processing phonological (e.g., as in rhyming, accent-cued or syllable-cued word retrieval, etc.) and semantic relations among words (e.g., as in synonyms, antonyms, homophones, polysemous words and so on) may be more sensitive in determining subtle changes in word retrieval in preclinical AD than the standard uency tests. As an example, a category-cued uency test is inspecting for only one type of semantic relations, regardless of how many categories or which type of category is involved (most commonly tested categories are animals, fruits/vegetables, and tools). It would be more informative to determine how resilient in preclinical AD the links between more- vs. less-closely associated words are. Similarly, letter-cued verbal uency tests target a single type of retrieval, regardless of whether the cue is a speci c letter (F, A, S), if it is an initial vowel or consonant, or whether the letter is in a speci c position (e.g., word initial vs. nal). Tests that would target more processes related to word form aspects of retrieval would include, for instance, rhyming-based, accent- or syllable-matching retrieval, among others.

Considering the hypothetical model of staging of AD [18], it remains a theoretical possibility that CN elderly persons retain normal word retrieval as they age, as long as their AD biomarkers' values remain within the normal range. In contrast, CN persons with positive AD biomarkers would have the type of word retrieval de cit related to phonological access that was previously ascribed to "normal" cognitive aging. If corroborated, this would suggest that word retrieval de cit in AD begins with the deterioration of phonological access, which is followed by weakening of semantic associations among words; as the disease further develops, the semantic de cit becomes more salient leading to a full-blown loss of concepts at the dementia stage. If this model is correct, then a transition from the deterioration of lexical associations between words in MCI to deterioration of concepts and conceptualization processes in those MCI patients who have converted to AD may serve as a cognitive marker of disease progression. More importantly, the model provides a context for testing the hypotheses on subtle changes in lexical memory in preclinical AD. us, unlike the traditional approaches to word retrieval di culties in typically

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