999, SLA researchers are only now beginning to discover CL: thus research applying CL insights to L2 teaching is in its infancy. However, no approach arises in isolation. The general perspective of CL as we will apply it to pedagogical grammar in this book has had a number of notable precursors. I briefly detail these below and comment on how they prefigure the CL approach to language teaching.

The first important precursor has been the Communicative Approach. This derived from Hymes' (e.g. 1972, 1974) construct of communicative competence – reinterpreted for second language learning by Canale and Swain (1981). This approach to language teaching recognized the importance of the contextualized functions of language use. It emphasized that a fundamental aspect of knowing a language includes knowing a particular speech community's conventionalized ways of achieving particular communicative ends, e.g., being polite when making a particular request. Importantly Hymes, as well as Canale and Swain, assumed a separate grammatical level of representation which was seen as interacting with communicative competence. The model of language represented in this grammatical component presupposed the traditional view sketched above. Hence, the focus of these researchers was not to radically reconceptualize the nature of the grammatical component but rather to give due emphasis to the communicative nature of language and the importance of language use.

An important offshoot of the communicative approach has been the development of English for Specific Purposes (ESP), for example in the work of Swales (1990, 1995). This body of research provides detailed examinations of naturally occurring language. Specifically, it examines how language is used in very particular contexts to accomplish particular functions or communicative ends. In so far as the Communicative Approach and ESP have taken account of language in use, they constitute important precursors to the CL approach, which, as we will see, also constitutes what Langacker (1987, 2008) has termed a **usage-based model**.

A second important precursor is represented by scholars such as Celce-Murcia and Larsen-Freeman (1999), Cohen (1999), McCarthy and Carter (1994) etc., who have been influenced by functionalist theoretical linguists such as Givón (e.g., 1995, 2001) and Halliday (e.g., 1983; Halliday & Matthiessen, 2004) and discourse analysts such as Gumperz (e.g., 1982), Schiffrin (e.g., 1987), Scollon and Scollon (e.g., 1995) and Tannen (e.g., 1989), etc. They have written pedagogical grammars or teacher's handbooks that emphasize the discourse-based, functional usage of particular grammatical structures. These researchers, who build on a communicative approach, attempt to reconceptualize the role of grammar within such a framework. This involves treating grammatical form as more closely related

to meaning and its functions of use. In spirit, this approach represents a significant break with the traditional view that conceived of language structure independent of meaning and language use. For instance, scholars such as McCarthy and Carter (1994) note that preposed conditional clauses tend to refer to events or conditions which occurred several clauses earlier in the discourse (i.e., they have wide scope), while postposed conditional clauses tend to refer to events or states in the immediately preceding main clause (i.e., they have narrow scope), or that certain modals, such as *will* and *should*, for example, tend to appear in horoscopes because they have a future or predictive function. Emphasizing the importance of discourse context and communicative functions represents a major advance in our general understanding of the nature of language. Nevertheless these approaches have tended to be heavily influenced by the traditional view in their actual representations of linguistic structures in practice, e.g., the grammatical patterns, the morphology, the lexicon, etc. One representative consequence is that a particular lexical class, the modals, is still presented in a piecemeal fashion.

Stemming from a very different tradition, the work of the psychologist Lev Vygotsky (1987) and those scholars such as Bruner (1983) who have been influenced by his research, also has important connections with CL. The application of Vygotsky's ideas to language teaching by researchers such as Donato (1989), Hall (1995), Lantolf (2002, 2007, 2009) and van Lier (1998) provides an important link to a CL approach. Vygotsky noted the fundamental role of interaction between an expert, or knower, and a novice in learning a range of sociocultural activities, one of which is language. Of particular importance is his observation that cultural knowers provide precise, step-by-step modeling of the fundamental concepts and skills needed to undertake a particular activity. He observed that learners were encouraged to contribute to the enactment of a particular activity to the limits of their current ability (**zone of proximal development**); the knowers consistently provided guidance and support in accomplishing the action (**scaffolding**). Specifically in terms of language, Bruner observed that parents created and frequently repeated what he termed language frames, which served as scaffolding to support the child's language learning. For instance, Bruner found that parents frequently asked the young child a question such as "What's this?" and then supply the answer "This is a ____." These frames are repeated hundreds, even thousands of times, thus providing the child numerous instances of a particular interactional, grammatical pattern involving only slight changes. The child is hypothesized to generalize over multiple exposures of contextualized use of such language frames, eventually recognizing a flexible pattern from which to create new utterances. Further, the child is hypothesized to build an extensive inventory of such frames as their language skills develop. Importantly, the frames are always tied to particular patterns of use, or to meaningful communication. This view of language learning as being (1) crucially embedded in "scaffolded" knower–novice interaction whose purpose is to create meaningful communication, and (2) the child acquiring language through accumulation of an inventory of frames

represents a radical departure from the traditional view. These constructs are consonant with key aspects of a CL approach.

3. Where Would We Like To Go and What Do We Need To Get There?

No matter what method of language teaching one advocates, the researcher and the teacher are best served by a clear, accurate understanding of how the grammatical aspects of language are structured and organized. Even in the most inductive approaches, a fuller understanding of language on the part of the L2 professional is vital to experimental, material and curriculum design. And, as all practicing language teachers know, learners inevitably ask for explanations of various grammar points; the teacher needs to be ready to respond to these queries. Furthermore, as Norris and Ortega (2000) show in their review of studies which have investigated the effectiveness of implicit versus explicit approaches to L2 instruction, explicit grammar explanations, coupled with more communicative activities, are consistently more effective than totally inductive approaches in which the learner is given no explicit explanation (at least in the relatively brief interventions represented by the experiments reviewed by Norris and Ortega).

In short, L2 researchers and teachers need to be able to have as complete an understanding of grammar and lexis, and the motivated ways in which they are used within communication, as possible. In order to do this, they are best served by a pedagogical grammar that is accurate, accessible and complete. Ideally, we want a pedagogical grammar that is based on a model of language that provides the necessary tools and insights to provide such an account of the language and, additionally, suggests ways in which this information can be used in language teaching presentations, materials and curriculum.

The CL approach meets the criterion of accuracy because it is based on careful observation of how grammatical constructions are manipulated by language users in contexts of language use. Moreover, rather than relying on a list of overly broad rules, which are assumed to be unique to language and which are inevitably riddled with exceptions, which in turn encourage the learner to form inaccurate over-generalizations, a CL approach looks to recurrent cognitive principles evidenced in many areas of cognition and reflected throughout all levels of the linguistic system. CL further assumes that the traditional “exceptions” often provide valuable insights into the true workings of the system. Rather than placing the “exceptional” in the periphery, the analytic focus is on understanding the motivation behind the exceptional and how this fits with the overall system. Thus, CL provides a more nuanced, detailed description by representing language as an inventory of interrelated, systematically motivated units which take account of the relationships between the units and groupings of units. To be sure, parts of all languages are conventional, retaining remnants of arbitrary historical accidents and unique cultural conceptualization, and so must be learned. For instance, there is no system that will allow learners to predict irregular past tense forms of particular

English verbs or all the uses of English prepositions. However, a CL approach offers a motivated account for a much larger part of the language than represented by earlier, alternative accounts.

As noted at the outset of this chapter, any language is highly complex and cannot be mastered without recourse to many years of exposure and learning form–meaning relationships. A CL approach cannot offer a guaranteed, effortless path to L2 learning. Recognizing this inevitable limitation, CL can offer an approach to L2 learning with far fewer garden paths and needless dead ends.

A CL approach meets the criterion of accessibility because it views language as being a function of general interaction with other cognitive abilities and our interaction with the world. Thus, explanations stemming from a CL approach draw on learners' everyday real world experience by tapping into an intuitive reservoir of knowledge that facilitates an understanding of the systematic relationships among the units of language. This is the same reservoir of experiential knowledge of the world which underpins the human conceptual system and hence language itself. A CL approach exploits this implicit knowledge by highlighting recurrent, meaningful linguistic patterns and organizing principles. Again, we note that each language potentially highlights slightly different aspects of human experience and conceptualization of the spatio-physical world and thus learners will face certain challenges mapping the differences between their L1 and the L2. CL is a theoretical approach to language that is in many respects compatible with current L2 teaching practices and findings in L2 research.

In later chapters I will explain more fully how the notions from the area of force dynamics, such as enablement and barriers to forward motion, are key to semantic extensions of prepositions and modals. Here, consider Pinker's (1989) observation that what appear to be many, idiosyncratic "narrow classes" of verbs occur in the double object construction while others are arbitrarily excluded. For instance, *give* is generally considered the most prototypical verb to occur in the double object construction, as in sentences such as *Mary gave Jane the cake*. The meaning seems to be something like "Mary caused Jane to receive the cake." However, verbs that mean the opposite such as *refuse* and *deny* also occur, as in *Mary denied Jane the maternity leave*. Under a traditional account, the verbs that can occur in this syntactic construction have to be memorized. However, under a CL approach, *refuse* and *deny* can be seen as indicating barriers to Mary causing Jane to receive the leave; the notion of a barrier to forward motion is a basic aspect of force dynamics seen recurrently throughout various "levels" of the language. Under a CL approach, the student is not asked to memorize a general rule converting sentences like *Mary gave the cake to Jane* to *Mary gave Jane the cake* along with a list of words which can fit into these "alternating" patterns. Rather, students are encouraged to see the recurring patterns of meaning extension (such as force dynamics) and how they apply to syntactic–semantic templates. This approach does not eliminate the need to learn the templates in the first place. For instance, students must learn the template or construction:

X	cause–receive	Y	Z
Giver		Recipient	Thing Received

The basic meaning associated with this construction is “X caused Y to receive Z.” However, the most challenging part of remembering just which verbs can occur in this pattern is largely alleviated through understanding the recurrent principles that organize our understanding of the world and our conceptualization of semantic classes. In contrast to the traditional approach, the CL approach represents the grammatical patterns or constructions themselves as meaningful and the verbs that occur in those constructions as having semantic properties which are consistent with the meaning of the construction. Moreover, the meanings of the constructions have been systematically extended through processes that are parallel to those governing the systematic extensions of individual lexical items. This includes metaphorical extension.

Finally, a CL approach constitutes the most complete model of language currently available in that it includes many more phenomena than other models. A fundamental aspect of the approach is an emphasis on the relations between form, function and meaning. In fact, form is seen as inseparable from meaning. Elements that have traditionally been treated as literal versus figurative are viewed as not being separate; thus figurative language, which has generally not been under the purview of theoretical linguistics, is seen as an integral part of the linguistic system. Taking advances in psychology and neuroscience into account, it adopts an **encyclopedic view of lexical items**, seeing words as access points to organized complexes of knowledge (i.e., domains and frames of knowledge), not simply truncated dictionary entries. A fundamental aim within the approach is to describe not only the elements that make up language but also the systematic relationships among those elements. Indeed, the systematic relations are understood as an essential aspect of the description of linguistic elements. Language is understood as part and parcel of general cognitive organization and processes. As such, language, including grammar, is seen as reflecting our understanding of the world and our interactions with it.

For the L2 researcher and teacher, then, this approach has the potential to provide rich insights into the relatedness of, organization of and motivation for the core and many “exceptional” uses associated with aspects of lexis and grammar. Ultimately, these insights offer language learners a more coherent and explanatory description of the language.

I now turn to a more detailed consideration of the guiding principles that underpin the CL approach advanced in this book.

a. There is no Sharp Distinction Between the Lexicon and the Grammar

What this means is that linguistic units comprise a conventional form–meaning pairing. It is an unremarkable observation that a word such as *cat* [kaet] constitutes a particular form (as opposed to French *chat*, German *Kätze*, etc.) conventionally paired with a conceptual representation or meaning (furry, four-legged mammal which makes the sound “meow,” catches mice, is a domesticated pet, etc.). Other examples of commonly recognized form–meaning pairs include bound morphemes, e.g., *-er* [as in *teacher* versus *teach*], fixed expressions [as in *How do you do? On the one hand . . . on the other. . .*], and idioms [as in *kick the bucket*]. Importantly, under a CL analysis, grammatical constructions (i.e., word order configurations,) such as those represented by:

- (1.13) a. *John bought the book.*
 b. *John is interested in this book.*
 c. *This book interests John.*
 d. *This book is interesting.*

are also represented as distinct forms which are linked to meaning (although they are clearly more abstract and schematic than the meaning associated with a lexical item). In a typical transitive sentence as in sentence 1.13a, the subject of the sentence, here *John*, is a **prototypical** agent, i.e., animate, intentional and the initiator of action. In sentence 1.13b, *John* is not a prototypical agent, but rather an experiencer; while we still understand the subject to be animate, John is not understood to be acting with volitional intention or initiating the action. The sense is that *John* is being acted on or influenced by the *book*. In sentence 1.13c, the entity in subject position, *this book*, bears only the agentive quality of initiator or cause. In sentence 1.13d, the entity in subject position is simply being described; it has no typical agent qualities. If we look carefully at how English speakers use these syntactic patterns, we see that they provide different perspectives on the event being talked about. While the transitive construction is focusing on *John*, the agent of an action, the others are focusing to varying degrees on the *book*. In other words, there is a conventional interpretation or meaning linked to the syntactic forms. Furthermore, only verbs whose semantics match the semantics of the construction occur in these constructions.

In sum, under a CL analysis the syntax, as well as morphology and lexical items, is meaningful. These elements interact in motivated ways that provide an explanation for the seemingly narrow class restrictions between lexical items and the grammatical patterns in which they occur.

Why Should a Language Professional Care Whether or not There is a Sharp Distinction Between the Lexicon and the Grammar?

As we will see, viewing the lexicon and grammar as forming a continuum and linked to meaning allows us to systematize our representation of language. We can use the same models and principles for representing and presenting lexical patterns, morphological patterns and sentential grammar to the language learner. This results in a more motivated and less idiosyncratic account. It provides the language teacher with explanatory tools with which to analyze and present aspects of the language. Presumably a more complete and systematic explanation will result in less recourse to rote memorization on the part of the learner, with the salutary effect of more effective and enjoyable language learning.

b. Meaning is Grounded in Our Everyday Interactions with the World Around us and the Nature of Our Bodies

From this it follows that meaning arises from embodied interaction in the world. For example, our eyes are located in our faces, on what we label the front part of our heads. An important consequence of this is that our vision is limited to that part of the landscape with respect to which the front of our head is oriented. This physical arrangement is distinct from other organisms. For instance, horses have eyes located in the sides of their heads allowing a wider range of vision; owls can rotate their heads with greater facility to allow a range of vision close to 360 degrees without having to reorient their bodies. A fundamental consequence for human beings is that we have an asymmetrical, front/back orientation to the world. For instance, we travel in the direction we face, rather than traveling sideways like a crab. Front/back asymmetry is meaningful because of how we experience the world in general and interact with other humans in particular. For example, when we physically turn our backs on someone or something, we are no longer focusing on the situation or entity and hence that particular interaction is over for us. Hence, front/back orientation is meaningful for human beings by virtue of its consequences for the way in which we interact with the world and with others.

This meaningfulness finds many linguistic expressions. One simple example is our interpretation of the expression *turn one's back on X*, as in the sentence *The president tried to turn his back on the growing scandal*, which means something like, "The president tried to ignore the growing scandal." Another example involves the semantic extension of the lexical item *head* in the phrase *head in the right direction*. Here we understand *head* in terms of a front/back orientation rather than, say, an up/down orientation. In a physical sense *heading in the right direction* has to do with aligning our bodies such that our line of visual perception is appropriately positioned, thus allowing our forward motion towards a physical goal. The meaning can be extended metaphorically to include proceeding appropriately in any activity, as in, *You are heading in the right direction in your analysis of this problem*.

Why Should a Language Professional be Interested in the Notion that Meaning is Grounded in Embodied Experience?

Most fundamentally, the notion of embodied meaning is important because it pervades all aspects of language from the lexical to the syntactic. Being able to see these patterns gives the language professional and language learner important insights into a whole host of otherwise perplexing aspects of language. For instance, having ready explanations for how new meanings are derived from existing meaning, by virtue of embodiment, provides a tool for learning and teaching the multiple meanings associated with words, including closed-class functional elements, such as prepositions and modals. In addition, it allows us to view syntactic constructions as being grounded in human experience. For example, one of the most difficult aspects of a language to learn is the relationship between particular syntactic constructions and the verbs that appear in those constructions. Viewing syntactic constructions as deriving from recurring interactions with the world, e.g., someone physically transferring something to someone, in conjunction with basic force dynamics, such as enablement and barriers to forward motion, allows us to explain the relations between particular verbs and the grammatical constructions in which they are permitted, e.g., which verbs participate in the double object construction (Goldberg, 1995). Understanding the semantic classes of verbs in terms of metaphoric applications of force dynamics and human intention provides a unified account missed by even the most detailed lexical semantic accounts, such as Pinker's (1989) narrow class listings of groups of verbs which occur in the double object construction, e.g.,

Mary baked Joan a cake.

c. Linguistic Units Constitute Categories

This entails that linguistic units, i.e., lexical items, morphemes and syntactic constructions, can subsume a range of distinct but related meanings organized with respect to a central meaning. In other words, a linguistic category, such as a word, constitutes a motivated **semantic network** of related meanings. Recall the examples of the many meanings of *over* shown in example 1.1. A CL approach represents these many meanings as being organized in a systematic way with respect to a central sense. For prepositions, this is the meaning most directly grounded in embodied experience. Many, and perhaps most, grammatical constructions also subsume a range of distinct but related senses (Goldberg, 1995). As we will see in Chapter 4, it is this property of language that will also help us explain the various meanings of each of the modal verbs and how each of the modals relates to the overall system of modal verbs.

Why Should Language Professionals be Interested in Treating Linguistic Units as Categories?

As our examples above indicate, understanding language from this perspective offers insights into some of the most difficult aspects of the English language. These insights will allow us to develop teaching materials and presentations that emphasize the meaningful relationships among members of a particular category, e.g., the modal verbs or the prepositions, rather than emphasizing the idiosyncratic and arbitrary nature of language.

d. Language is Usage-Based

Language always occurs in a context of use. One important consequence of this position is understanding that the particular linguistic forms that occur in particular contexts of use give rise to particular inferences. As Ron Langacker, one of the founders and leading thinkers in the field of CL argues:

It is not the linguistic system per se that constructs an understanding of novel expressions, but rather the language user, who marshals for this purpose the full panoply of available sources. In addition to linguistic units, these resources include such factors as memory, planning, problem solving ability, general knowledge, short and long term goals, as well as full apprehension of the physical, social, cultural, and linguistic context. An actual instance of language use, resulting in all these factors, constitutes what I will call a usage event.

Langacker (2008, pp. 9–10)

It is a fair assumption that a stable lexical unit has a conventionally accepted meaning within the discourse community. Presumably a speaker would only use that lexical unit in a new way if she believed her interlocutor had a reasonable chance of interpreting the form as the speaker intends. This suggests that meaning extension, which results in a single phonological form having many meanings, is grounded in situated communication. It further suggests that meaning extension is motivated and likely to follow some systematic patterns which guide speakers' inferences.

These inferences are constrained not only by social conventions but also by general cognitive processes and knowledge of the physical–spatio–social world. For instance, our knowledge of animacy and basic force dynamics allows us to infer that if we see a running horse approach a hedge and then jump such that its body is higher than the hedge, the horse will come down to earth beyond the hedge. Tyler and Evans (2003) have argued that this very inferencing has given rise to several extensions of the preposition *over*. When the inferences are recurrent, they become strongly associated with the linguistic form. These inferences are often the basis of a new extended meaning. Through repeated usage, and the process of grammaticalization (e.g., Traugott & Dasher, 2002) these extended meanings

become entrenched in the language and the original situations and inferences that first gave rise to them may no longer be salient. In other words, the new meanings gain a certain independence from the original scenarios that first brought them about (Tyler & Evans, 2003).

Over time, native language users may no longer be aware of the original context of use that gave rise to the inference, and at first glance the many meanings associated with a form may appear to be unrelated or arbitrary. However, the systematicity of such semantic extension can be exploited by L2 teachers as a useful rubric for presenting the range of uses as a motivated system.

A usage-based approach, then, offers principled explanations for how meaning is extended from a central sense. The several meanings associated with the English present tense versus the past tense – to indicate not only time-reference, but also foreground versus background information, to signal hypothetical or realis (“could be true”) versus counterfactual or irrealis (“could not be true”) situations, and to mark certain politeness phenomena – are excellent examples of this principle. (The multiple uses of tense are discussed more fully in Chapter 2.)

Why Should Language Professionals be Interested in the Notion that Language is Usage-Based?

To make this point more concrete consider the following examples which again make use of the preposition *over*:

- (1.14) a. *The picture is over the mantelpiece.*
 b. *Joan nailed the board over the hole in the ceiling.*

The sentence in 1.14a depicts a **spatial scene** in which the element in **focus**, *the picture*, is located higher than a background **landmark** or locating element, here *the mantelpiece*. There is a good deal of evidence that this represents the central meaning of *over*. However, in the sentence in 1.14b, the element in focus, *the board*, is located below the landmark, *the ceiling*. Moreover, the conventional reading associated with *over* in 1.14b relates to the notion of covering, rather than a particular geometric spatial relation between the element in focus and the landmark. Clearly, these two sentences display two very different meanings of *over*. The difficulty for the language teacher is how to teach these distinct meanings without resorting to simply asking students to memorize these apparently distinct, and on the face of it, unrelated meanings. This is where the usage-based view of language comes in.

Given the way we use language and the way in which we interact with the world, a common inference associated with contexts of use associated with the “higher than” meaning associated with *over* is that a “covering” meaning is implied. Consider the following example:

- (1.15) *The tablecloth is over the table.*

In this sentence *the tablecloth*, the element in focus and in the above position, is larger than *the table*, the landmark; additionally, tablecloths tend to be made of opaque material. Given the way we ordinarily interact with tables, i.e., we look down at them, or are seated at them such that they are located lower than our line of vision, an inevitable consequence is that we understand the tablecloth to be covering the table and obscuring the table from our vision. Through the recurrent use of *over* in such contexts, the covering meaning can become represented in memory as a distinct meaning associated with *over*. Once the covering meaning has become associated with *over*, it can be used in situations that do not pertain to the original “above” spatial configuration between the element in focus and the element in background.

By understanding, and so being able to explain the usage-based nature of meaning development in this way, language teachers are likely to be in a better position to assist their students in learning what, on the face of it, appear to be unrelated and seemingly arbitrary meanings, associated with an English preposition such as *over*.

Such processes of meaning extension are not limited to prepositions. As we will see in Chapters 2, 3, 4, 5 and 6, English modals, grammatical constructions, content words and tense morphemes all have multiple meanings or uses that can be accounted for by the same principles of extension. Many of these uses have been represented as exceptions to the general rules under traditional analyses. Understanding the processes of inferencing and meaning extension which occur when a linguistic unit is used in context allows us to uncover and hence represent many more aspects of language as being systematic and motivated. This will presumably assist language learning because teachers will be able to provide meaningful explanations for many apparent exceptions.

4. About This Book

Although CL is a relatively new framework, it is now sufficiently developed to be usefully applied to language learning. Indeed, several researchers have begun to apply CL to language pedagogy. For instance, as we will see in detail in Chapter 3, Boers and Lindstromberg (e.g. 2006) have demonstrated the usefulness of raising learners’ awareness of conceptual metaphor in the acquisition of vocabulary, Cadierno and Robinson (2009) have investigated L1 transfer effects using CL analyses (e.g., Talmy, 2000a, b; Slobin, 1994) of typologies of motion events, and Verspoor and Lowie (2003) have shown the effectiveness of teaching vocabulary using the concepts of prototypes and radial categories. However, there has been no concerted attempt to experimentally investigate the efficacy of applying insights from CL to L2 research or teaching of grammar or other complex lexical classes, such as modals. Moreover, no concise introduction to the paradigm exists specifically aimed at L2 professionals. The purpose of this book is to fill that gap.

To this end, **Chapter 2** provides an overview of several fundamental components of the CL model are explored. First, I explore the central role of meaning in a CL approach and the tenet that all aspects of language represent form–meaning pairings. Second, I address more fully the usage-based nature of language. In particular, I investigate the essential relationship between conceptualization and embodied experience, mental imagery, conceptual metaphor and categorization. Third, I discuss some of the fundamental aspects of human cognition. Finally, I end with an overview of first language (L1) learning within a CL-based model.

The second part of this book examines a CL approach in the context of L2 research and learning. In **Chapter 3** I take a closer look at research aimed at investigating the usefulness of a cognitive perspective for L2 research and learning. The chapter reviews select studies which illustrate the potential for application of five basic notions presented in Chapter 2 – construal, conceptual metaphor, category formation, embodiment and the usage-based nature of language. In addition, I discuss how a CL analysis relates to current issues in the field of L2 research and learning.

The next three chapters of the book provide a series of experimental studies of three areas of English that have been identified as problematic for L2 learners – modals, prepositions and sentence structure. For each area, I present a CL-based analysis of the linguistic phenomena and original effects-of-instruction experimental findings showing the efficacy of taking a CL approach. The materials developed for each experiment are described in some detail and thus serve as models for developing research and instructional materials.

Chapter 4 focuses on the modal verbs. Central to my pedagogically oriented description of modals is the insight that humans regularly use knowledge from the physical–spatial domain to think and communicate about non-physical/spatial domains. I present evidence from developmental psychology that early childhood experiences with basic events involving gravity, transfer of objects, movement along a path and barriers to movement are fundamental not only to our understanding of the physical world, but also provide the key event schemas we use to reason and think about the non-physical. These schemas are reflected in the modal system. Many of the apparent quirks of meaning found with modals, particularly the relationship between the root (social) uses and the logical prediction use, fall away under this analysis. Three effects of instruction studies are presented.

In **Chapter 5** the constructs introduced in part 1 of the book, e.g., the semantic network model and the bodily basis of meaning, which we term **embodiment**, are applied as I sketch an account of the lexicalization patterns exhibited by English prepositions (e.g., Tyler & Evans, 2003), elucidating the systematic way in which meanings are extended. I illustrate the approach through an analysis of three prepositions – *to*, *for*, and *at*. Three effects of instruction experiments are presented that demonstrate the efficacy of using this approach to teaching prepositions.

In **Chapter 6**, I present a pedagogically oriented account of basic sentential syntax, with a special focus on the double object and prepositional dative con-

structions. I provide evidence that grammatical constructions themselves (word order and function elements such as prepositions) are meaningful. Particularly important is the tenet that each construction presents a particular perspective on an event and that there is no synonymy between sentences. I also present recent work in discourse analysis and sentence processing that supports this account. The heart of the chapter is a detailed account of recent effects of instruction experimental research that demonstrates a CL approach to sentence structure facilitates L2 learners' learning of these constructions.

Finally, **Chapter 7** provides a summary of the main findings of the book. I also indicate additional concepts from CL that offer potential for further experimentation and applications. Specifically, I offer a brief overview of mental space and blending theory (e.g. Fauconnier & Turner, 2002) and its application to an analysis of English conditionals. I conclude by advocating that L2 researchers and teachers inform themselves about the theoretical adequacy and pedagogical utility of the descriptive grammar which underpins their view of language and inevitably influences the materials and approach they employ in L2 experiments and in the L2 classroom.

2

THE BASICS OF COGNITIVE LINGUISTICS

1. Overview: The Central Place of Meaning

Cognitive Linguistics views meaning and meaning making as central organizing principles of language. As noted in chapter 1, CL further argues that language is best understood as a reflection of humans' multiple, dynamic, interacting cognitive processes and cognitive structures. Since language is held to be a reflection of general human cognition and cognitive processes, all aspects of language are understood to be meaningful.

More specifically, CL takes the position that human cognition is a result of our species-specific neural and anatomical architecture (including our specific perceptual systems) and how we interact with the environment we inhabit (e.g., Gibbs, 2006). Thus, the structure of human cognition is fundamentally informed by our experience with the physical-spatio-social world, which includes our cultural models of experience. Our experiences and conceptualizations are **embodied**, i.e., grounded in and filtered through our species-specific anatomical and neurological structures and our interaction with the external world. This is what cognitive linguists mean by **embodied meaning**.

Perhaps one of the most surprising results of placing meaning at the center of language and taking the position that general cognitive and social processes are sufficient to account for language, is Langacker's conclusion that language consists of a vast, organized set of form-meaning pairings, which are mediated by symbolic links. Langacker argues that grammatical constructions, i.e., syntactic patterns, are form-meaning pairings, but at a more abstract (schematic) level than words. He explicitly claims there is no distinct level of syntactic organization. Instead, syntactic patterns, or constructions, are represented as "conventionalized linguistic means for presenting different interpretations of an event. [Grammatical constructions]

structure concepts and direct listeners' attention to aspects of experience" (Ellis & Cadierno, 2009, p. 122). These different interpretations are termed construals by cognitive linguists. In sum, the abstract set of rules or principles that generative approaches refer to as syntax is conceived of as "a structured inventory of conventional linguistic units" (Langacker, 1987, p. 37), or form–meaning pairings, used for communicative purposes.

As a usage-based model of language, CL also assumes a commitment to the role of contextualized exposure to input and frequency effects in language learning, processing, and novel use of language. Recall from Chapter 1, Langacker's argument that in understanding language, the language user marshals "the full panoply of available sources" (Langacker, 2008a, p. 9). These include cognitive capacities such as memory (which directly relates to frequency effects), problem solving ability (which inevitably involves inferencing), "general knowledge, short and long term goals, as well as full apprehension of the physical, social, cultural and linguistic context" (Langacker, 2008a, p.10).

The purpose of this chapter is to provide an introduction to several key tenets of CL. Rather than offering a full overview of CL theory,¹ which would be well beyond the scope of a single chapter, I will focus on the tenets that are central to the analyses of the specific language structures discussed in later chapters. The chapter is organized in the following way. First, I address the CL claim that language is usage-based and emerges out of situated instances of humans communicating with other human beings. This section begins with a general discussion of communication and then moves to a discussion of the notion that language is always embedded in context and that a speaker's choice of particular grammatical constructions is crucially influenced by speaker perspective and discourse dynamics. Second, I explore the fundamental tenet that language is a reflection of human cognition and conceptualization. I discuss the essential relationship between conceptualization and embodied experience. Some of the specific notions addressed include the role of mental imagery and conceptual metaphor in relationship to language. In addition, humans' ability to form complex categories which reflect prototype effects and patterned organization (e.g., schemas) is addressed. Within this section I develop, in more depth, the notion of linguistic units as categories and semantic networks. Finally, I return to a theory of language learning that is usage-based and emphasizes constructing a language as well as the role of frequency, associative learning, and the emergence of schemas.

2. Usage-Based Approach

Some cognitive linguists tend to associate a usage-based approach primarily with language learning. I take a broader approach to the concept. As we have already

1 But see Croft and Cruse (2004); Evans and Green (2006) and Ungerer and Schmid (2006).

seen in Chapter 1, Langacker (2008) makes clear that interpretation of new uses of language is based in usage-based events. It assumes that linguistic forms occur in situated contexts and that the choice of form occurs in the service of communication. Thus, a full understanding of linguistic form cannot occur without consideration of discourse context and communicative function. Taking a usage-based approach has other ramifications, as well. The extensive literature on the role of awareness and intake establishes that there can be little language learning without language processing (e.g., Schmidt, 1990). If a usage-based approach to language is to account for language learning, it must also take into account language processing. Over the past 30 years, cognitive psychology and associative learning theory (e.g., Ellis, 2008a, b, c) have established that efficient language processing includes fine-tuned sensitivity to frequency of situated language input.

The Nature of Human Communication: Not Mental Telepathy

CL studies language by explicitly attempting to relate the form that language takes to the overarching function of language, which is communication. Given this emphasis, it is worthwhile briefly exploring what communication entails. One of the most obvious, but essential aspects is that language does not allow us direct access to each other's thought. Moreover, most of what humans talk about involves events and entities that are not physically present. Thus, we are often communicating about what is represented in our memory, in our internal, subjective world. One key aspect of communication involves externalizing internal conceptualizations – ideas about entities and events that are not immediately present – in order to make them available to other humans. Language, then, is a set of tools for communicating our *conceptualizations of experience* and our reflections on that experience. Understanding that morphosyntactic forms are meaningful ways of helping speakers shape their message to better convey their conceptualizations to their interlocutors is a very different way of understanding syntax. Under a CL approach, sentence structure is not seen as a formal string of linguistic entities (such as, Subject Verb Object) but as representing meaningful scenes in which the participants (such as, an agent and a patient, i.e., someone or something being acted upon) are involved with actions or states. Goldberg (1995) discusses this in terms of the “scene encoding hypothesis” (p. 28). The patterns that syntax and morphology display are not seen as abstract rules following their own, mysterious principles, but as meaningful patterns that grow out of general human experiences, communicative needs, and cognitive processes.

For communication to be successful, the speaker has to draw the listener's attention to the speaker's mental representation (e.g., Brennan & Clark, 1996; Langacker, 1987, 2008; Levinson, 2000; Tomasello, 2008). Langacker (1987, 2008) writes about this as the speaker making mental contact with the listener.

This is accomplished by the speaker employing conventionalized linguistic signals (very similar to Gumperz's [e.g., 1982] contextualization cues) and the listener recognizing the speaker's signaling intentions. For instance, when an English speaker says, "*Remember the new guy in my office I told you about? I think you'd like him a lot,*" the speaker is using the definite article to signal that she has a particular person in mind and thinks the listener has enough information to have the same person in mind. In Langacker's terms, the speaker is signaling that she believes that she and the listener can mentally pick out the same person and so they can make mental contact in regards to this particular individual.

Thus, a CL approach emphasizes a speaker's linguistic choices as being aimed at the speaker and listener being able to uniquely identify specific entities and specific instances of events. Conventionalized language forms help provide tools or cues that facilitate this process. Simultaneously, the speaker is constantly assessing whether the listener can readily access the appropriate frames, schema, and knowledge to make this "meeting of the minds" possible. At this point, it is important to note that these speaker choices, assessments, and adjustments are highly routinized and so seem effortless. They are part of what Fauconnier (1994) calls "backstage cognition," which the speaker does not consciously attend to unless a problem arises. Finally, interlocutors appear to assume that if a speaker goes to the trouble of saying something, it is purposeful and intended to convey something of interest to the listener. The listener, in turn, does her best to appropriately interpret the speaker's intentions, i.e., make mental contact with the conceptual entity or event the speaker is referring to.

As is clear from the preceding discussion, effectively creating and interpreting the message rely on appropriate assessment of shared knowledge and what information is likely to be salient for the listener at the moment the speaker makes their contribution to the ongoing discourse. The actual, contextualized form language takes always undermines the rich interpretation assigned to it (Carston, 2002; Green, 1989). To get from the linguistic form to an appropriate interpretation requires complex inferencing skills, the same skills humans use in interpreting their environment generally. As Taylor (2002) points out, humans have a highly developed ability to create complex, full interpretations of events based on very partial information. The ability to accurately infer involves tapping into appropriate, organized background knowledge, as well as accurately reading the unfolding interaction (Brennan & Clark, 1996; Sperber & Wilson, 1995).

Unlike Grice and scholars of formal pragmatics, a CL approach does not view inferencing as a separate, secondary process for interpreting language. Drawing on contextual cues and background knowledge is seen as fundamental to how language works. While recognizing that individual words certainly have lexicalized meaning and crucially affect the interpretation of any utterance, CL rejects the notion of strict compositionality. In other words, CL rejects the claim that the meaning of an utterance is built up word by word (with each word having a stable,

unambiguous meaning) and then assigned a truth conditional interpretation, which may have to be adjusted through pragmatic operations. Rather CL argues that a word is better understood as an access point to the interlocutor's rich background knowledge which is comprised of organized, interconnecting networks of knowledge (Evans, 2009; Langacker, 1987). Fillmore (e.g., 1975) referred to these organized knowledge networks as frames; later psychologists refer to them as schemas (e.g., Rummelhart, 1979, 1981; Wilson & Anderson, 1986). Goldberg (1995) argues "that meanings are typically defined relative to some particular background frame or scene, which itself may be highly structured" (Goldberg, 1995, p. 25). Most linguistic units can be understood in relation to more than one frame or schema. Various cues in the discourse situation will point to the appropriate frame or portion of the frame for establishing a context appropriate interpretation. Thus, CL emphasizes the integration of the semantic import of words and their situated interpretation as meaning construction proceeds. Moreover, conceptualizing language use as inherently situated argues that syntactic patterning cannot be understood as an isolated phenomenon, disconnected from context.

Consider Achard's (2008) analysis of the choice between using a French definite article versus the partitive article (i.e., "some"). Traditional analyses argue that certain verbs are designated to co-occur with either the definite or partitive article. Under these analyses, verbs of likes and dislikes take definite articles, while verbs of consuming, as well as having and obtaining, take partitive articles. However, using a corpus-based investigation, Achard discovered that in reality, the verbs co-occur with both types of articles. In contradiction to the "rules," the choice between the definite or partitive article "depends on whether the nominal is construed with respect to identifiability or mere quantity" (Achard, 2008, p. 442). The notion of identifiability is tied to the speaker's assumptions about what the listener is likely to know or be able to readily access at the appropriate moment in the ongoing discourse. The knowledge necessary for accessing the appropriate interpretation includes accessing identifiable cultural frames or schemas. In the case of French articles, when talking about certain kinds of drinks that are tied to ritual behavior, such as drinking coffee after lunch or dinner, the definite article is regularly used. Hence the frequently occurring phrase *boire le café*. Use of the definite article in this situation reflects that the speaker's choice of linguistic unit is influenced by particular cultural frames. In sum, taking discourse context and the speaker's assumptions about cultural knowledge into account provides a deeper understanding of how French speakers make contextualized choices between the articles, as well as a more accurate description of actual French article usage.

Situated Communication and Construal

A central idea for CL is that much of a speaker's language represents the gradual accumulation of exposures to numerous *usage events* (Kemmer & Barlow, 2000), that is, situated instances of the language user either understanding or producing language to convey particular meaning in a given communicative situation. A logical extension of this position is that grammatical constructions are tied to discourse context and communicative function. Natural language always occurs in context, and the user's choices in creating an utterance are influenced by an array of contextual factors, including the particular perspective on a scene or event that the speaker wants to present.

Languages often have competing syntactic constructions which appear to be describing the same situation, such as active and passive constructions. In a CL approach, clause-level constructions are understood as conventionalized linguistic means for presenting different interpretations of an event. As Ellis and Cadierno (2009) note, linguistic constructions structure concepts and window attention to aspects of experience. Each language provides speakers with a range of options for constructing concepts and directing the listeners attention (Talmy, 2000a, b). Langacker (1987) argues that these subtle linguistic choices offer different construals on a situation. Achard (2008) holds that one of the most important insights from a CL approach is the notion of syntactic alternatives offering different construals. For instance, the particular stance a speaker takes on the situation they wish to describe will affect whether they choose to convey the propositional content using an active construction or a passive construction. The speaker's stance also affects the degree of salience they will place on elements involved in situations. The selection of the syntactic pattern – including selection of which elements will be in subject, direct object, or oblique phrase position – provides the speaker conventional ways to signal the listener which elements should be considered most salient or topical. “Clause-level constructions (like simple locatives, datives and passives) serve as a “zoom lens”² for the speaker to help guide the listener's attention to particular elements in a scene while backgrounding other elements” (Ellis & Cadierno, 2009, p. 123). A simple example is that the choice to use the double object construction versus the prepositional dative construction (e.g., *Jerry is sending George a sweater* versus *Jerry is sending a sweater to George*) is influenced by discourse factors such as newness of information and focus (e.g. Bresnan & Nikitina, 2003; Erteschik-Shir, 1979; Ward & Birner, 2001). In this case, if the speaker wants to signal that the focus of the utterance is on who is receiving the sweater, the typical choice would be the prepositional *to* pattern, which places the receiver in sentence final position. We discuss this in more depth in Chapter 6.

2 Langacker (1987/1991) uses the term “focal adjustment”.

The speaker's goal of making mental contact with the listener is also reflected in the subtle, systematic changes in discourse patterns. These variations in discourse-level patterns represent additional resources available to the speaker for shaping the message in order to facilitate communication. Moder (2004, 2008) found consistent discourse patterns involving the use of novel versus conventional metaphors. In her corpus, novel metaphors usually took the form of **X is a Y**. Moreover, the preceding context provided a rich interpretative framework for the novel metaphors, presumably to help guide the listener in establishing the appropriate interpretation of the metaphor. As Moder notes, within the discourse context "the interpretation of the [novel] metaphorical expression is not left up to the imagination of the hearer" (2008, p. 308). The necessary information for interpreting the metaphor, including the source domain and the target domain, has already been outlined in the preceding discourse.³ Moreover, the interpretative ground in the preceding discourse "makes explicit the inference concerning the target domain before the introduction of the source domain of the metaphor" (Moder, 2008, p. 308). In contrast, conventional metaphors often do not follow the **X is a Y** form. In addition, the inferences prompted by conventional metaphors are not typically supported by discourse context in the explicit manner found with novel metaphors, presumably because the speaker assumes that the listener can readily create the intended inferences associated with familiar metaphors. Thus, Moder provides evidence that speakers shape the discourse structure in systematic ways that reflect their assessment of the ease with which the audience will be able to interpret novel metaphors versus conventional metaphors. This illustrates both the tenet that speakers make systematic language choices in order to facilitate making mental contact with the listener and that the forms speakers choose are crucially tied to discourse context and communicative function. See also Cameron (2008) on discourse and metaphor.

In sum, assuming that language is usage-based, i.e., anchored to using and understanding language in particular contexts for particular communicative purposes, leads to several insights. One of the most important is that, at both the syntactic and the discourse levels, language provides the speaker competing patterns for expressing similar propositional content. Speakers appear to choose among these competing patterns in order to guide their listener's attention in various ways with the ultimate goal of making mental contact with the listener.

3 Recall in Chapter 1 I noted that cognitive linguists define metaphor as thinking and talking about an entity from one domain (the target domain) in terms of another entity from another domain (the source domain). So in the metaphor *Prices are up*, the target domain of amount is understood in terms of the source domain of vertical elevation.

Frequency

CL's central position that much of a speaker's language represents the accumulation of a series of exposures to *usage events* (Kemmer & Barlow, 2000) results in the recognition of the important role of frequency in shaping and learning language. Over the past 30 years, evidence has been amassing which shows humans are highly sensitive to the frequency with which they encounter language forms. The simplest evidence comes from the many studies of the effects of word frequency on word recognition (summarized in Ellis, 2008a). Bybee (2006) and her colleagues have established that we are sensitive to frequency of morphological detail, such as the frequency with which we have encountered particular verbs in the present tense versus the past tense. Ellis (2008a, b) and Ellis and Ferreira-Junior (2009) have investigated associative learning and the role of the frequency of particular verbs occurring in particular syntactic constructions. Ellis (2008a) presents over 30 years of psycholinguistic research (e.g., Bates & MacWhinney, 1987; Bybee & Hopper, 2001; Elman et al., 1996; MacWhinney, 1987a, b) that shows

language processing is intimately tuned to input frequency at all levels of grain: input frequency affects the processing of phonology and phontactics, reading, spelling, lexis, morphosyntax, formulaic language, language comprehension, grammaticality, sentence production, and syntax. That language users are sensitive to the input frequencies of these patterns entails that they must have registered their occurrence in processing.

(2008a, p. 93)

It turns out that humans are much better at implicitly keeping track of encounters with particular language forms than was imaginable in the 1970s and earlier.

The evidence suggests that language processing relies on prior statistical knowledge of the language the processor (the individual human) has encountered. Take the case of appropriately interpreting a stable phonological unit and its possible meanings. Ellis (2008a) notes that when English speakers count from 1 to 10 the phonological form “wən” appears to have an unambiguous meaning. However, the same phonological unit occurs in the words oneself, once, won, and wonder. In terms of meaning, each of these is a different “wən”. Ellis argues that this is clear evidence that form–meaning pairings are “multiple and probabilistic, and fluent language processing exploits prior knowledge of utterances and of the world in order to determine the most likely interpretation [of the form] in any given context” (p. 94). To assign an appropriate, online interpretation to the “wən” in the current context necessitates microsecond determination of which form–meaning pairing is being encountered. To make this determination, the language processing mechanism is unconsciously calculating the odds of the most likely interpretation, and we humans “perceive the most probable thing” (Ellis, 2008a,

p. 94) in the given context. “Accurate and fluent language perception, then, rests on the comprehender having acquired the appropriately weighted range of associations for each element of the language input” (p. 94).

In terms of attention to frequency and learning clause structure patterns, Goldberg (2006) emphasizes that there is an important match between the meaning of a clause construction and the most frequent verb that occurs in that clause construction. For instance, she notes that *give* is the most frequently occurring verb in the double object construction (which she argues means “X causes Y to receive Z”). Thus, she argues there is a matching between the meaning of the construction and the meaning of *give*. Goldberg further argues that the predominance of *give* in the double object construction in motherese provides the young child an anchor for learning the meaning of the construction. First the most prototypical case is learned; extended uses are gradually added to the child’s repertoire as they encounter adult use of less prototypical verbs, such as *bake* or *fax* in the construction. This statistical skewing of the input is discussed extensively in Chapters 3 and 6.

Ellis (2008a, c) concludes that frequency is a key determinant in language learning “because ‘rules’ of language . . . are structural regularities which emerge from learners’ lifetime analysis of the distributional characteristics of language input” (Ellis, 2008a, p. 94). This view of grammatical construction as emergent structural regularities is fundamentally different from traditional representations of syntax as rule based or biologically predetermined. We will return to the concept of syntactic patterns as emergent regularities rather than imposed rules in the section on schema.

To summarize, psychology has provided us with a wealth of evidence that humans are highly sensitive to the frequency with which they encounter all linguistic forms, from phonological units, to morphological units, to grammatical constructions (or syntactic units). Moreover, human language processing appears to be probabilistic in nature. Goldberg argues that matching between the meaning of syntactic structures and the most frequently occurring verb in that structure plays a vital role in the acquisition of syntactic constructions. Syntactic constructions themselves are understood as generalizations made across multiple exposures to language input.

3. The Cognitive in Cognitive Linguistics

As we have already noted, CL is committed to the position that language is best understood as a reflection of multiple, interacting cognitive processes and a representation of cognition being crucially shaped by the particular nature of the human body, including our perceptual systems, and our interactions with the world. This is what cognitive linguists mean when they refer to the embodied nature of language and meaning. It follows that linguistic description should be consistent with what is known from other disciplines about the mind and brain.

Lakoff (1990) called this the “cognitive commitment.” Thus a great deal of CL study has been focused on general human cognition and processes of perception, attention and categorization and how they are, in turn, reflected in language.

Some of the key cognitive capacities include humans’ well-developed abilities at classifying, pattern finding and a large, highly structured memory capacity.⁴ See Taylor (2002) for a more detailed discussion of these underlying cognitive capacities, Taylor (2003) for a detailed discussion of categorization, and Tomasello (2003) for discussion of pattern finding. Cognition is also crucially shaped by the human perceptual systems and the filtered information those systems provide the brain.

Embodiment

One of the most important tenets that sets CL apart from other approaches to language is its commitment to a model of language that reflects human neural–anatomical architecture (e.g., the particularities of our visual perceptual system, our proprioceptive system and the particular ways humans organize and store information) and human interaction with the physical world. For instance, our perceptions of basic force dynamics, such as human understanding of gravity or motion along a path, provide foundational cognitive schemas which give structure to our understanding of many other domains of experience.

Research by cognitive psychologist Jean Mandler (2004) and others provides compelling evidence that the cognitive development of young children is crucially tied to their embodied experiences with the surrounding physical and social environment; their embodied cognition, in turn, provides the conceptual foundation for basic syntactic structure. Drawing on 25 years of research in child development, Jean Mandler (2004) hypothesizes that very young children begin to develop rudimentary concepts based on their basic interactions with the physical–spatio–social world by the first few weeks of life. By week three or four, they begin to attend to entities, actions and events in their environment. Hand in hand with attending is a conceptual reformatting of the raw sensory data into perceptual memories (or concepts) which the very young child can then mentally manipulate and use as scaffolding for understanding more perceptual information. Hence, the young child’s cognitive development is crucially tied to their embodied experience with the world. In a relatively short time, the child constructs basic representations, or what Mandler calls image schema,⁵ for recurring spatio–physical event-related concepts, such as animacy, contingent motion, motion along a path, and containment. These basic image schemas are well established by the

4 Strictly speaking, Lakoff (1990) discusses some of these cognitive capacities in terms of the generalization commitment. See Evans and Green (2006) for further discussion.

time the child is 10 to 12 months. Mandler further argues that these image schemas provide the conceptual–semantic underpinnings for linguistic patterns such as transitive and intransitive motion and event participants such as agent and undergoer. Thus, her research points to a close tie between embodied cognition and language.

Our understanding of objects and objects in spatial relationships to other objects in the world and the way we interact with them is foundational to our understanding of many more complex concepts, for example, containment. Consider the everyday example of coffee in a cup. We understand that when an entity is within a typical container, there are multiple, important consequences for the object (which are also important to us). Its movement will be limited to the interior space of the container (if we put coffee in a cup, it does not flow out onto the counter); when the container moves, the contents move with it (when we move the cup, the coffee moves with it); if the container is made of opaque material, we will not be able to see the contents (if the coffee cup is ceramic, we cannot see how much coffee is in the cup, unless we look into the cup from above). These spatio–physical consequences of containment also structure our understanding of emotions, mental states and social relationships. This is reflected in our use of the preposition *in* in phrases such as *in a relationship*, *in love*, *in a funk*. Recognizing the crucial effect of our bodies and their interaction with the world on shaping our cognition generally is an important component of embodied meaning. Embodied meaning is pervasively reflected in language. As Ellis and Cadierno (2009) note:

CL provides detailed qualitative analyses of the ways in which language is grounded in our experience and our physical embodiment which represents the world in a very particular way. The meanings of the words of a given language and how they can be used in combination, depends on the perception and categorization of the real world around us.

(p. 122)

Our perceptions and categorizations of the world crucially involve our species-specific anatomical and neurological architecture. It is unquestionable that human perceptual systems differ from all other animate entities. Thus, humans have a unique perception of the spatio–physical world. Consider for a moment the difference in a human's perception of the sound spectrum in comparison to a bat's, who can hear frequencies well above those humans can perceive. The fact that humans perceive sounds within a more limited range than bats has consequences

5 It should be noted that Mark Johnson (1987) was the first to develop the concept of image schema.

for our interpretation of the world. The bat uses its sensitivity to sounds in the high-frequency range to navigate while flying. Humans use sound for navigational purposes, but to a much lesser extent. Rather we more typically rely on vision, touch and proprioception to navigate our environment.

Because of our species-specific conceptual systems, and hence our species-specific conceptualization of the world, cognitive linguists argue that humans do not have a “god’s eye” view (e.g., Tyler & Evans, 2003, pp. 19–20) of an objective, external reality. Rather, what we have access to is our subjective, human-specific conceptualizations, which arise from the complex interactions of humans’ multiple cognitive abilities and our species-specific interactions with the external physical–spatio–social world. Crucially, while claiming that human access to the external world is species-specific, cognitive linguists also argue that our interactions with the physical–social world are fundamental to how our cognition is shaped. As mentioned before, basic force dynamics, such as our understanding of gravity or motion along a path, provide foundational schemas which give structure to our understanding of many other domains of experience. This is the essence of the notion of embodied meaning.

In terms of human perceptual systems, the Danish psychologist Edgar Rubin and later Gestalt psychologists (as cited in Evans & Green, 2006) established that the human visual system is configured such that, when viewing a spatial array, humans do not simply see a flat array of objects. Rather, humans tend to focus on smaller, more mobile entities (focus elements) which are located in terms of larger, more stable entities (ground elements). CL emphasizes that this aspect of the human visual system is reflected throughout language (Talmy, 2000b). For instance, focus and ground are key to the prepositional system. In the sentence, *The **bike** is by the **school***, the smaller, more movable “bike” is the focus element, which is located in relation to the larger, less mobile “school” (the ground element). Consider the oddness of the sentence, *?The **school** is by the **bike***, in which the focus/ground relationship is reversed. (Prepositions will be discussed extensively in Chapter 5.)

An important corollary to the commitment of looking to neurological–physical principles and cognitive operations as prime shapers of language is that CL predicts reflexes of the same neural–cognitive principles should operate in all areas of language. (Lakoff [1990] has termed this the “generalization commitment.”) Langacker (1987, 1991) argues that the focus/ground relation is ubiquitous in larger language structures as well as with prepositions. For example, he argues that in clause structures, the subject acts as the focus element in relation to the predicate, which acts as the ground. Certain complex syntactic constructions, such as relative clause constructions, are represented as signaling focus versus ground, with the head noun being in focus position and the relative clause in ground position (e.g., Goldberg, 2006; Talmy, 2000a, b). Discourse analysis has long established the phenomenon of focus (or foreground) and ground (or background) as an important organizing principle of textual organization. Indeed, Talmy (2000a, b) has provided

copious examples of how language is shaped by our perceptual systems and, in particular, our perception of space.

In addition to drawing on the notions of focus and ground, Ron Langacker's (e.g., 1987, 1991) theory of language, cognitive grammar, also draws on basic force dynamics. He calls this aspect of cognitive grammar the "energy chain" model. In the prototypical sentence, the entity in subject position is an animate entity which initiates the motion (or energy) and is thus the energy source. Energy flows from the initiator to an energy sink (the affected entity), typically the patient or undergoer in the sentence. Thus the theory argues that the form the syntax takes is shaped by our understanding of agency and energy flow in the physical-spatial world.

I end our discussion of embodiment and meaning by considering one more aspect of humans' unique physical architecture, its consequences for human conceptualization of the world, and one of its reflexes in language: humans are bipedal, i.e., we have evolved so we stand and move through the world on our hind legs. This means that beginning in infancy, humans are acutely aware of balance and the force of gravity, two key elements of our physical world. Children also quickly learn the salience and usefulness of being "up" for being able to see more, grasp objects more freely, move more quickly and so forth. Being able to stand upright makes "up-down" and resistance to gravity meaningful to humans in ways they are simply not to, say, snakes or hummingbirds. Standing, the quintessential human experience of up-ness and resistance to gravity, figures into many metaphors that have to do with persistence and self-esteem, e.g., *stand up for yourself*, *stand for something you believe in*, *this aggression will not stand*. Grady (1999) argues that a basic metaphor (or way of thinking) found in many languages is PERSISTENCE IS REMAINING ERECT.

The salience of up versus down for humans and its reflex in language is well documented in Lakoff and Johnson's (1980) study on orientation metaphors. The embodied up-down asymmetry has many diverse consequences for humans and is in turn reflected in numerous orientation metaphors. To get a sense of the meaningfulness of up and down for humans, try a simple thought exercise. Consider all the physical associations you have for being in a physically down position. Chances are you thought of things like lying down (in which you are in a physically vulnerable position), sleeping or otherwise being unconscious, being sick, being knocked down by an opponent, being dead, being dominated, etc. Most of the associations with down are negative. This extends to our understanding of our emotional states – being unhappy or sad is associated with drooping shoulders and a sense of heaviness (gravity pulling us down towards the earth). As we just discussed, being in an up position is generally associated with greater ability to observe and control one's environment. Up is also associated with being awake, feeling well, being ready to engage in activities (*I'm up for a movie*). Up and down are also closely associated with our understanding of social status. Virtually all the language English has for indicating social status is related to up and down: *she's my superior*, *supervisor*, *above me*, *upper class/lower class*, *higher/lower on the*

social scale, etc. This discussion of up and down not only illustrates embodied meaning, but also conceptual metaphor, i.e., that we often think of events and experiences from one domain (emotional states, social status, etc.) in terms of another domain (here, vertical elevation).

Conceptual Metaphor Theory

As the preceding discussion reveals, it is virtually impossible to discuss embodiment without encountering metaphor. Conceptual metaphor theory holds that a ubiquitous aspect of human cognition is thinking about events, activities, and entities from one domain (the target domain) in terms of another domain (the source domain). Metaphor is understood as a cognitive process, not a property of certain kinds of language. Humans use their understanding of the external, physical world as a framework for representing emotions, self-reflective concepts, and more abstract concepts. This asymmetrical mapping from the physical–spatio–social to the internal is central to conceptual metaphor theory (e.g., Lakoff & Johnson, 1980, 1999; Grady, 1997, 1999). A few of the conceptual metaphors that have been important in analyzing not only uses of words and phrases but also syntactic patterns include CAUSAL FORCES ARE PHYSICAL FORCES, STATES (MENTAL AND EMOTIONAL) ARE LOCATIONS, and HOLDING IS POSSESSING.

Rejecting the traditional analysis that metaphor is based solely on comparison, Lakoff and Johnson (1980) and later Grady (e.g., 1999) have argued that much of metaphor is based on fundamental human experiences of the world in which two independent phenomena repeatedly co-occur, such that they become closely associated in memory. Once this association is established, humans appear to think about the more internal phenomenon in terms of the more external. In Chapter 1, I noted the ubiquitous observation that as more liquid is added to a container, there is a simultaneous rise in the level of the liquid. This ubiquitous observation leads to a tight mental association between the concept of “amount” and vertical elevation, which is reflected in language. Grady terms this type of metaphor *primary metaphor* which is based on *experiential correlation*.

Another example of experiential correlation and primary metaphor is WARMTH IS AFFECTION. Gibbs (2006) points out that it is not difficult to see how infants quickly learn to associate the warmth of the caretaker’s body while the infant is being held and fed with a sense of well-being and affection. In contrast, when the child is not being held, perhaps alone in their crib with the blanket kicked off, they begin to associate being cold with lack of attention and isolation. Lowry et al. (2009) provide experimental evidence that “warmth may alter neural circuits controlling cognitive function and mood, including serotonic circuits, in addition to those directly involved in thermoregulatory cooling” (p. 392). *A warm smile, a warm personality, the cold shoulder, froze him out* are just a few examples of how this experiential correlation is reflected in the English language. After examining more than 20 languages, many of which are not historically related,

Grady (1999) has argued that MORE IS UP, along with a dozen other primary metaphors, may be universal.

Beyond conceptual metaphor, cognitive linguists (e.g. Grady, 1999; Gentner & Bowdle, 2008) also recognize resemblance metaphors, which appear to arise from specific cultural–historical stereotypes, as well as analogical mapping. For instance, Grady (1999) discusses *Achilles is a lion* as a resemblance metaphor that draws on a cultural stereotype of physical courage. Gentner discusses metaphors such as *My job is a jail* in terms of humans' ability to engage in analogical structure mapping, which ties to our abilities to perceive similarities across disparate entities and experiences and category formation.

Mental Imagery and Spatial Scenes

Concepts deriving from human interaction with the physical–social world, such as the spatial relations coded by prepositions, or our conceptualization of a piano (including the sounds it makes and the placement of human hands on the keyboard), crucially involve sensorimotor imagery. Langacker argues,

sensory imagery is a real phenomenon whose role in conceptual structure is substantial. We can plausibly suppose that a visual image (or a family of such images presupposing different orientations and levels of specificity) figures in our knowledge of the shape of an object; and certainly one aspect of our conception of a trumpet assumes the form of an auditory image representing the sound it makes.

(p. 109)

Sensory images should not be confused with the naïve view that a sensory or even a conceptual visual image is analogous to a photograph or a picture. As the experimental psychologist Kosslyn (1980) argues, “Image representations are like those that underlie the actual experience of seeing something, but in the case of mental imagery these representations are retrieved or formed from memory, not from immediate sensory stimulation” (p. 18; see also Kosslyn, 2006). A tremendous amount of psychological evidence exists demonstrating that multimodal sensory images are an essential part of human conceptualization (e.g., Gibbs, 2006).

One of the most powerful modes of sensory imagery comes from our perceptions of space and spatial scenes. The connections between spatial conceptualization and language have provided considerable theoretical insights (e.g., Langacker, 1987; Talmy, 2000a, b). As we discussed above, figure and ground have many reflexes in language. Talmy, in particular, has long argued that spatial language is firmly grounded in the visual processing system as it relates to motor action. He extended notions of spatial boundedness, which derive largely from visual perception, to explanations of what have traditionally been termed mass versus count nouns, as well as verbal aspect in English.

One particularly important aspect of embodied meaning is the human ability to conceptualize an action or state as a spatial scene. For example, the mention of the verb *kick* evokes a scene of ballistic motion involving an animate entity with a foot (attached to a leg) and something the foot is being aimed at. Support for this embodied view of meaning comes from researchers such as Gibbs (2006) who reports a series of studies that show that the same neural assemblies are activated when subjects hear verbs such as *kick* and *grasp* as are activated when the subject physically kicks or grasps something.

Another important facet of mental imagery and spatial conceptualization involves humans' ability to manipulate their perspective on a scene; that is, humans have the ability to view or construe a single scene from several perspectives. The conceptual ability to construe a scene from multiple perspectives has many reflexes in language. One which we have already mentioned is various syntactic constructions which seem to convey similar propositional content but provide a different speaker stance or perspective, such as the active construction which puts the focus on the agent versus the passive construction which puts the focus on the patient/theme while simultaneously defocusing the agent.

Cognitive linguists have articulated a number of ways humans can switch construals or perspectives on a scene. Langacker (1987, 1991a) argues that default scene-setting involves a perspective in which the speaker is "off-stage" and viewing the scene. However, humans also conceptualize scenes in which the viewer is on stage. Switching from off-stage to on-stage clearly provides important shifts in perspective which in turn can result in different effects on the viewer. These shifts in perspective are, in turn, reflected in language. For instance, Tyler and Evans (2003) argue that shifts from off-stage to on-stage perspective are key in prepositions, such as *over*, developing multiple meanings. Under their analysis, *over*'s central sense involves off-stage perspective of a focus element located higher than a ground element. A shift to on-stage viewing in which the viewer is conceptualized as being higher than and looking down on the focus and ground elements gives rise to a covering sense.

We will see in Chapters 5 and 6 on prepositions and syntactic constructions that shifts in construal play a vital role in systematic extensions of meaning and development of alternate patterns for expressing the same propositional content.

Talmy (2000a) also discovered cross-linguistic typologies involving differences in how individual languages segment their conceptualization of a spatial scene. He argues that while all humans see the same elements in a motion scene (i.e., they all see the participants, the manner in which they move and the path of their motion) different speech communities have developed distinct, conventionalized patterns of packaging the information. Perhaps the most well-known is the packaging difference between a satellite-framed language (like English in which manner is often incorporated into the motion verb and path indicated by a separate particle construction, as in the sentence, *The bottle floated into the cave*) versus a verb-framed language (such as Spanish in which motion and path tend to be conflated

and manner expressed in a separate phrase, as in the sentence *La botella entró a la cueva flotando*, whose literal English gloss is The bottle entered the cave floating). This distinction has been a major focus of Berman and Slobin's (1994) cross-linguistic studies of information packaging in narratives and Slobin's (1996a, b) theory of thinking for speaking.

The theory of thinking for speaking emphasizes that all humans have the same basic perceptions of spatial scenes and motion events. Humans also have the ability to partition and highlight a spatial scene in multiple ways. Slobin argues that within individual discourse communities particular ways of construing spatial scenes (i.e., thinking about default spatial scenes) become conventionalized. He hypothesizes that the conventionalization of construal allows for greater automaticity in speech production and interpretation. Thus, each language develops a particular set of conventional ways of thinking or construing scenes in order to facilitate speaking. This is, in effect, a weak form of the Sapir–Whorf hypothesis. Slobin and his colleagues do not claim that speakers of a language are limited in their perception of the components of a motion event, only that their language production will reflect a preferred representation of motion events. Slobin (e.g., 2005, 2009) has found empirical support for the thinking for speaking hypothesis from memory studies. For example, monolingual Spanish and English speakers were asked to read short passages in which there was no explicit mention of manner of motion. After reading the passages, they were asked to describe their mental image of the main character's movement. English speakers reported more manner of motion imagery with richer detail. Spanish speakers, in contrast, reported more detail focused on the setting through which the motion took place.

To summarize, one important reflex of embodied meaning and embodied experience is that mental imagery is a key part of human cognition. A central component of mental imagery is conceptualizing certain activities or events in terms of spatial scenes. Humans' ability to take multiple perspectives on a scene is reflected in our cognitive ability to conceptually construe a scene in multiple ways. The varying conceptual perspectives, in turn, are reflected in language in a variety of ways. For instance, CL argues that competing syntactic structures are resources for expressing varying speaker perspective on a scene or event. One of the most studied aspects of conventionalized cross-linguistic variation in construal is the distinction between satellite-framed and verb-framed languages.

Categorization

Taylor (2002) notes that one of humans' key cognitive abilities is being particularly adept at forming categories, that is, at perceiving similarities over several specific instances of entities or events which may differ substantially in terms of surface manifestations. For instance, a wide range of entities are perceived as chairs even though they differ in terms of shape (a desk chair versus a "bean bag chair"), materials (wood versus soft fabric), and numerous other physical properties. Our

ability to function in the physical–social world depends on our ability to categorize other entities, processes, events and social relations. When we categorize, we show how we recognize, differentiate and understand persons, things, situations, activities, and events in our world. No theory of language denies the importance of categorization; however, different linguistic models take different approaches to categorization. CL rejects the notion that systems of categories are objectively “out there” in the world or part of an innate human endowment (innate semantic features), or can be defined in terms of necessary and sufficient conditions. Rather, categories are rooted in people’s embodied experience with the physical–social world and are conceptual and dynamic in nature. Thus, conceptual categories are expected to have both universal aspects (in general, we all share the same brain and body structure⁶ and live in the same world) as well as cross-cultural variance (since humans exist in a variety of cultures each with their own history and set of sensibilities).

The nature of human categorization is particularly significant within the CL approach, as CL claims that all linguistic units are categories.

This entails that linguistic units, i.e., lexical items, morphemes, and syntactic constructions, can subsume a range of distinct but related meanings organized with respect to a central meaning. In other words, a linguistic category, such as a word, constitutes a motivated **semantic network** of related meanings.

Verspoor and Tyler (2008, p. 170)

This understanding of linguistic units and their meanings argues that individual words and morphemes are not defined by a discrete set of features or a minimal, dictionary-type meaning. As we noted above, CL holds that words are understood as access points to encyclopedic knowledge.

Work in psychology and cognitive science also suggests that human memory is organized in multiple ways, i.e., categories manifest multiple organizational patterns. Two fundamental organizational patterns involve prototypes and schema. We investigate these two organizing principles in the following sections.

Prototypes and Centrality Effects

Work by Rosch and her colleagues (e.g., 1978) has established that one key aspect of human categorization (and hence memory structuring) involves prototype effects and radial categories. Radial categories are organized around a central

6 It is worth noting that Daniel Casasanto has recently shown that lefties and righties have different concepts for good and bad, due to their variable embodiment. Presumably these people would continue to perceive the effects of gravity and obstacles to forward motion in similar ways.

prototype or central schematic representation based on the key attributes of a set of best exemplars; other entities which are perceived to resemble the prototype in important ways (including how humans interact with an entity or how a type of event affects humans) are part of the category but understood to be less good examples. The classic case is that for English speakers from North America a small songbird, such as a robin, possesses the central attributes of a prototypical bird, while penguins and ostriches are categorized as birds, but considered less good exemplars, and hence “located” at the edges of the category boundaries. In terms of English prepositions, Coventry and his colleagues (e.g., Coventry & Guijarro-Fuentes, 2008) have conducted a series of experiments investigating the spatial category labeled by *in*. English speakers recognized an entity (like an apple) surrounded by a bounded entity (like a bowl) and situated at the bottom of the container, as the central or most prototypical representation for *in*. Situations in which fruit is piled into a bowl until some pieces of fruit are completely above the rim of the bowl (and thus no longer surrounded by the sides of the bowl) are still labeled as being *in* the bowl, but are less central cases of *in*.

Moreover, representation of prototypes and category boundaries appear to be context-sensitive and dynamic (Gibbs, 1994; Rosch, 1975; Taylor, 1995), as opposed to being rigidly categorical and based on innate semantic features or necessary and sufficient conditions. Importantly, human categorization is not based only on perceptual resemblance, but also on use and functional aspects. If you are having breakfast and getting ready to butter a slice of toast, the prototypical knife you would think about is likely to be made of metal, have a rather dull edge and be about eight inches long. If you are chopping vegetables, the prototypical knife you would think about is likely to have a wooden handle, a sharp blade and be considerably larger. In sum, the conceived sharpness of the knife, the material it is made of and its size are highly context dependent.

Cognitive linguists argue that all linguistic forms (words, morphemes, syntactic constructions, and so on) are labels for categories. These categories also have the organization of a prototype and less central but related members. Returning to the preposition *in*, the central sense involves an object surrounded by a container, but *in* also has extended, less central meanings associated with our physical and cultural experience. In the *in* and *out* pair, *in* is seen as positive and *out* is seen as negative, probably motivated by a variety of experiences such as the fact that when one is *in* a building, one is less exposed to inhospitable weather and hostile strangers than when one is *outside*. Being *in* or an *insider* or part of the *in crowd* is associated with a positive social status and possession of knowledge, while being *on the outs* or an *outsider* is associated with not being a member of a group.

Chinese word formation offers an example of contextualized, centrality effects. Many Chinese words consist of two morphemes in which the second one indicates a general class. Many morphemes, each represented by a single character, indicate a general category: *se* “colors,” *yu* “fish,” *hua* “flowers.” The most central concept represented by the *che* morpheme is a vehicle whose primary purpose is to move

people on land. Historically, this was a horse-drawn chariot (the character for *che* still has reflexes of the axles and other attributes of chariots). With changes in technology, the central nouns in this class shifted to motorized vehicles, such as cars. However, there are pieces of equipment whose primary purpose has nothing to do with transportation that are also represented by *che*, such as the word for windmill, which are more peripheral members of the category. The extension of *che* to windmills appears to have to do with the salience of wheels in both vehicles and windmills (Cheng, 2009).

As we noted in the discussion of knives, categorization is dynamic in that it depends on the function or use and context. Amoroso (2009) found that native speakers of Chinese systematically used different classifiers for the same noun, depending on the context in which the noun was used and the function that the entity being named was playing. In other words, choice of classifier depended on the speaker's construal of the contextualized object.

Given this kind of flexibility based on function and context, CL would predict that entities and experiences may be categorized differently depending on the function they have within a particular context, environment, or culture. Thus, one would expect that speakers from different linguistic and cultural backgrounds will have somewhat different categories with different prototypes.

Adding to the cross-linguistic complexity in the area of learning the categories of the L2 is the phenomenon that the periphery of the category may be fuzzy, in that some members could be considered as belonging to other categories as well. This appears to be an important part of how Chinese class markers work. Again considering *che*, Cheng (2009) asked 100 native speakers of Chinese to view pictures of unfamiliar objects (such as segways, back hoes and wind-powered cycles) that potentially could belong to either *che* or *ji* (general suffix indicating "machine") and discuss how they would name them. She found that for most of these unfamiliar objects, which represent more peripheral members of the class, the highest rate of agreement among the subjects was approximately 75%. This means that for the unfamiliar objects tested, native speakers disagree on just how to classify these more peripheral entities; the exact boundaries of the classes *che* and *ji* are fuzzy and potentially overlap. Presumably, as these objects become more familiar, the speech community will settle on conventional categorization labels, but they are not likely to be open to simple feature-based rules of description. The idea that words are labels for categories, that these categories are dynamic and flexible, and that these categories have emerged through human interaction with the physical-social environment suggests that there are rarely real translation equivalents across languages.

As mentioned above, cognitive linguists argue that not only words, but also grammatical morphemes and syntactic constructions are labels for categories and should evidence centrality effects. For instance, sentence patterns or syntactic constructions evidence various centrality effects. We will discuss this extensively in Chapter 6.

Polysemy

One important concept we have emphasized is that CL holds that words are labels for complex categories, tapping into encyclopedic knowledge. This means that words do not have a single, monolithic meaning; whatever interpretation is assigned to a word is highly dependent on context. Another important characteristic of words is that they often have multiple, related, but distinct meanings. Consider the word *head* as it is used in the following sentences:

- (2.1) a. *My sister Alice has a nicely shaped head.*
 b. *I bought a head of cauliflower at the market.*
 c. *Madeline has a good head on her shoulders.*
 d. *James is at the head of his class.*
 e. *Jane was standing at the head of the stairs.*
 f. *The engine built up a head of steam.*

We can see that all these uses of *head* are distinct and that almost all these distinct meanings relate to our conceptualization of the human body. The central meaning is “the bony structure containing the brain.” Note that many animal heads fall into this category: the head of an elephant, horse, alligator, pelican, snake, and whale, etc. For humans, the prototypical head seems to be the human head, which rests atop the neck, is the uppermost part of the body, and has a roundish shape. (This relates to our embodied experience.) The prototypical sense is illustrated in 2.1a. A nicely shaped head in this context is roundish, not elongated as a horse’s would be. The relations between a central sense and the less central senses of a word involve systematic, motivated meaning extensions. For instance, in 2.1b the fruit of the cauliflower has a roundish shape, somewhat like a human head (this is an example of a resemblance metaphor). The use of head in 2.1c is in reference to Madeline’s ability to think or make good judgments. Here the head is associated with the brain and the processes we associate with it. The meaning is extended through the regular process of metonymy, in which the whole stands for a part or a part for the whole. In examples 2.1e and 2.1f the salient aspect is that the head is located at the top or vertically highest point, another example of resemblance metaphor. Cognitive linguists argue that such meaning extensions reflect regular cognitive processes, such as metaphoric and metonymic thinking. This is an important distinction from traditional approaches to lexical items which hold that such relationships are arbitrary and part of a non-systematic lexicon, which is governed by completely different processes than syntax.

Moreover, CL argues that just as lexical items can develop systematic, motivated networks of meanings on the basis of systematic metaphoric processes, so can functional morphemes. Similar centrality effects may occur at the morphological, syntactic, pragmatic, or discourse level. The central sense of the suffix *-er* in English refers to an agent who does something regularly or by profession as in *teacher*. Less

central uses can be found in *villager* (a person who lives in a particular place), a *toaster* (an instrument), and a *go-getter* (an attribute).

Consider another example. Grammarians agree that the English tense marker *-s* most typically signals a temporal notion indicating that the speaker believes that the action or state being discussed is true at the moment of speaking; in contrast, the past tense marker *-ed* most typically signals the speaker's belief that the action or state was completed before the moment of speaking. However, Riddle (1985) and Tyler and Evans (2001b) have identified a number of uses of present and past tense that do not conform to these typical interpretations. One example is a tense shift in discourse when an author foregrounds ideas with the present tense and backgrounds ideas with the past tense (Riddle, 1985; Tyler & Evans, 2001b):

In November 1859, Charles Darwin's *The Origin of Species* . . . **was** published in London. The central idea in this book **is** the principle of natural selection. In the sixth edition Darwin **wrote** "This principle of preservation of the survival of the fittest, I have called Natural Selection."

Eigen and Winkler (1983, p. 53)

A second common use involves politeness. Consider the following example of a speaker issuing an invitation: *I was wondering if you might want to go to lunch* (Fleishmann, 1989). Here the speaker is clearly issuing an invitation and the wondering is continuing into the present moment. She uses past tense to signal politeness.

A third "exceptional" use of the past tense is to signal irrealis:

*I wish the students **liked** phonetics more.*

Here the speaker is expressing a desire for the situation to be different than, in actuality, it is. Tyler and Evans' (2001a) account for these non-temporal uses as systematic extensions based on the metaphors *HERE IS NOW* and *THERE IS SOME OTHER TIME*. Thus, the present tense marker can signal physical or mental proximity whereas the past tense marker can signal physical or mental distance.

In terms of discourse-level foreground and background, Tyler and Evans (2000, 2001a) argue that this use of the present and past tense draws on our physical experience in the world. Events that are occurring at the present moment tend to be our focus of attention, rather than events that happened in the past. Similarly, entities and activities that are occurring proximal to us tend to be in our foveal vision and are therefore more likely to be the focus of our attention than those occurring at a distance. Turning to the use of past tense to signal politeness, Tyler and Evans note that an important aspect of entities being proximal is that they are potentially under our physical control. For example, if a parent wants to control a child, physical constraint and therefore physical closeness is often required. Instead of using physical control, humans can also use language to exert control.

Following the logic of the **HERE IS NOW** – **THERE IS SOME OTHER TIME** metaphor, use of present tense would indicate more proximity and therefore more control of the addressee than use of past tense. Therefore, in situations of possible imposition, where the speaker wants to suggest that they have little control over the addressee, English speakers tend to use the past tense when they make requests or offer invitations. Using the past tense implies that the speaker is physically distant from the addressee and therefore cannot exercise physical control over the addressee. The further implication is that the addressee is free to agree to or reject the imposition. The modal verbs also reflect this systematic pattern in that the historically past tense modals *could* and *would* are the polite forms of *can* and *will* used to make requests, suggestions, etc.

Another important reflex of the proximal–distal metaphor involves the use of the present tense form of a modal to indicate a higher degree of certainty, realis and speaker force, in contrast to the use of past tense to indicate a lower degree of



FIGURE 2.1 Illustrating the **NOW IS HERE** Metaphor

certainty, realis and an attenuation of speaker force or control. Experientially, humans are much surer of the reality of that which they can immediately perceive with their physical senses, than that which is out of range of their physical senses. This includes being surer of that which is experienced in the immediate moment than that which we remember. Thus, present tense is used to express higher degrees of certainty, realis and force than past tense. The metaphor explains the systematic lessening of certainty and realis indicated by the use of historically past tense modals. Thus in the present/past pairs *will/would*, *can/could*, *shall/should* we find the past tense forms consistently indicating less certainty on the part of the speaker or less social and/or physical force. For example, in legal discourse *shall* indicates a legally binding circumstance while *should* indicates a preferred, but non-binding circumstance.

Goldberg (1995) argues that syntactic constructions can also be extended metaphorically. For instance, *Lou told Chris a story* is analyzed as a metaphoric extension of the double object construction; the acceptability of verbs of communication in this construction is accounted for by the conduit metaphor for communication (Reddy, 1993) by which English speakers perceive a similarity between exchanging information and exchanging physical entities.

Schemas

Throughout our discussion, the notion of human memory being patterned in terms of structured networks or frames has been prominent. I now turn to a more in depth discussion of patterned memory in terms of schema theory. Over the past 40 years, work in psychology (e.g., Rummelhart, 1975; Shank & Abelson, 1977; Tannen, 1993; Wilson & Anderson, 1986) has established that human memory is patterned, not random. For instance, human memory is not organized simply in terms of the arbitrary chronological order in which our perceptions are received. Rather, memory appears to be organized in terms of flexible, dynamic, complex *schemas* which involve abstract, hierarchical generalizations that build up over exposure to a number of specific instances. While our first few encounters with an entity or event type may be stored individually, we rather quickly abstract over observations of objects, events, states. Once a schema is created, we do not lose our memory of specific instances. Conceptualizations differ in their level of detail. This is reflected in language in our labels for objects, events, states, etc. We have labels for specific instances of activities, such as *sauté*, less detailed, more abstract terms such as *cook*, and even more abstract labels such as *make*, *do*.

Tannen (1993) discusses schemas in terms of flexible, structured expectations. When new entities and experiences are encountered, they are interpreted in relationship to established schemas. Schemas are constantly changing and adapting to new information. Simultaneously, these patterned, abstract conceptualizations help us more quickly recognize and understand the ever-changing world we encounter. Thus, schemas facilitate human categorization and recognition of new

entities; simultaneously, because we are constantly encountering new entities, the organized memory patterns are constantly being updated and reshaped.

Cognitive linguists hold that linguistic knowledge is also organized in terms of schemas. Like all other aspects of the physical–social world we encounter, when new linguistic expressions and patterns are encountered, they may be added to a speaker’s store of linguistic representations. As with other new pieces of information, new words, new uses of a word, or a syntactic construction are not stored in an arbitrary fashion, but added to the structured, more abstract memory patterns (schemas) that have already been established. These abstract memory structures emerge as the result of generalizations the individual makes across many instances of language processing and language use. Evans and Green (2006) talk about the cognitive process through which schema emerge as abstraction. As Evans and Green (2006b) point out,

[Language schemas] emerge as the result of generalization of patterns across instances of language use . . . For instance, a speaker acquiring [a language] will, as a result of frequent exposure, “discover” recurring words, phrases and sentences in the utterances they hear, together with the range of meanings associated with those units.

(p. 115)

CL argues that the units of grammar are nothing more than schemas. Abstracting over numerous specific examples and forming schemas reflect fundamental cognitive processes. In claiming that syntactic patterns are schematic representations, “CL makes two claims: 1) general cognitive processes are fundamental to grammar, and 2) the emergence of grammar as a system of linguistic knowledge is grounded in language use” (Evans & Green, 2006, p. 115).

Langacker (1987, 1991a) holds that a linguistic schema is specified in relatively general terms while specific instances are more richly specified. Both specific instances and the abstracted generalizations are represented in memory. Humans can tap into the organized memory pattern at whatever level of abstractness is most useful at the moment. In particular, Langacker argues that our knowledge of sentence structures is schematic, with some representations of a particular pattern being quite specific and lexically (and phonetically) filled-in while others are highly abstract and general. In other words, humans have both vast lists of sentences stored in memory (including information about the contexts in which the sentences occurred) and generalizations or “templates” representing abstract sentential structure.

Moreover, memory of any one entity or event or experience can be part of multiple schemas: thus memory is massively interconnected and redundant. Contrary to traditional theories of language which evaluate redundancy against Occam’s razor and argue that redundancy has no place in an elegant model of language (and cognition), CL views redundancy as a functional necessity.

Redundancy appears to be a useful part of human cognition as it allows fast, flexible access to information, thus facilitating online processing and production. Knowledge of a language is dynamic and evolves through a person's experience with the language and their physical-social environment. CL holds that since our knowledge of specific instances of language includes knowledge of the contexts in which linguistic units are encountered, knowledge of discourse and pragmatic constraints is established along with knowledge of the words or phrases or sentence patterns of the language. Saying that language is usage-based, that it is learned through usage events or contextualized encounters with members of the discourse community using the language, means that we learn the language as contextualized, discourse-oriented information.

The notion of schema does not contradict our earlier discussions of prototype effects. Rather, it appears that human memory is extraordinarily complex and that our conceptualizations are stored (and retrieved) in multiple, interacting ways. Fauconnier and Turner (2002) argue that many linguistic forms are best understood as prompts from the speaker to the listener to access pertinent schemas and construct particular relational configurations among concepts, such as analogy, role and identity, causality, etc.

While recognizing the importance of top-down processing, which reflects the effects of schemas and organized background knowledge, we have seen that a CL approach also recognizes that language learning involves bottom-up processing, driven by specific interactions with the world and exposure to specific instances of language use; this reflects well-established interactive processing (e.g., Wilson & Anderson, 1986). Language knowledge is dependent on human memory and human memory is highly sensitive to frequency of the input (e.g., Ellis, 2006, 2008a, b). Generally speaking, the more one uses or is exposed to a particular form, the more entrenched it will become; the more entrenched a form, the easier it will be to retrieve and produce. Cognitive psychologists talk about this in terms of automatizing cognitive routines. This is a view that is very much in line with connectionist models (e.g., Bates & MacWhinney, 1982; MacWhinney, 2008).

In CL, regular patterns of morphology, such as pluralization and syntactic structures, are considered patterns that emerge from entrenched units as a consequence of usage. Bybee and Slobin (1982) provide empirical evidence for the view that frequency correlates with degree of entrenchment. They found that highly frequent irregular forms resist regularization, while infrequent irregular forms tend to become regularized over time (Evans & Green, 2006, p. 120). Langacker (2008) argues that speakers recognize smaller components within complex structures. Speakers use their knowledge of the components within complex structures when they extend existing patterns to novel uses. These novel uses are seen as being sanctioned by existing schema.

4. Language Learning

Research by Tomasello (e.g., 2003) and the researchers at the Max Planck Institute (e.g., Lieven & Tomasello, 2008; Tomasello & Borrks, 1998) demonstrates that young children's language emerges from exposure to language input in particular contexts. This is in sharp contrast to the view that language is a consequence of setting a trigger in the acquisition process, as some traditional theories claim. Tomasello argues children construct their language as they actively participate in interpreting and producing communicatively oriented language. Young children tend to be rather conservative in their use of language. For instance, in an experimental setting they are reluctant to extend the use of nonce verbs which they have only heard in an intransitive form (such as *The coin is tamming*) to a transitive use (*Eddie tammed the coin*). Language development is gradual, moving from an initial heavy reliance on linguistic items that have occurred in the linguistic input to more abstract linguistic schema. Once the linguistic schema is in place, the young user begins to use the language more creatively. This process is crucially dependent on the type and token frequencies with which particular constructions appear in the input. Tomasello emphasizes that children construct their language out of pieces of learned representations.

Ellis (2008a) argues that the evidence concerning frequency effects and language processing suggests that language learning is a statistical learning problem that involves the associative learning of representations that reflect the probabilities of occurrence of form–function mappings. In learning the weighted probabilities of appropriate interpretation of form–meaning mappings, the child is guided by several subprocesses, such as the reliability of a form as a predictor of meaning. The more reliable a form is, the easier it is to learn. However, most high-frequency phonological units are highly polysemous. (This will become even more obvious as we discuss prepositions, modals and the dative or double object construction.) Thus many linguistic cues which are highly available do not have high reliability. Children learning a language seem to be guided by a balance between a cue's availability in conjunction with its reliability, i.e., a cue's validity. Language learning is an interactive process involving bottom-up processing, driven by linguistic experience and specific interactions with the world, as well as top-down processing, reflecting general learning and cognitive mechanisms such as generalization over instances and expectation-driven processing of new information involving organized background knowledge.

In the earlier discussion I emphasized the important role that categorization plays in CL. Not surprisingly, a key area of CL-influenced child language research involves categorization and how a language labels categories. A central example is Bowerman and Choi's (2003) cross-linguistic work on early childhood language learning of spatial categories, such as English children's versus Korean children's learning of how to categorize and label the relationships between an entity being enclosed and the enclosing entity. Korean makes much finer distinctions among

containment configurations than does English, for instance, emphasizing tightness or looseness of containment. However, Bowerman and Choi found that English and Korean children master the distinctions their languages make at about the same age. Their research emphasizes how the language of the surrounding discourse community focuses the learner's attention, as well as the young child's sensitivity to the labels used by the surrounding discourse community.

We started this chapter by saying that humans are highly social. Tomasello (2003) has argued that our sociability and need for cooperation have been major driving forces in the development of language. He has also argued for a unique development in humans involving joint attention and intention reading skills. By around the age of one year, children begin to follow the eye-gaze of their interlocutor and gestures of other people when they are directed to distant entities; about the same time young children actively direct the attention of others to distant entities. These activities seem to be tied to the child's growing belief that humans act intentionally and have been broadly termed the theory of the mind. These understandings of other humans are crucially tied to inferencing. They are seen as essential social components required for communication and hence language.

To summarize how this model might explain the process of first language learning, let's take a hypothetical example of how the double object construction might be learned. The child learns the meaning of the construction as they hear it filled in with particular verbs and as particular social interactions occur around them. In other words, the child learns language in context as they observe and try to interpret and participate in making meaning. Context itself is multifaceted and includes (1) the ongoing discourse, which in turn means the child understands something about the discourse participants, as well as the discourse content; (2) context includes the physical setting. Take the example of a scene of someone transferring a physical object to another person – the scene commonly labeled by *give*. The scene the young child most typically observes involves physically using hands to transfer objects from one person to another. The child encounters the verb *give* and the syntactic patterns (the double object and prepositional dative) in which it occurs in distinct physical and discourse contexts which provide rich support for language interpretation. Soon the child notices that members of the discourse community also use other verbs such as *hand*, *pass*, *bring*, and *lend* in the context of actions involving transfer and receiving. At some point in this cycle, the young child starts actively participating by asking for things using these verbs, then naming the actions they observe, and gradually expanding the syntactic patterns they produce (i.e., moving from the one-word stage to phrases, etc.).

As the child is figuring out *give* and the double object construction as a label for the action of transferring objects, they also hear many contextualized uses of the double object pattern that do not involve verbs that indicate transfer or causing someone to receive something. For instance, they might hear an utterance such as *Let's bake Daddy a cake*. Using their exquisite inferencing abilities, they begin to understand that the purpose of the baking is to give some cake to Daddy. They

are learning that the syntactic pattern is flexible and has something to do with a larger giving scenario.

At some point, the child will also hear *give* and the double object construction used when no physical transfer takes place. For instance, *I gave him a piece of my mind* or *I'll give you my answer in a few days*. To interpret these statements, the child will develop some rudimentary understanding that people around them talk about words and ideas as if they are objects that can be transferred from one person to another. In other words, they will have to think in terms of conceptual metaphor.

Later, after the meaning of the double object patterns and the matching of verbs with the construction are well established, they will begin to notice interesting gaps. They now know that several verbs of communication that fit in the double object pattern: *Tell me a story*, *Sing me a song*, *Ask me a question*. Being good at finding patterns and extending them analogically, they might expect all verbs of communication to appear in the pattern. But they never hear *Answer me my question*, *Yell John the answer*, *Whisper me the secret*. They might try out one of these. However, when no one else uses it as expected, they drop it from their repertoire (they might even get overtly corrected or mocked.) This is the process of **pre-emption**. Pre-emption will continue to influence them as they encounter other verbs whose meanings would seem to match those of other verbs that occur in the pattern, but are never used. For instance, verbs like *contribute* or *donate*. By this point, their use of the double object construction and the verbs which occur in it will closely match those of the other members of their discourse community.

In sum, the theory of language learning articulated by Tomasello, Ellis, and other cognitive linguists is highly consistent with the general approach to language articulated by CL. It too assumes a usage-based approach and emphasizes the role of frequency and the emergence of schemas. Principles of associative learning (such as pre-emption) combined with the role of situated communication are used to account for learning general patterns as well as exceptions. Linguistic units, such as syntactic constructions, are seen as complex categories which exhibit prototype effects and organized polysemy networks.

5. Conclusion

This chapter has attempted to provide a broad overview of CL. Because CL is a well-developed theory of language, there are many major aspects which I have not been able to address. For instance, one important, well-developed area that has gone unaddressed is mental space and conceptual blending theory (e.g., Fauconnier & Turner, 2002). I have limited my discussion to aspects of CL which have formed the basis of L2 research and for the experiments presented in Chapters 3–6. In the final chapter, I will address mental space and conceptual blending as I discuss future directions for L2 research.

To summarize, CL is a usage-based approach to language that is deeply rooted in the notion of language being based in general cognitive processes. Cognition

itself is understood as being shaped by humans' unique neural and anatomical architecture in dynamic interaction with the physical–spatio–social environment (e.g., Coventry & Garrod, 2004; Gibbs, 1994, 2006; Lakoff, 1987; Lakoff & Johnson, 1999; Langacker, 1987, 1991; Spivey, 2006). Language, in turn, is a reflection of human cognition and conceptualization. This entails that all aspects of language are meaningful.

Key notions associated with a usage-based model include that the purpose of language is communication. In natural language, forms are always situated within the ongoing discourse between particular participants. Language is learned from situated exposure to linguistic forms being used to express particular meanings. These meanings are often supported by rich physical and social cues. Frequency is a key part of language learning and language change. Contextualized use accounts for meaning extensions as the linguistic form is stretched to accommodate communicative situations. The commitment to search for explanations for linguistic form which are consistent with what we know about the human mind and brain is central to the CL enterprise. Many of the fundamental theoretical innovations involve understanding how spatial perception structures cognition and language. The claim that language labels spatial scenes with participants and viewpoints coheres with the position that syntax itself is meaningful and that syntactic patterns which appear to present the same propositional semantics are not transforms of each other, but alternative ways of presenting different construals on a scene. Another key concept arising from analysis of language and space includes the multiple reflexes of focus and ground. Humans use their understanding of the external world and how their unique bodies interact with the physical–spatio–social world to help conceptualize more internal or abstract concepts, such as emotions, ideas and language itself. We often think about one event or experience in terms of another event or experience; this is metaphorical thinking. CL has demonstrated that all aspects of language are shot through with conceptual metaphor and experiential correlation. Finally, the cognitive commitment takes seriously psychological discoveries about human categorization, which evidence both prototype effects (including radial categories) and more hierarchically organized schemas. Schemas are organized such that they include fully instantiated examples as well as much more abstract, generalized patterns. Both forms of categorization are exemplar-based, thus arising from multiple encounters with situated language.

CL represents all linguistic units, from morphemes to words to syntactic constructions, as form–meaning pairings. There are no strict boundaries between lexical meanings, semantics and pragmatics: they are all part of the meaning end of the form–meaning pole.

In this chapter, I have laid out a number of significant insights CL can provide. Despite these insights, L2 researchers and teachers are rightfully skeptical about being overly eager to take on a new theory of language with the hope that it might prove effective for language teaching and providing insights into language learning. From past experience, L2 professionals know that just having a clever theoretical

description of language is not a silver bullet for L2 learning. To paraphrase Langacker (2008), trying to apply linguistic theories to issues in language learning has often resulted in unproductive, frustrating outcomes. Having a richer, more accurate description of the language would seem to represent a valuable advance for L2 learning but, beyond enthusiastic instructors reporting anecdotally on their own classroom successes, the evidence from L2 researchers of effectively applying CL to L2 learning is sparse. Key to effectively using CL to facilitate L2 learning is for the researcher/teacher to reinterpret the appropriate theoretical notions with the precision that maintains the theoretical insights but is also accessible to L2 learners, teachers, and researchers. The rest of this book aims to begin this process.

6. Further Readings

There are a number of pioneering theoretical works in CL which second language acquisition (SLA) specialists interested in CL may wish to explore. For those who want to have quick access I recommend Dirk Geeraerts' (2006) collection of 12 seminal articles in CL and Evans, Bergen and Zinken's (2007) collection of 28 key articles, *The cognitive linguistic reader*, both of which provide insightful introductions that summarize CL theory. Geeraerts and Cuyckens's (2007) *The Oxford handbook of cognitive linguistics* offers essays on the elemental issues by many of the leading theorists in CL. Dirven and Verspoor (2004) offer a solid introduction to the fundamentals of CL and Taylor (2002) provides a cogent overview of Langacker's cognitive grammar. For those who are interested in reading the complete foundational works, I recommend Ronald Langacker's (1987, 1991) two-volume set *Foundations of cognitive grammar*; Eve Sweetser's (1990) influential monograph, *From etymology to pragmatics*; George Lakoff's (1987) book on categorization and experientialism, *Women, fire and dangerous things*; Leonard Talmy's (2000a, b) two-volume set, *Toward a cognitive semantics*; George Lakoff and Mark Johnson's (1980) pioneering work on metaphor and the experiential basis of meaning, *Metaphors we live by*; Adele Goldberg's (1995) landmark study on the syntax of verbal argument structure, *Constructions*, and *The semantics of English prepositions* (Tyler & Evans, 2003), which presents the most complete account of the polysemy networks of English prepositions to date.

PART II

Applying Cognitive Linguistics

3

COGNITIVE LINGUISTICS IN THE L2 LEARNING CONTEXT

1. Introduction

This chapter presents a discussion of how five key insights from CL – construal, conceptual metaphor, category formation (especially prototypes and radial categories), embodiment and the usage-based nature of language, in conjunction with the overarching commitment to the symbolic nature of language (i.e., that all linguistic units are meaningful) allow us to reconceptualize L2 learning. In particular, I will present a number of studies that use one or more of these concepts to investigate L2 learning. A central theme of the chapter will be how these theoretical tenets serve as conceptual tools to refine and reinvigorate familiar strands of L2 research such as cross-linguistic influence (or contrastive analysis), the use of authentic materials and implicit versus explicit language learning. This chapter is not an attempt to present a comprehensive review of the many studies and discussions concerning CL and L2. The studies addressed in this chapter include a range of types from experimental investigations to CL-based descriptions of a given aspect of language with suggestions for how the description might be of benefit in L2 investigations. This represents the state of the field, as many CL concepts that would appear to have important implications for L2 research and teaching have yet to be examined experimentally. I chose studies that both help deepen the explication of the key concept of interest as well as demonstrate how one might apply the theoretical concept to an issue in L2. Many thoughtful, insightful studies could not be included. The studies discussed here are meant as a representative sample.

As we saw in the first two chapters, a central aspect of claiming that language is a reflection of human cognition and our embodied experience with the world involves the notion that linguistic units are best understood as complex categories

that emerge from human's interaction with the physical–spatio–social environment. Learning the conventional categories of the speech community is essential to using the language in ways that match the speakers of that community. For L1 learners, this emerges gradually through situated interactions and a rich language environment. A CL approach assumes that the same cognitive processes, abilities and embodied experiences which account for the form the mature language takes and L1 learning of that language will also account for L2 learning. Thus, CL offers a theoretical framework, with a rich set of conceptual tools, that potentially has direct application for L2 teaching and for examining L2 learning.

This basic position straightforwardly acknowledges that the L2 learner comes to the L2 learning situation with a fully formed set of conceptual categories linked to linguistic forms. As Ellis and Cadierno note, “The meanings of the words of a given language and how they can be used in combination, depends on the perception and categorization of the real world around us” (2009, p. 122). Thus, learning an L2 means more than learning the L2 grammatical patterns and the L2 words that fit in the grammatical slots; learning an L2 means re-categorizing many aspects of the world. To paraphrase Proust, it means seeing familiar landscapes through new eyes.

Having a theory which explains language and language learning in terms of general cognitive processes and human experience with the physical, spatial and social world allows us to rethink L2 learning and instruction in exciting new ways. A CL-based conceptualization of L2 moves us away from distinctions between consciously and subconsciously learned knowledge, strict grammar rules and lists of exceptions and sharp distinctions between grammar, lexis, idiomatic chunks, semantics and pragmatics. Because language is seen as motivated (see Chapters 1 and 2), many areas of language which have traditionally been treated as arbitrary or unteachable (and perhaps even unlearnable) are re-visioned as far more systematic and governed by regular processes, and thus amenable to instruction (either implicit or explicit or a combination of the two). Strict but unmotivated and semi-accurate grammar rules and lists of exceptions are replaced by schematic patterns with central tendencies and extended, more peripheral (but usually motivated) exemplars. Under a CL analysis, in order to capture how speakers actually use the language, the quality and quantity of input becomes even more central to L2 learning and teaching. Finally, SLA research tending to psychological issues such as attention and awareness (including focus on form), input frequency, and associative learning can be grounded in a coherent theory of language. CL simultaneously provides us with a set of processes and principles through which to explain universal traits of language (e.g., we all share the same basic neurological and physiological architecture and inhabit the same world with its properties of gravity and momentum, etc.), as well as a principled rationale for linguistic variation (through recognition of, among other things, humans' highly social nature, the importance of being a member of a discourse community, and our abilities to construe and conventionalize a single spatial scene from multiple perspectives).

Within a few years of the first theoretical works within the CL enterprise (e.g., Lakoff & Johnson [1980] on everyday metaphor, Langacker's [1987] first volume on cognitive grammar, Talmy's [1983; 1985] investigations on the relationships between spatial perception and language, and Lakoff's [1987] exploration of radial categories) a small, dedicated group of L2 researchers and teachers recognized the potential of applying CL to L2 issues. Particularly deserving of mention are Michel Achard, Ruth Berman, Frank Boers, Lynne Cameron, Teresa Cadierno, Rene Dirven, Nick Ellis, Zoltan Kovecses, Seth Lindstromberg, Wonder Lowie, Susanne Niemeier, Martin Putz, Gunter Radden, Brygida Rudzka-Ostyn, John Taylor and Marjolijn Verspoor. Through their thoughtful classroom applications, conference organizing and editing, a body of largely non-experimental reflections on applied CL emerged. These early works contain many important insights and suggestions for more rigorous research. Two key early edited volumes are *Applied cognitive linguistics*, volumes I and II (2001a, b), edited by Putz, Niemeier and Dirven, and *Cognitive linguistics, second language acquisition, and foreign language teaching* (2004), edited by Achard and Niemeier. More recently, several good reviews of the literature have been published (see Further readings at the end of this chapter). Taken together, they refer the reader to the classic publications in the field. In this chapter, we take a focused consideration of a subset of this work.

The remainder of the chapter is organized into seven main sections. Sections 2 through 6 discuss how each of the five key concepts – construal, conceptual metaphor, category formation (especially prototype and radial categories), embodiment and the usage-based nature of language – have been used in exploring L2 learning and instruction. Within each section, I aim to further clarify the key concept itself, as well as present how CL researchers have considered its application to L2 issues.

Section 7 addresses the role of L1 in L2 learning, with a particular emphasis on the usefulness of CL to a deeper, more nuanced understanding of cross-linguistic influence. The studies presented in this section give insights into typological differences across languages that often result in L2 learners unintentionally constructing non-idiomatic target discourse. In many instances the differences are not technically grammatical errors, and L2 learners often remain unaware of where their discourse mismatches that of the target discourse community. Thus, CL gives powerful tools to teachers and learners to address the complexities of not only acquiring the basics of a new L2 grammar but also understanding and mastering idiomaticity in L2, precisely because it treats all language at all levels as motivated, symbolic, embodied and socially grounded.

2. Construal

Overview

As we saw in Chapter 2, a central focus within CL has been investigating the cognitive operation of construal, or human's ability to take different perspectives on a scene, and its multiple reflexes in language. Langacker (1987, 1991) and Talmy (2000a, b) have argued that changing perspectives on spatial scenes is a principle cognitive operation that is reflected in many areas of language. For instance, construal is foundational in the spatial representation of entities as bounded (countable) or unbounded (mass). Linguistic choices which signal shifts in construal are also available to speakers as they express their perspective on an event and the roles participants play in that event. A similar cognitive ability allows speakers to conceptualize temporal facets of events from different perspectives; verbal aspect is a primary linguistic reflex of varying temporal construals. In this section we will look at three pedagogical applications of construal, Huong and Verspoor's (e.g., 2009) analysis of English articles, Niemeier and Reif's (2008) analysis of English progressive aspect and Achard's (2008) analysis of competing complement choices in French.

The Studies

I begin with Verspoor and Huong's series of investigations of the English article system (Huong, 2005 [as reported in Verspoor 2008]; Verspoor & Huong, 2008; Verspoor, 2009) as they draw on the concept of construal in two important ways: (1) to emphasize the use of articles as cues to help signal the speaker's construal of the status of information in the ongoing discourse; and (2) to indicate the speaker's conceptualization of an entity being bounded or unbounded. I provide a rather lengthy discussion of the research because of the complexity of the topic itself and because of the often expressed desire on the part of L2 professionals to better understand how the article system works.

Drawing on Langacker's analysis that articles are cues used by the speaker to more specifically indicate the speaker's construal of the scene and the status of information in the discourse, Huong hypothesized that a construal-based notion of definiteness was foundational to how the English article system works. From a CL perspective, "an entity is considered definite when in a given context a speaker and a hearer can both make mental contact with it" (Verspoor, 2008, p. 87). Most proper nouns represent the quintessential example of definite entities. Interestingly, Verspoor (2008) notes that with most proper nouns and names, "the ultimate sign of definiteness" (p. 87) is the null article. In contrast to proper nouns, common nouns that are definite must be marked with *the* "whether they are count, singular, plural, or mass" (p. 87), as in *Jake saw the boat/the flowers/the water*.

According to this analysis, definiteness is a category which evidences prototype effects. Huong identified the prototypical definite nouns as the ones which are

unique to the world, such as *the sun*, *the stars* or unique to the immediate context, such as *the President*, *the window*. (In standard analyses, these are often treated as part of a list of exceptions and are unique because of the speaker's general background knowledge.) Other definite entities are those that are unique to the speaker and hearer within the particular discourse context. (Interestingly, this is the use that traditional analyses usually start with – a count noun takes a definite article if it has already been mentioned in the discourse.) Entities which the speaker projects that the listener is likely to be able to identify (through inference) as being unique to the speaker (as in the mini-dialog: *How did you get to school today? I took **the** shuttle*) are represented as being more peripheral members of definiteness. Finally, an entity can be treated as definite if the speaker construes it as having high saliency, as in, *Watch out for **the** snake behind you!* (This is a use not typically recognized in traditional treatments.)

Of course, in any discourse not all entities are likely to be known and easily identified by all participants. The speaker will treat these as non-definite. In these cases, English has a range of choices to signal indefiniteness: *a* (with count nouns), *some*, *any*, *zero* (with non-count and plurals).

In creating materials for an effects of instruction study, Huong created a kind of decision tree to help guide L2 learners in determining which article to use. The first thing to determine is whether the common noun is definite; if so, then *the* is required. If the user determines that noun is used in a non-definite sense, then further distinctions and choices are required.

In order to know how to appropriately introduce the new entity into the discourse, it is important to know whether the noun is count or non-count. Huong and Verspoor's analysis of whether a noun is count or non-count draws on Talmy's spatial insights into count nouns being conceptualized as individuated and bounded and mass nouns as non-individuated and unbounded. In part, this conceptualization is a matter of construal. Verspoor (2008) notes Taylor (1993) argued that prototypical count nouns are three-dimensional, concrete things and mass nouns are internally homogenous, divisible substances; presumably all humans would agree on these qualities for many objects. For instance, generally a bicycle is conceptualized as bounded. One test for this is if you take a wheel from a bicycle, you do not have a bicycle in your hand and the bicycle is no longer a complete bicycle. In contrast, with mass nouns, if you have a cup of water and you take a sip, you have water in your mouth and what is left in the cup is still water.

However, exactly which entities are understood as homogenous and divisible substances versus distinct, concrete things is somewhat dependent on cultural interpretation. A well-known example is that Japanese speakers treat rice as individuated and countable, while English speakers treat rice as a mass substance. Although such cultural differences provide challenges

[w]hat seems most difficult for L2 learners is to understand why some [English] nouns may be count in one case and noncount in another as in (a)

I had a good sleep versus (b) *I need sleep*. The notion of construal is important in understanding why in (a) the noun refers to an instance of a bounded event with a clear beginning and end, but in (b) to any instantiation of a diffuse event.

Verspoor (2008, p. 88)

Huong (2005) carried out an effects of instruction study based on this analysis of English articles. Learners receiving cognitive instruction showed significant gains on an immediate posttest in comparison to learners receiving traditional instruction. However, on a delayed posttest, the differences between the two groups' gain scores were no longer significant.

Verspoor (2009) extended this study. She modified the cognitive instructional materials by bringing the notion of construal front and center. The participants were shown many examples of objects which could be construed either as individual, separable entities or a single unit. For example, one slide pictured five stars accompanied by the label, "We can count five stars"; a second slide showed five stars in the same positions, but connected by lines and labeled, "This is a famous constellation." The concept of construal as often being a matter of zooming in or out was illustrated by a picture of three small campfires (labeled *three campfires*) juxtaposed with a picture of a large section of the forest engulfed in flames (labeled *fire is engulfing the forest*). The presentation of definiteness and non-definiteness followed that developed in Huong (2005) and Huong and Verspoor (2008).

The experiment involved 64 students who were fourth-year English majors at a Vietnamese university and who were trained to be teachers of English. Thus, they were considered advanced learners. The participants were divided into two groups, a cognitive group and a traditional group. The participants took a pretest, an immediate posttest, and a delayed posttest. On the pretest, there was no significant difference in the participants' accuracy in using articles. On the posttest, the cognitive group showed significant gains in accuracy over the traditional group. On the delayed posttest, the cognitive group maintained an advantage over the traditional group, but the difference was no longer significant.¹

According to Talmy (2000a, b) construal also plays an important role in distinguishing perfective aspect (often realized by "simple" past in English) versus imperfective aspect (often realized by progressive in English); his basic analysis is that temporal concepts have analogous properties of bounded versus unbounded

1 Verspoor speculated that a number of factors may have caused the cognitive group to regress somewhat. Given the complexity of the English article system and number of cognitive demands made by introducing the concepts of construal needed to explain definiteness and count/non-count noun distinctions, the amount of instruction may not have been sufficient for the participants to internalize the system. Verspoor also argued that learning is variable, dynamic and non-linear. Sometimes getting worse (here relative to the immediate posttest) is indicative of the learner's mental representation of a system becoming unstable, an intermediate step towards mastery.

spatial scenes. Drawing on these insights, Niemeier and Reif (2008) offer a pedagogically oriented analysis of English aspect. They argue that the semantic function of aspect has to do with the speaker's perspective on the internal temporal constitution of situations. In English this shift is coded by $+/-$ progressive. Situations which are viewed as internally homogeneous and which are viewed from within the action have an unbounded construal. For instance, *Lucho is breathing normally*. The scene involves *Lucho* in the act of breathing; the action is viewed as ongoing. Each breath is construed as the same as the preceding and following breaths. There is no focus on either the beginning or the end of this specific situation of breathing and thus there is no focus on the boundaries of the action. In contrast, situations which are heterogeneous and which are viewed from outside the action have a bounded construal. For instance, *Lucho breathed a quick, sharp breath*. Here, there is potential focus on the subparts of taking in air and releasing it. The individuated act is complete. Thus, the situation has a bounded quality. The conceptual viewer is outside the scene and can see the boundaries.

Niemeier and Reif (2008) argued that for EFL learners acquiring the English tense and aspect system, it is crucial that semantic concepts be established before (or simultaneously with) the introduction of morpho-syntactic forms to help learners develop a meaningful understanding of the system. Niemeier (2008) went on to use the construct of boundedness to create teaching materials for English articles and aspect. In an effects of instruction experiment, she found that exposing students to this analysis resulted in significant gains in their ability to use progressive aspect (as well as English articles) in a more native-like way.

One of the most important claims made by cognitive linguists is that the function of a language developing multiple syntactic constructions which appear to express the same propositional content is to provide the speaker ways to present various construals on an event and on the roles participants play in the discourse. Of course, this also links to the position that syntax itself is meaningful. Achard (2008) argues that “the semantic import of grammatical constructions constitutes the best insight into its formal structure” (2008, p. 438). Achard (2008) presents an example of how the notion of construal can be used as an effective pedagogical tool through an examination of French speakers' choices in use of competing syntactic complement constructions. The analysis is based on a discourse investigation of contextualized syntactic forms and how these constructions represent “the specific construal of a conceptualized scene” (Achard, 2008, p. 438). The claim of syntax being meaningful and the tight connection between form and meaning are central to the CL approach: therefore I present Achard's analysis in some detail. Achard does not present an experimental study but his careful articulation of construal and complement constructions provides the descriptive basis for experimental research.

Achard illustrates with an analysis of the French verbs of causation. The basic facts are that some of these verbs can participate in only one complement construction, while others can participate in two, competing complement constructions.

The constructions in question are VVO (V main verb + V subordinate verb + O object of subordinate verb) and VOV (V main verb + O object of main verb/subject of subordinate verb + V subordinate verb). For example:

- (3.1) a. *Marie a fait manger les enfants*
 Marie has made to eat the children
 V V O
 English: Mary has made the children eat.
Situation: Marie forced or demanded that the children eat; they had no choice but to comply.
- b. **Marie a fait les enfants manger*
 Marie has made the children to eat
 V O V
- c. *Marie a laisse les enfants partir*
 Marie has let the children to leave
 V O V
 English : Mary has let the children leave.
Situation: The children requested to leave and Marie granted them permission to do so.
- d. *Marie a laisse partir les enfants*
 Marie has let to leave the children
 V V O
 English: Mary has let the children leave.
Situation: Marie dismissed the children (told the children to leave)

Achard argues that

[The] VVO [construction] structures the . . . scene as the main subject's sole responsibility, even though the complement process is performed by another entity [the causee] . . . [T]he causee is not viewed as the initiator of the subordinate process but as the reluctant participant. [The causee's] coding as a direct object [of the subordinate verb] reflects its non-agentive role.

Achard (2008, p. 439)

Thus the form of the sentence directly follows from the quite specific way in which the speaker is construing the scene. The participant in the main clause (the subject) is represented as the initiator of the action; the participant in the subordinate clause is represented as only an undergoer with no agentive role. Following Langacker's energy chain model (see Chapter 2) the subject of the main clause is the sole energy source while the participant in the subordinator clause is the energy sink.

With the VOV complement, the form of the construction reflects a different construal. Again following Langacker's energy chain model, the main subject is

ultimately responsible for the action in the subordinate clause, but the logical subject of the subordinate clause (or the complement) is represented “as the energy source responsible for initiating (or at least sustaining) that process” (Achard, 2008, p. 439).

The meaning of each construction is also linked to the meaning of the main verbs, *faire* (make) versus *laisser* (let). The divergent force dynamics coded by *faire* versus *laisser* are crucial in the analysis. The scene evoked by *faire* indicates force coming solely from the agent/causer and directed at a participant who has no control over the event. The scene evoked by *laisser* involves two participants with potential agentive roles, the subject of the main clause who determines not to impede the second participant(s) and the second participant(s) who initiates some action. Thus, both the verbs *faire* and *laisser* have to do with force dynamics between the participant in subject position and the second participant, but the manner in which force is used differs. With *faire* semantics are of force emanating from the main subject; the children do the eating but they have no agentive role. In French, *faire* always highlights the agentive force of its main clause subject. With *laisser*, as well as verbs of perception, “the choice of an expression is determined by the speaker’s construal of the causee’s [participant in the subordinate clause] role” (Achard, 2008, p. 440). If the causee is viewed as the energy force that initiates the action, the VOV form is chosen. The VOV construction places the causee in the subject role of the subordinate clause and, since the prototypical subject is understood to be an intentional agent, the form matches the construal. In contrast, if the causee is construed as not initiating the action, the VVO construction is selected. “*Les enfants* are in the object/patient . . . position in relation to the double verb construction” (p. 440). The prototypical patient is understood to be an undergoer who receives the effect of the energy initiated by the agent. Thus, the two competing constructions and the verbs with which they occur provide a form–meaning match.

Achard (2008) advocates teaching syntactic constructions from the semantic–functional perspective of investigating precisely how each construction structures a scene. He indicates that he has successfully created lessons in which learners investigated the shifts in meaning provided by competing constructions by analyzing naturally occurring discourse. He argues that a CL-based analysis that emphasizes construal provides “an important tool for language teachers to present constructions in naturally occurring contexts” (Achard, 2008, p. 440). He notes that the traditional approach provides unmotivated rules (like “a fait” only allows VVO complements) which students then have to memorize without any understanding as to how the semantics of the verb match the semantics of the syntactic construction.

3. Metaphor

Overview

Conceptual metaphor is a particularly powerful tool in demonstrating that language use is systematically motivated. Thus, conceptual metaphor theory offers L2 researchers and instructors a major path into meaning-based explanations of how language is structured and the language choices speakers make. In conjunction with the notions of radial categories and systematic meaning extension, L2 researchers have been particularly drawn to conceptual metaphor theory, especially in terms of how it might be used in vocabulary instruction. For instance, Boers and Lindstromberg's (2008a) edited volume presents numerous recent studies on the applications of metaphor and metonymy in learning general vocabulary, idioms and phrasal verbs.

The Studies

L2 vocabulary and idiom learning has been the area in which the majority of CL-based experiments have been conducted. To give a sense of the wide range of work that has been done, I will begin by providing an overview of the findings over the past 15 years. In general, these studies indicate that alerting subjects to L2 patterns of metaphor (and how they relate to semantic networks) increases their ability to learn and retain new words. For instance, Boers (2000a) found that having students consider salient consequences of *up-down* led to an increased ability to interpret and retain unfamiliar metaphoric uses of verbs such as *soar*, *skyrocket* and *plunge* (such as *My spirits soared*), as well as phrases and idioms. See Boers and Lindstromberg (2008b) for a review of how to apply these insights to teaching contexts.

In another experiment, Boers (2000b) presented common expressions relating to anger to L1 Flemish speakers learning English. Drawing on Zoltan Kövecses' (1986) work on metaphors of emotion, Boers developed language lessons which pointed out that English has many expressions to describe anger that are motivated by overarching conceptual metaphors. For instance, the conceptual metaphor ANGER AS A HOT FLUID IN A CONTAINER has given rise to expressions such as *anger welled up inside me*, *I was boiling with anger*, and *she was all steamed up*. The ANGER AS FIRE conceptual metaphor gives rise to expressions such as an *inflammatory remark*, *adding fuel to the fire*, and *he's hot under the collar*. And the ANGRY PEOPLE AS DANGEROUS ANIMALS metaphor gives rise to expressions such as *he has a ferocious temper*, *don't snap at me*, and *don't bite my head off*. In a quasi-experimental investigation, an experimental group was presented with anger expressions organized according to their common conceptual metaphors; a control group was presented the same expressions organized randomly. The experimental group significantly outperformed the control group. This experiment and several others (e.g., Boers, 2000a; Boers, Demecheleer & Eyckmans, 2004; Kövecses &

Szabó, 1996; MacLennan, 1994) showed that alerting learners to such metaphors helps language learners better retain vocabulary and more accurately interpret previously unseen metaphors.

Beréndi, Csábi and Kövesces (2008) report on an additional experiment which investigated the usefulness of presenting conceptual metaphors in vocabulary learning. I present this experiment in more detail because it is one of the few CL studies that uses a pretest, posttest and delayed posttest design. The participants were L1 Hungarian college students in advanced EFL classes. The target of instruction was figurative idioms based on conceptual metaphors. The participants were divided into two groups, a traditional group and a cognitive group. Both groups read a text which contained many idioms. At the bottom of the text was a list of idioms which occurred in the text. The participants were tested for their comprehension of the idioms through a fill-in-the-blank exercise. This served as the pretest.

The traditional group was then asked to try to figure out and translate the meaning of idioms such as “*I was boiling with anger*” and “*She snapped at me*” which occurred in the initial reading. They were given feedback on the accuracy of their interpretations. They took a close test that required them to use the idioms which were targeted on the first fill in the blank comprehension test and in the instruction. Two days later they took the same test; five months later they took the same test again.

The cognitive group read the same text and saw the same idioms used in the text at the bottom of the reading. However, in the cognitive treatment, the idioms were presented in four groups which corresponded to the four underlying metaphors: ANGER IS FIRE; ANGER AS HOT FLUID IN A CONTAINER; ANGER IS INSANITY; AN ANGRY PERSON IS A DANGEROUS ANIMAL. The instructor explicitly discussed these four metaphors and how they related to the idioms. The cognitive group took the same close test immediately after the instruction, one day later and five months later. The results were that the cognitive group outperformed the traditional group on all three posttests. Thus, the experiment provides evidence that systematically alerting students to conceptual metaphors can help promote more appropriate use and long-term retention of L2 idioms based on these metaphors.

Using metaphor analysis need not be limited to lexical learning. For example, Ruiz de Mendoza (2008) offers good ideas for how metaphor explanation might benefit Spanish–English learners regarding the cross-linguistic difference for articulating states (*tener*+noun versus *be*+adjective) and the Spanish distinction between *-ito -illo* diminutives which is based on metaphors of “small.” Although no experimental work has been reported to date, Mendoza’s analyses offer a solid foundation for future empirical research.

Mendoza (2008) argues that introducing high-level conceptual metaphors, especially when they are at variance with the metaphors of the learners’ L1, are helpful. For instance, Spanish appears to use the metaphor STATES ARE

POSSESSION in its use of the object construction to express states, as *Tiene mucho miedo*, literally “She has a lot of fear,” or *Tiene sed*, “She has thirst,” to express the English equivalents of *She is afraid* and *She is thirsty*.

Spanish diminutives, the suffixes *-ito* and *-illo*, express a complex set of meanings which range from physical smallness to affection to pejorative sentiments. Mendoza offers a primary metaphor explanation for the extended meanings. The central meaning of both diminutive suffixes is “small.” Experientially small entities tend to be more controllable and less harmful. Thus a small dog, like a miniature poodle, is less likely to cause a grave physical injury than a large dog, like a German shepherd. A small amount of water spilled on the floor is less likely to cause damage or difficulty in cleaning up than a large amount. Smallness is also associated with young children and animals, and thus with cuteness and innocence. All these express positive connotations. However, small can also be associated with more pejorative judgments. Entities or events which are perceived as small can be conceptualized as unimportant or weak (for the same reasons that they are controllable and not very threatening). Grady hypothesizes that the metaphor BIG IS IMPORTANT grows out of fundamental human perceptions young children experience vis-à-vis adults. The inverse of this metaphor would seem to be SMALL IS UNIMPORTANT. For example, *The President makes small gestures of reconciliation but shows no real commitment to the issue*. Thus, smallness has the potential to label an entity or action in a belittling way. Spanish distinguishes between these two semantic poles associated with smallness by using the diminutive suffix *-ito* to indicate more positive connotations and the diminutive suffix *-illo* to indicate more pejorative connotations. Mendoza offers several teaching suggestions exploiting metaphor and embodied experience which, anecdotally, he has successfully used to help L2 learners distinguish between the two suffixes.

4. Categorization: Polysemy, Prototype Effects and Radial Categories

Overview

Many lexical items have multiple meanings. High-frequency words are often highly polysemous and many of the extensions are not readily apparent from dictionary-type definitions. This quality of language poses immense challenges for L2 learners and teachers. Being able to explain the meaningful systematicity of words’ polysemy networks potentially lessens the learner’s memory load and helps provide strategies for figuring out the meaning of new uses L2 learners encounter in native speaker discourse. Moreover, mastering the central sense first seems to facilitate learning the extended senses.

The Studies

Verspoor and Lowie (2003) tested the hypothesis that presenting multiple senses of words in terms of radial categories with a core sense and related extended senses is useful in L2 learning. Importantly, they found that teaching the central meaning of a word first facilitated more accurate interpretation of unfamiliar extended meanings. The participants were 78 L1 Dutch speakers at the university level; they were divided into two groups, a cognitive group and a traditional group. Each group saw a sentence containing the target word accompanied by a Dutch translation of the target word. This sentence was followed by a second sentence containing an extended meaning of the target word. Their task was to provide a Dutch translation of the meaning of the extended sense. They were presented with 18 sets of sentences. All participants translated the same extended meaning of the word as it appeared in the same second sentence. The only difference between the two groups was the first sentence they saw. The cognitive group saw a sentence containing the core sense of the word, with the accompanying Dutch translation:

- (3.2) a. *His father originally sent him solid golden nuggets. (goudklompje)*
 b. *The new LSS does that with a choice of V6 engines and with a body, interior and suspension that make the car a true nugget in today's rushing stream of fancy cars.*

In the traditional group, the learners were provided with the translation of a more peripheral sense and had to guess the other peripheral sense.

- (3.3) a. *They came up with the nugget that he had been involved in dubious business speculations. (interessante informatie)*
 b. *The new LSS does that with a choice of V6 engines and with a body, interior and suspension that make the car a true nugget in today's rushing stream of fancy cars.²*

Students worked through the worksheet individually. Verspoor and Lowie (2003) found that the participants who were presented with the central meaning first were significantly more likely to interpret the extension correctly, $p < 0.01$.

After completing the worksheet, the instructor led a discussion in which the correct answer for each targeted extension was given. Participants were asked to memorize the meanings of the targeted extended senses and to try to think about possible meaning relations between the two uses of the word. Two weeks later, the participants took a delayed posttest in which the same 18 extended senses appeared, but in different sentential contexts. Again the cognitive group showed

2 All sentences were naturally occurring uses of the targeted forms taken from the *New York Times*.

a significant advantage over the traditional group, $p < 0.01$. In sum, the experiment indicated that presenting the central meaning of a polysemous L2 word network first facilitates both initial learning of meaning extensions and helps facilitate more long-term memory of the extended uses.

Turning to another important issue involved in learning polysemous uses of words, we find that in many instances the network of meanings for one lexical item partially overlaps with some of the multiple meanings of a second lexical item. Sorting out when the two words can be used interchangeably and when they are distinct is often quite challenging. While the central meanings may be relatively easy to distinguish, the extended uses are often subtle and difficult to define with precision. After noticing that her L1 Hungarian EFL students often confused uses of the English *hold* and *keep*, Csábi (2004) carried out a CL-based analysis of the polysemy networks of the two verbs. She determined that the central senses of *hold* and *keep* are distinct in precise ways which offer motivated reasons for why their networks have developed both distinct senses and overlapping senses. Based on these analyses, she created pedagogical materials and tested the efficacy of using a CL-based analysis to teaching the multiple meanings of these verbs.

This type of polysemy and partial overlap is ubiquitous in all languages and presents major difficulties for L2 learners of all languages. Therefore, I present Csábi's analysis in some detail so that it may serve as a model for researchers and teachers trying to address similar L2 vocabulary learning challenges. In general terms, the central scene for *hold* involves a human agent whose hands are manipulating or supporting a concrete object. In contrast, the central sense of *keep* involves possession more generally, without any focus on hands. The specificity of the scene evoked by *hold* suggests that many of its extensions are likely to be tied to the human experience of grasping and manipulating objects. A central understanding of this scene involves an interaction of forces between an agent and another entity, such that the second entity would move or drop to the ground if not held. This has been extended to the notion of an inanimate object providing the stability or capacity to stop movement, as in, *Will this branch hold him? Will this suitcase hold all your clothes?* Support and manipulation are clearly related to the notion of control, and *hold* has also developed a control sense, as in, *The officers held the young man at the police station for several hours. Hold also has developed a durative element which indicates continuous, but bounded action as in, Hold still. Will the weather hold?* (As the central scene involves hands and the objects hands can manipulate, the initial scene has a bounded or limited aspect. Our experience with the world informs us that the time we can grasp something in our hands is of limited duration because eventually our muscles tire.) From the central sense of physical control of objects, the meaning has extended metaphorically to "possession" as in, *The senator held office for 35 years.*

In contrast, the central sense of *keep* involves possession more generally, without any focus on hands. This is an unbounded scene, so *keep* tends to have a stronger durative element, as in *I was thinking about giving away my books, but I decided to keep*

them. This durative quality is brought into focus in the extended meaning of a continuous action, as in *She kept a diary for several years*. An important conceptual metaphor in English is POSSESSING IS CONTROLLING. Thus, it is not surprising that *keep* has also developed a control sense, which is largely interchangeable with *hold* in a limited set of uses, as in, *The police kept the young man in jail for several hours*.

Based on a similar analysis, Csábi (2004) undertook an experiment teaching the meanings of *hold* and *keep* to 52 eighth graders who were L1 Hungarian speakers. The learners took a fill-in-the-blank pretest with 22 items for which the correct answer was either *keep* or *hold*. The learners received a 45-minute intervention immediately followed by the same test. This served as the posttest. The next day they took the same test as a delayed posttest.

The participants were divided into two groups. The traditional group was introduced to several English sentences with different meanings of *hold* and *keep* and asked to translate the sentences into Hungarian. They were given feedback on the accuracy of their translations. The cognitive group received a teacher-fronted explanation of the polysemy networks and the motivations for the targeted extensions. The results on the immediate posttest showed that both groups did better on the posttest than on the pretest, but the cognitive group outscored the traditional group, $p < 0.01$. On the delayed posttest, both groups scored lower than on the immediate posttest. The cognitive group's delayed posttest scores did not decrease as much as the control group, but the difference between the two groups did not reach significance.

In a replication study (reported in Beréndi, Csábi & Kövesces, 2008), two groups of L1 Hungarian middle school students were instructed on the polysemous uses of *hold* and *keep*. The pretest, posttest and delayed posttest again used a fill-in-the-blank format. As in the earlier study, the Traditional group received explicit, teacher-fronted instruction which focused on translating English sentences using multiple meanings of *hold* and *keep* into Hungarian. The cognitive group was instructed on the same target uses of *hold* and *keep*. The presentation varied from the earlier experiment in that additional focus was placed on the key words "hand" being associated with *hold* and "control" being associated with *keep*. The same example sentences as seen by the traditional group were written on the board, but were arranged to help emphasize the polysemy networks. In addition, schematic drawings to illustrate the literal meaning of the extended sense were used. For instance, with the idiom "keep something under one's hat" was accompanied by a drawing of a hat atop a man's head. The cognitive group outperformed the traditional translation group on both the immediate and the delayed posttest. Beréndi, Csábi and Kövesces concluded that a CL-based explanation which emphasized a key element of the central meaning plus easily interpretable visuals enhanced the learners' awareness of the systematic, motivated processes of meaning extension which give rise to polysemy networks.

As we saw in Chapter 2 with Tyler and Evans' analysis of English tense markers, polysemy can also occur with morphological markers. Liamkina (2006, 2008)

employed a polysemy analysis to develop teaching materials on the multiple uses of the dative case in German, an aspect of German that advanced L2 learners often fail to master, even though they are introduced to rules of case marking in first semester classes. Her investigation of naturally occurring L1 data established that native speakers of German use dative case to mark shifts in the speaker's construal of participant roles. Moreover, Liamkina found that German has many instances in which dative case is not required at the sentence-level, but is necessary to express appropriate speaker construal at the discourse level. Sentence-level optionality appears to lead many L2 learners to leave out dative case marking in discourse contexts where a native speaker (NS) would find it necessary.

The central sense of the German dative represents the notion of mutual involvement between two entities and specifically marks the participant who is in a non-agentive role. (In terms of Langacker's energy chain model, the agent initiates the action and the participant marked with dative case experiences the effects of the action.) In German, the roles most closely associated with this central meaning of affected participant are Beneficiary (which clearly requires involvement between a benefactor acting as an agent and a beneficiary) and Recipient (which clearly requires involvement between an agent/initiator and a receiver). Two more peripheral roles marked by dative are Experiencer and Possessor. The scene involving the dative-marked Experiencer role depicts interaction between a stimulus, which is conceptualized as initiating the action, and the experiencer, who is conceptualized as reacting to the stimulus. The scene involving the dative-marked Possessor depicts the resultant state between a possessor, who was initially in possession of something, and an agent, who has taken control of the possession. (For instance in narrating a scenario in which a robber takes a wallet **from** a victim, the victim could be marked with the dative case. Notice this is a case where English would use a preposition.)

As a first step in the investigation, Liamkina compared seven NS's use of dative in narratives with seven advanced L2 German learners. In general, the NSs used dative case marking at much higher percentage than the advanced learners, ($p < 0.05$) and to express a greater range of participant roles. Having established that the advanced learners were underusing dative in their writing, Liamkina followed two intact classes of advanced learners and their use of dative for one semester. The participants were enrolled in university-level advanced writing and reading courses. A good deal of the instruction was implicit, but at certain points the instructors provided explicit instruction on problems that emerged in the learners' writing. The two classes followed the same curriculum; both groups read the same German texts and were given the same writing assignments. Both groups were given feedback when they failed to use dative case appropriately. However, one group was presented with a CL, meaning-based, polysemy analysis of dative. The second (traditional) group was given standard rules for use of dative. Essays from the beginning and end of the semester were analyzed for use of the dative marker. The CL group showed significant improvement in their use of dative case

marking, $p < 0.05$, while the traditional group made virtually no changes in their use of dative.

This small-scale, longitudinal study indicates that targeted, explicit CL-based intervention was useful in raising these advanced learners' understanding of the meaningful choices dative case markers provide the writer in expressing construals of participant roles. The use of dative to indicate discourse-level construals of participant roles appears to be an aspect of the target language which lacked saliency for the learners, even though they were exposed to multiple instances of the linguistic element, in naturally occurring contexts, over an extended period of time (at least the equivalent of four semesters of college instruction). Implicit instruction did not appear sufficient to make the learners aware of the appropriate uses.

Moreover, even explicit focus on form intervention was not necessarily sufficient. Liakina found that the type of intervention mattered. Pointing out contextualized learner errors and providing a formal rule for use had very little effect. However, similar intervention in which the use of the case marker was presented in terms of a meaning-based choice did help learners begin to use the dative in line with the range of uses found in native speaker discourse. Findings such as these have important ramifications for task-based and focus-on-form approaches to L2 learning. The theoretical model of language the instructor assumes and the type of explicit instruction the instructor provides makes a difference. Rule-based instruction which is divorced from how a form is used as a meaningful choice is often not successful, even when the intervention is in response to learners' faulty production as they engage in meaningful, naturalistic language tasks.

5. Embodiment, Visual Cues and Movement

Overview

We noted in Chapter 2 that cognitive linguists, such as Langacker, have emphasized the importance of sensory imagery in our mental representations of entities and events; this is an important aspect of embodiment. Several researchers have explored the use of non-verbal cues, especially visual cues and movement, in L2 learning and found that visual support and even physical enactment (or witnessed enactment) of meanings/metaphors can be facilitative in L2 instruction. Recall that Kövescs et al. (2008) found that learners who saw simple diagrams which illustrated the literal meanings of idioms outperformed those who did not.

The Studies

Condon and Kelly (2002) investigated the efficacy of using Rudzka-Ostyn's CL-based analysis of the polysemy of phrasal verbs, which presented their meanings in terms of spatial diagrams, versus a traditional analysis. Over a period of 8 weeks, two groups were instructed on 28 phrasal verbs involving *up*, *down*, *in*, *out*. Each

mini-lesson introduced two phrasal verbs. Half of the phrasal verb constructions were explicitly taught, the other half were presented to the participants implicitly through contextualized use in required readings. For the cognitive group, the instruction involved the introduction of metaphors. For example, Rudzka-Ostyn's analysis of phrasal verbs using *in* and *out* explained phrases such as, *He pointed out the way*, as stemming from the metaphors IGNORANCE IS A CONTAINER (STATES ARE CONTAINERS) and OUT IS A CHANGE FROM NOT KNOWING TO KNOWING. Discussion was accompanied by simple diagrams indicating movement from inside a container to outside. For the traditional group, the phrasal verbs were presented in terms of general categories using propositional definitions. Participants took a fill-in-the-blank pretest, immediate posttest, and a delayed posttest (five weeks). For the explicitly taught items which were accompanied by visuals, the cognitive group outperformed the traditional group on both the immediate posttest ($p < 0.01$) and the delayed posttest ($p < 0.005$). There was no effect for items which were presented implicitly and without visual cues. Condon and Kelly (2002) concluded that visuals provided learners an important aid in understanding the contribution of the spatially based verb particles and their extended meanings. The results also suggest that learners particularly benefit from explicit instruction with this area of language. Condon (2008) offers a review of multiple motivations which influence the learning of phrasal verbs.

Boers, Lindstromberg, Littlemore, Stengers and Eyckmans (2008) report a series of experiments that investigated the effectiveness of combining visual representations with verbal explanation in learning English idioms and everyday metaphors. In general, they found that L2 learners were better able to remember metaphoric uses and idioms when presented with a visual representation of the literal sense of the language than if they were given a traditional translation of the word.

In one experiment, participants were asked to learn five metaphoric uses of common English words, such as the use of "rooted" in the following sentence: *Many problems that new students face are **rooted** in cultural differences*. Using hyperlinks, the cognitive group clicked on pictures that supported the literal meaning of the metaphor. So, for the metaphoric use of "rooted," they saw an image of a tree which focused on its roots. The traditional group was presented the same five sentences plus a translation of the literal sense of the target word. Each group was asked to study the meanings for two minutes. The participants then completed a multiple choice exercise which was followed by a teacher-led discussion of the appropriate choices. The posttest consisted of translating five Dutch sentences into English; idiomatic English would use the targeted English metaphors. The group receiving the visual information outperformed the group receiving only the verbal information, ($p < 0.01$).

In a second experiment, the participants completed a set of online exercises which targeted a total of 100 idioms. The experimental group received a verbal explanation about the historical/cultural/etymological origins of the idiom as well as a picture illustrating the literal meaning of the idiom. For example, the idiom

“*carrot and stick method*” was followed by a picture of a donkey being led by a carrot and followed by a man with a stick. The control group received the same verbal explanations but did not see the visuals. On a fill-in-the-gap exercise which served as a posttest, participants who saw the visuals outperformed those who did not. These experiments offer fairly robust evidence that carefully chosen visuals can usefully support learning figurative language.

These experiments also examined the interaction of several additional variables with the use of visuals. Participants were given a style processing questionnaire to determine whether they were more visual or verbal learners. Correlational results (Spearman rank tests) showed that all learners benefited from visual support but that low imagers benefited the most. Boers et al. (2008) speculated that high imagers might automatically generate their own images and so be less affected by the additional, teacher-generated image. In another experiment, these researchers manipulated when the visuals were presented. They found that if the visuals were presented at the same time as the verbal information, some participants failed to pay attention to the verbal information; in effect the simultaneous presentation of the image and the verbal information distracted the participants from useful verbal information. If the visuals were presented after the verbal explanation, they had a stronger beneficial effect. A final manipulation was aimed at measuring the effect of asking the participants to be more cognitively engaged with the task. They were asked to hypothesize about the domain of experience each idiom came from – sports, food, or sailing. They found that the presenting visual clues plus stimulating cognitive involvement was the most effective learning condition. Thus, this series of exercises provides not only evidence of the salutary effect of visuals on learning figurative language, but also important information about effective ways to deliver visual information.

The link between language and movement is a second obvious aspect of embodiment. Lindstromberg and Boers (2005) carried out a series of effects of instruction studies targeting English manner of motion verbs such as *trudge*, *saunter*, or *shrug*. In each study, the participants were divided into two groups. In the first study, the cognitive group (15 participants) was given definitions and then asked to enact the actions denoted by these verbs. The traditional group (14 participants) were instructed on the same verbs through verbal explanations. Lindstromberg and Boers found that enacting the meaning of the verbs resulted in significantly better retention, $p < 0.05$. In a follow-up study, they found that simply exposing participants to someone else enacting the meaning of target motion verbs also resulted in better retention of vocabulary. Finally, Lindstromberg and Boers attempted to investigate the relationship between learners’ understanding of specificity and depth of manner of motion verbs (for instance, understanding the differences of amount of force indicated by *hurl* versus *throw*) metaphorical extensions of these verbs, and the use of physical movement in learning the concrete, central uses of the verbs. The participants were 69 university-level L1 Flemish students learning English. The participants were divided into two groups. Pretests showed that the

two groups did not vary statistically in their knowledge of the verbs. Both groups received vocabulary instruction aimed at 10 pairs of verbs of manner, such as *hurl* versus *throw* and *amble* versus *scurry*. The cognitive group was asked to engage in a number of miming and other enactment exercises. The traditional group received verbal explanations of each of the verbs. In posttests, the cognitive group showed greater accuracy in their understanding of the metaphorical connotations of these verbs than the traditional group, $p < 0.01$.

Randle Holme (2009) has elaborated the theoretical links between movement and language learning in his monograph, *Cognitive linguistics and language teaching*. He argues that physical movement is central to the way we understand the world. For example, infants distinguish between animate beings and inanimate moving objects, such as wind-up toys, in large part by the entity's ability to change its path in order to avoid a barrier to forward motion; in other words, infants begin to distinguish between animate and inanimate entities depending on how they move (Mandler, 2004). Holme further argues that movement can be a potent tool for L2 language learning. "Activities that link movement also link language as a remembered entity. Vocabulary learning [in particular] can be enhanced by . . . physical enactment" (Holme, 2009, p. 44). Holmes expands on this position by arguing that our understanding of many common words may crucially involve movement.

Words such as ball and wheel . . . connote fixed object categories but derive a good deal of our understanding of that category from our understanding of how they function in the world, including how they move and their potential for movement. When learning meanings our movements may help to re-access the motor imagery, thus embedding L2 vocabulary within appropriate imagery.

Holme (2009, p. 45)

He discusses a spontaneous instance of a young L2 learner using motion as a learning tool. The learner was observed moving around the classroom repeating "walking, walking, walking" (Saville-Troike, 1988; cited in Lantolf, 2002). The child's movement appeared to help entrench in memory the form of the word the specific manner of motion it codes. Largely based on his classroom teaching experiences, Holmes argues that enactment of the literal meaning of manner of motion verbs seems to help promote learners' ability to appropriately interpret extended, unfamiliar uses of vocabulary in metaphorical contexts.

Holmes, along with Lindstromberg and Boers, suggests that these findings add new insights into the usefulness of a version of the **Total Physical Response** method. Holmes discusses the potential facilitative effects of using physical enactment of language in all types of speech events. He provides several examples of activities linking language and movement that he has successfully used in his FL classes, such as having students orally narrate other students' actions.

6. The Usage-Based Nature of Language

Overview

As I have noted in many places, there are multiple ways in which the usage-based nature of language is manifested. This section will discuss two main reflexes. First, I will focus on some of the aspects of frequency, especially co-occurrence between particular syntactic constructions and individual verbs, which results in skewed input. I will present studies by two groups of researchers: Nick Ellis and Ferreira-Junior; and Stefan Gries and Stephanie Wulff. These are primarily corpus-based studies that attempt to discover if L2 learners produce similar skewed patterns as found in L1 speakers' discourse. They are not experimental effects of instruction studies, but do lay the groundwork for future experimental research. Second I will examine Moder's longitudinal, effects of instruction study which concerns the efficacy of using authentic materials to focus learners' attention on competing constructions and how speakers choose between the constructions to provide different construals of the information.

The Studies

The various studies we have considered so far establish that humans are highly attuned to the frequency and contexts in which they encounter specific linguistic forms. As discussed in Chapter 2, one of the most interesting findings from L1 work (e.g., Goldberg 2006) is that the input is skewed such that some verbs are very specific in the constructions they occur in with the vast majority of their tokens appearing in just one construction. Coherent with the tenet that syntax is meaningful, the meaning of these most frequent verbs matches the prototypical meaning of the syntactic constructions in which they occur. Thus, the most prototypical uses of the syntactic constructions and the frequency of verb-syntax meaning matching go hand-in-hand. The hypothesized effect is that first thoroughly learning the most prototypical uses of the syntactic construction is facilitative for the eventual induction of the full structure and distribution of construction later. As N. Ellis and Ferreira-Junior argue, the skewed distribution makes these verbs "reliable and distinctive cues to the construction" (2009, p. 193). For example, *put* occurs almost exclusively in the Verb Object Locative construction and thus is an excellent indicator of the construction. In contrast, *turn* occurs in both the Verb Locative and the Verb Object Locative and so is less reliable in distinguishing between the two constructions. (This will be discussed in more depth in Chapter 6 on construction grammar.) A clear implication for L2 learners is that they may also benefit from being presented with carefully selected, skewed input.

Ellis and Ferreira-Junior (2009) expanded on these L1 findings with an eye to L2 issues. Using the European Science Foundation (Perdue, 1993) Corpus and the Birmingham Corpus of English, Ellis and Ferreira-Junior (2009) investigated the

TABLE 3.1 Verb Argument Structure Skewing

	VL		VOL		VOO	
NS	Go	42%	Put	35%	Give	53%
NNS	Go	53%	Put	68%	Give	64%

Source: Ellis and Ferreira-Junior (2009).

type/token distribution of particular verbs in the English verb argument constructions (Verb Locative, Verb Object Locative, Verb Object Object). They also found a skewed match between a single verb and the three target constructions.

Verbs identified as path-breaking in NS discourse for the three target constructions were also more frequent than other verbs in the non-native speaker (NNS) constructions. Ellis and Ferreira-Junior argued that this naturally occurring production data in L2 speakers' discourse indicates that L2 learners are also sensitive to the co-occurrence of prototypical verbs in matching constructions.

They suggest that teaching the semantic matching between the central verb and its construction might facilitate use of the construction with a wider range of appropriate verbs.

Our general conclusion is that the acquisition of these linguistic constructions can be understood in terms of the cognitive science of concept formation. It follows the general associative principles of the induction of categories from the experience of the features of their exemplars. In natural language the type-token frequency distributions of the occupants of each of these [Verb Argument Constructions] . . . their prototypicality and generality of function in these roles, and their reliability of mappings between these, together conspire to optimize learning.

Ellis and Ferreira-Junior (2009, pp. 216–17)

Note that this is in line with Verspoor and Lowie's (2003) finding for learning the meanings of lexical items and their extensions. This empirical investigation provides the groundwork for experimental studies looking at the effect of providing L2 learners with carefully selected skewed input.

Using similar thinking, Gries and Wulff (2005, 2009) engaged in a series of corpus studies to see if there is an interaction between lexical items and constructions such that a particular verb (or small set of verbs) may reliably cue the interpretation of the construction and the construction may cue the appropriate interpretation of the verb within the context of the overall utterance. To illustrate, consider the following sentences:

- (3.4) a. *steer to the left at the next corner.*
b. *turn to the left at the next corner.*

- c. *turn the handle to the left.*
- d. *steer the boat to the left.*

Here the syntactic pattern in (a) and (b) of Verb Locative and the pattern in (c) and (d) of Verb Object Locative gives important information that helps distinguish the two different interpretations of *steer* and *turn*. They call such matching phenomena collexemes. They hypothesize that learning high-frequency collexemes first may lessen the initial memory load for the L2 learner. Moreover, learning the central use may facilitate learning more peripheral uses.

In an attempt to find collexemes for the complement constructions VV-ing X and VtoVerbX, Gries and Wulff (2009) investigated the distribution of verbs and their complement constructions, as in *She tried rocking the baby*, versus, *She tried to rock the baby*. The difference in meaning between the two patterns is subtle and often challenging for L2 learners and teachers. Briefly, the *-ing* construction suggests completion; the *to* construction suggests potential. This can be seen in the above “rocking the baby” sentences when we add a bit more context. *I tried rocking the baby, but she wouldn't go to sleep*. Here the rocking was accomplished, even though the desired effect was not achieved. *I tried to rock the baby, but I couldn't find the rocking chair*. Here the potential for rocking existed but was not realized.

In many instances the two complements also suggest two different temporal sequences between the main verb and the verb in the complement. With *-ing* complements, the action in the main clause takes place after the action articulated in the complement clause: *I remembered filling out the form*. Here filling out the form took place before the remembering; this sequence is coherent with *-ing* complement suggesting completion. With *to* complements the action in the main clause takes place before the action in the complement clause, with the “to” construction pointing to the future vis-à-vis the main clause action: *I remembered to fill out the form*. Here the speaker first remembers the need to perform an action, then carries out the action.

Complicating the verb–complement matching even further is the fact that while some verbs, such as *try*, can occur with both complement structures, other verbs seem to occur with one or the other.

Using the International Corpus of English, Gries and Wulff (2009) carried out a collexeme analysis of over 3,000 examples of these constructions to determine which verbs best distinguish between them. They found that particular verbs have strong biases for one or the other construction. For instance, *need*, *offer*, *allow*, and *promise* tend to co-occur with *to* complements, while *appreciate*, *enjoy*, *finish*, *mind*, *consider* and *avoid* tend to co-occur with *-ing* complements. Verbs such as *being*, *start*, *like* and *prefer* occur about equally with both complement structures.

Next, they undertook an experiment to determine if advanced learners of English had internalized these collexemes. Participants were asked to complete 18 sentences (6 of which were target items) and give a grammaticality rating for an additional 18 sentences. The results showed that participants rated sentences more

highly when the construction was compatible with the main verb's collexemic distinctiveness. Moreover, the findings suggest that teaching the constructions with the most commonly occurring collexemes first may facilitate learning the subtle meanings of the complements and lessen the memory load for the L2 learner, who is generally told to simply memorize lists of verbs and their complement types.

I turn now to Moder's longitudinal, discourse-based study of the multiple uses of *like*. CL's commitment to the usage-based nature of language in combination with its commitment to memory patterning and category formation predicts that many lexical items which have traditionally been analyzed solely in terms of their citation form semantics may participate in larger constructions with partially independent meanings. When a key lexical item regularly occurs in competing contexts, CL predicts that the patterns represent different constructions which have different discourse functions or meanings. In many traditional accounts these meaning differences have been ignored and treated as paraphrases. The commitment to syntactic/form differences signaling meaning differences, leads to the no synonymy principle. Thus, discourse analysis of naturally occurring discourse is an important tool for illuminating previously undiscovered constructions and their discourse functions. As we saw in Chapter 2, Moder (2004) carried out a corpus analysis on the naturally occurring uses of adverbial *like*. Recall, she found two predominant patterns, each of which functioned differently in discourse:

(3.5) (*And or But*) *like* NP, NP

But like Gore, Bush has prepared for months . . .

This *like* construction functions to compare two entities in the discourse. This contrasts with the second *like* construction:

(3.6) NP *like* NP

Sons of political families like Bush . . .

This second *like* construction instantiates members of a category or allows category-based generalizations.

Drawing on her discourse-based investigations of English *like* constructions, Moder (2010) developed a number of tasks which focused advanced learners' attention on native uses of the constructions. The learners were enrolled in an advanced L2 writing course; at the beginning of the semester, they were given a pretest which examined their understanding and use of the *like* constructions. Throughout the semester, they were asked to listen to extended excerpts from naturally occurring discourse which contained *like* constructions. Then they re-listened as they followed a written transcript and highlighted instances of *like* constructions. Next, in small groups, the learners identified the speaker's probable meaning motivations for choosing the construction. Learners were asked to engage in analysis of authentic discourse several times throughout the semester. Posttests

administered at the end of the semester showed significant gains in performance. Even more importantly, analyses of the learners' essays over the semester showed significantly more accurate uses of *like* constructions in learners' writing.

Moder concluded that CL approaches to grammar can provide a useful framework for analyzing aspects of grammar not well characterized by more formalist notions of rules. Moreover, CL-based discourse analysis and corpus-based searches of naturally occurring expressions can provide appropriate materials for focus on form instruction. Discourse context, or the way NSs use the construction to create meaning, is essential to providing an opportunity for students to adequately interpret a construction and its use. She notes that, of course, frequency of input is crucial to L2 learning, but if the end goal is to achieve L2 speakers whose language approaches that of the NS, the input has to reflect how NSs use the language. I would add that this is particularly true for instructed L2 learners whose exposure is often limited to unnatural, textbook language and faulty explanations of various components of the language. This suggests that carefully chosen authentic discourse should be a foundational component of L2 materials.

Moder's analysis of the successful discourse-based form-focused instruction leads us back to a few of the key points that Nick Ellis has made over the years in regards to associative learning and the central place of input to language learning. Ellis (e.g., 2002a, b, 2008b) has argued that frequency effects go a long way towards explaining language learning. However, frequency alone is not the whole picture. Ellis reminds us that associative learning involves a complex set of interacting principles which involve factors such as cue competition, salience and interference, "all shaped by L1 entrenchment" (p. 373). Ellis argues that the theory of associative learning provides an account for well-documented gaps in L2 learner's acquisition and can point to areas where explicit language teaching is needed. He further argues that CL provides a theoretical model of language that is coherent with associative learning.

7. The Place of L1 in L2 Learning: Cross-Linguistic Influence

Overview

Ellis and Cadierno (2009) note that L2 learning adds another layer of complexity to the constructionist view of first language learning. Recognizing that the L2 learner starts the L2 learning process with a fully constructed language, replete with language-specific labels for concepts, categories, construals and syntactic schema, they discuss L2 learning in terms of reconstructing a language. Constructing an L2 is more complex than the construction of the L1 because L2 categories and constructions are "in direct competition with those of the learners' L1, and these [often] represent alternative ways of construing the same reality" (Ellis & Cadierno, 2009, pp. 111–12). Ellis (2008a) argues that transfer from L1 pervades all aspects of L2 learning. New memories interfere with the old and old with the new.

Established L1 form–meaning pairings and entrenched construals conspire in biasing the learner’s attention and therefore processing the L2 input.

Prioritizing the perspective that each language inherently provides distinct ways of construing the same reality breathes fresh life into cross-linguistic analysis. Being a speaker of a particular language and being a member of a particular discourse community shapes our default settings for construals of all sorts. As Ellis and Cadierno note, the idea that learning an L2 means learning alternative ways of construing the same reality means “there is much scope for cross-linguistic influence” (2009, p. 122).

A CL approach to cross-linguistic differences allows for fine-grained analyses of language-specific categories based on independently established cognitive phenomena. Detailed, precise representations of the meanings of lexical items, polysemy networks and underlying conceptual metaphors, etc., allow a fuller, more precise picture of the linguistic categories in each language. These fine-grained analyses in turn allow subtle, insightful comparisons across languages.

Thus, CL offers a strong basis for making sound theoretical predictions of how L2 development will be influenced by knowledge of the L1. These predictions are empirically testable and can lead to a long-term, well-guided research program; furthermore, these predictions have great value and power when it comes to addressing the nature and direction of crosslinguistic influences.

Ortega (2011, personal communication)

The Studies

L2 instructional studies which focus on cross-linguistic influences have not been carried out yet, but much is already known about how CL phenomena shape the course of L2 acquisition. One of the most productive areas of the CL-inspired cross-linguistic analysis springs from Talmy’s (e.g., 1983, 1988, 2000a, b) work on the fundamental interaction between spatial perception and language, in particular cross-linguistic differences in how languages package the elements in a motion event, i.e., the distinction between verb-framed versus satellite-framed languages. As discussed in Chapter 2, Berman and Slobin (1994) explored this foundational difference in construal and information packaging, as well as several other differences in how language directs attention, in their monumental cross-linguistic study of narratives involving motion events, commonly known as the frog stories. This work firmly established that learning a language involves learning how to construe the world; the implication for L2 learning is that speaking like a native of the L2 will involve learning alternative ways of “thinking for speaking” (Slobin, 1996a, b: see Chapter 2 for further discussion). In other words, L2 learning requires “re-thinking” for speaking (Robinson & Ellis, 2008b, p. 499).

Teresa Cadierno and her colleagues (e.g., Cadierno, 2004, 2008a, b; Cadierno & Lund, 2004; Cadierno & Ruiz, 2006) have pursued several investigations of the cross-linguistic effects of the verb-frame versus satellite-frame typologies. Cadierno and Lund (2004) generated several specific hypotheses about early clausal patterns in the L2 of Danish (a satellite-framed language with many fine-grained manner of motion verbs and expressing path in separate phrases) speakers learning Spanish (a verb-framed language with general verbs of motion incorporating path, while expressing manner with separate adverbs or clauses) and Spanish speakers learning Danish. The goal of the analysis was to lay a foundation for carrying out empirical cross-linguistic studies. The explicitly hypothesized careful study would reveal asymmetrical L2 learning problems. For instance, they hypothesized that until advanced stages of learning Danish, Spanish speakers would not produce the more fine-grained manner of motion verbs common in Danish but lacking in Spanish, and instead would overuse more general motion verbs. For example, in comparison to native speakers of Danish (or Danish L2 learners at similar general levels of proficiency whose native language, such as English, incorporates manner into motion verbs), the Spanish speakers would overuse *ga*, the Danish equivalent of *walk*, and underuse *spadsere*, the Danish equivalent of *stroll*. When these L2 Danish learners did attempt to use the more fine-grained manner of motion verbs, they were hypothesized to confuse the many verbs of motion. In contrast, Danish speakers learning Spanish would overuse manner of motion descriptors in their L2 Spanish production. Danish speakers were also hypothesized to have more difficulty discriminating manner of motion in Spanish because they are used to a range of nuanced verbs that provide that information. Their challenge was hypothesized to be to learn how to articulate the manner information in a separate clause. Although Cadierno and Lund (2004) did not carry out empirical investigations testing these hypotheses, they reported frequently observing Spanish speakers living in Denmark more than 10 years who had still not mastered the many Danish manner of motion verbs. Using elicited narrations of the frog stories, Cadierno (2004) found that, as predicted, intermediate-level Spanish learners whose L1 was Danish provided more elaborate path descriptions and produced inaccurate and redundant description of motion events.

Cadierno and Robinson (2009) examined the interaction of verb-framed versus satellite-framed language typology in interaction with task in the development of L2 learners' descriptions of motion events. The participants were speakers of Dutch (a satellite-framed language) and Japanese (a verb-framed language) learning English (a satellite-framed language). Cadierno and Robinson hypothesized that if the L2 learner's first language matches the L2 in terms of being satellite-framed versus verb-framed, a facilitative effect should be in evidence. Thus, Dutch speakers were hypothesized to produce a high level of manner of motion verbs and separate path phrases in English. In contrast, if there is a mismatch between the L1 and L2, an inhibitive effect was expected. So, Japanese speakers were hypothesized to encounter difficulties using manner of motion verbs and separate

path phrases in their English production. These hypotheses were generally confirmed for participants who were determined to be less proficient in the L2. Some of the inhibitive effects gradually lessened with increased L2 proficiency. Interestingly, they found L1 Danish speakers produced significantly more path structures in their L2 English production than L1 Japanese speakers. This apparent facilitative effect was found for all levels of proficiency, suggesting a deeply entrenched effect of L1 construal. They also found that in comparison to the L1 Japanese speakers, the L1 Danish speakers produced more manner of motion verbs (although this result only approached significance). Perhaps not surprisingly, for both groups, higher levels of proficiency predicted a higher production of appropriate English manner of motion verbs.

The important point is that CL provided the conceptual tools to pinpoint this typological difference, one which was not described prior to Talmy's work on the relationship between spatial perception and language and Slobin's theorizing about conventionalization of construals and online production. The theoretical framework then allowed for precise predictions about L2 learning, which were in turn open to empirical investigation. For the L2 learner, failure to make this shift to the L2 construal and packaging of events and scenes would not necessarily cause communication breakdowns, and so might tend not to cause meaning negotiation between the L2 learner and the NS. Thus, this might be an aspect of L2 language production that remained non-salient for the L2 learner. Moreover, continuing to use the L1 patterns would give the NNS's discourse a non-native-like "accent" which would be dispreferred, particularly at the more advanced levels of proficiency.

Cadierno (2008) reviews several studies which focus on learning motion verb constructions. She also offers suggestions for teaching these typological differences such as using focus on form instruction for comprehension, as well as VanPatten's (1996) "processing instruction" which includes some explicit explanation of the target form-meaning pairings and awareness raising concerning the inaccurate processing strategies taken from L1. Of course, the instructor's ability to focus on these differences and construct effective materials is crucially tied to their awareness of this typological difference and the underlying analysis that languages regularly conventionalized a particular construal of the motion event. Feedback which focuses solely on the form the target language uses and relies on telling the learner that "this is just the way we say it" is not likely to be very effective.

Beyond the study of motion events, a number of CL-based descriptive studies have been carried out which provide acquisition and instruction predictions. This detailed descriptive work lays the groundwork for future empirical investigations that can illuminate and guide L2 research and instruction.

Drawing on Slobin's (1994) articulation of communicative choices in narration, Chen and Oller (2008) considered the degree of agency involved in an event (signaled by use of passives) and perspective on the event sequence. The participants were 12 Chinese speakers, who were advanced English learners studying in the US, and 12 NSs of English. Both groups were asked to produce narratives for

five episodes from the frog stories. A comparison of the narratives showed that the two groups differed in their expression of agency and event structure. The L1 Chinese speakers used fewer than half as many passives as the L1 English speakers (8 versus 20 passives). The Chinese speakers used more active transitive sentences (25 versus 19) and more active intransitives, suggesting a different construal of the events.

Chen and Oller's (2008) findings suggest that the Chinese participants' ways of construing the story events were different from those of native speakers and this affected the learners' grammatical production. The issue was not that the Chinese learners did not know how to form the passive, but that they did not use the construction when NSs would. Chen and Oller (2008) conclude that "subtle implications associated with the use of passive were still out of reach for the students" (p. 407). This is likely to give their discourse a non-native-like flavor, even though the learners are proficient in producing grammatically correct language. They add that exposure to the target language in a naturalistic setting, in addition to previous years of instruction, may not be enough for successful acquisition of native-like representations of agency: "even skilled adult L2 learners may have difficulty in using subtly distinct grammatical constructions" (p. 407). They conclude that if the ultimate goal of language instruction is for learners to approach near-native levels of language use, the issues of construal should be a target of instructional focus.

Marras and Cadierno (2008) developed a CL-based comparative analysis of the sentence-level constructions represented by sentences containing Spanish *gustar* (as in *Me gusta el chocolate*) versus English *like* (as in *I like chocolate*). The analysis brought to bear both the notions of prototype and figure/ground configurations. They drew on Langacker's (1987) analysis of the prototypical subject acting as the sentence-level focus element (figure) and the predicate as the ground. As the focus element in the scene, the subject is the element with the highest topicality. They also exploited Langacker's (1987) energy chain model of syntax, in which the subject is prototypically an intentional, volitional, animate agent who is the energy source and the patient receives the force of the action.

Marras and Cadierno noted that neither the *like* nor *gustar* constructions are an exact match with the prototypical transitive construction because neither has a prototypical subject, i.e., an intentional, volitional, animate agent who initiates some kind of energy which affects a patient. In the *like* construction, the subject is an experiencer (non-volitional, non-intentional) who is affected by the stimulus (in direct object position). Although the "liking" is stimulated by the chocolate, the state of liking does originate with the subject/experiencer and so the prototypical energy flow can be understood as still being in place. The subject/experiencer is the entity that establishes mental contact with the entity being liked. The animate experiencer is in focus position and so coded as the participant of highest level of activity and topicality.

In contrast, in the Spanish *gustar* construction, the subject is a stimulus/object and the direct object is the experiencer (coded by the *me* pronoun in object case).

Thus, the subject does not play the prototypical volitional agent role, and also the construction does not match the prototypical transmission of energy from the subject to the direct object. The animate experiencer is not coded as the initiator of the action or energy chain, but as the participant affected. In short, the Spanish *gustar* construction deviates substantially from the prototypical transitive construction.

Based on this analysis, Marras and Cadierno predicted that English speakers learning Spanish will experience difficulty with the *gustar* construction. On the other hand, Spanish speakers learning English were predicted to learn the *like* construction with few difficulties as it better matches the prototypical animate subject and the prototypical energy chain. As Spanish teachers, both Marras and Cadierno observed that English speakers learning Spanish struggled with the *gustar* construction.

This is a case where the simple notion of difference between the two languages does not explain the patterns of learning. With the conceptual tools of prototype, figure and ground, and Langacker's energy chain model, the researchers were able to make precise predictions about asymmetrical L2 challenges, a pattern not explained by traditional models of language. The investigation of such asymmetrical patterns promised fertile ground for future research.

Frequently, two languages differ in terms of particular words which partially overlap in terms of their labeling of similar entities, experiences, events, or spatial arrangements. For example, Spanish has one preposition (a label for a spatial arrangement between a focus element and a ground element) *en*, which covers the spatial relations which English represents by the two spatial labels (categories) *in* and *on*. Such differences in categorization often cause problems for the L2 learner, who may have trouble discerning the precise differences between the differing categories. Standard dictionaries are misleading as they tend to give simplistic definitions, which often fail to present the extended meanings of the word in a complete or systematic way. Vandeloise (2003) provided a CL analysis of *en* in which he argued that the primary meaning of the preposition was relatively abstract and has to do with the ground element providing support and control of motion for the focus element. In English, the functional notion of support of the focus element is primarily associated with the preposition *on*, while the functional notion of control of the focus element's motion is primarily associated with the preposition *in*. (As discussed in Chapter 2, control of motion is one fundamental consequence of containment. If you have coffee in a cup and you move the cup, the coffee moves with it. If you pour water into a glass, it is held by the glass and does not go all over the floor.) In the specific case of Spanish and English, one would predict an asymmetrical distinction in difficulty of sorting out the categories of *en* versus *in/on*. One would expect that by relatively early on in the L2 learning process, certainly by the intermediate stage of proficiency, English speakers would have successfully learned that most instances in which English distinguishes between *in* and *on* are collapsed into one category, *en*, in Spanish. In contrast, Spanish speakers would be predicted to have more difficulty sorting out the two

categories, particularly as both English prepositions have complex polysemy networks, many of which derive from the functional consequences of support versus containment. Although I am not aware of any study which specifically investigated this difference, an examination of the International Learner's Corpus of English found that Spanish learners indeed made many errors with *in* and *on*. Cristina Sanz (personal communication) argues that mastering the distinction between *in* and *on* is highly challenging for Spanish speakers learning English. Even L1 Spanish speakers who have achieved near native-like control of English and who have been immersed in an English speaking environment for years continue to find the uses of *in* and *on* problematic. Tyler and Evans' (e.g., 2003, 2004) CL-based analyses of the semantics of English prepositions, which draw heavily on the communicative nature of language, radial categories, spatial scenes, experiential correlation and force dynamics, provide detailed polysemy networks for *in* and *on* which allow for fine-grained cross-linguistic analysis and specific, motivated predictions about which aspects of these categories are likely to cause the most difficulties for L2 learners. Having these analyses available should enable future empirical investigations that can illuminate and guide L2 instruction research.

8. Conclusion

This chapter has reviewed several studies that apply CL to issues in L2 learning and teaching. In particular, the presentation focused on how researchers explored five central concepts within a CL approach – construal, conceptual metaphor, category formation (especially prototype and radial categories), embodiment and the usage-based nature of language – and their usefulness in helping learners begin to master some of the most challenging aspects of the target language. Taken together they suggest that a CL approach offers important advances in our understanding of language that would appear to be of real benefit to L2 learners.

A major theme in all the studies is the need to link form and meaning and to present language as motivated. The chapter also addressed the relationship between a CL approach and several issues in SLA. I offered an extensive examination of how CL can deepen and refine cross-linguistic analysis. In addition, several of the studies illustrated the need to base language teaching materials and pedagogy in authentic discourse, with attention to the speaker's meaningful choices among competing language forms – choices that often have to do with how the speaker is construing the situation. Several of the studies also addressed focus on form and the position that the model of language assumed by the researcher or teacher, and therefore the explanation of the problematic form, makes a difference. In line with associative learning principles, the studies reported here shed light on the role of explicit instruction of targeted linguistic items which advanced learners fail to master, even after substantial amounts of exposure to the language.

I have not offered specific critiques of any of the studies. However, it must be recognized that the number of carefully controlled experimental studies is few.

The next three chapters begin to address that gap by presenting a series of effects of instruction studies using a CL approach to the English modal verbs, the semantics of English prepositions, and the double object construction.

9. Further Readings

In the last few years, a number of excellent reviews of the literature have appeared. They include Boers and Lindstromberg (2006); Meunier (2008); Robinson and Ellis (2008); Boers and Lindstromberg (2008) on vocabulary; Ellis and Cadierno (2009) and Verspoor and Boers (2012).

Several recent edited volumes address issues of cognitive linguistics and second language learning: Gries and Stefanowitch (Eds.), 2005, *Corpora in cognitive linguistics*; Ellis and Robinson (Eds.), 2008, *Handbook of cognitive linguistics and second language acquisition*; Tyler, Kim, and Takada (Eds.), 2008, *Language in the context of use: cognitive linguistic approaches to language and language learning*; Boers and Lindstromberg, 2008, *Cognitive linguistic approaches to teaching vocabulary and phraseology*; De Knop and De Rycker (Eds.), 2008, *Cognitive linguistic approaches to pedagogical grammar*; De Knop, Boers, and De Rycker (Eds.), 2010, *Applications of cognitive linguistics: exploring the lexis–grammar continuum in second language pedagogy*.

Two recent special volumes of journals have been dedicated to CL and L2 issues: 2010 *Annual Review of Cognitive Linguistics: Special section: Constructing a Second Language*, which presents six articles by leaders in the field, and 2010 *AILA Review: Applied cognitive linguistics in second language learning and teaching*, which contains eight articles.

Two older but thoughtful specialized volumes on prepositions and phrasal verbs provide pedagogically oriented materials. They are Lindstromberg (1997), *English prepositions explained*, and Rudzka-Ostyn (2003), *Word power: phrasal verbs and compounds: A cognitive approach*.

Finally, two recent monographs written specifically for L2 teachers provide useful introductions to CL. Holme (2009), *Cognitive linguistics and language teaching* has particularly strong discussions of embodied meaning and provides many suggestions for classroom activities which emphasize movement and language learning. Littlemore (2010), *Applying cognitive linguistics to second language learning and teaching* presents a general overview with an emphasis on the importance of using large corpora. Her volume also includes discussions of gestures and intonation from a CL perspective.

4

APPLYING COGNITIVE LINGUISTICS TO ENGLISH MODAL VERBS

Experimental Evidence

1. Introduction

In our everyday interactions, we rarely make simple statements about the physical world around us, like, *The sky is blue*, simply to assert the fact. Much of what we do with language is to position ourselves in relation to our interlocutor, show solidarity or distance, indicate our likes and dislikes, or make some aspect of our reasoning manifest. When young children are first learning language, they do a lot of pointing and naming. They seem to be intent on declaring that particular things exist in the world and showing their listeners that they have learned the conventional label for that thing. However, even at this early stage, children are using language not just to name, but to ask for things, to indicate likes (or dislikes), or to draw attention to things the child thinks the other person might be interested in. They also use language to indicate their reasoning and expectations. For instance, when the young child in the kitchen hears a garage door slam and says, “Daddy!” the child is making a rudimentary logical prediction about who made the garage door slam and who is likely to momentarily be walking through the door. As I pointed out in Chapter 2, Tomasello (2003), among others, argues that by around 10 months, children are developing an understanding that other people share the same kinds of motivations and reactions as they do. By this time, children also understand that they cannot communicate by just looking into their interlocutor’s eyes and hoping the listener understands. They use (non-linguistic) noises, actions (like spitting out food they do not like), gestures and finally words to express themselves. As they mature into more fully participating members of their social-discourse community, they find more and more need to be able to use language to appropriately situate themselves, express their ability to undertake actions, express their understanding of their social obligations and express their reasoning (or logical predictions).

English, like all languages, has a system to represent speaker attitude relating to permission, ability and obligation within social situations when giving (or asking for) advice, suggestions, permission, orders, etc. In English these attitudinal colorings are expressed by the modal verbs (as well as adverbial phrases such as *is likely*, *is probable*, etc.). The modal verbs include *can*, *could*, *will*, *would*, *ought*, *shall*, *should*, *may*, *might* and periphrastic constructions such as *need to* and *have to*. These same verbs are used to indicate the speaker's commitment to surety in predictions and reasoning, when they are lacking full information for making a statement.

English modals are some of the most frequent lexical–grammatical elements in naturally occurring discourse. In spite of their frequency in the input, modal verbs cause even very advanced L2 learners difficulties. Surprisingly, even though modals have been part of the English language for hundreds of years and there have been many theoretical analyses, until recently we have not had very clear definitions for just what they mean. Think about the definitions you would give for *should* and *must* in the following sentences:

- (4.1) a. I **should** do my homework by 5 p.m.
 b. You **should** be doing well in this course.
 c. I **must** do my homework by 5 p.m.
 d. You **must** be doing well in this course.

Native speakers of English have strong feelings that *should* and *must* do have different meanings, but articulating the precise differences is a challenge. Even dictionaries do not help much. Here is some of what *Webster's Third International Dictionary* (2000) says:

must: **a.** an auxiliary verb used to express: compulsion, obligation, requirement, or necessity **b.** used to express probability: *Then you must be my cousin* (p. 939).

should: **a.** an auxiliary verb used to express: obligation, duty, necessity, etc. **b.** used to express expectation or probability: *He should be here soon.*

(p. 1319)

What jumps out from these definitions is that many of the same words are used to define the two modals: obligation, necessity, probability, even though native speakers interpret them differently.

Closely related to the difficulty in providing precise definitions is a second source of complexity – almost all modal verbs have two different meanings, one which has to do with the social world (often referred to as the root sense) and one which has to do with the world of reasoning and logical prediction (often referred to as the epistemic sense). Although the occurrence of dual meanings is a regular pattern, we have not had very good explanations for the meaning relationships

between a particular modal's use in the social world and its use in the world of reasoning.

Largely because of the seemingly nebulous nature of the modal verbs, ELT texts tend to present them from a functional perspective, focusing on various speech acts in which they commonly occur. Unfortunately, there is a great deal of overlap among which modal verbs can be used in the same speech act. Additionally, many of the same modal verbs occur in several speech acts. This makes it difficult to sort out just when and why to use a particular modal.

In contrast to these traditional approaches, cognitive linguistic (CL) analyses (i.e., Talmy, 1988; Sweetser, 1990) offer a precise representation of the semantics of each modal. In turn, this helps Sweetser to also offer a systematic, principled representation of the relationship between the social and logical prediction meanings. This represents an important theoretical breakthrough in our understanding of the modals. The question I begin to address in this chapter is whether this advance in the theory can be translated into pedagogical materials that help L2 learners.

This chapter provides initial evidence that suggests we can answer that question in the affirmative. The chapter is organized in the following way. It begins with a comparative overview of traditional approaches to the modals, which is the basis for most ELT materials, versus a CL-based approach. Next the chapter models an applied CL analysis which could form the basis of EFL teaching materials. The presentation of a CL analysis is followed by three studies which investigate the effectiveness of using a CL approach to teaching the modals. The first two are small-scale quasi-experimental investigations. The results of these studies provide support for the effectiveness of a CL-based approach to teaching the modals. A third is an effects of instruction experiment with both a cognitive treatment group and a traditional treatment group. The results of this experiment indicated that the cognitive treatment group demonstrated significant improvement, while participants in the non-cognitive group showed no gains. The experiments thus provide empirical support for the position that CL provides both a compelling account of semantics of the modals and the basis for more effective language instruction.

2. Analyzing the English Modal Verbs

Overview

Langacker (1987, 1991) argued that a main factor influencing the shape of language is the speaker's goal/need to make mental contact with the listener. Since humans cannot communicate using mental telepathy, we developed a complex, often subtle, set of linguistic devices to guide our listeners to roughly the same conceptualization that the speaker has. The modal verbs are a particularly important part of this system of making mental contact.

The semantics of modal verbs involve the strength of the speaker's attitudes or beliefs and aspects of status between the participants in a speech event. I will refer to this as the social function; it is traditionally termed the root use. Consider the following statements of advice:

- (4.2) a. You could go to bed earlier.
 b. You must go to bed earlier.
 c. You should go to bed earlier.

Advice using *could* is interpreted as the speaker expressing weaker advice than when using *must*. Native speakers of English would likely interpret sentence 4.2a as a friendly suggestion rather than directive advice. It indicates the speaker is expressing relative social equality with the addressee. It also indicates that the speaker does not feel very strongly about the importance of the addressee going to bed earlier. In contrast, the use of *must* in sentence 4.2b carries a strong sense of directive force and could even be considered a command in certain contexts (e.g., *You must finish writing this contract before 5 o'clock or the firm will have to let you go*). The appropriateness of using the stronger form is generally tied to the speaker's status vis-à-vis the addressee, for instance in the case of a doctor speaking to a patient. Alternatively it can be interpreted as an expression of the intensity of the speaker's feelings. When *should* is used to give advice, as in 4.2c, it introduces a moralistic dimension not found with *could* or *must*. As we noted above, while native speakers have intuitions about subtle differences in meaning among the modals, precise definitions have been lacking.

As I noted above, an additional complexity is that almost all English modals exhibit two meanings. One involves the external, physical-social world of ability, obligation, or permission (the social use or *root* meaning). A second meaning involves the speaker's internal mental reasoning and logical conclusion (the logical prediction use or *epistemic* meaning). Social use meaning is illustrated in:

- (4.3) The doctor said I should get more sleep.

Here the speaker is expressing the strong social obligation (in the form of advice) imposed by the doctor. The logical prediction meaning is illustrated in:

- (4.4) Doorbell rings. Speaker: *That should be Catherine now.*

Here the speaker is indicating the strong belief in the conclusion that the unseen person at the door is Catherine.

The overview of modals presented in this chapter represents a rudimentary outline of the system. There are a few additional modals and a number of quirks having to do with shifting meanings when modals are negated or used in questions which are not addressed. A review of all these properties represents a book length discussion.

The Traditional Accounts of English Modal Verbs

All theories of modal verbs must account for the fact that virtually every modal has two basic senses. Within traditional or formal linguistic theory, the social and logical prediction meanings of modals have often been represented as homophones, i.e., two different words that just happen to have the same form (Frank, 1972; Lyons, 1977; Palmer, 1986). More recently, several attempts have been made to apply some version of truth-conditional semantics (e.g., Papafragou, 2000) to account for the multiple senses associated with each modal. None of these approaches address any systematic patterning between the social senses and logical prediction senses in the modal system as a whole. Neither do they relate the patterns found in the modal system with potential parallels found in other areas of the language, such as verbs of perception or the tense system. None of the more recent formal approaches have made their way into standard ELT grammars or texts.

Turning to accounts given in ELT texts, an examination of 10 current ELT texts showed that modals tend to be presented from a superficial functional perspective, focusing on various speech acts in which the modals commonly occur. While such an approach has the appearance of being usage-based, it is important to note that the examples tend to be decontextualized and fail to give a complete representation of modal use. Since several modals can occur in the same speech act and each modal can occur in more than one speech act, under the speech act presentation their distribution and meaning appear to be largely idiosyncratic. Such accounts leave both the teacher and the learner with the impression that the only approach to mastering modals is to memorize formulaic expressions for each speech act and the particular modals which happen to occur in those expressions. Indeed, Celce-Murcia and Larsen-Freeman (1999) have noted that acquiring modals is one of the most difficult aspects of L2 English precisely because of their seemingly idiosyncratic nature.

In Chapter 1 we saw a representative EFL approach to modals which took a speech act perspective. We noted that such an approach does not give a precise definition of each modal, often giving the impression that certain modals are interchangeable and thus synonymous. Moreover, connections between the physical-social uses of the modals and the logical reasoning or prediction uses are ignored, as is the key information that native speakers use most modals for both senses.

The L2 professional's other main source of information about the modals comes from pedagogically oriented grammars. One of the best is the corpus-based *Longman grammar of spoken and written English*, by Biber, Johansson, Leech, Conrad and Finegan (1999). Although the important contribution of corpus-based grammars, which can offer detailed descriptions of patterns of language use, is clear, it is important to note that even the fullest description of uses falls far short of accessible analysis. Biber et al. offer copious amounts of information concerning how often particular modals are used in general contexts (spoken versus written

discourse) and to perform certain social functions; however, they do not provide an analysis which would lead to insights into the subtle range of meanings among the modals, nor any systematic account of the social–logical prediction polysemy associated with each modal.

As with most traditional accounts, Biber et al. (1999) group modals into three major functional categories: (1) permission/**possibility**/ability (*can, could, may, might*), (2) obligation/necessity (*must, should, had better, have got to, need to, ought to*), and (3) volition/**prediction** (*will, would, shall, be going to*). No meaning distinctions are made among modals within these groups; for instance, no meaning distinctions are made among *should* versus *need to* versus *must*. As we saw in Chapter 1, native speakers do have differentiated, albeit subtle, interpretations of these three modals.

Moreover, this initial grouping suggests that we would not find modals from one category participating in the same speech act as modals from another category. Sentences such as the following show clearly that modals from different “functional categories” are used in the same speech acts:

(4.5) Parent speaking to a reluctant child:

- a. You must go to swimming lessons this morning. (obligation/necessity category)
- b. You will go to swimming lessons this morning. (volition/prediction category)

In both these utterances, the parent is interpreted as strongly suggesting or commanding.

Biber et al. (1999) do point out that

each modal can have two different types of meaning, which can be labeled intrinsic [or social use] and extrinsic [or logical prediction]. Intrinsic modality refers to actions and events that humans (or other agents) directly control: meaning relating to permission, obligations, or volition (or intention). Extrinsic modality refers to logical status of events or states.

(p. 485)

There are a number of weaknesses in Biber et al.’s (1999) representation. First, notice that the description of intrinsic and extrinsic seems to contradict the representation of *can, could, may, might* as the modals of “possibility” and *will/would/be going to* as the modals of “prediction.” Moreover, the representation misses the fact that virtually all modals are used to indicate logical prediction or the speaker’s assessment of logical possibility. Moreover, Biber et al. offer no explanation as to the relationship between intrinsic and extrinsic uses of the individual modals. Rather, they simply offer examples of utterances which fall into the two categories. In many instances these examples are far from clear. For

instance, Biber et al. (1999) offer the following as an example of *must* used to indicate necessity:

- (4.6) You **must** have thought that you **must** have so much time (to finish the job).

Note that the first use of *must* is making a logical prediction about the addressee's state of mind, while the second use is social in nature, i.e., it indicates real-world necessity. These distinctions are not discussed.

The discussion notes that the three modals of permission/possibility (*could*, *may*, and *might*) are used predominantly to mark logical possibility. The modals of obligation/necessity (*must/should/have to/need to*) are represented as primarily being used to mark personal obligation rather than logical necessity (except *must* which is often also used for logical necessity). There is a brief discussion about the strong degree of directive force signaled by *must* as an explanation for its relatively low use for personal obligation in conversation. The problem here is that all these modals (*could*, *may*, *might*, *must*, *should*, *will*, *would*) do have logical possibility (epistemic) uses, particularly in certain genres such as legal discourse. The modals of volition/prediction (*will/would/be going to*) are represented as often blurring the distinction between volition and prediction. Sentences illustrating the two uses are provided:

- (4.7) a. I'll come and show you. (personal volition)
 b. I would give it back. (personal volition)
 c. Will my coat be ready tomorrow? (prediction)
 d. She would just feel better if she went out. (prediction)

Again, no analysis of the relationship of the uses is offered. Moreover, sentence 4.7b would seem to be functioning as a suggestion (and as part of a conditional construction as in, *I would give it back if I were you*) rather than a statement of personal volition. Note that the kinds of "prediction" involved in sentences 4.7c and 4.7d are quite distinct.

The presentation further notes that a limited set of modals (*can/could*, *may/might*, *shall/should*, and *will/would*) have past tense forms. However, no discussion of the fact that *could*, *might*, *should*, and *would* are regularly used in non-past situations is included. For instance, they offer no discussion as to why the past-tense *would* can be used to make predictions about the future (as in 4.7d).

Thus, even though Biber et al. (1999) call on a wealth of data and provide information about the general distribution of the modals, they do not provide a systematic account of the semantic distinctions among modals, regular relations between the root and epistemic meanings, or systematic patterns associated with historic past tense forms. It is my estimation that most language teachers would be at a loss to discern systematic, motivated patterns from this account.

A CL Account

Cognitive linguists Talmy (1988) and Sweetser (1990) developed an alternative analysis of the semantics of modal verbs based on force dynamics. Specifically they argue that the physical–social meanings of modals have to do with physical forces, forward motion, barriers and paths. Further, there is a systematic mapping between our understanding of these physical forces and our understanding of conceptual forces and paths, which is reflected in the logical prediction uses. Here I primarily follow Sweetser’s analysis, which emphasizes intentional, directed forces, barriers and paths.

As we discussed in Chapter 2, a key tenet of CL is that our physical–spatio–social experiences structure much of our cognition and this cognitive structure is reflected in language. One aspect of this physical–spatial structuring of cognition appears to be that humans regularly think about events and experiences in one conceptual domain (for instance, logical prediction) in terms of another domain (for instance, the physical–social). This is thinking metaphorically. A wealth of studies (e.g., Boroditsky, 2000; Gibbs, 1994, 2006; Spivey, 2007) show that metaphorical thinking is a ubiquitous cognitive process which shapes human cognition in many vital ways. Specifically, our observations of the external, physical–spatial world, such as basic force dynamics (e.g., movement of entities along a path and types of forces that propel forward movement), provide important **event schemas** that we use to reason and talk about the non-physical. This pattern is found in many uses of English, not just the modal verbs. One example of how language from the realm of physical perceptions is used to describe mental operations involves the use of verbs of perception to talk about the mental operation of understanding.

- (4.8) a. I see your point.
b. I hear what you’re saying.

Lakoff and Johnson (1980) have also pointed out that verbs of physical manipulation are used to talk about mental operations. So when English speakers want to convey their degree of understanding of an issue, they may say something like:

- (4.9) a. I have a good **grasp** of the issues.
b. I don’t have a good **grip** on the theory.

English speakers also use general language of physical compulsion, forward motion and paths to talk about internal states of understanding and reasoning:

- (4.10) a. Her carefully developed argument **forced** me **to move from** my original **position**.
b. He **swayed** the crowd **to his side** with his passionate speech.

- c. My thoughts were **racing ahead to the next point** in the argument.
- d. **Part way through** his argument, he suddenly **changed direction**.

As Sweetser argues, “a pervasive and coherently structured system of metaphors underlies our tendency to use vocabulary from the external domain in speaking of the internal domain” (1990, p. 49).

Historically, the English modals developed from non-modal lexical items that first expressed physical strength or social obligation; for instance, *may/might* derive from *magan* “be strong” (clearly physical strength) and *must* derives historically from *moste*, the past form of *mot*, meaning “obliged” (clearly social obligation). The general pattern of historical development for modal verbs was that the semantics and usage of the non-modal forms gradually extended to root modal meaning and later broadened to epistemic meaning. Sweetser argues that these historical changes are systematically motivated by the ubiquitous cognitive pattern of using language from the external world to express aspects of the internal, mental world. She further notes that, “Thus, we view our reasoning processes as being subject to compulsions, obligations and barriers just as our real-world actions are subject to modalities of the same sort” (1990, p. 50). Sweetser also emphasizes that physical forces are not objectively similar to our mental processes, rather that humans’ experience of the physical world and the domain of logical prediction share a certain amount of common structure which allows metaphorical mapping between the two.

In her analysis, Sweetser (1990) offers distinct root meanings for each of the modals based on different kinds of forces coming from different sources. Here we will consider her representations of *must*, *need to*, *can*, *may*, and *might*. The root meaning of *must* is represented as an irresistible force directing the subject or doer toward an act, an irresistible compulsion imposed by someone else, as in the following, from a high school policy statement:

- (4.11) You **must** get your research paper in by the deadline or you will not be allowed to graduate with your class.

Here the compelling force is the authority of the institution which is imposing the writing of a research paper on the student. In distinction from *must*, Sweetser represents *need to* as a compelling force imposed by something **internal** to the actor. For instance, in, *I **need to** get a haircut*, the internal force involves the speaker’s desire to have a particular, groomed appearance. Sweetser illustrates the semantic distinction in the following sentences:

- (4.12) a. I **need to** get this paper in, but I guess I’ll go to the movies instead.
 b. ?I **must** get this paper in, but I guess I’ll go to the movies instead
 (1990, p. 54).

Here we can understand an internal force, even if it is strong, is deniable by the speaker/actor, thus accounting for the acceptability of 4.12a while the compelling external force is irresistible, thus accounting for the oddity of 4.12b.

May is represented as a situation in which an authority figure takes away or keeps away a potential barrier to the actor/mover undertaking some action. The action of keeping the barrier at bay has the result of allowing the actor/mover to undertake the action. Thus, the meaning focuses on lack of restriction imposed on the actor/mover by someone else who has the authority or power to impose the restriction, and hence the interpretation of permission granted by an authority who could potentially block the doer's action. In contrast, *can* is represented as a positive physical or social ability on the part of the doer, analogous to potential energy in physics. The energy or ability emanates from the doer. As Sweetser explains, *can* is the equivalent of a full gas tank in a car and *may* is the equivalent of an open garage door.

These two factors will exert certain similar influences on the situation: neither factor forces the car (or driver) to travel a given path, and yet if either factor were reversed, then travel would be correspondingly restricted. The full tank is a positive enablement, while the open door is a negated restriction; yet the results are similar enough to allow a good deal of overlap in the larger force-dynamic schemata surrounding the two.

Sweetser (1990, p. 53)

Sweetser argues that if we assume that the domain of reasoning is understood in terms of the physical-social world, we have an accurate, motivated explanation for the systematic polysemy of root (social use) and epistemic (logical prediction) meaning found with virtually all the modals. Thus, each epistemic modal usage is metaphorically correlated with that real-world modality which is its closest parallel in force-dynamic structure. In terms of *may*:

we can see why general sociophysical potentiality, and specifically social permission, should be . . . chosen as analogous to possibility in the world of reasoning. *May* is an absent potential barrier in the sociophysical world, and the epistemic *may* is a force-dynamically parallel case in the world of reasoning. The meaning of epistemic *may* would thus be that there is no barrier to the speaker's process of reasoning from the available premises to the conclusion expressed in the sentence qualified by *may*.

Sweetser (1990, p. 59)

Sweetser offers the following examples:

- (4.13) a. *John may go* = John is not barred by authority from going.
 b. *John may be at the party* = I am not barred by my premises from the conclusion that he is there (1990, p. 59).

The epistemic uses of *might*, *could*, *will*, *would*, *must*, *shall*, *should*, etc. all represent parallel extensions of the particular forces and barriers indicated by the modal in the physical–social world to the domain of reasoning and logical prediction.

While Sweetser's analysis goes a long way towards revealing the systematicity of modals, there are still some details of the modals that the analysis does not account for. As with all other analyses, she offers no explanation for the fact that *can* has no epistemic or predictive uses. This must simply be memorized. However, as Sweetser points out, if root modals are understood as referring to functional notions like permission or advice, it is almost impossible to account for their epistemic uses. The *may* of permission, as in, *You may leave the table*, seems to have little connection to epistemic *may* as in, *That may be John now*. For the L2 learner, presentations of modals solely in terms of functional uses have the result that, rather than creating a systematic schema to understand and learn modal usage, all the various uses of each modal must be memorized piecemeal.

So far we have seen how metaphoric extension of force dynamics into the domain of logic is a key conceptual metaphor for explaining the modal verbs. A second metaphor central in our analysis of modals is the proximal–distal metaphor, NOW IS HERE – THEN IS THERE (discussed more fully in Chapter 2). In general, this conceptual metaphor involves English speakers' use of tense to code non-temporal information and maps proximal and distal spatial phenomena and their real-world consequences to temporal language. An important reflex of the proximal–distal metaphor involves the use of present tense to indicate a higher degree of surety, sense of realis and speaker force in contrast to the use of past tense to indicate a lower degree of surety, irrealis and an attenuation of speaker force or control. The metaphor explains the systematic lessening of surety and realis indicated by the use of historically past tense modals. Thus in the historical present/past pairs *will/would*, *can/could*, *shall/should* we find the past tense forms consistently indicating less surety on the part of the speaker or less social and/or physical force.

As discussed in Chapter 2, this metaphor also offers a coherent explanation for the politeness phenomenon.

A CL-based analysis of modals grounded in force dynamics allows for not only a principled, explanatory representation of the semantics of these modals, but also a more accurate and complete one. Sweetser (1990) has been able to provide precise, distinct definitions of each of the root meanings and their epistemic counterparts. Drawing on the notion of conceptual metaphor and embodied meaning, CL offers a systematic account of the relations between the root and epistemic senses, as well the relations between the historically present and past modal forms. Thus, a CL approach provides a motivated, precise explanation for the patterns of usage that is not captured by speech acts or traditional representations. While this analysis goes a long way towards illuminating the semantics of modal verbs, its technical nature may render it difficult for L2 teachers and learners. As one thoughtful, well-read L2 specialist remarked upon reading Sweetser's analysis:

I should certainly not want to be a learner trying to use the gas tank/garage door formulation of *can* and *may* in order to decide which modal to use in, *We ____ drive out because the gate's open*, or, *It ____ rain this afternoon*.

Of course, the speaker has missed the important distinction that the first sentence is making a statement about the present state of the world and physical ability to undertake an action while the second sentence is making a prediction about the probability of future events. Nevertheless, the remark is representative of a widespread reluctance on the part of L2 professionals to adopt new explanations and highlights the challenge of converting a coherent theoretical analysis into learner-friendly teaching materials.

3. Translating the Theory into Pedagogical Materials

In this section, I present sample materials that demonstrate how Sweetser's somewhat technical analysis can be converted into accessible teaching materials. Figure 4.1 attempts to represent Sweetser's analysis of *must*, *need to*, *can*, and *may* with a minimum amount of jargon or explanation. Because a CL analysis is based on experience in the physical world, it is possible to represent the meaning of each modal with diagrams or in terms of scenes, rather than only in terms of linguistic propositions or dictionary definitions (see Figure 4.1). These diagrams rather straightforwardly capture the nuanced differences among the various modals. This allows for detailed, accurate specification of the meaning of the modals which are at the same time accessible to language learners (and L2 teachers).

Some explanation is needed in order to interpret the diagrams. The first column represents the physical-social (or root) interpretation of the modal. The second column offers a metaphoric translation of the root use into the logical reasoning (or epistemic) use. The third column provides examples of logical reasoning uses. Here, I will focus on the social-physical representations. See below for a discussion of the logical prediction extensions.

The actor/mover is the figure walking forward. External force or authority is represented by the larger figure. Internal force is represented by lines in the actor/mover's head and outstretched arms. For *can*, physical ability is also represented by muscles on the actor/mover's arms.

Considering the representation of *must*, the force is coming from the strong external force or authority (the strength of the force is represented with double arrows or two outstretched arms) who is pushing the actor/mover or placing strong pressure on his back. Notice that the actor/mover's arm is slightly lowered and that nothing is going on inside the actor/mover's head; both indicate that no internal force is involved. *Must* represents an external force so strong that it cannot be resisted (as exemplified in 4.12b). In contrast, *need to* represents strong mixed external/internal force which arises from the actor/mover internalizing the expectations and norms of the outside authority (often the surrounding society).

Because the force partially initiates from the outside authority, it is somewhat external to the actor/mover. Simultaneously, since the actor/mover has internalized these expectations, the force also comes from within the actor/mover. Because the force is largely internal to the actor/mover, he has the opportunity to resist the force (as exemplified in 4.12a).

Turning to the representation of *can*, in the first column, the actor/mover is moving forward along a path which includes a potential barrier. The extended arms with muscles are meant to represent sufficient physical ability and forward momentum. The lines inside the actor's head indicate that the force is internally generated, coming from the actor's own knowledge or ability.

The diagram for *may* involves both an external authority, represented by the larger figure, and the actor/mover. The external authority is represented as standing by an open door and ushering the actor/mover through. This represents the notion that the external authority has removed a potential barrier to forward motion and is allowing or permitting the actor/mover to move forward.

These materials have been presented to L2 teachers in a number of venues, including professional conferences, special workshops for Chinese teachers of English, and TESL methods classes. They have been uniformly greeted with enthusiasm and appreciation. Language teachers have told me that the diagrams clarified the meanings of the modals that they had always found confusing or murky.

4. Evidence that CL-Based Materials are Useful for L2 Learners: Preliminary Studies with Advanced Writers

Overview

In this section, I report on two effects of instruction investigations in which a CL-based approach was used to teach the modals to advanced learners of English. The studies were carried out as a regular part of the instruction in a very advanced, ESP program – a legal writing class for international lawyers. The studies were initially reported in Robinson and Ellis (2008); for a full description the reader is directed to that volume.

The two studies were both situated in a Master of the Laws (LL.M.) program at a major law school in the United States. All participants had already earned law degrees in their home countries and had been using English in their professional work for several years. All reported to the researcher that they had received traditional instruction on the modals. All had studied English for a minimum of 10 years and scored a minimum of 600 on the TOEFL. Thus, they can all be classified as very advanced learners of English. In spite of their advanced status, they continued to have difficulty producing appropriate modals in their written English legal discourse and this was apparent to the writing teachers who were working directly with them. Moreover, law professors from their other classes

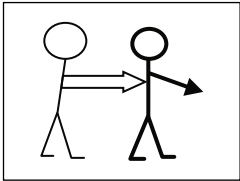
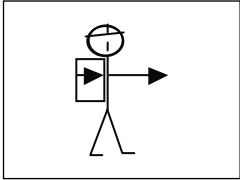
Physical/social meaning	Extension	Logical prediction
MUST 		
Strong external authority placing irresistible force on the actor/mover. You must pass all your courses in order to graduate. You must be home by 10.	<i>The data and premises force me to the conclusion</i>	The Court must find in favor of our client. 5 'I believe the Court has no choice; it is forced by the law and the facts to find as I predict.' Very high certainty, but because of the strength of claim, sounds slightly emotional or desperate.
NEED TO 		
Internal desire to meet certain (societal) expectations. 'Backpack' represents societal expectations that have been internalized by the actor/mover. I need to get my hair cut. I need to get my taxes done this weekend, otherwise I'll feel too rushed.	This is the only modal that specifically refers to the actor's needs and desires. This seems to limit epistemic extension. ?The data internally compel me to want to conclude.	?That needs to be John (or we'll never make the movie on time). ?The court needs to find in our client's favor (otherwise the First Amendment will be in jeopardy). Not frequently used to make predictions.

FIGURE 4.1 Diagram of Modal Verbs Based on Sweetser (1990)

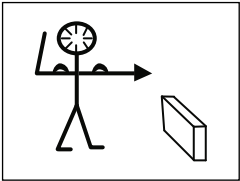
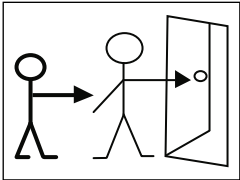
Physical/social meaning	Extension	Logical prediction
CAN 		*CAN
Indicates ability or know-how. I know I can lift 100 pounds. Nancy can multiply huge numbers in her head.	This is the only modal that specifically relates to physical ability. Doesn't have an epistemic extension.	
MAY 	<i>Nothing bars me from concluding X (but nothing forces me to conclude this either).</i>	That may be Liz. = 'I believe it is possible Liz is at the door, but it is almost as likely it is someone else.'
External authority allows action, takes away possible barrier to action. You may finish your paper today. You may leave whenever you've finished the assignment.		

FIGURE 4.1 Continued

complained that these students often used the modals in inappropriate ways in their exams and required papers. Thus the importance of addressing the modals grew out of the explicitly identified ongoing writing needs of the participants.

Appropriate use of modal verbs is particularly important in legal discourse. For instance, in legal memoranda, one of the most common and central legal documents these students are called on to write, the lawyer is required to make predictions about how the court is likely to rule on particular matters and make

suggestions about which actions are likely to be most beneficial for the client. The difference in informing a client that *If the court finds this argument persuasive, it will find in your favor*, versus *If the court finds this argument persuasive, it could find in your favor*, is crucial. Similarly, telling your client *Considering all the arguments, both pro and con, I believe the court should find in your favor*, versus *Considering all the arguments, both pro and con, I believe the court might find in your favor*, may make the difference between the client deciding to pursue the case or not. Precise understanding of the meaning of the modals is also essential in correctly interpreting case law. One example is the absolute binding effective in contracts of the modal *shall* versus the non-binding effect of *should*.

In order to pass a required writing class, all the subjects had to write a successful client memo. The purpose of the client memo is to inform senior law partners about the facts of the client's case, provide an overview of the pertinent law and make predictions about the probable outcome of the case. While the client may also use the memo to help determine if they will go forward with the case, the primary use is for the law firm to decide how to advise the client. It is thus important that the predictions made in the memo are appropriately nuanced; the lawyer is expected not to overstate the strength of the client's case and to be circumspect about the court's probable findings. As a result, client memos produced by effective US lawyers tend to contain many hedges (language that softens the writer's position) but not many boosters (language that intensifies the writer's position) (Tiersma, 1999).

Abbuhl (2005): The Use of Modals in Hedges and Boosters

Design

Abbuhl (2005) carried out an investigation comparing writing samples from 38 groups of participants enrolled in the required writing class. She examined a number of dimensions of the written discourse produced by the subjects, modal usage being just one.

The participants fell into two groups: (1) the feedback group which received 10 weeks of supplemental writing instruction that involved a weekly, teacher-fronted class and individualized written and oral feedback on both the *content* (e.g., legal argumentation) and *form* (e.g., grammar and lexical choice) of their writing, and (2) the minimal feedback group which received only one set of written comments on the quality of their legal argumentation. For the feedback group, instructors highlighted grammatical problems or inappropriate lexical choices, but did not correct the problem. Students were asked to try to self-correct. In individual feedback sessions, students were free to ask instructors to discuss grammatical and lexis problems. Some teachers reported having discussions about the meaning or use of particular modals, but no systematic presentation of the modals was given individually.

Two sets of writing samples were compared for each student: a first draft of a client memo (produced at week five of the course) and a final draft (produced at week 10 of the course). For our purposes, two metadiscourse analyses focusing on signals used to indicate the writer's stance towards the strength of the argument being presented and the predictions being made are of particular interest. They involve analysis of the use of hedges and boosters. The following is an example of a booster from the first memo of one of the participants:

- (4.15) Because the issues in the Katz case are similar to our clients' case, even though it is a Delaware case and not a New York case, the judge **will very likely** find it persuasive. Thus the court **will most probably** decide in our client's favor.

Here we see the choice of the modal *will* indicates the writer's strong prediction about the court's interpretation of the importance of the Katz case and the court's eventual decision. The statement is further strengthened with the phrases *very likely* and *most probably*. The following is a hedged version of this argument:

- (4.16) Because the issues in the Katz case are similar to our clients' case, even though it is a Delaware case and not a New York case, the judge **may** find it persuasive. Thus the court **might** decide in our client's favor.

Here the use of *may* and *might* indicate the writer is less sure how the court will judge the importance of the Katz case and the court's eventual decision.

As exemplified above, modal verbs are one of the primary linguistic elements used to code boosters and hedges. Boosters and hedges are also coded by a number of phrases, such as *is possible* and *is likely*. Frequently modals plus additional phrases are used together, as in the example of the booster.

Intervention

Both groups received feedback on the first draft – the minimal feedback group received comments on content only; the feedback group received response on grammar in terms of problematic points being highlighted, as well as comments on content. One week after the first draft was turned in, the feedback group received a 30-minute, teacher-fronted, CL-based presentation on the meanings of the modals. The presentation was made by their regular teacher as a regular part of their instruction. The presentation involved a short discussion of the NOW IS HERE and THEN IS THERE metaphors.

The heart of the presentation was a discussion of a chart containing the diagrams of the root meanings of the modals and their metaphoric extension into the realm of reasoning and logical prediction, very similar to the chart presented above, but tailored specifically to the LL.M. students. This chart is represented in Figure 4.2.

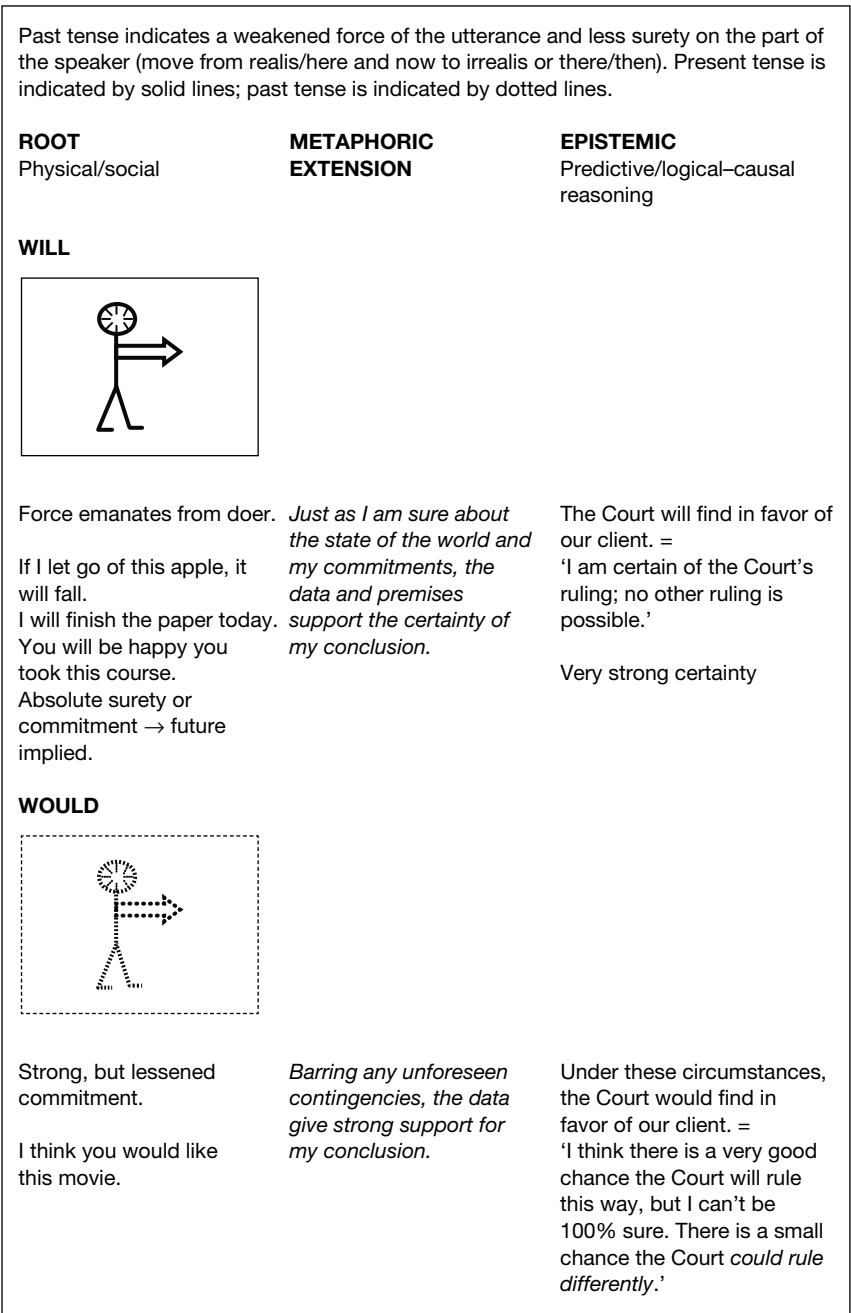


FIGURE 4.2 Diagram of Modal Verbs for Masters of Law Students

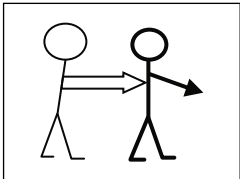
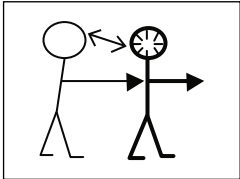
ROOT	METAPHORIC	EPISTEMIC
Physical/social	EXTENSION	Predictive/logical-causal reasoning
MUST		
		
Strong external authority Irresistible force.	<i>The data and premises force me to the conclusion.</i>	The Court must find in favor of our client. = 'I believe the Court has no choice; it is forced by the law and the facts to find as I predict.'
You must pass all your courses in order to graduate. You must be home by 10.		Very high certainty, but because of the strength of claim, sounds slightly emotional or desperate.
SHALL		
		
Actor recognizes the authority of powerful external force. Sense of binding obligation.	<i>All the data and premises will follow their appropriate trajectories, or follow the rules, so I can conclude with confidence.</i>	The defendant shall be hanged by the neck until dead. All parties shall agree to binding arbitration. 'These are binding pronouncements that everyone is forced to abide by.'

FIGURE 4.2 Continued

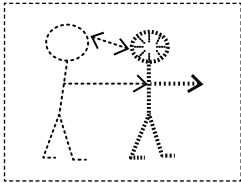
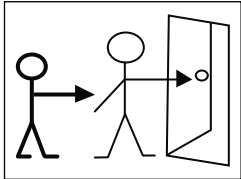
ROOT Physical/social	METAPHORIC EXTENSION	EPISTEMIC Predictive/logical-causal reasoning
SHOULD		
	<i>If all the data and premises conform to their appropriate trajectories, or follow the rules, then I can conclude X.</i>	The Court should find in favour of our clients. = 'I believe that if everyone follows the rules and thinks reasonably, the Court will act as I predict.
MAY		
	<i>Nothing bars me from concluding X (but nothing compels me to conclude this)</i>	The Court may find in our favor. = 'I believe it is possible the Court will rule in our favor, but it is almost as likely it will not.'
External authority allows action, takes away possible barrier to action. You may leave whenever you are finished. You may like this book, but I'm not sure. External force removes barriers. No barrier to action.		

FIGURE 4.2 Continued

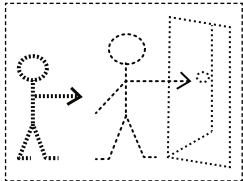
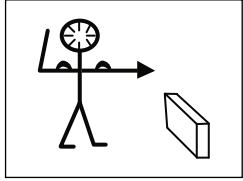
ROOT Physical/social	METAPHORIC EXTENSION	EPISTEMIC Predictive/logical-causal reasoning
MIGHT		
	Probably nothing to bar me from concluding X, but nothing seems to compel me to conclude this either.	The Court might find in our favor. = 'I believe it is possible the Court will rule in our favor, but it is just as likely it will not. I have no strong reasons to be able to predict the outcome.'
Weakened form		
I might want to take a walk, but I'm really not sure. You might want to try another approach.		
Mitigated		
CAN		
	This is the only modal that specifically relates to ability. Doesn't have an epistemic extension. <i>Premises give me the ability or know-how to conclude??</i>	*CAN
I know I can lift 100 pounds. Nancy can multiply huge numbers in her head.		

FIGURE 4.2 Continued

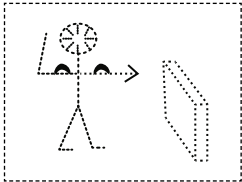
ROOT Physical/social	METAPHORIC EXTENSION	EPISTEMIC Predictive/logical-causal reasoning
COULD 		
Weakened ability to undertake action. Implies possibility. I've been going to the gym so I think I could lift 100 pounds now. You could wash the dishes if you wanted to help.	<i>The data provide weakened support to possibly conclude X, but I see potential barriers.</i>	The Court could find in our favor. = 'We have a number of good arguments. The opposition also has a number of good arguments. I can't make a strong prediction about how the Court will rule.'

FIGURE 4.2 Continued

In addition to the conventions discussed in relation to the diagrams (Figure 4.1), the researcher explained that diagrams in solid lines represented the historical present tense of modal (and therefore the stronger version) while the diagrams in dotted lines represented the historical past tense (and therefore the somewhat weaker version). Other conventions included using double outstretched arms indicating more force than single outstretched arms. The actor/mover's recognition of the external force's legitimate authority is represented by double-headed arrows between the external force and the actor in the diagram for *should*.

The teacher pointed out that the first column represents the physical-social interpretation of the modal. The second column offers a metaphoric translation of the root use into the logical reasoning use. The third column provides examples of logical reasoning uses. The teacher emphasized the notion of metaphorical extension from the physical-spatial world to the world of reasoning and the systematic connection between the two uses for each modal.

The teacher-fronted presentation was followed by pair work. To increase the validity and usefulness of the exercise, excerpts were taken from the students' writing. The students were given eight excerpts in which modals occurred. Some of the modals were appropriately used, some were not. An example of one of the excerpts appears below:

- (4.17) The key issue we have to address is, under New York law, whether Urbania **must** breach the bond contract due to the deletion of the tax gross-up clause.

Here, the writer is addressing the likelihood that the Court will rule that Urbania breached the contract if they delete a certain clause. Technically, the use of *must* is not ungrammatical. However, its use conveys a different message than the writer's intended one. With the choice of *must* the writer seems to be pondering the absolute certainty that Urbania will break New York contract law. As noted above, US lawyers tend to use more hedging in their writing. The more appropriate modal to signal this interpretation is *would*.

The students' task was to determine the appropriateness of each modal and discuss how changing the modal affected the interpretation of the text. The students kept the modal charts and were allowed to use them whenever they chose to. No attempt was made to determine how frequently any of the subjects used the charts after the classroom instruction.

Results

Abbuhl (2005) found that the first drafts written by the two groups did not differ significantly on the use of boosters or hedges. On the second drafts, the minimal feedback group showed no statistically significant evidence of change for either hedges or boosters. In contrast the feedback group, which received CL instruction, employed significantly more hedges than in Draft 1 and significantly fewer boosters, $p < 0.01$. Thus, by the time of the final draft, the feedback group's use of boosters and hedges more closely matched those of the target discourse community.

Discussion

Although use of modals was not examined in isolation from hedges and boosters, the findings suggest that the feedback group made important gains in appropriate use of modals. The minimal feedback group, in contrast, in spite of being in an immersion context in which they were required to read an extensive number of US legal documents, including authentic client memos, which used modals to appropriately hedge the argument, showed no gain in this aspect of their English writing. The findings are suggestive that the CL-based intervention allowed the feedback group to make gains in their appropriate use of modals. These findings are particularly important because the intervention took place within the natural context of an ongoing class and the results indicate changes in the participants' written production for classroom purposes (not performance on a decontextualized test). However, we must also acknowledge a number of limitations. Most important is the fact that there was not a third control group which received traditional instruction directed at their inappropriate use of modals. Thus we can only say that these results are suggestive.

Hama (2005): Small-Scale Investigation of Effects of CL-Based Instruction of Modal Verbs

Design and Intervention

Hama carried out a small scale analysis of six LL.M writers. The data come from students enrolled in a five-day intensive English writing course for international lawyers at the same law school as the participants in Abbuhl's (2005) study. They were all advanced learners who were identified as having difficulty producing appropriate modals in their written English discourse.

The class met three hours a day for five days. Students turned in one piece of writing (a client letter) via email prior to the first class. Written feedback was given to each piece of writing and sent to the students prior to class. The instructors primarily responded with comments and questions about the content of the writing. Problems with modals (and other grammatical aspects) were highlighted, but not corrected. The pattern of submitting writing electronically was repeated all subsequent days. Each day, students met with individual instructors for approximately 30 minutes and discussed various issues in the student's writing. The focus was on clarification of the argument, but if students raised questions about grammar points, the instructor addressed them. During the first two days of the course, the students produced a total of three documents of three to four typed pages in length. Large group presentations and activities addressed the overall structure of a client memo, effective exemplification and analysis of common law argumentation. No grammar points were discussed in the large group presentations. The instructors reported that some students asked about their use of modals in their individual sessions, but no systematic explanation was provided prior to day three.

At the beginning of the third day, a 30-minute teacher-fronted presentation of the semantics of the modals, very similar to the presentation given in Abbuhl's (2005) study, was given. Again the teacher-fronted presentation was followed by pair work in which students examined eight excerpts from writing generated by other students and determined the appropriateness of each modal or how changing the modal affected the interpretation of the text. These discussions were quite lively. The teachers monitoring the discussions observed that the students consistently demonstrated understanding of the meanings of modals they had previously had difficulty producing appropriately in their writing. The students were allowed to keep their copies of the modal charts and refer to them whenever they wished.

In the second half of the class, students worked on revising their third piece of writing. Anecdotally, the instructors noticed that some students spontaneously used the modal chart when they had to make a decision about which modal to use as they were discussing their own writing. On days four and five, the students produced more complete versions of their memos, four to six pages in length. Each piece of writing received written feedback. Inappropriately used modals were highlighted. In the oral feedback sessions, teachers discussed problematic modal

use if the students had questions, referring the students back to the chart when it was warranted.

Results

The data analyzed for this study consisted of 30 pieces of writing produced by the 6 individuals over a 5-day period. All pieces of writing were analyzed for modal usage. The key issue was to determine if and how the students' production of modals changed after the presentation of the CL account of the modals at the beginning of day three.

The number of sites where a modal verb was either used or required but omitted was determined by two independent coders for all 30 papers. Each site was then coded as: (1) modal correctly supplied, (2) inappropriate choice, or (3) modal omitted. For a fuller discussion of the coding, see Tyler (2008a).

The number of subjects is too small for inferential statistics, but the overall results show that before and after the modal lesson, there was a noticeable difference in the participants' correct modal usage. Before the lesson, the participants correctly supplied modals 56% of the time (86 out of 154 required occurrences). In contrast, after the lesson the participants correctly supplied modals 78% of the time (144 out of 184 required occurrences). In addition, the number of incorrect uses declined from 44 to 22%. Moreover, five out of six subjects showed an increase in correct usage (average gain in percentages was 18%, the range was 4–29%). For a fuller report of the results, see Tyler (2008a).

Discussion

Again, these findings suggest that a CL approach was effective in increasing these very advanced learners' understanding of the meanings and appropriate use of the modals in their writing. In addition, in the large class discussion, several of the students stated that after the instruction they understood differences in the meaning of several of the modals for the first time. In particular they noted that they had not previously understood the differences between *should*, *would*, and *could* in making predictions. Although the sample size is small, the results are impressive because the changes took place in the students' naturally occurring written production as they were attempting to meaningfully shape their discourse for their target audience. Moreover, they took place after one short intervention.

Abbuhl's (2005) study indicates that more input alone, even massive amounts of contextualized input, is not sufficient for these advanced learners to modify their established use of the modals. This is consistent with CL theory which argues that lexical/grammatical constructions (such as the modals) represent conceptual categories; L2 learners come with a fully formed set of categories (in this case ways of expressing speaker stance and logical predictions) which may very well be in conflict with the English targets, particularly in an area such as the modals that have a range of complex, subtle meanings which have not been well differentiated in EFL

materials. Ellis and Cadierno argue that L2 learning “involves **re**constructing a language because L2 constructions and categories are in competition with those of the learner’s L1” (2009, p. 123). Ellis (2008a) argues that when L1 and L2 categories conflict in subtle ways, mastery may only come through explicit instruction.

The two studies together suggest that a CL-based approach to the modals can have a positive effect on very advanced learners, who despite many years of instruction in English still have difficulty with using the modal verbs appropriately in written legal discourse.

However, there are a number of limits to these studies that need to be addressed before we can claim with confidence the usefulness of a CL orientation. In Abbuhl’s (2005) study, modal use was confounded with phrasal material in boosters and hedges. In addition, the studies did not include proper control groups. In order to be able to argue for the clear superiority of a CL orientation, research is needed in which a CL orientation to teaching modals is directly compared to a traditional orientation. Care should be taken to control a number of possibly confounding variables: (1) Both experimental groups should be presented with the same general pedagogical techniques. For instance, both groups could be presented with a combination of teacher-fronted instruction and task-based materials; (2) the materials for both groups should be constructed so that they are comparable in terms of interestingness and relevance.

5. Tyler, Mueller and Ho (2010b): A Large-Scale, CL-based, Effects of Instruction Study

In order to address these limitations, Tyler, Mueller and Ho (2010a)¹ carried out a large-scale study investigating the efficacy of using a CL approach to teach the English modals.

Participants

The participants were 64 students enrolled in a US university. They had all received at least a score of 80 on the Internet-based TOEFL test or its equivalent (i.e., 550 on the paper-based TOEFL). Based on their TOEFL scores and an internal institutional writing test, they were all required to take a semester-long writing class for international students. They spoke a wide assortment of L1s, including Chinese, Arabic, Turkish, Farsi, Korean, Spanish, Portuguese, Russian, Kazakh and French. Over half were native speakers of Chinese. Most had resided in the US or another English-speaking country for less than a year. Their instructors had determined that modals continued to be a problematic area for them. As part of their regular classroom instruction, the participants were presented a unit on the modals.

1 This experiment originally appeared in the 2010 AILA Review: Applied cognitive linguistics in second language teaching and learning.

The participants were divided into three groups: 38 subjects were in the cognitive treatment group; 16 were in the traditional treatment group. Ten were in a control group which took the pre- and posttests but received no instruction on the modals; the purpose of this testing was to ensure that learning did not take place simply by taking the tests.

Design

Table 4.1 summarizes the overall design of the study.

Both the cognitive treatment group and the traditional treatment group took a pretest on the first day. The second day of treatment, both groups received teacher-fronted instruction on the modals followed by pair work that focused on appropriately using these modals in various scenarios. The third day, both groups participated in a computer-delivered self-instruction module, followed by a posttest. Care was taken to ensure that both groups spent equal amounts of time on task and both received equal amounts of exposure to the modals. The control group simply took the pretest and several days later the posttest. They received no classroom instruction on the modals. In order to provide adequate explanation for the cognitive group, as well as a practice using the forms appropriately, it was decided to target only four modals: *could*, *would*, *should*, *must*.

Pretests and Posttests

Two tests were developed, Version A and Version B. The tests had a forced-choice, fill-in-the-blank format. The tests consisted of 40 short dialogs or paragraphs, each of which was missing a modal. Subjects were asked to choose the most appropriate modal from among four possible choices. The dialogs and paragraphs were constructed so that only one choice was appropriate. The tests were piloted with native speakers of English and adjusted until each paragraph received 100% agreement on the appropriate modal choice. For each of the tests, 20 items targeted a social meaning and 20 targeted a logical prediction meaning.

TABLE 4.1 Overview of Experimental Procedure

Group	Session 1	Session 2	Session 3
Cognitive	Pretest	(1) 50-minute teacher-fronted instruction	(1) 50-minute instruction delivered via computer
		(2) 30 minutes of pair work	(2) Posttest
Traditional	Pretest	(1) 40-minute teacher-fronted instruction	(1) 50-minute instruction delivered via computer
		(2) 40 minutes of pair work	(2) Posttest
Control	Pretest	Posttest	

For each of the four target modals, four social and four logical prediction items were constructed; thus, 8 items were constructed for each targeted modal for a total of 32 target items. An additional eight filler items were constructed which targeted uses of the modal *might*. Subjects' scores on the filler items in which *might* was the targeted answer were not used in calculating scores. Below are samples of the test items:

(4.18) Sample pretest and posttest items.

a. Logical prediction – appropriate answer is *must*.

Instructions: Circle the most appropriate modal verb within the context.

(might, must, should, would)

John: I can't believe he's 52! He doesn't look a day older than 20.

Tom: There's just no way a person that age can look like that without some special help. He _____ have had plastic surgery.

b. Social – appropriate answer is *should*.

Instructions: Circle the most appropriate modal verb within the context.

(could, must, should, would)

A: I wonder why they haven't delivered the pizza. When did you order it?

B: About an hour ago.

A: That's strange. Usually they deliver in 30 minutes. It _____ be here by now! I wonder if the driver is having trouble finding the house.

B: Why don't you try calling them and see what's happening?

The tests were blocked, so half the subjects in each group received Version A as the pretest and half received Version B. Those who received Version A as the pretest received Version B as the posttest and vice versa. To determine whether the test forms were equivalent, the scores on the two tests were compared. A two-way Analysis of Covariance (ANCOVA) with both treatment and test form order as between-subject variables and pretest scores as covariate was conducted. Mean scores for the test form A pretest group, with scores adjusted to account for pretest results, was 21.9, whereas the mean for the test form B pretest group was 22.0. The ANCOVA indicated no significant difference between the test form orders, and the eta squared value indicated that no variance was due to the test form order, $F(1,53) = 0.013$, $p < 0.909$, $\eta_p^2 = 0.000$. The results of comparing the two test versions are represented in Table 4.2.

In sum, the level of difficulty of Version A and Version B were statistically equivalent.

TABLE 4.2 Descriptive Statistics Comparing the Two Modals Test Forms

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Range</i>
Pretest form A	27	20.5	3.5	12–27
Pretest form B	27	21.6	3.4	13–27
Posttest form A	27	22.1	3.7	12–29
Posttest form B	27	22.9	4.3	13–32

Interventions

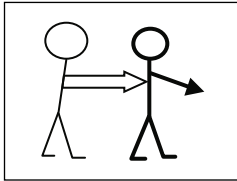
Cognitive Treatment

The senior researcher led a 50-minute teacher-fronted, interactive explanation of a force dynamic interpretation of the modals. The researcher explained that the class would be looking at the modals from a perspective that involved defining the modals in terms of physical forces and metaphorical extensions from the physical-social world to the world of reasoning (or making logical predictions). After the brief introduction, the students were given a worksheet which represented the force dynamics associated with each modal in terms of simple diagrams. Students were allowed to quickly look over the handout, then the researcher explained the conventions used in the diagrams. The research also briefly discussed the *HERE IS NOW – THERE IS THEN* metaphor and the notions of perceptual verifiability and increased sureness of events and situations happening in the present moment rather than in the past. The worksheet was very similar to those used in the small-scale studies described above. There were two major differences: (1) the modals presented were limited to *will*, *would*, *could*, *should*, *must*, and *may*; and (2) the example sentences were more general in nature. Examples of *must* and *should* appear in Figure 4.3.

Using the worksheet as a basis for discussion, the researcher led a discussion of each modal. A variety of techniques to engage the students were used. For instance, when *will* was introduced, the researcher acted out forward motion with arms outstretched and discussed the noun *will*, as in phrases such as, *My own free will*, or, *She has a lot of willpower*. When introducing logical prediction, she asked a student to step outside the room, close the door, and then knock on the door. The other students were asked how sure they were that student X was knocking on the door. When they indicated they were very sure even though they could not see who was knocking, the researcher directed their attention to the logical prediction use of *will*. Throughout the teacher-fronted portion, students were encouraged to provide their own examples and ask questions. The discussion lasted approximately 50 minutes.

The teacher-fronted discussion was followed by an interactive task in which the students worked in pairs. The students were given a worksheet with one model

MUST



Outside authority
Irresistible force

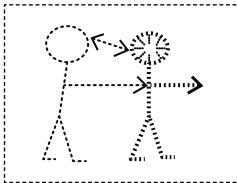
You must finish this paper today (or you'll fail the course)
You must be happy you took this course. (After all, you earned an A+ and the professor has offered you an assistantship in his lab).
You must be home by 10.
You must try some cake.

The evidence is so strong it forces me to the conclusion.

That must be Liz.
The information is so strong that I am forced to conclude Liz is at the door.

Very high certainty. Often indicates the speaker has considered a couple of options, then come to a very strong conclusion.

SHOULD



Three forces: strong outside authority; the mover's recognition of the legitimacy of the outside authority; mover's internal force (somewhat weakened). Often signals a sense of obligation.

You should finish this paper today. (You know it was due yesterday and the professor said he'll take points off for late homework.) Speaker is indicating outside force and also appealing to the listener's sense of responsibility or obligation.

If all the evidence holds, or all the events follow according to the way they have in the past, or if everything follows the rules, then I can conclude X. (Past experience acts like the external authority; mover recognizes the legitimacy of the outside authority.)

That should be Liz.
The information strongly suggests that it is Liz. Speaker was probably expecting Liz and no one else. If events are following their planned or expected course, Liz is knocking at the door.

FIGURE 4.3 Sample Diagrams for *Must* and *Should*

scenario with accompanying questions and two additional scenarios. The teacher led the class through the model scenario and the accompanying questions. The model scenario appears below and a fuller example of the exercise appears in Appendix A.

(4.19) Cognitive group: sample pair work exercise.

Example 1: You **should** go to the doctor.

In what context do you use **should**?

Context sentence is underlined.

Case A: You've been coughing for two weeks. You **should** go to the doctor.

Do you think **should** works for this context? Why or why not?

Answer: Yes, **should** works.

Justification: By using **should**, the speaker (who is acting as the outside authority) is giving a strong suggestion. The speaker is very concerned about his friend's health since he has been sick for so long. **Should** also shows the speaker thinks the listener has some responsibility to follow the suggestion. Anyone who has had a bad cough for two weeks knows going to the doctor is a good idea. The speaker thinks that it is clearly in the listener's best interest to follow this suggestion.

After modeling the interactive task, the researcher asked the students to consider two additional scenarios with their partners and to write their responses to the questions on their worksheets. The students were encouraged to refer to their handout with the diagrams and to use force dynamic interpretations of the modals as they discussed the examples. All the pairs finished discussing the two scenarios within the allotted 20 minutes. Two of the researchers circulated among the groups, engaging them in discussion and answering questions.

Four days later, the students met in a computer lab and worked through a computer-delivered, self-instruction module which reviewed the force dynamic explanation of the modals, and provided multiple examples of the uses of the modals *should*, *would*, *could*, and *must*. After the review, the self-instruction module presented eight example scenarios of each targeted modal (four roots uses; four epistemic uses). Each scenario was accompanied by three questions which focused on a CL-based explanation for the use of the modal. A sample scenario and a question illustrating the physical/social use of *must* appears in 4.20:

(4.20) Sample scenario for cognitive group

Consider the forces at play in this use of **MUST**:

Rachel: Our professor is very strict about meeting deadlines. He said he would not accept any late homework. That means I **must** get my homework in by 5 p.m. today or not get any credit.

Click on the source of the force shown by Rachel's use of **must**:

- (1) Rachel's internal desire to do well in the course.
- (2) Rachel's respect for the professor and her internal acceptance of his authority.
- (3) Rachel's understanding of the professor's right to set strict deadlines and that she has no choice but to follow the rules if she wants to get credit for the homework.

(Correct choice is 3)

The participant was informed whether or not their choice was correct. If it was incorrect, they were allowed to try again. Wherever possible, the text was accompanied by visuals to make the materials more engaging.

All the subjects finished the computer-delivered self-instruction within the allotted 50 minutes. Immediately after finishing the self-instruction, subjects completed the posttest.

Traditional Treatment

The lesson began with a short video clip from a popular US TV sitcom. The two characters are discussing a small crafts business that character A is involved in. Character A knew very little about practical business matters. Character B was a highly educated, but socially incompetent, math expert. A and B had determined that A was losing money. B declared that he knows how to make the business viable. At this point, B began to leave.

(4.21) A: B, **could** you help me make this work?

B: Yes, of course, I **could**. (B again begins to leave.)

A: Wait B, **would** you help me?

The researcher led a discussion about the uses of *could* and *would* in the dialog. The key points are that the first use of *could* is ambiguous. The most likely interpretation is that A is requesting B's help. However, it is also possible to interpret this as a query about B's ability to help. B appears to be responding to the second, less likely interpretation. This emphasizes a rule found in most of the EFL materials that when a speaker makes a request for assistance using the form *could*, the appropriate affirmative response is to use *can*, not *could* (as in, *Yes, of course I can help*). The second point is contrasting the meaning difference between B's use of *could* and A's use of *would*.

Next, the researcher distributed a handout listing the modal verbs and describing their speech act functions. The researcher led a discussion over speech act functions and the modals that are used to express those functions. The worksheet presented nine functions expressed by modal verbs, along with each modal verb that was claimed to be used to express that function. The functions included:

- 1. expressing physical ability
- 2. seeking and granting permission
- 3. making a request
- 4. giving advice
- 5. giving a suggestion
- 6. stating a preference
- 7. expressing necessity and obligation
- 8. future possibility, and
- 9. making assumptions.

The worksheet was based on the presentation of modals found in several current EFL texts. Table 4.3 provides examples for two functions, giving advice and making assumptions.

The researcher asked individual students to read the example sentences on the worksheet out loud and explain the meaning of the modal in terms of the strength of the speaker’s attitude. Students were also asked to volunteer additional examples of their own for each of the functions. This discussion lasted approximately 40 minutes. The group discussion was followed by three interactive tasks which the students completed in pairs.

The three interactive tasks were developed to encourage the subjects to consider the various functions that have been identified with modal verbs and to practice using the appropriate modal verb in context. The first task involved the controlled construction of a dialog (followed by a suggested model dialog using appropriate modals); this task was done in pairs. The second task focused on a dialog in which six errors with modals occurred and which the students were asked

TABLE 4.3 Sample from “Modal Verbs and their Functions” Handout

Modal verbs: can could may might must ought to should will would			
<i>Function</i>	<i>Modal</i>	<i>Examples</i>	
Give advice	should	Anne seems to struggle with math and physics. She <u>should</u> get a good tutor.	
	ought to	If you are having trouble making friends, you <u>ought to</u> spend more time with the rest of us.	
	had better	Harry look very tired. He’d <u>better</u> get some rest. The exam is tomorrow morning.	
Make assumption	may	I have tried to call Mary several times but no one has answered. I <u>may</u> have the wrong number.	
	might	She <u>might</u> be at the library. She always studies hard for her exams.	
	could	I heard someone at the door. It <u>could</u> be my husband coming home from work.	

to identify and change to appropriate modal choices; this task was done in pairs. In the final task, students were put in groups of four. This was an open-ended task in which students were given a current TV schedule and asked to come to a determination of which specific program to watch at a particular time. This task emphasized the functions of requesting, giving advice, giving suggestions and stating a preference. Completion of each task was followed by a large group discussion of the groups' results. Across the three tasks, care was taken to balance the number of opportunities to use each of the nine functions and each of the modal verbs, so that students had the opportunity to use each of the modal verbs listed on the handout at least once for each of the functions identified on the worksheet. Students were encouraged to consult the worksheet as they completed the tasks.

Four days later, the students were given a 50-minute, computer-delivered lesson on modals. The instruction consisted of nine passages based on current EFL teaching materials. Again visuals were included to make the materials more engaging. Each passage highlighted one of the nine functions presented on the first day's handout. Each passage was introduced with a brief review of the focused function. Even though these subjects saw a wider range of modals, care was taken that they were exposed to the targeted modals the same number of times as in the cognitive materials. The review section of the self-instruction was followed by a set of exercises. Examples of the review section can be found in Appendix B. The exercises were of two types: (1) a passage in which three modals were in bold type. Students were asked to determine the function each modal was expressing; and (2) a passage containing several errors with modals. Subjects were asked to identify the errors and supply the appropriate modal. Samples of both types of exercises are in Appendix C. The length of the traditional computer-delivered instruction was closely matched with that of the cognitive computer-delivered instruction. The cognitive instruction involved more explanation of concepts, such as force dynamics and metaphorical extension. This was balanced by providing more examples of modals used in context in the traditional materials. All the subjects completed the self-instruction module within the allotted 50 minutes. Immediately after completing the module, they took the posttest.

Results

To determine whether the cognitive group ($N = 38$) outscored the traditional group ($N = 16$) when the effect of prior knowledge was taken into account, an ANCOVA was conducted using SPSS. The between-subjects independent variable of treatment type had two levels (cognitive and traditional). The dependent variable consisted of modal posttest scores. The covariate consisted of modal pretest scores.

The assumptions for ANCOVA were met. The pretest and posttest scores of each group had a normal distribution, and all tests for skewedness and kurtosis were

non-significant. As required by ANCOVA, the covariate (pretest scores) was independent of the effects of the treatment. Moreover, a Levene’s Test of Equality of Error Variances was non-significant ($p < 0.902$), showing that the assumption of homogeneity of variance had not been violated.

The adjusted means for the posttest (adjusted to account for pretest results) were 23.3 and 20.6, respectively, for the cognitive and traditional groups. The ANCOVA revealed a main effect for treatment type: $F(1,53) = 7.31, p < 0.000, \eta_p^2 = 0.125$. The confidence interval at $p < 0.05$, using a Bonferroni adjustment for multiple comparisons, was between 0.7 and 4.6 for the mean difference between the cognitive and traditional groups. The cognitive group thus significantly outperformed the traditional group, with treatment type able to account for 12.5% of the between-subject variance. These results are represented in Table 4.4. The gain scores for the groups are represented in Figure 4.4.

In sum, the results showed significant gains for the cognitive group in their use of the modals, while the traditional group showed no gain.

TABLE 4.4 Scores of Three Instruction Type Groups on the 32-item Modal Test

<i>Instructional type</i>		<i>Pretest</i>		<i>Posttest</i>	
	N	<i>M (SD)</i>	Range	<i>M (SD)</i>	Range
Control	9	22.4 (2.1)	17–27	22.7 (3.5)	18–24
Traditional	16	20.3 (3.4)	13–26	20.2 (4.4)	12–28
Cognitive	38	21.3 (3.5)	12–27	23.4* (3.5)	17–32

* Significant at $p < 0.001$.

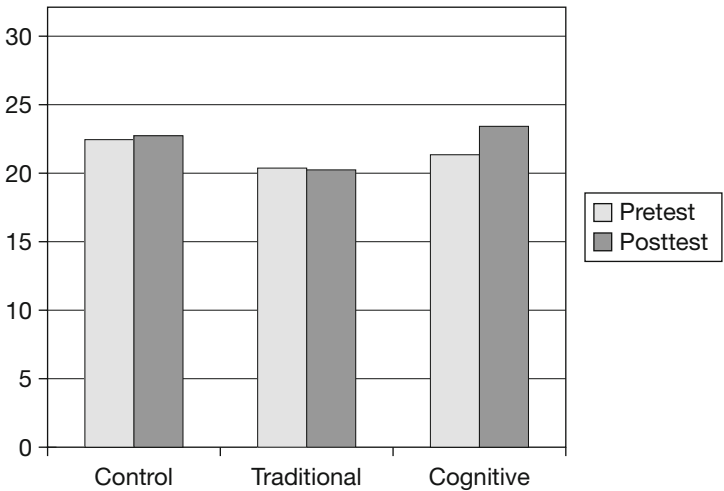


FIGURE 4.4 Modal Pretest and Posttest Scores of Three Experimental Groups

Discussion

The results of the statistical tests show that the cognitive group experienced significant gains over the traditional group. It is important to note that the effect size was moderate (2.7 points). However, I would argue the gain was considerable in light of the limited duration of the treatment. Both groups received approximately two hours of instruction on the modals. The cognitive group had many new concepts to learn. For instance, they were asked to think about the modals in terms of force dynamics and consider the role of metaphor in structuring the grammatical system. These represent radically different ways of thinking about grammar. At the same time, they were asked to learn specific, new meanings for each of the modals presented and think about how the modals are used to make meaning in context. This represents a set of relatively heavy cognitive demands. In contrast, for the most part, the material presented to the traditional group was a review of materials they had been introduced to in the past. They were not asked to learn a new system for thinking about the modals; rather they were given many contextualized examples of the modals and a set of formal rules to guide their appropriate choice of the modals. Although much of the material was not new, the treatment did allow considerable opportunity for the participants in the traditional group to learn (or memorize) contextualized uses of the modals that they had not yet mastered. In other words, the traditional group received considerable contextualised input. During the teacher-fronted instruction, the researcher actively engaged the participants in the traditional group, encouraging them to consider how each of the modals functioned in context. The self-instruction component provided many contextualized uses of the target items. In fact, we were a bit surprised that the traditional group showed no gains. Thus, we feel that the gains demonstrated by the cognitive group provide important support for the efficacy of using a CL approach to teaching the modals.

Nevertheless, some caveats must be issued. The participants in these studies were advanced, adult learners; they all came to the instructed situation with a strong basis in the speech act uses of modals. Future research should investigate the usefulness of language pedagogy based on a CL perspective aimed at learners of varying levels of proficiency. The CL-based teaching materials in the present study represent a limited set of modal uses, with relatively little emphasis on the speech act uses. In future investigations of the learning of modals at lower levels of proficiency, instruction will need to include a greater emphasis on a CL-based presentation of the speech act (root) uses as well as the epistemic uses.

There are important limitations to this study. The target items are not a full representation of the modal system. Several of the modals and periphrastic constructions were not addressed. Neither were meaning shifts that occur when modals are negated or used in questions addressed. These are important, complicating aspects of the system. An important direction for future research would be a longitudinal study which targets a fuller representation of the modal system.

Moreover, there is an imbalance in the number of participants in the two groups, with 39 in the cognitive group and only 16 in the traditional group. It would be preferable to have a more balanced number of participants. Finally, we do not know if the cognitive group maintained their gains in understanding the modals. An experiment involving a delayed posttest should be undertaken.

6. Conclusion

This chapter has focused on the English modal verbs. It was noted that even though modal verbs are high frequency, they are one of the last aspects of English mastered by L2 learners. I argued that two major reasons underlie this difficulty. First, traditional treatments of modal verbs have not provided clear, precise definitions that distinguish the modals from each other. Second, virtually every modal has two distinct meanings, a social world meaning and a logical prediction meaning. Traditional accounts have not provided a systematic explanation for the relationships between the social world uses and the logical prediction uses.

The CL alternative, based on force dynamics and metaphoric extension, does provide both precise definitions for the individual modals and a systematic account of the relationship between the two uses. To determine if the CL analysis could successfully be converted into effective L2 teaching materials three experiments were conducted. The results of the each of the experiments indicated that the participants receiving CL-based instruction demonstrated substantial improvement in their understanding and use of the modals, while participants in both the input flood groups and the traditional instruction groups showed no gains. The experiments thus provide empirical support for the efficacy of using a CL-based approach to teaching the modals.

Considering grammar and lexis as representing categories may give us insights into why the input flood situation did not result in gains in the L2 learners' appropriate use of modals. While all languages have ways of expressing speaker stance, the linguistic devices a particular language uses to express speaker stance vary widely. Moreover, the precise range of meanings picked out by each language may also differ. As we discussed in Chapters 2 and 3, this is an issue of category variation. Ellis (2008c) argued that when L1 and L2 categories conflict in subtle ways, learning the L2 categories may be particularly difficult. Mastering English modal verbs may represent a situation in which explicit instruction is necessary. Since these are effects of instruction experiments, the materials successfully used in the experiments serve as sample teaching materials. These appear in Appendices A and B.

5

APPLYING COGNITIVE LINGUISTICS TO ENGLISH PREPOSITIONS

Experimental Evidence

1. Introduction

Language teachers and researchers have long recognized that the mastery of prepositions poses major challenges for L2 learners (e.g., Celce-Murcia & Larsen-Freeman, 1999). One reason for this is that the semantics of prepositions are notoriously difficult to characterize. For instance, on first inspection, the distinction between prepositions such as *over* and *above* is quite unclear. On one hand, the sentence *The picture is over the mantel* is a near paraphrase of *The picture is above the mantel*. On the other hand, the sentence *Mary hung her jacket over the back of the chair* is interpreted as meaning something quite different than *Mary hung her jacket above the back of the chair*. Additionally, prepositions tend to develop a complex set of extended meanings, for instance, *over* has developed at least 16 meanings, many of which do not appear on the surface to be systematically related. Recent cross-linguistic investigations also suggest that the development of complex sets of meanings from language which was originally only spatial in meaning is the norm.

Although linguists have long been aware that prepositions develop complex sets of meanings, the meaning networks surrounding spatial markers (and the systematic processes of meaning extension from which they result) have only become the foci of linguistic inquiry in the last 20 years. Even the best descriptive grammars and dictionaries present the multiple meanings of spatial language as largely arbitrary. Traditional theoretical accounts have represented the semantics of English prepositions as idiosyncratic (Bloomfield, 1933; Chomsky, 1995; Frank, 1972). Consequently, pedagogical treatments have often suggested memorization as the best strategy. Studies show that accurate use of spatial language is one of the last elements learned and many highly proficient L2 speakers never attain native speaker-like use (e.g., Lam, 2009; Sanz, personal communication). Indeed, Lam

(2009) found that L2 Spanish learners made virtually no gains in their mastery of the prepositions *por* and *para* over the course of four years of college Spanish. Moreover, empirical investigations concerning effective ways of teaching the semantics of prepositions are virtually non-existent.

Cognitive linguistics (CL) offers an alternative perspective, suggesting that the many distinct meanings associated with a particular preposition are related in systematic, principled ways (e.g., Brugman, 1988; Dewell, 1994; Dirven, 1993; Hawkins, 1988; Herskovits, 1986, 1988; Lakoff, 1987; Linder, 1982; Tyler & Evans, 2001a, 2003; Vandeloise, 1991, 1994, 2003, 2010). An important objective of this chapter is to begin to explore the utility of an approach to English prepositions that takes seriously the perspective and methodology of CL (Evans & Tyler 2004a, b; Tyler & Evans 2001a, 2003).

After discussions with several ELT teachers and an informal analysis of writing samples of ESL learners at a major university in the US, it was determined that the prepositions *to*, *for*, and *at* were particularly challenging for ELT learners. An analysis of The International Corpus of Learner English, version 2, confirmed that learners from various native language backgrounds experienced substantial difficulty with these three prepositions. It was decided to carry out a series of studies that investigated the potential effectiveness of teaching these three prepositions from a CL perspective.

This chapter presents two effects of instruction studies focused on teaching the English prepositions *to*, *for*, and *at*. The chapter is organized as follows. I begin with an overview of the principles of CL which are central to the analysis of the semantics of English prepositions. In order to acquaint the reader with the theoretical underpinnings that guided the development of the instructional materials used in this study, I present a rather detailed CL-based analysis of the semantics of *to*. The analysis of *to* is followed by a more limited analysis of *for* and *at*. Following the analysis of the prepositions, two experiments are presented. The results of the two studies provide support for the hypothesis that a CL-based analysis of prepositions provides a useful, organized rubric for L2 learners confronting the complex set of meanings associated with prepositions such as *to*, *for*, and *at*. I end with a few remarks about limitations and future directions for experimental work on the efficacy of using a CL-based approach for instruction on the semantics of English prepositions.

2. An Overview of a CL-Based Analysis of the Semantics of English Prepositions

Theoretical advances in CL and the semantics of spatial language (e.g., Lakoff, 1987; Tyler & Evans, 2003) have provided important insights which demonstrate that much of what has been taken as arbitrary is far more systematic than previously thought. These theoretical breakthroughs offer potential for demystifying L2 spatial language, making this seemingly intractable area more accessible to learners. The

analyses of the three English prepositions presented here assume the CL-based principled polysemy model (e.g., Tyler & Evans, 2003). Three key ideas from CL are particularly important. They are the familiar ideas of the communicative nature of language (including the importance of inferences drawn from contextual cues and frequency effects), embodied meaning (including representing lexical items in terms of spatial scenes, construal on a scene and knowledge of force dynamics), and conceptual metaphor.

Semantic Network and the Communicative Nature of Language

A fundamental assumption of the principled polysemy model is that the multiple meanings associated with each preposition form a motivated meaning network organized around a central sense (discussed in detail in Chapter 2). A second line of support for this assumption comes from the usage-based notion of meaning extension and the hypothesis that a speaker would only use an established lexical form to mean something new if they believed the listener had a reasonable chance of understanding the new meaning through inferencing and contextual cues. With repetition across a number of similar contexts, the inferences come to be independently associated with the lexical form as additional senses; following Traugott (1989) Tyler and Evans refer to this process of extending meaning as **pragmatic strengthening**.

While most of the basic relationships denoted by prepositions are spatial, all English prepositions have developed complicated polysemy networks in which many of the meanings are non-spatial. (As noted above, the polysemy of spatial language is not unique to English.)

Embodiment and Spatial Relations as Spatial Scenes

One of the most ubiquitous human experiences is viewing spatial scenes, i.e., entities in relation to each other. There are innumerable reasons why humans need to communicate with each other about entities in their environment, thus it is no surprise that every language has a system for communicating spatial configurations between two (or more) objects. Gestalt psychologists have identified a number of principles that account for unconscious perceptual mechanisms that result in a reformatting of our direct experience with the world. These cognitive mechanisms constrain and provide particular structure to human experience. As discussed in Chapter 2, the work of Edgar Rubin (as cited in Evans & Green, 2006) firmly established that humans do not perceive objects and their relations in the world as a flat visual array. Rather, the human perceptual system organizes our conceptualization of the spatial scenes we encounter in terms of foreground and background, or figure and ground. Within a spatial scene, the figure tends to be the smaller, more moveable element which is the focus of attention; the ground is the larger, less moveable, locating element.

In English, prepositions provide the primary system for describing spatial relations. Most typically, prepositions describe a relationship between two objects, one of which is the focus element or figure (F) and the other is the grounding or locating element (the ground or G). As we noted in Chapter 2, Talmy (2000a, b) has written extensively about the role of F and G in the structure of language. The cognitive mechanism of organizing a spatial scene in terms of F and G offers an explanation for the acceptability judgments of sentences such as the following, in which the first object mentioned is interpreted as the F and the second object the G:

- (5.1) a. The football is next to the tree.
 b. ★The tree is next to the football.

It strikes us as strange to locate the larger, less moveable object (the tree) in terms of the smaller, more moveable object (the football). Of course, given the right, rare context such a sentence might be used, but the more natural choice is to help the listener understand the speaker's mental conceptualization of the scene by locating the football in terms of the tree.

As discussed in Chapters 1 and 2, there is good evidence that concepts derived from sensorimotor interaction with the world may be more appropriately modeled in imagistic terms. (The notion of imagery is discussed in Chapter 2 and explored extensively by Boroditsky, 2000; Cienki, 1998; Gibbs, 2006; Johnson, 1987; Langacker, 1987; and Spivey, 2007 among others.) Following Tyler and Evans (2001b, 2003), I assume that a preposition designates a conceptual *spatial relation* between an F element and a G element which is conceived as constituting an abstract *spatial scene*. Tyler and Evans (2003) argue that it was possible and insightful to represent the meaning of prepositions through diagrams because their central senses represent spatial relations between two objects. They further argue that using diagrams allows us to avoid propositional definitions which are often vague and confusing. (Tyler and Evans make no claims about the psychological validity of these diagrams.) Although the analyses by Tyler and Evans (e.g., 2003) have contributed substantially to our understanding of the semantics of English prepositions, much of their argumentation and even their diagrams are somewhat technical and thus potentially difficult for L2 researchers and teachers to turn into accessible experimental and teaching materials. For the most part, the various meanings of the prepositions discussed here are illustrated with the more learner-friendly visuals and language used in the experiments. The analysis further assumes that the various additional meanings associated with each preposition were ultimately derived from the preposition's central spatial scene.

In addition to the spatial configuration between an F and a G, the concept prompted by a preposition also involves a functional element, which arises as a consequence of the particular spatial configuration between the F and G (Evans & Tyler 2004b; Tyler & Evans, 2001a, 2003; Vandeloise, 1991, 1994). In the case of

in, for example, the spatial configuration involves a G in a surrounding configuration vis-à-vis the F (Talmy, 2000); the functional element involves the notion of containment. Johnson (1987), for instance, has argued that the functional element of containment involves numerous properties including location, confinement, protection and potential obscuring of the element(s) being contained (see Tyler & Evans 2003 for a fuller discussion of functional elements.)

Cognitive Principles of Inferencing and Meaning Extension

The principled polysemy model argues that meaning extension primarily occurs through general cognitive principles of situated inferencing. Three of the most important are listed below.

- **Real-world force dynamics:** as a default, speakers assume that all elements in a conceptual spatial scene are subject to real-world force dynamics, such as the assumption that objects are subject to gravity (Talmy, 1988, 2000). When interpreting a novel, contextualized use of a lexical item, speakers assume that real world force dynamics are in effect.
- **Ways of viewing a scene or construal:** every spatial scene is conceptualized from a particular vantage point. The conceptualizer represents the default vantage point and is usually off-stage. However, the same scene can be viewed from different vantage points. Shifts in vantage points can give rise to new inferences. (Langacker [1987] divides this phenomenon into two aspects, perspective and vantage point.) Certain parts of a spatial scene can be highlighted or profiled. Additions or shifts in highlighting can give rise to new inferences, which in turn can give rise to additional senses.
- **Metaphorical thinking and experiential correlation:** as noted in Chapters 1 and 2, one of the most important discoveries associated with CL is the ubiquitous nature of conceptual metaphor (e.g., Lakoff & Johnson, 1980; Lakoff, 1987; Grady, 1997, 1999). Following the notions of embodied experience discussed previously, the basic insight is that humans regularly think and talk about internal, often more abstract experience (such as emotions, thought processes and states) in terms of our experience with the external, physical-spatial world. This is thinking metaphorically, a common, universal cognitive process.

Humans also regularly observe the recurrent co-occurrence of two distinct phenomena which, with repeated exposures, become strongly associated in memory such that we conceptualize and talk about one in terms of the other. For example, beginning in infancy, the child experiences a sense of well-being when held and fed. Thus, physical proximity becomes associated with love and intimacy. Later, people who are good friends or important family members are often in close physical proximity. The result is that we form cognitive associations between two

separate phenomena such that we can use language about physical proximity to describe emotional intimacy, as in, *My sister and I are very close*. Grady talks about this as primary metaphor or experiential correlation (Grady, 1997, 1999; Lakoff & Johnson, 1999).

3. A CL Analysis of *To*, *For* and *At*

Overview

Traditional accounts have represented the semantics of English prepositions as highly arbitrary; the various uses are presented as unorganized lists of meanings that have accidentally come to be associated with a particular preposition. By and large, these are the accounts upon which ELT texts and grammars are based. Consider the following uses of *to*:

- (5.2) a. The window faces **to** the east. **Oriented in the direction of**
 b. Harry ran **to** home base. **Goal**
 c. Jaime gave the flowers **to** Pilar. **Receiver**
 d. Rafael was always kind **to** us. **Receiver of experience**
 e. This lettuce tastes delicious **to** me. **Receiver of perceptual experience**
 f. Sofie worked **to** the limits of her abilities. **Limit**
 g. The store was so crowded, people stood shoulder **to** shoulder at the sales table. **Contact**
 h. Danny nailed the board **to** the fence. **Attachment**

At first glance, and if we only attend to propositional definitions, there appears to be little relationship among the many meanings associated with *to*. However, if we focus on the spatial scene prompted by the preposition and on the inferences that inevitably arise during everyday interpretation, systematic, motivated relations among the meanings reveal themselves. With the extended meanings, the original spatial configuration may no longer be active for L1 speakers. (Establishing the psychological validity of the polysemy networks awaits investigation.) However, drawing on insights from CL, the multiple meanings associated with English prepositions can be represented as being systematically related within a motivated semantic network which might provide a useful rubric for L2 learners.

Analysis of *To*

The Central Sense

Using the set of guiding principles developed for the principled polysemy model, Tyler and Evans (2003) determined that the central meaning of *to* involves a spatial

scene with an oriented F facing a highlighted G element. This is the meaning represented in Figure 5.1.

The oriented F element is represented by a face that is turned towards the G; the orientation is further highlighted by the arrows emanating from the F towards the G. The G is represented by the sphere. Note the sphere has lines radiating from it. This represents the additional notion that the G is also interpreted as being a goal. Tyler and Evans (2003) term this additional goal interpretation as the functional element associated with *to*; it represents the humanly relevant consequences of an oriented F and G being in this particular spatial configuration. In the vast majority of circumstances, people (and animals) face in the direction of an object towards which they are moving (or intend to move). They also face in the direction of objects they are interested in. The intended endpoint of their movement or the object of interest about which they gather information is understood as goals. In these scenarios, the F element typically is the initiator of the action (or state). Recall that Langacker (1987) discusses this in terms of the energy flow. He represents the energy as originating with the F and flowing to an energy sink, i.e. the G.

In the sentence *The worshipper faced to the east*, the *worshipper* represents the F and *the east* represents the G. In this sentence, the verb *faced* prompts for a static scene. Energy in the form of attention flows from the F to the G. However, we know that in many instances in the physical-spatial world, the F element is in motion, as represented in the sentence *Jane walked to school*. When the verb indicates motion, *to* marks the endpoint of the motion. We understand that Jane followed a path to get from her starting point to the school. Additionally, we understand that the school is the goal of Jane's trip; it is where she is going to be at the end of her travel. In the scene depicted by this sentence, Jane's body is transferred from point A to the school. Based on our knowledge of basic force dynamics, we understand that all movement involving transfer of an entity from one point to another entails a beginning, a path that the moving object follows, and an endpoint. In English, *to* marks the endpoint of the motion. Thus, Jane represents the F from which the energy flow originates and *school* represents the G which locates the endpoint of her walking.



FIGURE 5.1 *To Central Sense*

A ubiquitous part of our physical–spatial experience involves moving or transferring an object from one location to another, as depicted in the sentence:

(5.3) Nicole moved the chair from the living room to the dining room.

Again, *to* marks the endpoint of the movement.

The Extended Senses

In our earlier discussion of the situated use of language, I noted that prepositions, like all words, rarely occur in isolation when they are used in real communicative situations. As they occur in various contexts, new interpretations can arise which, if they prove useful, become associated with the preposition through recurring use. This new interpretation presumably would come from inferences arising from the situated use of the lexical item. This suggests that the additional meanings that have come to be associated with *to*, *for* or *at* originally arose from contextualized uses and inferences that were derivable from context.

Figure 5.2 provides a representation of the polysemy network for *to*. In this representation, I use visuals meant to provide memorable, meaningful representations for the L2 learners. I will refer to this representation (technically a version

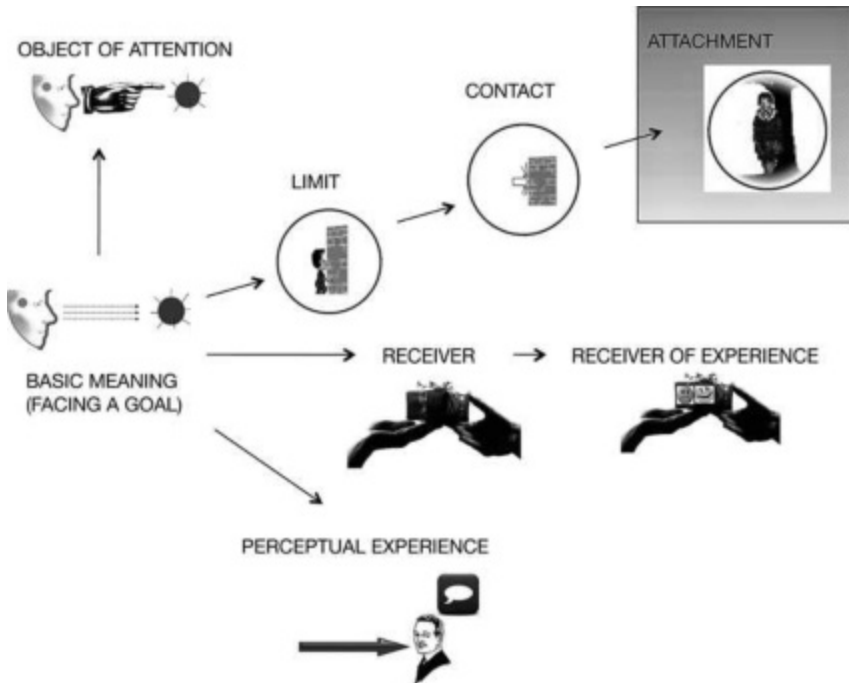


FIGURE 5.2 *To* Meaning Map

of the polysemy network) as the meaning map for the senses; this is the language we used with the L2 learners.

Receiver Sense

As I have just noted, people often move (or transfer) an object from one location to another. When talking about such physical transfer, English speakers indicate the endpoint of the motion with the preposition *to*. An important variation on this movement scenario is when the endpoint is another person.

(5.4) Frank gave the present **to** Charles.

Charles represents the endpoint of the movement. Unlike an inanimate endpoint, we understand that a human (or other animate being) will experience the transfer of an object to them. In this case, Charles **receives** the present. *To* still marks the endpoint of the motion, but when the endpoint is a person, we understand the person is a Receiver who undergoes some effect as a result of receiving the object. Tyler and Evans (2003) argue that this notion of affectedness creates a closely related but distinct sense in the polysemy network of *to*.

We represent the Receiver sense with a diagram in which one hand is transferring a present to a second hand. In this diagram, the present represents the F element and the second hand represents the G/Receiver.

As noted before, CL argues that a common, universal, human cognitive process involves thinking about internal, often more abstract, experiences and concepts in terms of our experience with the physical-spatial world. A common pattern involves extending language from the physical world to express notions about emotions or cognitive processes in terms of objects (Lakoff & Johnson, 1980). A basic metaphor in English is EMOTIONS ARE OBJECTS. English speakers often talk (and think) about emotions as if the emotion is an object.

When emotions are conceptualized as objects, we can talk about them as if they have the typical attributes of objects, such as entities that can be manipulated and transferred from one person to another.

- (5.5) a. Juliette gave her love to Romeo.
 b. Paul gave his complete loyalty to his wife.
 c. I'll send all my loving to you.

In these sentences, we talk about the emotion as being directed towards or transferred from one person to a Receiver. The emotion is the moving object. The Receiver is the endpoint. *To* marks the Receiver of the emotion.

Receiver of Experience Sense

We find a similar pattern with reference to behavior or experiences that affect another person. In the following sentences, Cathy's behavior is directed at someone.

- (5.6) a. Cathy is nice to Ralph.
b. Cathy is nasty to Ellen.

English speakers talk about behavior as an object that moves from A to B. Thus, the adjectives *nice*, *nasty*, etc., are the F elements in these sentences. (Here, the adjectives such as *nice*, *mean*, *kind* are acting like metonymies as they summarize a whole set of behaviors undertaken by the subject and directed towards the G.) *To* marks the Receiver of the behavior or the experience.

Receiver of Perception Sense

English speakers also use very similar patterns to talk about the results of perceptual experiences (e.g., seeing, tasting, hearing, smelling, feeling) as they use to talk about movement of entities in the external physical-spatial world. As previously noted, an essential part of embodied experience and human cognition is thinking about internal conceptualizations in terms of experiences in the physical-spatial world. What humans experience as the 'real' world is different from the conceptualized world represented in human cognition. The human perceptual systems provide the essential interface between the external world and the internal conceptual world. One way we seem to understand this interface is to think about perceptions as objects moving along a path from the external world to our conceptual world. In talking about perceptual experiences, English draws on the metaphor EXPERIENCES ARE OBJECTS. We can see this metaphor at work in the sentence *I had a good time*, in which the verb *had*, the prototypical verb of possessing, is used to talk about an experience as if it is an object. The result of perceptual experience is represented as the F element and the person (or animate being) is represented as the Ground/Receiver of the experience.

- (5.7) This milk smells fresh to me.

In this sentence, the olfactory experience of *freshness* is the F element and the person undergoing the experience of smelling, *me*, is the Ground/Receiver of the perceptual experience. Although perceptual information can be treated as neutrally updating one's mental model of the world, in many instances humans make an evaluative judgment about the results of the experience.

- (5.8) This bread tastes good to me.

The thing or event that stimulates the seeing, tasting, etc. is in sentential subject position. Within the predicate, the assessment of the stimulus is treated like the F element that moves, the perceptual system represents the path to the person who receives the experience. *To* marks the Receiver of the perception (or the metaphorical endpoint of the motion).

- (5.9) a. The music sounds good to me.
 b. This fish smells bad to me.
 c. This cloth feels itchy to me.

The language used to describe physical perceptions has been extended to talk about reactions to more abstract situations and the perceiver's internal perceptions or conclusions. In this use, the stimulus is no longer an object in the world, like the fish or the cloth in sentences 5.9, that evokes a sensory perception, but something more abstract such as a plan or a situation that evokes a judgment or emotion:

- (5.10) a. The plan **sounds** good **to me**.
 b. The situation **felt** uncomfortable to **June**.

The person who makes the judgment or draws the conclusion is the Receiver of the conclusion or evaluation.

Seems is an English verb that originally meant 'to appear.' It is still closely related to perceptual experiences. *Seems* is often used to talk about more abstract, internal processes having to do with thinking or drawing conclusions. *Seems* follows the same pattern as other verbs of perceptual experience:

- (5.11) Climbing Mount Everest seems dangerous to most people.

To marks the receiver of the perception (or mental conclusion).

Reaching the Goal Senses

Tyler and Evans (2003) found that once a meaning is established in the network, additional meanings can be extended from that new meaning. This results in a cluster of senses that can be related back to the central meaning. In the case of *to*, a cluster of senses relating to the physical experience of reaching a goal has arisen.

Limit Sense

In many instances, a goal represents a limit on the activity you engage in. When you reach the goal, you cannot go any farther. For instance, if you climb a mountain, the highest you can go is to the top. In a swimming competition, the swimmers' goal is to reach the other end of the swimming pool as soon as possible.

Once the swimmer reaches the opposite end, she cannot swim any farther from the starting point. So, we say:

(5.12) The swimmers swam to the opposite side of the pool.

Other examples of the limit sense include:

- (5.13) a. Einstein pushed his ideas **to** their logical limits.
 b. The pirates fought a duel **to** the death.
 c. The desperate housewives want to rise **to** the heights of stardom.

Contact Sense

We understand if the scene being depicted involves motion towards a goal, the F element will move closer to the G. Sometimes, when a goal is reached, there is contact between the F and G elements. *To* has developed an extended sense of contact or close proximity between the F element and the G, as in the phrases: shoulder to shoulder, cheek to cheek, and face to face.

Attachment Sense

A natural consequence (or frequent experiential correlation) of two objects being in contact is that they may become attached to each other. *To* has developed the extended meaning of attachment.

(5.14) This guy is tied to the tree. He is attached to the tree.

Not surprisingly given the central spatial scene for *to* which involves an oriented F element, in many cases when *to* is used to indicate attachment, the F element has an orientation. The F element's oriented shape facilitates its attachment to the G:

(5.15) Charles attached the flash drive to the USB port.

A common grammatical operation in English is to extend the scope of a noun so it acts as a verb. In the following sentences, verbs that are conceptually connected to oriented nouns and indicate some sort of physical attachment co-occur with *to*:

- (5.16) a. Jeff **nailed** the sign to the fence.
 b. Jean **tacked** the message to the bulletin board.
 c. Marylee **taped** the note to the wall.

This attachment sense of *to* has been extended metaphorically to talk about more abstract situations or states. For instance, when two people are married, they are

often physically together, perhaps holding hands or walking with their arms around each other. In Christian marriage ceremonies, the ritual language uses the terms 'join together.' Thus, English speakers say:

(5.17) Steven is married to Sandy.

There are many other situations in which a person is often physically close to another animate being or even an object or substance and forms an emotional or psychological attachment. English speakers use *to* when speaking about these relationships:

- (5.18) a. Katherine is quite attached to her pets.
b. Walter is addicted to alcohol.

To summarize, the central scene associated with *to* involves an oriented F element facing in the direction of a G element which is given the special status of goal. When the scene involves motion, the particular interpretation of goal is often the endpoint of the motion. A number of additional meanings have been extended from this central spatial scene. They include Receiver, Receiver of Experience, (Receiver of) Perceptual Experience, Contact and Attachment. All these meanings have arisen through systematic processes of extension which are grounded in our everyday, embodied experiences with the world.

Analysis of For

The scene depicting the central sense for *for* looks similar to the scene for *to*; the F is oriented in the direction of the G. However, the F is depicted as having something going on inside her head. This is meant to indicate that the F element typically has intentions (Figure 5.3).

BASIC MEANING (INTENTION)

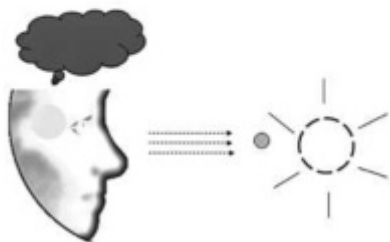


FIGURE 5.3 *For* Central Meaning Sense

Another difference is that in addition to the primary goal, or ultimate purpose (the larger circle with lines radiating from it), there is a smaller second circle, which represents an intermediate goal necessary to achieve the ultimate goal. A key notion in understanding the meaning of *for* is that there is an ultimate PURPOSE predicated upon reaching the intermediate goal. The ultimate goal is not always mentioned, although it is represented in the diagram. The fact that the ultimate goal is not necessarily articulated is represented in the diagram by being depicted in dotted lines. Some of the common phrases using this spatial sense of *for* collocate with verbs such as *head*, *run*, and *make*, as in:

- (5.19) a. Head for the hills!
 b. When the rain started, the school children ran for the trees.
 c. Many people in the small Midwestern town made for the tornado shelter.

In sentence 5.19a, we understand that reaching the hills is a means for gaining safety. In other words, the intermediary goal is ‘the hills,’ the ultimate goal is to find safety from whatever danger is pursuing the speaker and listener. The ultimate goal is not mentioned.

Additional linguistic evidence indicating that *for* marks intention comes from minimal pair sentences such as the following:

- (5.20) a. The balloon floated **to** the ceiling.
 b. The balloon floated **for** the ceiling.

English speakers generally reject sentence 5.20b. Tyler and Evans (2003) argue that this is because we understand that a balloon cannot have intentions, so the sentence sounds odd; the semantics of the Mover/Subject (i.e., the balloon) do not match the semantics of the *for* phrase, which suggests intentionality on the part of the mover. The balloon is a mindless moving object; the endpoint of its movement is the ceiling. The balloon has no particular purpose in reaching the ceiling. Reaching the ceiling does not represent an intermediary goal necessary to attain an ultimate goal. As we just saw in the previous section, *to*, on the other hand, indicates a destination or the end point of an action. Thus, the semantics of *to* match our understanding of a balloon as a non-thinking object, simply rising until it arrives at the end of its motion, i.e., the ceiling. This accounts for the acceptability of sentence 5.20a.

Purpose Sense

Now, consider a scene in which a woman is posing for a man with a camera. We could label the scene with a sentence like:

(5.21) Sandra posed for the photographer.

However, we understand that the photographer and his act of pushing the button on the camera is an intermediate goal. The ultimate goal is to get the photo. The photographer and his camera are a necessary, intermediate part in reaching the ultimate goal. In the real world, we often experience situations in which the intermediate goal becomes so strongly associated with the ultimate goal that we skip the mention of the intermediate goal all together, as in the following example:

(5.22) Sandra posed for her picture.

Such situations have given rise to an extended sense of *for*, the Purpose sense. The Purpose sense indicates a shift in construal from the basic spatial scene. The focus is squarely on the ultimate goal and the secondary goal fades out of the scene. Figure 5.4 represents this extension. Notice in this diagram, there is no intermediate goal. So, when a speaker says, *Sandra posed for her picture*, *for* marks the ultimate purpose of the activity.

The Purpose sense has become one of the most common uses of *for*. We find it in such familiar scenarios as:

- (5.23) a. We went for dinner.
b. We went for milk.
c. I asked the neighbors to come for tea.

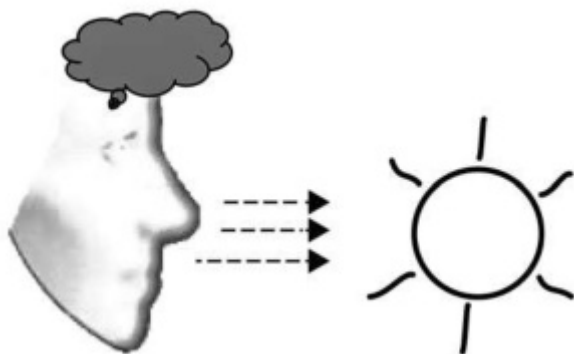


FIGURE 5.4 For Purpose Sense

It is perfectly possible to mention both the intermediary goal and the ultimate goal, but mentioning is not required:

- (5.24) a. We went **to the store** for milk. (The purpose of going to the store is to get MILK.)
 b. I asked the neighbors to come **to our place** for dinner. (The purpose of the neighbors' coming is DINNER.)

Meaning Map for For

The diagram in Figure 5.5 is the meaning map (semantic network) associated with *for*, which represents the most fully worked out polysemy network to date for the preposition *for*.

Tyler and Evans (2003) identified the central sense (or basic meaning), the Purpose sense, and the Benefit sense. Andrea Tyler and Charles Mueller developed the Personal Response and Special Case of Benefit senses. In the current network, two primary clusters of meaning extend from the Purpose sense – Response and Benefit. First I will discuss a subset of the Response senses. These senses tend to be less well understood. Moreover, they contrast with some of the targeted senses of *to*. The analysis of the The International Corpus of Learner English, version 2 shows that these contrasts between *to* and *for* appear to be particularly difficult for L2 learners.

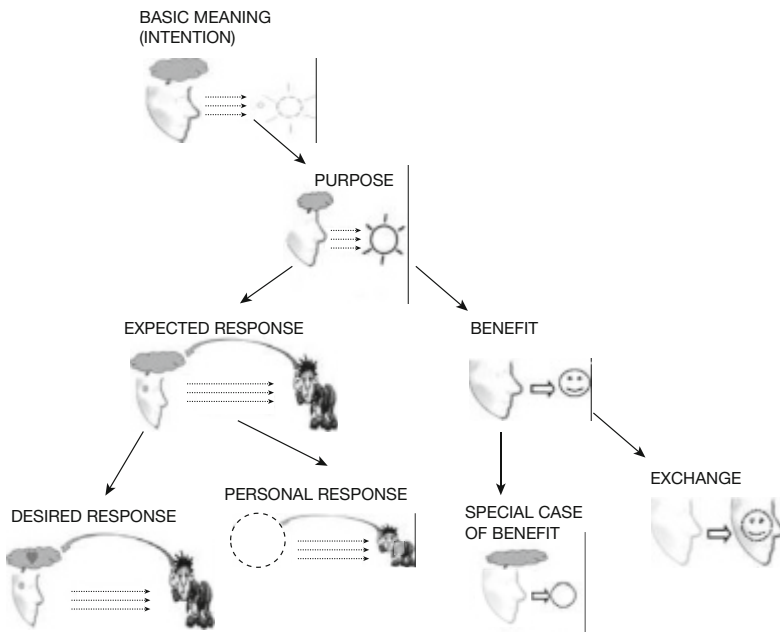


FIGURE 5.5 *For* Meaning Map

Expected Response from the Goal Sense

The first meaning extension from the Purpose sense is Expected Response. This meaning is illustrated by sentences such as the following:

- (5.25) a. I sent for the doctor.
b. I called for the police.

In the scenarios described by these sentences, PURPOSE is still highlighted. We understand a person who is sending for or calling for someone is acting intentionally with the purpose that the doctor (or police officer) will respond, presumably by providing help. In a situation like this, the human doing the sending or calling is not simply trying to get a message to the doctor or the police, end of story. She is sending or calling with the expectation that the doctor or police officer will respond. The agent/actor has an **expected response** from the other human (goal element). Moreover, in the real world, the goal element (e.g., the doctor or police) understands that there is a reason the person sent for them. They understand that they are expected to respond. Interaction between the focus/actor and the ground/responder is an important part of these kinds of scenarios. Full interpretation of these sentences is that there is an expectation of response. Sentences like these contrast with sentences containing the Purpose sense:

- (5.26) a. I called for help.
b. I asked for assistance.

In the instances of the Purpose sense, the reason for the focus/actor's actions is articulated. In the instances of Expected Response, the reasons for the focus/actor's actions are inferred (see Figure 5.6).

The diagram for Expected Response maintains a number of elements from the Purpose sense. The focus is represented as having intentions; the Figure (F) element is oriented towards the G; arrows extending from the F element in the direction



FIGURE 5.6 Expected Response Sense

of the G (a person listening or receiving the energy from the F element) indicate that the F is the initial source of action or energy. The key shifts from the Purpose diagram are: (1) the G element is an animate being who is responding to the F element. This is depicted in the diagram by a man listening; (2) the G is depicted as a second source of energy or potential action. This is depicted by the arrow originating with the G and moving to the F element. These changes mark a very important shift in the construal of scene. The F, typically in subject position and understood as the principle energy source, is now in an interactive configuration with a second energy source. As noted above, Langacker (1987) discusses the prototypical sentence in terms of an energy chain in which the energy starts with the F element (subject) and flows to an energy sink (typically a patient or under-goer). To help clarify the conceptual energy flow associated with the Expected Response sense for the participants, we included slides which depicted typical situations in which the speaker would expect a response. Figure 5.7 shows a representative example.

Personal Response Sense

The meaning of response from the goal has been extended yet again to indicate Personal Response to situations. This sense is illustrated by sentences such as:

- (5.27) a. Math is difficult for me.
b. Yoga is invigorating for Adrienne.

Here *for* marks a personal response from the G. The interpretation is that a comment is being made about personal response to an ability to achieve the purpose or intention. This marks another important shift in construal. As with Expected

- I called *for* the fire department.

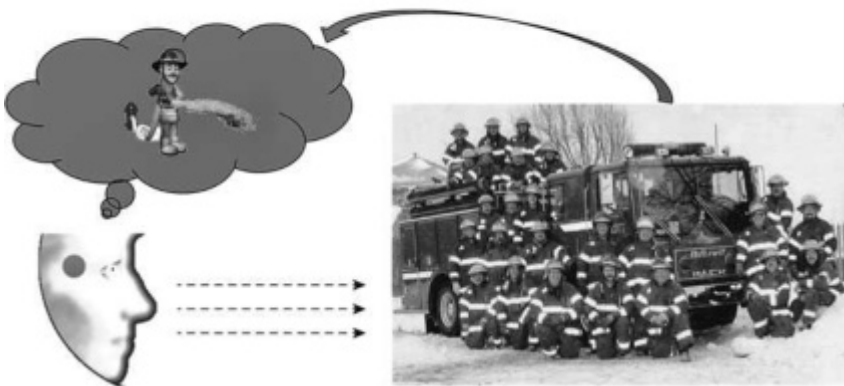


FIGURE 5.7 Expected Response Sense Illustrating a Typical Scenario

Response, the G is an energy source; however, now the G is the **main** energy source. In addition, the F object is not necessarily a person with intentions; it is often a more abstract area of knowledge or set of actions. We represented this sense visually in the diagram found in Figure 5.8.



FIGURE 5.8 *For Personal Response Sense*

The shifts in meaning are depicted in the diagram by representing the G element as an initiator of the energy. The F element is no longer an oriented, intentional element, but a vague circle, representing a general situation or activity. As we will see, the Personal Response sense seems to form minimal pairs with the Receiver of Experience sense in the *to* network.

- (5.28) a. My wife is good to me.
b. My wife is good for me.

Benefit Cluster

In many cases, the purpose for undertaking an action is to help or benefit someone else. *For* marks the entity that will benefit from the action. The entity benefiting from the action is the G.

- (5.29) We are making a cake for daddy.

We represented this sense visually in the diagram found in Figure 5.9.

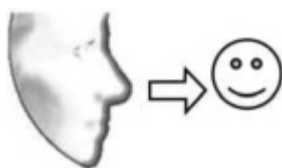


FIGURE 5.9 *For Benefit Sense*

In the Benefiting cluster, we again find an oriented F element who is the initiator of the action or the source of the energy. The action is directed towards the G. The concept that the G element is benefiting from the action is indicated in the diagram by the smiling face.

A Special Case of Benefit Sense

This sense is different from the Benefit sense in that it involves a general plan or intention rather than specific action on the part of the F entity.

(5.30) Doing well on this test is important for Sam [if he is going to succeed].

The speaker is emphasizing the belief that doing well on the test will provide benefit for the G (Sam). Doing well on the test is part of a larger plan and that is for Sam to succeed. The interpretation is the F (here the action of doing well on the test) will benefit the G and that the action is part of a larger plan. We represented this sense visually in the diagram found in Figure 5.10.

The diagram reflects this shift from the Benefit sense in several ways. To represent that the F is often part of a larger plan or intention, the ‘thought cloud’ is extended to cover more than just the F element and the F element itself is de-emphasized. To indicate that the G element is not necessarily an individual beneficiary, it does not have an individualized, smiling face. Here are some more examples of this sense:

- (5.31) a. Getting a good education is vital for the children.
 b. Having enough food is essential for people’s health.
 c. The studies show that married men tend to live longer. Having a wife is good for most men.

Now consider another example:

(5.32) This book will be important for Aaron.

The speaker is emphasizing that the F (here book or reading the book) will provide some benefit for Aaron. It also implies that the speaker believes in an overall plan

SPECIAL CASE OF BENEFIT

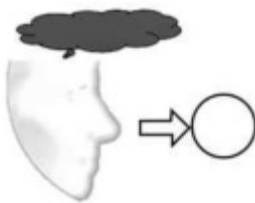


FIGURE 5.10 *For Special Case of Benefit Sense*

to be accomplished, like educating oneself in a particular area. *For* marks a complex of benefit (for the G) and an overall plan (a combination of intention and purpose). At first glance, the Special Case of Benefit may seem to be very similar to Personal Response:

- (5.33) a. Walking is enjoyable for Lou.
 b. Singing in public is frightening for most people.
 c. Organic chemistry is easy for Elizabeth.

The key distinction is in the direction of the energy flow. In the Personal Response sense, the judgment about the F element comes from the G, thus the primary energy flow is from the G to the F. Moreover, the meaning of sentences using this sense has to do with personal judgments or emotional/intellectual responses made by the G in regards to the F. This contrasts with Special Case of Benefit in that the judgment does not come from the G. The judgment is part of a larger plan or set of intentions, often having to do with the state of the world (as in, *Having enough food is essential for people's health*). The F element (or activities involving the F element) are seen as impacting on the G; the energy flow is from the F to the G.

Exchange Sense

Following the arguments put forward in Shakhova and Tyler (2010), I argue that a second sense derives from Benefit. This is the Exchange sense. Consider the following sentence:

- (5.34) Usually, Irini teaches this class, but today Dasha is teaching for her.

The sentence has two possible interpretations. First, that Dasha is helping Irini by teaching the class. Thus, Irini benefits from Dasha's action. Second, that Dasha is teaching in Irini's stead or that Dasha is substituting for Irini. (Perhaps Irini is sick and cannot come to class in any case. If Dasha did not teach, there would be no class. Irini might not actually benefit from Dasha's actions; presumably the students would.) We see a similar ambiguity in the following scenario:

- (5.35) a. Sally: 'I'm so busy I have a million things to do by 5 o'clock. Do you have time to give me some help? I need someone to go to the store FOR me. Harry could you go?'
 b. Harry: 'Sure, I'd be glad to go.'

In this example, Sally will benefit if Harry goes to the store instead of her. There are two clear consequences: (1) Sally benefits; and (2) Harry goes to the store in place of Sally. There is a substitution or exchange between Sally and Harry.

Because the notion of exchange predominates in many such scenarios, *for* has taken on the extended meaning of substitution or exchange in which benefit for the G element is no longer part of the interpretation.

- (5.36) When the horse sprained its ankle, the owner substituted a different horse **for** her in the big race.

The horse with the sprained ankle cannot be said to benefit by the substitution. He is incapable of running in the race and the fact that another horse runs in his stead is of no help to him.

The notion of exchange is even clearer in the following sentences:

- (5.37) a. Katherine **substitutes** applesauce **for** butter in some of her cakes.
 b. I'd like to **exchange** this damaged CD **for** a new one.
 c. Tom Sawyer **swapped** a jumping frog **for** a fishing pole.
 d. The French **traded** beads and whiskey **for** furs.

One of the most common uses of the Exchange sense is *for sale*, a transaction in which one party typically exchanges goods for an amount of money. A number of verbs commonly occur with this sense of *for*:

- (5.38) Nora **paid** **for** her meal and left.

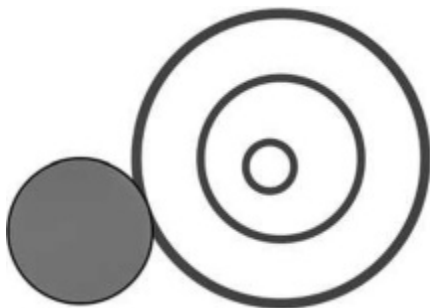
To summarize, following the principled polysemy model, a central sense and seven extended senses were identified for the preposition *for*. Tyler and Evans (2003) note that the central spatial meaning of *for* is no longer as frequent as it once was. The purpose sense is now more frequently occurring. Two main clusters of senses derive from the purpose sense, the response senses and the benefit senses.

Analysis of At

Tyler and Evans (2003) analyzed the central sense of *at* as a spatial scene in which two objects are either very close or in the same location, as in the sentence:

- (5.39) The house is **at** the corner of 5th and Vine Street.

We used the visual in Figure 5.11 to represent the F and G relationship prompted for by *at*. The small sphere represents the F element and the large sphere represents the G. This is a relationship of co-location. Because of space limitation, I cannot discuss all the extended meanings of *at*. Here I will limit our discussion to the functional and intensity senses. However, seven senses of *at* were taught.

FIGURE 5.11 *At* Main Sense

Functional Sense

When the F element is a human, we usually assume the person is located in close relation with an object for a reason. In other words, unless we have evidence to the contrary, we assume a person is acting intentionally or with some purpose in mind. When the F object is a person co-located with an inanimate object, we often assume the person is in an *at* location for a particular reason. Often this is so the person can interact with the G object in a useful way. For instance, consider the image that arises when you hear the sentence:

(5.40) The pianist is at the piano.

The most likely image that arises is that the pianist is facing the piano in such a way that they can manipulate the keys. Other physical configurations are possible. They could be sitting with their back resting against the piano. They could be sitting at the back of the piano. But the prototypical configuration would involve a functional relationship between the pianist and the piano. Similarly when we say someone is *at the computer* the typical interpretation is that the person is facing the computer screen and keyboard so that a functional, meaningful interaction can take place between the person and the computer. Thus, in many contexts, *at* does not prompt for a neutral conceptualization of simple co-location, but a conceptualization of an interactive, functional relation between the F and G. Herskovits (1986) and Evans (2010) refer to this as the notion of practical connection. *At* has developed an extended sense of functional interaction.

Intensity Sense

Quite often, when people interact with an object which can be construed as a G element, they are very busy and meaningfully engaged with it. This leads to an extension of *at* that conveys intensity of the activity. In everyday life, we are often intensely focused and active with objects we are physically close to or collocated with:

(5.41) Kim has been at her books all morning.

This sense of intensity is also used to talk about activities and states, *Kim is hard at her studies*.

We use this sense to talk about other animate beings. When a bee buzzes around a flower, it will be very active as it engages in collecting nectar from the blossom. English speaker can say:

(5.42) The bees have been at those flowers all morning.

In certain contexts, the notion of one person being intensely focused on what another person is doing can have a negative connotation:

- (5.43) a. My boss is always at me to work faster.
b. My mother was at me all morning to do my chores.

Figure 5.12 is the meaning map for *at*. There are a number of senses which I have not discussed here which were senses that were taught in the experiments reported below. Examples of each use appear in Appendix F.

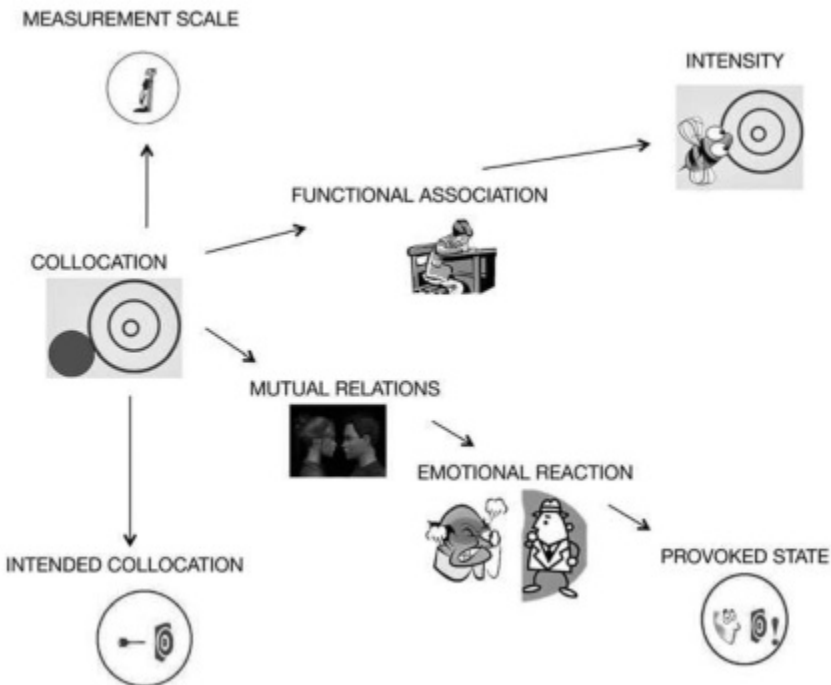


FIGURE 5.12 *At* Meaning Map

Intended Collocation Sense

One final sense associated with *at* deserves to be discussed. This is the intended collocation sense which is illustrated in sentences such as:

- (5.44) a. Lissa threw the rock at the possum.
b. The archer aimed his arrow at the boar.

In the diagram for this sense, the G is represented as a target.

We understand from our real-world experience that there are many situations in which our goal is to have an F object, such as an arrow or ball, be collocated (or make contact) with the G. In some of these situations, we do not achieve that goal. We aim at the G but the F element does not reach it. We have an intention for the F and G to be collocated, but that intention is not always fulfilled.

In our real-world experience, the G which we are aiming at is generally not conceptualized as a recipient which is benefiting or willing to receive our action, rather it is conceptualized as a neutral target (as in, *When you play darts, you should aim at the bull's-eye*) or something the F wants to fend off (as in, *Lissa threw the rock at the possum*). L2 English learners often have difficulty distinguishing this sense from the Receiver sense of *to*, not being able to distinguish the different interpretations of minimal pairs such as:

- (5.45) a. The boys threw the stick to the dog.
b. The boys threw the stick at the dog.

This distinction was a target of the following experiments.

5. Applying CL to L2 Learning: The Prepositions *To*, *For* and *At*

Experiment #1: Advanced L1 Italian Learners

To examine the efficacy of using a CL-based approach to teaching the semantics of the English prepositions *to*, *for*, and *at*, a quasi-experimental effects-of-instruction experiment was conducted. To this end, Tyler, Mueller and Ho (2010a) carried out a study of 14 very advanced English learners, professional translators whose native language is Italian. Even though these L2 learners had all studied English for more than 10 years and translated English on a regular basis, they continued to experience difficulty with the semantics of the English prepositions *to*, *for*, and *at*.

Participants

The 14 participants were professional English translators whose native language was Italian. All had studied English a minimum of 10 years. They were judged to be advanced learners. They were enrolled in a special, short-term program at a

major university in the U.S.A. The purpose of the program was to provide advanced instruction in English and in U.S. culture. As part of their regular classroom instruction, the participants were presented with instruction on the prepositions *to*, *for*, and *at*.

Prior to beginning the instruction, the participants were asked if they experienced any difficulties interpreting and translating these prepositions. All responded that, even though they had encountered the prepositions innumerable times and received standard instruction on their uses, they still felt unsure of many of the uses. They noted that prepositions were particularly hard because they had to memorize their many meanings and the verbs, adjectives, or nouns with which they collocated. They noted they often confused these memorized collocations.

Design

Table 5.1 summarizes the overall design of the study.

The participants took a pretest on the first day. In spite of their advanced level of English proficiency, the test revealed a number of gaps in their knowledge of the extended meanings of all three prepositions. They scored an average of 19.5 out of a possible 40 points (range, 13–28; S.D. 4). They were particularly weak on the extended meanings of *at*, scoring an average of 17.9% correct, as well as *to*, scoring an average of 49.2% correct. They had the greatest knowledge of *for*, scoring on average 72% correct.

On the second day of the treatment the participants received teacher-fronted instruction on the preposition *to* followed by pair work that focused on appropriately using the preposition in various scenarios. On the third day, the participants received teacher-fronted instruction on *for* and *at*, followed by pair work. After a 15-minute break, the participants took a posttest.

Pretests and Posttests

Two tests were developed, Version A and Version B. The tests had a forced-choice, fill-in-the-blank format. The tests consisted of short dialogs or paragraphs, each of which was missing several prepositions. For each paragraph or dialog, the participants were asked to select the most appropriate preposition for each blank

TABLE 5.1 Overview of Experimental Procedure

Group	Session 1	Session 2	Session 3
Cognitive	Pretest	(1) 50-minute teacher-fronted instruction on TO	(1) 50-minute teacher-fronted instruction on FOR and AT
		(2) 30 minutes pair work	(2) 30 minutes pair work
			(3) Posttest

from among a list of possible choices. Participants were instructed to use only the choices provided. The dialogs and paragraphs were constructed so that only one choice for each blank was appropriate. The tests were piloted with native speakers of English and adjusted until each paragraph received 100% agreement on the appropriate preposition choices. Each test had 40 target items and 20 filler items. Subjects' scores on the filler items were not used in calculating scores.

The tests were blocked so that half the subjects received Version A as the pretest and half received Version B. Those who received Version A as the pretest received Version B as the posttest and vice versa. To determine whether the test forms were equivalent, the scores on the two tests were compared. A two-way ANCOVA with test form order as a between subject variable and pretest scores as covariate was conducted. Mean scores for the test form A pretest group was 19.4, whereas the mean for the test form B pretest group was 19.6. The ANCOVA indicated no significant difference between the Test Form orders, $p < 0.91$. In sum, the level of difficulty of Version A and Version B was highly comparable.

The Treatment

On day one, one of the researchers led a 50-minute, teacher-fronted, interactive explanation of a CL-based interpretation of the semantics of *to*. The researcher began by giving a brief explanation of words having a related network of meanings and the notion that the central meaning for each preposition designates a spatial relation between an F and G element. The teacher-fronted instruction was accompanied by a PowerPoint slide presentation which contained numerous visuals, including cartoons and video clips. Each of the meanings was represented by a diagram which attempted to reflect that meaning. The diagrams for *to*, *for*, and *at* and select extended senses appear above in the discussion of the polysemy networks.

The teacher-fronted instruction was followed by two interactive tasks in which the participants worked in pairs. The participants were given a worksheet with an unlabeled meaning map of the visual representations of the network for the preposition. With their partner, they filled in the correct labels accompanying each visual. The researcher circulated among the pairs to make sure the participants labeled the map appropriately. Once they had labeled the maps, the pairs made up one sentence for each of the meanings. For instance, for *to*'s Receiver sense, they produced a sentence such as, *Ron threw the ball to Lisa*. Again the researcher circulated among the pairs to check the accuracy of their uses of the prepositions.

For the second task, participants were given a set of headlines, each of which used a different meaning of the preposition. The participants wrote a two-sentence story that matched the meaning of the preposition in the headline. For instance, the headline demonstrating *to*'s perceptual experience sense was, *Water in the Gulf region tastes foul to birds in the area*. All pairs completed the tasks in the allotted time.

On day two, the same researcher led a teacher-fronted, interactive PowerPoint presentation on *for* and *at*. Again the PowerPoint presentation contained numerous

visuals, including cartoons and video clips. Each of the meanings was represented by a diagram which attempted to reflect that meaning. After the presentation, the participants worked in pairs filling out unlabeled meaning maps for *at* and *for*, creating their own sentences which illustrated each sense and finally writing sentences that matched the headlines.

Materials

The PowerPoint presentation was very similar in nature to the explanation of *to*, *for*, and *at* and their polysemy networks given above. For instance, the researcher began by explaining that prepositions label a spatial relation between something in focus which is located in terms of a background or ground element. The researcher noted that one of the objects is usually smaller, more mobile and the one in focus. On the first day, the basic diagram of *to* (as shown above) was presented and explained.

After the initial presentation of the diagram, the experimenter noted everyday experiences which involve a person facing or moving in the direction of an object. For instance the experimenter said something like, “If I wanted to walk to the desk, I could walk backwards, but this is risky and we would rarely do that. We usually turn our bodies towards the goal we are trying to reach. I’m sure you could think of many examples of this use of *to*.” The researcher then elicited sentences such as:

- (5.46) a. Let’s go to school.
 b. They walked to the store.
 c. I have to go to the library.

The PowerPoint slide presentation also had several sentences illustrating the central sense. Each sentence was illustrated with an appropriate picture or cartoon.

Discussion of the extended senses followed the same pattern. The diagram representing a particular sense was presented via the PowerPoint slides. Slides explicitly explaining the elements in the diagram were presented (see Appendix E). This was followed by several sentences illustrating the extended use of the preposition. Each sentence was illustrated with an appropriate picture or cartoon. Whenever possible, short video clips from popular movies or sitcoms were used. The researcher also asked the participants to act out mini-scenarios that illustrated the extended sense. For instance, the researcher had a bag of candy. He gave the bag to one of the participants and as he did so, said, “I’m giving the candy **to** X. Notice that X received the candy. **To** marks the receiver in these situations. X help yourself and then give some **to** the person next to you.”

Results

Except for one participant who went from 23 on the pretest to 22 on the post-test, all the participants gained on the posttest, going from $M = 19.5$ (48.8%) to

M = 24.4 (60.9%) out of 40 possible. Average gain was 4.9 points or 12% (range -1 to 13; S.D. 4.6). Individual pre- and posttest scores appear in Table 5.2.

Participants also showed gains on all three prepositions, although the gains on *for* were slight. The gains for individual prepositions are represented in Table 5.3.

Since this was a within-subject design, a paired t-test was performed on the participants' pre- and posttest results. The test showed that gains were highly significant ($p < 0.0003$).

Discussion

The results of the statistical tests indicate that the participants experienced significant gains in their understanding of the many meanings of *to*, *for*, and *at*. Even though none of the participants attained 100%, we argue the gain was considerable in light of the limited duration of the treatment. Participants received approximately two hours of instruction on the meanings of the three different prepositions. They had many new concepts to learn. For instance, they were asked to think about the various uses of the prepositions in terms of polysemy networks extended from a central spatial scene and consider the role of metaphor in meaning extension. These

TABLE 5.2 Experiment #1 Participants' Individual Pretest , Posttest and Gain Scores

<i>Pretest</i>	<i>Posttest</i>	<i>Gain</i>
14	27	+13
13	17	+4
16	17	+1
19	26	+7
22	26	+4
20	22	+2
19	27	+8
28	32	+4
19	25	+6
19	26	+7
16	19	+3
22	31	+9
23	24	+1
23	22	-1

TABLE 5.3 Experiment #1 Gains on Individual Prepositions Presented in Percentages

<i>To</i>	<i>To</i>	<i>To</i>	<i>For</i>	<i>For</i>	<i>For</i>	<i>At</i>	<i>At</i>	<i>At</i>
Pretest	Post	Gain	Pretest	Post	Gain	Pretest	Post	Gain
49.2%	66.8%	17.6%	72.0%	75.3%	3.3%	17.9%	32.1%	14.2%

represent radically different ways of thinking about the meanings of the prepositions. At the same time, they were asked to learn specific, new meanings for each of the prepositions presented and think about how the prepositions are used to make meaning in context. This represents a set of relatively heavy cognitive demands.

Moreover, these were professional translators who were advanced learners. Given the amount of English they are exposed to on a regular basis, it is probably fair to say that, relying solely on input and implicit learning, they had reached a stable state. The fact that two hours of instruction could result in improvement for all but one of these learners indicates that a CL-based explanation can make valuable contributions to advanced learners' understanding of the prepositions.

Tyler and Evans (2001b, 2004) argued that CL offers a number of important benefits for pedagogical grammars over more traditional approaches. First, a systematic, motivated account of the range of conventional meanings associated with a single preposition, a *semantic network*, cuts down considerably on the amount of arbitrariness and hence reduces the need for rote learning on the part of the L2 learner. Second, because the model draws heavily on the notion of the experiential basis of meaning and represents the extended senses as arising from observations of the external, physical-spatial world, it reflects the learners' own experiences with the world. Understanding the motivation behind the extended meanings as being experientially motivated and coherent with the learners' own observations of the world would seem to make these meanings easier to acquire. Third, the various meanings are represented as gestalt-like conceptualizations of situations or scenes which are systematically connected, rather than a series of discrete dictionary-type definitions strung together in a list. Such graphic representations can provide visual rubrics that may be useful presentational tools for the language teacher and useful aids for the L2 learner. (This was the intent of the meaning maps we presented to the participants.)

Conclusions

This study represents a hopeful step in experimentally investigating the usefulness of a CL-based approach to teaching the semantics of English prepositions.

However, we must interpret the results cautiously as there are a number of limitations with the study. The within subject gains were impressive, but they do not give us information about the relative efficacy of a CL-based approach. The PowerPoint presentations contained many engaging visuals and contextualized uses of the prepositions. Participants receiving similarly engaging materials, but without a CL-basis, might have made similar gains. To say with confidence that CL-based instruction provides a superior basis for L2 learning, future experiments must include a control group that receives a carefully constructed, non-cognitive treatment.

The participants represent a narrow population. They were advanced learners. Certainly conducting experiments with participants with a broader range of

proficiency is important. Moreover, these participants were professional translators who were trained to be analytical and likely had a high level of metalinguistic awareness which might have made them more attuned to the subtle semantic differences in prepositional use. Additionally, they were all native speakers of Italian, a language which is related to English and which also has numerous prepositions. In fact, we believe one reason they performed so well on *for* is because Italian has a cognate preposition which has many of the same extended meanings as English *for*. Experiments with participants with different language backgrounds, including those not related to English, is an important step in determining the robustness of the treatment.

Experiment #2: Comparing the Efficacy of a CL-Based Approach with a Traditional Approach to Teaching To, For and At

To address the limitations discussed above, a quasi-experiment effects-of-instruction study was developed which involved two treatment groups, a group which received a traditional approach to the prepositions and a group which received essentially the same cognitive treatment as the Italian translators. In addition, the participants were less advanced, less homogenous ELT learners.

Participants

The participants were 63 adult English learners (ages 18–25). The participants were all students enrolled in major universities in Hanoi, Vietnam. One of the researchers posted an announcement on a free online website. The participants volunteered to be in the experiment in response to the announcement. The participants were randomly assigned to one of two groups – a cognitive group and a traditional group. The cognitive group consisted of 31 participants, the traditional group consisted of 32 participants.

Design

The study took place over two sessions. Table 5.4 gives an overview of the experimental design. For each group, Session 2 took place 48 hours after Session 1. Care was taken that both groups had the same amount of time on task.

Pretests and Posttests

The same pre- and posttests were used as were developed for study #1 discussed above. The tests had a forced-choice, fill-in-the-blank format. The tests consisted of short dialogs or paragraphs, each of which was missing several prepositions. For each paragraph or dialog, the participants were asked to select the most appropriate preposition for each blank from among a list of possible choices. Participants were

TABLE 5.4 Overview of Experimental Procedure

<i>Group</i>	<i>Session 1</i>	<i>Session 2</i>
Cognitive	(1) Pretest	(1) 50-minute teacher-fronted instruction on FOR and AT 15 minute break
	(2) 50-minute teacher-fronted instruction on TO 15 minute break	(2) 30 minutes pair work
	(3) 30 minutes pair work	(3) Posttest
<i>Group</i>	<i>Session 1</i>	<i>Session 2</i>
Traditional	(1) Pretest	(1) 50-minute teacher-fronted instruction on FOR and AT 15 minute break
	(2) 50-minute teacher-fronted instruction on TO 15 minute break	(2) 30 minutes pair work
	(3) 30 minutes pair work	(3) Posttest

instructed to use only the choices provided. The dialogs and paragraphs were constructed so that only one choice for each blank was appropriate. Again there were 40 target items and 20 filler items. Only the target items were scored.

Materials

Cognitive Group

The materials for the cognitive group were basically the same as those used for the Italian translators. The researcher added several humorous slides and video clips to make the materials more engaging for the participants. Both days, after the teacher-fronted explanation, participants were asked to work on two tasks with a partner. The tasks were the same as those described for the previous experiment, i.e., labeling the meaning maps and the headline matching task.

Traditional Group

The materials for the traditional group paralleled those used with the cognitive group as much as possible. The traditional group saw all the same sentences accompanied by illustrative pictures and cartoons as the cognitive group. They were also asked to participate in illustrative actions, such as receiving candy and giving candy to other members of the class. The major difference was that the traditional group did not receive a cognitive analysis of the prepositions. There was no emphasis on the central nature of the spatial sense of the preposition, although the discussion of each preposition did begin with the spatial meaning. No diagrams were provided to help articulate the meanings of the prepositions. The same extended senses were presented to the traditional group as to the cognitive group, but without memorable labels (such as Receiver or Expected Response). The extended senses were intentionally presented in random order, as they might appear in a traditional dictionary entry. Because the traditional group received less explanation, the PowerPoint presentation contained many more illustrative examples of each sense. Thus, the traditional group received more implicit input than the cognitive group.

After the teacher-fronted presentation, the traditional group was also asked to participate with a partner in two tasks.

Task 1

Part A: participants were given worksheets which contained 21 sets of phrases; two-thirds were acceptable, one-third were unacceptable. Participants circled the ones they thought were ‘incorrect,’ then compared their choices with their partner. The teacher circulated among the participants to make sure the pairs made the appropriate choices. (Below are examples of groups of phrases.)

- (5.50) a. important for me, a burden for Jim, **a lightness for Mary**
 b. to the top, to the death, **to the second**
 c. **Kim is angry to**, Ann is mean to, Emily is polite to
 d. for fun, for the experience, **for sorry**

Part B: from each group of phrases, choose one correct phrase and make up a sentence with that phrase.

Task 2

The same headline-paragraph matching tasks as performed by the cognitive group.

Results

The pretest scores showed that the performance of the two groups was nearly identical. Both groups scored at approximately 36% correct on the pretest (see Table 5.5).

TABLE 5.5 Descriptive Statistics

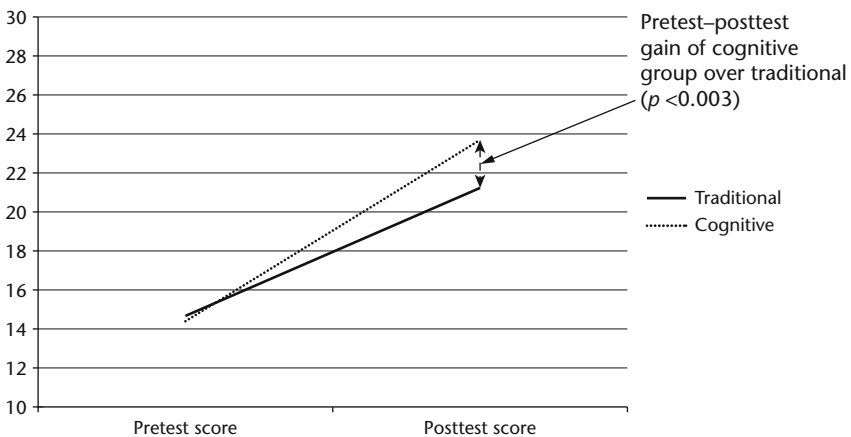
	<i>Pretest Average (range)</i>	<i>Posttest Average (range)</i>	<i>Gain Average</i>	<i>Range</i>
Cognitive	14.48 (4–23)	23.74 (18–28)	9.2	(3–18)
Traditional	14.66 (6–22)	21.31 (11–27)	6.8	(–4–20)

The posttest scores showed that the participants in the cognitive group gained 9.2 points on average, thus scoring approximately 59.3% correct after the intervention. The participants in the traditional group gained only 6.8 points on average, thus scoring approximately 53% correct on average. Within-subject tests showed that both the cognitive group and traditional group achieved a statistically significant gain between the two tests.

A two-way ANCOVA with treatment type as a between-subject variable and gain scores as covariate was conducted. Mean scores on the posttest for the cognitive group was 23.74 (S.D. 3.69), whereas the mean on the posttest for the traditional group was 21.31 (S.D. 4.96). The cognitive group outperformed the traditional group by 2.4 points on average, approximately a 35% advantage. The ANCOVA indicated there was a significant difference in gain scores, ($p < 0.003$). In sum, the cognitive group made significantly greater gains than the traditional group (Figure 5.13).

Discussion and Limitations

The participants showed significant gains between the pretest and the immediate posttest. To know if these gains represent a deeper understanding of the extended

**FIGURE 5.13** Between-Subjects Results: ANCOVA

meanings and the processes involved in meaning extension, such as experiential correlation and conceptual metaphor, a delayed posttest is essential. Unfortunately, a number of circumstances prevented us from being able to conduct the delayed posttest.

Unlike the Italian translators from the previous experiment, the participants in this experiment varied in terms of their career goals. Nevertheless, they were all native speakers of one language, Vietnamese. Even though Vietnamese and English are unrelated languages, they both use a prepositional system to express spatial relations (Ho, 2008), which might allow for some facilitative transfer when learning the English prepositions. Moreover, Ho's (2008) analysis shows that Vietnamese prepositions also develop extensive polysemy networks, which might implicitly aid these learners in understanding the semantic flexibility of English prepositions. However, Vietnamese has a set of prepositions which differ markedly in terms of their central spatial scenes and extensions from those of English. So we would not expect the kind of facilitative effect for particular prepositions that we found with the Italians and *for*. Still, speakers whose L1 expresses spatial relations using case marking or special spatial nouns would be expected to experience different challenges in learning the uses of English prepositions. Therefore, further experiments in which the participants vary more broadly in terms of their L1 are warranted.

Finally, the experiments had only one measure of knowledge of the prepositions, which was a reading task with a forced-choice fill-in-the-gap component. Future experiments should include a second measure which asks participants to produce prepositions.

7. Conclusion

Learning the multiple uses and subtle distinctions between English prepositions is a well-recognized challenge for L2 learners. This chapter presented a CL-based analysis – more specifically, a principled polysemy analysis (Tyler & Evans, 2003) of three English prepositions – *to*, *for*, and *at*. The key concepts which formed the basis of the analysis are the familiar notions of the communicative nature of language, embodied experience (especially the original spatial nature of prepositions; linguistic units as labels for spatial scenes; varying construals on scenes; and knowledge of real world force dynamics), metaphor and experiential correlation, prototypes and radial networks and the role of frequency and grammaticalization in meaning extension.

Traditional linguistic approaches have treated the multiple meanings associated with prepositions as arbitrary. These approaches have also offered, at best, imprecise propositional definitions for the prepositions. Traditional pedagogical approaches have followed suit and presented the meanings of prepositions as a list of unrelated, vague dictionary-type definitions; the recommended strategy for learning has been memorization.

Building on the insights of Brugman (1982), Herskovitz (1989), Lakoff (1987),

and Vandeloise (1994), Tyler and Evans (e.g., 2003) established that the many meanings associated with all English prepositions can be accounted for in terms of systematically related meaning networks (polysemy networks). They (e.g., 2004) hypothesized that the CL-based analyses and their motivated polysemy networks had the potential to provide more precise representations of the meanings of individual prepositions and useful rubrics for learning the multiple meanings associated with each preposition. These hypotheses were tested in two different effects of instruction studies. In both studies, participants receiving CL-based instruction demonstrated significant gains in their ability to appropriately interpret and distinguish the uses of the targeted prepositions.

These two experiments hardly settle the question of the superiority of a CL-based approach to teaching prepositions, but they do provide a solid foundation for further research. What is striking about these findings is that even very advanced L2 learners (i.e., the Italian translators), who under some accounts might have been considered to have reached their end state in learning the semantics of *to*, *for*, and *at*, were able to make significant gains after receiving only two hours of instruction. This is particularly impressive as these prepositions are involved in a number of relatively frequent, but hard to learn, collocations, such as:

- (5.51) a. Doing well on the entrance exams is important to Joe.
b. Doing well on the entrance exams is important for Joe.
- (5.52) a. Kerstin threw the ball to Dave.
b. Kerstin threw the ball for Dave.
c. Kerstin threw the ball at Dave.
- (5.53) a. The alert bystander shouted to the police officer.
b. The alert bystander shouted for the police officer.
c. The frightened bystander shouted at the police officer.

To native speakers, each member of these minimal pairs has a different meaning and would be used to convey a different perspective on the scene. Our experience is that using standard, propositional definitions of these prepositions is typically insufficient to offer insightful representations of the individual prepositions or explanations for why native speakers choose one instead of the other. Even very diligent, alert L2 learners struggle to make these distinctions with consistency and confidence. (This is probably true for most languages, as attested by Lam's [2009] study of English learners learning *por* and *para* and English learners learning Russian prepositions such as *za*, *na*, and *v* [Jacobsen, personal communication]). The findings from the experiments presented here suggest that CL provides the tools for reconceptualizing prepositional meaning in ways that are accessible and useful to L2 learners.

6

APPLYING COGNITIVE LINGUISTICS TO CLAUSE LEVEL CONSTRUCTIONS

Experimental Evidence

1. Introduction

A central problem for all models of grammar is to account for the matching between individual verbs and the syntactic frames in which they appear. In its simplest form, it is the question of just which verbs are followed by zero nouns (**intransitive**, such as *cough*, *sneeze*), one noun (**monotransitive**, such as *slap*), or two nouns (**ditransitive**, such as *give*). The noun patterns that follow a verb are commonly referred to as the verb's **argument structure**.

The matching problem is complicated by the fact that many verbs can occur with multiple argument structures. For instance, in some cases a verb can have both an intransitive argument structure and a transitive argument structure form, such as:

- (6.1) a. Frankie ate. Frankie ate the chicken.
b. Frankie wrote. Frankie wrote the paper.
c. Frankie turned left. Frankie turned the handle.

A further complication is the fact that some verbs can occur in what appear to be competing patterns which seem to be semantically synonymous, while other semantically similar verbs can participate in only one of the patterns. This issue has been often been addressed as **syntactic alternation** and its exceptions. The traditional view has been that the two forms (as in 6.2a and 6.2b) are rule-governed, transforms of each other (Pinker, 1989). The following examples illustrate:

- (6.2) a. John gave a plate to Edie.
b. John gave Edie a plate.

The verb *give* occurs with both **prepositional dative** construction (Verb NP to NP) as in 6.2a and the double object (or **ditransitive construction**, i.e., Verb NP NP) as in 6.2b. This is the so-called **dative alternation pattern**.

Traditional approaches have assumed the two forms are synonymous and that one of the forms, usually the prepositional dative, is the basic pattern and the second, the double object, is derived from the basic pattern via some sort of rule-governed movement or transformation. The idea is that a regular rule accounts for the two versions and that if a verb occurs in one, it should also occur in the other. Traditional approaches have also assumed that, for the most part, syntactic alternation is subject to generalizable rules, so verbs which have similar semantics to *give* are expected to participate in the same alternations. However, for dative alternation there are many exceptions, as exemplified in 6.3a and 6.3b. Even though the meanings of *give* and *contribute* overlap a good deal, and *contribute* occurs in prepositional dative pattern, it does not occur in the double object construction in 6.3b. This is unexpected in a rule-based system.

- (6.3) a. John contributed a statue to the museum.
b. *John contributed the museum a statue.

A related puzzle is that other verbs appear in the double object pattern but not the prepositional dative:

- (6.4) a. John built Sam a house.
b. *John built a house to Sam.

The occurrence of verbs such as *build* in the double object construction introduces the additional concern that the semantics of *give* and *build* do not have a clear overlap. In fact, countless verbs which do not appear to share semantic properties can appear with the same argument structures (Pinker, 1984, 1989).

Many words have been exchanged over how to theoretically account for these patterns, as well as how to account for how young children learn these patterns in their L1 (e.g., Pinker, 1984, 1989). Some well-known treatments (e.g., Pinker, 1989) have addressed the matching problem by focusing on the verb and assuming that the verb's argument structure information is specified in the lexicon, along with the meaning of the verb. These analyses have further assumed that the syntactic patterns the verb occurs in provide no independent meaning to the utterance. Linguists have long sought to identify semantic classes of verbs whose features would allow useful explanations for the argument structure patterns we find in language. For instance, Pinker's work on narrow lexical classes that occur with the so-called dative alternation patterns has been one of the most acclaimed, but even it falls short. Pinker identifies 14 different narrow classes of verbs that occur in the dative alternation pattern, plus a number of exceptions (as we saw in examples 6.3 and 6.4) and special constraints.

Not surprisingly, learning these matchings is a major problem for L2 learners (e.g., Bley-Vroman & Yoshinaga, 1992). For the L2 learner, memorizing 14 different classes of verbs for just this single construction means a tremendous memorization burden. Moreover, when either pattern is grammatically acceptable, the reasons for an L1 speaker to choose one or the other have tended to go unaddressed, often leaving the L2 learner with the impression that the choice is arbitrary.

In this chapter, I will argue that CL, in particular Construction Grammar (CG) as articulated by Goldberg (1995, 2006), provides a systematic, motivated, more complete analysis of the verb matching issue, and so offers a better answer for L2 learners. The presentation of CG focuses on Goldberg's (1995, 2006) account of the so called dative alternation, or in Goldberg's (1995) terms, the Cause to Receive construction. However, it is important to note that Goldberg has presented an analysis of a majority of the main syntactic patterns in English.

After presenting an overview of CG I will discuss previous work on L2 verb argument structure learning. Next I will present a detailed analysis of the Cause to Receive construction. The final sections of the chapter examine the Cause to Receive construction in the L2 context. I review previous attempts to investigate the teachability of the so-called dative alternation. In the final section I provide experimental evidence that a CG approach can result in substantial, sustained L2 learning in this area.

2. General Principles of the Construction Grammar Approach

The Basics

The perspective presented by CG draws on all five of the key CL concepts explored in Chapters 2 and 3. In particular, the notion that language is an inventory of sound–meaning pairings and that syntax itself is meaningful will feature prominently. Sentences which seem to present the same propositional content but display different forms, i.e., so-called alternating syntactic forms, are treated as separate constructions which provide different construals on the scene. In addition, Goldberg presents syntactic constructions as radial networks whose core meaning has been extended through metaphor and embodied experience, such as knowledge of force dynamics.

As I pointed out in Chapters 1 and 2, CL argues that syntactic patterns, like all aspects of language, are symbolic units which consist of form–meaning pairings and thus are meaningful in themselves. Goldberg (1995, 2006) further claims that there is a matching between the scene evoked by the verb (the verb's semantics) and the scene evoked by syntactic patterns in which the verb occurs. For instance, the verb *kick*, with its meaning of affecting something through ballistic force transmitted by a foot, is a good (and frequent) match for what Goldberg (1995) calls the Caused Motion construction, as in the sentence *Raja kicked the ball*. Goldberg argues that the basic meaning of the Caused Motion construction is:

Subj-Causer (here, *Raja*) Cause Undergoer (here, *the ball*) to move (here, by kicking).

Some examples of frequently occurring English clause-level constructions and their meanings are given in Goldberg (1995).

As Littlemore (2010) points out, the CG approach represents a significant shift in our understanding of the structure of language. Traditional approaches represent the syntactic patterns as slots to be filled with grammatical word types:

(6.5) The wind blew the paper off the table.
 subject verb object prep phrase

In contrast, a CG approach represents the same sentence in terms of the participants in a familiar scene:

(6.6) The wind blew the paper off the table.
 Causer Caused motion Undergoer Path

CG exploits the key concept of embodied experience. As the examples in Table 6.1 indicate, Goldberg (1995) presents the argument structure constructions as reflecting scenes that are basic to the human experience, such as “something moving” and “someone transferring something to someone else.” Goldberg calls these humanly relevant scenes. She proposes that the number of major construction types will tend to be limited because:

Languages are expected to draw on a finite set of possible event types, such as that of someone causing something, someone experiencing something, something moving, something being in a state or location, someone experiencing something, and something having an effect on someone. These

TABLE 6.1 English Argument Constructions

<i>Construction</i>	<i>Meaning</i>	<i>Form</i>
Cause to receive	X CAUSES Y to RECEIVE Z	Sub V Obj Obj2 Pat faxed Bill the letter.
Caused motion	X CAUSES Y to MOVE Z	Sub V Obj Oblique Pat sneezed the napkin off the table.
Resultative	X CAUSES Y to BECOME Z	Subj V Obj Xcomp She kissed him unconscious.
Intrans. motion	X MOVES Y	Subj V Oblique The fly buzzed into the room.

Source: reproduced from Goldberg (1995, pp. 3–4).

event types are quite abstract. We do not expect to find distinct basic sentence types which have as their basic senses semantics such as something turning a color, someone becoming upset, someone oversleeping.

Goldberg (1995, p. 39)

(Although it must be noted that all languages develop some minor, more idiosyncratic constructions, such as English “let alone” and “the way” constructions.) Since most of these event types are universal, presumably L2 learners will have deep knowledge reserves concerning the semantics of these constructions. Under a CG analysis, the difficulty for the L2 learner resides in understanding how the target language maps these well-known event types or scenes onto the linguistic forms of the language. Viewing grammatical patterns this way offers L2 researchers and learners valuable tools for demystifying the matching between syntactic patterns and particular verbs.

Goldberg further argues that the construction itself adds information to the verb, allowing verbs that we normally think of as say, intransitive, to appear in transitive constructions if the semantics of the verb appropriately match those of the syntactic construction. Moreover, the construction can add specific semantic information not normally associated with the verb. Perhaps Goldberg’s most famous example is *Ellen sneezed the tissue across the table*, in which the normally intransitive *sneeze* appears in a transitive, Caused Motion construction. Moreover, in this sentence, sneezing, whose semantics are not normally considered to include the notion of causing something to move, has somehow acquired this additional meaning. Goldberg argues that the verb *sneeze* can occur in the Caused Motion construction and acquire this additional Caused Motion interpretation because the meaning of *sneeze* involves ballistic force which we can imagine being strong enough to cause a napkin to move. Importantly, the meaning of causing something to move does **not** come from the semantics of the verb *sneeze*, but from the semantics associated with the syntactic construction in which *sneeze* occurs.

Polysemy and radial categories are also central concepts in CG. Goldberg (1995, 2006) argues that each construction undergoes semantic extensions which result in the particular syntactic patterns having a range of related but distinct meanings. In other words, over time, constructions form polysemy networks (not unlike the polysemy networks we saw with prepositions and tense morphemes). The existence of these multiple extended meanings results in many verbs occurring in the construction that at first glance appear to be at odds with the proposed meaning of the construction. An example of a polysemy network is shown in Figure 6.1.

Goldberg (1995, 2006) explains that the polysemy found in most English constructions can be accounted for by systematic processes of semantic extension. In the case of the Caused Motion construction, the central sense (“agent causes something to move to somewhere”) is extended to a wide range of related constructions, such as the Resultative and the Intransitive Motion constructions. The extended senses are connected to the original central sense via a limited set of link

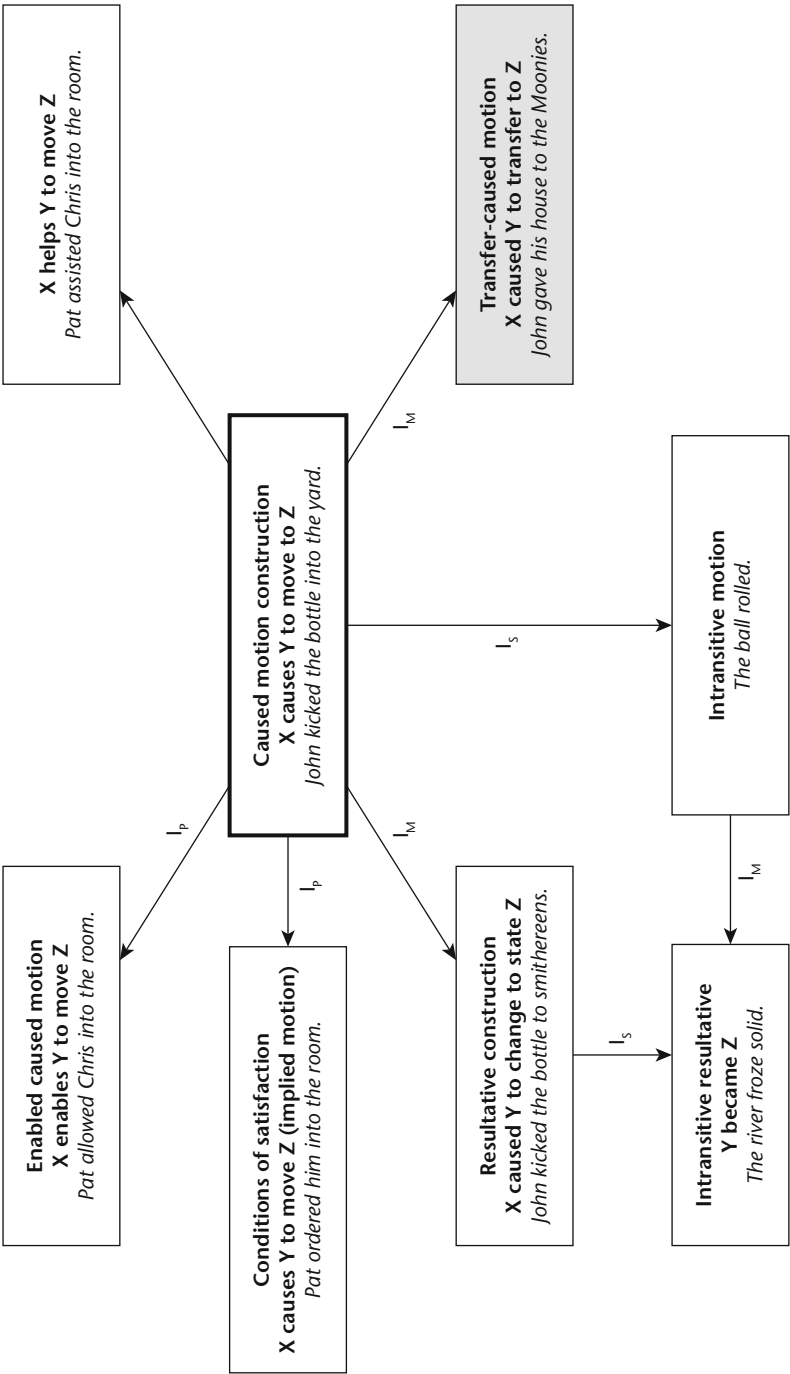


FIGURE 6.1 Caused Motion Polysemy Network (after Goldberg, 1995)

types. The constructions in the network inherit their syntax from the central construction. However, subpart links (I_s) allow for partial syntactic inheritance, as with the link between the Caused Motion Construction and the Intransitive Motion construction. One of the most productive link types is a metaphor link (labeled I_m in Figure 6.1).

Tomasello (1998, 2003) notes that relations like polysemy, subpart and metaphor characterize general human cognitive processes. Thus, clause-level constructions and their polysemy links and resulting networks are argued to be consistent with the same cognitive processes found in semantic extension of lexical items, past tense morphemes, modals and prepositions. Goldberg's (1994, 2006) analysis of the Transfer-Caused Motion construction as a metaphorical extension of central Caused Motion construction will be important to the experiments discussed in this chapter.

Constructions and Learnability

Goldberg's (1995, 2006) analysis exploits humans' robust category formation abilities and argues that syntactic constructions are represented in human memory as abstract schemas. She provides considerable argumentation and experimental documentation to support the claim that syntactic constructions are learnable through general cognitive processes. Under a CG approach, the child's task in learning the constructions is facilitated by association between embodied, social experiences and the linguistic patterns that co-occur with them. Following Tomasello's (e.g., 2003) work, appropriate use of constructions is learned by children after many exposures to the sentence pattern in meaningful contexts.

Goldberg (2006) argues that a number of additional elements make constructions learnable for the young child; many of these same elements of facilitated learnability have potential for aiding L2 learners. For example, experimental data has established that when focused on utterance comprehension, adult native speakers pay special attention to the verb and that the verb is a better predictor of the meaning of the sentence than any other single lexical item (Bencini & Goldberg, 2000). Moreover, the syntactic construction is an even better predictor of meaning. Bencini and Goldberg (2000) carried out a sentence-sorting task with native speakers of English. They found that NS have a strong tendency to sort sentences by syntactic construction rather than by main verb or general semantics provided by the lexical items. To illustrate, consider the four following sentences:

- (6.7) a. *Alice told many stories.*
 b. *Frank told June a very funny story.*
 c. *Frank sang a lovely song.*
 d. *Alice sang Frank a song.*

Subjects tended to group together sentences (a) and (c), which are both examples of the transitive construction, and (b) and (d), which are both examples of the

double object construction, rather than (a) and (b) or (c) and (d), which matched in terms of the verb. Goldberg (2006) argues that since constructions are particularly good predictors of the meaning of the utterance, it is in children's interest to pay attention to them. In order to investigate the status of L2 sentence-level constructions, Gries and Wulff (2005) carried out a sentence-level sorting study along the lines of Bencini and Goldberg (2000). Their results showed that these advanced FL learners were more likely to sort the sentences by construction than by the same verb, suggesting that teaching these constructions may facilitate L2 learning.

As I discussed in Chapters 2 and 3, the distribution of verbs in constructions is skewed. For each of the primary clause-level constructions identified by Goldberg (2006), there seems to be a key, high frequency verb whose meaning closely matches that of the construction. For instance, the matching verb for the Cause to Receive construction is *give*. The meaning of the key verb labels a spatial scene which is highly compatible with the spatial scene evoked by the meaning of the construction. Another way to think about this is the central or prototypical use of the Cause to Receive construction matches the central meaning of the verb *give*.

Using the Bates et al. (1988) corpus which consists of the speech of 27 children at 28 months and the speech of 15 mothers to their children aged 28 months, Goldberg, Casenhiser and Sethuraman (2004) found a strong tendency for one verb with a very high frequency to account for a large proportion of verbs used in a particular construction. For example, the verb *go* accounted for 54.02% of all verbs used in Intransitive Motion construction (verb followed by locative phrase), and the verb *put* comprised 31.37% of all verb instances of Caused Motion construction (verb followed by an object and a locative phrase). Similarly, Goldberg et al. (2003) found that in mother's talk to their young children, *give* represents a disproportionately high percentage of the verbs occurring in the Cause to Receive construction. Many of young children's early uses of the Cause to Receive construction include *give*. This coheres with the Ninio hypothesis that *give* acts as an **anchor verb** for learning the cause to receive construction. This analysis points to the importance of frequency and usage in language learning. Moreover, it offers a potentially important tool for L2 learning. Recall that Ellis and Ferriera Junior (2009) found similar skewing in L2 learners' sentence production.

Learnability and Previous L2 Work

In the field of L2 learning, several studies have looked at learning verb argument structures; most have found that L2 learners have difficulty acquiring subtle features of these patterns. Among the verb argument structures, difficulty with dative structure is well documented (e.g., Bley-Vroman & Yoshinaga, 1992; Inagaki, 1997; Mazurkewich, 1984; Sawyer, 1995, 1996; Whong-Barr & Schwarz, 2002). This difficulty is not unexpected given the complexity of the matching between verbs and argument structures and the fact that languages differ in the combinations

of specific verbs and the argument patterns in which they appear. Moreover, traditional accounts and L2 instructional materials on this subject are not very informative.

The question of whether instruction can facilitate learning verb argument structure has rarely been investigated. Probably the most well-known study of L2 learning and dative structures, Sawyer (1995) presented two experimental groups of learners with so-called dative sentences of different verb types. Using a guided induction approach, Sawyer attempted to lead learners to discover rules of dative alternation. One group of learners participated in a 40-minute instructional session on broad-range rules on double object constructions followed by a second 80-minute session on narrow-range rules for dative alternation. The second group of learners were given parallel instructions on the prepositional dative only. Sawyer hypothesized that the learners in the second group would be alerted to the phenomenon of argument alternation in English without being taught specific rules of dative alternation. (Theoretically, this analysis appears to assume that the prepositional dative is the basic syntactic pattern and that the double object pattern is derived from it. If the L2 learners know the prepositional pattern, they should automatically be able to produce the double object pattern.) The third group, which only took grammaticality judgment tests, served as a control group. However, no consistent results were found. Although learners in the two instruction groups became more accepting of double object forms than learners in the control group, the pretest and posttest differences between dative and prepositional groups were not significant.

Few studies have directly tested the effectiveness of instruction on learning argument structure, and all of them are subject to limitations such as small subject pools. Juffs (2000) noted a dearth of studies that investigated whether knowledge of L2 verb argument structure learned through instruction can be sustained. After reviewing studies on L2 learning of verb meaning and argument structure, Montrul (2000) also noted little evidence for the effectiveness of teaching the matching between verbs and their argument structures and called for studies that explore “the role of instruction, communicative task, and the beneficial role of interaction in the acquisition” of this area of language. Kim (2005) found that the state of affairs had not changed.

With the exception of Kim (2007, 2010), which we will discuss in more depth below, none of these studies addressing L2 learnability of the matching between verbs and the syntactic patterns in which they occur seriously questions the traditional theory of verb argument structure, i.e. the argument structure being specified in the lexicon as part of the entry for individual verbs. In addition, in L2 textbooks, the topic of verb argument structure is largely absent. Those that do contain some information about verb argument structure tend to treat similar verb argument structures as linked by a transformational rule. The remainder of this chapter will demonstrate that CG offers a radically different approach to argument structure and provide experimental evidence that a CG approach can result in substantial, sustained L2 learning.

3. The Cause to Receive (CR) Construction (Dative/Double Object/Ditransitive)

For the Cause to Receive construction, the polysemy network Goldberg (1995) proposes distinguishes a central sense and five extended senses.

- (6.8) a. The Central Sense: Agent causes actual transfer: *give, hand, pass, throw, toss, bring, take*, etc.
Example: Bill gave her a book.
Metaphorical extension: Bill gave the reporter his opinion.
- b. Conditional transfer: *guarantee, promise, owe*, etc.
Example: Bill promised her a book.
- c. Agent prevents transfer: *refuse, deny*, etc.
Example: Bill denied her a book.
- d. Future transfer: *leave, bequeath, reserved, grant*, etc.
Example: Bill bequeathed her a book.
- e. Enabling conditions for transfer: *permit, allow*, etc.
Example: Bill allowed her one book.
- f. Intended transfer: *bake, build, make, get, grab, win, earn*, etc.
Example: Bill wrote her a book.

The categories are from Goldberg (1995, p. 38); examples are cited in Tomasello (1998, p. 434).

These extensions account for otherwise unexpected verbs to occur in the construction. For example, the verb *cook* is not typically associated with the meaning of “undertaking the process of preparing food with the intention of transferring it to another party.” However, in the sentence

- (6.9) Jean cooked Don a nice casserole.

the interpretation is that Jean cooked the casserole with the intention of Don receiving it. Humans often make or obtain things with the intention of giving it to someone else; it is a ubiquitous human experience across all cultures. By CL accounts, one of the main ways meanings get extended is through experiential correlation. Since causing someone to receive something is often associated with creating something with the intention of giving it to someone, the activities associated with intending to give and actually giving the thing are closely associated via established cognitive processes. Goldberg (1995) terms this type of extension as occurring via a “polysemy link,” in this case, through the specific polysemy link of intended causation.

Considering other “unexpected” verbs, metaphor is a key process which extends the meaning of the construction. For example, we find many verbs of communication occur with the Cause to Receive construction, as in the following:

- (6.10) Katherine told Chris a story.

Obviously words are not physical objects that are actually transferred from a speaker to a listener. However, the widespread metaphor of WORDS ARE OBJECTS, along with Reddy’s (1993) conduit metaphor, licenses many verbs of communication in the Cause to Receive construction. Once words are conceptualized as objects, they fit the pattern of an agent causing a receiver to receive something. It is important to note that there are a number of restrictions on which verbs of communication can occur in this construction. I will discuss these restrictions below in the section on Exceptions.

Another important aspect of CG approach, inherited generally from CL analyses of syntax, is that strict divisions between components of language, such as semantics, pragmatics, lexical meanings and syntax, are not recognized. In CG, the information stemming from what other accounts distinguish as semantics versus pragmatics, as well as syntax, is represented as an integral part of the constructions. As Goldberg explains, “Information about focused constituents, topicality, and register is represented in the constructions alongside semantic information” (1995, p. 7).

As I have noted, CL models of grammatical constructions claim only one level of syntax. This means there are no transformations of one pattern from another, as is assumed in many traditional models. CG claims that the seeming synonymy of patterns such as active versus passive or double object versus prepositional dative stems from similarities in semantic structure. However, differences in the syntactic patterns reflect meaningful differences in pragmatics or differences in construal.

To illustrate, consider Goldberg’s (1995) analysis of the double object, i.e., the **Cause to Receive** construction, in contrast with the prepositional dative, i.e., the **Transfer-Cause Motion** construction. The Cause to Receive construction accounts for a sentence such as:

(6.11) Eliot gave the reporter the paper.

Goldberg (1995: 93) provides the following formalism to account for the syntax, pragmatics and semantics of the sentence, all of which are critical to the contextualized interpretation of such a sentence.

SEMANTIC	Cause-Receive	<agent	recipient	patient>	
PRAGMATIC					FOCUS
SYNTACTIC	V		SUBJ	OBJ	OBJ 2¹

The general meaning associated with this construction is “X causes Y to receive Z” where X represents the subject (i.e., *Eliot* in 6.11), Y represents the recipient (*the reporter*) and Z represents the entity received (*the paper*). The semantics of the construction place constraints on which type of entity can fill the noun positions.

1 Although the formalism may give the impression that there are clearly distinct semantic, pragmatic and syntactic levels, CG rejects the notion of separate levels.

The recipient is an animate entity capable of receiving something. The recipient cannot be a place, **I threw the sea the rock*.

Goldberg (1995, 2006) represents what has traditionally been called the prepositional (“to”) dative as the **Transfer-Cause Motion** construction, an extended sense of the Cause Motion construction (see Figure 6.1 above). She argues that the extension takes place through the well-established metaphor CAUSATION IS PHYSICAL TRANSFER. The central sense of Caused Motion is represented as follows:

SEMANTIC	Cause-Move	<cause pat goal >		
PRAGMATIC				
SYNTACTIC	V	SUBJ	OBJ	OBL

It accounts for sentences such as:

- (6.12) a. Mindy kicked the ball **into the net**.
 b. The wind blew dirt **into our eyes**.

The semantic roles include a cause, a patient (or undergoer) and a goal; the syntax specifies a Subject, an Object and an Oblique, which is typically realized by a prepositional phrase.

When constructions are extended via polysemy links or metaphor links, the extended sense inherits the syntax from the central construction. However, the extended sense evidences subtle changes in the semantics or pragmatics. It is often these shifts in semantics or pragmatics that allow otherwise unexpected verbs to occur in the construction. Consider the sentence:

- (6.13) The general abandoned the city to the vandals.

The verb *abandon* is not typically interpreted as involving the meaning “move from one location to another.” Here, through the metaphors HOLDING IS CONTROLLING and POSSESSING IS HOLDING, we understand that the general caused the city to come into the possession of the vandals. At some point, the general controlled the city (presumably by being the commanding officer of the army defending the city). Then, he undertook some action (maybe disbanding the defending army) by which he allowed a transfer (metaphorical movement) of power or control from one entity to another (the vandals).

Goldberg (1995) represents this extended Transfer-Cause Motion pattern as follows:

SEMANTIC	Cause-Move	<agent patient recipients >		
PRAGMATIC				FOCUS
SYNTACTIC	V	SUBJ	OBJ	OBL

Comparing the Cause-Motion construction to the Transfer-Cause Motion construction, notice that the inherited syntax remains intact, but with the semantic information the “goal” (which still appears in an oblique phrase) is now assigned a “recipient” interpretation. Moreover, at the pragmatic level, the recipient is given a “focus” interpretation. In its extended sense, this construction accounts for sentences such as *Eugene gave all his possessions to Max*.

Notice that the semantic roles of *agent*, *recipient*, and *patient* are the same for both the Cause to Receive and the Transfer-Cause Motion constructions. Moreover, the semantics of the scene in which an agent causes a recipient to receive something and an agent causes the transfer of something to a recipient are nearly identical. However, the two constructions diverge in terms of pragmatics and syntax. Representing the Cause to Receive and Transfer-Cause Motion constructions as having the same semantic structure but different pragmatic structure allows Goldberg to account for the seeming synonymy of the two sentences. This difference in pragmatics is reflected in the syntax with different entities occupying the FOCUS position.

The difference in focus is highlighted when we consider wh-questions and responses:

- (6.14) **What** did Eliot give Jennifer?
He gave her **flowers**.

Here the focus of the question, or the unknown information, is the patient (what was received); in the reply, the patient or thing received, *flowers*, appears in the focus position (which coheres with discourse studies showing that sentence final position tends to be the focus position in English [e.g., Givón, 1995, 2001; Erteschik-Shir, 1979]). Note that this is exactly what is represented in the notation for the Cause to Receive construction.

Now consider the wh-question in which the focus or unknown information is the receiver:

- (6.15) **Who** did Eliot give the flowers to?
He gave them **to Jennifer**.

Here the receiver occurs in focus position. Note that in both sentences, easily recovered or known entities tend to show up as pronouns. The new information tends to appear as a full NP in the focus position. This helps explain the oddity of sentences like:

- (6.16) ?He gave Jennifer them.

Under Goldberg’s (1995) analysis, the similarity of meaning that exists between the Cause to Receive (double object) construction and the Transfer-Caused

Motion (prepositional dative) construction is not the result of the two sentences sharing a single underlying structure to which different rules of movement, or transformations, have applied. Goldberg explains that the relationship between these two is “semantically synonymous” but not syntactically related. This is an important notion because under the “principle of no synonymy,” if two constructions are semantically synonymous, they must have differences in pragmatic meanings (Goldberg, 1994, p. 91). Goldberg cites Erteschik-Shir’s (1979) observation that in the double object construction, the recipient is non-focused (and usually encoded by a pronoun) and the transferred object tends to be in focus. In contrast, in the prepositional dative construction, the focus is on the recipient. The following sentences illustrate this point.

- (6.17) a. ?She gave an old man it.
 b. She gave it to an old man.
 c. ?Mary gave a brand-new house to him.
 d. Mary gave him a brand-new house (Goldberg, 1995, p. 92)

The pronouns *it* and *him* encode information that is already known and not in focus. As such, they conflict with the information structure of the Transfer-Cause Motion construction (prepositional dative construction) 6.17a, c, making the sentences sound odd. Thus, Goldberg represents the syntax of a language as an interconnecting lattice of constructions which, in certain cases, may have coincidentally overlapping semantics through various extensions.

It is important to note that this analysis does not directly address the prepositional construction in which *for* occurs, as in, *Grandma cooked a nice dinner for Grandpa*. This is a construction, whose semantics are very similar to the Cause to Receive-Intended Transfer construction, as in, *Grandma cooked Grandpa a nice dinner*, has no semantic equivalent with the Transfer-Cause Motion construction. Goldberg does not address the *for* construction, but following the general principles laid out in her work, the difference in the prepositions signals a difference in meaning. Tyler and Evans (2003) and Tyler, Mueller and Ho (2010a) provide analyses that clearly distinguish the semantics of *to* and *for*. Two of the principal meanings of *for* are benefactive and substitution. When a *for* prepositional phrase occurs as an “alternate” for any of the Cause to Receive constructions, their semantics involve either a benefactive or substitution reading. It appears that a parallel benefactive or substitution construction exists for all the extended senses of the Cause to Receive construction.

- (6.18) a. Actual Transfer: I gave a book for Jane; I gave a party for Jane.
 b. Conditional transfer: I promised a book for Jane; I owe \$50.00 for Jane.
 c. Agent prevents transfer: I refused the charges for Jane; I denied the rumor for Jane.

- d. Future transfer: I left the money for Jane; I reserved the table for Jane.
- e. Enabling conditions for transfer: I permitted an exception for Jane; I allow an extension for Jane.
- f. Intended transfer: I baked a cake for Jane; I won a prize for Jane.

It is beyond the scope of this work to offer a theoretical analysis of a benefactive construction and how it relates to the Cause to Receive construction. Presumably the semantics of such a construction would be something like:

(6.19) X undertakes action affecting Y **for** the benefit of Z

as in, *I rented the house for Jane*. Note the meaning difference between the previous sentence and *I rented Jane the house* or *I rented the house to Jane*.

Given the ubiquity of the conceptual metaphors ACTIONS DIRECTED ARE OBJECTS THAT ARE GIVEN and CAUSATION IS PHYSICALTRANSFER, one can see how a central benefactive sense could extend to the various transfer conditions involved in the Cause to Receive construction.

Exceptions

Historical

CL emphasizes the dynamic, usage-based character of language. Children learn syntax and the verb–syntax matching by multiple observations of how grammatical constructions are used by members of their discourse community in context to convey meaning. The patterns the child hears are, to a large extent, the patterns handed down from the previous generation of speakers of the discourse community. The theoretical position that language is usage-based and is learned projects that there will be vestiges of the language's history that appear to be exceptions to the general patterns. Cause to Receive is a construction that originated in Old Germanic; it was not a part of Latin and Latinate languages. Given the mixed history of the English language, we find a residue of Latinate verbs whose semantics would seem to fit the Cause to Receive construction, but which do not occur in the speech of NSs. For instance, some verbs of actual transfer (and obtaining) such as *donate*, *contribute*, *obtain*, *select* do not (typically) occur in the Cause to Receive construction; some verbs of knowledge transfer, such as *announce*, *describe*, *assert*, *explain* and *suggest* do not occur either. These are all Latinate verbs. Phonologically, they tend to be longer and have stress on the second syllable. Informing students of this general phonological pattern may be helpful in allowing them to predict if a particular verb can occur in the Cause to Receive construction. (As learners have greater exposure to English, they may also begin to rely on the general learning process of pre-emption.)

These Latinate verbs **do** occur in the Transfer-Cause Move construction, which is consistent with Latin clause structure. Presumably, they occur in this construction because the semantics of the Transfer-Cause Motion construction, which happen to match the semantics of the Cause to Receive construction, provide the closest match for conveying the meaning of some causal agent moving something from herself to another person.

Directly referring to historical patterns remaining in current language use is consistent with CL's usage-based claims. From a usage-based perspective, we expect to find such reflexes of earlier patterns. This is not a claim that the L1 learners and adult speakers understand these gaps in construction-verb matching as based in the history of the language. This is a case of pre-emption, as we discussed in Chapter 2. The learner and adult native speakers do not know the historical reasons; they just know how the discourse community actually uses the verb. History is implicitly embedded in speaker's usage. But while the L1 learner learns the historical uses implicitly through massive exposure to the language, the L2 learner may need explicit instruction to help establish the appropriate matches.

Manner of Motion

We have noted that a number of verbs that have to do with transfer occur in the Cause to Receive construction, for example, *hand*, *toss*, *kick*. These verbs evoke information about specific body parts used by the sender/agent in accomplishing transfer. This seems to be a straight forward extension from the meaning of *give*, which prototypically evokes a scene involving the hands of the giver and the receiver. Clearly verbs such as *hand*, *toss*, *throw*, etc., also evoke scenes involving hands. We can think of hands as the instruments used by the sender/agent. It is a simple extension to include scenes involving other body parts as the instruments.

However, a number of verbs whose meanings also have to do with transfer, such as *pull*, *push*, *carry*, *drag*, do not occur in the Cause to Receive construction. A reasonable explanation for this exception is that the semantics of these verbs place focus on the manner of transfer rather than the instrument used by the agent. The scenes evoked by these verbs are those of an agent physically moving an object along a path in a particular way. The semantic focus on **manner of transfer along a path** seems to conflict with Cause to Receive's focus on the agent's intentions and on the thing received. In contrast, the proto-scene evoked by the Transfer-Cause Motion construction involves an agent causing an entity to move along a path in a particular manner. Notice that less prototypical manner of motion verbs have this same distribution. For example, *skip*, *cough*, and *sneeze*:

- (6.20) Ella skipped the stone (across the water) to Mike.
 ?Ella skipped Mike the stone (across the water).

- (6.21) Ella coughed her regrets to Mike.
 ?Ella coughed Mike her regrets.

- (6.22) Ella sneezed the napkin to Mike.
 ?Ella sneezed Mike the napkin.

Verbs of Communication

Analogous to motion verbs, verbs of communication which involve the **mode/instrument** through which the communication is accomplished regularly occur in Cause to Receive. Some examples include *phone, email, fax, cable*. As with motion verbs, a number of communication verbs, such as *yell, scream, croaked, whisper*, do not occur in the Cause to Receive construction. The semantics of these verbs focuses on the particular voice qualities the sender/agent uses in the course of sending the message to the receiver rather than on the message itself or instrument of communication.

Another set of verbs of communication, such as *answer, respond* and *reply*, do not appear in the Cause to Receive construction. If we return to the proto-scene associated with the Cause to Receive construction, it involves a one-way trajectory or path from the sender to the receiver. Verbs which evoke two trajectories, such as *return, trade, swap*, do not occur in the construction:

- (6.23) *Jill returned the clerk the sweater.
 *The clerk traded Jane the sweater.
 *The clerk swapped her the sweater.

This scene of a one-way trajectory is extended from the proto-scene to scenes of communication. A full understanding of verbs such as *answer* includes the information that the first step in the process involves a sender who initiates a two-part exchange of communication (Sacks, Schegloff and Jefferson's [1974] adjacency pairs). The speaker sends a message to the receiver with the expectation that the receiver will respond. The receiver then accomplishes the second part of the exchange by sending back their response to the original message. The scene involves two agents and two paths. A verb like *answer* shifts focus from the initial agent to the initial receiver and the receiver's (second part) response to the initial agent/sender. These verbs do not match the semantics of the construction. Some verbs that fit this category of exceptions, such as *exchange*, as in:

- (6.24) *The clerk exchanged Jill the sweater

are also Latinate and so are ruled out on two counts.

Processing Constraints

Celce-Murcia and Larsen-Freeman (1999) and Bresnan and Nikitina (2003) identified a number of unexpected examples in which the the prepositional dative

construction occurred rather than the expected double object construction. Essentially, if the indirect object (receiver) is heavily modified, it will appear in the “to” prepositional phrase rather than directly after the verb. This is true even when the verb occurring in the construction generally occurs only in the double object construction. Bresnan and Nikitina (2003) argue this is so because it is difficult to process a sentence such as 6.25a and thus speakers instead choose the version in 6.25b in order to lighten the processing burden:

- (6.25) a. ?After all, who could deny someone so dedicated to the causes of international friendship and collaboration something?
 b. After all, who could **deny something to someone** so dedicated to the causes of international friendship and collaboration?

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4. Applying CL to L2 Learning

Many SLA researchers have pointed out that L2 instruction works best when it highlights a form–meaning connection. A basic tenet of construction grammar is the connection between form and meaning. CG represents the Cause to Receive (CR) construction and the prepositional dative, i.e., Transfer-Cause Motion (T-CM), as meaningful units which map form to pragmatics and semantics. CG also explains the interaction between the constructions and verbs in a systematic way as opposed to the traditional approach in which the interaction is presented as being more or less arbitrary. By integrating syntax, semantics and pragmatics into the constructions, CG provides an explanation of the subtle differences in meaning between the double object and prepositional dative constructions.

Moreover, the focus on meaning and the relationships of the extended senses to the central sense also offer a way to demystify the distribution of the verbs across the two constructions. Each construction is associated with a “family of closely related senses” rather than a single, fixed abstract sense. For instance, the central meaning of the Cause to Receive construction, “giving someone something”, is extended to several related meanings such as conditional transfer and intended transfer. Grouping verbs based on these polysemy relations has the potential of providing learners with better conceptual organizational tools with which to tackle the patterns, potentially leading to better understanding and more productive appropriate use of the Cause to Receive and Transfer-Cause Motion constructions by L2 learners. In addition, the CG analysis integrates the notion of historical vestiges into the theory, making “exceptional” distribution of verbs in the constructions expected, not something that has to be treated as mysterious. Thus, CG has the potential to be a useful framework for the investigation of L2 learning and teaching.

For L2 learners, the key challenges of appropriate use of the Cause to Receive construction are:

1. Understanding the general distribution of verbs in the CR construction.
2. Understanding the general distribution of verbs in the T-CM construction.
3. Understanding when L1 speakers are likely to choose the CR construction over the T-CM when, in terms of sentence-level propositional content, it appears that either structure is appropriate.
4. Understanding the special restrictions on verbs that do not occur in the CR construction.

Kim (2007, 2010) represents the first controlled, experimental investigation of the relative usefulness of a CG approach for teaching clause-level constructions to L2 learners. Specifically, Kim explored the differential effects of subjects receiving instruction based on a CG approach to “double object” and “prepositional (to) dative” constructions versus a verb-based approach (Pinker, 1989). Because this is a pivotal experiment and was highly influential in the development of subsequent experiments, I present it in some detail.

Participants

The participants in the study were 85 Korean high school students from three intact English as a foreign language classes. The subjects had approximately five years of formal English lessons as part of the required school curriculum. Three classes were randomly selected to be in one of three groups: one group received CG-based instruction, the second received verb-based instruction, and the third served as a control group and received no instruction on the double object and prepositional dative constructions.

Design

The intervention involved three one-hour sessions of instruction spread over three days. All participants took three sets of tests: a pretest set, a posttest set the day after the third day of instruction, and a delayed posttest set two weeks after the instruction.

Materials

The Cognitive Group

The teacher-fronted materials emphasized the concept that sentence patterns are meaningful and differences in sentence patterns signal a difference in meaning. In addition, there is a matching between the meaning of the sentence pattern and the meaning of the verbs that fit the pattern. In particular, the first lesson focused on the core meanings of the double object (DO) and the prepositional dative (PD) constructions. These were presented as distinct structures which had distinct

pragmatics and occurred in distinct discourse positions. Animated graphics, with clip art and familiar cartoon characters, were used to create scenes illustrating the meanings of the two constructions. For instance, one of the animated graphics for DO involved three scenes: (1) two familiar cartoon characters, character A is holding a cupcake; (2) the cupcake moves from character A to character B; (3) character B is holding the cupcake. The graphic was accompanied by the language and basic diagram shown in Figure 6.2.

The first day involved testing and an introduction to the central sense of the DO construction. The second day focused on five extended meanings identified by Goldberg (1995): intended transfer, enabled transfer, conditional transfer, prevented transfer, and future transfer. For each extended meaning, an explanation emphasizing experiential correlation and everyday situations was given. For instance, for the intended transfer sense, example sentences such as the following were presented:

- (6.26) Grandma **baked** grandpa cookies.
 X **intends** Y to receive Z.

Probable motivations behind the extension, including metaphor, were presented to the students by reminding them that in many cases, before giving occurs, the giver either creates or obtains something with the intention of giving it to someone. Again, animated graphic scenes were used to illustrate the meanings of the extended senses. The central meaning (Cause to Receive-Actual Transfer) meaning plus the five extended meanings were represented in a polysemy network. To distinguish DO from PD, a discussion of focus and discourse contexts were provided.

On the third day, exceptional verbs were presented. For instance, an explanation concerning Latinate verbs and their phonology, such as *contribute*, which do not occur in the DO construction but do occur in the PD, was presented. The presentation was followed by a picture story task which gave the participants the opportunity to produce DO and DP structures. Participants were given pictures that contained scenes of one person (potentially) causing a second person to receive something. In other words, scenes that matched those typically described by the DO and PD constructions. Working in pairs, the participants were asked to put

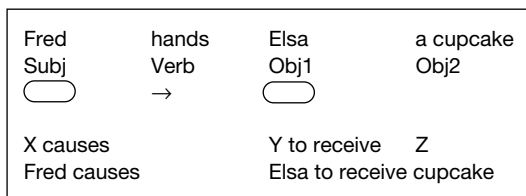


FIGURE 6.2 Basic Diagram for Double Object Construction (Kim 2007, 2010)

the pictures in order to make a coherent picture story. Participants were instructed to use five DO constructions where possible. Some of the possible sentences were:

- (6.27) a. Jenny handed Frank the cellphone.
 b. The airline counter agent found her a seat.
 c. The man brought her flowers.

The Verb-Based Group

The materials for the verb-based group were adapted from Sawyer's (1995) materials. The instruction involved a process in which learners are led to form and test hypotheses about dative alternation. Learners were given a number of verbs and sentences, and were asked to infer generalizations about different groups of verbs based on their meanings. For instance, the subjects were presented the following list of verbs and sentences:

- (6.28) a. Fax Jane faxed Lisa the letter.
 b. Give I gave her a pay raise.
 c. Mail I mailed her the brochures.
 d. Send I sent her the new books.
 e. Hand I handed her the cash.
 f. Buy I bought her a diamond ring.
 g. Email I emailed her the good news.
 h. Win Ben won Sarah a stuffed animal at the carnival.

As a class, the students were asked to group the verbs depending on similarity in meaning. The experimenter guided the instruction. This list of verbs involved four of Pinker's (1989) verb classes—obtaining (*buy, win*), giving (*give, hand*), sending (*send, mail*) and communication via an instrument (*fax, email*). After the class agreed upon the groupings, the teacher presented rules delineating which verb groups can and cannot be used with DO and PD. Again, each sentence was illustrated with animated graphics. A total of 14 verb groups were presented to the learners. Information on exceptional Latinate verbs was presented. On the third day, the teacher-fronted instruction was followed by the same picture story task.

For both groups, the instruction was delivered via a teacher-fronted PowerPoint presentation with many visual representations to engage the participants. Also both the CG and verb-based instruction included the same task-based activities, so that the learners could practice using the verbs in the two constructions. The materials for both groups were controlled for the types of the verbs so that the learners saw the same verbs in the instruction. Because there was less explanation for the verb-based group, they were exposed to more sample sentences. As a result, in the verb-based instruction, most of the targeted verbs occurred in more than one example sentence.

Three different types of tests were given: a Grammaticality Judgment Test (GJT) with 32 target items, a picture completion test with 12 target items, and an open-ended picture description test with 6 items. Three versions of each test were constructed. All administrations of the tests were counterbalanced; for instance, on the pretest, one-third of each group received version A of the GJT, one-third version B, and one-third version C. The versions of the tests were counterbalanced as illustrated in Table 6.2.

For the GJT, the participants were presented with 40 sentences. Beneath each sentence was a six-point Lickert scale with one being totally unacceptable and six being totally acceptable. Participants were asked to circle the number which they thought best represented the acceptability of the sentence.

In the second type of test, the picture description test, the students were provided with a picture containing two animate participants and an object; the pictures were labeled and, in addition, a verb was supplied. The beginnings of the sentences naming the subject and the verb were written out, followed by a space for the participants to finish the sentence. Following each picture were places for two sentences. The participants were asked to complete the sentence using the given words. If they thought there was only one possible way of completing the sentence, they wrote one sentence and marked X through the second sentence blank. If there was more than one way of completing the sentence, they were asked to provide both sentences.

The picture completion task (PCT) was an open-ended production test. Participants were provided a series of pictures and were asked to describe the pictures. The pictures included four scenes for which the DO construction could be used to describe the events represented in the picture and two scenes in which the DO construction would not be appropriate.

Results

On the pretest, there were no significant differences between the three groups on any of the three tests. The control group made no significant gains on any of the tests. Within-group tests show that the cognitive group made significant gains ($p < 0.001$) on all three tests for both the immediate posttest and the delayed posttest. The verb-based group made significant gains on the GJT and PCT. On

TABLE 6.2 Counterbalancing Design

	<i>GJT</i>	<i>PCT</i>	<i>PDT</i>
Pretest	A	C	B
Posttest	B	A	C
Delayed posttest	C	B	A

Source: Kim (2007, 2010).

all tests, the cognitive group made greater gains than the verb-based group, but only on the open-ended picture description class did the difference reach significance ($p < 0.01$). Thus while the results tended in the direction of the cognitive treatment being more effective than the verb-based treatment, the results were not robust.

Discussion

A careful examination of Kim's (2007, 2010) instructional materials indicated several potential problems that could result in the non-significant differences in gain scores. First, the cognitive instruction still contained considerable reliance on grammatical terminology, such as double object construction and ditransitive, as well as labeling the participants as Subject, Object1, and Object2. This could have diminished the focus on the syntactic constructions being meaningful and the attempt to link the meaning of the construction with the formal pattern.

The teacher-fronted teaching methodology differed for the two groups. The cognitive group received primarily explicit instruction, accompanied by many examples. The verb-based group was actively encouraged to form hypotheses about meaning-based verb groups which could or could not occur in the constructions. Their hypotheses were then either confirmed or denied by the teacher. This instruction in actively forming hypotheses based on verb meaning would seem to be a useful strategy for more accurately identifying new verbs that are likely to occur in the constructions.

The experiment was carefully controlled for the amount of time on task. However, because the cognitive group received more explanation, for instance, about the importance of metaphor in meaning extension, the verb-based group had more exposure to the verbs that participate in the construction. This increased input might have positively affected these participants' understanding of the construction and the probable verbs that could occur in it. I suspect that the students used the familiar strategy of memorizing the verbs which they were told could occur in the construction and used that memorized information to form generalizations about which verbs were likely to occur in the constructions.

The cognitive group was asked to learn many new concepts such as syntax being meaningful, the notion that the constructions undergo meaning extensions that allow verbs that do not match the meaning of the central sense (such as *bake* and *refuse*) to occur in the construction (in other words the notion of motivated polysemy networks), and the importance of metaphor in syntax. This represents a substantial set of cognitive demands which may have been taxing for the participants.

The cognitive instruction presented the actual transfer sense as the central sense, but the materials did not emphasize the verb *give* as the most typical verb, nor the notion that the semantics of *give* are almost an exact match with the semantics of the construction. Thus, the possible path-breaking effects of matching *give* with

the Cause to Receive construction were not exploited. Moreover, the graphics which illustrated the central sense were images of one person *passing, tossing, throwing, bouncing, kicking*, etc. an object to another person. While the graphics were engaging and reflected the general meaning of the central sense, they did not focus on a scene emphasizing images of hands, which according to Newman (1996), seems to be a key component of scenes of giving. Thus, the imagery and embodied experience of giving may not have been fully exploited.

Comparing a CG Approach to ELT Texts

A careful examination of 10 popular intermediate and advanced level ESL textbooks currently in use found that if textbooks addressed the double object construction at all, they invariably presented it in terms of a traditional grammatical description of the formal elements in the sentence, e.g., Subj, Verb, Indirect-Object, Direct-Object. Typically, a brief introduction to the formal pattern was followed by lists of verbs that could occur in it. Some books noted that there was a prepositional-*to* alternative for some verbs, but not all the verbs. Verbs allowing these alternatives were listed. None of the texts explained these patterns in terms of meaning, beyond saying that the verbs most likely to occur in the double object pattern were verbs of giving, creating and verbs of communication. Thus, even the insights from Pinker's (1989) analysis of 14 verb classes were not reflected in the textbooks. Although it is potentially insightful to compare Pinker's verb-based analysis to a CG account, it does not provide an examination of the relative usefulness of typical language teaching materials in relation to a CG approach.

Critics might point out that Pinker's (1989) analysis represents a major advance over the accounts used in typical ELT textbooks and grammar books and so the true test of the usefulness of a CL account would be to compare CG-based instruction to Pinker-inspired, verb-based instruction. I concede that Kim's (2007, 2010) results could suggest that if we tweaked the materials, the verb-based approach might prove equally effective as the CL approach, especially in these kinds of effects of instruction experiments. Moreover, the verb-based approach would not require the experimenter, or teacher, or students to learn a whole new approach to language involving polysemy networks, embodied meaning, metaphor, etc. However, at best, the verb-based approach holds only for particular verbs and particular constructions. It does not provide a coherent framework for syntax generally (for instance, it gives us no insight into resultative or conditional constructions). Neither does it address the tense-aspect system, the syntax-pragmatics interface, nor the polysemy networks of lexical items, including the prepositions and modal verbs. In short, even if successful Pinker-based language teaching materials were developed, at best they would offer an improvement over one small piece of the ELT curriculum. In the interests of examining how a CL approach could be applied to creating a more coherent, useful L2 curriculum,

I determined that comparing a CL approach to syntax to the traditional approach, which is most familiar to L2 teachers, would be more useful.

5. Tyler, Ho and Mueller (2011)

Tyler and colleagues (2011) undertook an experiment meant to address these potential limitations and concerns.

Participants

The participants were 65 adult, native speakers of Vietnamese who were enrolled in private EFL language classes. All had passed the required English exams for matriculating into Vietnamese universities. They were assessed to be at the high intermediate to advanced level. The participants were randomly assigned to two groups, a cognitive group who received instruction on the Cause to Receive and Transfer-Cause Motion constructions and a traditional group who received instruction based on presentations found in several current ELT textbooks. There were 31 participants in the cognitive group and 34 in the traditional group.

Design

For each group, the study took place over three separate days. Both the cognitive group and the traditional group followed the same basic regime. On the first day, the participants completed two pretests. Participants were given 40 minutes to complete the pretests; all finished within that time. The pretests were followed by a one-hour teacher-fronted PowerPoint presentation of the target structures. Participants took a 10-minute break. The session finished with two interactive tasks which were completed in pairs. The tasks focused on the pairing of appropriate verbs with the Cause to Receive construction and the Transfer-Cause Move construction. Participants were given 20 minutes to complete the pair work. All pairs finished within that time. The researcher and the students reviewed the correct answers to the exercises.

The second session took place 48 hours after the first session. The experimenter presented a 60-minute PowerPoint presentation that reviewed the main points from the first presentation, along with apparent exceptions to the Cause to Receive construction. For instance, verbs such as *contribute*, whose semantics would seem to fit the construction but which do not participate in the construction because it is Latinate, were presented. Rule of thumb mnemonics, such as these verbs being longer and having stress on the second syllable were presented. A number of short video clips from popular US sitcoms which illustrated the use of the two constructions were presented and discussed. The participants took a 15-minute break. After the break they took the posttests. Participants were given 40 minutes to complete the posttests. All completed the posttests within that time. The third

session took place one week after the second session. The participants were given delayed posttests. Again, participants were given 40 minutes to complete the posttests. All completed the posttests within that time.

Materials

The Cognitive Group

Analysis of Kim's (2007, 2010) groundbreaking experimental materials led us to several conclusions:

1. The materials could be improved if we crafted a presentation of the constructions that were consistently linked to meaning. This entailed consistently referring to the construction as the Cause to Receive construction and consistently referring to the participants in the scene, such as Giver, Receiver and Thing Received, rather than grammatical elements such as, subject, indirect object and direct object.
2. The materials could be improved if we crafted a presentation that drew more heavily on embodied meaning. This involved creating a series of visuals which emphasized the prototypical scene of giving, with focus on human hands, as well as additional emphasis on conceptual metaphors to explain the extended meanings.
3. The materials could be improved if we slightly modified Goldberg's original analysis. Goldberg's analysis included a central sense: agent successfully causes recipient to receive patient (verbs of giving, verbs of deictically specified direction [*bring, take*]) and five extensions, each radiating from the central sense: conditions of satisfaction (*guarantee, promise*), agent causes recipient not to receive (*refuse, deny*), agent acts to cause recipient to receive at some future time (*leave, bequeath, reserve*), agent enables recipient to receive (*permit, allow*), and agent intends to cause recipient to receive (verbs of creation and obtaining).

We changed the language to make it less technical, for instance we labeled the central sense the actual transfer sense, and added a sixth sense, knowledge transfer. Goldberg treated knowledge transfer and communication as a metaphorical use of the central sense, and not a separate extended sense. We determined that representing this use of the Cause to Receive construction as a separate extended sense allowed us to place more focus on acts of communication, which are one of the most frequently occurring uses of the construction. Moreover, it allowed us to place more focus on metaphor (in this case the conduit metaphor and INFORMATION/WORDS ARE OBJECTS).

4. The materials could be improved if we modified the network to provide some visual guidance as to which extensions could readily occur in both the Cause to Receive and the Transfer-Cause Motion constructions and which were most likely to occur only in the Cause to Receive construction.

A corpus search revealed that verbs of intention, such as *make*, *bake*, *sew*, never occur in the Transfer-Cause Move construction.

- (6.29) a. *Marge baked a cake to Homer.
- b. *Paul made a bowl to Donna.
- c. *Kathleen sewed a costume to Lexi.

The corpus analysis also revealed that verbs of facilitated transfer, such as *allow* and *permit*, as well as prevented transfer, rarely occur in the Transfer-Cause Motion construction:

- (6.30) a. The mother allowed her children some sugar.
- b. ?The mother allowed some sugar to her children.
- (6.31) a. The dietician permitted Sue one dessert.
- b. ?The dietician permitted one dessert to Sue.
- (6.32) a. Mary denied Jeff the award/victory.
- b. ?Mary denied the award/victory to Jeff.
- (6.33) a. Alice refused Cathy the satisfaction.
- b. ?Alice refused the satisfaction to Cathy.

Considering the interpretation of the Intended Transfer sense, it seems to emphasize the motivation and intentionality of the giver for undertaking a particular action. Although the full scene of a giver, thing given and a receiver, with discourse-level focus on the thing received are still part of the construction, there seems to be a subtle shift in construal to also highlight the giver's intentions. Thus, the pragmatics of the construction do not match the pragmatics of the Transfer-Cause Move construction, which always places focus on the receiver.

Similarly, the interpretation of the Facilitated Transfer sense conveys that the agent is creating the circumstances under which the receiver might receive something. Again, some highlighting seems to be on the *agent's intentions and activities*, not on the receiver. So, we see the same mismatch in pragmatics/construal between the Cause to Receive-Facilitated Transfer sense and the Transfer-Cause Motion construction as we saw in the Intended Transfer sense. Verbs of Prevented Transfer have the semantic quality of negating the facilitating conditions that allow transfer to take place. The pragmatics of the construction are closely related to the Facilitated Transfer construction and again do not appear to provide a good match with Transfer-Cause Motion.

Under this analysis, Intended Transfer, Facilitated Transfer, and Prevented Transfer all share a highlighting of the agent's intentions and rarely occur with Transfer-Cause Motion, unless some discourse or sentence processing principles override this pattern for Facilitated and Prevented Transfer. With this in mind, we

reconfigured the polysemy network so that not all senses extend directly from the central Actual Transfer sense. This reconfiguration allowed us to better visually represent which senses are likely to have analogs with the Transfer-Cause Motion construction and which do not.

Following Newman (1996), we constructed visuals that emphasized the embodied scene of *give*, which involves one person physically transferring an object to a second person by use of their hands. Therefore, we built our visuals around images of hands (Figure 6.3).

The construction was presented graphically in terms of its meaning, with the animate participants represented as giver and receiver and the thing received represented as a token that moved from the giver to the receiver. Terms like direct and indirect object were never used. With the instructional materials, we were able to exploit the animation features of PowerPoint; to emphasize the notion of “cause to receive,” the token moved from the giver to the receiver. The presentation of each sense was followed by several examples, such as *Jane tossed John the Frisbee*, each accompanied by pictures or diagrams. We also included unacceptable sentences such as *Jane tossed the sea the Frisbee*, and emphasized the notion of the receiver being an animate entity capable of receiving something, rather than a place.

Intended Transfer

For this sense, we emphasized that the meaning of the sentence does not include the notion that the transfer actually took place. We emphasized the focus on the agent’s intentions by placing the arrow and the token in a “thought cloud,” which seems to be a universally recognized symbol of internal thought (Figure 6.4). We also drew attention to the experiential motivation for the extension, i.e., in human

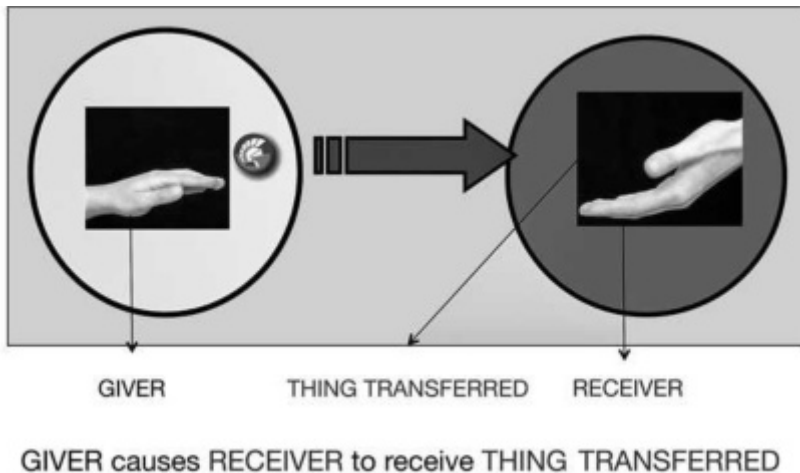


FIGURE 6.3 The Basic Sense Actual Transfer (Tyler, Ho and Mueller 2011)

experience, we often make or obtain something with the intent of giving it to someone else.

Facilitated Transfer: Allow, Permit

For the Facilitated Transfer sense, the graphic involved a person standing at an open door, with her hand on the door knob (Figure 6.5). The person has the power to either open or close the door. The idea of the open door is to emphasize

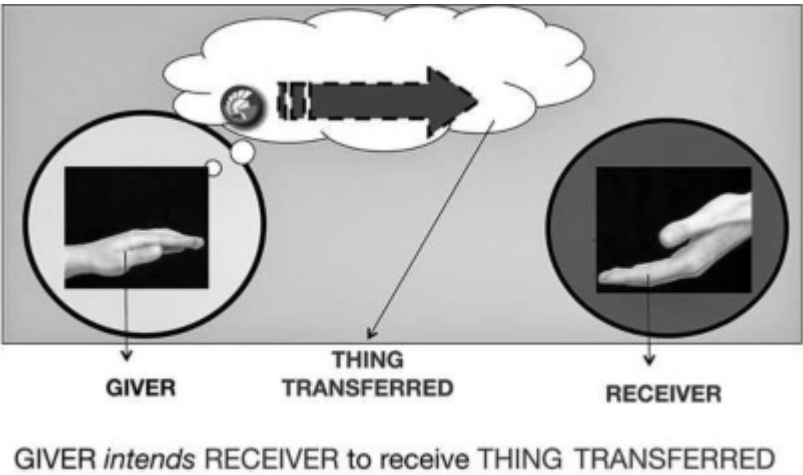


FIGURE 6.4 Intended Transfer Sense

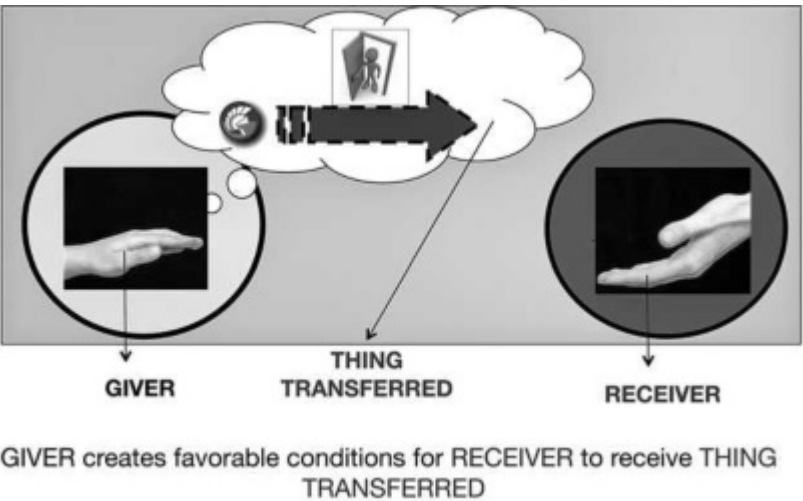


FIGURE 6.5 Facilitated Transfer Sense

that the Giver is undertaking some action that facilitates the movement of the token from the Giver to the Receiver.

Prevented Transfer: Deny, Refuse

The graphic representation of the Prevented Transfer sense included a person holding a stop sign (Figure 6.6). As with Facilitated Transfer, the graphic emphasizes the person's control over the situation. In this case, the Giver blocks the token from moving from the Giver to the Receiver.

Obligated Transfer

The Obligated Transfer sense occurs with verbs such as *owe*, and *promise*. The graphic included a 100% guaranteed sticker. The interpretation is that the Giver places themselves under obligation to cause the Receiver to receive something (Figure 6.7). Often the obligation is contingent on the Receiver fulfilling some condition:

- (6.35) a. The philanthropist guaranteed each student a college education if they completed high school.
b. The teacher promised the students gold stars if they did well on the exam.

The teacher is obligated to give the students gold stars if, and only if, they do well on the exam. Goldberg (1995) labels this sense as “Conditions of Satisfaction imply that Agent causes recipient to receive patient.” However, we felt that focusing on the Giver's intentions provided a more accessible, intuitive understanding of the

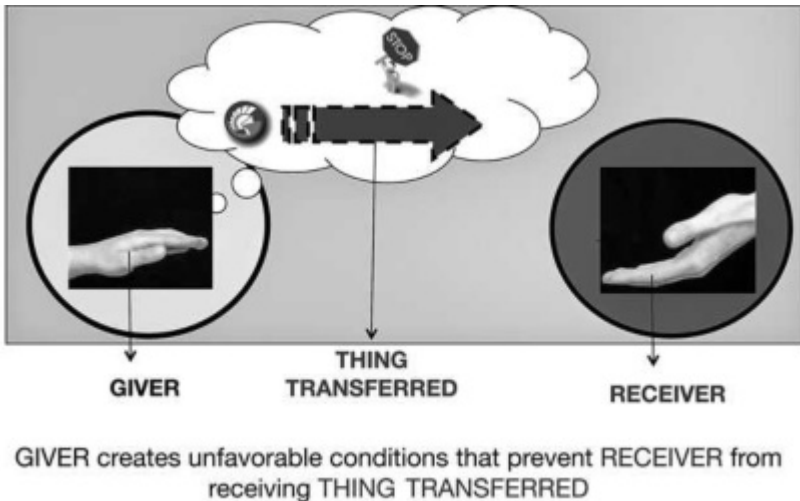


FIGURE 6.6 Prevented Transfer Sense

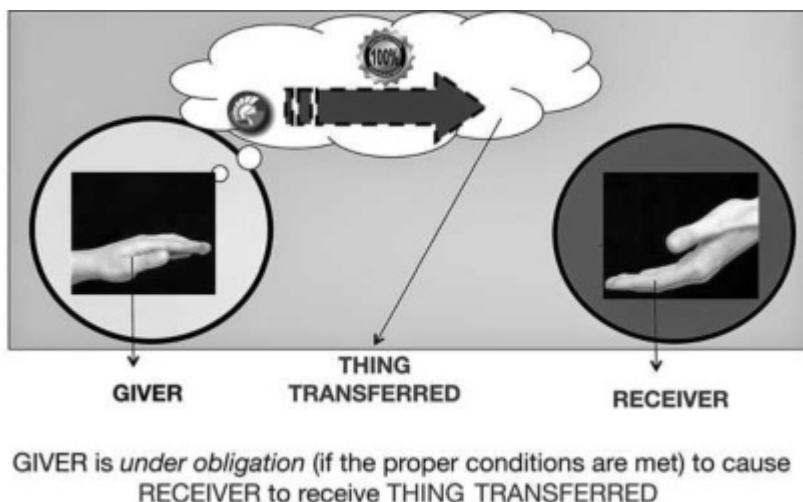


FIGURE 6.7 Obligated Transfer Sense

construction, than focus on the conditions of satisfaction. While it is true that promises and guarantees tend to come with certain conditions attached, the focus of such actions seems to be on the obligations the Giver places upon himself.

Future Transfer

With this sense, the Giver takes action so that the Receiver will receive something at some point in the future. Verbs which typically occur in this sense include *bequeath*, *leave*, *will*. This construction has very similar semantics to the Actual Transfer sense, except the transfer takes place at some time in the future. (All these verbs also participate in the Transfer-Cause Motion construction.) Goldberg (1995) includes *reserve* in this construction; however, we noticed that *reserve* acts differently than the other verbs in the Future Transfer construction in that it does not participate in the Transfer-Cause Motion construction:

- (6.36) *I reserved a table to my friends.

Further reflection led us to conclude that the semantics of *reserve* also fit well with the Intended Transfer construction. Syntactically, it acts like the other verbs that occur in the Intended Transfer construction.

- (6.37) a. *I baked a cake to my friends.
b. *I reserved a table to my friends.

Moving *reserve* from the Future Transfer list to Intended Transfer eliminates an

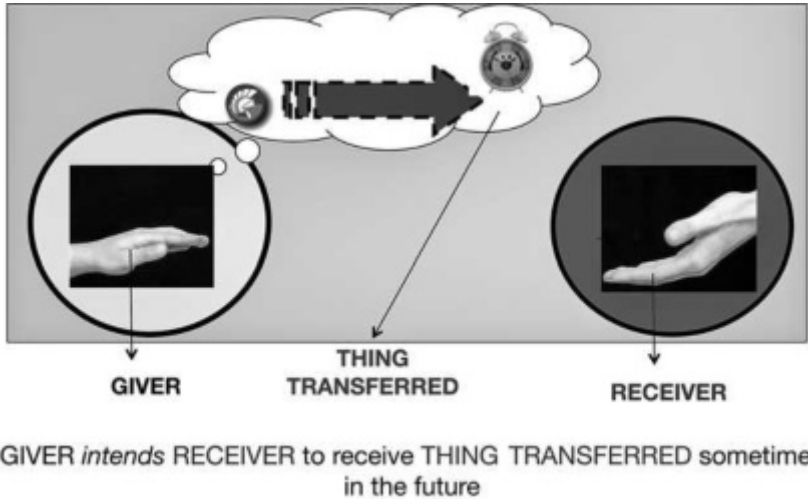


FIGURE 6.8 Future Transfer Sense

exception that commonly causes problems for L2 learners. The graphic we created for Future Transfer looks quite similar to the graphic for Intended Transfer, but includes an alarm clock to symbolize the future time element (Figure 6.8)

Knowledge Transfer Sense

English speakers often talk about information or language as if it were an object that can be possessed or held, as seen in the following examples:

- (6.38) a. Please hold your questions until the end of the presentation.
b. Elaine cannot keep a secret.

Goldberg argues that verbs of communication and teaching are metaphorical instances of the Actual Transfer sense which draw on the metaphor KNOWLEDGE IS AN OBJECT. However, we see an important difference between this sense and Actual Transfer. In Actual Transfer, once the Giver has caused the Receiver to receive something, the Giver no longer has possession of that thing. With Knowledge Transfer the Giver shares information with the Receiver, resulting in both the Giver and Receiver having the information:

- (6.39) Juan taught the children Spanish.

Although metaphorically *Juan* might have caused children to receive knowledge of Spanish, this action did not result in *Juan* no longer possessing knowledge of Spanish. Similarly,

(6.40) Allie told Kay the secret

does not entail that Allie no longer knows the secret

In addition, as I mentioned above, L2 learners frequently encounter verbs of communication in either the Cause to Receive or Transfer-Cause Motion constructions. Because the verbs such as *tell*, *ask*, *sing*, and *teach* are high frequency, L2 learners seem to form the generalization that all verbs of communication or knowledge occur in the Cause to Receive construction. Many frequently occurring Latinate verbs, such as *explain*, or verbs of multiple trajectories, such as *answer*, do not occur in the Cause to Receive construction. These are uses that students often have difficulty with (R. Ellis, personal communication). Representing verbs of knowledge or communication as a separate sense allowed us to consolidate our discussion of exceptions to the matching problem. The graphic we created for the Knowledge Transfer sense features two people facing each other. The token (representing language or knowledge) moves from one person's mouth to the other person (Figure 6.9).

After each new extended sense was presented, a graphic showing its place in the Cause to Receive network was presented to the participants. The final network is pictured in Figure 6.10.

As discussed above, the Facilitated Transfer and Prevented Transfer senses are represented as deriving from Intended Transfer, rather than directly from actual transfer. A main advantage of representing the network this way is that this allows us to place the extended constructions, whose semantics do not match with those of the Transfer-Cause Motion construction (i.e., Intended Transfer, Facilitated Transfer, Prevented Transfer), in a cluster, thus providing a potentially useful visual rubric for sorting out which verb-types tend to occur only in the Cause to Receive

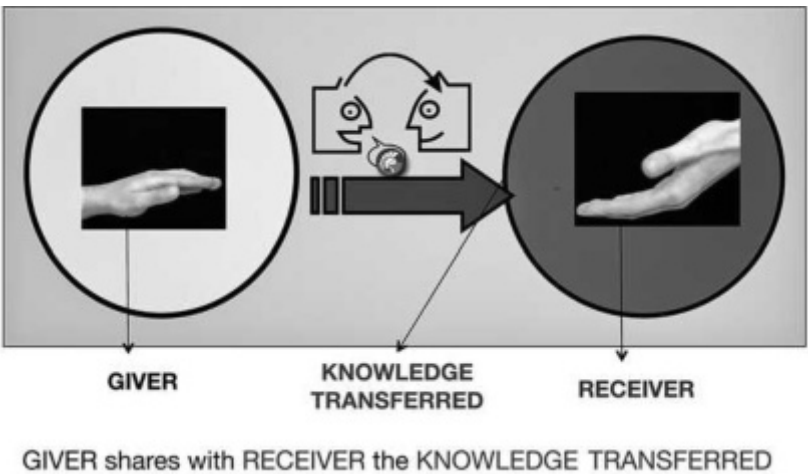


FIGURE 6.9 Knowledge Transfer Sense

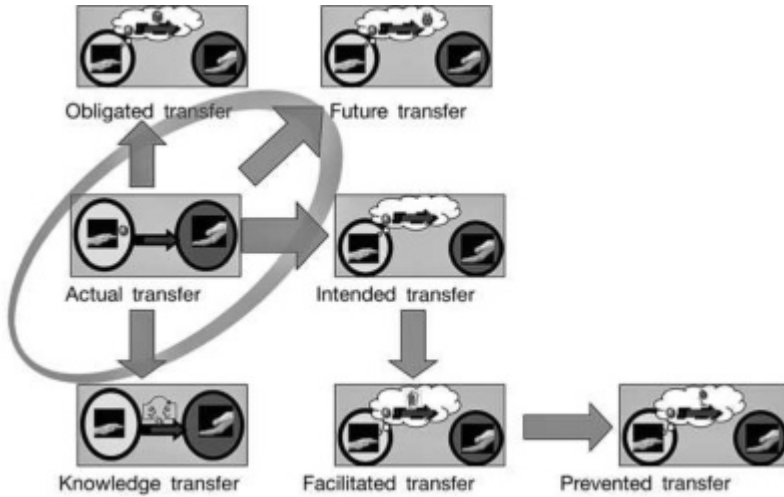


FIGURE 6.10 The Cause to Receive Network

construction. We reinforced this distinction in the behavior of the extended constructions through the chart in Table 6.3.

Exceptions

After introducing the polysemy network and discussion of the patterns of Cause to Receive and Transfer-Cause Motion we discussed some of the historical exceptions to these general patterns. Two of the most important sets of exceptions included Latinate verbs and verbs which emphasize manner and path (see the discussion earlier for details). A list of Latinate verbs such as *explain* and *contribute* were presented, along with the phonological information that they tended to be longer and have stress on the second syllable.

TABLE 6.3 Table Illustrating Patterns of Cause to Receive Versus Prepositional Dative Construction

Patterns	Cause to Receive	With to Preposition
Actual transfer	✓	✓
Knowledge transfer	✓	✓
Obligated transfer	✓	✓
Future transfer	✓	✓
Intended transfer	✓	Ø
Facilitated transfer	✓	Ø
Prevented transfer	✓	Ø

Source: Tyler, Ho and Mueller (2011).

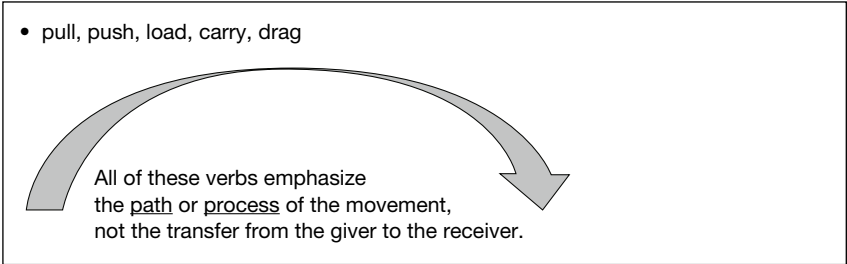


FIGURE 6.11 Verbs of Motion that Emphasize *Path* – More Uses to Look out For

For verbs of manner and path, we provided the graphic shown in Figure 6.11, which visually emphasized path.

We noted that the focus on path and manner of motion did not match the focus on either the recipient or the thing received. This slide was followed by several animated examples, such as Character A, who was holding a tray of cookies, being located to the left of a mountain and a school building being located to the right of the mountain. The animation took character A on a path that went over the mountain and ended at the school. This was accompanied by the sentence, *Marge carried the cookies to the school*. Note this construction does not require a receiver.

Discourse Constraints

Several slides were devoted to the discourse constraint of topicality or new information. In the discussion we focused on wh-questions, with their clear focus component (Figure 6.12).

The participants appeared familiar with this focus function and seemed to find the discourse function tied to the choice between the two constructions clear. Building on this foundation, we discussed given and new information, including

What did Fred give to Elsa?

He gave her the ball.

Fred gave Elsa it.

?

Who did Fred give the ball to?

He gave it to Elsa.

FIGURE 6.12 Focus

the idea that new information tends to occur in sentence final position in English. We used graphics in which character A is speaking to character B. The graphic was accompanied by the language: What did Fred give to Elsa? He gave her a **lecture**. A side note provided the information that “lecture” is new and unknown information. The graphic illustrating the use of the Cause to Receive construction showed the speaker with an oversized language bubble which said “lecture.” Character B, the listener, was smaller than character A (Figure 6.13).

A second graphic used the language: Who did A give the lecture to? He gave the lecture to B. In this visual, Speaker A and the language bubble were reduced in size and the listener was oversized (Figure 6.14). (We were unconsciously exploiting the well-established conceptual metaphor BIGGER IS MORE IMPORTANT, which the participants appeared to easily comprehend.)

Activities

After the PowerPoint presentation was completed, participants were placed in pairs and asked to complete two tasks that were intended to reinforce the key points from the teacher-fronted presentation.

- *Activity 1:* participants were given a handout with an unlabeled polysemy network (which we referred to as a meaning map) of the Cause to Receive construction. Their task was to provide the appropriate label for each sense. The researcher circulated among the pairs to ensure they accurately labeled the senses.

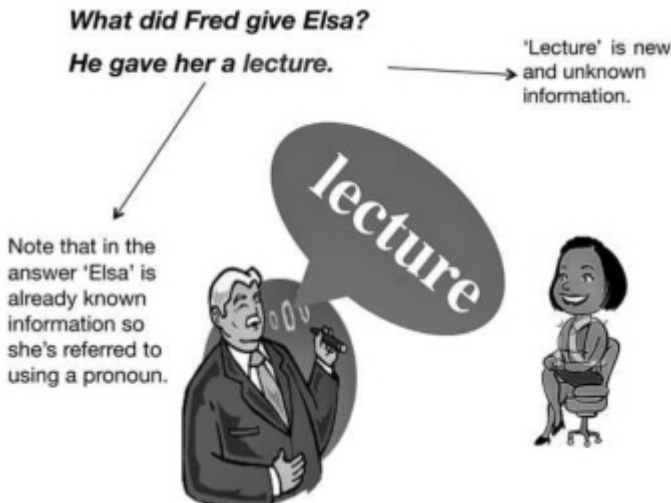


FIGURE 6.13 Focus

Who did Fred give the lecture to?
He gave the lecture to Elsa.

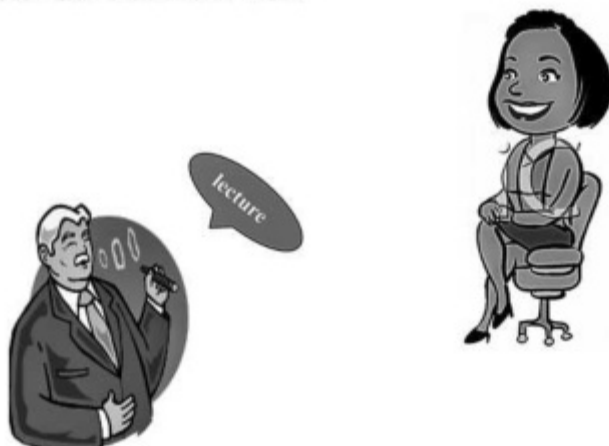


FIGURE 6.14 Focus

- *Activity 2*: participants were given a worksheet with 20 sentences. With their partner, participants were asked to: (1) determine if the sentence was acceptable or not and come up with an explanation for their decision. They were encouraged to use their completed meaning maps to help with the decisions and explanations; and (2) identify the giver, receiver and thing transferred for each appropriate sentence. Below is a representative set of sentences. Sentences e and f are unacceptable.

- (6.41)
- a. Charles won his daughter a brand new car.
 - b. The post office promised local people timely delivery of the mail.
 - c. Your teammate should pass you the ball.
 - d. I only told the press the truth after the case was solved.
 - e. Dad renovated Laura her playroom.
 - f. Bonnet sailed the town of Bath his ship.

Once all the pairs had made their decisions, the teacher led a class discussion in which the participants' assessments were either confirmed or denied.

Traditional Treatment

Like the cognitive materials, the traditional materials were primarily delivered via a teacher-fronted PowerPoint presentation. While a majority of the sample sentences and verbs that were the target of instruction were the same for both treatments, the theoretical orientation and explanations differed substantially. The

traditional materials presented a rule- and verb-centered account which relied heavily on the grammatical terms found in the EFL textbooks we surveyed. For instance, the participants were presented information distinguishing intransitive, simple transitive and ditransitive sentence structures. The following explanation was given.

- (6.42) For the simple transitive (or monotransitive) the verb requires one object to complete its meaning: *Ross robbed a bank. Angela saw the flower.*

The sentences were accompanied by visuals intended to engage the participants' attention and illustrate the meaning of the sentences. For the ditransitive (or double object) the following explanation was given.

- (6.43) The ditransitive requires two objects to complete its meaning.
Jane gave Ellen the book.
Subj Verb Indirect Obj Direct Obj

The sentence was accompanied by a graphic, which included a picture of a book signing with the author handing a book to an admirer. The sentence was also accompanied by the information, "To fully understand the information the sentence is conveying, we need to know Jane (the subject) is giving the book (the direct object) to Ellen (indirect object)." Arrows appeared linking *Jane* to the term subject, *Ellen* to indirect object, and *the book* to direct object.

Two main groups of verbs were identified as occurring in the double object construction: (1) Verbs of giving (e.g., *give*, *hand*, and *send*) and (2) verbs of communication (e.g., *tell* and *teach*). The participants were presented with many examples of verbs that occur in the double object construction. They were also presented with exceptions to the generalization. For instance:

- (6.44) Some verbs of communication do not occur with an indirect object.
For instance, Sally yelled Jim some angry words.

The prepositional dative was presented as an alternative way to express the meaning of the double object construction.

Again, the pattern was presented using traditional grammatical terminology and explanation:

- (6.45) Prepositional paraphrase pattern
Sub + Verb + Direct Object + *to* + Indirect Object
The order of objects is reversed: the direct object comes first, followed by *to*, and finally the indirect object.
The boss guaranteed a lifetime job to his employees.

Examples of verbs that can occur in double object and dative prepositional paraphrase were presented. Verbs that can only occur in double object:

(6.46) Not acceptable: I reserved a parking spot *to* my boss.

Verbs that can only occur in dative prepositional paraphrase were also presented. All sentences were accompanied by visuals.

Throughout the presentation, grammar rules concerning the syntactic patterns were presented:

1. Animacy rule: the subject and the indirect object are usually animate. The direct object is usually inanimate. There can be exceptions to this rule: *The weather gave me a bad headache.* (The subject is not an animate being, it is a natural force.)
2. Concreteness rule: typically the direct object is a concrete object, but in some cases it can be an emotion or action: *The cat gave the dog a kick. The accident gave me a bad fright.*
3. Latinate verbs: several Latinate verbs cannot occur in the double object pattern. They tend to be long and have stress on the second syllable.

The materials contained many examples of verbs that occur in the ditransitive and in the prepositional dative.

The treatments for both groups were kept highly parallel. The materials were carefully controlled so that both groups spent the same amount of time on task. Moreover, whenever possible, the same verbs and the same sentences were used in the two PowerPoint presentations. Similarly, whenever possible, the same visuals and animated graphics were used. Both groups were presented with explanations for exceptions to the general patterns. In particular, both groups were given the historical explanation for why Latinate verbs such as *contribute* did not occur in the double object construction. Both groups also were given the discourse account of topicality and given new information to help explain speaker's choices between the two constructions.

For the pair activities both groups were given the same 20 sentences illustrating appropriate and inappropriate uses of the constructions. Both groups had to identify which uses were appropriate and which were not. The activity differed in that the cognitive group was asked to label the highlighted nouns as Giver, Receiver, Thing Received, while the traditional group was asked to label the highlighted nouns as Subject, Indirect Object, and Direct Object. In both groups, the participants were asked to justify their answers.

The second task the groups engaged in was different. The cognitive group labeled the meaning map or polysemy network. The traditional group was given a list of 24 sentences and asked to label them as intransitive, simple transitive, or ditransitive.

Tests

Two types of tests were developed—a 40-item grammaticality judgment task (GJT) and a 20-item picture description task. Three versions of each test type were developed. Care was taken not to duplicate the target verbs on any of the three tests. Care was also taken not to duplicate verbs used in the instructional materials with target verbs on any of the three tests. The two tests were largely influenced by Sawyer’s (1995) and Kim’s (2007, 2010) tests.

Counterbalancing of the Tests

Half the members of each group received version A of the GJT and picture completion task for the pretests, the other half received version B of each test. Those who received version A for the pretests, received version B for the posttest and those who received version B for the pretests received version A for the posttest. All participants took version C as the delayed posttest. No participant took the same test twice.

Grammaticality Judgment Task Scoring

The grammaticality judgment test consisted of 40 items, 10 of which were distracters. The raw scores (ratings 1–4) were converted as follows:

Grammatical item: 4 = 4 points; 3 = 3 points; 2 = 2 points; 1 = 1 point

Ungrammatical item: 1 = 4 points; 2 = 3 points; 3 = 2 points; 4 = 1 point

This conversion resulted in a possible score of 120.

Table 6.4 illustrates the items participants saw on the GJT.

TABLE 6.4 Grammaticality Judgment Task

	<i>unacceptable</i>	→	<i>acceptable</i>
Homer gave Marge a book.	1	2	3
Homer climbed Marge a tree.	(1)	2	3

Source: Tyler, Ho and Mueller (2011).

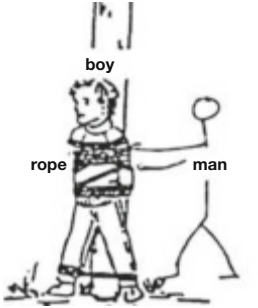
Picture Description Task

Participants were given worksheets with 20 drawings. Each drawing depicted a scene in which there were two participants and an object, each of which was clearly labeled. At the top of each scene a verb was provided (Figure 6.15). Participants were asked to describe the action depicted in the drawing using the

Instructions: For this task, please write complete sentences describing the action shown in each picture. Use the verb provided at the top and the names of the people and things shown on each picture. **Be sure to use all words provided** in each sentence you write. Describe each picture *in as many ways as sound natural to you* (1 to 3 sentences per picture).

verb TIE

picture



For example, the following are possible descriptions of the picture using the verb at the top and the words in the picture:

*Sentence 1: **The man tied the rope around the boy.***

*Sentence 2: **The man tied the boy with the rope.***

*Sentence 3: **The man** (leave blank if you can't think of any other way to describe the picture using the words provided).*

FIGURE 6.15 Sample Picture Description Task

specified verb and the words labeling the two participants and the object (here *tie*, *boy*, *man*, *rope*). They were specifically instructed to describe the action in as many ways as sounded natural to them. Space for up to three sentences was provided. Each sentence space began with the appropriate subject to avoid the participants creating passive and other complex constructions.

Scoring

The picture description task consisted of 20 items, 3 of which were distracters. Misspellings and grammatical errors which did not affect the construction, such as problems with subject–verb agreement, were ignored.

Items which could appropriately be described using the Cause to Receive construction and the “to” construction received one point for production of a Cause to Receive construction and one point for construction of a “to” construction.

Items for which only Cause to Receive was possible were given one point for production of a Cause to Receive and one point for *not* producing a “to” construction.

Items for which only the “to” construction was possible received one point for producing the “to” construction and one point for *not* producing the Cause to Receive construction.

This scoring conversion resulted in a possible total of 34.

Results

The GJT measures were analyzed using a mixed design repeated-measures ANCOVA with group as a between-subjects factor with two levels (cognitive and traditional) and test time as a within-subjects factor with three levels (pretest, posttest and delayed posttest). GJT item scores served as the dependent variable. All effects are reported as significant at $p < 0.05$. The assumption of sphericity was met. On the multivariate tests, there was a main effect for test time, $F(2, 63) = 19.536$, $p < 0.001$, $\eta_p^2 = 0.383$, and an interaction between test time and group, $F(2, 63) = 9.173$, $p < 0.001$, $\eta_p^2 = 0.226$. In the test of between-subject effects, there was a main effect for group, $F(1, 64) = 4.253$, $p < 0.043$, $\eta_p^2 = 0.062$. To determine the nature of the interaction between test time and group, an ANCOVA was conducted using group as the between-subject variable, posttest GJT scores as the dependent variable, and pretest GJT scores as the covariate. Results indicated that the mean gain of 5.12, CI [1.62, 8.62] of the cognitive group over the traditional group was significant, $F(1, 63) = 8.560$, $p < 0.005$, $\eta_p^2 = 0.120$. A similar ANCOVA was conducted using group as the between-subject variable, delayed GJT posttest scores as the dependent variable, and pretest GJT scores as the covariate. Results indicated that the mean gain of 8.72, CI [4.86, 12.58], of the cognitive group over the traditional group was significant, $F(1, 63) = 20.41$, $p < 0.001$, $\eta_p^2 = 0.245$.

In sum, the two groups scored almost the same on the pretest. The cognitive group showed significant gains between the pretest and the posttest: a gain of 9.39 points. Their performance on the delayed posttest was almost identical to their performance on the posttest. The traditional group showed some gain on the posttest: 3.7 points. Their performance on the delayed posttest was almost identical to their pre-instruction level. Thus, on the grammaticality judgment task, the cognitive group showed more than twice as much gain on the posttest as the traditional group. The difference in gain on the posttest between the cognitive and traditional group was significant ($p < 0.005$). The difference in gain on the delayed posttest was significant ($p < 0.001$).

Figure 6.16 presents the results of the descriptive statistics for the GJT. Figure 6.17 presents the results of the ANCOVA which measured the between-subjects analysis of the GJT.

TABLE 6.5 Descriptive Statistics GJT

<i>Total possible points 120</i>		
Pretest	Trad. 88.12 (SD 8.67)	Cog. 87.26 (SD 9.94)
Posttest	Trad. 91.82 (SD 8.78) (+3.7)	Cog. 96.65 (SD 6.39) (+9.39)
Delayed	Trad. 88.09 (SD 8.42) (−0.03)	Cog. 96.00 (SD 8.36) (+9.38)

Source: Tyler, Ho and Mueller (2011).

	Pretest	Posttest	Delayed posttest
Cognitive gain	86	96.16 10.16*	96 10*
Traditional gain	88.12	91.82 3.70*	88.09 -0.03
Difference	2.12	6.46	7.91

FIGURE 6.16 GJT Gain Scores – Total Possible Points: 120

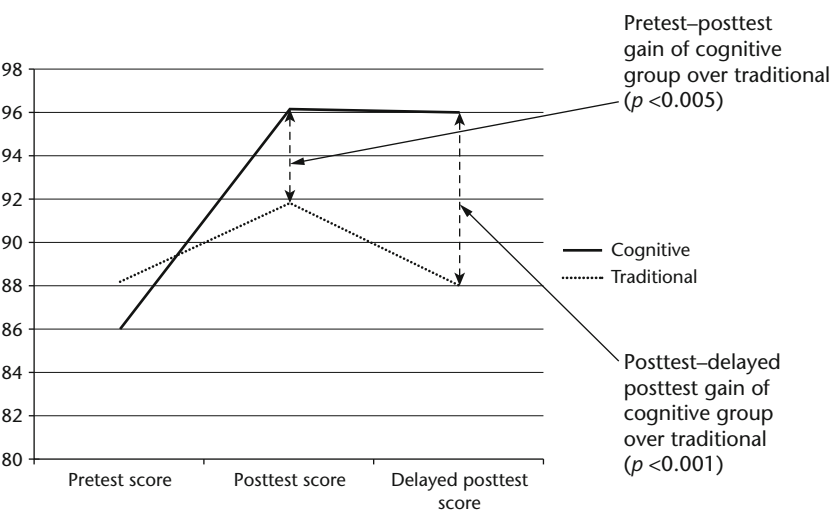


FIGURE 6.17 GJT Between-Subjects Results: ANCOVA

Picture Description Task

The production scores on the sentence completion task were analyzed using a mixed design repeated-measures ANCOVA with group as a between-subjects factor with two levels (cognitive and traditional) and test time as a within-subjects factors with three levels (pretest, posttest and delayed posttest). Sentence item scores served as the dependent variable. All effects are reported as significant at $p < 0.005$. The assumption of sphericity was met. On the multivariate tests, there was a main effect for test time, $F(2, 63) = 54.56, p < 0.001, \eta_p^2 = 0.634$, and an interaction between test time and group, $F(2, 63) = 4.088, p = 0.021, \eta_p^2 = 0.115$. In the test of between-subject effects, there was a main effect for group, $F(1, 64)$

TABLE 6.6 Descriptive Statistics Sentence Description Task

<i>Total possible points 34</i>		
Pretest	Trad. 19.88 (SD 3.95)	Cog 20.81 (SD 3.65)
Posttest	Trad. 23.24 (SD 3.61) (+3.6)	Cog 26.56 (SD 2.51) (+5.58)
Delayed	Trad. 22.50 (SD 4.49) (+2.8)	Cog 25.91 (SD 3.62) (+4.81)

Source: Tyler, Ho and Mueller (2011).

= 11.860, $p < 0.001$, $\eta_p^2 = 0.156$. To determine the nature of the interaction between test time and group, an ANCOVA was conducted using group as the between-subject variable, posttest scores as the dependent variable, and pretest scores as the covariate. Results indicated that the mean gain of 2.94, CI [1.58, 4.40], of the cognitive group over the traditional group was significant, $F(1, 63) = 18.535$, $p < 0.001$, $\eta_p^2 = 0.227$. A similar ANCOVA was conducted using group as the between-subject variable, delayed posttest scores as the dependent variable, and pretest scores as the covariate. Results indicated that the mean gain of 3.00, CI [1.10, 4.89], of the cognitive group over the traditional group was significant, $F(1, 63) = 9.99$, $p < 0.002$, $\eta_p^2 = 0.137$. Figure 6.18 presents the results of the ANCOVA which measured the Between Subject analysis on the picture description task.

The two groups scored almost the same on the pretest; although the cognitive group is slightly higher (+ 0.93 points), the difference is not significant. The cognitive group shows significant gains between the pretest and the posttest: a gain of 5.58 points and 4.81 points, respectively. The traditional group also showed gains on the posttest and the delayed posttest, with gains of 3.6 and 2.8, respectively. On the delayed posttest, the scores for both groups declined (in comparison to their posttest performance) but still showed a significant gain (in comparison to their pretest performance). The cognitive group's gains were significantly greater

	Pretest	Posttest	Delayed posttest
Cognitive gain	20.81	26.91 6.10*	25.91 4.90*
Traditional gain	19.88	23.24 3.36*	22.50 2.62
Difference	0.97	3.67	3.41

FIGURE 6.18 Picture Description Task Gain Scores – Total Possible Points: 34

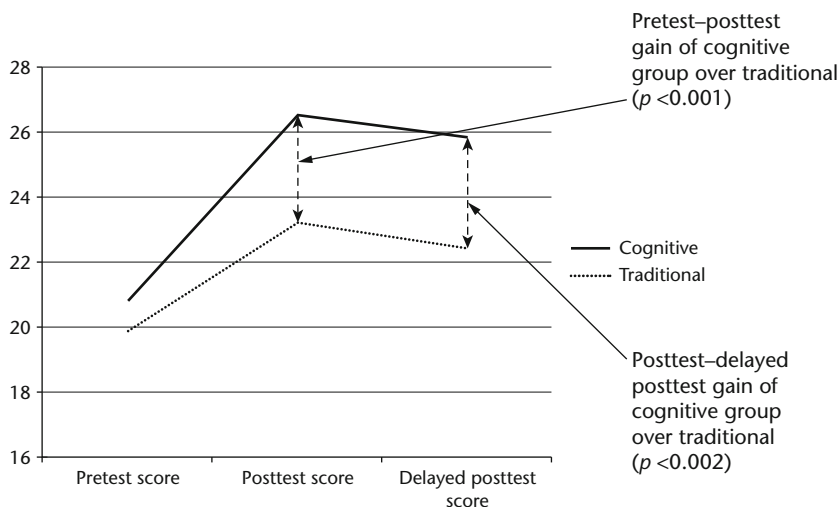


FIGURE 6.19 Picture Description Task/Semantic Production Between-Subject Results: ANCOVA

than those of the traditional group on both the posttest (5.8 versus 3.6) and the delayed posttest (4.81 versus 2.8). Notice that the cognitive groups' gains on the delayed posttest were actually higher than the traditional groups' gains on the immediate posttest (4.81 versus 3.6).

6. Discussion

Our basic questions were:

1. Can a construction grammar (CG) approach to challenging patterns of syntax and verb matching, in particular the double object construction versus the "to" prepositional dative, be adapted to create effective L2 teaching materials?
2. Do learners who receive a CG-based intervention outperform learners who receive a traditional-based intervention?
3. Do learners who show increased accuracy on a recognition task (grammaticality judgment task) and who receive a CG approach retain their increased accuracy?
4. Do learners who show increased accuracy on a sentence production task and who receive a CG approach retain their increased accuracy?

The results demonstrate that it is possible to create useful teaching materials based in the theory of CG. In order to create the materials for the experiment reported here, we paid particular attention to several basic tenets of CG (and cognitive linguistics more generally):

1. Syntax is meaningful; the meaning is based on embodied experience and spatial scenes.
2. A change in syntactic form signals a change in meaning. One of the key changes is a shift in construal or speaker stance.
3. Syntactic constructions include form, semantics and pragmatics.
4. Syntactic patterns form polysemy networks which are extended from a central sense, which usually involves a central verb, through systematic principles of embodied meaning and metaphor.
5. Meaning is embodied. Verbs of action prompt for scenes which include typical participants, including typical instruments (such as hands). Syntax also prompts for scenes which include typical participants.

We found that we could create theoretically grounded teaching materials that were accessible to L2 learners and simultaneously did not lose the descriptive precision and insights provided by the theory.

Moreover, even though both groups were exposed to similar teaching materials in which the same sentences and same verbs were presented and which included many engaging, entertaining visuals, and controlled for the same amount of time on task, the participants receiving the construction grammar-based intervention substantially outperformed those receiving the traditional-based intervention on recognition tasks and on production tasks. This was the case for both the immediate posttests and the delayed posttests.

7. Limitations

All experiments have limitations; our most reasonable goal is to lay the foundation for more sophisticated, nuanced investigations. In considering the teaching materials for this experiment, it is clear that relatively little time was spent on the Transfer-Cause Motion construction and its relation to the Cause to Receive construction. In addition, there are certain instances of the Resultative construction² which appear to have the same syntactic pattern as Cause to Receive which

- 2 Constructions are not rules; they are meaningful patterns, a kind of category. As we have noted previously, the evidence points to categories being fuzzy and overlapping. Some utterances employing two objects will be more prototypically Cause to Receive in meaning, others will be more peripheral. One of the constructions Goldberg analyzes is the Resultative construction. Resultatives have the form:

Sem: X causes Y to become Z

Most typically Z is realized either as an adjective phrase or a prepositional phrase, as in:

(a) John made everyone very angry.

However, in some Resultatives, the Z constituent is a noun, so that the formal pattern is: Noun (Subj) Verb Noun Noun. In other words, the surface form can look like a

were not addressed. Given the short period of intervention, it would have been impossible to address these additional patterns. This points to the need to develop a more extensive curriculum based on construction grammar. Another gap in the materials involves the lack of explanation for the benefactive construction. There is both a theoretical and pedagogical need to develop a more complete explanation of this construction.

8. Conclusion

This chapter introduces Adele Goldberg's (1995, 2006) version of construction grammar, with a particular focus on her analysis of what has traditionally been called dative alternation as illustrated in 6.47a and 6.47b:

- (6.47) a. Paul gave Barry an unexpected gift (the double object or ditransitive)
 b. Paul gave an unexpected gift to Barry (the "to" prepositional dative).

Under Goldberg's analysis each syntactic pattern, or construction, is independent; the two patterns coincidentally share the same propositional content but differ in their pragmatics and discourse uses and are therefore not synonymous.

The key tenets of construction grammar include:

1. Syntactic patterns are meaningful in and of themselves. They are form–meaning pairs;
2. There is no strict divide between semantics, pragmatics and syntax. Each construction is represented as being composed of all three elements simultaneously;

Cause to Receive construction. Inevitably some alert student will ask about sentences such as the following:

- (b) The President made Franklin an ambassador.
 (c) He called me his friend.
 (d) The archbishop proclaimed her a queen.

Even though the surface form looks like the Cause to Receive, with two nouns following the verb, the meaning matches that of the Resultative. Thus, in sentence (b), the interpretation is not that the President somehow created an ambassador with the intention of giving him or her to Franklin (this would be the Cause to Receive interpretation). Rather the interpretation is that the President caused Franklin to become an ambassador (this is the Resultative interpretation). This illustrates one of the major advantages of a meaning-based approach to syntax. CL gives us a systematic, coherent explanation for the differing interpretations of sentences with overlapping syntactic patterns. It also leads us to expect such non-prototypical extensions of a construction, as we saw with the Resultatives.

3. Constructions are not rule-based, but abstract, schematic patterns built up from multiple exposures to situated communicative events; and
4. Constructions are complex categories which have prototype and radial network effects.

The central meaning of the construction is extended through systematic processes of meaning extension, such as conditions on the action and metaphoric processes. These systematic, principled extensions account for which verbs occur in the constructional matrix.

Several ELT professionals (e.g., Holme, 2009; Kim, 2007; Littlemore, 2010) have hypothesized that a CG approach might provide a more useful, systematic account of syntactic patterns than the traditional approach. In order to begin to test this hypothesis, a quasi-experimental effects of instruction study was conducted. The results on posttests and delayed posttests showed that the group receiving the CG intervention made significantly greater gains on both a grammaticality judgment task and a sentence production task than the group receiving the traditional intervention. Most impressively the CG group retained virtually all gains on the grammaticality judgment task from the posttest to the delayed posttest, while the traditional group reverted to its pretest levels.

To my knowledge, this is the first experimental study that successfully provided empirical evidence that a CL-based intervention could offer superior instruction to that of traditional instruction in the area of complex syntactic patterns. This is clearly just the first step in documenting the potential superiority of a CL-based approach to syntax. Although the robustness of the findings make it a very hopeful first step, many more experimental studies investigating a wide range of syntactic patterns are needed.

Boers (2011) issued a threefold challenge to researchers interested in applying CL insights to issues in L2 learning:

1. We must move from non-controlled, anecdotal teacher accounts of the usefulness of CL to more rigorous experimental paradigms that include, as a minimum pre- and posttesting;
2. We need to provide more rigorous studies that involve controlled interventions which compare CL-based interventions to traditionally based interventions;
3. We need to strive not only for statistically significant gains for the CL-based participants, but also robust gains.

The results of the experiment reported here meet those challenges.

7

WHERE WE ARE NOW AND WHERE WE MIGHT GO IN THE FUTURE

Concluding Remarks

1. Some Implications for Applying CL to L2

As we have seen, a CL approach aims to explain language as speakers actually use it. The form language takes is understood as a reflection of human cognition which arises from human beings' rich cognitive capabilities and our embodied experience with the world. Conceptualization is equated with meaning, thus meaning is at the heart of CL analyses. This is a very different way of conceptualizing the nature of language from the traditional models which are generally assumed to be by descriptive grammars and ELT/FL teaching materials. A CL approach challenges us to profoundly rethink our assumptions about the nature of language. Moreover, Michael Tomasello's work on L1 learners constructing their language and Nick Ellis's forceful arguments for the compatibility of a CL theory of language and the psychological theory of associative learning, challenge us to rethink many assumptions about the way language is processed and learned. In particular, Ellis' usage-based arguments, which combine input frequency with principled explanations of learner perceptions of saliency (and hence potential for learner awareness of specific forms) begin to allow predictions about which elements of the L2 are most likely to be learned implicitly and which appear to need explicit intervention.

I have argued that a CL approach provides analytical tools, such as identification of the roles of embodiment and construal in shaping language, for bringing to the learners' attention the semantic relations that underlie a given construction or polysemous item. As Achard (e.g., 2004, 2008) notes, this provides for an opportunity to teach grammar in similar ways to teaching lexis, i.e., with a direct focus on meaning behind the use of forms. Accordingly, grammar is treated as a contextually based, rather than a context-independent, phenomenon, which fits well with the established importance of creating communicative context in language

instruction. The implication for L2 teaching is that learners are most likely to benefit from an approach to grammar that emphasizes its meaning-making potential and how L1 speakers exploit linguistic form to create meaning. This is a model of language which suggests that engaging learners in analysis of naturally occurring text and providing them opportunities to use language to express meaning will be of real benefit. In fact Ron Langacker, one of the most prominent cognitive linguists, has argued, “Focusing on language structure through event-specific construal [i.e., focusing on language as it is used to make meaning in context] makes the paradigm of cognitive linguistics arguably more comprehensive, revealing, and descriptively adequate” (Langacker, 2008, p. 66) than other paradigms currently dominant in L2 teaching. Finally, adopting a CL-based focus on meaning allows the learner to take the perspective of a speaker at the center of any communicative act. Achard argues that this view of language leads to the understanding that “specific uses of expressions are tied to speaker choice rather than properties of the system itself” (Achard, 2008, p. 434) and that this empowers the learner to view the L2 as a means of expression rather than a list of forms to be mastered. Such focus in turn demonstrates how meaning motivates the form that needs to be acquired. Sentence patterns are understood in terms of scenes (Goldberg, 1995) populated with participants in particular relationships to each other, such as actor and undergoer. As Littlemore (2010) has emphasized, this is an important different way of conceptualizing grammar and lexis from the formal descriptions of subject, direct object, indirect object, oblique phrase, etc.

It seems intuitively plausible that central tenets of CL, such as embodiment, conceptual metaphor, prototypes and radial categories and the meaningfulness of grammar, have great potential for more systematic presentation of complex L2 phenomena which have traditionally been understood as disorganized, chaotic and unteachable. Perhaps this point was most evident in the analysis of prepositions. The development of the principled polysemy model (Tyler & Evans, 2003) clearly demonstrated that by re-envisioning the nature of language and tying the forms it takes to established principles of human cognition and embodied experience, the semantics of prepositions are systematic and motivated. In turn, the successful experimental results reported in Chapter 5 indicate that this analysis can form the basis for improved L2 teaching and learning.

Verspoor and Tyler (2009) make the point that at a very practical level, supplied with the conceptual tools that have been the focus throughout this book, teachers can treat much of the information presented in existing textbooks as representing only “typical” examples, and orient their students to the understanding that uses in language are dynamic and flexible because the precise interpretation of language forms shift with the context in which they are used. This suggests that teachers supplement their materials with judiciously chosen authentic discourse that illustrates the wider range of L1 speakers’ use of language forms, always with the focus on how language is used to make meaning. The research by Achard (2008), Holme (2009) and Moder (2010), for instance, emphasizes the usefulness of close

analysis of L1 discourse with a focus on L1 speakers' choice of linguistic units to convey particular meaning, in conjunction with various student-centered activities in which students investigate how choice of form is linked to meaning. Rather than asking learners to conceptualize less prototypical uses of linguistic units as lists of exceptions to be memorized, learners can be alerted to how native speakers may extend meaning senses and use words and constructions in a range of non-prototypical senses. Being sensitized to the possibility of such non-central uses, L2 learners may be better able to appropriately interpret and notice the input and eventually integrate it with their existing knowledge base.

Finally, the CL approach is based on careful observation of how linguistic units are manipulated by language users in contexts of language use. CL further assumes that the traditional "exceptions" often provide valuable insights into the true workings of the system. Rather than placing the exceptional outside the analysis, the analytic focus is on understanding the motivation behind the exceptional and how this fits with the overall system. Thus CL provides a more nuanced, detailed description by representing language as an inventory of interrelated, systematically motivated units which take account of the relationships between the linguistic units and groupings of units and the speaker.

2. Where Might we go in the Future?

The current presentation of the CL approach and its application to L2 issues has primarily focused on five key insights from CL—construal, conceptual metaphor, category formation (especially prototype and radial categories), embodiment and the usage-based nature of language, in conjunction with the overarching commitment to the symbolic nature of language (i.e., that all linguistic units are meaningful). I have argued that these insights allow us to re-conceptualize the nature of language and language learning. The research reviewed in Chapter 3 and the series of experiments on the modals, prepositions and the Cause to Receive construction provide substantial evidence that these CL insights can be effectively applied to the L2 learning situation.

The CL enterprise represents a well-developed representation of language that goes considerably beyond the theoretical constructs and linguistic phenomena addressed here. The good news is that many additional aspects of the CL enterprise offer even more insights and conceptual tools that can further our understanding of the nature of language. These additional facets of CL also have good potential for applications to L2 issues. By way of example, in this section, I will briefly present the outlines of mental space and blending theory (Fauconnier, 1997; Fauconnier & Turner 1998, 2002), a major CL approach to meaning construction and cognitive semantics, and discuss an ongoing investigation (Jacobsen, 2010, in progress) of how it might apply to teaching English conditionals.

Reader beware! Mental Space and Blending Theory (MSBT) is a well-articulated, sophisticated model which explores the cognitive processes involved

in dynamic, online conceptualization. Mental space building and conceptual blending are argued to involve a set of ubiquitous cognitive mechanisms reflected in non-linguistic contexts, such as the merger of the concept of an old fashioned, physical desk with the technological innovation of the personal computer to create the new conceptualization of the computer's desktop as an access point for the contents of the computer, to many aspects of the visual arts, to complex numbers. A recent special issue of the *Journal of Pragmatics* (2005) showcased the application of blending theory to analyses of young children's play, Micronesian navigation systems and mathematics. MSBT has also been used to account for a wide range of linguistic phenomena from complex metaphor (Grady et al., 1999), to adjective noun compounds (e.g., Sweetser, 1999), to narrative patterns (e.g., Dancygier, 2008) and humor (Coulson 1996; Fujii, 2008).

Any theory well enough developed to address these many issues will clearly be highly complex. My goal here is to give you a very small taste of how MSBT allows us yet another avenue into understanding the connection between general human cognitive processing and its reflexes in language. In other words, MSBT provides another set of conceptual tools for reconceptualizing the nature of language, and hence the potential of another set of tools for presenting language to L2 learners.

MSBT is based on the concept that humans spontaneously create packets of cognitive content (i.e., mental spaces) for the purposes of online conceptualization. The content of the mental space involves the speaker's conceptual representations of entities in the pertinent scenarios. During online conceptualization, humans are able to maintain multiple mental spaces for the purposes of combining information from different domains of knowledge. Mental spaces populated with our knowledge about a particular concept are represented as *input spaces*; knowledge from each pertinent *input space* can be selectively projected to a new *blended space*. The projected elements are reassembled in the blended space to create a new unique structure, or *blend*.

As an example, consider the phrase "boxing CEOs." Clearly, the CEOs are not understood as being engaged in physical combat, outfitted with boxing gloves and silk trunks. Rather we understand the phrase to describe business leaders engaged in intense competition, and, most likely, dressed in business suits. (Think Michael Douglas in *Wall Street*.) According to MSBT, the phrase arises from recruiting and combining select information from two separate knowledge domains—the domain of business and the domain of the sport of boxing. While the two domains are quite distinct, they share certain schematic, conceptual structures, such as notions of competition, winning and losing and intensely engaged competitors. Concepts from each of these domains are recruited to create pertinent packets of information, i.e., the input spaces. The cognitive mechanism of blending provides for schematically shared information from the input spaces to map to each other. For instance, the boxer maps to the CEO. While the two roles share schematic content, at a more specific level there are important differences; pieces of this more specific knowledge are selectively projected to a new space, the *blended space*. The projected

elements are reassembled in the blended space to create a new unique structure, or *blend*. In the case of the “boxing CEOs,” we get a blend that highlights the intensity, pain and potential harm of physical combat with business leaders involved in tough, perhaps ruthless, competitive business practices.

Because different information from the same scenario has the potential of being projected in various ways, mental spaces are used to partition and evaluate incoming information. For example, the theory handily explains the ambiguity involved in the seemingly simple phrase *red pen* in which, depending on the context, *red* can either be interpreted as describing the color of the ink or the outer surface of the pen. MSBT accounts for this ambiguity by modeling two different ways in which the concept of color can be blended with the conceptualization of the object. Our conceptualization of a pen includes both information about the color of ink it holds and its outward physical appearance. The particular situation in which the term is used guides the language user’s determination of which information about the pen to project into the blend.

In sum, blending takes place when information located in different mental spaces is combined or integrated in some way. As we saw with the boxing CEOs and red pen examples, mappings between different mental spaces can be based on various relationships between concepts (e.g., Coulson & Oakley, 2000; Fauconnier & Turner, 2002). Crucially the established mapping and projection processes are systematically constrained in principled ways that connect them back to their input sources.

In the remainder of the discussion, I focus on Dancygier and Sweetser’s (2005) analysis of conditionals. Key to the analysis is that each of the two clauses involved in any conditional construction represents a different mental space, and that linguistic cues, such as *if*, provide prompts for creating input spaces and creating a blended space.

Conditionals are widely recognized as one of the more complex, challenging areas of English grammar. Jacobsen (2010) argues that one reason for this is that conditionals have many different meanings. The following represent a small subset of this variation:

- (7.1) a. Factual: *If temperatures remain this high, our electrical bill will be outrageous.*
 b. Hypothetical: *If Gore had been president, the government would have taken global warming seriously.*
 c. Counterfactual: *If I were Catherine, I would be thrilled.*
 d. Speech act: *If you’re new to my class, my name is Adrienne.*

Although all four sentences follow the same general syntactic pattern, each represents a different type of conceptualization about the situation being described.

A second factor contributing to the challenge conditionals pose for L2 learners and teachers is that neither traditional theoretical accounts nor current EFL materials offer very accessible, complete explanations of the construction(s). As

with other aspects of language examined in this book, conditionals tend to be presented in terms of decontextualized forms and rules, rather than focusing on the meaning the speaker wants to express and how choice of, for instance, tense within the conditional clauses reflects the speaker's construal of a situation.

Jacobsen (2010) argues that, using MSBT, Dancygier and Sweetser (2005) have developed the most comprehensive, accessible analysis of English conditionals to date. For instance, their recognition of the speech act conditional is a rare insight, although a use frequently encountered in naturally occurring discourse. Based on corpus analyses of how a wide range of conditionals are used to indicate speaker meaning and construal, their investigation reveals the variety of conceptualizations behind the many types of conditional structures. A central contribution is identifying patterns of inferential structures and reasoning involved in creating and interpreting conditionals. This is, in part, accomplished by recognizing the meaningful contribution reflected in tense choices (both as tense relates to temporal sequences and as a signal for the speaker's conceptualization of the realis status of the information contained in the clause). Dancygier and Sweetser ground their analysis of the various conditional constructions in careful attention to the specific forms chosen by speakers in order to convey particular stances, thus providing the teacher and student with the tools to examine the meaning-based effect of combinations of verb tense choices. Jacobsen summarizes, Dancygier and Sweetser "essentially separate the threads creating the fabric of the conditional construction[s] and make those aspects of meaning directly analyzable" (Jacobsen, 2010, p. 18).

In line with the symbolic thesis, conditionals are treated as a complex of constructions, each with a particular schematic meaning. Changes in the form, such as various tense choices, indicate variation in interpretation and thus account for the many types of conditionals, such as hypothetical, counterfactual and factual, etc. Markers such as *if*, *when*, *unless*, etc., are signals to establish a particular mental space configuration in which two mental spaces are in a conditional relationship. Each conditional construction involves establishment of at least three mental spaces: a generic or assumed reality space; an alternative reality or conditioning space, which is represented by the "*if*" clause; and a blended, alternative reality space which is represented by the *then* clause. Verb forms help signal the mappings and projections of the elements in the two alternative mental spaces which results in the ultimate interpretation of the construction.

Jacobsen (2010) provides the simplified diagram of a "factual" conditional, *If prices go up, (then) I will sell my car* in Figure 7.1.

In this case, the base space represents the understanding of the current assumed reality, i.e., the one in which prices have not gone up yet. The conditional marker *if* works as a space-builder, prompting for the creation of a new mental space that provides an alternative to the base or current reality. The creation of the alternative space allows the speaker to assume a number of possible outcomes that may subsequently follow from the *if*-clause. The establishment of this alternative space, in turn, invites the construction of a second mental space in which the particular

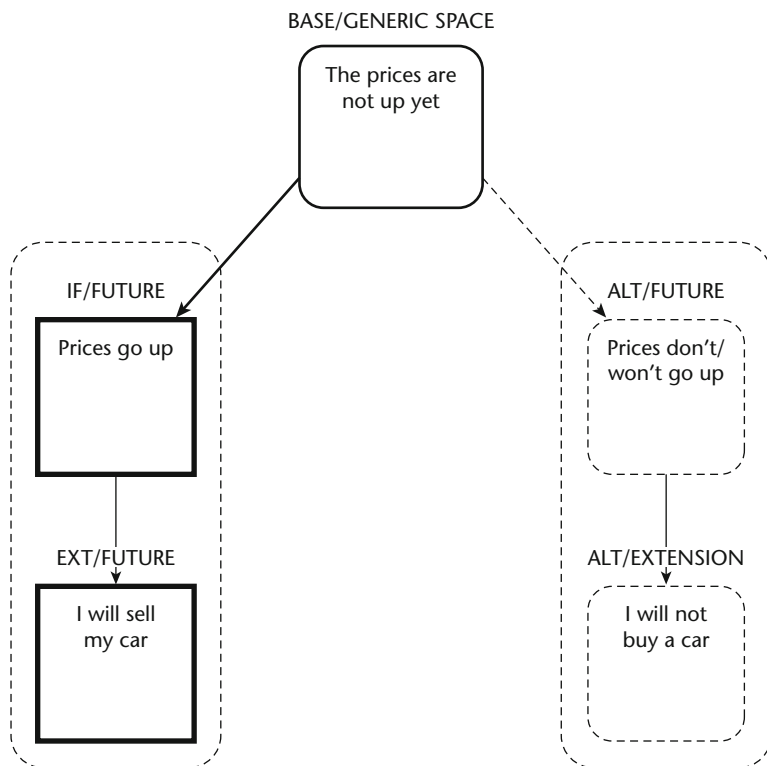


FIGURE 7.1 Mental Space Configuration of the Conditional Construction "If prices go up (then) I will sell my car" from Jacobsen (2010). Bold lines on the left indicate the alternative reality articulated in the actual utterance. Dotted lines on the right indicate a second, activated but unarticulated scenario.

outcome the speaker has in mind is articulated. The choice of the simple present, *go*, with its grounding in the here and now, signals the speaker's belief that this alternative reality has a high possibility for being realized. The creation of this particular *if* space, with the tense signal of high speaker surety, allows for the predictive function associated with a factual conditional to emerge in the blended space, articulated by the *then* clause. The mapping between the two clauses and the predictive function is further facilitated by the choice of the future marker *will* in the *then* clause. In this case, the possible outcome chosen is captured in the main clause (*I will sell my car*). The main clause, then, reflects a blended space which emerges through extension of the alternative reality articulated in the *if*-clause. This emergent space and the appropriate restrictions the speaker places on the likelihood that it will be actualized are only possible by the evocation of the first space (the space reflected in the *if* clause). The appropriate correlation of future projections between the two input spaces works as a unifying element for the overall conditional blend.

The base space in which prices have not gone up, in conjunction with the *if* marker, prompts for a second blend; one in which the prices do not go up. The structure on the left in the diagram, the one that the speaker actually articulates, represents the speaker's assessment of the most likely or most salient scenario projecting from the base space. The spaces on the right indicate a second possible blend, but one which the speaker deems less salient to the ongoing communication or to which the speaker is less committed. However, a backgrounded conceptualization of the possibility of the less probable or less salient scenario is present in the overall conceptualization of the articulated blend and is thus incorporated into an additional blend that creates a semantic background for the blend the speaker construes as more likely. According to Dancygier and Sweetser (2005), the presence of a "more likely to happen" space and an alternative space are constant elements of factual conditional phrases.

Jacobsen (2010) hypothesizes that a careful adaptation of these insights into L2 materials would likely be able to bring into focus the range of conditional meanings and also outline patterns that learners could readily rely upon in construction of their own conditional sentences. Taking a task-based learning approach, she has created and successfully piloted teaching materials aimed at advanced EFL learners. Her dissertation (in progress) aims to more fully explore the efficacy of an MSBT-based approach to the conditionals which involves implicit, communicatively based input plus targeted, explicit instruction in line with a focus on form approach.

3. Putting Linguistics Back into L2 Research and Teaching

From the outset of this book I have acknowledged that many past attempts to apply linguistic theory to L2 research and teaching have met with frustration. In many instances, L2 professionals have determined that the dominant linguistic theory has been divorced from the key issues involved in L2 language learning. As a result, many L2 researchers and practitioners have turned away from serious consideration of any particular model of language as it might apply to L2 learning. However, as Michel Achard noted,

[how grammar is presented] in the L2 classroom depends on the teacher's view of what grammar is and how students process it. Virtually every decision the teacher makes implements a set of hypotheses about the nature of grammatical organization and the manner in which its units are learned.

Achard (2008, p. 432)

For the past several years, the general result of de-emphasizing a theory of language has been to assume an unexamined, default model that is often based in what Littlemore (2010) calls the "rule and lexis" approach, which dates back to the structuralists or earlier. A major goal in writing this book has been to make a case for the importance of putting linguistic theory back into the L2 research and

teaching agenda. I have taken the position that no analysis of L2 learning or approach to L2 teaching can be complete without a clear understanding of the model of language it assumes. The model of language L2 professionals rely on is crucial to all L2 endeavors. The default model of “lexis and rules” is not a model which serves L2 teaching and learning particularly well.

L2 professionals need as complete an understanding of grammar and lexis, and the motivated ways in which they are used within communication, as possible. In order to achieve and use this understanding, they are best served by a model of language that is as accurate, accessible and as complete as possible. Specifically, I have argued that CL is an approach to language that meets these criteria, and hence that the conceptual insights and analytical tools it provides have a good deal to offer L2 researchers, L2 teachers and, above all, L2 learners. I have also acknowledged that any language is a tremendously complex system and thus any theoretical model of language will also have to be complex. L2 professionals have good reason to be wary of embracing an unknown model of language, particularly given the time and effort that will be necessary for them to gain a deep enough understanding of the approach to apply it to their research and teaching. Thus, the overarching aim of this book has been to provide evidence that CL is an approach to language that is “worth the pain.”

Towards this end, this book has pursued four major goals. The first was to introduce the basics of a CL approach. The second was to show that a thoughtful body of research has emerged over the past 15 years which suggests a CL approach provides conceptual tools to address many aspects of L2 learning. Although a good deal of the research has been non-experimental, sufficient evidence exists which points to ways in which a CL approach can refine research in areas such as focus on form, individual learner differences and cross-linguistic (contrastive) analysis. For instance, Liamkina (2008) found that the content of the intervention in focus on form instruction mattered. Participants whose errors were pointed out and who received a traditional, rule-based account of the use of dative case in German did not progress over an entire semester of instruction; those who received a CL-based account which emphasized meaning-based choice improved significantly. In spite of these promising beginnings, a common theme in review articles and collected volumes has been the lack of carefully controlled experimental evidence demonstrating the efficacy of applying a CL approach to L2 learning. Thus, the third goal has been to begin to provide that evidence through the presentation of a series of effects of instruction studies in the areas of English modal verbs, the semantics of English prepositions and English syntax, specifically the double object or Cause to Receive construction. The fourth goal has been to model the process of translating components of CL theory into accessible, effective teaching materials. Having a richer, more accurate description of the language promises a valuable advance for L2 research and teaching, but for that promise to be fulfilled, we must be able to transform the theoretical insights into effective teaching materials. A major challenge is to find ways to maintain the precision of the appropriate theoretical

concepts while rendering them accessible to L2 learners and teachers. Effective CL-based teaching materials must also attend to principles from work in psychology and the field of SLA, i.e., the importance of noticing, interestingness, role of pushed input and, following Norris and Ortega (2000), a mixture of explicit instruction and communicative tasks. Thus, in Chapters 4, 5 and 6 I have laid out the relevant theoretical analysis of each of the linguistic phenomena addressed and provided detailed descriptions of the experimental materials.

I conclude by advocating that you, as an L2 professional, consider the model of language that underpins your view of language and inevitably influences the materials and approach employed in your L2 experiments and L2 classroom. A CL approach is a sophisticated, well-developed model of language that offers new ways of understanding the nature of language and language learning. It offers great potential to move our field forward.

Appendix A

SAMPLE MATERIALS USED FOR GROUP WORK WITH MASTERS OF LAW STUDENTS

These excerpts were taken from the students' own writing. In developing teaching materials, I encourage teachers to examine the language their students are producing and use excerpts from their oral or written discourse that highlight the use of modals.

Directions

Consider the following excerpts. Are the modals used appropriate? Do you think there are better choices? How does choosing one modal rather than another change the meaning of the sentence? Are there any places where modals are missing?

1. Given these facts, one can wonder if Urbania **should/could** be sued by the holdouts because of the use of this exit consent.

How does the choice of *should* versus *could* change the interpretation of the sentence? Under what circumstances is *should* the better choice? Under what circumstances is *could* the better choice?

2. Considering that in our case Urbania is facing serious financial problems, it seems clear that the last good alternative for the bondholders to receive payment is through the exit consent. Given these circumstances, it is probable the bondholders **should/could** agree to the restructuring.

How does the choice of *should* versus *could* change the interpretation of the sentence? Under what circumstances is *should* the better choice? Under what circumstances is *could* the better choice?

3. Under the hypothesis that the court **should/must** find that the gross-up clause can be amended by the issuer and a certain majority of bondholders, the plaintiff holdouts will almost certainly claim the existence of an implied covenant concerning a contractual obligation of good faith by Urbania. The court **can/would** have to decide on the possible existence of wrongful coercion by Urbania.

How does the choice of *should* versus *must* change the interpretation of the sentence? Under what circumstances is *should* the better choice? Under what circumstances is *must* the better choice? What about *can* versus *would*?

Appendix B

MATERIALS FOR TYLER, MUELLER AND HO (2010b): COGNITIVE GROUP

Task for interactive pair work

Example 1: You **should** go to the doctor.

In what context do you use **should**?

Context sentence is underlined.

Case A: You've been coughing for two weeks. You **should** go to the doctor.

Do you think **should** works for this context? Why or why not?

Answer: Yes, **should** works. By using **should**, the speaker (who is acting as the outside authority) is giving a strong suggestion. The speaker is very concerned about his friend's health since he has been sick for so long. **Should** also shows the speaker thinks the listener has some responsibility to follow the suggestion. Anyone who has had a bad cough for two weeks knows going to the doctor is a good idea. The speaker thinks that it is clearly in the listener's best interest to follow this suggestion.

Case B: You've been coughing up blood for two weeks. You **could** go to the doctor.

Do you think **could** works for this context? Why or why not?

No, **could** doesn't work. By using **could**, the speaker is . . .

Case C: You **must** go to the doctor.

Add a context sentence so that **must** works.

Explain why **must** works in this context.

Conclusion: compare the three cases. How strongly does the speaker want the listener to follow his advice? Or how important does the speaker think it is for the listener to follow his advice when he uses:

- should?
- could?
- must?

Does the speaker think the listener has any responsibility to follow the advice when he uses:

- should?
- could?
- must?

Appendix C

TRADITIONAL GROUP MATERIALS

Sample: Review of Modal Functions: Focus on Ability

1. Use **can** to describe an ability in the present:

Josh **can** swim, but he **can't** play tennis.

2. You can also use **be able to** to describe an ability in the present or future:
I'm **able to** park a car, but I'm **not able to** drive in traffic yet.

They'll **be able to** visit us next year, but they **won't be able to** stay long.

Note: **Can** is used much more frequently than **be able to** in the present tense.

Use **could** or **was/were able to** to describe a general ability in the past:

- Kristi's grandfather **could** speak Japanese and English.
- They **were able to** practice together every day.

3. You must use **was/were able to** to describe a special achievement or a special event in the past:
 - Finally, she **was able to** win her first race.
 - (NOT She could win her first race)

For forms and tense other than the present and the past, you must use **be able to**:

- He wants to **be able to** play tennis next year.
- He hasn't **been able to** practice for a long time.

Sample Text Illustrating Modal Verbs Expressing Ability

Today, tiny Kristi Yamaguchi is one of the giants of figure skating. However, Yamaguchi had to overcome several difficulties before she **was able to** succeed. She was born with a serious foot problem and wore special shoes until she was six years old. She is also too small to do some of the jumps that stronger skaters **can** do. Yamaguchi fell in love with skating in 1976, at age four. But because of her foot problem she **could** start lessons only at age six.

Appendix D

TRADITIONAL GROUP: SELF-INSTRUCTION EXERCISES

Negative Evidence

Prompt: Read the following passage carefully and pay close attention to emboldened modal verbs. There are **three** incorrectly used modal verbs. Point out these incorrect cases by clicking on them. How would you correct these cases?

In school they teach you the importance of **being able to** play well with others. In hockey it can be a different story, especially when it comes to Sidney Crosby. At the start of last season he was expected to be the Pittsburgh Penguins' big scoring star. But Sid struggled to find players he **should** (*correct: could*) play with. There just didn't seem to be anyone who **may** (*correct: could*) bring out the best of Sidney's amazing playmaking ability. Still, the hockey player tried to stay out of controversy as best he **could**, refusing to worry too much about his on-ice problems. This season Sidney is more determined than ever to play his best so everyone **can** (*correct: would*) rather watch the Penguins than any other team. **Will** the coaching staff manage to find a teammate who **can** create magic in the rink with Sidney? The Philadelphia Penguin fans sure hope so – it **might** mean a second Stanley Cup for their city.

Appendix E

A REPRESENTATIVE DIAGRAM EXPLAINING ELEMENTS FROM THE PREPOSITION EXPERIMENTS

BASIC MEANING

- FOR marks a relationship between a **person** (the FOCUS) and another object (the GOAL).

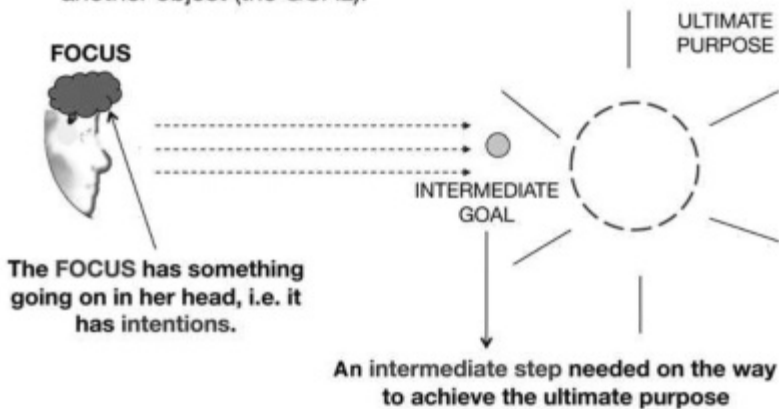


FIGURE AE.1 Representative Diagram Explaining Elements From the Preposition Experiments

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