The DURel Annotation Tool: Using fine-tuned LLMs to discover non-recorded senses in multiple languages

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The concept of semantic proximity has long been present in Cognitive Semantics (Blank 1997). It quantifies how much the meanings of two word uses "have in common" (Schlechtweg 2023, cf. p. 25). Semantic proximity is also recognized in Lexicography (Kilgarriff 1997), where it has been used as a criterion in the lexicographic clustering process (Kilgarriff 2007). Semantic proximity is essential for identifying word senses and creating dictionary entries, as well as research building on senses such as lexical semantic change or semantic variation (Schlechtweg 2023). After advances in modeling the meaning of word uses with contextualized embeddings from language models trained on large amounts of textual data, it has become possible to estimate the semantic proximity between word uses using so-called Word-in-Context (WiC) models, which are specifically optimized on human-annotated semantic proximity training data. These models achieve high performance and serve as an excellent starting point for any practical task that relies on semantic proximity, such as finding novel/unrecorded senses or identifying words that change their meaning. To make these new techniques accessible to researchers outside of Computational Linguistics, we have developed the DURel tool (Schlechtweg et al. 2024). The basic annotation data gathered in the system are judgments of semantic proximity between word uses, created using the DURel relatedness scale (Schlechtweg 2023, p. 33). To showcase the potential of our computational methods, we explore how DURel can be used to identify potentially outdated dictionary entries.

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