

ADELE E. Goldberg. *Explain Me This: Creativity, Competition, and the Partial Productivity of Constructions*. Princeton and Oxford: Princeton University Press, 2019. *

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In our natural language there are many utterances that are perfectly understandable and syntactically well-formed, but are nonetheless avoided by native speakers. An example, would be that someone can *explain this to me*; but it sounds somewhat unconventional to say *explain me this*. It is no exaggeration to say that this question has bewildered linguists and psychologists for the past several decades.

The latest compelling volume by one of the leading thinkers in the area focuses, as the title suggests, on the question of partial productivity of constructions, i.e. when, why, and how native speakers are sometimes creative with language use and yet at other times much more conservative. The issue of partial productivity of language has already been mentioned in Goldberg (1995, 2006), but this new work provides systematic and fine-grained explanation. In this book, problems are addressed through the use of two key notions: coverage and competition from the perspective of human memory. Constructions are motivated by a better appreciation of human memory, learning and categorization, and are redefined as “emergent clusters of lossy memory traces that are aligned within our high-(hyper!) dimensional conceptual space on the basis of shared form, function, and contextual dimensions” (Goldberg 2019:7).

To start with, Chapter 1, Introduction, presents a comprehensive overview of the phenomenon under study. That is, native speakers tend to use language in a creative way while nonetheless avoiding certain expressions, which is the puzzle this book aims to address. Goldberg put forward the CENCE ME Principles, pronounced “sense me”, in order to highlight the importance of sensible communication. CENCE ME is the anagram of EEMCNCE which is the acronym for Expressive, Efficient, Memory, Constructions, New, Compete and Error-driven learning. The key ideas are:

- A. Speakers balance the need to be Expressive and Efficient while conforming to the conventions of their speech communities.
- B. Our Memory is vast but imperfect: memory traces are retained but partially abstract (“lossy”- a term from computer science, in the sense that they are not fully specified in all detail).
- C. Lossy memories are aligned when they share relevant aspects of form and function, resulting in overlapping, emergent clusters of representations: Constructions.
- D. New information is related to old information, resulting in a rich network of constructions.
- E. During production, multiple constructions are activated and Compete with one another to express our intended message.
- F. During comprehension, mismatches between what is expected and what is witnessed fine-tune our network of learned constructions via Error-driven learning.

(Goldberg 2019:5-6)

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This principle works in every natural language and serves to constrain and shape the range of possible human languages. This principle can explain the facts in question more fully than several other alternatives, and the discussions in the following chapters center around this principle.

Chapters 2-3 analyze words and constructions under the guidance of the CENCE ME principle. Chapter 2 starts the academic journey of explaining the *explain-me-this* puzzle by focusing firstly on individual words, because words are easier to understand and there are key parallels between the two problems. The same mechanisms involved in learning and restricting word meanings are used when learning and restricting grammatical constructions. Experimental work has found that when we interpret individual words, neural areas that relate those words to various actions or perceptions may also be reliably activated, suggesting that our sensory knowledge is linked to word meanings. Words evoke rich conceptual and perceptual information from the contexts in which the words have been witnessed, and the encounter with a word will potentially leave a memory trace of its use, i.e. a lossy structured representation including information about its form, meaning and context. The result of multiple encounters with a word is a dynamic cluster of overlapping structured representations within our hyper-dimensional space, a required representational space for language. The clusters will become increasingly dense owing to repetitive encounters and the representations of a word become broader because of incremental aspects of context. The aspects of representations are strengthened over time and the emergent cluster is what we think of as word meaning. In this way, a “word” is defined as a cluster of partially overlapping structured representations within our hyper-dimensional conceptual space, and broader representation ensures faster and easier access to a word. Therefore, learning a word is learning how the word is used in different contexts, and distinct words which intend to express the same meaning-in-context will compete; consequently, one word is preferred over another in certain contexts. Speaker can avoid overgeneralizations by learning and gaining fluency with more appropriate words for the intended meaning.

Chapter 3 focuses on the constructions, which are more complex than words. The author concentrates on ARGUMENT STRUCTURE CONSTRUCTION (ASC) because ASCs determine the clause types which capture humanly relevant scenes of experience. Unlike words, the constructions have more conditioning factors including meaning (semantics), form (syntax), sound patterns (phonology), discourse context (information structure) and social context. These are the dimensions that serve to characterize individual ASCs. The choice of one ASC over another may be conditioned by a variety of factors, which are not universal and should be learned on the basis of the language that is encountered. These conditioning factors cannot be the determinant of which verb occurs with which construction because this would arouse the questions of how to learn these constraints.

Chapters 4-5 are the core of the book, addressing the question of partial productivity of human language use. Chapter 4 provides an answer to the issue of creativity in language use. Goldberg argues that the meaning and distribution of words, combination of words, and constructions rely on the nature of our memory-lossy structured representations of usage experiences which dynamically cluster within our hyper-dimensional conceptual space. Aspects of representations are strengthened over time and the emergent cluster is a construction: the learned pairings of form and function. New expressions are licensed by existing ones to the extent that they overlap with certain well-covered clusters of partially abstract exemplars. A construction is strengthened and thus more accessible when new representations overlap with the existing one. Coverage accounts for the fact that the variety of previously attested exemplars correlates positively with the acceptance of novel expressions, as speakers take previous exemplars into account when considering whether or how far to extend an existing construction. If speakers have witnessed a construction which is extended with a wide variety of exemplars, they are more willing to use it productively. A new expression is licensed to the extent that the existing clusters cover the hyper-dimensional conceptual space required for the new expressions.

Chapter 5 mainly focuses on conservativeness in language use. The previous chapter emphasized the role of clusters in making generalizations. However, in actual language use, the constructions speakers use depend on the message they want to convey. Therefore, creativity will be curtailed when there is a more accessible and conventional alternative which can express the same message-in-context at the moment of speaking: this is called statistical preemption, or competition in context. If two constructions do not convey the same messages, the less frequent one will not be preempted because they will not be activated in the same context, and are thus not in competition. By way of example, the more entrenched sentence *I coughed* will not preempt *I coughed him out of my mouth* because they cannot co-occur in the same context.

In contrast, if two constructions are activated in the same context, the construction most frequently used by native speakers is considered to be more acceptable and will statistically preempt the other because language is viewed as a normative enterprise. Therefore, *explain this to me* will statistically preempt *explain me this*. When a verb is regularly witnessed in two constructions with closely related meanings, preemption will not extinguish one at the expense of the other. Instead, both versions survive and can be used in contexts that conform to the distinguishable functions of the two constructions: for example, *she told the boy a story* and *she told a story to the boy*. However, people's judgement is not linear but gradient. Statistical preemption is statistical rather than absolute because occasionally creative language use is due to errors or for the sake of playfulness and memorability (as in the title of this book).

Competition from other constructions will help to avoid overgeneralization. The key idea of statistical preemption is that native speakers learn a more conventional way to express the message-in-context. Language users prefer a better entrenched formulation over a productive one because they want to obey the normativity of the speech community and regard it as the right way to speak. A number of studies have evidenced that listeners tend to anticipate what speakers will say next when comprehending utterances. The mismatch between input and what is anticipated by listeners will provide an error signal which is used to improve future predictions through an error-driven learning process.

Goldberg summarizes the acceptability judgement of a novel sentence with a competing alternative as follows. Familiar verb + ASC pairings will be preferred by the speakers rather than the less familiar ones. Greater familiarity with one verb + ASC pairing leads to less acceptability with novel alternatives which compete (statistical preemption). The more frequent the competing alternative is, the more confident speakers will be that the novel sentence is unacceptable. If there are no conventional grammatical forms in competition, the frequency of the verb in other constructions does not matter. The acceptability will be determined by the coverage. The reason *explain me this* is unapplicable is because most verbs that sound Latinate resist being used in the English double-object construction. Speakers will choose a more conventional form - *explain this to me* - to express the intended message.

In Chapter 6, Goldberg talks about age effects and the role of accessibility in expressions to convey the message-in-context at the moment of speaking, which further supports the argument that constructions are motivated by human memory, learning and categorization. The author compares the language production of younger children and adult L2 learners. Younger children are more conservative than adults because they are less skillful in perceiving the similarities and parallels among the witnessed exemplars and thus fail to form appropriate generalizations when provided with the same amount of exposure. Until children have mastered the conditioning factors needed to generalize each construction and distinguish it from others, they cannot successfully access the most appropriate constructions and therefore will rely on good-enough alternatives. Therefore, younger children are more likely to simplify in production. Children's reduced cognitive skills in discerning which dimensions are similar or distinct lead to slower initial language learning than adults. However, over time, children surpass adult learners. This is because adult L2 learners' decades of well-practiced L1 warps aspects of the hyper-dimensional space for automatic language use. Although L2 learners are more capable of discerning similarities or distinctions in the witnessed exemplars in L2, this is a more cognitively demanding process than using the dimensions in their well-practiced L1. Furthermore, adult L2 learners are less adept at anticipating the upcoming utterance and thus benefit less from statistical preemption. They appear to have reduced ability to predict grammatical options unless they have a high proficiency level.

Chapters 7-8 synthesize and conclude the many ideas in this book. In Chapter 7, the author reviews several alternative proposals aimed at addressing the *explain-me-this* puzzle and claims that the present usage-based constructionist approach is more comprehensive than alternative accounts. Each alternative either fails to address how generalizations are learned or constrained, or fails to explain the creative use of language. The current usage-based perspective argues that learners must witness and use language in a wide variety of contexts in order to become skillful in language use. The author reemphasizes that the available evidence is consistent with the idea that regularities and exceptions are learned on the basis of coverage and competition, in accord with the CENCE ME principles. In Chapter 8 the author calls for the cooperative efforts of linguists and psychologists and encourages students, teachers and researchers to focus on memory, learning, and the function of language as a means of communication as we continue to study how grammatical constructions are formulated. Finally, the author identifies directions for future research.

This volume is coherent in theme and well-organized. The 8 chapters are neatly distinguished in terms of content, and further contribute to a complete and in-depth explanation of the *explain-me-this* puzzle. The author draws conclusions from the evidence of a large body of empirical studies in the fields of psychology and linguistics, and provides satisfactory answers to the puzzle of creative but constrained language use from the perspective of human memory. This engaging and thought-provoking volume provides a plethora of fertile starting points for future research in cognitive linguistics, psycholinguistics and language acquisition.

The writing style is also accessible. The author opens the explanation of the puzzle with words which are simple and straightforward for readers, and indicates how creative and conservative constructions are learned by using general cognitive skills in natural conversations. This book is a combination of theory with practice, with the practical aspect more focused in comparison to the author's two influential publications in 1995 and 2006. Readers are offered an approach to language in accord with what is known about memory, categorization and learning. Goldberg introduces two key notions - coverage and competition - which explain why native speakers use language creatively on the one hand and conservatively on the other. Creative grammatical forms tend to be used when they overlap with certain well-covered clusters formed through repetitive encounters in our hyper-dimensional space. However, when there is a more conventional formulation to convey the message-in-context, the conventional expression will statistically preempt the alternatives that are in competition.

Nevertheless, speakers use an expression creatively not because it overlaps with the clusters in the hyper-dimensional space formed through repetitive encounters in certain contexts but for special purposes in particular situations. To *teach sb to do sth*, for example, is a grammatical formulation that we are familiar with; but when the speaker says *teach fish to swim*, s/he metaphorically means *to show slight skills in the presence of an expert*. The cluster in hyper-dimensional conceptual space hypothesis cannot tell us why speakers express the message-in-context with the linguistic form in other clusters. This book mainly focuses on the regular linguistic formulations, but pays little attention to the idiomatic expressions which share formal properties with ordinary linguistic formulations but have nonliteral meanings. These kinds of expressions are ubiquitous in our ordinary conversation.

In sum, Goldberg's new book is a thorough, inspiring, and highly sophisticated account of partial productivity of language use. It fits squarely within the usage-based constructionist approach to language which has been steadily growing, and verifies the assumptions of partial productivity and generalizations in her influential 1995 and 2006 works with a large body of psycholinguistic and statistical evidence. More generally, the book is of high reference value not only for linguistic researchers but also for researchers in other relevant fields, and can be recommended to anyone interested in recent developments in cognitive linguistics, psycholinguistics and language acquisition. The book is compact and enjoyable with summaries, pictorial illustrations and interesting experiments.

References

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