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SPECIAL SECTION

Constructing a Second Language

Introduction to the Special Section*

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This Special Section brings together researchers who adopt a constructional approach to Second Language Acquisition (SLA) as informed by Cognitive and Corpus Linguistics, approaches which fall under the general umbrella of Usage-based Linguistics. The articles present psycholinguistic and corpus linguistic evidence for L2 constructions and for the inseparability of lexis and grammar. They consider the psycholinguistics of language learning following general cognitive principles of category learning, with schematic constructions emerging from usage. They analyze how learning is driven by the frequency and frequency distribution of exemplars within construction, the salience of their form, the significance of their functional interpretation, the match of their meaning to the construction prototype, and the reliability of their mappings. They explore conceptual transfer and the acquisition of second language meaning. They consider the implications of these phenomena for L2 instruction.

Keywords: second language acquisition, constructions, category learning, psycholinguistics, cognition, associative learning, corpus linguistics

This Special Section brings together researchers who adopt a constructional approach to Second Language Acquisition (SLA) as informed by Cognitive and Corpus Linguistics, approaches which fall under the general umbrella of Usage-based Linguistics. At the heart of this approach is the assumption that constructions are the fundamental units of language acquisition and reflect the most direct embodiment of learners' communicative intentions. Some of the basic tenets of this approach to language and its acquisition are:

- Language is intrinsically linked to human cognition and processes of perception, attention, learning, categorization, schematization, and memory.
- Language is intrinsically symbolic, constituted by a structured inventory of constructions as conventionalized form-meaning pairings used for communicative purposes.

- Adult language knowledge consists of a continuum of linguistic constructions of different levels of complexity and abstraction. Constructions can comprise concrete and particular items (as in words and idioms), more abstract classes of items (as in word classes and abstract constructions), or complex combinations of concrete and abstract pieces of language (as mixed constructions). Consequently, no rigid separation is postulated to exist between lexis and grammar.
- Constructions may be simultaneously represented and stored in multiple forms, at various levels of abstraction (e.g., concrete item: table+s = tables and [Noun] + (morpheme +s) = plural things).
- Linguistic constructions (such as the caused motion construction, X causes Y to move Z_{path/loc} [Subj V Obj Obl]) can thus be meaningful linguistic symbols in their own right, existing independently of particular verbs. Nevertheless, constructions and the particular verb tokens that occupy them resonate together, and grammar and lexis are inseparable.
- Language structure emerges ontogenetically from usage in particular contexts. Development is slow and gradual, moving from an initial heavy reliance on concrete items to more abstract linguistic schema. This process is crucially dependent on the type and token frequencies with which particular constructions appear in the input. Storage of wholes depends on token frequency, schematization depends on type frequency.
- The realization of the primacy of language usage to language acquisition necessitates a commitment to corpus linguistic methods and to the study of contextualized functional discourse.
- SLA adds another layer of complexity upon these generalities. *Reconstructing* a language is more complex than its initial induction because, during development, L2 constructions are in direct competition with those of the learners' L1, and these may represent alternative ways of construing the same reality. Hence there is much scope for cross-linguistic influence.

The papers in this special section talk to these various themes:

1. The inseparability of grammar and lexis

We lead off with the idiom principle. Words mean things in the context of other words. Consider the word *lead*. As a verb, the first meaning that comes to mind out of context is transitive — to cause an animal to go on by holding them with a hand or halter while moving forward. In conversation and fiction, the subject is usually animate, as is the object: in the fiction gathered in the British National Corpus,

people lead things like horses, men, and soldiers (Davies, 2007). But in academic prose, where *lead* occurs roughly three times more often, 99% of full noun subjects are inanimate and abstract, and this “activity” verb commonly has a causative or facilitative sense (Biber, Johansson, Leech, Conrad, & Finegan, 1999). This leads to the conclusion that the more typical pattern here is [cause *leads to* effects]. It’s a common structure in academic spoken language too (Simpson, Briggs, Ovens, & Swales, 2002), where cause is some policy, process, decision or tendency, and effects can be abstract, like problems, good, victory, and conflict, or concrete, like respiratory failure, or cell survival. In many ways it operates like the verb *cause*. But not in all ways. First, syntactically, *lead to* is not used with human subjects and does not appear in the passive. Second, semantically, *lead to* is less direct than *cause*, implying a series of steps between cause and effect. Third it differs in terms of its semantic prosody (Louw, 1993). Consider the alternatives “tourism may cause economic improvement” vs. “tourism may lead to economic improvement”. The latter seems more felicitous. *Cause* (something causes an accident/catastrophe/other negative event) has a negative semantic prosody or association (Hoey, 2005). Its general tendency is to co-occur with negative expressions; its deep objects (or effects) are overwhelmingly negative and thus it acquires this “consistent aura of meaning” from these collocates. The generalization come from usage — there are no defining aspects of the meaning of *cause* which entails that it will take negative rather than positive objects. But *lead to* does not have this semantic prosody — the split between positive and negative objects for *lead to* are approximately 50/50 (Johns, 2007). And thus, of our two alternatives above, we prefer *lead to* in describing the positive outcomes of economic improvement. The patterns of *lead* illustrate quite clearly how patterns of usage become ingrained in the language, how repeated pairings of particular morphological, syntactic, and lexical forms become associated with particular semantic, pragmatic, and discourse functions. High type frequency gives generalization (Bybee & Thompson, 2000) — the greater the ratio of negative to positive objects, the greater the negative prosody (Ellis, Frey, & Jalkanen, 2007). High token frequency leads to increasing entrenchment and idiomatization (Bybee, in press; Ellis, 2002), from the semi-productive ‘lead [someone] up/down the garden path’, to the idiomatic, ‘lead the life of Riley’ or ‘you can lead a horse to water but you can’t make it drink’. There is structural patterning at all levels of language.

Corpus Linguistic analyses of large collections of text have affirmed how lexical context is crucial to knowledge of word meaning and grammatical role, that syntax and semantics are inextricably linked, and that grammar cannot be described without lexis, nor lexis without grammar. Sinclair (1991, p. 110) led here, summarizing the results of corpus investigations of such distributional regularities in the *Principle of Idiom*: “a language user has available to him or her a large number

of semi-preconstructed phrases that constitute single choices, even though they might appear to be analyzable into segments,” and suggested that for normal texts, the first mode of analysis to be applied is the idiom principle, as most of text is interpretable by this principle.¹ Kjellmer (1987, p. 140) reached a similar conclusion: “In all kinds of texts, collocations are indispensable elements with which our utterances are very largely made”. Erman & Warren (2000) estimated that about half of fluent native text is constructed according to the idiom principle. Comparisons of written and spoken corpora suggest that collocations are even more frequent in spoken language (Biber, et al., 1999; Brazil, 1995; Leech, 2000).

Phraseological analyses demonstrate that much of communication makes use of fixed expressions memorized as formulaic chunks, that language is rich in collocational and colligational restrictions and semantic prosodies, that the phrase is the basic level of language representation where form and meaning meet with greatest reliability, that formulaic sequences play a central role in child language acquisition, and that fluent language users have a vast repertoire of memorized language sequences (N. C. Ellis, 1996; Granger & Meunier, 2008; Pawley & Syder, 1983; Sinclair, 1991, 2004; Wray, 2002). The unit of language is “the phrase, the whole phrase, and nothing but the phrase” (Sinclair, 2005). The phrase is at the centre of language, and thus calls the attention of the broad range of language sciences.

What of the phrase in research into second-language acquisition and instruction? Fries, the founder of the English Language Institute at the University of Michigan, distinguished between lexical and structural meaning, with structural meaning concerning the patterns relating a particular arrangement of form classes to particular structural meanings. In this view, language acquisition is the learning of an inventory of patterns as arrangements of words with their associated structural meanings. Fries’ (1952) *Structure of English* presented an analysis of these patterns, Roberts’ (1956) *Patterns of English* was a textbook presentation of Fries’ system for classroom use, and *English Pattern Practices, Establishing the Patterns as Habits* (Fries, Lado, & the Staff of the Michigan English Language Institute, 1958) taught beginning and intermediate EFL students English as patterns using audiolingual drills.

SLA Description and Theory has continued to recognize the importance of formulaic phrases since: as holophrases (Corder, 1973), prefabricated routines and patterns (Hakuta, 1974), formulaic speech (Wong-Fillmore, 1976), memorized sentences and lexicalized stems (Pawley & Syder, 1983), lexical phrases (Nattinger, 1980), formulas (R. Ellis, 1994; McLaughlin, 1995), chunks (N. C. Ellis, 1996), multi-word expressions (Eskildsen & Cadierno, 2007; Eskildsen, 2009) and constructions (N. C. Ellis, 2003, 2006a). There has never been more interest in second language phraseology, as recent reviews in applied linguistics (Cowie, 2001;

Granger & Meunier, 2008; Schmitt, 2004; Wray, 2002) and cognitive linguistics (Gries & Wulff, 2005; Robinson & Ellis, 2008b) make clear. In second language assessment, in the descriptors provided by the Common European Framework of Reference for Languages (CEFR), the spoken language use of the Basic User is characterized as containing "... basic sentence patterns with memorized phrases, groups of a few words and formulae in order to communicate limited information in simple everyday situations" (CEFR, 2001, p.29). Similarly, the novice stages of adult language acquisition are characterized in the ACTFL Oral Proficiency guidelines as "relying heavily on learned phrases or recombinations of these" (American Council on the Teaching of Foreign Languages (ACTFL), 1999, p.8). Phraseology features centrally in special purposes tests, for example the International Civil Aviation Organization language proficiency requirements establishes clear minimum proficiency level requirements for native and non-native speaking flight crew members and air traffic controllers in the use of both plain language and ICAO phraseologies (Mathews, 2004). Every genre of English for Academic Purposes and English for Special Purposes has its own phraseology, and learning to be effective in the genre involves learning this (Swales, 1990). Lexicographers develop their learner dictionaries upon large corpora (Hunston & Francis, 1996; Ooi, 1998) and dictionaries focus upon examples of usage as much as definitions, or even more so. In second language instruction, Nattinger and DeCarrico (1992) argue for the "lexical phrase" as the pedagogically applicable unit of pre-fabricated language, "for a great deal of the time anyway, language production consists of piecing together the ready-made units appropriate for a particular situation and ... comprehension relies on knowing which of these patterns to predict in these situations. Our teaching therefore would center on these patterns and the ways they can be pieced together, along with the ways they vary and the situations in which they occur" (Nattinger, 1980, p.341). The Lexical Approach (Lewis, 1993), similarly predicated upon the idiom principle, focuses instruction on relatively fixed expressions that occur frequently in spoken language. Corpora now play central roles in language teaching (Cobb, 2007; Römer, 2008; Sinclair, 1996). We are led to conclude that phraseology pervades current SLA research.

The paper by Römer focuses on the interface of lexis and grammar and provides corpus evidence for the inseparability of these two, both in language teaching and in linguistic analysis and description. It reviews a number of influential research strands and model-building attempts in this area (including Pattern Grammar and Collostructional Analysis) and then explores for illustration the use of a particular lexical-grammatical pattern, the introductory *it* pattern (e.g. it is essential for EFL learners to come to grips with connotations, attested example) in corpora of expert and apprentice academic writing.

2. L2 constructions

Saussure (1916) proposed that language comprises linguistic signs, the signifiers of linguistic form and their associated signifieds, the functions, concepts or meanings. Cognitive Linguistics calls these form-meaning mappings, *constructions*. These symbolic units of language, conventionalized in the speech community and entrenched as language knowledge in the learner's mind, relate the defining properties of their morphological, syntactic, and lexical form with particular semantic, pragmatic, and discourse functions (Barlow & Kemmer, 2000; Bates & MacWhinney, 1987; Bybee, 2007; Croft, 2001; Croft & Cruse, 2004; Goldberg, 1995, 2003, 2006; G. Lakoff, 1987; Langacker, 1987; Ninio, 2006; Robinson & Ellis, 2008b; Tomasello, 2003). Corpus Linguistics adds a statistical emphasis to their definition as *phraseologisms* — the co-occurrence of a lexical item and one or more additional linguistic elements which functions as one semantic unit in a clause or sentence and whose frequency of co-occurrence is larger than expected on the basis of chance (Gries, 2008; Howarth, 1998). Psycholinguistics demonstrates language users' exquisite sensitivity to these frequencies and thus provides testament to usage-based theories of acquisition (Ellis, 2002).

Goldberg's (1995, 2003) Construction Grammar argues that all grammatical phenomena can be understood as learned pairings of form (from morphemes, words, idioms, to partially lexically filled and fully general phrasal patterns) and their associated semantic or discourse functions: "the network of constructions captures our grammatical knowledge in toto, i.e. It's constructions all the way down" (Goldberg, 2006, p. 18). There are close relations here with Functional linguistic descriptions of the associations between particular lexico-grammatical patterns and their systemic functions (their propositional, interpersonal, and textual semantics) (Halliday, 1985, 1987, 2000). Coming from a typological perspective, Croft's Radical Construction Grammar (2001; Croft & Cruse, 2004) rejects the idea that syntactic categories and relations are universal and argues instead that they are both language- and construction-specific. What is universal is the ways that meanings map onto form.

Demonstrations of the psychological reality of constructions in native speakers' language (e.g., Goldberg, Casenhiser, & Sethuraman, 2004; Pickering, 2006) have prompted research into whether constructions are also part of second language learners' mental lexicon, and how learners "tally" (Ellis, 2002) their constructional knowledge to construction-specific preferences in terms of the words that preferably occur in those constructions. For example, Gries and Wulff (2005) showed (i) that advanced L2 learners of English showed syntactic priming for ditransitive (e.g., *The racing driver showed the helpful mechanic*) and prepositional dative (e.g., *The racing driver showed the torn overall ...*) argument structure constructions in

a sentence completion task, (ii) that their semantic knowledge of argument structure constructions affected their grouping of sentences in a sorting task, and (iii) that their priming effects closely resembled those of native speakers of English in that they were very highly correlated with native speakers' verbal subcategorization preferences whilst completely uncorrelated with the subcategorization preferences of the German translation equivalents of these verbs. There is now a growing body of research demonstrating such L2 syntactic priming effects (McDonough, 2006; McDonough & Mackey, 2006; McDonough & Trofimovich, 2008).

The paper by Gries and Wulff presents psycholinguistic and corpus linguistic evidence for L2 constructions, focusing particularly upon whether English gerund and infinitival complement constructions are stored as symbolic units by German language learners of English. A corpus analysis of these constructions in the *International Corpus of English* identified the verbs distinguishing best between the two constructions, and these were then used as experimental stimuli in sentence completion and sentence acceptability rating experiments. Gries and Wulff investigated two kinds of short-distance priming effects: how often subjects produce an *ing-/to-/other'*-construction after rating an *ing-* or *to-*construction, and how often they produce an *ing-/to-/other'*-construction after producing an *ing-* or *to-*construction in the directly preceding completion, as well as a measure of longer-term within-subject accumulative priming. Both the gerund and infinitival complements patterns exhibited verb-specific constructional preferences and priming effects, confirming their status as constructions.

3. Form, function and frequency in the learning of constructions

If the units of language are constructions, then language acquisition is the learning of constructions. So SLA depends upon learners' experience of language usage and upon what they can make of it. Psychological analyses of the learning of constructions as form-meaning pairs is informed by the literature on the associative learning of cue-outcome contingencies where the usual determinants include: factors relating to the form such as frequency and salience; factors relating to the interpretation such as significance in the comprehension of the overall utterance, prototypicality, generality, redundancy, and surprise value; factors relating to the contingency of form and function; and factors relating to learner attention, such as automaticity, transfer, overshadowing, and blocking (Ellis, 2002, 2003, 2006b, 2008b). These various psycholinguistic factors conspire in the acquisition and use of any linguistic construction. Constructionist accounts of language acquisition thus involve the distributional analysis of the language stream and the parallel analysis of contingent perceptual activity, with abstract constructions being

learned from the conspiracy of concrete exemplars of usage following statistical learning mechanisms (Christiansen & Chater, 2001) relating input and learner cognition.

The determinants of learning include (1) input frequency (type-token frequency, Zipfian distribution, recency), (2) form (salience and perception), (3) function (prototypicality of meaning, importance of form for message comprehension, redundancy), and (4) interactions between these (contingency of form-function mapping). Consider each in turn:

- (1) Input frequency (construction frequency, type-token frequency, Zipfian distribution, recency)

Construction frequency

Frequency of exposure promotes learning. Psycholinguistic research shows how language processing is intimately tuned to input frequency at all levels of grain: input frequency affects the processing of phonology and phonotactics, reading, spelling, lexis, morphosyntax, formulaic language, language comprehension, grammaticality, sentence production, and syntax (Ellis, 2002). That language users are sensitive to the input frequencies of these patterns entails that they must have registered their occurrence in processing. These frequency effects are thus compelling evidence for usage-based models of language acquisition which emphasize the role of input.

Type and token frequency

Token frequency counts how often a particular form appears in the input. Type frequency, on the other hand, refers to the number of distinct lexical items that can be substituted in a given slot in a construction, whether it is a word-level construction for inflection or a syntactic construction specifying the relation among words. For example, the “regular” English past tense *-ed* has a very high type frequency because it applies to thousands of different types of verbs, whereas the vowel change exemplified in *swam* and *rang* has much lower type frequency. The productivity of phonological, morphological, and syntactic patterns is a function of type rather than token frequency (Bybee & Hopper, 2001). This is because: (a) the more lexical items that are heard in a certain position in a construction, the less likely it is that the construction is associated with a particular lexical item and the more likely it is that a general category is formed over the items that occur in that position; (b) the more items the category must cover, the more general are its criterial features and the more likely it is to extend to new items; and (c) high type

frequency ensures that a construction is used frequently, thus strengthening its representational schema and making it more accessible for further use with new items (Bybee & Thompson, 2000). In contrast, high token frequency promotes the entrenchment or conservation of irregular forms and idioms; the irregular forms only survive because they are high frequency. These findings support language's place at the center of cognitive research into human categorization, which also emphasizes the importance of type frequency in classification.

Zipfian distribution

In the learning of categories from exemplars, acquisition is optimized by the introduction of an initial, low-variance sample centered upon prototypical exemplars (Elio & Anderson, 1981, 1984). This low variance sample allows learners to get a fix on what will account for most of the category members. The bounds of the category are defined later by experience of the full breadth of exemplar types. Goldberg, Casenhiser & Sethuraman (2004) demonstrated that in samples of child language acquisition, for a variety of verb-argument constructions (VACs), there is a strong tendency for one single verb to occur with very high frequency in comparison to other verbs used, a profile which closely mirrors that of the mothers' speech to these children. In natural language, Zipf's law (Zipf, 1935) describes how the highest frequency words account for the most linguistic tokens. Goldberg et al. (2004) show that Zipf's law applies within VACs too, and they argue that this promotes acquisition: tokens of one particular verb account for the lion's share of instances of each particular argument frame; this pathbreaking verb also is the one with the prototypical meaning from which the construction is derived (see also Ninio, 1999, 2006).

Recency

Cognitive psychological research shows that three key factors determine the activation of memory schemata — frequency, recency, and context (Anderson, 1989; Anderson & Schooler, 2000). Language processing also reflects recency effects. This phenomenon is known as priming and may be observed in our phonology, conceptual representations, lexical choice, and syntax (McDonough & Trofimovich, 2008). Syntactic priming refers to the phenomenon of using a particular syntactic structure given prior exposure to the same structure. This behavior has been observed when speakers hear, speak, read or write sentences (Bock, 1986; Pickering, 2006; Pickering & Garrod, 2006).

(2) Form (salience and perception)

The general perceived strength of stimuli is commonly referred to as their salience. Low salience cues tend to be less readily learned. Ellis (2006b, 2006c) summarized the associative learning research demonstrating that selective attention, salience, expectation, and surprise are key elements in the analysis of all learning, animal and human alike. As the Rescorla-Wagner (1972) model encapsulates, the amount of learning induced from an experience of a cue-outcome association depends crucially upon the salience of the cue and the importance of the outcome.

Many grammatical meaning-form relationships, particularly those that are notoriously difficult for second language learners like grammatical particles and inflections such as the third person singular *-s* of English, are of low salience in the language stream. For example, some forms are more salient: *'today'* is a stronger psychophysical form in the input than is the morpheme *'-s'* marking 3rd person singular present tense, thus while both provide cues to present time, *today* is much more likely to be perceived, and *-s* can thus become overshadowed and blocked, making it difficult for second language learners of English to acquire (Ellis, 2006c, 2008a; Goldschneider & DeKeyser, 2001).

(3) Function (prototypicality of meaning, importance of form for message comprehension, redundancy)

Prototypicality of meaning

Categories have graded structure, with some members being better exemplars than others. In the prototype theory of concepts (Rosch & Mervis, 1975; Rosch, Mervis, Gray, Johnson, & Boyes-Braem, 1976), the prototype as an idealized central description is the best example of the category, appropriately summarizing the most representative attributes of a category. As the typical instance of a category, it serves as the benchmark against which surrounding, less representative instances are classified. The greater the token frequency of an exemplar, the more it contributes to defining the category, and the greater the likelihood it will be considered the prototype. The best way to teach a concept is to show an example of it. So the best way to introduce a category is to show a prototypical example.

Redundancy

The Rescorla-Wagner model (1972) also summarizes how redundant cues tend not to be acquired. Not only are many grammatical meaning-form relationships low in salience, but they can also be redundant in the understanding of the meaning of an utterance. For example, it is often unnecessary to interpret inflections

marking grammatical meanings such as tense because they are usually accompanied by adverbs that indicate the temporal reference.

(4) Interactions between these (contingency of form-function mapping)

Psychological research into associative learning has long recognized that while frequency of form is important, so too is contingency of mapping (Shanks, 1995). Consider how, in the learning of the category of birds, while eyes and wings are equally frequently experienced features in the exemplars, it is wings which are distinctive in differentiating birds from other animals. Wings are important features to learning the category of birds because they are reliably associated with class membership, eyes are neither. Raw frequency of occurrence is less important than the contingency between cue and interpretation. Distinctiveness or reliability of form-function mapping is a driving force of all associative learning, to the degree that the field of its study has been known as 'contingency learning' since Rescorla (1968) showed that for classical conditioning, if one removed the contingency between the conditioned stimulus (CS) and the unconditioned (US), preserving the temporal pairing between CS and US but adding additional trials where the US appeared on its own, then animals did not develop a conditioned response to the CS. This result was a milestone in the development of learning theory because it implied that it was contingency, not temporal pairing, that generated conditioned responding. Contingency, and its associated aspects of predictive value, information gain, and statistical association, have been at the core of learning theory ever since. It is central in psycholinguistic theories of language acquisition too (N. C. Ellis, 2006b, 2006c, 2008b; Gries & Wulff, 2005; MacWhinney, 1987).

The paper by Ellis and Ferreira-Junior presents a psycholinguistic analysis of constructions and their acquisition. It investigates effects upon naturalistic second language acquisition of type/token distributions in the islands comprising the linguistic form of English verb-argument constructions (VACs: VL verb locative, VOL verb object locative, VOO ditransitive) in the ESF corpus (Perdue, 1993). They show that in the naturalistic L2A of English, VAC verb type/token distribution in the input is Zipfian and learners first acquire the most frequent, prototypical and generic exemplar (e.g. *put* in VOL, *give* in VOO, etc.). Their paper further illustrates how acquisition is affected by the frequency and frequency distribution of exemplars within each island of the construction archipelago (e.g. [Subj V Obj Obl_{path/loc}]), by their prototypicality, and, using a variety of psychological and corpus linguistic association metrics, by their contingency of form-function mapping.

4. Constructing and Reconstructing meaning — Cross-linguistic transfer

Cognitive Linguistics (Croft & Cruse, 2004; Langacker, 1987, 2000; Robinson & Ellis, 2008b; Taylor, 2002) 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 meaning 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. Since we constantly observe and play an active role in this world, we know a great deal about the entities of which it consists. This experience and familiarity is reflected in the nature of language. Ultimately, everything we know is organized and related to our other knowledge in some meaningful way, and everything we perceive is affected by our perceptual apparatus and our perceptual history.

Language reflects this embodiment and this experience. Consider, for example, the meanings of verbs like *push*, *shove*, *pull*, *hold* and so on, and similar words from other languages. Theoretical understanding of the differences between these words cannot be forthcoming without inclusion of a model of high-level motor control — hand posture, joint motions, force, aspect and goals are all relevant to these linguistic distinctions (Bailey, 1997; Feldman, 2006; Lakoff & Johnson, 1999). These sensori-motor features are part of our embodiment, they structure our concepts, they play out in time. Thus Cognitive Linguistics emphasizes how language is learned from participatory experience of processing language during embodied interaction in social contexts where individually desired non-linguistic outcomes (e.g., a cup of tea) are goals to be achieved by communicating intentions, concepts and meaning with others. An understanding of participation in situated action is thus essential to the understanding of meaning and the acquisition of linguistic constructions in L1 and L2. Nobody can really understand the meaning of a British ‘cup of tea’ without going through the ritual.

Consider too the meanings of spatial language. These are not the simple sum that results from addition of fixed meanings given by prepositions for ‘where’ an object is, to the meanings of other elements in the sentence describing ‘what’ is being located. Spatial language understanding is firmly grounded in the visual processing system as it relates to motor action (Coventry & Garrod, 2004; Regier & Carlson, 2002), the multiple constraints relating to object knowledge, dynamic-kinematic routines and functional geometric analyses. Meanings are embodied and dynamic (McRae, Hare, Elman, & Ferretti, 2006; Spivey, 2006); they are flexibly constructed on-line. Meanings like this cannot simply be taught by L2 rules and learned by rote; optimally they are learned in situated action.

Constructions are conventionalized linguistic means for presenting different interpretations or construals of an event. They structure concepts and window

attention to aspects of experience through the options specific languages make available to speakers (Talmy, 2000a, 2000b). The different degrees of salience or prominence of elements involved in situations that we wish to describe affect the selection of subject, object, adverbials and other clause arrangement. In language comprehension, abstract linguistic constructions (like simple locatives, datives, and passives) serve as a “zoom lens” for the listener, guiding their attention to a particular perspective on a scene while backgrounding other aspects (Croft, 2001; Croft & Cruse, 2004; Langacker, 1987, 1999; Taylor, 2002). Language has an extensive system that assigns different degrees of salience to the parts of an expression, reference, or context. Talmy (2000a, b) analyses how the *Attentional System of Language* includes some fifty basic factors, its “building blocks”. Each factor involves a particular linguistic mechanism that increases or decreases attention on a certain type of linguistic entity. Learning a language involves the learning of these various attention-directing mechanisms of language, and this, in turn, rests upon L1 learners’ developing attentional systems and L2 learners’ attentional biases.

Languages lead their speakers to experience different ‘thinking for speaking’ and thus to construe experience in different ways (Slobin, 1996). Cross-linguistic research shows how different languages lead speakers to prioritize different aspects of events in narrative discourse (Berman & Slobin, 1994). Because languages achieve these attention-directing outcomes in different ways, learning another language involves learning how to construe the world like natives of the L2, i.e., learning alternative ways of thinking for speaking (Cadierno, 2004; Cadierno & Lund, 2004) or learning to ‘rethink for speaking’ (Robinson & Ellis, 2008a). Transfer theories such as the Contrastive Analysis Hypothesis (Gass & Selinker, 1983; James, 1980; Lado, 1957, 1964) hold that L2 learning can be easier where languages use these attention-directing devices in the same way, and more difficult when they use them differently. To the extent that the constructions in L2 are similar to those of L1, L1 constructions can serve as the basis for the L2 constructions, but, because even similar constructions across languages differ in detail, the acquisition of the L2 pattern in all its detail is hindered by the L1 pattern (Cadierno, 2008; Odlin, 1989, 2008; Robinson & Ellis, 2008b).

The paper by Gullberg examines to what extent English speakers of L2 Dutch reconstruct the meanings of placement verbs when moving from a general L1 verb of caused motion (*put*) to two specific caused posture verbs (*zetten/leggen* ‘set/lay’) in the L2 and whether the existence of low-frequency cognate forms in the L1 (*set/lay*) alleviates the reconstruction problem. Evidence from speech and gesture indicates that English speakers have difficulties with the specific verbs in L2 Dutch and that they initially look for means to express general caused motion in L1-like fashion through over-generalisation. However, their differentiated use of *zetten* for vertical placement and dummy verbs (*gaan* ‘go’ and *doen* ‘do’) and intransitive

posture verbs (*zitten/staan/liggen* ‘sit, stand, lie’) for horizontal placement, and a positive correlation between appropriate verb use and target-like gesturing suggest a beginning sensitivity to the semantic parameters of the L2 verbs and possible reconstruction.

5. Cognitive Linguistics and Second Language Instruction

Usage-based models assume that first language acquisition is input-dependent and experientially-based: input dependent, because language learning is crucially shaped by the particular language patterns a given learner is exposed to (Tyler, 2008), and experientially-based, because conventional units or constructions are abstracted from specific usage events (Langacker, 2008a, b). Children thus learn L1 constructions from the participatory experience of processing, comprehending and producing language during interaction in situated and communicative language use in specific social contexts. The input-driven and experientially-based assumptions of first language acquisition as usage-based have a parallel in approaches to classroom second acquisition where learners are exposed to rich and meaningful input and are encouraged to use the L2 meaningfully while performing situated communicative activities. Approaches such as content-based instruction (Brinton, Snow & Wesche, 1989) and immersion programs (Harley, Allen, Cummings and Swain, 1990), which became very popular with the advent of communicative language teaching at the end of the 1970s, are examples of this type of non-interventionist approach to L2 learning where the L2 learners experience the language as a medium of communication rather than as an object of study in itself (see Long and Robinson, 1998 for a review). The assumption behind these approaches, known as the *focus on meaning* approach by Long (1991) and Long & Robinson (1998), is that language is best to be learned implicitly, i.e., without awareness, or incidentally i.e., without attention, while doing something else for which it is useful (see Ellis, 1994, 2007a for reviews of implicit and explicit language learning and instruction).

The process of adult second language acquisition is, however, different from that of first language acquisition. As Slobin (1993, p. 242) notes, “For the child, the construction of the grammar and the construction of semantic/pragmatic concepts go hand-in-hand. For the adult, construction of the grammar often requires a revision of semantic/pragmatic concepts, along with what may well be a more difficult task of perceptual identification of the relevant morphological elements”. Slobin’s citation points to two important differences between child language acquisition and adult second language learning. The first one is that the process of reconstructing a second language involves learning a new set of conventionalized

form-meaning mappings, that is, acquiring the specific linguistic means used by the native speakers of the target-language to construe given events and situations. Learning a foreign language thus entails learning appropriate L2 ways of thinking-for-speaking, i.e., learning the particular verbalized orientation to experience encoded in the grammatical resources of the L2 and which may differ from the learners' L1 orientation. The second difference relates to the difficulty that adult L2 learners experience in noticing certain forms in the L2 input. As previously discussed in this introduction, factors such as the degree of perceptual saliency of a grammatical form, the degree of redundancy in meaning at the utterance level, and the contingency of mapping can affect the extent to which forms are noticed by language learners.

Empirical studies examining the learning outcomes of non-interventionist classroom programs such as the Canadian French immersion programs have in fact shown that some grammatical forms go unnoticed by learners who are exposed to communicative language teaching where no grammar instruction is provided (e.g., Harley & Swain, 1984; Swain, 1985). This finding, along with Schmidt's (1990, 1993) influential claim that consciousness at the level of noticing is a necessary condition for language learning, led to the suggestion that communicative language teaching could benefit from some degree of form-focused instruction. This suggestion materialized in what has come to be known as the *focus on form approach* to language teaching, which consists of "... overtly draw(ing) students' attention to linguistic elements as they arise incidentally in lessons whose overriding focus is on meaning, or communication" (Long, 1991, p. 56). That is, under this approach, occasional shifts of attention to linguistic code features take place during otherwise meaning-focused classroom activities due to perceived problems on the part of the learners with either comprehension or production of the L2 (Long & Robinson, 1998).

The *focus on form approach* can encompass more implicit and more explicit approaches to grammar teaching (Doughty & Williams, 1998). Implicit approaches such as task-based language teaching have the aim of attracting learners' attention to form as unobtrusively as possible whereas more explicit approaches aim at directing learners' attention to the problem area involved and thus assume that providing learners with explicit knowledge about a specific linguistic feature can facilitate its eventual acquisition by aiding the process of noticing the form in the input, and the process of noticing-the-gap, i.e., helping the learner realize the difference between their own production and that of native speakers (R. Ellis, 1995, 2003; N.C. Ellis, 2007b). Both implicit and explicit approaches, however, see meaning and form as intrinsically related, and thus stress the need to draw the learners' attention to the language code when engaged in meaningful and communicative language use.

As noted in Cadierno (2008b) and Ellis (2008c), the type of grammar teaching embodied in the *focus on form approach*, with its key focus on the relationship between form and meaning and the communicative functions of language, can greatly benefit from the theoretical perspective of cognitive linguistics, given its view of language as consisting of conventionalized form-meaning mappings used for communicative purposes (Lanckager, 1987). In a similar vein, Achard & Niemeier (2004) argue that the cognitive linguistics focus on the symbolic nature of grammatical constructions and, therefore their semantic import, afford a type of grammatical instruction that is perfectly congruent with the goals and practices of communicative approaches to language teaching. Broccias (2008) points out the striking similarity between the development of cognitive linguistics and the recent story of language teaching in terms of their both moving away from a decontextualized model of language to a usage-based and communicative / context-based view of language. Finally, the view of language as intrinsically related to general cognitive abilities and fundamentally based on our interaction with the world allows cognitive linguistics to offer semantic explanations that draw on learners' everyday real experiences of the world (e.g., figure-ground segregation, basic force dynamics, and frames and cultural scripts) and thus tap into their intuitive reservoir of background knowledge (Tyler, 2008). This reliance on learners' own experiences for the learning process fits nicely with constructivist and communicatively-based approaches to instructed second language learning.²

Applied cognitive linguists (see Achard & Niemeier, 2004; Dirven, Niemeier & Pütz, 2001) suggest that these insights can be incorporated into classroom SLA by making explicit to learners the motivations behind different aspects of language as well as the constructs with which the meanings of specific linguistic expressions are characterized. One specific area that has been identified as particularly suited for a cognitive linguistics approach to instructed SLA concerns idiomatic and language. For example, Barcelona (2001) illustrates how cognitive linguistics-inspired contrastive analyses of the conceptual metaphors for the emotional domains of sadness / happiness, anger and romantic love in two languages — English and Spanish — can be useful in the development of L2 teaching materials. Likewise, in a small-scale experiment Kövecses (2001) shows that the acquisition of idiomatic English phrasal verbs can be facilitated when learners are introduced to the underlying metaphorical source domains of the verbs in question, both with respect to expressions that are explicitly taught during the instructional treatment and novel expressions not having been dealt with before. Boers (2004) suggests three different ways in which the acquisition of metaphorical expressions can be facilitated. The first one is to make explicit to the learners the imagery that exists behind idioms, i.e., their literal or original meanings. The second technique constitutes an inductive pedagogical approach whereby the L2 learners are encouraged to invest

cognitive effort in trying to figure out by themselves the meanings of idioms. The third consists of grouping the idioms under common metaphoric themes (i.e., conceptual metaphors), a technique that lends structure and organization to expressions that at first sight appear to be unsystematic.

Another promising area for the teaching of L2 vocabulary and morphology is to incorporate the insights from the radial approach to polysemy (e.g., Athanasiadou, 2004; Csábi, 2004; Kurtyka, 2001; Panther & Thornburg, 2001; Queller, 2001; Tyler & Evans, 2004). As in the case of the idiomatic and metaphorical uses of languages discussed above, the basic idea is again to facilitate the acquisition of the more peripheral senses of words and morphemes by making explicit to the learner how these peripheral meanings are motivated and related to their central senses through semantic extensions.

Finally, the teaching of aspects of L2 grammar traditionally considered difficult can also benefit from cognitive linguistics-based instruction. For example, Ruiz de Mendoza (2008) and Maldonado (2008) illustrate how contrastive and error analyses carried out from a cognitive linguistics perspective (e.g., Ruiz de Mendoza's (2007) Cognitive Model Theory) can offer useful insights for the conceptual teaching of Spanish diminutives, reflexive passives, and non-reflexive middle *se* constructions. In a similar vein, Tyler (2008) shows how the metaphoric extension of the physical world force dynamics into the domain of logic as well as the proximal-distal metaphor (NOW IS HERE-THEN IS THERE) can explain the uses of the English modal verbs, and reports two quasi-experimental studies that show positive effects of this type of cognitive linguistics-based explanation for very advanced language learners of English (Abbuhl, 2005; Hama, 2005). Niemeier & Reif (2008) and Schmiedtová & Flecken (2008) discuss how the integration of cognitive grammar principles into tense-aspect teaching may help L2 learners develop a more meaningful understanding of the concepts underlying progressive constructions. Finally, De Knop & Dirven (2008) and Cadierno (2008b) illustrate how Talmy's (1985, 1991, 2000b) typological framework of motion events can constitute the basis for pedagogical intervention on the teaching of L2 motion constructions, and thus contribute to the developing of appropriate L2 thinking-for-speaking patterns (Slobin, 1996; Cadierno, 2008a).

These contributions of cognitive linguistics to language pedagogy mainly focus on the provision of explicit knowledge about different aspects of language to classroom L2 learners, an alternative approach is to use the insights from cognitive linguistics in the design of pedagogic tasks in instructed SLA. Task-based approaches to language teaching differ from traditional approaches to language instruction in that the organizing units of syllabus design are not grammatical structures — or other aspects of language such as functions and notions — but rather tasks that are designed to result in language use that bears a direct or indirect resemblance

to language use in the real world (Skehan, 1998; R. Ellis, 2003). Task-based approaches assume that pedagogic tasks should be designed and sequenced for the learners along dimensions contributing to the nature and amount of interaction they encourage on the part of the learners, and along dimensions contributing to their information-processing demands on L2 comprehension and production. In line with these latter dimensions, the Cognition Hypothesis (Robinson, 2001, 2003, 2005, 2007) claims that pedagogic tasks should be designed and sequenced in such a way as to increase the cognitive complexity of the communicative demands they make with respect to specific conceptual domains. A key claim of the Cognition Hypothesis is that complex tasks will result in more accurate, target-like, and complex speech than simpler tasks. That is, tasks that require the learners to make more demanding cognitive / conceptual distinctions in language should direct the learners' attentional and memory resources to the aspects of language that are required to understand and convey these distinctions, and therefore facilitate the process of L2 re-thinking for speaking, i.e., the restructuring of semantic concepts when mapping conceptualization to linguistic expression within given cognitive domains.

The paper by Cadierno and Robinson addresses the contribution of cognitive semantics, and specifically Talmy's (1985, 1991, 2000b) typological framework on the expression of motion events, to the investigation of the central claim of the Cognition Hypothesis. Their study thus investigates the extent to which the manipulation of pedagogic tasks in terms of cognitive complexity — i.e., the comparison between tasks referring to events happening Here-and-Now (simple) vs. events happening There-and-Then (complex) — promotes the development of more accurate and target-like constructions for the expression of motion and therefore more appropriate L2 ways of thinking-for-speaking by adult learners with typologically similar and typologically different L1s and L2s, i.e., Danish vs. Japanese L1 learners of English. The narratives produced by the two learner groups are analyzed through a number of measures developed on the basis of previous research on the L1 expression of motion events (e.g., Berman & Slobin, 1994; Slobin, 1997, 2000, 2003, 2004). The results of the study indicate that learners' language proficiency and the typological similarity between the L1 and L2 resulted in more target-like reference to motion events on some of these measures. Less evidence was found for the beneficial effects of task complexity on speech production although some support was evident in the more proficient learners with typologically similar L1 Danish and L2 English.

6. The Cognitive Linguistics of SLA

Language learners, L1 and L2 both, share the goal of understanding language and how it works. Since they achieve this based upon their experience of language usage, there are many commonalities between first and second language acquisition that can be understood from corpus analyses of input and cognitive- and psycho-linguistic analyses of constructions acquisition following associative and cognitive principles of learning and categorization (Collins & Ellis, 2009; Robinson & Ellis, 2008). Yet L2 learners are distinguished from infant L1 acquirers by the fact that they have previously devoted considerable resources to the estimation of the characteristics of another language — the native tongue in which they have considerable fluency. Since they use the same apparatus to perceive their L2 too, their computations and inductions are often affected by transfer, with L1-tuned expectations and selective attention (Ellis, 2006c) blinding the acquisition system to aspects of the L2 sample, thus biasing their estimation from naturalistic usage and producing the limited attainment typical of adult L2A. In ‘rethinking for speaking’ (Robinson & Ellis, 2008a), in order to counteract the L1 biases thus to allow estimation procedures to optimize induction, all of the L2 input needs to be made to count as it does in L1A. Certain types of form-focused instruction can help to achieve this by recruiting learners’ explicit, conscious processing thus to allow them to consolidate unitized form-function bindings of novel L2 constructions (Ellis, 2005). Once a construction has been represented in this way, so its use in subsequent processing can update the statistical tallying of its frequency of usage and probabilities of form-function mapping as it does in L1A.

Thus SLA involves processes of construction and reconstruction.

Notes

*. This Special Section is based on a symposium on this theme at *AILA 2008*, the 15th World Congress of Applied Linguistics, Essen, August 24–29, 2008.

1. Note that linguistic constructions are not *either* memorized formulas or open constructions, instead this distinction is a matter of degree, depending upon frequency of usage (N. C. Ellis, 2002).

2. In addition, given their view on the relatedness of language to general cognitive abilities and accumulated world experiences, the cognitive linguistics and the usage-based approach to language fit very well with the well established evidence on individual differences in rate and level of ultimate attainment in adult second language acquisition (e.g., Dörnyei, 2005, 2006; Ellis, 2004; Robinson, 2002), and with the possibility that these individual differences in L2 outcomes are related to different cognitive abilities involved in the process of L2 learning. For example, work by Harley & Hart (1997) on Canadian immersion programs has shown that memory-

related abilities, such as associative memory for word pairs and memory for text or the ability “to analyse text, to extract its propositional content, and remember such content” (Skehan, 1989: 31) predicted L2 success for childhood instructed learning, whereas more analytic abilities, i.e., the ability to infer how a language works from samples of language, were better predictors in post puberty teenage learning. Likewise, more recent research on near-native speakers of Swedish as a second language conducted by Abrahamsson & Hyltenstam (2008) revealed that a high degree of analytical ability — as measured by a grammaticality judgment test — is required if adult learners are to reach a level of L2 proficiency that is indistinguishable from that of native speakers. We’d like to thank Peter Robinson for bringing this issue to our attention.

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