[S-3.3]

Reader targeting of words is guided by the statistical structure of the lexicon

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Skilled readers are typically more 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 statistical structure of the lexicon; specifically, the beginnings of words tend to be more informative about word identity, making a left-of-center fixation more advantageous. We explore human sensitivity to this structural property through the lens of a Bayesian cognitive model and two experiments using carefully controlled artificial lexicons. Our results show that readers are sensitive to the structure of the language, targeting different positions depending on whether the language they learned is more informative on the left or right. Furthermore, readers do not merely target the position that contains the most information, but rather the position that will yield the best view of the word overall, accounting for both information distribution and the asymmetry of the human visual span.