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Introduction

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1.1 Background

A fundamental principle of pragmatic reasoning is that natural language users come to understand the intent of a message not only by what was said, but what alternative expression was left unsaid (Grice, 1975). Since at least Jackendoff (1972), alternative expressions have come to occupy a central role in the calculation of linguistic meaning and communication. The intuition that alternative forms and utterances enter the computation of linguistic meaning can be formalized in many ways, though perhaps none more influential than the Alternative Semantics framework of Rooth (1985, 1992), in which alternative expressions enter the formal semantic computation of focused content. This account posits that, in

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addition to their ordinary meanings, expressions also denote a set of alternatives to the ordinary semantic value when focused (see also Jackendoff, 1972). The alternative set is ultimately used to generate a set of propositions against which the actual utterance is interpreted. Alternative meanings were further recognized to be necessary to properly account for the truth-conditional effect of focus placement and certain focus-sensitive operators like *only*, *even*, and *also*. Formal alternatives have since come to play a central role in the analysis of various semantic and pragmatic phenomena like focus, free choice, negation, and scalar implicature (Chierchia, 2013; Gajewski & Sharvit, 2012; see Gotzner & Romoli, 2022 for an overview; Katzir, 2007).

In recent years, the investigation of such alternative-based phenomena has been subject to an experimental turn, largely due to two main developments. First, experimental research into scalar implicature spearheaded the creation of a field now known as Experimental Pragmatics (since Chemla & Singh, 2014; Noveck, 2018, 2001 for an overview). Second, linguistic focus has been found to trigger the generation of a set of alternatives in comprehenders, consistent with the framework of Rooth's Alternative Semantics (e.g., Braun & Taglipaietra, 2010; see Gotzner & Spalek, 2019; Gotzner et al., 2016; Husband & Ferreira, 2015 for review). Thanks to the finding that alternative meanings are indeed computed during incremental processing, experimental linguists have begun to apply experimental paradigms to address how alternatives are generated and restricted over time during online comprehension.

Despite the remarkable progress on linguistic focus and scalar implicature made in recent years, foundational issues regarding the mechanisms by which alternatives are computed, both formally and in online language processing, remain open. To name just a few: How are alternatives generated and constrained by the grammar? What determines that one expression should count as an alternative to another? In what ways do grammar and context interact? How are alternatives accessed during real-time processing, and at what point in interpretation does contextual information determine which alternatives are relevant? Are such mechanisms unique to linguistic representations or do they recruit more domain-general mechanisms? To address some of these questions, the present volume "Alternatives in Grammar and Cognition"

gathers contributions by leading scholars in semantics, pragmatics, and psycholinguistics who work on the generation and contextual restriction of alternatives. The contributions center around several of the core alternative-based phenomena: prosodic focus, focus-sensitive operators, indefinites, modals, and scalar implicature. This volume brings together a diverse array of scholars investigating the generation and restriction of alternative sets from theoretical and empirical perspectives. The editors compiled contributions from noted scholars in the field to provide theoretical arguments, opinionated perspectives synthesizing existing positions, or empirical evidence from experimentation and fieldwork in support of a theoretical framework. In the remaining sections, we briefly introduce two key threads of the volume: (i) the generation and restriction of alternatives and (ii) operations on salient alternatives.

1.2 Generation and Restriction of Alternatives

The first theme of the volume concerns the formal generation of alternative sets; in particular, whether members of the alternative set (i) constitute a type-theoretic semantic class (as proposed in Rooth, 1985 and adopted in many subsequent accounts), (ii) range over syntactic alternatives, derived by constructing alternative structures (e.g., as proposed in Fox & Katzir, 2011; Katzir, 2007), or (iii) are based on a broader cohort of lexical expressions (as proposed by Gotzner, 2017 and Husband & Ferreira, 2015). The first three chapters of our volume focus on the generation and restriction of alternatives during processing, as inspired by different theoretical accounts. The main theme revolves around the question whether initially a broad set of elements is generated and then contextually restricted or whether only a limited set of relevant expressions plays a role in meaning computation. For example, in the case of scalar implicature, only expressions on the same entailment-based scale (e.g., *some* and *all*) should be considered for inference making.

Gotzner and Lacina provide an overview of different theories about the nature of alternatives involved in scalar implicatures. They argue that

the mechanism for activating and selecting alternatives needs to be separated from the inferential mechanism itself. Inspired by work on focus (Gotzner, 2017 and Husband & Ferreira, 2015), Gotzner and Lacina develop a two-stage account for activating scalar alternatives. The chapter also discusses findings that cast doubt on the view that scalar implicatures are computed via the negation of relevant alternatives.

Husband and Patson review the literature on the role of prior mention and the semantic relation of alternatives and the triggering expression. They discuss which cognitive mechanisms could underpin the construction of alternatives in processing ranging from early processing stages to later memory encoding for focus and scalar alternatives. Husband and Patson highlight gaps in our theories of alternative generation, specifically focusing on the relation between how active an alternative is and how it is used in comprehension. They conclude that future research should link activity and use more closely both in theory and within the experimental paradigm.

Muxica and Harris further evaluate a core prediction of a two-stage view, in which the focus processor is initially insensitive to the discourse status of focus alternatives (adopted by Husband & Ferreira, 2015 and Gotzner, 2017). In particular, semantically-related, but contextually-irrelevant, alternatives are said to be available to the focus processor at an initial, context-insensitive stage of semantic priming, and are only later eliminated by contextual constraint. Counter to this prediction, they find evidence from a cross-modal priming study that the availability of alternatives is distinguished by their contextual relevance even in early moments of discourse processing, and advance a *constructive* model of alternative generation, in which contextual information immediately influences the constitution of an alternative set.

1.3 Operations on Salient Alternatives

Although certain alternatives may be generated by the grammar or otherwise salient, they do not necessarily enter into compositional interpretation. Accordingly, scholars have distinguished *formal* alternatives, which are generated by the grammar, from *relevant* alternatives, which

feed interpretive operations in context. One area where the distinction is relevant is the so-called *symmetry problem* in scalar implicature, in which, on a neo-Gricean account, stronger alternative utterances are negated—e.g., *some* implicates *not all* by the negation of more informative alternative *all (2-a)*. The problem arises when an alternative sentence A (2-b) for an utterance U (1) is negated in the computation of a scalar implicature in the form $U \wedge \neg A$. The literal meaning of the utterance (1) and the negation of the symmetric alternative (2-b) lead to direct contradiction (*Mary drank some of the coffee and she didn't drink some but not all of the coffee*).

(1) *Utterance:* Mary drank some of the coffee
Implicates: Mary drank some but not all of the coffee
(2) *a. Stronger relevant alternatives:* Mary drank all of the coffee
b. Symmetric alternative: Mary drank some but not all of the coffee

To avoid deriving contradictions with symmetric alternatives, it is often assumed that only informationally stronger alternatives like (2-a) are negated via scalar implicature (Breheny et al., 2018; Fox & Katzir, 2011; Horn, 1972). Part II of the volume includes four chapters that address this question looking into how and whether salient alternatives are being operated on.

The chapter by Marty, Romoli, Sudo, and Breheny presents experimental evidence using an inference task that the mere salience of alternatives is not a factor in the computation of scalar implicatures. Their main conclusion is that the salience of an alternative does not increase the derivation of scalar implicatures if that alternative is already relevant.

It is often assumed that intonational tunes are associated with a distinct meaning or set of meanings (Pierrehumbert & Hirschberg, 1990). It is an empirical question whether a particular tune contributes a meaning distinct from items in the lexicon. Gobel investigates the meanings associated with a late rise (L* + H) pitch accent in English, finding experimental support that it imposes an evaluative ranking of alternatives in a way similar to, but nonetheless distinct from, the evaluative interpretation associated with *at least*. The paper raises important questions about how intonation guides the interpretation of alternatives.

The chapter by Greenberg discusses the division of labor between formal and contextual restriction and whether all salient alternatives in the preceding discourse affect the construction of alternative sets. She presents a range of empirical data indicating that salient sentences can only introduce alternatives into the set if they answer the same question, arguing for an answerability-constraint on salient alternatives.

Alxatib and Nicholae focus on whether indefinites and modals behave differently with respect to local implicatures. They present a dynamized account of exhaustification where alternatives for indefinites need to be anaphoric to it.

1.4 Conclusion

A final commentary chapter in our volume by Singh synthesizes the claims and outstanding questions regarding the interaction between grammar and context. Our collection of papers brings together current theoretical and empirical approaches to alternative-based phenomena, showing a common set of interwoven themes and issues. Theoretical accounts have inspired numerous experimental investigations into the generation and constraint of alternatives during online processing. At the same time, experimental findings are ever-more incorporated into theoretical approaches, informing new incremental accounts of alternatives. We believe that the collection of essays here attests to the importance and fruitfulness of an ongoing dialogue between approaches using various methodological tools to determine the construction of alternatives in grammar and cognition.

References

Braun, B., & Tagliapietra, L. (2010). The role of contrastive intonation contours in the retrieval of contextual alternatives. *Language and Cognitive Processes, 25*(7–9), 1024–1043.

Breheny, R., Klinedinst, N., Romoli, J., & Sudo, Y. (2018). The symmetry problem: Current theories and prospects. *Natural Language Semantics, 26*, 85–110.

Chemla, E., & Singh, R. (2014). Remarks on the experimental turn in the study of scalar implicature, Part I. *Language and Linguistics Compass, 8*(9), 373–386.

Chierchia, G. (2013). *Logic in grammar: Polarity, free choice, and intervention*. OUP Oxford.

Fox, D., & Katzir, R. (2011). On the characterization of alternatives. *Natural Language Semantics, 19*(1), 87–107.

Gajewski, J., & Sharvit, Y. (2012). In defense of the grammatical approach to local implicatures. *Natural Language Semantics, 20*, 31–57.

Gotzner, N. (2017). *Alternative sets in language processing: How alternatives are represented in the mind*. Palgrave studies in Pragmatics, Language and Cognition, Palgrave Macmillan.

Gotzner, N., & Romoli, J. (2022). Meaning and alternatives. *Annual Review of Linguistics, 8*, 213–234.

Gotzner, N., & Spalek, K. (2019). The life and times of focus alternatives: Tracing the activation of alternatives to a focused constituent in language comprehension. *Language and Linguistics Compass, 13*(2), e12310.

Gotzner, N., Wartenburger, I., & Spalek, K. (2016). The impact of focus particles on the recognition and rejection of contrastive alternatives. *Language and Cognition, 8*(1), 59–95.

Grice, H. P. (1975). Logic and conversation. In P. Cole & J. Morgan (Eds.), *Syntax & Semantics* Speech Acts (Vol. 3, pp. 41–58). New York: Academic Press.

Horn, L. (1972). *On the semantic properties of logical operators in English*. University of California.

Husband, E. M., & Ferreira, F. (2015). The role of selection in the comprehension of focus alternatives. *Language, Cognition and Neuroscience, 31*(2), 217–235.

Jackendoff,. (1972). *Semantic interpretation in generative grammar*. MIT Press.

Katzir, R. (2007). Structurally-Defined Alternatives. *Linguistics and Philosophy, 30*, 669–690.

Noveck, I. (2018). *Experimental pragmatics: The making of a cognitive science*. Cambridge University Press.

Noveck, I. A. (2001). When children are more logical than adults: Experimental investigations of scalar implicature. *Cognition, 78*(2), 165–188.

Pierrehumbert, J. B., & Hirschberg, J. (1990). The meaning of intonational contours in the interpretation of discourse. In P. R. Cohen, J. Morgan, & M. E. Pollack (Eds.), *Intensions in communication* (pp. 271–311). MIT Press.

Rooth, M. E. (1985). *Association with focus (montague grammar, semantics, only, even)*. University of Massachusetts Amherst.

Rooth, M. (1992). A theory of focus interpretation. *Natural Language Semantics, 1*(1), 75–116.