Processing letter position in transparent scripts: Insights from Korean hangul

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This study investigates how the orthographic transparency and spatial configuration of Korean Hangul influence letter identification strategies during visual word recognition. Using pseudowords composed of 24 basic Korean letters arranged according to Hangul's syllabic structures (CVC-CV and CV-CVC), we created stimuli that closely resembled real words. While previous research has debated whether Hangul is processed at the syllabic or phonemic level (Kim, 2007), our focus is on letter position encoding and whether orthographic transparency alone determines processing strategies. Ktori and Pitchford (2008) thus claimed that transparent orthographies are associated with sequential grapheme processing, whereas deeper orthographies exhibit a mix of parallel and serial strategies.

Despite Hangul's high orthographic transparency—81.9% for phoneme-to-grapheme and 97.5% for grapheme-to-phoneme mappings (OTEANN model; Marjou, 2019)—a visual search task with 59 native speakers revealed signs of parallel processing. Specifically, participants identified the first letter of a second syllable as quickly as, or faster than, the final letter of the preceding syllable, regardless of structure. This absence of a slowdown contradicts a strictly sequential scanning model and supports syllable-based word recognition in Korean.

Within syllables, processing strategies varied by structure. Letters in CV syllables were identified in parallel, while CVC syllables exhibited either parallel or serial scanning depending on the presence of a following syllable. Thus, both syllabic complexity and position within a word influence letter accessibility. These findings support the view that Hangul's hybrid nature—alphabetic in components but syllabic in organization—shapes recognition strategies. Moreover, the results challenge the orthographic transparency hypothesis by demonstrating that letter position encoding interacts with script-specific spatial features.

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