

RESEARCH DIRECTIONS

I say bears, you say beers

Professor Catherine Best and Dr Jason Shaw from The MARCS Institute and the School of Humanities and Languages, Dr Bronwen Evans from University College London, Professor Jennifer Hay from the University of Canterbury NZ, Professor Gerard Docherty from Griffith University and Professor Paul Foulkes from the University of York are exploring how we recognise spoken words and understand their meaning when their pronunciation varies wildly from one part of the world to another. This Australian Research Council Discovery project will highlight the problems posed by unfamiliar accents for those learning English as a second language or who have language impairments, and the difficulties regional accents pose for speech recognition technology.

‘We apprehend words effortlessly in conversation, rarely noticing how we rely on their exact pronunciation until we encounter a different regional accent,’ says Professor Best. ‘The way words are pronounced varies from one regional accent to another, especially for languages as globally dispersed as English. This raises a fundamental question: *How do we recognize that a word by any other pronunciation is still the same word?*’

Operating on the basis that words have a stable identity however they’re pronounced is essential for effective oral communication. Different accents may slow or disrupt comprehension in toddlers, children with language disabilities such as autism and older listeners. And automatic speech recognition (ASR) research has failed, despite decades of effort, to generalise words spoken in accents that an ASR system has not encountered before.

This project will test how listening experience affects recognition of words spoken in previously unfamiliar accents. More than 800 speakers and listeners will be “perceptually adapted” to five



accents – Australian, New Zealand, Cockney, York and Geordie (Newcastle UK) English – by exposure to multi-talker readings of an adult-oriented version of the well-known children’s story *Chicken Little*. The way listeners deal with accent variation will help to solve the puzzle of how episodic knowledge (memory of specific utterances) and abstract knowledge (using consonants and vowels, or phonemes, of a word) combine to help us recognise and understand speech. Researchers will also conduct computational modelling of cross-accent word recognition.

The British general who heard the Aussie soldier say he’d come *to die*, rather than *today*, has passed into linguistic history. But this project’s results will offer insights and prompt solutions for a very 21st-century problem, as the world’s English accents bump into each other and into technology more and more.

Project Title: You came TO DIE?! Perceptual adaptation to regional accents as a new lens on the puzzle of spoken word recognition.

Funding has been set at: \$501,000

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