

Linguists track impact of cognitive decline across three decades of one writer's diaries

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Researchers at the University of Toronto (U of T) specializing in language variation and change have identified a specific relationship between an individual's use of language, and the transition from healthy

to a diagnosis of severe dementia.

In a study of diary entries by Toronto resident Vivian White over a 31-year period, the researchers tracked the omission and then inclusion of the first-person pronoun "I" and found the transition occurred around the time she was diagnosed with Alzheimer's disease.

The diaries span the period from 1985 to 2016, from age 60 to 90. Throughout the first 24 years, White omitted a subject up to 76 per cent of the time (e.g. March 23, 1985: "Made cranberry muffins"). In contrast, following her diagnosis with Alzheimer's at age 84, she included the pronoun "I" 100 per cent of the time (e.g. January 1, 2016: "I made cranberry muffins.")

"This suggests that individuals may revert back to a more formal, fundamental writing style when they experience cognitive decline," said Sali Tagliamonte, a professor in the Department of Linguistics in the Faculty of Arts & Science at U of T, and Canada Research Chair in Language Variation and Change.

"Diary writing is a style, and one that is known to have complex constraints in which the subject 'I' is often omitted in specific locations" Tagliamonte said. "It's a learned behavior acquired at a later stage than more basic writing or acquisition of the vernacular [language](#). Research on bilinguals with probable Alzheimer's Disease has shown that languages learned later in life tend to be lost earlier. Our results suggest that the same might be true for styles acquired later in life."

"It is rare to find 97 continuous journals across such a lengthy timespan," said Tagliamonte. "The results show how [longitudinal studies](#) can illuminate important aspects of cognitive development and call for further studies of speakers with Alzheimer's disease and other forms of dementia from a language variation and change perspective."

Ph.D. Candidate Katharina Pabst, who collaborated with Tagliamonte on the project, notes that most research in language change has focused on the innovations present in younger speakers, and that comparatively little work has been done on language change across the lifespan and among older adults. However, previous work from related disciplines shows that the use of several linguistic features can and does change in later life.

Since White only began keeping a journal in earnest later in life and while still healthy, the collection provided a perfect opportunity for the researchers to investigate the possibility of a relationship between language change and [cognitive decline](#) over time.

Tagliamonte and Pabst will present their findings this month at the annual New Ways of Analyzing Variation conference, held October 10-12 at the University of Oregon. Support for the research was provided by the Social Sciences and Humanities Research Council of Canada and the Canada Research Chairs Program.

Provided by University of Toronto

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