Book reviews

Adele E. Goldberg. ***Constructions at Work: The Nature of Generalization in Language***. Oxford: Oxford University Press, 2006, 280 pp., ISBN 0-19-9-268517. £17.99 Paperback. £75.00 Hardback.

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Constructions at Work: The Nature of Generalization in Language serves as an updated version of Goldberg's particular version of Construction Grammar, now dubbed 'Cognitive Construction Grammar' (CCxG). It follows on from her highly influential 1995 monograph *Constructions: A Construction Grammar Approach to Argument Structure.* Whereas the first book focussed on emphasising the importance of constructions as units of meaning as important if not sometimes more important than verbs, the current monograph focuses on the nature of generalisation in language, both in terms of adult knowledge and child language acquisition. As such, Goldberg makes an explicit attempt to explain the linguistic system in psychologically realistic terms. In doing so, Goldberg attempts to make the acquisition of language tractable to a language learner that is not assumed to bring substantive innate knowledge of grammar to the acquisition process.

The book is divided into three parts. Part I ('Constructions') provides the theoretical context for the book. Part II ('Learning Generalisations') considers how children might learn and generalise over argument structure constructions to become adult users of their input language. Part III (Explaining Generalisations'), the longest section in the book, has two foci. The first two chapters attempt to provide constructionist explanations to grammatical phenomena that have largely been the domain of structuralist, formal theories (island phenomena and subject-auxiliary inversion), and the second two chapters address crosslinguistic generalisations in

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argument realisation and the role of CCxG within the current batch of grammatical theories.

Chapter 1 is an overview of the book, which introduces key concepts and assumptions and summarises the arguments made in the following chapters. Chapter 2 considers the role of surface structure in linguistic generalization. It is the most theoretically-oriented chapter in the book, and so deserves extended attention.

Goldberg notes that derivational accounts of language have tended to hypothesise relationships between different syntactic patterns by semantic relatedness identified though rough paraphrases. A prominent example of this is the dative alternation, as shown in (1) and (2).

(1) Laura bought a cake for Ludo → Laura bought Ludo a cake.
(2) Laura gave a cake to Ludo → Laura gave Ludo a cake.

Many formal approaches derive the double object construction paraphrases in (1) and (2) from their prepositional counterparts (e.g., Baker 1988). Goldberg rejects the transformational treatment. Instead, she argues for the *surface generalization hypothesis* (3):

(3) *Surface Generalization Hypothesis:* there are typically broader syntactic and semantic generalizations associated with a surface argument structure form than exist between the same surface form and a distinct form that it is hypothesized to be syntactically or semantically derived from (p. 25).

Which is to say that the human language processing system seeks generalizations over observable elements rather than by base generating surface forms from alternative underlying structures. In support of the *Surface Generalization Hypothesis*, Goldberg offers a range of facts about the ditransitive construction that do not fit with a derivational account. In particular, she argues that rather than (1) and (2) being separate, the prepositional datives pattern together, and provides a wealth of linguistic evidence to support her claim. For example, in the prepositional case one can question the recipient, which is strange if not ungrammatical in the double object case.

(4) Who did Laura bring the cake for? → ??Who did Laura bring a cake?
(5) Who did Laura give the cake to? → ??Who did Laura give a cake?

Goldberg compares her account to a derivational proposal forwarded by Baker (1997), and concludes that any account that attempts to derive double object datives from prepositional datives are flawed on both syn-

tactic and semantic grounds. According to Goldberg, "the robust generalisations are surface generalisations" (p. 33).

Next Goldberg postulates the *Input Syntax and Semantics Arguments* (6):

(6) It is preferable to avoid deriving A from C if there exists a pattern D that has the same target syntax and semantics as C and yet cannot serve as input from which to derive A.

In support of this argument, Goldberg argues that the "to" dative, as in (2), can be categorised as part of the 'caused-motion' construction family. That is, although (7) can only be paraphrased as a ditransitive, it shares syntactic and semantic similarities with (8)–(10).

(7) Laura sent a book to Ludo.
(8) Laura sent a book to Bologna.
(9) Laura sent a book toward the front of the room.
(10) Laura sent a book through the metal detector.

The suggestion is that the caused motion construction should be treated as an independent construction, separate from the ditransitive, thereby supporting the *Input Syntax and Semantics Argument*.

Next Goldberg considers the load/spray alternation. Here once again Goldberg argues that, contra to derivational accounts, (11) is not derived from (12).

(11) Pat loaded the wagon with hay.
(12) Pat loaded the hay onto the wagon.

This is because, following the *Input Syntax and Semantics Argument*, (11) is derived separately from (12), the evidence for which comes from permissible sentences that have similar syntax and semantics, as in (13) and (14).

(13) They covered the wall with posters → *They covered posters into the wall.
(14) Pat adorned the tree with lights → *Pat adorned lights into the tree.

Of course, near paraphrases do have overlap in meaning, which Goldberg attributes largely to the fact that they share the same verb which, everyone agrees, plays a key role in the construal of a sentence. In this vein, Goldberg makes the argument for the importance of *both* argument structure constructions and verbs:

"the overall interpretation is arrived at by integrating the argument structure construction with the main verb and various arguments, in light of the pragmatic context in which the clause is uttered" (p. 38)

In this manner, Goldberg follows other linguists in recognising the distinction and (importance) of lexical semantics associated with the verb and phrasal patterns associated with argument structure constructions. Construal, according to Goldberg, is a process of integrating these two sets of information, which she argues is guided by two general principles:

(15) **Semantic Coherence Principle:** the participant role of the verb and the argument role of the construction must be semantically compatible.

(16) **Correspondence Principle:** profiled participant roles of the verb must be encoded by profiled argument roles of the construction.

Goldberg argues that this accounts for the shared meaning between syntactic alternations such as the dative. Shared meaning between paraphrases can be attributed to the shared verb involved. The theoretical treatment here is persuasive and important, insofar as Goldberg's explanation combines a commitment to surface structure as a defining feature of generalisation, and because the explanation itself captures important aspects of the data that have not been explained on alternative accounts without recourse to principles or theoretical concepts that have questionable psychological plausibility.

In Chapter 3 Goldberg explores how languages tend to possess a large amount of idiosyncratic facts that permit local or partial generalisations that are not generally admitted as 'core' knowledge in formal transformational theory. She reviews a range of idiosyncratic facts (largely from English) about language for which any theory of grammar should account. Here Goldberg is attempting to account for what is essentially a cline of productivity in language. That is, a speaker's grammar possesses a range of representations that vary in their productivity, ranging from frozen unproductive phrases to fully productive schemas. Following decades of work in cognitive psychology, Goldberg argues that generalisations are made on the basis of exemplar-based processing. That is, we start off with item-specific knowledge over which we generalise patterns. Goldberg then reviews a range of empirical results that suggest we retain knowledge of these item-specific constructions as adults. The discussion of categorisation in Cognitive Psychology is necessarily incomplete, since a thorough treatment would require another monograph unto itself.

Chapter 4 is the first in Part II, in which Goldberg considers how constructions are learned. After a brief description of research investigating

young infants' ability to detect statistical regularities in their input, Goldberg moves on to consider how children go about making argument structure generalisations. There is a long tradition of this research in child language acquisition (e.g., Bowerman 1990; Gleitman 1990; Pinker 1984, 1989; Tomasello 2003), and debate still rages as to the exact process by which children do so (e.g., Fisher 2002; Tomasello and Abbot-Smith 2002). After a brief review of this work, Goldberg concludes that there are surprisingly little data that have clearly identified particular processes that facilitate or inhibit generalisations. Following some of her previously published work, Goldberg considers the role of the input, in particular, *skewed input*, as playing a facilitatory in generalisation over input. Goldberg, Casenhiser, and Sethuraman (2004) showed that one verb accounted for the 'lion's share' of tokens in infant-directed speech. For instance, they showed that *go* accounted for 39% of tokens in the Intransitive Motion construction, and *give* accounted for 20% of tokens in the ditransitive construction. Goldberg makes the argument that these verbs, whose semantics closely match the core meaning of the argument structure construction itself, enable children to establish form-meaning correspondences from which they can then learn new verbs that occur in that frame. In support of this Goldberg presents the results from a series of experimental studies that have established prototype effects in the acquisition of verb argument structure constructions in both children and adults, results which she argues can be attributed to the same processes by which humans make categorisations in other domains. In particular, she shows that novel construction learning is best facilitated when, following the naturalistic data, one verb occurs more often in a given construction than others, effectively resulting in a linguistic prototype. The research is interesting and valuable, and should spur on similar experimental endeavours.

Chapter 5 considers how argument structure generalisations are constrained. Goldberg offers four options, which are certainly not mutually exclusive from each other. The first, entrenchment, is argued to be better assimilated into the second, statistical pre-emption. The next two, type frequency and the degree of openness of a grammatical pattern are considered together. The overall conclusion is that the acquisition mechanism relies on all processes in order to make generalisations. This is a feature of language learning where further empirical data are sorely needed.

Chapter 6 begins Part III of the book, and considers island phenomena and relative scope assignment, although mostly concentrates on the former. Goldberg argues for a discourse-based treatment of extraction from island phenomena, and suggests that such a treatment explains a wider range of phenomena than does the traditional syntactic account. Consider some classic examples of island phenomena:

(17) *Who did she see the report that was about?
cf. She saw the report that was about *x*
(18) *Who did that she knew bothered him?
cf. That she knew *x* bothered him

The ungrammaticality of sentences (17) and (18) has traditionally been explained by appealing to a formal rule that states that subjects (broadly defined) cannot be extracted, or 'moved', from subordinate clauses. Of course, such explanations ignore the fact that subordinate clauses encode a range of discourse functions. Goldberg attempts to capture this fact in the following way: islands are *backgrounded* constructions that do not permit extraction because they lack discourse prominence. Therefore, in (17) the subordinate clause *that was about x* cannot be questioned because to do so topicalizes a backgrounded element. The same applies to (19).

(19) *Who did Patrick see the picture that Rufus took of?
Patrick saw the picture that Rufus took of *x*.

This leads to the following generalisation:

(20) Backgrounded constructions are islands.

In this vein, Goldberg attempts to account for so-called movement phenomena and the constraints on their generation by appealing to the discourse-pragmatics of different constructions and processing principles.

In the remainder of the chapter Goldberg tests her discourse-based treatment of island phenomena on a number of different grammatical constructions, including subordinate clauses, reason clauses, non-restrictive relative clauses, presentational relative clauses, and factive complements. The chapter ends with an emphasis on the importance of taking into account processing demands when deciding on the well-formedness of unbounded dependencies, a discussion of unbounded dependencies in languages that allow *in situ* questions, and, finally, a discussion of topicality and quantifier scope. Space limitations prevent me from discussing these in any detail. Suffice to say, the chapter represents an important addition to the literature on functional explanations of island phenomena. However, missing from Goldberg's treatment is the consideration of item-based effects in constructions that contain dislocated elements. Given the discussion of the child language studies in the previous chapters, and the commitment to a usage-based framework, such empirical work could broaden the explanatory power of the approach.

In Chapter 8 Goldberg tackles one of the more difficult 'hard cases' in grammatical theory: subject-auxiliary inversion. Long paraded as an existence proof for the presence of purely formal grammatical generalisations

in language (e.g., Newmeyer 2003), Goldberg sets about providing a functionalist treatment. Following previous attempts at functional explanations, Goldberg argues that the dominant attribute of constructions that contain subject-auxiliary inversion is that they are *non-positive*. With this assertion, Goldberg surveys the range of constructions and concludes that the category of subject-auxiliary inversion is best treated as a network of constructions related by their underlying function. An analogy is drawn to polysemous words, which often take their intended meaning from different contexts, but which have shared attributes in common. The treatment is interesting, but needs to be fleshed out. The analogy to ambiguous words is within the cognitive linguistics tradition, and Goldberg makes a persuasive case for a common functional foundation to these different forms. However, a more persuasive case will need to provide additional evidence; for instance, corpus data similar to that presented in the previous chapters. Additionally, diachronic evidence for the development of these present-day uses could be also illuminating.

Chapter 9 considers crosslinguistic generalisations in argument realisation. Here Goldberg attempts to explain apparent formal language universals in terms of more pragmatic and discourse-based principles. In particular, she re-evaluates proposals made by Pinker (1989) and Gleitman (1990) on how children learn syntax-semantic mappings. Both of these previous proposals assume the child is endowed with significant innate knowledge of grammar. Pinker, in particular, made very specific predictions about the content of this innate knowledge. Although there have been numerous critiques of both approaches (e.g., Bowerman 1990; Tomasello 2000), Goldberg's critique is unique in its wide use of crosslinguistic data and the principled alternative principles she proposes.

For instance, Pinker (1989) proposed very explicit mappings from semantic roles to surface syntactic positions, which he argued were innate, as in (22) and (23).

(21) Link agent to SUBJECT.
(22) Link patient to OBJECT.

Goldberg correctly points out that these cannot be *universals*; although there is a tendency for subjects to be agents and objects to be patients, this only occurs in a restricted set of circumstances (see Dowty 1991). Indeed, such a generalisation does not hold for ergative languages. Instead, Goldberg argues that the maximally general generalisation is (23).

(23) Actors and Undergoers are expressed in prominent syntactic roles.

Since such an assertion does not necessitate the existence of innate linguistic knowledge such an insight could be and is most likely reflective of

general facts about human cognition. Goldberg then spends considerable time addressing Gleitman's (1990) Syntactic Bootstrapping hypothesis. In the remainder of the chapter Goldberg considers pragmatic conditions that lead to argument omission, word order generalisations, and the role of iconicity as an explanatory factor in syntactic generalisations. The take home message here is purely functional: languages are not a neat system of words, rules, and constraints. Instead, they are complex systems that exhibit either strong or weak tendencies toward regularities that are spoken by people with communicative intentions.

Chapter 10 compares Goldberg's Cognitive Construction Grammar to other approaches to grammatical explanation. Given the number of grammars that exist, the review is necessarily selective. The first part of the chapter considers formal generative approaches; in particular, those that identify some role for constructions in explanation. Goldberg identifies significant problems with these formal approaches, whose explanations lack the functionalist bent of approaches that come under the traditional rubric of 'construction grammars'. The main part of the chapter considers how Goldberg's approach compares to more closely related approaches, in particular, Fillmore and colleagues' Unification Construction Grammar, Langacker's (1987) Cognitive Grammar, and Croft's (2001) Radical Construction Grammar.

According to Goldberg, her approach aims to explain the *motivation* for each construction; that is, how that construction makes sense within the context of the linguistic system being described. Importantly, this approach ranks the desideratum of psychological plausibility as of paramount importance, thereby incorporating psychological principles of learning into her approach. The desideratum of *motivation*, and the examples that accompany it, bring to mind the difference between prediction and *postdiction* (or 'ex post facto' explanations, see Hobbs 1993). Often used to explain evolutionary phenomena, such explanations acknowledge the limits of prediction and the dynamic nature of the systems that they attempt to explain. Darwinian evolution has been arguably the most successful theory in the biological sciences, and it is interesting and important that linguistic explanations, which must incorporate a wide range of facts about language and humans, are beginning to rely on similar explanatory principles.

Chapter 11 concludes by summarising the main theses of the monograph. Overall, Goldberg has produced an ambitious and thought-provoking body of work. The move to explicitly incorporating psychological plausible learning mechanisms into her approach, in addition to making minimal assumptions about innateness of grammar, constitute an important move forward for both grammatical theory *and* psycholin-

guistics. Granted, the approach will not be without its critics, many of whom Goldberg has directly critiqued in the book. As such, the book deserves and is likely to gain a wider audience in the linguistics, psychology, and related disciplines.

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