

The Disambiguation of Heterophonic and Homophonic Homographs in Hebrew: A Parallel Distributed Processing Account

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Abstract

Reading is a complex and highly skilled act that requires different sources of information (e.g., phonological, lexical and contextual). However, exactly how and when each type of information is utilized, though under extensive study in recent years, is still controversial and not fully specified. One of the main controversies in the field relates to whether or not phonological codes are involved in accessing the meaning of written words. We address this longstanding debate by examining how a fully recurrent connectionist network, as well as Hebrew readers process homophonic homographs (two possible meanings associated with a single visual and phonological form) versus heterophonic homographs (a string of letters associated with two different pronunciations each of which has a different meaning). Results indicate that heterophonic homographs and homophonic homographs are processed differently. When homographs are presented without a biasing context, only the dominant meaning is accessed. However, lexical access is longer for heterophonic homographs than for homophonic homographs. In addition, the subordinate meaning is initially more activated for homophonic homographs than for heterophonic homographs. These data suggest an important role of phonology in silent reading. Further research is required to address how context may constrain the processing of heterophonic versus homophonic homographs.