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Minimizing Expected Uncertainty in Visual Word Recognition: Are Readers Sensitive to the Distribution of Information across Word Forms?

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Abstract

Skilled readers are typically most accurate at identifying words when fixating them slightly left of the central character, the so-called optimal viewing position. There are two main explanations for this effect, which are not mutually exclusive. The first claims that the optimal viewing position lies left-of-center due to the particular constraints of the human perceptual system. The second explains the effect in terms of the beginnings of words generally being more informative about word identity. The complexities of natural languages make it difficult to tease apart the relative contribution of each explanation. We explore this issue through the lens of a Bayesian cognitive model and two experiments using artificial lexicons in which we can carefully control how information is distributed across wordforms. Our results replicate previous findings and further suggest that readers may use implicit knowledge about information distribution to minimize uncertainty when targeting words.