How do learners extract statistical information about word-meaning distributions from linguistic input? A research plan

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BACKGROUND

• Statistical learning = ability to discover patterns in the input based on its statistical properties
• Proposed as a central mechanism in language learning and processing (e.g. Gerken et al., 2005; Gomez & Lalusta, 2004; Pacton et al., 2001; Saffran et al., 1996), including the learning of word meanings (Yu & Smith, 2011)
• Not only word form, but also word meaning frequency influences processing (see Rodd, 2020 for a review)
• Statistical information about word-meaning distributions in the input is used as a heuristic: encounters with each meaning shift activation weights so one meaning may over time become dominant, and thus more readily accessible (Twilley & Dixon, 2000; Rodd, 2020)
• These dominance-based heuristics play a role in adult processing of ambiguous words, but it is less clear how they develop:

How do learners extract statistical information about the distribution of word meanings from linguistic input?

METHODS

Participants
Adults aged 18-40
Monolingual English

Training
Pseudowords embedded in high-cloze sentences with a fixed word-meaning frequency distribution across the item set (dominant : subordinate meaning)
• Different distribution per experiment (e.g. 50:50, 80:20), depending on piloting

Tests
• Acceptability judgement (implicit)
• Speeded semantic relatedness (implicit)
• Neutral context meaning definition (explicit)
• Multiple-choice meaning selection (explicit)

Materials
10 disyllabic pseudowords
Associated with either a single meaning (unambiguous words) or two semantically unrelated meanings (homonyms), e.g. “bilo” = train/tree

HYPOTHESES AND EXPECTED RESULTS

If learners are sensitive to ambiguity in the words they learn, they should experience competition between meaning representations:
• unambiguous words > ambiguous words

If learners are sensitive to statistical information about word meanings, they should be able to access dominant meanings more readily compared to subordinate meanings:
• dominant meanings > subordinate meanings