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Proceedings of the Annual Meeting of the Cognitive Science Society

Title

Active Cross-situational Learning

Permalink

<https://escholarship.org/uc/item/6g6882n4>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 33(33)

ISSN

1069-7977

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Publication Date

2011

Peer reviewed

Active Cross-situational Learning

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Abstract: Human adults can acquire word-referent pairs from a short series of individually ambiguous situations containing multiple words and referents (Yu & Smith, 2007). Cross-situational statistical learning is sufficient for learners to passively acquire word-object pairs, as long as words co-occur with their correct referent multiple times in different contexts. However, learners in the real world are not completely passive, but can affect how their environment is structured to some extent. We compare performance in the original cross-situational word learning task to performance in an equivalent active learning task in which participants choose the objects they would like to hear named on each successive trial. Many learners perform much better in the active task, although some learners did well in both tasks. We investigate the various strategies utilized by active learners and show how a model with uncertainty can produce these strategies.