
STUDYING SYNTAX WITH A LINGUISTIC DYNAMIC SYSTEM METHODOLOGY WITH COPIOUS EXAMPLES

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ABSTRACT

This paper concerns on studying syntax with a linguistic dynamic system methodology with copious examples. The study of syntax includes the investigation of the relations between sentences that are similar, as well as the arrangement of words in sentences, clauses, and phrases. Many linguists argued that grammatical construction is any syntactic string of words, ranging from sentences over phrasal structures to certain complex lexemes, such as phrasal verbs. Usage-based linguists and psychologists have produced a large body of studies suggesting that linguistic structure is derived from language use and the emergent of usage-based studies of language, the frequency of language use is extremely of important. The paper outlines a structured network approach to the study of grammar in which the core concepts of syntax are analyzed by a set of relations that specify associations between different aspects of a speaker's linguistic knowledge. These associations are shaped by domain-general processes that can give rise to new structures and meanings in language acquisition and language change. Combining research from linguistics and psychology, the paper proposes specific network analyses for the following phenomena: constructions and argument structure. However, the paper concluded that there is no consensus in the usage-based literature as to how the experts can explain and integrate results into a coherent model, making the analysis of syntactic phenomena indistinct in this methodology. Also linguistic structure is best analyzed within a dynamic system model of grammar. One of the recommendations made was that there is need for sequential relations, which are associations between linguistic elements in linear order that have developed into automated processing units.

KEYWORDS: Usage-based linguistics, emergent grammar, construction grammar, syntax, and domain- general processes.



Introduction

The usage-based approach views language as a dynamic system that is moulded by domain-general processes like conceptualization, analogy, and (joint) attention that are not only used in language but also in other cognitive domains, such as visual perception or (non-linguistic) memory (Bybee, 2010). In order to convey the intended meaning in an utterance given a certain communication intention, speakers must make a variety of linguistic judgments, and listeners must make analogous choices in order to comprehend the elements they come across in a sentence or phrase (Ibbotson, 2020). Speaking and listening are influenced by domain-general processes, which may have long-term consequences for the growth of language structure if speakers' and listeners' linguistic choices become rote via repetition or frequency (Diessel, 2019).

In the emergentist and usage-based studies of language, the frequency of language use is extremely important (Diessel & Hilpert, 2016). Linguistic components that are regularly employed to convey a specific communication goal get ingrained in memory, which not only makes them easier to recall in future language use but also may change their structure and meaning: The development of lexical

prefabs, grammatical markers, or bound morphemes from frequent expressions is susceptible to phonetic reduction, semantic bleaching, and chunking (Bybee, 2010).

New difficulties for linguistic theory arise from the dynamic view of language structure. It necessitates, in particular, a reevaluation of the structure of linguistic representations. Prior to the analysis of any specific structure, a small collection of primitive categories and rules, or constraints, are created, from which language representations are often constructed. In this method, grammatical categories or "tools" for examining stable and discrete representations of linguistic structure include nouns, cases, and phrases (Jackendoff, 2002). Though there are no rudimentary ideas of grammatical analysis, linguistic representations are emergent and transitory if we consider language to be a dynamic system.

Concept of Syntax

A language's expressions involve a link between a series of sounds and meanings, which is mediated by grammar, a fundamental part of which is syntax. The placement of words in an utterance greatly affects its meaning in English and many other languages (Van Valin & LaPolla, 2001). Accordingly, Duignan (2016) stated that syntax is the study of how sentences are formed and



how their individual pieces relate to one another, as well as the arrangement of words in sentences, clauses, and phrases. Sentences are constructed from phrases or word groups that are more closely related to one another than they are to the words outside the phrase. For instance, in the sentence "My Dog is Playing in the Yard," the phrases "is playing," which together make up the verb, have a closer relationship than the words "playing in the," which make up only a portion of the verb and a portion of the phrase designating the place of the action. Word order is another way to illustrate the relationship between words; for instance, "The Girl Loves the Boy," the verb comes first and the object comes after the verb. The meaning shifts when they are transposed (Duignan, 2016).

The study of syntax also includes the investigation of the relations between sentences that are similar, such as "John saw Mary" and "Mary was seen by John." Syntax received much attention after 1957, when the American linguist Noam Chomsky proposed a radically new theory of language, transformational grammar (q.v.). Concentrating on some of the most basic concepts of syntax, this paper considers the following phenomena:

- ◆ Constructions
- ◆ Argument structure

These phenomena can be analyzed as dynamic networks shaped by domain-general processes of language use. The paper builds on ideas presented in Diessel (2019), but these concepts will be discussed from a different perspective and in light of other data. However, we begin with one of the most basic concepts of usage-based research on grammar, i.e., the notion of construction.

◆ Constructions

In linguistics, a grammatical construction is any syntactic string of words, ranging from sentences over phrasal structures to certain complex lexemes, such as phrasal verbs. Grammatical constructions form the primary unit of study in construction grammar theories. In construction grammar, cognitive grammar, and cognitive linguistics, a grammatical construction is a syntactic template that is paired with conventionalized semantic and pragmatic content (Wikipedia, 2021). Furtherly, in accordance with many other researchers, linguistic structure consists of constructions that combine a particular form with meaning. However, contrary to what is sometimes said in the literature, constructions are not primitive units, as, for instance, suggested by Croft (2001):

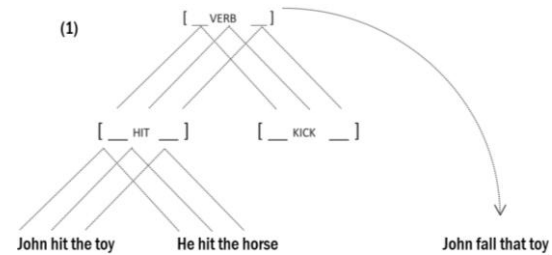
Constructions, not categories and relations, are the basic, primitive



units of syntactic representation (Croft, 2001, p. 46).

However, Diessel (2020) disputed with Croft on the assertion that constructions are basic and primal, agreeing instead that syntactic categories (such as noun and verb) and grammatical relations (such as subject and object) are non-basic and developed. It is unclear what Croft means by this, but Diessel contends that constructs are emergent and transitory just like all other facets of linguistic structure, in contrast to what the aforementioned quote implies. In particular, he contends that constructions can be viewed as networks involving three different types of associative relations: (i) symbolic relations, which connect form and meaning; (ii) sequential relations, which link linguistic elements in sequence; and (iii) taxonomic relations, which connect linguistic representations at various levels of abstraction (Diessel, 2019, Schmid, 2020).

i. Taxonomic Relations. Since the beginning of construction grammar, taxonomic relations have taken front stage. Usage-based construction grammar often operates on the presumption that linguistic structure is represented at various levels of schematicity and is connected by taxonomic or inheritance relations, as shown in example (1).



Overgeneralization errors, for example “John fall that toy,” in L1 acquisition provide the existence of constructional schemas and constructional inheritance (Bowerman, 1988). The transitive usage of the verb fall shows that this child must have learned a transitive schema in order to use fall as a transitive verb, assuming that the ambient language only contains intransitive uses of the verb (for a recent discussion of overextension errors of argument-structure constructions in L1 acquisition see Diessel, 2013).

Generalizations across lexical sequences with related forms and meanings lead to the emergence of schematic representations of linguistic structure. Although this can occur at any moment, a language's fundamental structures are learned throughout the early years of life. There is a substantial body of research on the development of argument-structure constructs during the preschool years (Diessel, 2013) and the extraction of schema during infancy (Frost et al., 2019). There are many cognitive processes involved in the development of constructional schemas, but categorization and analogy are

particularly important since they are greatly influenced by token frequency, type, and similarity (Bybee, 2010).

ii. Sequential Relations. All linguistic components are placed in a linear or sequential order, and language develops over time. The given-before-new principle (Chafe, 1994) and iconicity of sequence are two semantic and pragmatic considerations that drive the sequential organisation of linguistic parts (Diessel, 2008). Nevertheless, linguistic components that are often combined become linked, regardless of any semantic or pragmatic factors. This is reflected in the emergence of lexical chunks, or lexical prefabs, that are bound together by sequential linkages or relations (Arnon and Snider, 2010; Lorenz & Tizón-Couto, 2017).

Automatization, a well-known process of human cognition that affects not only language but also non-linguistic phenomena like counting and dance, is the cause of sequential linkages (Ghilardi et al., 2009). Given that the speech participants are frequently in front of the speech stream, sequential linkages have an innately forward orientation. This has been a contentious area of current psycholinguistics study (Kuperberg & Jaeger, 2016). There is a tonne of data to suggest that speech participants "predict" future phrase or discourse components (Fine et al., 2013).

Sequential relations are weighted since automatization is based on frequency of occurrence. The stronger the sequential linkages between a linguistic string's individual pieces are, all other things being equal. Both lexical strings and schematic processing elements, often known as constructional schemas, fall under this (cf. 2). According to "chunk hierarchies" (Gobet et al., 2001), both are arranged in a way that takes conceptual aspects and automatization into account.

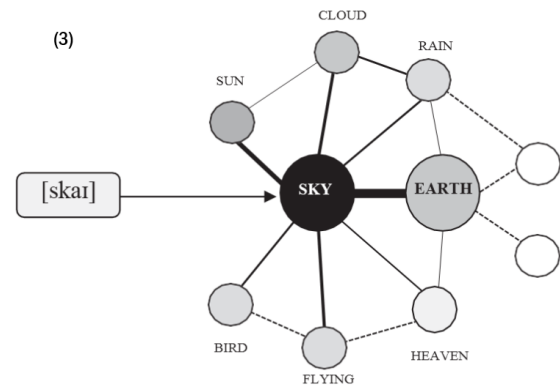


iii. Symbolic Relations.

Finally, correlations between form and meaning are known as symbolic relations. According to de Saussure (1916), a linguistic sign is typically understood to be the pairing of form and meaning, also known as the signifier and signified. However, if we examine how linguistic signs evolve during acquisition and change, we can observe that symbolic linkages are emergent and gradient, just like all other associative connections in the language network. In the literature, linguistic signs are typically portrayed as stable notions. Particularly, symbolic relationships result from recurring semantic interpretational routes that solidify and normalise through repetition and social interaction (Diessel, 2019).

The similarities between lexemes and constructs have been highlighted by construction-based literature (Croft, 2001; Hilpert, 2014). While it is possible to think of constructions as symbolic entities, it is vital to understand that the mental processes involved in the semantic interpretation of constructions are different from those of lexemes. Both are generally defined as signs or symbols.

Lexemes are typically described in cognitive psychology as cues or stimuli that do not actually reflect meaning but are meant to induce a certain perception (Elman, 2009). Every lexeme is understood in the context of a vast conceptual knowledge network. For instance, the lexeme "sky" signifies a region above the ground that is connected to a number of different ideas, such as the "sun," "cloud," "rain," "bird," "flying," "blue," "thunder," and "heaven" (cf. 3). Since the definition of "sky" includes the idea of "earth," this is typically used as the concept's foundation. However, the context affects how all other notions are activated.



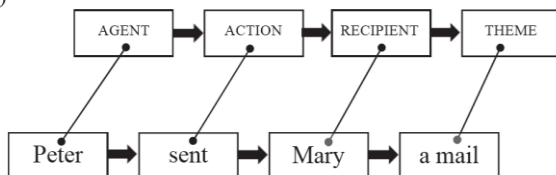
This is referred to by psychologists as "spreading activation" (Anderson, 1983; Dell, 1986). According to this explanation, lexemes give users access to a figure node or figure idea in an association network, from which they may then access related background nodes or background concepts. Lexical priming provides the strongest support for spreading activation (Hoey, 2005). Prior to a lexical decision task, when people are given a word, they respond more quickly to items that are semantically and/or phonetically related than to items that are unrelated.

Constructions offer the same cues for meaning construction as lexemes, but their conceptual processes are different from lexemes'. However, constructions are linear processing units that emerge as generalizations over lexical sequences with similar forms and meanings. Since (schematic) constructs do not directly access world information, they abstract from specific lexical components (like lexical items). Instead, constructs give guidance on how to combine the ideas suggested by a group

of lexemes into a cohesive semantic interpretation. For instance, argument structure constructions direct the listener to attach specific semantic roles (such as actor, receiver, or topic) to particular lexical expressions (cf. 4).

Therefore, Diessel (2020) contends that, despite constructions being meaningful, the semantic processes evoked by constructions are significantly separate from those evoked by lexemes. This is counter to what is typically thought in the construction-based literature (Chen, 2020).

(4)



Constructions, however, are not rudiment or primal objects. Instead, constructs can be thought of as dynamic networks that include taxonomic, sequential, and symbolic linkages. Conceptualization, analogy, classification, pragmatic inference, automatization, and social cognition are just a few of the cognitive processes that interact intricately to shape each of these relationships. The three relations collectively describe constructions as emerging and ephemeral conceptions. Importantly, these ideas interact in intricate ways at a higher-level network where linguistic components are categorised and grouped in syntactic

paradigms. Therefore, Diessel (2020) propose two additional types of relations to analyse this higher-level network: (i) filler-slot relations that specify associations between the slots of constructional schemas and lexical or phrasal fillers; and (ii) constructional relations that specify associations between constructions at the same level of abstraction. In addition, he claimed that these relationships are essential for understanding a number of grammatical phenomena, such as word classes, argument structure, phrase structure, as well as grammatical categories including voice, case and number, and construction families.

◆ Argument Structure

The argument structure of a verb is the lexical information about the arguments of a (generally verbal) predicate and their semantic and syntactic properties. Thus, argument structure is an interface between the semantics and syntax of predicators (which we may take to be verbs in the general case). Argument structure encodes lexical information about the number of arguments, their syntactic type, and their hierarchical organization necessary for the mapping to syntactic structure (Bresnan 2001). An argument structure typically indicates the number of arguments a lexical item takes (e.g., the core participants in the eventuality a verb denotes), their

syntactic expression, and their semantic relation to this lexical item.

Traditionally, verbs govern argument structure (Levin & Rappaport Hovav, 2005), but in construction grammar, argument structure is also influenced by constructions (Goldberg, 1995). Argument-structure constructions offer spaces for specific semantic sorts of participants, whereas verbs choose a set of participation roles. A verb and a construction may fuse if they both indicate the same participant roles and are semantically compatible. This sums up Goldberg's Semantic Coherence Principle (Goldberg, 1995), which has had a major impact on the constructivist method of argument structure analysis. This idea does not, however, come without issues. If argument structure is considered as a network, Diessel (2020) identified two general issues that are simple to fix.

- ❖ The first issue is the profusion of idiosyncrasies. According to Goldberg's hypothesis, fusion depends on semantic compatibility, but fusion is not always semantically motivated. Consider the double-object construction (*She gave her friend a present*), which indicates a transfer act and is most often used with verbs like "give," "send," "offer," and "bring." The majority of these verbs also exist in the to-dative construction (*She gave a present to*

her friend), but there are several idiosyncrasies. For example, the verbs *donate* and *say* designate transfer, whether it be verbal or physical, like *give* and *tell*. However, unlike *give* and *tell*, *donate* and *say* only appear in the to-dative construction (*She donated some money to the Red Cross; He said no to her*); they do not appear in the double object construction (**She donated the Red Cross some money; *He said her no*). Alternatively, there are verbs such as *forgive* and *envy*, for example (*She forgave him his mistakes; I envy you your automobile*), even though these verbs do not clearly indicate a sense of transfer, they can appear in the double-object construction (Goldberg, 1995).

Although Goldberg is aware of these idiosyncrasies and views them as "exceptions" (Goldberg, 1995), some academics have questioned the value of high-level schemas for the analysis of argument structure given how frequently lexical inconsistencies of this kind occur. Boas (2003, 2008) has argued, in particular, that argument-structure constructions are organised around certain verbs or narrow verb classes and that fully schematic constructions are only marginally significant for the analysis of



argument structure (Faulhaber, 2011).

- ❖ Another issue is that the statistical asymmetries in the distribution of individual verbs are not taken into account by the current theories of argument construction. As noted by several corpus linguists, verbs and constructions are skewed in their distribution. *Give*, for example, occurs more frequently in the double-object construction than statistically predicted and less frequent in the to-dative construction; nevertheless, this is not the case with *bring* (Gries & Stefanowitsch, 2004).

In relation to other numerous types of argument-structure constructions, lexical idiosyncrasies and asymmetries have also been identified. Take the active-passive alternation, for example. The majority of transitive verbs can be used in both active and passive voice, but the active-passive alternation is not always effective in all languages. German, for instance, includes some transitive verbs (i.e., verbs selecting an accusative object), such as *kennen* "to know," *wissen* "to know," *besitzen* "to own," *kosten* "to cost," and *bekommen* "to get," that do not occur in passive voice (Eisenberg, 2004). The majority of transitive verbs in English can be made passive (with the main-verb use of *have* being a prominent exception; see

below); but there are statistical biases in the distribution of specific verbs. For instance, the verbs *get*, *want*, and *do* occur with a higher frequency ratio of active/passive uses than one would anticipate if the co-occurrence of verbs and constructions were random; meanwhile, the verbs *use*, *involve* and *publish* is the other way around: they are biased toward appearing in the passive voice (Gries & Stefanowitsch, 2004).

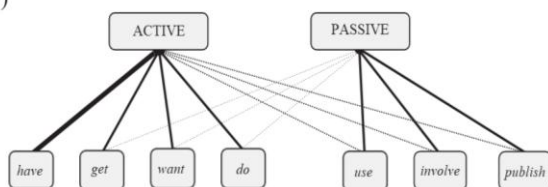
General conceptual and discourse-pragmatic elements serve as the motivation for both the item-specific constraints on the use of particular verbs and the distributional asymmetries in the co-occurrence of specific verbs and argument-structure constructs (Pinker, 1989; Goldberg, 1995). They are not entirely foreseeable from these factors. Given that the verbs *own* and *possess* are frequently used in passive voice (e.g., *The farm was owned by a wealthy family; He was possessed by a devil*), there are no obvious semantic or pragmatic reasons why the main-verb use of *have*, meaning "to own" or "to possess," cannot be passivised. Similarly, there are no obvious semantic or pragmatic reasons why the English verb *know* can appear in passive voice but its German counterparts *wissen* and *kennen* are banned from the passive construction.

Together, these results show that, in addition to any semantic or pragmatic



motivations for a verb's use in a particular construction, speakers "know" how certain verbs are employed across argument-structure constructions. In light of these results, Diessel (2020) proposes that argument structure is best studied within the framework of a dynamic network model, where verbs and constructions are connected by filler-slot associations that are determined by two general factors: (i) the semantic fit between lexemes and constructions (i.e., Goldberg's Semantic Coherence Principle), and (ii) language users' experience with specific co-occurrence patterns (cf.5) (Diessel, 2019).

(5)



The processing of sentences in psycholinguistic studies provides strong support for this hypothesis. For instance, Trueswell (1996) demonstrated that the processing complexity of (reduced) passive relatives differs depending on how frequently a given verb is used in the passive voice. According to Gries and Stefanowitsch (2004), passive relatives with the verb *consider* create substantially less processing issues in comprehension trials than passive relatives with the verb *want* since

consider is far more frequently used in the passive than *want* (cf. 6a–b).

- (6) a. The secretary (who was) considered by the committee was . . .
 b. The director (who was) wanted by the agency was . . .

The hypothesis that speakers' knowledge of argument-structure constructions includes filler-slot associations between specific verbs and the verb slots of particular constructions is supported by similar effects seen in psycholinguistic research with other types of constructions and other verbs (e.g., Spivey-Knowlton & Sedivy, 1995; Garnsey et al., 1997).

Conclusion

It is obvious that various empirical results support the usage-based view of linguistic structure as a dynamic and emergent phenomenon. Nonetheless, there is no consensus in the usage-based literature as to how the experts can explain and integrate results into a coherent model, making the analysis of syntactic phenomena indistinct in this methodology. Also linguistic structure is best analyzed within a dynamic system model of grammar. The usage-based linguists seem to agree that grammar establishes some kind of network. However, while the network view of grammar is frequently invoked in the usage-based literature, it has not yet



been developed into an explicit theory or model.

Recommendations

The following recommendations are deemed necessary:

At the heart of the proposed analyses is a set of associative relations that concern different aspects of a speaker's linguistic knowledge and that are shaped by various cognitive processes. Specifically, I have proposed the following set of relations:

1. There is need for sequential relations, which are associations between linguistic elements in linear order that have developed into automated processing units.
2. In write-ups the writer should look into filler-slot relations, which describe associations between individual slots of constructional schemas and particular lexical or phrasal fillers.
3. There is need to consider that constructional relations, which are lateral associations between similar or contrastive constructions that are grouped together in a family or paradigm.



REFERENCES

- Anderson, J. R. (1983). Retrieval of information from long-term memory. *Science*, 220, 25–30.
- Arnon, I. & Snider, N. (2010). More than words: frequency effects for multi-word phrases. *J. Mem. Lang.*, 62, 67–82.
- Boas, H. C. (2003). *A constructional approach to resultatives*. Stanford, CA: CSLI Publications.
- Boas, H. C. (2008). Determining the structure of lexical entries and grammatical constructions in construction grammar. *Annu. Rev. Cogn. Linguist.*, 6, 113–144.
- Bowerman, M. (1988). The ‘no negative evidence’ problem. How children avoid constructing an overgeneral grammar, in *Explaining Language Universals*, ed. J. A. Hawkins (Oxford: Basil Blackwell), 73–101.
- Bresnan, J. (2001). *Lexical-functional syntax*. Oxford: Blackwell.
- Bybee, J. (2010). *Language, cognition, and usage*. Cambridge: Cambridge University Press.
- Chafe, W. (1994). *Discourse, consciousness, and time*. The flow and displacement of conscious experience in speaking and writing. Chicago, IL: Chicago University Press
- Chen, A. C.-H. (2020). Words, constructions and corpora: Network representations of constructional semantics for Mandarin space particles. *Corpus Linguist. Linguist. Theory* Available online at: <https://doi.org/10.1515/cllt-2020-0012>
- Croft, W. (2001). *Radical construction grammar*. Oxford: Oxford University Press.
- de Saussure, F. (1916). *Course in general linguistics*. LaSalle, IL: Open Court.
- Dell, G. S. (1986). A spreading-activation theory of retrieval in sentence production. *Psychol. Rev.*, 93, 283–321.
- Diessel, H. & Hilpert, M. (2016). *Frequency effects in grammar*. In Oxford Research Encyclopedia of Linguistics, ed. M. Aronoff (New York, NY: Oxford University Press).
- Diessel, H. (2008). Iconicity of sequence. A corpus-based analysis of the positioning of temporal adverbial clauses in English. *Cogn. Linguist.*, 19, 457–482.
- Diessel, H. (2013). Construction grammar and first language acquisition. In the *Oxford Handbook of Construction Grammar*, eds G. Trousdale and T. Hoffmann (Oxford: Oxford University Press), 347–364.
- Diessel, H. (2019). *The grammar network*. How linguistic structure is shaped by language use.



- Cambridge: Cambridge University Press.
- Diessel, H. (2020). A dynamic network approach to the study of syntax. *Front. Psychol.*, 11, 604853.
- Duignan, B (2016). *Syntax*. Encyclopedia Britannica. <https://www.britannica.com/topic/syntax>
- Eisenberg, P. (2004). *Grundriss der Deutschen Grammatik*. Stuttgart: Metzler.
- Elman, J. L. (2009). On the meaning of words and dinosaur bones: lexical knowledge without a lexicon. *Cogn. Sci.*, 33, 1–36.
- Faulhaber, S. (2011). *Verb valency patterns*. A Challenge for Semantic-Based Accounts. Berlin: Mouton de Gruyter.
- Fine, A. B., Jaeger, T. F., Farmer, T. A., & Qian, T. (2013). Rapid expectation adaptation during syntactic comprehension. *PLoS One*, 8: e77661.
- Frost, R., Armstrong, B. C., & Christiansen, M. H. (2019). Statistical learning research: a critical review and possible new directions. *Psychol. Bull.*, 145, 1128–1153
- Garnsey, S. M., Pearlmutter, N. J., Myers, E. E., & Lotocky, M. A. (1997). The contributions of verb bias and plausibility to the comprehension of temporarily ambiguous sentences. *J. Mem. Lang.*, 7, 58–93.
- Ghilardi, M. F., Moisello, C., Silvestri, G., Ghez, C., & Krakauer, J. W. (2009). Learning of a sequential motor skill comprises explicit and implicit components that consolidate differently. *J. Neurophysiol.*, 101, 2218–2229.
- Gobet, F. P., Lane, C. R., Croker, S., Cheng, P. C. H., Jones, G., Oliver, I., et al. (2001). Chunking mechanisms in human learning. *Trends Cogn. Sci.*, 5, 236–243.
- Goldberg, A. E. (1995). *Constructions*. A construction grammar approach to argument structure. Chicago, IL: The University of Chicago Press.
- Gries, S. T., and Stefanowitsch, A. (2004). Extending collexeme analysis. *Int. J. Corpus Linguist.*, 9, 97–129.
- Hilpert, M. (2014). *Construction grammar and its application to English*. Edinburgh: Edinburgh University Press.
- Hoey, M. (2005). *Lexical priming. A new theory of words and language*. London: Routledge.
- Ibbotson, P. (2020). *What it takes to talk: Exploring developmental cognitive linguistics*. Berlin: Mouton de Gruyter.
- Ibbotson, P. (2020). *What it takes to talk: Exploring developmental cognitive linguistics*. Berlin: Mouton de Gruyter.
- Jackendoff, R. (2002). *Foundations of language*. Brain, Meaning,



- Grammar, Evolution. Oxford: Oxford University Press.
- Jackendoff, R. (2002). *Foundations of Language. Brain, Meaning, Grammar, Evolution*. Oxford: Oxford University Press.
- Kuperberg, G. R., & Jaeger, T. F. (2016). What do we mean by prediction in language comprehension. *Lang. Cogn. Neurosci.*, 31, 32–59.
- Levin, B., & Rappaport Hovav, M. (2005). *Argument Realization*. Cambridge: Cambridge University Press.
- Lorenz, D., & Tizón-Couto, D. (2017). Coalescence and contraction of V-to-Vinf sequences in American English – evidence from spoken language. *Corpus Linguist. Linguist. Theory*, 10, 115–123.
- Pinker, S. (1989). *Learnability and Cognition. The Acquisition of Argument Structure*. Cambridge, MA: MIT Press.
- Schmid, H. J. (2020). *The Dynamics of the Linguistic System: Usage, Conventionalization, and Entrenchment*. Oxford: Oxford University Press.
- Spivey-Knowlton, M. J., & Sedivy, J. (1995). Resolving attachment ambiguities with multiple constraints. *Cognition*, 55, 227–267.
- Trueswell, J. C. (1996). The role of lexical frequency in syntactic ambiguity resolution. *J. Mem. Lang.*, 35, 566–585.
- Van Valin, R. D. & LaPolla, R. J. (2001). Syntax - structure, meaning and function. *DELTA Documentação de Estudos em Lingüística Teórica e Aplicada*, 15(2).
- Wikipedia (2021). *Grammatical construction*. In Wikipedia, the free encyclopedia.

