Rethinking morphology-based reading in Hebrew: New findings using a finger-tracking paradigm

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Morphology is crucial for written word recognition, particularly during orthographic representation formation. This is especially evident in Semitic languages like Arabic and Hebrew, where words combine intertwined root and pattern morphemes (e.g., Hebrew תזמורת *izmóret* 'orchestra', from root *z.m.r* in pattern *tiCCóCet*). Hebrew and Arabic orthographies provide partial, opaque vowel representation, requiring readers to rely on morpho-orthographic identification. While Hebrew studies have traced identification strategies, questions remain about how different morphological forms affect reading performance. Using corpus-based pseudowords, we simulated reading of 40 pseudo-nouns across Hebrew structures varying in morphological complexity and opacity. Twenty items contrasted structures with pattern-letters at both word boundaries (e.g., **ת**דלור**ת**, like **ת**זמור**ת**) versus one boundary (e.g., דלר**ת**, like זמר**ת** *zameret* 'female singer'), paired with controls. Another twenty compared three-root-letter structures (e.g., דלר, like זמר – *zamar* 'singer'/*zemer* 'singing') with two-root-letter forms with the first or last letter replaced by a pattern letter (representing defective root allomorphy). Items were grouped by length. As vowels are partially represented, multiple vowel pattern interpretations are possible. We examined how noun-structure type influences: (1) word reading speed, (2) decoding diversity (number of vowel patterns decoded per word), and (3) morpho-orthographic identification (accordance with real morphological patterns within morphologically-based pseudowords). Pseudo-nouns embedded in short sentences were read by 40 young adults using the ReadLet platform, an innovative finger-tracking method.

We predicted a length-by-morphological-structure interaction: while longer words would be more susceptible to accuracy errors and longer reading times, this effect would be mitigated in morphologically-structured words. Conversely, shorter non-structured words would exhibit greater decoding variability. Findings will be presented and discussed from a usage-based perspective and will offer a more nuanced understanding of the contexts in which morphology facilitates word identification. While focused on Hebrew, the study's methodology and insights offer broader linguistic implications, potentially extending to other writing systems.