BOOK REVIEWS

L. Sommerer & E. Smirnova (Eds.). *Nodes and networks in diachronic Construction Grammar*. Amsterdam & Philadelphia: John Benjamins, 2020.

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The constructionist approach to language has become the fastest growing linguistic and cognitive-functional approach during the past decade (Goldberg, 2019). It is generally accepted in Construction Grammar that language is a structured inventory of constructions, viz., the "constructicon" (Goldberg, 2019, p. 36), which is composed of constructional networks with nodes (constructions) and links (both vertical and horizontal ones). Nonetheless, there has hitherto been no consensus on how to design the network to represent the organization of linguistic knowledge and to model diachronic changes in the network. This is the very core issue that the volume under review intends to explore. Specifically, it addresses the nature and change of nodes and links in constructional networks, such as node creation or loss, node-external reconfiguration of the network or in/decrease in productivity and schematicity. In doing so, the volume has shed new light on the nature of the construction, and represents the latest state of the art in Diachronic Construction Grammar (henceforth, DCxG).

The volume begins with the editors' introduction "The nature of the node and the network – Open questions in Diachronic Construction Grammar". It offers a bird's eye view of research in DCxG, with a focus on the discussion of questions unresolved. The editors enumerate seven unresolved questions concerning the design of the network, which are addressed by the contributions in this collection. The editors critically discuss issues relating to the nature of nodes and to their diachronic changes – node creation and node loss. The introduction to the papers collected in this volume is skillfully integrated into this critical discussion of current knowledge in the literature about nodes and links.

The nine chapters following the introduction are organized into three sections. Section 1 is "The nodes: Creation, change and loss". In Chapter 1, Susanne Flach argues that the notion of constructionalization (cxzn), proposed by Traugott and Trousdale (2013), is ambiguous in the sense that it simultaneously refers to the gradual processes involved in the coming into existence of a new construction and the point of the emergence of the new construction itself. As such, the so-called Sorites Paradox arises: how many changes can lead to a new construction? Where are the starting point and the ending point of cxzn? Based on a diachronic study of the emergence of the *into*-causative in English, the author proposes the term "constructional emergence" to capture the process reading of cxzn, and leaves cxzn to merely refer to the point of the emergence of the new construction. As such, the notion of cxzn is reduced to a mere analytical concept as it is "analytically helpful for the identification of a new F_{NEW} - M_{NEW} " (p.63).

The second chapter is "Constructionalization, constructional competition and constructional death: Investigating the demise of Old English POSS DEM constructions" by Lotte Sommerer. The author argues that the demise of Old English POSS DEM constructions is due to the constructionalization of the schematic NP construction – $[[DET_{def, infl}]_{DETERMINATION}+[CN_{infl}]_{HEAD}]_{NP def}$ in which the determination slot can only be filled by one determinative. It is shown, using corpus data, that this construction is much more frequent than the POSS DEM construction. As such, it is argued that this high-frequency prototypical construction gradually ousted the co-occurrence determinative construction in Old English via analogical reasoning. The author claims that the constructionalization of the one determinative NP construction "leads to an extensive reorganization of the network of OE referential, definite NPs in which linguistic information is inherited down to lower levels in a new manner and no longer licenses co-occurrence" (p.73).

The second section, "The links: vertical and horizontal relations", consists of five chapters. It starts with Emmeline Gyselinck's "(Re)shaping the constructional network: Modeling shifts and reorganizations in the network hierarchy". By tracking the history of the Dutch intensifying fake reflexive resultative construction – [SUBJ V REFL INT], the author demonstrates a complex, dynamic network of the construction. The investigation of historical data shows that on the one hand, schematization and conventionalization can happen simultaneously at different levels within one and the same constructional network hierarchy, and on the other hand, conventionalization can be accompanied by the gradual loss of a (sub)schema. By reflecting on the case study, the author points out the limitation of the current two-dimensional visual representation of the constructional network, which cannot accommodate simultaneously different types of generalizations at the same level of abstraction.

The second chapter is Florent Perek's "Productivity and schematicity in constructional change". By challenging the commonly-held view that productivity and schematicity of constructions are interdependent, the author argues that these two properties should be set apart and considered in their own right. He makes a distinction between the schematicity of lexical slots within a construction and that of the constructional meaning itself. He notes that only the former can be said to directly correspond to productivity, whereas the latter "requires an examination of individual instances to be characterized and potentially related to productivity" (p. 142). To explicate this view, he presents a case study of recent change in the abstract uses of the *way*-construction.

The next contribution is "Constructional networks and the development of benefactive ditransitives in English" by Eva Zehentner and Elizabeth Closs Traugott. Based on a quantitative investigation of the history of the English "benefactive alternation", the authors demonstrate that the English benefactive alternation can be modelled as complex networks featuring both horizontal and vertical links on various levels of schematicity. In particular, the study testifies to the explanatory power of positing horizontal links, in addition to vertical links in constructional networks, both between formally equivalent constructions which are slightly different in meaning as well as between formally distinct, yet semantically overlapping constructions (i.e., variants in syntactic alternations) in accounting for change.

The fourth chapter by Michael Percillier investigates the change in the constructional network of PREP-SPCs (Prepositional Secondary Predicate Constructions) marked with *as, for, into*, and *to* in Middle English. By analyzing changes in frequency and semantic similarity based on a Distributional Semantic Model, the study shows that in early Middle English, *to*-SPCs quickly and suddenly lost their popularity. As a consequence, the OE distributional pattern, where the *to*-SPC was the dominant form, shifted to the PDE pattern, where the *as*-SPC has largely replaced the *to*-SPC. In addition, the description of constructions copied from Anglo-Norman demonstrates that it is possible for entire constructions to be copied from one language to another, which elaborates on the language contact component first introduced into DCxG by Barðdal (1999), and which has remained largely unexplored since then. What is noteworthy in this study is that the author introduces the notion "homostructions" to refer to constructions that share a common form "by accident", but with different meanings and origins.

In the final chapter of Section 2, David Lorenz presents a quantitative, corpus-based study of the development of *to*-contraction (*going to* > *gonna, got to* > *gotta* and *want to* > *wanna*) in American English, with the aim of demonstrating how (horizontal) connections are established when new items enter the constructional network. Horizontal links are identified via quantitative usage patterns, and the formation of a new schema is found to be accompanied by changes in both vertical (instantiation and inheritance) and horizontal, associative links. The author draws on the notion of "metaconstruction" (Leino & Östman, 2005) to capture the formal similarity between *gonna, wanna* and gotta, and their parallel semantic-pragmatic relation to the full forms. The author notes that the systematicity of the variations between these contractions and their correspondent full forms is accounted for on the horizontal plane by the metaconstructional link,

without recourse to higher levels of abstraction, which makes this account different from the allostructional account (cf. Cappelle, 2006, p.19) and "contrastive links" (Van de Velde, 2014, p.154f).

The theme of Section 3 is "Beyond existing models", which comprises two chapters. The first is Gabriele Diewald's "Paradigms lost – paradigms regained: Paradigms as hyper-constructions". As the title indicates, the article revolves around two key notions "paradigms lost" and "paradigms regained". "Paradigms lost" refers to the phenomenon that current constructional approaches to grammaticalization pay little attention to grammatical paradigms. In Diewald's view, previous constructional approaches put so much emphasis on the gradience and gradual changes in meaning and function that the outcome of this gradual change, i.e., the grammatical paradigm, has been ignored. As such, the essence of grammaticalization cannot be properly captured by just focusing on the gradual process of change. To "regain paradigms", the author proposes to introduce the notion of paradigm into constructional accounts. She defines grammatical paradigms as a new node type – a hyper-construction, which "represents the categorical, non-gradient specifics of grammatical meaning" (p. 277).

The final contribution by Sara Budts and Peter Petré explores the role of syntagmatic relations in the crystallization of constructions and paradigmatic links, but these syntagmatic relations are beyond traditionally explored ones such as collocations and construction-fillers. Specifically, this paper presents two case studies. In the first case study – the constructionalization of [BE going to INF], the syntagmatic relations investigated and operationalized are topicalization and passives, which are actually two types of syntactic co-texts in which the concerned construction occurs. The second case study is the development of periphrastic DO. The authors adopt the relatively new data analyzing technique – Artificial Neural Networks to analyze the distributional similarity between periphrastic DO and modal auxiliaries (*will, can, shall, may, must* and their corresponding past tense) over time. The authors argue that the modals influenced and attracted periphrastic DO, which brought about the emergence of a paradigmatic link between DO and the modals. This case study indicates that paradigmatization is an ongoing stimulus to and result of change (Diewald & Smirnova, 2012).

To come to an evaluation, this volume is an impressive and highly useful collection of papers. The authors are leading experts in DCxG. Their contributions add up to an overview of the most recent development in DCxG. I believe that the collection makes significant contributions to the field in at least three important aspects.

Firstly, all the contributions address one or more of the open theoretical questions enumerated by the editors (p.3-4). All these questions are concerned with the core issues in the design of the constructional network. In this sense, we can

say that all the contributions are theoretically significant and contribute to the theory of DCxG.

Secondly, the majority of the contributions combine qualitative analyses with corpus-based quantitative analyses and various statistical methods are employed, such as logistic regression analysis (Sommerer's chapter, Lorenz's chapter), distinctive collexeme analysis (Zehentner & Traugott's chapter), hierarchical agglomerative clustering (Percillier's chapter) and Kendall's tau-b correlation test (Budts & Petré's chapter). This wide variety of research methods showcases the quantitative turn in Cognitive Linguistics (Janda, 2013, p.1) by exemplifying how to apply quantitative methods to address theoretical issues. As such, it will provide inspiration for the design of future research in this field.

Thirdly, the articles investigate the evolution of constructions at various schematic levels in different languages (English, Dutch and German), varying from a whole constructional family (e.g., the constructional family of Prepositional Secondary Predicate Constructions) to specific constructions (e.g., the *into*-causative construction in English). This demonstrates the explanatory power of the constructional network model in dealing with diachronic development of various linguistic phenomena. Hence, it might evoke future research of this kind.

Above and beyond that, the volume also provides food for thought on the representation of nodes and links in constructional networks. A common theme of several contributions in this collection is horizontal links. The authors, however, formulate them in different ways: similarities between "sister nodes" in a constructional family (Sommerer), "constructeme" plus "allostructions" (horizontal links) at a lower level (Zehentner & Traugott), multiple levels of "constructemes" (Percillier), "homostructions" (ibid.), paradigmatic and syntagmatic relatedness (Budts & Petré), and "metaconstructions" (Lorenz). These different formulations are prone to cause misunderstanding and confusion, and need to be unified in some way.

Furthermore, scholars do not agree on the nature of horizontal links. The allostruction approach (Cappelle, 2006; Perek, 2015; Zehentner & Traugott, this volume) situates horizontal connections in variants of shared semantics, but of different forms. The paradigmatic approach (Van de Velde, 2014), however, assumes that horizontal links are based on semantic distinction and opposition, not similarity. Both approaches give priority to the semantic dimension of constructions. Nonetheless, Lorenz (this volume) posits horizontal links on the formal dimension of constructions, i.e., there are horizontal connections between constructions of similar formal properties. In addition, Croft & Cruse (2004, Chapter 10)'s discussion of the taxonomic network of constructions suggests that horizontal links are a derivative of meronomic links. As such, the conceptual ground of horizontal links still remains open to discussion.

As the editors note, both the current literature and the papers in this volume reveal that there is no unified view on how to conceptualize connections (both vertical and horizontal ones) between constructions in a network model (or even connections without constructions (e.g., Schmid, 2016, p. 26)). What is more, a two-dimensional network representation cannot do justice both to the representation of linguistic knowledge, as Gyselinck's (this volume) case study shows, and to the fact that neural networks are three-dimensional (or even hyper-dimensional, as delineated in Goldberg, 2019, p. 16–17). That is, nodes are possibly connected in multiple different directions. All these issues call for further research.

In summary, the volume has provided new insights into the modeling of constructional networks and is an important contribution to DCxG. Furthermore, it is a very stimulating and thought-provoking book that challenges the reader to think about how to best model the constructional network. As such, it can be expected to feed future work in (Diachronic) Construction Grammar.

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