*Annual Review of Applied Linguistics* (2010), **30**, 270–291.
© Cambridge University Press, 2010, 0267-1905/10 $16.00
doi:10.1017/S0267190510000140

# Usage-Based Approaches to Language and Their Applications to Second Language Learning

**Andrea Tyler**

Over the past 20 years, many in the field of second language learning and pedagogy have become familiar with models of language that emphasize its communicative nature. These models are often referred to as usage-based because they emphasize the notion that actual language use is a primary shaper of linguistic form. Supporters of these models also argue that making meaning, that is, the use to which language is put, is central to how language is configured. Usage-based models share several other underlying assumptions as well. While these usage models have a number of ideas in common, several distinct approaches have emerged. They often use similar terms, such as cognition and metaphor, but the precise interpretations can vary from model to model. The overall result is that without extensive reading, it is not always clear just how these models differ and what unique insights each offer. This article attempts to address this situation by examining three major usage-based models—systemic functional linguistics, discourse functionalism, and cognitive linguistics. First, the common, underlying tenets shared by the three models are discussed. Second, an overview of the unique tenets and concerns of each approach is presented in order to distinguish key differences among them. Within the discussion of each approach, I also discuss various attempts to apply the model to issues in second language learning.

## INTRODUCTION

The term *usage-based* provides a useful prism through which to view a group of linguistic models that emphasize the notion that actual language use is a primary shaper of linguistic form and the foundation for language learning. This article examines three usage-based approaches: systemic functional linguistics (SFL), discourse functionalism, and cognitive linguistics (CL), and their applications to second language (L2) learning issues.[1] Although usage-based models of language have tended to be more or less on the fringes of mainstream L2 endeavors in the past, ideas from these approaches have begun to receive attention from L2 researchers and teachers. In terms of a theory-language learning connection, SFL, especially as it has evolved in Australia, is probably the most well established of these models. By the mid-1980s, many L2 researchers and language teaching professionals in the United States had begun turning from



https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

formal, highly abstract generative models of language to more communicative and contextualized approaches. These researchers drew on work from a range of sociolinguistically influenced research, including what I term the discourse functionalists, such as Wallace Chafe, Scott Delancy, Talmy Givón, Paul Hopper, Sandra Thompson, and Russell Tomlin. More recently, with advances in cognitive psychology (such as the development of our knowledge of schema and prototype effects) and frequency-based analyses of language learning (e.g., Ellis, 2008a, 2008b), CL has begun to garner attention. In this article, I identify the common underlying tenets shared by usage-based approaches to language. Then I explore in more depth the three distinct approaches. Within the discussion of each approach, I touch on various attempts to apply the model to issues in L2 learning. Since CL has recently generated substantial interest and is the newest on the L2 scene and probably the least familiar, I devote substantial attention to it.

## COMMON UNDERLYING TENETS

The central idea in usage-based models is that a user's language emerges as a result of exposure to numerous *usage events* (Kemmer & Barlow, 2000), that is, situated instances of the language user understanding or producing language to convey particular meaning in a specific communicative situation. When a speaker engages in communication, it is assumed that she is attempting to achieve specific interactional goals using intentionally chosen linguistic strategies aimed at members of her speech community. Tying usage events to particular speech communities reflects the understanding that actual language use is culturally and contextually embedded.

All usage-based approaches adhere to five key tenets: (a) The primary purpose of language is communicative; communicative use shapes language itself. As Tomasello (2003) argued in relation to first language learning, "language structure emerges from language use" (p. 5). (b) Natural language always occurs in context, and the user's choices in crafting an utterance are influenced by an array of contextual factors. Context itself is a complex construct that transcends a compositional approach in which additional dimensions can simply be added without recognizing subtle, interacting linguistic reflexes that occur in relation to multidimensional context. For instance, all usage-based models have recognized the audience or the participants in an interaction as a major aspect of context (for genre, see Martin & Rose, 2008; for listener expectation, see Chafe, 1994; for "ground," see Langacker, 1987, 1991b; Taylor, 2004). Subtle changes in the relationship between the speaker and the audience result in changes in the speaker's language choices. (c) Language is learned. Patterns of usage, including collocational information (at the level of grammatical patterns as well as the word level) and frequency information, are held to be central to the learning of the system. This tenet entails a rejection of a separate language module with a preestablished grammatical configuration that is activated or triggered by exposure to salient language data. (d) Meaning is not housed solely in lexical items. Grammatical patterns are meaningful in and of themselves (e.g.,

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

Givón, 2001; Langacker, 2008a; Martin, 2002). (e) Language can be accurately and fully accounted for through a monostratal model, that is, all syntactic patterns can be accounted for without assuming two (or more) levels, such as deep structure and surface structure. Alternative syntactic patterns, such as active versus passive, are separate, meaningful patterns, not transforms of each other. (See Zyzik, 2009, for further discussion of usage-based approaches, especially on the importance of input frequency.)

## SYSTEMIC FUNCTIONAL LINGUISTICS

SFL began with the work of M. A. K. Halliday in the 1970s, largely in response to more formal, structuralist approaches that discounted the centrality of communication and context in shaping language. The main goal of Halliday's model has been to account for culturally situated linguistic communication that is understood as a transmitter not only of propositional information but also of larger cultural values, and as a tool for getting things done (e.g., Byrnes, 2009; Halliday, 1994). In this model, language is inextricably bound to human social behavior, culture making, and culture transmittal, including transmission of status and power relations.[2] A central goal is to understand how ordinary language as it is used in everyday practice transmits systematic patterns of culture. (Halliday, 1978; Halliday & Matthiessen, 2004).

Much of more recent SFL work views language through the filter of genre (Martin, 2002, 2009). Genre is understood as a specific text type, aimed at a narrowly specified audience (e.g., scientific academics) with specific communicative goals (e.g., persuading, informing) in particular formats (e.g., scientific journals). The emphasis is on analyzing text produced by speakers and writers as they communicate in a given genre. Thus, SFL clearly situates all analysis in a defined sociocultural context. Every language has numerous genres, and every genre is language specific. Each genre is held to utilize slightly different, conventionalized patterns of linguistic resources, and the patterned occurrence of these linguistic bundles determines whether a text represents an appropriate example of that genre.

Below the overarching level of genre, SFL posits a tripartite division of context: (a) *field,* which concerns what is being talked about and what is going on in terms of the social activity of a situation; (b) *tenor,* which refers to how social roles and relations are being enacted; and (c) *mode,* which relates to the opportunities and constraints on deployment of linguistic resources associated with the situated text, including resources and constraints inherent in spoken versus written discourse (e.g., Byrnes, 2009; Halliday & Matthiessen, 2004; Martin, 2009). For example, consider how these three contextual elements might play out in an article about the battle of Gettysburg written for an academic journal: The information about the battle (and argumentation concerning its import to the Civil War) as well as the components of description (informing) and persuasion (presenting an opinion and attempting to convince the audience it is an opinion worth considering) would represent the field; the positioning of the author as an academic authority on the subject communicating to an informed readership

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

who share similar expectations about how such information and argumentation is presented would represent the tenor; and the expectations and stylistic constraints of the academic journal would represent the mode. Each of these dimensions of context is in turn related to a *metafunction,* described in the following paragraph, which is realized in terms of specific aspects of linguistic expression. Of the three usage-based approaches, SFL has developed the most delineated constructs concerning how specific aspects of context relate to the linguistic realizations found in a situated text (e.g., Martin, 2002, 2009; Martin & Rose, 2008).

In terms of actual linguistic expression, the deployment of various linguistic resources or patterns is argued to enact three different communicative metafunctions, all of which exist simultaneously and interactively in any text: *ideational,* what is being done and what the text is about or what meaning the text is expressing; *interpersonal,* linguistic cues indicating speaker stance and relationship to audience; and *textual,* or what makes a stretch of language hang together as a coherent whole and how participants are tracked through the discourse, information flow, and so on. (The constructs of theme/rheme are classic examples of the textual metafunction; e.g., Halliday, 1978; Halliday & Matthiessen, 1999; Martin & Rose, 2008).

SFL represents linguistic patterning as involving networks of closed systems of options offered by the particular language for the purpose of communication. These are the systematic bundles of linguistic forms associated with the field, tenor, and mode of each genre.[3] Halliday clearly saw meaning as the shaper of language: "[I]n a systemic grammar every category (i.e., theoretical concept) is based on meaning: it has a semantic, as well as a formal, lexico-grammatical reactance" (Halliday & Matthiessen, 1999, pp. 3–4). Choice of lexicogrammatical form is understood as a meaning-making choice. The focus is on identifying linguistic patterns that are typically employed to create a situated, coherent text (as perceived by the intended audience) that matches a particular communicative context (defined in terms of genre with specifically defined audience and register). Although audience and audience expectation have been identified as part of tenor and the interpersonal dimension, the emphasis has been on meaning being primarily a property of the text itself rather than deriving through dynamic interpretation and inferencing on the part of the listener.

Halliday believed that the form of language is explicable almost solely in terms of communicative function; he rejected "the psychological or physiological" as motivating factors (Halliday & Matthiessen, 1999, p. 7). Indeed, he stated, "Instead of explaining language by reference to cognitive processes, we explain cognition by reference to linguistic processes" (p. 7). An example of this focus is his definition of theme/rheme; theme is simply seen as the departure point of the sentence. The speaker's choice of theme is primarily related to the textual metafunction, which has to do with information flow and how the speaker chooses to lay out the message. Importantly, the analysis of theme/rheme does not address underlying cognitive or neuro-physical motivations. Halliday's almost exclusive concern with language as a social-cultural phenomenon and disregard for cognitive and physical-neural dimensions is an important factor that sets SFL apart from discourse functionalism and CL.

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

Halliday's analysis of the passive is tied to his understanding of theme and reflects his belief in the unimportance of cognitive motivation. He has noted that English speakers have an awareness of the meaning expressed when something is in first position and, moreover, that theme is usually associated with the actor role unless there is good reason not to do so. He further noted that the passive allows the speaker to disassociate theme from actor in order to change focus or omit the actor, but his analysis offered no explicit discussion of general cognitive motivation for these choices.

The emphasis on using genre as the filter through which to analyze syntax has tended to lead SFL linguists away from general descriptions of grammatical constructions as they are used to communicate across a range of text types. The close ties between narrow context and the situatedness of linguistic choices are another factor that distinguishes SFL from CL. It should be noted that a relatively new development in SFL has involved close analysis of the discourse of multiple areas and an increased understanding of generic structures and intertextual relations among various genres (Martin, 2002).

The majority of the applications of SFL to issues in L2 have come from the work of Halliday's followers in Australia. In Australian educational linguistics, genres have been defined as "staged, goal-oriented social processes" (Martin, 1999, p. 127). Fuller understanding of the linguistic and discourse patterns generally employed within a particular genre has served as the basis for genre-based instruction that addresses the notion that genres unfold in stages and that experienced readers or listeners are likely to experience a sense of frustration or negative evaluation when phases do not unfold as expected. Christie (2006) also emphasized the importance to L2 teachers of the knowledge about language (KAL), including knowledge of grammar (as long as grammar is understood in terms of making appropriate grammatical choice in order to create effective, situated meaning) as an important result of genre-based teaching. Research into *field,* or the particular activity that is being accomplished through discourse, has explored several kinds of school and workplace discourse, including the areas of mathematics, science, geography, history, and English for academic purposes (see Martin, 2009, for a fuller discussion). In general, there has been a recent shift to analyze longer texts as a series of smaller genre complexes that unfold in stages (see Christie, 1999; Martin, 2009, for classroom discourse). These insights have been used to teach both L2 written discourse and spoken discourse. For overviews of application of genre to L2, see Byrnes (2006, 2009).

In the United States, Byrnes and her colleagues (e.g., Byrnes, 2009; Byrnes, Maxim, & Norris, in press) have successfully developed a genre-based curriculum for advanced learners of German as a foreign language. The focus is on close reading of genre-defined texts and analysis of the situated choices writers make in order to create meaning. Thus, the reading-writing-speaking connections are of central concern. The close reading involves intensive analysis of genre-based usage of lexicon, grammatical choices, and rhetorical structure in reading and writing. Texts are presented as "models for the meaning-making resources available in the language system; texts are instances of linguistically construed cultural situations that themselves are reflective of the entire cultural system" (Byrnes et al., in press). Schleppegrell and her colleagues have also applied SFL to issue in L2 writing (e.g., Achugar, Schleppegrell, & Oteíza, 2007; Schleppegrell,

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

2004, 2008; Schleppegrell, Greer & Taylor, 2008). Colombi (2009) has used concepts from SFL in her work with heritage language learners.

Both in theory and in application, SFL has a strong tendency to focus on the surface patterns of the text, such as use of nominalizations, hypotactic versus paratactic sentence structure, amount of pronoun usage, ellipsis, lexical repetition, and semantic networking. While recognizing audience expectation and participants as part of culturally situated context, the assumption seems to be that, for the most part, meaning exists in the text (Halliday, 1994, 2002; Halliday & Hasan, 1976; Hoey, 1991). Issues such as linguistic elements underspecifying the intended interpretation, the importance of inferencing, and the use of background knowledge in both the interpretation and production of discourse are not addressed. This lack of emphasis on the listener as an active creator of meaning, as well as lack of emphasis on human cognition (such as human category formation, organization of memory, and use of background knowledge) as central to shaping language and to meaning making, have been key distinctions between SFL and the other two usage-based approaches considered here.

## DISCOURSE FUNCTIONALISM

While SFL represents a model of language clearly distinguishable from discourse functionalists and CL, these last two are more appropriately seen as models located on a continuum. Historically, the two approaches have exerted considerable influence over each other, and some of the same scholars have been associated with both (e.g., Wallace Chafe and Paul Hopper).

The discourse functionalists have sought to develop a relatively detailed description of grammar that attends closely to the relationships among grammar, discourse, and the producers of the discourse. Grammar usage is seen through the lens of discourse and meaningful speaker choice. Their understanding of the discourse producers also includes an explicit recognition of the cognitive dimension, in addition to the social-cultural. For instance, Chafe's (1994, 2005, 2007) explanation of English speakers' choice of determiners is largely based on the role of memory (including information retrievable from schema-based knowledge) and attention. In his analysis of spoken English, Chafe (2001) noted that language is produced in relatively short intonation units, which he hypothesized are constrained by the *one new idea per unit* constraint, which is in turn tied to short-term memory and processing constraints.

Although there are a number of important researchers associated with discourse functionalism, here I will focus on Givón's contributions as representative of the approach. Givón (e.g., 1995, 2001) recognized the importance of discourse context, although he has not developed a formalism for the connections between context and grammar as found in SFL. In distinction from SFL, in considering context, he does not recognize genre as an overarching construct which is central to understanding the connection between syntax and meaning. In further contrast to SFL, he has argued for the importance of taking more than just the social-cultural-communicative dimensions into account in order to fully understand why language is as it is. Givón (2001) has taken what might be understood as a broadly biological approach to functionalism. He argued that biologists long

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

ago recognized that they could not adequately understand a particular part of an organism, for instance, the human heart, without understanding how it functioned within the organism as a whole. On analogy, he has argued that it is impossible to adequately understand language (or any particular formal structure found in language) without understanding how language functions in terms of the purposeful social and communication activities that its producers use it to perform. Moreover, language cannot be understood apart from the full human organism itself. At a more specific level, Givón looks to general cognitive processes as important in shaping language. He sees cognition and the brain (including issues of language processing), as well as communication and social interaction, as some of the central, natural parameters that shape language (Givón, 1995, 2001). A good example of integrating cognitive motivation into his explanation of grammar is his discussion of an animacy hierarchy and its relation to thematic roles. In terms of cognitive saliency rooted in evolution and survival, humans are especially concerned with their own actions and the forces that impinge upon them; this is reflected in sentence structure and thematic roles. At the most basic level, agents are usually animate, preferably human; patients or themes are more likely to be inanimate. Nonanimate forces, such as earthquakes, which affect humans in ways that are similar to animate beings, are less typical but possible agents.

Givón's (1995, 2001) analysis of iconicity, or the notion that a resemblance exists between the shape of language and the concepts being represented, also illustrates his inclusion of the cognitive dimension as an important factor in determining the structure of language. He noted that formalists tend to dismiss iconicity in language as untenable because of the tremendous morphosyntactic variation found across languages. One of the seeming problems with iconicity has been the basic claim that word order essentially corresponds to the order of thought. On the face of it, this claim appears false, given that languages demonstrate many word orders, while human conceptualization or thought order is presumably universal. Givón has argued that the existence of competing pragmatic and communicative principles accounts for the variation. For instance, he argued that the universal principle of focused elements coming first (or iconically, the information the speaker finds most pressing coming at the beginning of the sentence) is often in competition with the well-documented principle of given information coming at the beginning of the sentence (iconically, starting with what is known). Competition between these two communicative and cognitive forces accounts for certain patterns of variation. Givón explained the failure to find obvious iconic universals, such as a single word order for all languages, by drawing on the notion that humans represent complex biological systems that have evolved and adapted to multiple, often competing pressures over time. Because of the complexity of the process of evolutionary development in response to multiple forces, simple one-to-one relationships between form and function are rare. He further argued that if one views iconicity at a more abstract level and takes competing forces into account, iconicity can be seen as a fundamental force shaping language. Note that Givón's explanation of the speaker's choice of what information comes at the beginning of a sentence was essentially a reanalysis of theme/rheme. Givón's attribution of speaker choice being influenced by cognitive principles contrasts with SFL.

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

While firmly arguing for meaning, discourse, communicative, and cognitive motivations as the genesis of grammar, Givón did not reject formal grammatical structure as a reality of language. He argued that competing motivations (communicative, cognitive, social-cultural, etc.) often lead to a situation in which grammar becomes established as a conventionalized system (e.g., 2001). In terms of analysis of specific grammatical constructions, Givón's work on the role of passive versus active is representative. Having analyzed multiple instances of discourse in several languages, Givón argued that passive accomplishes several functions: (a) de-emphasizes the agent, (b) places focus on the theme/patient, (c) allows for continued focus on a topical participant that may not be agentive, and (d) tends to make the action more static.

Taking a strong comparative linguistic typological approach, many of his studies consider the frequency distribution of features in different languages, striking a balance between what is common across languages and their individual characteristics. In distinction from SFL, discourse functionalism focuses on syntax as coding meaning in a way that is generalizable across discourse contexts rather than concentrating on the typical syntactic patterns that co-occur in a particular genre. Discourse functional analyses do not focus on issues such as patterns of ellipsis or tendency to use nominalizations in a particular text type.[4]

We turn now to applications of discourse functionalists to issues in second language learning and teaching. Setting aside work which focuses on speech acts, it is probably fair to say that a majority of discourse applications to issues in L2 learning have been influenced by discourse functionalists. Celce-Murcia (2002) acknowledged the important contributions of Givón in her discussion of teaching L2 grammar from a discourse/functional perspective. Tomlin's (1994, 1997) influential red fish/blue fish experiments, which demonstrated that native English speakers' use of active constructions when the focus is on the agent and passive when the focus in on the patient grew out of Givón's analysis. This understanding of active versus passive has been widely accepted by L2 discourse analysts (e.g., Celce-Murcia & Larsen-Freeman, 1999; Celce-Murcia & Olshtain, 2005; Larsen-Freeman, 2002; McCarthy & Carter, 2002). Many studies by Celce-Murcia (e.g., 2002) and her students have analyzed speaker choice between competing constructions, such as *used to* versus *would,* in naturally occurring discourse; these studies assumed that speaker choice in lexical constructions and syntax has a general communicative meaning across a wide range of text types. Carter, Hughes, and McCarthy (2000) provided analysis of numerous grammatical patterns, from aspectual choices to use of relative clauses, in terms of general communicative functions. They pointed out a range of text types as good sources of naturally occurring uses of a particular pattern, but did not tie the pattern to a particular genre. For instance, their discussion of modal usage included analysis of newspaper horoscopes and print advertisements, two quite different genres.

## COGNITIVE LINGUISTICS

CL inherits many basic assumptions from discourse functionalism. For instance, there has been general recognition of the importance of discourse-level phenomena, although relatively little discourse analysis has actually been carried out by

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

cognitive linguists. As Sanders & Spooren (2005), in their review of the discourse-CL connection, noted, "At the moment, the cognitive linguistic study of discourse is still more of a promising challenge to linguists and students of discourse, rather than a well-established part of everyday cognitive linguistic practice" (p. 917).[5] (Exceptions to this trend include the work by, e.g., Cameron, 2008; Dancygier, 2008; Moder, 2004, 2008). CL also recognizes the role of iconicity, particularly as it relates to metonymy and some aspects of primary metaphor.

What sets CL apart from the discourse functionalist approach is its primary commitment to developing a model of language that reflects human neural-physical architecture and human interaction with the social-physical world. By extension, CL assumes that reflexes of the same neuro-cognitive principles should operate in multiple areas of language. This is what Lakoff (1990) termed the "generalization commitment" (p. 39). Thus, it is of theoretical import for CL that we find occurrences of polysemy in lexical items, such as *give* (Newman, 1996); functional morphemes, such as tense markers (Tyler & Evans, 2001) and *-er* (Panther & Thornburg, 2001); and grammatical constructions (Goldberg, 1995). Moreover, CL pays a great deal of attention to evidence from psychology and neuroscience (e.g., Coventry & Garrod, 2004; Coventry & Guijarro-Fuentes, 2008; Gibbs, 2006; Taylor, 2003; von Stutterheim, 2003) concerning human category formation, memory capacity and the role of input frequency in automaticity (e.g., Bybee, 2003, 2006; Schmid, 2007) and in first language acquisition (e.g. Tomasello, 2003; Lieven & Tomasello, 2008). Tomasello (2003) also argued for a unique genetic endowment involving joint attention and ability to develop a theory of the mind as essential social components required for symbolic communication and hence language.

CL is deeply rooted in the notion of embodied meaning (e.g., Gibbs, 1994, 2006; Lakoff, 1987; Lakoff & Johnson, 1999; Langacker, 1987, 1991b). Cognition itself is understood as being shaped by humans' unique neural and physical architecture in interaction with the social-spatial-physical environment. Consider one aspect of humans' unique physical architecture, its consequences for human conceptualization of the world, and one of its reflexes in language: Humans stand on their hind legs. This means that beginning in infancy, humans are acutely aware of balance, the force of gravity, and the salience of being "up" for being able to see more, grasp objects more freely, move more quickly, and so on. 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, for example, *stand up for yourself, stand for something you believe in, this aggression will not stand.* Grady (2007) argued that a primary metaphor found in many languages is "persistence is remaining erect." The salience of up versus down for humans and its reflex in language was well documented in Lakoff and Johnson's (1980) study on orientation metaphors.

In terms of human perceptual systems, since the Gestalt psychologists, it has been established that the human visual system is configured such that, when viewing a spatial array, humans tend to focus on smaller, more mobile entities (focus) that are located in terms of larger, more stable entities (ground). CL has

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

emphasized that this aspect of the human visual system is reflected in language (Talmy, 2000a,b), as in the prepositional system (*The **bike** is by the **school***) in which the smaller, more moveable "bike" is the focus and located in relation to the larger, less mobile "school" (the ground). Consider the oddness of the sentence ?*The **school** is by the **bike**,* in which the focus/ground relationship is reversed. Talmy (2000a) argued that figure/ground relations account for many patterns of clause ordering in complex sentences. Langacker (1987, 1991b) also argued that the focus/ground relation is ubiquitous in larger language structures, for example, the sentential subject acts as the focus element in relation to the predicate, which acts as the ground.

Basic human interactions with the physical and social world provide a foundation for human conceptual and cognitive representations which are in turn reflected in language. Humans use their understanding of the external, physical world as a framework for representing internal phenomena—emotions, self-reflective concepts, and more abstract concepts. The physical underpinning for conceptualization is reflected throughout language. In other words, humans regularly think and talk about internal phenomena in terms of the external, socio-physical. This is central to conceptual metaphor theory, one of the constructs most closely associated with CL (e.g., Grady, 1997, 1999, 2007; Lakoff & Johnson, 1980, 1999). Within CL, metaphor is understood as a ubiquitous part of thought and language. Rejecting the traditional analysis that metaphor is based solely on resemblance, Grady has argued that much of metaphor is based in 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 has been established, humans appear to think about the more abstract phenomena in terms of the more concrete. A straightforward example is the everyday 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 concepts of "amount" and vertical elevation, that is, "up-down." As a result, we think and talk about an increase in amount in terms of an increase in vertical elevation (Grady, 1999; Lakoff & Johnson, 1999), as in *The price of potatoes is up/rising* or *Executive compensation remains elevated.* Grady (1999) termed this type of metaphor *primary metaphor,* which is based on experiential correlation. After examining more than 20 languages, many of which are not historically related, Grady (1999) argued that the primary metaphor, "more is up," (p. 87) along with a dozen other primary metaphors, appears to be universal. CL's emphasis on cognition and embodied meaning allows exploration of many linguistic phenomena which are of no theoretical import to SFL nor discourse functionalists, such as recurring instances of the same cognitive processes at different levels of language, metaphor, and polysemy.

CL maintains that the multiple, rich, interacting cognitive capacities of humans are sufficient to account for language. In the general area of classification and organization of memory, some of the key cognitive capacities include humans' incredibly well developed abilities at classifying, pattern finding, and a huge, highly structured memory capacity. See Taylor (2003, 2004) for a detailed discussion of categorization and CL. Humans are particularly adept at forming

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

categories, that is, at perceiving similarities over several specific instances of entities or events which may differ substantially in terms of surface manifestations (e.g., 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). Moreover, human memory is richly patterned and networked. Work by Rosch and her colleagues (e.g., Rosch, E. & C. Mervis, 1975) has established that one key aspect of human categorization (and hence memory structuring) involves centrality or prototype effects and radial categories. Radial categories are organized around a set of attributes abstracted from best exemplars of the category (this is the central prototype); other entities that 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 American the general attributes of a small songbird, such as a robin, represent a prototypical bird while penguins and ostriches represent less good exemplars. Goldberg (1995) argued that the same principles of categorization and centrality effects apply to syntactic constructions and the particular verbs that occur in the construction. For instance, in the double object construction (Subj-X Verb Obj-Y Obj-Z), the central meaning is *X caused Y to receive Z,* and the verb that most closely matches this meaning is *give.* Corpus analyses have revealed that *give* is the most commonly occurring verb in the double object construction. Thus a sentence such as *Yun* ***gave*** *Hiro the paper* represents a prototypical instance of the construction. A sentence such as *Mari willed Miko her house* can be explained through systematic principles of extension, but is a less central exemplar of the construction, as it does not entail physical transfer of an entity from one participant to another. Goldberg further argued 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 central 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.

Another component of category formation is the ability to recognize patterns and perceive resemblances among varied entities, events, and even attributes that are simultaneously understood as different. This is the heart of conceptual metaphor, conceptualizing one entity in terms of another. When we say a person is a twig, we are reflecting our ability to see a resemblance between the fleshless structure of a tree branch and a human with exposed bone structure due to very little body fat. Goldberg (1995, 2006) argued 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.

Memory is also organized in terms of flexible, dynamic schemas that involve abstract, hierarchical generalizations built up over a number of specific instances; both specific instances and the abstracted generalizations are represented in memory. Psychologists have represented schemas in various ways

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

from scripts for specific types of recurring sociocultural events, such as going to a restaurant, to development of abstract concepts such as *hot,* to knowledge of the general rhetorical structure and language of fairy tales. The point is that human memory is richly, systematically patterned. Moreover, any one entity or event or experience can be part of multiple schemas, thus memory is massively interconnected and redundant. Humans use established, schematic patterns to help interpret and organize new information. Richly structured, massively interconnected memory has numerous reflexes in language. Langacker (e.g., 1987, 2008a) has argued 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. Crucially, these templates are not represented as being disconnected from meaning. For example, a template for an active, transitive sentence might be represented as something like [Subject-X Verb Object-Y] connected to a general meaning of [X-Actor/Initiator causes some effect on Y-Patient]. The argument that syntactic patterns are best understood as high-level schematic abstractions is also at the heart of construction grammar, Adele Goldberg's particular take on syntax (Goldberg, 1995, 2006). Humans can tap into the schema at whatever level of abstractness is most useful at the moment. Words are argued to act as underspecified prompts into encyclopedia memory (Evans & Green, 2006; Langacker, 1987, 1991b; Taylor, 2004). Langacker (e.g., 1987, 1991a, 2008a) and cognitive linguists generally argue against strict divisions between lexical items and syntactic patterns, as well as strict divisions between semantics and pragmatics. Fauconnier and Turner (2002) argued that many linguistic forms are best understood as prompts from the speaker to the listener to access pertinent schemas and construct particular relational configuration among concepts, such as analogy, role and identity, causality, and so forth. The general claim, then, is that words and the syntactic patterns in which they occur always underdetermine the rich interpretation regularly assigned to any utterance. Thus, humans' well-developed inferencing abilities, in conjunction with richly structured memory, are also seen as a central part of how language works.

Part of the ability to form schema is importantly connected to humans' large memory capacity and sensitivity to linguistic input and input frequency. In fact, studies of frequency effects (e.g., Bybee, 2003, 2006; Bybee & Moder, 1983; Ellis, 2002a, 2002b, 2008a,b) have shown that humans are quite sensitive to the frequency with which they have encountered words and the constructions in which words are encountered, down to evidencing reaction time sensitivity to how likely they are to hear a verb in the present tense versus the past tense. The growing body of evidence amassed by Tomasello (e.g., 2003) and his colleagues (e.g., Lieven & Tomasello, 2008) indicates that first language learning is item-based and frequency driven. Their work shows that young children are highly attuned to the specific exemplars of language in the input and the context in which they are used. For instance, children appear to constrain their use of a particular verb heard in an intransitive construction to intransitive use until

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

they also hear that verb used in a transitive construction, even though they use other verbs in transitive constructions (Tomasello & Brooks, 1998). As we have seen, Goldberg (1995) exploited sensitivity to frequency in her explanation of the co-occurrence of particular verbs in syntactic constructions. SFL and discourse functionalism also assume that input is central to learning language and the shape language takes. However, CL's commitment to putting established cognitive processes at the center of the theory and its dedicated explorations of exemplar based learning, abstraction over numerous instances, and automaticity as a result of entrenchment (based primarily on input frequency) sets it apart from the other two approaches.[6]

Cognitive linguists exploit findings from psychology indicating that concepts deriving from human interaction with the social-physical world, such as the spatial relations coded by prepositions or our conceptualization of a horse, crucially involve sensory-motor imagery. CL has argued concepts are better represented as being gestaltlike and schematic in nature, rather than represented as linguistic propositions or semantic feature bundles (e.g., Langacker, 1987). A tremendous amount of psychological evidence exists demonstrating sensory images are an essential part of human conceptualization. One simple example is the vast reaction time literature documenting the effect of imageability on how quickly readers process words.

The connections between spatial conceptualization and language have provided powerful theoretical insights (e.g., Langacker, 1987; Talmy, 2000a,b). Talmy extended notions of spatial boundedness, which derive largely from visual perception, to explanations of mass versus count nouns as well as aspect. One particularly important aspect of spatial conceptualization is the human ability to conceptualize an event or state as a spatial scene. A related facet involves humans' ability to manipulate their perspective on a scene, that is, humans have the ability to construe or view a single scene from several perspectives. The ability to conceptually construe a scene from multiple perspectives has many reflexes in language. One central reflex is the various syntactic constructions found in language that 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 that defocuses the agent and instead puts focus on the patient/theme. Note that Givón's analyses recognize general principles of cognitive processing, such as the tendency to start with what is given because this provides the listener with a shared reference point, but makes no reference to the human perceptual system and its effect on cognition, which is in turn reflected in language.

Talmy (2000a) also discovered cross-linguistic typologies involving differences in how individual languages "divide up" their conceptualization of a spatial scene. He argued that while all humans see the same elements in a motion scene, for example, 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

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

indicated by a separate particle construction, as in the sentence *The woman strolled into the room*) 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 *The woman entered the room strolling*). This distinction has been a major focus of Slobin's (1996a, 1996b, 2003, 2009) cross-linguistic studies and his theory of thinking for speaking.

Applying CL to issues in L2 research and learning is still in its infancy. Although a handful of books and overview articles have been dedicated to the connection, the majority of the work has focused on potential insights rather than reporting on classroom applications or experiments (Achard & Niemeier, 2004; Boers & Lindstromberg, 2008; De Knop & De Rycker, 2008; Pütz, Niemeier, & Dirven, 2001b; Langacker, 2008b; Robinson & Ellis, 2008; Tyler, Kim, & Takada, 2008; Verspoor & Tyler, 2009). Even though the body of applied work is relatively small, space limitations allow for just a brief mention of some of the applications of CL. As I noted earlier, CL conceptualizes lexical items, phrases and morphosyntax on a continuum rather than as distinct components of language. As an organizational device, I will discuss the applications by dividing the studies into two main areas: vocabulary and morpho-syntax. This should not be taken as an indication of a theoretical divide between the lexicon and morphosyntax.

Vocabulary teaching, broadly defined, has been the area of L2 learning to which CL has been most frequently applied. This is probably due to the fact that some of the central, unique constructs from CL, such as conceptual metaphor theory, polysemy networks, and embodied meaning, are particularly useful in explaining some of the most difficult aspects of word meaning. The volume edited by Boers and Lindstromberg (2008) presented recent empirical findings on the applications of metaphor and metonymy in teaching general vocabulary, idioms, figurative language, and phrasal verbs. MacArthur and Littlemore (2008) and Walker (2008) presented effect-of-instruction studies based on CL in conjunction with corpus-based instruction. In general, the findings over the past 10 years indicate that alerting subjects to L2 patterns of metaphor and metonymy (and how they relate to semantic networks) is often effective in increasing learners' ability to learn and retain new words. For instance, Boers & Lindstromberg (2006) 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 also Boers, Eyckmans, and Stengers (2007) and Littlemore & Low (2006).

A number of insights have emerged from analyses that combine metaphor theory with the notions of prototype effects and polysemy networks, for example, Csabi (2004), for teaching the distinction between *hold* versus *keep* and their multiple meanings by using the metaphor "possessing is holding" (p. 234); Lowie & Verspoor (2004), for teaching English prepositions; Rudzka-Ostyn (2003), for teaching phrasal verbs; and Verspoor & Lowie (2003), for teaching multiple senses of polysemous words. Tyler and her colleagues (reported in Tyler, 2008b) have successfully used Tyler & Evans's (2001, 2003, 2004) analysis of the semantics of English prepositions (which draws heavily on polysemy networks, metaphoric extension, and embodied

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

meaning), in effects-of-instruction experiments to teach the many meanings of *over*.

Metaphoric extension and embodied experience are central to Sweetser's (1990) analysis of the multiple meanings associated with all English modals (i.e., the social world-speech act or root meaning versus the logical reasoning or epistemic meaning). For example, *You should take a sweater* (social) versus *That should be Eve at the door* (reasoning). Sweetser's basic analysis was that the meaning of the modals is based in force dynamics.[7] Understanding of physical forces that affect forward motion have been extended first to the social world and then to the world of reasoning. Tyler converted Sweetser's descriptions of the various types of force dynamics associated with each modal into a set of simple figures, depicting various forces as being internal or external to a mover. In a series of experiments, Tyler and her colleagues (reported in Tyler, 2008a, 2008b) found that subjects receiving instruction on the semantics of modals from a CL perspective used modals in a more nativelike way than subjects who were in an input flood situation but did not receive a CL explanation.

A number of studies have successfully applied CL insights to aspects of learning L2 morphology. Hamrick and Attardo (in press) exploited Talmy's analysis of boundedness, in conjunction with prototype theory, to successfully teach learners of Italian appropriate auxiliary selection in the *passato prossimo*. Niemeier (2008) also used boundedness to create teaching materials for English progressive aspect, as well as mass-count distinction. Huong (2005) drew on boundedness in the explaining mass-count distinctions in English nouns in relation to learning the English article system. Drawing on the primary metaphors "here is now/there is then" and "physical closeness is control," Tyler and Evans (2001) created pedagogical materials that systematically explained unusual uses of English past and present tenses, such as the use of past tense to indicate politeness, as in *I **was** wondering if you'd like to have lunch,* where the wondering is clearly taking place in the moment of speaking. Using notions of semantic extension and polysemy, Liamkina (2006, 2008) carried out a longitudinal study examining advanced foreign-language German learners' mastery of the multiple meanings and uses of German dative. Those who received explanations based on prototype theory and polysemy networks outperformed those receiving a traditional approach. Panther and Thornburg (2001) created a systematic, pedagogically oriented account of English *-er* nominals, drawing on conceptual schema theory, prototypes, and conceptual metaphor.

Complex syntactic points have also been addressed. Cadierno (2008) reviewed several studies that focused on learning motion verb constructions; these studies applied Talmy's verb-framed/satellite-framed analysis, as well as Slobin's (1996b) insights on thinking for speaking. The concept of construal has been fruitfully applied by several researchers. Achard (e.g., 2008) investigated naturally occurring uses of definite and partitive articles in French. He argued that a speaker's choice between the two was a matter of construal and conventionalized cultural schemas; he successfully applied that analysis to L2 instruction. See Verspoor and Tyler (2009) and Achard and Niemeier (2004) for discussion of other applications of construal to language teaching.

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

Recall that CL argues that syntax itself is meaningful and that syntactic patterns are templates abstracted over many instances of utterances. Moreover, there are no derivations or transformations of a more basic syntactic pattern to a second, derived pattern. Thus, Goldberg represented the double object construction (Subj-X Verb Obj-Y Obj-Z) as meaning *X caused Y to receive Z,* as in *Hiro gave Yun the book* . This construction contrasts with the caused-motion construction (Subj-X Verb-Obj Y Oblique object Z) which means X caused Y to move to Z, as in *Lissa threw the football to Mike.* A few studies demonstrating the usefulness of Goldberg's construction grammar (Goldberg, 1995, 2006) in L2 learning are beginning to emerge: Mellow (2006) for teaching relative clause constructions; Manzanares and Rojo Lopez (2008) for double object constructions; Strauss, Lee, and Ahn (2006) for Korean completive constructions.

## CONCLUSION

All three approaches—SFL, discourse functionalism, and CL—share a number of tenets that place them in a usage-based paradigm. At the same time, each has its own distinctive approach to language. Perhaps the most salient difference among the three involves the conceptualization of the key factors that shape language. SFL draws almost exclusively on social-communicative factors in its analyses; discourse functionalism recognizes the social-communicative functions, while adding general principles of cognitive processing; and CL prioritizes the salience of human neuro-physical anatomy and human interaction with the physical world.

### NOTES

1 The usage-based approaches discussed in this article have also been labeled as functional, broadly defined, as they all adhere to the notion that any language system is intimately related to and derives from how language is actually used, as opposed to formalist approaches which argue that language is the result of a genetically endowed, predetermined set of linguistic-specific principles. However, the traditional understanding of functionalism focuses on the communicative function as *the* prime language shaper. Some analysts (e.g., Butler, 2006) have questioned whether CL, with its strong emphasis on the neuro-cognition and embodied experiences, falls outside the traditional understanding of a functional approach.

2 This focus on cultural transmission has influenced the area of critical discourse analysis, language and power, and language and identity.

3 Butler (1989) stated, "Perhaps the single most important feature running through Halliday's work is the formalisation of paradigmatic patterning as systems and giving the category of system the central role in grammar" (p. 6).

4 Tannen (1989) in *Speaking Voices* did examine lexical repetition, but her analysis argued for repetition of phrases in conversation as both a rapport-building strategy and as reflecting online cognitive production and processing constraints.

5 Fauconnier (1997) and Fauconnier and Turner (2002) have developed a cognitive model of discourse through the theory of mental spaces and blending. This theory attempts to model how humans create and interpret unfolding discourse through setting up temporary *mental spaces.* Certain linguistic elements, such as tense marking and conjunctions, have been identified as "space builders," for example, instructions to the listener or reader to establish a new mental space. Recently, Dancygier (2008) has extended mental space theory to account for shifts in viewpoint in narratives. However,

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

the majority of work done in mental space theory does not examine how particular grammatical constructions or larger rhetorical patterns work in discourse.

6 Frequency effects in both first and second language learning are an extremely complex phenomenon. Frequency effects interact with multiple factors such as saliency, learned attending, whether or not a lexical item is a basic level term, and discourse effects, just to mention a few. It is far beyond the scope of this article to even begin to adequately address the issue. The reader is directed to the many works of Joan Bybee, Nick Ellis, and Michael Tomasello for fuller discussion.

7 Sweetser based her analysis on Talmy's (2000a) original analysis of force dynamics and modals.

## REFERENCES

Achard, M. (2008). Teaching construal: Cognitive pedagogical grammar. In P. Robinson & N. C. Ellis (Eds.), *Handbook of cognitive linguistics and second language acquisition* (pp. 432–455). New York: Routledge.

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

Achugar, M., Schleppegrell, M. J., & Oteíza, T. (2007). Engaging teachers in language analysis: A functional linguistics approach to reflective literacy. *English Teaching: Practice and Critique, 6*, 8–24.

Boers, F., & Lindstromberg, S. (2006). Cognitive linguistic applications in second language or foreign language instruction: Rationale, proposals, and evaluation. In G. Kristiansen, M. Achard, R. Dirven, & F. Ruiz de Mendoza (Eds.), *Cognitive linguistics: Current applications and future perspectives* (pp. 305–355). Berlin, Germany: Mouton de Gruyter.

Boers, F., & Lindstromberg, S. (Eds.). (2008). *Cognitive linguistic approaches to teaching vocabulary and phraseology*. Berlin, Germany: Mouton De Gruyter.

Boers, F., Eyckmans, J., & Stengers, H. (2007). Presenting figurative idioms with a touch of etymology: More than mere mnemonics? *Language Teaching Research, 11*, 43–62.

Butler, C. S. (1989). Systemic models: Unity, diversity and change. *Word, 40*, 1–35.

Butler, C. S. (2006). Functionalist theories of language. In K. Brown (Ed.), *The encyclopedia of language and linguistics* (Vol. 4, pp. 696–704). Oxford, UK: Elsevier.

Bybee, J. (2003). Mechanisms in change in grammaticalization: The role of repetition. In R. Janda & B. Joseph (Eds.), *Handbook of historical linguistics* (pp. 602–623). Oxford, UK: Blackwell.

Bybee, J. (2006). *Frequency of use and the organization of language.* Oxford, UK: Oxford University Press.

Bybee, J., & Moder, C. (1983). Morphological classes as natural categories. *Language, 59*, 251–270.

Byrnes, H. (2006). A semiotic perspective on culture and foreign language teaching: Implications for collegiate materials development. In V. Galloway & B. Cothran (Eds.), *Language and culture out of bounds: Discipline-blurred perspectives on the foreign language classroom* (pp. 37–66). Boston, MA: Heinle Thomson.

Byrnes, H. (2009). Systemic-functional reflections on instructed foreign language acquisition as meaning-making: An introduction. *Linguistics and Education, 20*, 1–9.

Byrnes, H., Maxim, H., & Norris, J. (in press). *Realizing advanced FL writing development in collegiate education: Curricular design, pedagogy, assessment*. London: Continuum.

Cadierno, T. (2008). Learning to talk about motion in a foreign language. In P. Robinson & N. C. Ellis (Eds.), *Handbook of cognitive linguistics and second language acquisition* (pp. 239–275). New York: Routledge.

Cameron, L. (2008). A discourse approach to metaphor: Explaining systematic metaphors for literacy processes in a school discourse community. In A. Tyler, Y. Kim, & M. Takada

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

(Eds.), *Language in the context of use: Discourse and cognitive approaches to language* (pp. 321–338). Berlin, Germany: Mouton de Gruyter.
Carter, R., Hughes, R., & McCarthy, M. (2000). *Exploring language in context*. Cambridge, UK: Cambridge University Press.
Celce-Murcia, M. (2002). Why it makes sense to teach grammar in context and through discourse. In E. Hinkle & S. Fotos (Eds.), *New perspectives on grammar teaching in second language classrooms* (pp. 119–134). Mahwah, NJ: Erlbaum.
Celce-Murcia, M., & Larsen-Freeman, D. (1999). *The grammar book: An ESL/EFL teacher's course*. Boston, MA: Heinle & Heinle.
Celce-Murcia, M., & Olshtain, E. (2005). Discourse based approaches: A new framework for second language teaching and learning. In E. Hinkle (Ed.), *Handbook of research in second language teaching and learning* (pp. 729–741). New York: Routledge.
Chafe, W. (1994). *Discourse, consciousness, and time: The flow and displacement of conscious experience in speaking and writing*. Chicago: Chicago University Press.
Chafe, W. (2001). The analysis of discourse flow. In D. Schiffrin, D. Tannen, & H. E. Hamilton (Eds.), *The handbook of discourse analysis* (pp. 673–687). Oxford, UK: Blackwell.
Chafe, W. (2005). The relation of grammar to thought. In C. S. Butler, M. de los Ángeles Gómez-González, & S. M. Doval-Suárez (Eds.), *The dynamics of language use: Functional and contrastive perspectives* (pp. 55–75). Amsterdam: John Benjamins.
Chafe, W. (2007). Language and consciousness. In P. D. Zelazo, M. Moscovitch, & E. Thompson (Eds.), *Cambridge handbook of consciousness* (pp. 355–373). Cambridge, UK: Cambridge University Press.
Christie, F. (2006). Literacy teaching and current debates over reading. In R. Whittaker, M. O'Donnell, & A. McCabe (Eds.), *Language and literacy: Functional approaches* (pp. 45–65). London: Continuum.
Colombi, M. C. (2009). A systemic functional approach to teaching Spanish for heritage speakers in the United States. *Linguistics and Education, 20*, 39–49.
Coventry, K., & Garrod, S. (2004). *Saying, seeing and acting: The psychological semantics of spatial prepositions. Essays in cognitive psychology series.* New York: Psychology Press.
Coventry, K., & Guijarro-Fuentes, P. (2008) Spatial language learning and functional geometry. In P. Robinson & N. C. Ellis (Eds.), *Handbook of cognitive linguistics and second language acquisition* (pp. 114–138). London: Routledge.
Csabi, S. (2004). A cognitive linguistic view of polysemy in English and its implications for teaching. In M. Achard & S. Niemeier (Eds.), *Cognitive linguistics, second language acquisition, and foreign language teaching* (pp. 233–256). Berlin, Germany: Mouton de Gruyter.
Dancygier, B. (2008). Personal pronouns, blending, and narrative viewpoint. In A. Tyler, Y. Kim, & M. Takada (Eds.), *Language in the context of use: Discourse and cognitive approaches to language* (pp. 167–183). Berlin, Germany: Mouton de Gruyter.
De Knop, S., & De Rycker, T. (Eds.). (2008). *Cognitive approaches to pedagogical grammar*. Berlin, Germany: Mouton de Gruyter.
De Knop, S., Boers, F., & De Rycker, T. (Eds.). (in press). *Applications of cognitive linguistics: Exploring the lexis-grammar continuum in second language pedagogy*. Berlin, Germany: Mouton de Gruyter.
Ellis, N. C. (2002a). Frequency effects in language processing: A review with implications for theories of implicit and explicit language acquisition. *Studies in Second Language Acquisition, 24*, 143–188.
Ellis, N. C. (2002b). Reflections on frequency effects in language processing. *Studies in Second Language Acquisition, 24*, 297–339.
Ellis, N. C. (2008a). Usage-based and form-focused SLA: The implicit and explicit learning of constructions. In A. Tyler, Y. Kim, & M. Takada (Eds.), *Language in the context of use: Discourse and cognitive approaches to language* (pp. 93–121). Berlin, Germany: Mouton de Gruyter.

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

Ellis, N. C. (2008b) Usage-based and form-focused language acquisition: The associative learning of constructions, learned attention and the limited L2 end state. In P. Robinson & N. C. Ellis (Eds.), *Handbook of cognitive linguistics and second language acquisition* (pp. 372–406). London: Routledge.
Evans, V., & Green, M. (2006). *Cognitive linguistics: An introduction.* Edinburgh, UK: Edinburgh University Press.
Fauconnier, G. (1997). *Mappings in thought and language.* Cambridge, UK: Cambridge University Press.
Fauconnier, G., & Turner, M. (2002). *The way we think: Conceptual blending and the mind's hidden complexities*. New York: Basic Books.
Gibbs, R. W. (1994). *The poetics of mind: Figurative thought, language, and understanding*. Cambridge, UK: Cambridge University Press.
Gibbs, R. W. (2006). *Embodiment and cognitive science*. Cambridge, UK: Cambridge University Press.
Givón, T. (1995). *Functionalism and grammar*. Amsterdam: John Benjamins.
Givón, T. (2001). *Syntax: An introduction*. Amsterdam: John Benjamins.
Goldberg, A. E. (1995). *Constructions: A construction grammar approach to argument structure*. Chicago: Chicago University Press.
Goldberg, A. E. (2006). *Constructions at work: The nature of generalization in language*. Oxford, UK: Oxford University Press.
Grady, J. (1997). Theories are buildings revisited. *Cognitive Linguistics, 8*, 267–290.
Grady, J. (1999). A typology of motivation for conceptual metaphor: Correlation vs. resemblance. In R. W. Gibbs & G. Steen (Eds.), *Metaphor in cognitive linguistics* (pp. 79–100). Amsterdam: John Benjamins.
Grady, J. (2007). Metaphor. In D. Geeraertz & H. Cuyckens (Eds.), *The Oxford handbook of cognitive linguistics* (pp. 188–213). Oxford, UK: Oxford University Press.
Halliday, M. A. K. (1994). *An introduction to functional grammar*. London: Edward Arnold.
Halliday, M. A. K. (1978). *Language as social semiotic: The social interpretation of language and meaning*. London: Edward Arnold.
Halliday, M. A. K. (2002). Spoken and written modes of meaning. In J. Webster (Ed.), *On grammar* (pp. 323–351). London: Continuum Press.
Halliday, M. A. K., & Hasan, R. (1976). *Cohesion in English*. London: Longman.
Halliday, M. A. K., & Matthiessen, C. M. (1999). *Construing experience through meaning: A language-based approach to cognition*. London: Cassell.
Halliday, M. A. K., & Matthiessen, C. M. (2004). *An introduction to functional grammar*. London: Edward Arnold.
Hamrick, P., & Attardo, S. (in press). Evaluating applied cognitive linguistics in Italian L2 instruction: Towards a pedagogical cognitive grammar. In S. De Knop, F. Boers, & T. De Rycker (Eds.), *Applications of cognitive linguistics: Exploring the lexis-grammar continuum in second language pedagogy*. Berlin, Germany: Mouton de Gruyter.
Hoey, M. (1991). *Patterns of lexis*. Oxford, UK: Oxford University Press.
Huong, N. T. (2005). *Vietnamese learners mastering English articles*. Unpublished doctoral dissertation, University of Groningen, Netherlands.
Kemmer, S., & Barlow, M. (2000). Introduction: A usage-based conception of language. In M. Barlow & S. Kemmer (Eds.), *Usage-based models of language* (pp. vii–xxviii). Stanford, CA: CSLI.
Lakoff, G. (1987). *Women, fire, and dangerous things: What categories reveal about the mind*. Chicago: University of Chicago Press.
Lakoff, G. (1990). The invariance hypothesis: Is abstract reason based on image schemas? *Cognitive Linguistics,1*, 39–74.
Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago: University of Chicago Press.
Lakoff, G., & Johnson, M. (1999). *Philosophy in the flesh*. New York: Basic Books.
Langacker, R. W. (1987). *Foundations of cognitive grammar: Vol. I. Theoretical prerequisites*. Stanford, CA: Stanford University Press.

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

Langacker, R. W. (1991a). *Concept, image, and symbol: The cognitive basis of grammar*. Berlin, Germany and New York: Mouton de Gruyter.
Langacker, R. W. (1991b). *Foundations of cognitive grammar: Vol. II. Descriptive application*. Stanford, CA: Stanford University Press.
Langacker, R. W. (2008a). *Cognitive grammar: A basic introduction*. Oxford, UK: Oxford University Press.
Langacker, R. W. (2008b). Cognitive grammar as a basis for language instruction. In P. Robinson & N. C. Ellis (Eds.), *Handbook of cognitive linguistics and second language acquisition* (pp. 66–88). New York: Routledge.
Larsen-Freeman, D. (2002). The grammar of choice. In E. Hinkle & S. Fotos (Eds.), *New perspectives on grammar teaching in second language classrooms* (pp. 103–118). Mahwah, NJ: Erlbaum.
Liamkina, O. A. (2006). The role of explicit meaning-based instruction in foreign language pedagogy: Applications of cognitive linguistics to teaching the German dative case to advanced learners. *Dissertation Abstracts International, 66*(10), 3627. (UMI No. AAT 3193301).
Liamkina, O. A. (2008). Making dative a case for semantic analysis: Differences in use between native and non-native speakers of German. In A. Tyler, Y. Kim, & M. Takada (Eds.), *Language in the context of use: Discourse and cognitive approaches to language* (pp. 145–166). Berlin, Germany: Mouton de Gruyter.
Lieven, E., & Tomasello, M. (2008). Children's first language acquisition from a usage-based perspective. In P. Robinson & N. C. Ellis (Eds.), *Handbook of cognitive linguistics and second language acquisition* (pp. 168–198). New York: Routledge.
Littlemore, J., & Low, G. (2006). Metaphoric competence, second language learning, and communicative language ability. *Applied Linguistics, 27*, 268–294.
Lowie, W., & Verspoor, M. (2004). Input versus transfer?—The role of frequency and similarity in the acquisition of L2 prepositions. In M. Achard & S. Niemeier (Eds.), *Cognitive linguistics, second language acquisition, and foreign language teaching* (pp. 77–94). Berlin, Germany: Mouton de Gruyter.
MacArthur, F., & Littlemore, J. (2008). A discovery approach to figurative language learning with the use of corpora. In F. Boers & S. Lindstromberg (Eds.), *Cognitive linguistic approaches to teaching vocabulary and phraseology* (pp. 159–188). Berlin, Germany: Mouton De Gruyter.
Manzanares, J. V., & Rojo Lopez, A. M. (2008). What can language learners tell us about constructions? In S. De Knop & T. De Rycker (Eds.), *Cognitive approaches to pedagogical grammar* (pp. 197–230). Berlin, Germany: Mouton de Gruyter.
Martin, J. R. (1999). Mentoring semogenesis: "Genre-based" literacy pedagogy. In F. Christie (Ed.), *Pedagogy and the shaping of consciousness: Linguistic and social processes* (pp. 123–155). London: Cassell.
Martin, J. R. (200l). From little things big things grow: Ecogenesis in school geography. In R. Coe, L. Lingard, & T. Teslenko (Eds.), *The rhetoric and ideology of genre: Strategies for stability and change* (pp. 253–271). Cresskill, NJ: Hampton Press.
Martin, J. R. (2002). Meaning beyond the clause: SFL perspectives. *Annual Review of Applied Linguistics, 22*, 52–74.
Martin, J. R. (2009). Genre and language learning: A social semiotic perspective. *Linguistics and Education, 20*, 10–21.
Martin, J. R., & Rose, D. (2008). *Genre relations: Mapping culture*. London: Equinox.
McCarthy, M., & Carter, R. (2002). Ten criteria for a spoken grammar. In E. Hinkle & S. Fotos (Eds.), *New perspectives on grammar teaching in second language classrooms* (pp. 51–76). Mahwah, NJ: Erlbaum.
Mellow, J. D. (2006). The emergence of second language syntax: A case study of the acquisition of relative clauses. *Applied Linguistics, 27*, 645–670.
Moder, C. L. (2004). Ice box moms and hockey dads: Context and the mapping of N-N metaphorical expressions. In M. Achard & S. Kemmer (Eds.), *Language, culture and mind* (109–121). Stanford, CA: CSLI.

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

Moder, C. L. (2008). It's like making a soup: Metaphors and similes in spoken news discourse. In A. Tyler, Y. Kim, & M. Takada (Eds.), *Language in the context of use: Discourse and cognitive approaches to language* (pp. 301–320). Berlin, Germany: Mouton de Gruyter.

Newman, J. (1996). *Give: A cognitive linguistic study*. New York: Mouton de Gruyter.

Niemeier, S. (2008). The notion of boundedness/unboundedness in the foreign language classroom. In F. Boers & S. Lindstromberg (Eds.), *Cognitive linguistic approaches to teaching vocabulary and phraseology* (pp. 309–327). Berlin, Germany: Mouton de Gruyter.

Panther, K., & Thornburg, L. (2001). A conceptual analysis of English *–er* nominals. In M. Pütz, S. Niemeier, & R. Dirven (Eds.), *Applied cognitive linguistics II: Language pedagogy* (pp. 149–200). Berlin, Germany: Mouton de Gruyter.

Pütz, M., Niemeier, S., & Dirven, R. (Eds.). (2001). *Applied cognitive linguistics I: Theory and language acquisition*. Berlin, Germany: Mouton De Gruyter.

Pütz, M., Niemeier, S., & Dirven, R. (Eds.). (2001). *Applied cognitive linguistics II: Language pedagogy*. Berlin, Germany: Mouton De Gruyter.

Reddy, M. (1993). The conduit metaphor: A case of frame conflict in our language about language. In A. Ortony (Ed.), *Metaphor and thought* (pp. 164–201). Cambridge, UK: Cambridge University Press.

Robinson, P., & Ellis, N. C. (Eds.). (2008). *Handbook of cognitive linguistics and second language acquisition*. New York: Routledge.

Rosch, E., & Mervis, C. (1975). Cognitive representations of semantic categories. *Journal of Experimental Psychology: General*, 104, 382–439.

Rudzka-Ostyn, B. (2003). *Word power: Phrasal verbs and compounds: A cognitive approach*. Berlin, Germany: Mouton De Gruyter.

Sanders, T., & Spooren, W. (2005). Discourse and text structure. In D. Geeraertz & H. Cuyckens (Eds.), *The Oxford handbook of cognitive linguistics* (pp. 916–937). Oxford, UK: Oxford University Press.

Schleppegrell, M. J. (2004). *The language of schooling: A functional linguistics perspective*. Mahwah, NJ: Erlbaum.

Schleppegrell, M. J. (2008). Grammar, the sentence, and traditions of linguistic analysis. In Charles Bazerman (Ed.), *Handbook of writing research* (pp. 549–564). Mahwah, NJ: Erlbaum.

Schleppegrell, M. J., Greer, S., & Taylor, S. (2008). Literacy in history: Language and meaning. *Australian Journal of Language and Literacy, 31*, 174–187.

Schmid, H. (2007). Entrenchment, salience and basic levels. In D. Geeraerts & H. Cuyckens (Eds.), *The Oxford handbook of cognitive linguistics* (pp. 117–138). Oxford, UK: Oxford University Press.

Slobin, D. I. (1996a). Two ways to travel: Verbs of motion in English and Spanish. In M. Shibatani & S. A. Thompson (Eds.), *Grammatical constructions: Their form and meaning* (pp. 195–220). Oxford, UK: Clarendon Press.

Slobin, D. I. (1996b). From "thought and language" to "thinking for speaking." In J. Gumperz & S. Levinson (Eds.), *Rethinking linguistic relativity. Studies in the social and cultural foundations of language, No. 17* (pp. 70–96). Cambridge, UK: Cambridge University Press.

Slobin, D. I. (2003). Language and thought online: Cognitive consequences of linguistic relativity. In D. Gentner & S. Goldin-Meadow (Eds.), *Language in mind: Advances in the investigation of language and thought* (pp. 157–191). Cambridge, MA: MIT Press.

Slobin, D. I. (2009). Relations between paths of motion and paths of vision: A crosslinguistic and developmental exploration. In V. M. Gathercole (Ed.), *Routes to language: Studies in honor of Melissa Bowerman* (pp. 197–221). New York: Psychology Press.

Strauss, S., Lee, J., & Ahn, K. (2006). Applying conceptual grammar to advanced-level language teaching: The case of two completive constructions in Korean. *Modern Language Journal, 90*, 185–209.

Sweetser, E. (1990). *From etymology to pragmatics: Metaphorical and cultural aspects of semantic structure*. Cambridge, UK: Cambridge University Press.

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press

Talmy, L. (2000a). *Toward a cognitive semantics: Vol. I. Concept structuring systems*. Cambridge, MA: MIT Press.
Talmy, L. (2000b). *Toward a cognitive semantics: Vol. II. Typology and process in concept structuring*. Cambridge, MA: MIT Press.
Tannen, D. (1989). *Talking voices: Repetition, dialogue, and imagery in conversational discourse*. Cambridge, UK: Cambridge University Press.
Taylor, J. R. (2003). *Linguistic categorization*. Oxford, UK: Oxford University Press.
Taylor, J. R. (2004). *Cognitive grammar.* Oxford, UK: Oxford University Press.
Tomasello, M. (2003). *Constructing a language: A usage-based theory of language acquisition*. Cambridge, MA: Harvard University Press.
Tomasello, M., & Brooks, P. (1998). Young children's earliest transitive and intransitive constructions. *Cognitive Linguistics, 9*, 379–395.
Tomlin, R. (1994). Functional grammar, pedagogical grammars, and communicative language teaching. In T. Odlin (Ed.) *Perspectives on pedagogical grammar* (pp. 140–178). Cambridge, UK: Cambridge University Press.
Tomlin, R. (1997). Mapping conceptual representations into linguistic representations: The role of attention in grammar. In J. Nuyts & E. Pederson (Eds.), *Language and conceptualization* (pp. 162–189). Cambridge, UK: Cambridge University Press.
Tyler, A. (2008a). Cognitive linguistics and second language instruction. In P. Robinson & N. C. Ellis (Eds.), *Handbook of cognitive linguistics and second language acquisition* (pp. 456–488). London: Routledge.
Tyler, A. (2008b). Applied cognitive linguistics: Putting linguistics back into second language learning. In M. Pütz (Ed.), *Cognitive approaches to second/foreign language processing: Theory and pedagogy* (pp. 904–923). Essen, Germany: LAUD.
Tyler, A., & Evans, V. (2001). The relation between experience, conceptual structure and meaning: Non-temporal uses of tense and language teaching. In M. Pütz, R. Dirven, & S. Niemeier (Eds.), *Applied cognitive linguistics I: Theory and language acquisition* (pp. 63–105). Berlin, Germany: Mouton de Gruyter.
Tyler, A., & Evans, V. (2003). *The semantics of English prepositions: Spatial scenes, embodied meaning and cognition*. Cambridge, UK: Cambridge University Press.
Tyler, A., & Evans, V. (2004). Applying cognitive linguistics to pedagogical grammar: The case of over. In M. Achard & S. Neimeier (Eds.), *Cognitive linguistics, second language acquisition, and foreign language teaching* (pp. 257–280). Berlin, Germany: Mouton de Gruyter.
Tyler, A., Kim, Y., & Takada, M. (Eds.). (2008). *Language in the context of use: Discourse and cognitive approaches to language*. Berlin, Germany: Mouton de Gruyter.
Verspoor, M., & Lowie, W. (2003). Making sense of polysemous words. *Language Learning, 53*, 547–586.
Verspoor, M., & Tyler, A. (2009). The role of cognitive linguistics in second language research. In W. Ritchie & T. K. Bhatia (Eds.), *The new handbook of second language acquisition* (pp. 160–177). Oxford, UK: Emerald.
von Stutterheim, C. (2003). Linguistic structures and information organisation: The case of very advanced learners. In S. Foster-Cohen (Ed.), *EUROSLA Yearbook 3* (pp. 183–206). Amsterdam: John Benjamins.
Walker, C. (2008). Factors which influence the process of collocation. In F. Boers & S. Lindstromberg (Eds.), *Cognitive linguistic approaches to teaching vocabulary and phraseology* (pp. 291–308) Berlin, Germany: Mouton De Gruyter.
Zyzik, E. (2009). The role of input revisited: Nativist and usage-based models. *L2 Journal, 1*, 42–61.

https://doi.org/10.1017/S0267190510000140 Published online by Cambridge University Press