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What is an alternation?

Six answers

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An important subset of the empirical research conducted within usage-based construction grammar is formed by alternation studies. Still, it is not always clear what exactly qualifies as an alternation. This paper takes stock of six possible ways of defining an alternation. Three of these definitions are argued to be particularly suitable for the research program of usage-based construction grammar. The paper zooms in on those and discusses their practical consequences and (dis)advantages.

Keywords: alternation, usage-based, construction grammar, problem of semantic equivalence, variation, allostructions

1. Introduction

A sizeable segment of the quantitative studies executed within construction grammar is formed by alternation studies. However, construction grammarians have not yet reached a consensus as to what exactly constitutes an alternation, unlike e.g. sociolinguists (Tagliamonte 2012, 3–8). This has led to terminological confusion, which is regrettable, especially because the choice of definition has direct practical consequences when carrying out an alternation study. The present paper therefore distinguishes six definitions that are in use in linguistics in general, which are listed below. It discusses the final three at length, since these are considered to be particularly suited to usage-based construction grammar (for background on usage-based construction grammar, see Diessel 2019).

An alternation consists of two or more language forms or language structures...

1. that have no meaning difference, and where one is not inherently more difficult to cognitively process than another, but which vary according to lectal factors.

2. that have no meaning difference, and the choice between which is not determined by lectal factors, but which exhibit differences in language processing.
3. that vary systematically across some specific set of lexical items, and typically exhibit a systematic difference in meaning.
4. that present a choice point for an individual language user.
5. that a linguist deems interesting to contrast with one another.
6. that have some special theoretical relation to one another.

Section 2 presents the background of the first three definitions, which developed in a decontextualized approach to language (Geeraerts 2010a). Sections 3 to 5 then discuss Definitions 4, 5 and 6, respectively, and the final section presents some concluding remarks.

2. Definitions 1–3: Alternations in a decontextualized approach to language

Definitions 1–3 each focus on one of type of motivating factor, viz. respectively (i) factors relating to differences between language varieties or ‘lects’, (ii) factors relating to the cognitive processing of language, and (iii) factors relating to semantic distinctions. By *motivating factors*, I mean the variables that determine which of the alternating language forms or structures, i.e. the *variants*, is used.

Definition 1 stems from sociolinguistics (Labov 1972, 188). The most typical examples of such alternations are cases of phonetic variation, such as the pronunciation of the suffix *-ing* as [ɪn] or [ɪŋ] or the realization of the *r* in *fourth*. The most explicit integration of this type of alternation into generative syntax is as a *variable rule*, i.e. a rule stating that an underlying element can be realized as either one variant or the other, depending on the motivating factors (Cedergren and Sankoff 1974).

Definition 2 stems from psycholinguistics (for examples, see Ferreira and Schotter 2013, 1548–1551). Here, alternations are used merely as practical ways to test processing hypotheses. For example, Ferreira and Dell (2000) investigate the English *that*-alternation. Their interest does not lie, however, with exhaustively describing the factors that govern this alternation. Instead, they simply want to test hypotheses that relate to how people process language.

Finally, Definition 3 originally stems from generative syntax (cf. Arppe et al. 2010, 12–13). Here, lectal and processing-related factors are not of concern to the researcher, because they are considered irrelevant for describing the language system (Broekhuis, Corver, and Vos 2013, 401–594). Typical examples would be the English locative alternation, that occurs with verbs such as *load* in (1) (Levin 1993,

49–55), or the English conative alternation that occurs with verbs of contact, as in *Paula hit (at) the fence* (Levin 1993, 148–153; Hanks 2013, 205–207).

- (1) a. The farmer loaded apples into the cart.
 b. The farmer loaded the cart with apples. (Levin 1993, 2)

These three definitions are consistent with a decontextualized approach to language, where the language system is neatly separated from language processing and lectal variation, and where each of these can and even should be studied separately, in their respective subdisciplines of generative syntax, psycholinguistics and sociolinguistics (Geeraerts 2010a, 73–77). They are more difficult to uphold, however, in the recontextualized approach pursued by usage-based construction grammar (Geeraerts 2010a, 81–91).

Usage-based construction grammarians claim that the language system is shaped by usage, i.e. by processing pressures and by the needs of language users to express semantic and social meaning (Bybee 2006). As such, the choice between two constructions may well be determined by an interplay of factors relating to language processing, semantics and lectal differences (Grondelaers, Geeraerts, and Speelman 2007, 149–152). Moreover, language processing or lectal differences may create lexical biases that in turn lead to semantic differences (Pijpops 2019, 65–66). This all means that when usage-based construction grammarians study an alternation, they cannot afford to focus exclusively on one type of motivating factor, while a priori excluding the influence of another type (Geeraerts 2010b, 263–292). As a consequence, the first three neatly separated definitions of alternations are no longer tenable, and usage-based construction grammarians need to look for other definitions.

In principle, a first option to redefine alternations is to simply relax one of the original three definitions by allowing some influence of the other types of factors, as long as this influence can be safely ignored or controlled for, e.g. by excluding a number of instances from the analyses. For instance, two variants would still be said to constitute a sociolinguistic alternation even if there is a meaning difference between both, as long as this meaning difference is not too big and both variants can still be considered ‘close paraphrases’ (Bresnan 2007, 76). A second option is to take the call for recontextualization more seriously, and hence to redefine alternations more thoroughly. The next three sections each discuss such a possible redefinition.

3. Definition 4: The alternation as a choice point of the individual language user

When producing an utterance, an individual language user has to make a number of choices. Such choices may include: do I use a ditransitive or prepositional dative construction? Do I use a transitive construction or an *at*-construction? An alternation can be defined as such a choice point (Wallis 2012). It can then be investigated to what degree motivating factors relating to semantics, processing or lectal differences affect this individual's choice.¹

The focus on the individual corresponds to a notion of grammar as the “cognitive organization of one's experience with language” (Bybee 2006, 711) or “I-grammar” (Zuidema and Verhagen 2010, 54). The choice points echo the variable rules of old, but the view on I-grammar is crucially reversed. In the variable rule approach, grammar is in principle categorical but has a variable component, namely the variable rules. Conversely, in the usage-based approach, grammar is in principle probabilistic, but its probabilities may in practice be so biased that no choice is left for the individual language user (Röthlisberger 2018b, 3–5, 53–58).

If this definition is adopted for a potential alternation, two questions need to be answered: who is the individual and what constitutes his/her choice? This first question is not trivial. Verhagen (2013) argues that the concept of a representative language user is not tenable in usage-based linguistics, and, indeed, empirical research has unveiled outspoken differences between individuals (Dąbrowska 2018). The second question can be split into two sub-questions: (i) which are the options; and (ii) when does a factor become too dominant?

As an example of the first subquestion, consider the partitive genitive construction which has an optional *-s* ending, as in (2). Of course, the choice of the language user in (2) is not limited to the forms with and without *-s* ending: other options include *een interessant iets* ‘an interesting something’, *een boeiende opportuniteit* ‘a tempting opportunity’ etc. Still, Pijpops and Van de Velde (2018) fail to include these variants.

Strictly speaking, their study therefore assumes that language users first choose to produce a partitive genitive, and only then decide on which variant of the partitive genitive to employ. Only this final choice between both partitive genitive variants is studied in Pijpops and Van de Velde (2018), not the first one. However, such

1. These three types of motivating factors are meant in a broad way throughout this paper. For instance, by ‘lectal factors’, I also mean factors relating to sociocultural distinctions. Meanwhile, under ‘semantic factors’, I include any factor that involves the language producer wanting to express or construe different things. This would include distinctions that are more pragmatic in nature.

assumptions, regarding the order in which language users make linguistic choices, are often questionable. For many alternations, the exact order of linguistic choices is simply not known in such detail (for an overview of the research on that topic, see Ferreira, Morgan, and Slevc 2018).

- (2) *als iets* *interessant(s) zich aanbiedt*
 if something interesting itself presents
 ‘(...) if something interesting presents itself.’

(Pijpops and Van de Velde 2018, 104)

The second subquestion has mostly been discussed with reference to semantic factors and dubbed the problem of semantic equivalence (Geeraerts, Kristiansen, and Peirsman. 2010, 7–9, cf. Lavandera 1978). Still, under Definition 4, the question equally applies to lectal and processing-related factors.

As for lectal factors, consider the variants *mij-mich* ‘me’. At first sight, it seems obvious what determines the choice between these language forms: when speaking Dutch, one should use *mij*, when speaking German *mich*. Clearly, this distinction is so categorical that the forms cannot qualify as an alternation.

Or can they? There is no strict binary distinction within the Continental West-Germanic dialects. In fact, *mich* functions as the dialectal variant in large areas of Belgium and the Netherlands, notably in the Limburgian provinces, where *mij* is the standard (Kruijssen and van der Sijs 2016). In these areas, the *mij-mich* choice would be probabilistically determined by a.o. lectal factors such as register and the longitude of the place where the speaker grew up: the further east, the more *mich*. The question is then: when does the influence of longitude become so strong that it robs the individual language user of his/her choice?

For instance, the author of this paper would – albeit very rarely – use *mich* at family gatherings. When talking to colleagues however, *mich* would be categorically out of the question. Still, having recently moved to the Belgian province of Limburg, the probability of *mich* in his language use is poised to rise, either due to accommodation or mere exposure. Would his utterances count as genuine instances of the *mij-mich* alternation, and if so, in which situations and during which periods of his life?

Concerning processing-related factors, consider discourse formulas such as *I think*, *I guess* etc. in the *that*-alternation in (3). Some researchers argue that these instances have grammaticalized as epistemic markers to such a degree that including *that* is no longer possible, and as such, they should be kept out of the analyses (e.g. Thompson and Mulac 1991). Still, others contend that the probability of *that* in these instances is so low simply because a following subordinate clause is highly predictable (Jaeger 2010, 35). The question is then: when does the influence of predictability become so strong that it robs the individual language user of his/her choice?

- (3) I think exercise is really beneficial, for anybody.
(Thompson and Mulac 1991, 313)

Turning to semantic factors, the usual cutoff-point is whether both variants share the same truth conditions (see the overview in Röthlisberger 2018b, 17–23). In practice, however, this is often unclear, since lexical senses are rarely if ever discrete categories (Kilgarriff 1997).

As an example, consider the Dutch psych verb alternation, between transitive *John stoort Elizabeth* and reflexive *Elizabeth stoort zich aan John* (both: ‘John annoys Elizabeth’). One of the hypotheses of Pijpops and Speelman (2017) predicts that more agentive stimuli promote the use of the transitive construction. Now, Pijpops and Speelman (2017) exclude a number of instances of transitive *storen* ‘disturb’, stating that these refer to physical actions, and hence categorically fail to exhibit the reflexive construction. These instances include sentences like (4)–(5), where they identify the sense ‘to interrupt someone’. It could be argued, however, that this sense of *storen* does not refer to a strictly different action than in (6). Instead, the reason why instances like (4)–(5) so outspokenly prefer the transitive variant might just be because their stimulus is outspokenly agentive. The question is then: when does the influence of agentivity become so strong that it robs the individual language user of his/her choice?

- (4) *Goedenmiddag, met softwarehouse Been, sorry dat ik u stoor.*
Good_noon with softwarehouse Been sorry that I you disturb
‘Good afternoon, this is the software company Been, sorry to bother you.’
(Transitive construction, Pijpops and Speelman 2017, 225)
- (5) *Stoorde ik je weer tijdens de uitzending gisteren*
Disturbed I you again during the broadcast yesterday
‘Did I bother you again during the broadcast yesterday?’
(Transitive construction)
- (6) *Stoor je niet aan mij. Ik luister wel toe.*
Disturb you not to me I listen PART PART
‘Don’t let me bother you, I’m just listening.’ (Reflexive construction)

Of course, being strict in the demarcation of an alternation for one type of motivating factor – be it lectal, processing-related or semantic – while being more lenient towards the other types directly leads to an underestimation of the influence of that type in linguistic variation. Semantic factors appear to be getting the short end of the stick in this regard (cf. Van de Velde, Franco, and Geeraerts 2019, 5). Furthermore, the requirement to remove the categorical, i.e. non-interchangeable, instances from the data creates a strange paradox: the researcher wants to discover what drives the alternation, but ought to blind him/herself to all instances where

this is too obvious. That practice essentially boils down to only looking for one's car keys where the street lamps *do not* shine.

In practice, the role of the representative individual language user is often taken up by the researcher him/herself, who then decides which occurrences are categorical/non-interchangeable, and should be excluded (e.g. Pijpops and Speelman 2017, 224–226; Szmeccsanyi et al. 2016a, 4–5). This solution is far from ideal. First, academics are rarely representative for their speech community (Dąbrowska 2018). Second, the solution allows the researcher's intuitions to affect empirical data used to test hypotheses. Third, it hinders the reproducibility of the study. It is therefore advisable to keep a detailed exclusion log (e.g. Röthlisberger 2018a).

4. Definition 5: The alternation as a methodological setup of the linguist

Another possibility to redefine alternations is to view them as a methodological setup created by the linguist in order to test hypotheses (Arppe et al. 2010, 12–15). Concretely, a researcher would start from a hypothesis, choose two or more language forms about whose relative occurrence the hypothesis makes a prediction, and finally study these forms as an alternation to test the prediction. This definition corresponds to a generalization of Definition 2 in two ways. First, the hypothesis in question may pertain to lectal and semantic factors. Second, the choice between the forms is not necessarily made by the individual language user.

As an example, consider the past tense inflection of Germanic verbs (De Smet and Van de Velde 2019). The verb *milk* is categorically conjugated weakly in English, as *milke*, rather than strongly as e.g. *malk* (cf. *sing* ~ *sang*, *drink* ~ *drank*). That is, the individual English language user does not have a choice between the weak and strong inflection for this verb. As such, weak *milke* vs. strong *malk* does not constitute an alternation under Definition 4, and hence cannot be studied as such. In any case, all occurrences of *milk* and all other verbs that are conjugated in a categorical fashion – which form the vast majority – should be excluded from such a study (compare D'Arcy 2014, 222–223)

Still, the community of English language users could have chosen strong *malk* as their norm rather than weak *milke*. In fact, the communities of Dutch and German language users did actually choose to conjugate the cognate verb *melken* strongly as *molk* – although weak *melkte* is also in use (de Vriendt 1965, 245; Haeseryn et al. 1997, 91; Duden 2009, 489). The alternation between the strong and weak inflection for all Germanic verbs, including those conjugated in a categorical fashion, can then be studied to test e.g. the hypothesis that the strong inflection recedes more rapidly in areas with demographic upheaval (e.g. Van de Velde et al. 2017). This is possible under Definition 5, but not under Definition 4.

When applied to corpus research, Definition 5 fits in with a population-level perspective on grammar where the individual no longer takes central stage. Instead, grammar would be viewed as the “regularity in the language use realized by a specific community” observed by the linguist (Geeraerts, Kristiansen, and Peirsman 2010, 5) or a description of “E-language” (Zuidema and Verhagen 2010, 54).

Definition 5 comes with two advantages over Definition 4. First, the two questions discussed in the previous section no longer pose problems. The individual language user is not crucial to the definition of an alternation, and the selection of the variants and the data would be determined by the hypotheses at issue. Second, this definition allows for more hypotheses to be tested, viz. all hypotheses that do not relate to the choice of an individual.

These advantages come at a cost however. Definition 5 entails that anything can be an alternation – any two forms that a researcher deems interesting to contrast with one another. In doing so, it gives up on providing a theoretical underpinning for the concept of alternation. As a result, various alternations can no longer be systematically compared to one another (see e.g. Szmrecsanyi et al. 2016b). The reason is that there is simply nothing to compare: an alternation only exists within the context of a single study, and the selection of the data would be dependent on the specifics of that study.

5. **Definition 6: The alternation as two allostructions or otherwise linked constructions**

A final possible redefinition of the concept of alternation comes in the form of allostructions. Allostructions are two or more subconstructions of a single overarching construction (Cappelle 2006). The overarching construction specifies the properties that are shared between the variants of the alternation, while the allostructions themselves contain the properties in which they differ. These properties can relate to form, semantics, processing or lectal distinctions. Allostructions can be used both in the description of an individual’s I-grammar or a community’s E-language.

This definition comes with two advantages: it provides a clear theoretical grounding of the concept of alternation and the problematic questions discussed in Section 3 do not crop up. Again, however, these advantages come at a cost. First, the postulation of the overarching construction needs to be justified (Cappelle 2006, 21; Perek 2015, 136–167). Second, some language forms may not actually qualify as allostructions. As a result, any hypothesis relating to these forms cannot be tested under Definition 6.

Under Definition 6, I also include proposals that link two constructions together through a direct horizontal link in the construction rather than through an overarching construction (Diessel 2019, 199–200; Zehentner and Traugott 2020), since such proposals come with the same (dis)advantages and practical consequences: the postulation of the constructional link would also need to be justified in some way.

6. Concluding remarks

Definitions 4–6 all present different ways of integrating the study of semantics, language processing and lectal differences, as pursued by usage-based construction grammar (Geeraerts 2010a). Each definition comes with its own (dis)advantages, but all of them are in principle equally valid. While the definitions are not mutually exclusive, it is advisable to pick one definition when starting an alternation study, so it may serve as a guideline for steering your practical choices. I end this paper with a call to alternation researchers to shortly specify which definition of alternations they adopt. This would help preempt misunderstandings.

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References

- Arppe, Antti, Gaëtanelle Gilquin, Dylan Glynn, Martin Hilpert, and Arne Zeschel. 2010. “Cognitive Corpus Linguistics: Five Points of Debate on Current Theory and Methodology.” *Corpora* 5 (1): 1–27. <https://doi.org/10.3366/cor.2010.0001>
- Bresnan, Joan. 2007. “Is Syntactic Knowledge Probabilistic?” In *Roots*, ed. by Sam Featherston, and Wolfgang Sternefeld, 77–96. Berlin: Mouton de Gruyter.

- Broekhuis, Hans, Norbert Corver, and Riet Vos. 2013. *Syntax of Dutch. Verbs and Verb Phrases. Volume 1*. Amsterdam: Amsterdam University Press.
- Bybee, Joan. 2006. "From Usage to Grammar." *Language* 82 (4): 711–733. <https://doi.org/10.1353/lan.2006.0186>
- Cappelle, Bert. 2006. "Particle Placement and the Case for 'Allostructions.'" *Constructions* SV 1–7 (2006).
- Cedergren, Henrietta, and David Sankoff. 1974. "Variable Rules: Performance as a Statistical Reflection of Competence." *Language* 50 (2): 333–355. <https://doi.org/10.2307/412441>
- D'Arcy, Alexandra. 2014. "Functional Partitioning and Possible Limits on Variability." *Journal of English Linguistics* 42 (3): 218–244. <https://doi.org/10.1177/0075424214539702>
- Dąbrowska, Ewa. 2018. "Experience, Aptitude and Individual Differences in Native Language Ultimate Attainment." *Cognition* 178: 222–235. <https://doi.org/10.1016/j.cognition.2018.05.018>
- De Smet, Isabeau, and Freek Van de Velde. 2019. "Reassessing the Evolution of West Germanic Preterite Inflection." *Diachronica* 36 (2): 139–180. <https://doi.org/10.1075/dia.18020.des>
- de Vriendt, Sera. 1965. *Sterke Werkwoorden en Sterke Werkwoordsvormen in de 16e eeuw* [Strong Verbs and Strong Verb Forms in the 16th Century]. Brussel: Belgisch Interuniversitair Centrum voor Neerlandistiek.
- Diessel, Holger. 2019. *The Grammar Network*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/9781108671040>
- Duden. 2009. *Die Grammatik* [The Grammar]. 8th edn. Mannheim: Dudenverlag.
- Ferreira, Victor, and Gary Dell. 2000. "Effect of Ambiguity and Lexical Availability on Syntactic and Lexical Production." *Cognitive Psychology* 40 (4): 296–340. <https://doi.org/10.1006/cogp.1999.0730>
- Ferreira, Victor, Adam Morgan, and Robert Slevc. 2018. "Grammatical Encoding." In *The Oxford Handbook of Psycholinguistics*, ed. by Shirley-Ann Rueschemeyer, and Gareth Gaskell, 2nd edn. Oxford: Oxford University Press.
- Ferreira, Victor, and Elizabeth Schotter. 2013. "Do Verb Bias Effects on Sentence Production Reflect Sensitivity to Comprehension or Production Factors?" *The Quarterly Journal of Experimental Psychology* 66 (8): 1548–1571. <https://doi.org/10.1080/17470218.2012.753924>
- Geeraerts, Dirk. 2010a. "Recontextualizing Grammar: Underlying Trends in Thirty Years of Cognitive Linguistics." In *Cognitive Linguistics in Action*, ed. by Elzbieta Tabakowska, Michal Choinski, and Lukasz Wiraszka, 71–102. Berlin: De Gruyter Mouton.
- Geeraerts, Dirk. 2010b. *Ten Lectures on Cognitive Sociolinguistics*. Beijing: Beijing Foreign Language Teaching and Research Press. <https://doi.org/10.1515/9783110226461>
- Geeraerts, Dirk, Gitte Kristiansen, and Yves Peirsman. 2010. *Introduction*. In *Advances in Cognitive Sociolinguistics*, ed. by Dirk Geeraerts, Gitte Kristiansen, and Yves Peirsman, 1–19. Berlin: Mouton de Gruyter. <https://doi.org/10.1515/9783110226461>
- Grondelaers, Stefan, Dirk Geeraerts, and Dirk Speelman. 2007. "A Case for Cognitive Corpus Linguistics." In *Methods in Cognitive Linguistics*, ed. by Monica Gonzalez-Marquez, Irene Mittelberg, Seana Coulson, and Michael Spivey, 149–169. Amsterdam/Philadelphia: John Benjamins. <https://doi.org/10.1075/hcp.18.12gro>
- Haeseryn, Walter, Kirsten Romijn, Guido Geerts, Jaap de Rooij, and Maarten van den Toorn. 1997. *Algemene Nederlandse Spraakkunst* [General Dutch Grammar]. 2nd edition. Groningen: Martinus Nijhoff/Deurne: Wolters Plantyn.
- Hanks, Patrick. 2013. *Lexical Analysis: Norms and Exploitations*. Cambridge: MIT press. <https://doi.org/10.7551/mitpress/9780262018579.001.0001>

- Jaeger, Florian Tim. 2010. "Redundancy and Reduction: Speakers Manage Syntactic Information Density." *Cognitive Psychology* 61 (1): 23–62. <https://doi.org/10.1016/j.cogpsych.2010.02.002>
- Kilgarriff, Adam. 1997. "I Don't Believe in Word Senses." *Computers And The Humanities* 31 (2): 91–113. <https://doi.org/10.1023/A:1000583911091>
- Kruijssen, Joep, and Noline van der Sijs. 2016. "Meertens Kaartenbank" [Meertens Database of Maps]. Available as <www.meertens.knaw.nl/kaartenbank/>.
- Labov, William. 1972. *Sociolinguistic Patterns*. Philadelphia: University of Pennsylvania Press.
- Lavandera, Beatriz. 1978. "Where Does the Sociolinguistic Variable Stop?" *Language in Society* 7 (2): 171–182. <https://doi.org/10.1017/S0047404500005510>
- Levin, Beth. 1993. *English Verb Classes and Alternations*. Chicago: University of Chicago press.
- Perek, Florent. 2015. *Argument Structure in Usage-Based Construction Grammar*. Amsterdam/Philadelphia: John Benjamins. <https://doi.org/10.1075/cal.17>
- Pijpops, Dirk. 2019. "How, Why and Where Does Argument Structure Vary?" Ph.D Dissertation, University of Leuven.
- Pijpops, Dirk, and Dirk Speelman. 2017. "Alternating Argument Constructions of Dutch Psychological Verbs." *Folia Linguistica* 51 (1): 207–251. <https://doi.org/10.1515/flin-2017-0006>
- Pijpops, Dirk, and Freek Van de Velde. 2018. "A Multivariate Analysis of the Partitive Genitive in Dutch." *Corpus Linguistics and Linguistic Theory* 14 (1): 99–131. <https://doi.org/10.1515/cllt-2013-0027>
- Röthlisberger, Melanie. 2018a. "Guidelines for the Dative Alternation." Available at <<http://melanie-roethlisberger.ch/data/>>.
- Röthlisberger, Melanie. 2018b. "Regional Variation in Probabilistic Grammars: A Multifactorial Study of the English Dative Alternation." PhD dissertation, University of Leuven.
- Szmrecsanyi, Benedikt, Douglas Biber, Jesse Egbert, and Karlien Franco. 2016a. "Toward More Accountability: Modeling Ternary Genitive Variation in Late Modern English." *Language Variation and Change* 28 (1): 1–29. <https://doi.org/10.1017/S0954394515000198>
- Szmrecsanyi, Benedikt, Jason Grafmiller, Benedikt Heller, and Melanie Röthlisberger. 2016b. "Around the World in Three Alternations: Modeling Syntactic Variation in Varieties of English." *English World-Wide* 37 (2): 109–137. <https://doi.org/10.1075/eww.37.2.015zm>
- Tagliamonte, Sali. 2012. *Variationist Sociolinguistics*. Chichester: Wiley-Blackwell.
- Thompson, Sandra Annear, and Anthony Mulac. 1991. "A Quantitative Perspective on the Grammaticization of Epistemic Parentheticals in English." In *Grammaticalization*, ed. by Elizabeth Closs Traugott, and Bernd Heine, 313–339. Amsterdam/Philadelphia: John Benjamins. <https://doi.org/10.1075/tsl.19.2.16tho>
- Van de Velde, Freek, Katrien Beuls, Isabeau De Smet, and Dirk Pijpops. 2017. "The Weakening of Strong Preterites in West-Germanic." Paper presented at *A Germanic Sandwich*, 5th edn., University of Münster, 17 – 18 March 2017.
- Van de Velde, Freek, Karlien Franco, and Dirk Geeraerts. 2019. "Reality check voor de kwantitatieve Nederlandse taalkunde [A reality check for quantitative Dutch linguistics]." *Tijdschrift voor Nederlandse Taal- en Letterkunde* 135 (4): 329–343.
- Verhagen, Arie. 2013. "Darwin en de ideale taalgebruiker" [Darwin and the ideal language user]. In *Honderd Jaar Taalwetenschap. Artikelen aangeboden aan Saskia Daalder bij haar afscheid van de Vrije Universiteit* [100 years of Linguistics. Articles offered to Saskia Daalder on the occasion of her retirement at the Vrije Universiteit], ed. by Theo Janssen, and Jan Noordegraaf, 151–162. Amsterdam: Stichting Neerlandistiek VU/Münster: /Nodus Publikationen.

- Wallis, Sean. 2012. "That Vexed Problem of Choice." Paper presented at ICAME₃₃, University of Leuven, 30 May – 3 June 2012. Typescript available at <www.ucl.ac.uk/english-usage/statspapers/vexedchoice.pdf>.
- Zehentner, Eva, and Elizabeth Closs Traugott. 2020. "Constructional Networks and the Development of Benefactive Ditransitives in English." In *Nodes and Networks in Diachronic Construction Grammar*, ed. by Lotte Sommerer, and Elena Smirnova, 168–211. Amsterdam/Philadelphia: John Benjamins. <https://doi.org/10.1075/cal.27.05zeh>
- Zuidema, Willem, and Arie Verhagen. 2010. "What Are the Unique Design Features of Language? Formal Tools for Comparative Claims." *Adaptive Behavior* 18 (1): 48–65. <https://doi.org/10.1177/1059712309350973>

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