Lexical ambiguity in the mind: theoretical challenges and interdisciplinary approaches
Workshop Proposal at SLE 2025

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Workshop Description

The question of how words with multiple meanings are processed and represented in the mental lexicon has been a recurring topic of investigation over the past thirty years. Despite significant advances, certain aspects of the problem remain highly debated, and recent research highlights the importance of interdisciplinary dialogue in expanding our understanding of lexical ambiguity (Eddington & Tokowicz 2015, Falkum & Vicente 2015, Haber & Poesio 2024, a.o.). Linguists are increasingly interested in evaluating the psychological validity of theories on lexical ambiguity, while psycholinguists draw on theoretical models to explore various aspects of the processing and mental representation of ambiguous words. Recently, linguists have begun to investigate how language models capture information about lexical meaning, offering new methodological perspectives for both linguistic and psycholinguistic research. Following this line of research, this workshop aims to foster collaboration between researchers from different disciplines and address unresolved issues related to lexical ambiguity through a comprehensive approach.

The different types of lexical ambiguity

The different types of ambiguous words have been extensively investigated in linguistic studies (Lyons 1977, Apresjan 1974, Cruse 1986, Copestake & Briscoe 1995, Pustejovsky 1995, a.o.). These types are distinguished based on key properties that define the relationship between the different meanings of ambiguous words, such as the presence of a semantic relationship (polysemy vs. homonymy), the nature of the relationship (metaphor vs. metonymy) and its consistency within the lexicon (episodic vs. regular polysemy). Although defined as categories, ambiguity types are often placed on a continuum ranging from meanings that are unrelated and homonymous (e.g., *bat* 'animal' vs. 'wooden stick') to highly related, typically metonymic meanings (e.g., *glass* 'container' vs. 'content'), with meanings that are less related and typically metaphorical (e.g., *mouse* 'rodent' vs. 'computer device') positioned between these two extremes. Nevertheless, some aspects of ambiguity types remain unclear. For instance, the relationship between lexical figure, semantic relatedness, and sense alternation regularity is largely unknown. Similarly, the existence of words with different but contextually compatible meanings, which allow for copredication (Asher 2011, Ortega-Andrés & Vicente 2019, Murphy 2021, a.o.), questions the boundaries of polysemy and the extension of the ambiguity continuum.
Psycholinguistic evidence has confirmed the distinction between the major types of ambiguity, revealing differences in lexical processing depending on ambiguity types (Frazier &

Rainer 1990, Klein & Murphy 2001, Klepousniotou 2002, Rodd et al. 2002, Pylkkänen et al. 2006, Jager & Cleland 2016). Experimental results indicate that homonyms require greater cognitive effort to be processed than irregular polysemes, and even more so compared to highly regular metonymic words (Klepousniotou & Baum 2007, Klepousniotou et al. 2008, Rabagliati & Snedeker 2013, Brocher et al. 2016, 2018, Yurchenko et al. 2020, Maciejewski et al. 2023). Studies focusing on the less explored parts of the continuum have also shown processing differences depending on the degree of regular polysemy (Lombard et al. 2023), polysemy patterns (Apresjan et al. 2021), or the (in)compatibility of related meanings (Huyghe et al. 2024). However, the cognitive representation of fine distinctions between ambiguity types is still uncertain, and further research is necessary to determine whether these distinctions are best understood in terms of semantic underspecification or semantic overlap. Additionally, ambiguity types have been investigated through computational analysis of corpus data. Several studies have explored how sense similarity, as assessed by contextualised language models, aligns with human judgments and reflects the distinction between homonymy and polysemy (Lopukhina et al. 2018, Nair et al. 2020, Trott & Bergen 2021, Haber & Poesio 2021). This emerging field of research offers a promising perspective for assessing the cognitive validity of lexical ambiguity representations (Cassani et al. 2023), and for reducing the need for costly and time-consuming norming studies (Trott 2024). It also raises important methodological questions about how to evaluate the consistency between LLM knowledge and psychological representations.

Lexical ambiguity and linguistic diversity

Lexical ambiguity is a widespread phenomenon that occurs in comparable ways across languages. The existence of shared polysemy patterns, with varying degrees of realisation depending on both linguistic and cultural factors, has been discussed in theoretical studies (Apresjan 1974, Lehrer 1990, Nunberg & Zaenen 1992) and empirically investigated across a wide range of languages, especially in the case of regular metonymy (Srinivasan & Rabagliati 2015). In parallel, typological studies have focused on shared colexification— the use of a single form to express multiple concepts—as a comparative framework for examining lexical ambiguity from a cross-linguistic perspective (François 2008). Previous studies have sought to explain why certain concept associations are more consistently colexified across languages, highlighting conceptual relatedness as a key factor (Xu 2020, Brochhagen & Boleda 2022). These two lines of research could be further integrated to explore how similar sense alternations in different languages relate to the continuum of lexical ambiguity, and what they reveal about semantic relatedness and word processing.

Furthermore, research on the cognitive aspects of lexical ambiguity has primarily focused on nouns, overlooking the role of grammatical properties in the processing of ambiguous words. It appears that metaphor and metonymy may be differently treated depending on the part of speech (Lopukhina et al. 2018). Similarly, the impact of morphological properties on ambiguous words has received limited attention. Previous studies have shown that certain polysemy patterns tend to be associated with specific derivational processes, as in the case of verb-to-noun derivation (Lehrer 2003, Lieber 2016, Salvadori & Huyghe 2022). However, further investigation is required to better understand how morphological structure influences the representation and processing of ambiguous words.

Research questions

This workshop will bring together researchers interested in the cognitive aspects of lexical ambiguity and will explore these issues from various theoretical and methodological perspectives. Research questions include, but are not limited to, the following:

- To what extent does psycholinguistic research support the theoretical distinctions between different types of ambiguous words? How do the nature, degree, and regularity of the relationships between word senses impact the processing and representation of ambiguous words? What are the prominence and respective importance of these properties in the mental lexicon?

- How do similarity measures between contextual representations derived from LLMs align with processing differences or speakers' judgments regarding the different ambiguity types? Can these measures predict behavioural data from psycholinguistic experiments on lexical ambiguity?

- How is linguistic diversity cognitively related to lexical ambiguity? Are recurring instances of ambiguity easier to process than language-specific or idiosyncratic ones? Do the frequent colexifications observed among languages align with regular polysemies (i.e. systematic associations between semantic types), and do they facilitate the processing of ambiguous words?

- How do the grammatical properties of ambiguous words influence their processing and mental representation? Are different types of lexical ambiguity processed similarly across different parts of speech? Does the cognitive processing of ambiguous words vary depending on their morphological properties (e.g. simplex vs. complex words, compounds vs. derived words)?

These questions will be addressed through studies on multiple languages, using various methodological approaches, and exploring a range of theoretical frameworks relevant to the topics discussed.

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