

Entrenchment

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Key Points

- Entrenchment is the gradual strengthening of linguistic representations in memory through repeated use, making them more stable and accessible.
- Entrenchment is relevant across a variety of usage-based research domains, including psycholinguistics, corpus linguistics, and diachronic linguistics.
- Entrenchment is a key concept of usage-based linguistics and is related to domain-general processes such as memory consolidation, automatization, pattern recognition, and statistical learning.

Glossary

Attrition: The decline or loss of language skills over time due to decreased exposure and use.

Automatization: The process by which a linguistic or cognitive skill becomes fast and effortless through repeated use.

Collostructional strength: A corpus-based measure of how strongly a particular word is attracted to, or co-occurs with, a specific construction.

Consolidation: The process by which short-term memories become stabilized in long-term memory.

Statistical learning: A mechanism through which learners detect regularities (such as co-occurrence patterns or frequency distributions) in linguistic input.

Type and token frequency: Token frequency is the total number of times a specific construction appears in a text. If the four morphological forms occur as follows: “run” 100 times, “runs” 50 times, “running” 50 times, and “ran” 50 times, then there are a total of 250 tokens of the single lemma (base form). Depending on the level of analysis, one can count four verb types or one lemma type (all forms grouped under the lemma *run*).

Abstract

This chapter introduces entrenchment as a central concept in usage-based linguistics, defining it as the gradual strengthening of linguistic representations through repeated exposure and use, and situates it alongside the related concept *preemption* (see ‘Statistical Preemption’ in this volume). The article then explores how entrenchment is approached across a range of usage-based perspectives, such as corpus linguistics, diachronic linguistics, psycholinguistics, and first and second language acquisition. Finally, it considers how print exposure may amplify entrenchment effects and how reduced use of linguistic structures may lead to their attrition.

Introduction

Entrenchment is a core concept within usage-based linguistics that refers to the cognitive reinforcement of linguistic representations through repeated experience in specific usage events. It can apply to any linguistic unit ranging from phonemes to lexicogrammar that appear with sufficient frequency. Entrenchment is a graded phenomenon, conceptualized both as a process where each usage event incrementally shapes the degree of entrenchment of an item and as a state, where it refers to a resulting cognitive representation. Entrenchment is an individual-level phenomenon. With this dual conceptualization, entrenchment plays a major role in understanding language as a dynamic, emergent usage-based system. At the level of the speech-community, the corresponding process is referred to as conventionalization (Schmid, 2020).

Since its introduction to cognitive linguistics by Langacker (1987), entrenchment has become a well-established and empirically grounded concept, widely recruited as an explanatory construct within usage-based approaches. As the literature on entrenchment is broad, this chapter serves as an introductory overview. For more thorough discussions see Schmid (2017) or Divjak and Caldwell-Harris (2015).

Definitions typically mention the relation of entrenchment to many central concepts of usage-based theories such as frequency, automatization, ease of processing, statistical learning, consolidation in long-term memory, and chunking, which is the representation of multiword utterances as holistic units. Langacker (1987, p. 57) describes entrenchment as a gradual process in which repeated use of a structure strengthens its cognitive representation, eventually making it a unit, with degrees of strength depending on frequency. Croft and Cruse (2004, p. 292) similarly emphasize that entrenchment is not binary but comes in degrees, extending beyond the minimal threshold required for storage. Bybee (2007, p. 10) frames entrenchment as strengthening of representations through use, which also promotes automatization, fluency, and even fusion of units. Along the same lines, Blumenthal-Dramé (2012, pp. 68–69) stresses that higher token frequency correlates with greater ease of processing and, at some point, with the emergence of holistic representations that remain sensitive to frequency even afterward. Schmid (2020, p. 2) defines entrenchment as the continual reorganization of linguistic knowledge in speakers' minds and explicitly contrasts it with conventionalization, emphasizing the relationship between the individual and the community. Finally, Goldberg (2019, p. 77) summarizes the consensus across usage-based approaches, differentiating between simple entrenchment, where more frequent formulations become more accessible and are preferred, negative entrenchment, and pre-emption. The following section focuses on the latter two, which explain how speakers come to disprefer certain formulations based on frequency distributions and competition in the input.

Negative Entrenchment Versus Pre-emption

Speakers often have strong intuitions that a particular construction is not acceptable in a given context. For instance, the verb *explain* typically occurs in a to-dative structure (*Explain this to me*) but is judged unacceptable in the ditransitive (**Explain me this*). There is, however, an ongoing debate about how exactly speakers develop these expectations. One view is that a construction may be judged unacceptable because it is never encountered in contexts where it could be expected—this is known as negative entrenchment. Another view is that a construction may be rejected because a more conventional construction competes for the same communicative function, effectively blocking the near-synonymous form—this has been called statistical pre-emption (see also pre-emption in this volume, Romain, 2025).

The negative entrenchment (Stefanowitsch, 2008) or conservatism via entrenchment (Goldberg, 2019) account holds that speakers subconsciously track the distribution of words across constructions and compare, for example, how frequently a given verb occurs in a specific construction relative to its overall frequency (Stefanowitsch, 2008, p. 522). In the example above, *explain* is encountered far more frequently in the to-dative than in the ditransitive structure which may lead to the intuition that **Explain me this* is unacceptable. By contrast, the statistical pre-emption, or blocking account emphasizes the role of competition between two near-synonymous constructions that may serve the same communicative function (Goldberg, 2019; Langacker, 2017; Tomasello, 2003). In the example from above, the to-dative *Explain this to me* therefore pre-empts, i.e., blocks, the use of the near synonymous ditransitive **Explain me this*.

A growing body of research investigates how, and to what extent, (negative) entrenchment and pre-emption can be disentangled, i.e., whether they represent distinct learning mechanisms or facets of a broader statistical learning mechanism (see Ambridge et al., 2018). Earlier research suggested that negative entrenchment was the dominant factor in restricting linguistic generalization, and that pre-emption may be a subtype of entrenchment (Ambridge et al., 2015). In a grammaticality judgment task, Ambridge et al. (2015) found that verbs with higher overall frequencies (in any construction) were judged less acceptable in overgeneralized contexts, as predicted by negative entrenchment. They did not find a significant effect for pre-emption, measured as the frequency of a verb in its most near-synonymous construction, for example, *John made Bill giggle* as the pre-empting alternative to the ungrammatical sentence **John giggled the baby*.

More recent research, however, suggests that pre-emption plays the primary role in restricting linguistic generalizations. Robenalt and Goldberg (2015) demonstrated that when a nearly synonymous construction exists, people reject novel uses of high-frequency verbs (e.g., **the magician disappeared the rabbit*) more strongly than novel uses involving lower-frequency verbs (**the magician vanished the rabbit*). When no clear alternative existed, however, verb frequency alone did not predict acceptability ratings. This suggests that while speakers generally favor entrenched expressions over non-entrenched ones, they are willing to extend entrenched expressions when no conventional alternative is available to express the intended meaning. Supporting this view, Samara et al. (2024)

conducted artificial language learning studies showing that adults and children avoided non-established variants when an established form was available, but freely overgeneralized in its absence. Across five experiments—including both morphological and syntactic manipulations—this pattern held across age groups, suggesting that mere absence of evidence (i.e., negative entrenchment) does not block overgeneralization. Crucially, these results indicate that speakers rely on pre-emption rather than entrenchment to restrict linguistic generalizations.

Corpus Linguistics

One way to investigate entrenchment and its concomitant effects is using corpora. Although corpora do not directly reflect the mental representations of individual speakers, they provide distributional patterns, frequencies and co-occurrences that shape linguistic knowledge. This way, corpus-based measures offer indirect evidence to estimate how strongly particular structures are entrenched at the individual level and conventionalized within a speech community. The most basic metric is the raw frequency count, which can be used to infer the degree of entrenchment of individual words. More frequent words are likely to be cognitively entrenched. Word frequencies in corpora generally follow Zipf's law (Piantadosi, 2014), a power-law distribution which states that the frequency of a word is inversely proportional to its rank in a frequency list. For example, the second most frequent word occurs half as often as the most frequent word and the third most frequent word occurs one-third as often as the most frequent word, and so on. Beyond raw frequencies, association measures (e.g., mutual information scores, which show how likely the co-occurrence of words relative to their individual frequency is; t-scores, which reflect how statistically reliable the co-occurrence is; and collocation strength, which shows a word's attraction to a construction) quantify how strongly words (or, in the case of collocation strength, words and constructions) co-occur above chance or coincidental levels (e.g., Evert, 2005; Schmid & Küchenhoff, 2013; Stefanowitsch & Gries, 2005).

Diachronic Linguistics

Like corpus data in general, diachronic and historical data provide only indirect evidence about mental representations. Assuming that language change is the outcome of cumulative individual acts of language use, however, the concepts of entrenchment and conventionalization function as an explanatory mechanism to language stability and change. High-frequency irregular forms tend to resist regularization precisely because of their entrenched status. As Bybee (2001, pp. 28, 110; 2007, p. 10) argues, high token frequency of irregular forms strengthens their representation in memory and renders them more resistant to analogy-based regularization. This helps explain why most of the commonly used English verbs remain irregular, with lower frequency verbs being susceptible to regularization (e.g., *snuck* vs. *sneaked*). Above all, the highly frequent verb *be* retains a fully irregular paradigm. Other frequently used verbs, such as *sing*, *begin* and *drink* or *speak* and *break*, and *drive*, *write* and *ride* form phonological clusters that may reinforce their morphological stability through analogy.

Psycholinguistic Effects of Entrenchment

Repeated experience of a structure accelerates cognitive and phonological processing. Bybee and Scheibman (1999) show that the frequent chunk "*I don't*" is stored holistically, leading to automatization, phonological reduction, and faster pronunciation (see also Bybee, 2010). Neuroimaging and electrophysiological studies demonstrate that frequent words and constructions elicit faster, less effortful brain responses, reflecting entrenched representations (Hauk et al., 2006). Eye-tracking data show that short, high-frequency words and predictable multi-word phrases are skipped more often and fixated for less time than longer and infrequent ones (Kliegl et al., 2004; see also Siyanova-Chanturia et al., 2011). In repetition tasks, children repeat highly frequent multi-word phrases faster than low frequent ones (Bannard & Matthews, 2008) and adults likewise process high-frequency multi-word phrases more efficiently than lower-frequent ones even when compositionality and individual token frequency (i.e., the number of times a specific word or phrase appears in a text or speech) is controlled (Arnon & Snider, 2010). Moreover, both native and non-native speakers also make faster, more accurate grammaticality judgments on frequent formulaic expressions (Jiang & Nekrasova, 2007).

First Language (L1) Acquisition

Entrenchment explains how children move from rote-learned chunks to abstract schemas. Usage-based approaches propose that children initially store highly frequent, lexically specific items (*What's mommy doing?*) and gradually generalize them into more abstract schemas (*What's NP Verb-ing?*) (Dąbrowska & Lieven, 2005; Tomasello, 2003). For instance, Lieven et al. (2009) trace how children derive the abstract schema *I want to PROCESS it*, from earlier, concrete utterances such as *I want to get it* and *I want to roll it*. Notably, the entrenchment of holistic chunks seems to be driven by *token* frequency (i.e., the total number of times that exact sequence is encountered), where each usage event strengthens its mental representation. In contrast, entrenchment of

schemas and more abstract patterns seems to be driven by *type* frequency (i.e., the number of distinct lexical items that instantiate a given schema), which reflects how often a schema appears with different words.

Second Language (L2) Acquisition

If a construction in a given L2 is not yet strongly entrenched, speakers may transfer entrenched counterparts from a similar L1 construction. One interesting illustration of this comes from [Goschler and Stefanowitsch \(2024\)](#), who investigate how German learners of English acquire the English ditransitive construction (e.g., [NP V NP NP], *she gave him a book*). Both English and German have ditransitives, but these structures come with different usage constraints. The German ditransitive takes a broader set of verbs than the English one, including those which do not allow a double object in English. For example, **You explain me this* is ungrammatical, while the German counterpart *Du erklärst mir das* is fully grammatical. Goschler and Stefanowitsch measured verb-construction entrenchment via corpus-based collostructional strength and additionally tested learners with grammaticality judgment and translation tasks. Overwhelmingly, the German learners of English transferred the German pattern whenever a verb was strongly entrenched in the German ditransitive construction. However, when a verb was only weakly entrenched in the L1, the learners were more receptive to L2 specific patterns (see [Gedik \(2024a\)](#) for similar findings in Turkish speakers of English).

Print Exposure

Print exposure is one of several factors that reinforce entrenchment, in addition to oral language. This is because literacy acts as training wheels ([Dąbrowska, 2021](#)) for the development of complex oral language by providing a written representation, improving cognition, phonological and metalinguistic awareness, as well as oftentimes providing lexically and syntactically richer input than spoken language ([Roland et al., 2007](#)). Indeed, a number of studies conducted with literate speakers point to a relationship between reading and an improvement in L1 grammatical attainment (see [Dąbrowska, 2012](#) for a review). For instance, [Street and Dąbrowska \(2014\)](#) show that L1 English speakers who read more comprehend non-prototypical passive sentences faster and with more accuracy in comparison with speakers that do not read as much. Increased levels of entrenchment via print exposure appear to improve comprehension and production of various schemas cross-linguistically, see [Dąbrowska \(2008\)](#) for Polish, and see [Gedik \(2024b\)](#) for Turkish. Based on these findings, learning to read and write should also help with entrenchment in language learning. This was found to be the case in recent studies conducted with L1 speakers who learned literacy skills in adulthood, confirming the entrenchment of linguistic structures as a result of learning to read and write ([Dąbrowska et al., 2022](#)).

Attrition

From an entrenchment-based perspective, language attrition—the decline of language skills due to reduced use—can be seen as a consequence of weakened mental representations. The central idea is that frequent activation strengthens linguistic routines, while disuse leads to their gradual decay. This aligns with the activation threshold hypothesis ([Paradis, 2007](#)), which holds that the more often a linguistic item is accessed, the lower the cognitive effort required to retrieve it again. Consequently, reduced use over time may raise activation thresholds, leading to slower access or eventual loss. However, empirical support for this assumption is limited. Studies using simplistic or self-reported measures of language use often find no clear link between L1 use and attrition outcomes ([Jaspaert & Kroon, 1989](#)), and even more nuanced approaches have failed to show that informal L1 use predicts linguistic performance in the L1 ([Schmid & Dusseldorp, 2010](#)). This suggests that, while it may be theoretically sound to assume that a decrease in entrenchment leads to attrition, future work is yet to show this.

Conclusion

To conclude, entrenchment is a central concept within usage-based linguistics, with frequency being one of its driving factors. Higher degrees of entrenchment speed up language production and processing. Speakers' exposure to linguistic patterns also gives rise to constraining effects: competing forms may be blocked through pre-emption or avoided due to negative entrenchment. The precise interplay and nature of these constraining processes remain an ongoing topic of debate. In L1 acquisition, entrenched L1 patterns are cornerstones from which more schematic patterns develop, whereas in L2 learning, strongly entrenched L1 patterns may impede the acquisition of L2 structures. Extensive print exposure appears to strengthen entrenched forms. By contrast, attrition due to reduced exposure or disuse of language is expected on theoretical grounds but to date remains largely untested.

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