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Hello, who is this? The relationship between linguistic and speaker-dependent information in the acoustics of consonants

Smorenburg, B.J.L.

Citation

Smorenburg, B. J. L. (2023, June 28). *Hello, who is this?: The relationship between linguistic and speaker-dependent information in the acoustics of consonants*. LOT dissertation series. LOT, Amsterdam. Retrieved from <https://hdl.handle.net/1887/3627840>

Version: Publisher's Version

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Note: To cite this publication please use the final published version (if applicable).

Hello, who is this?

The relationship between linguistic and speaker-dependent information in the acoustics of consonants

This dissertation investigates the relationship between linguistic factors and speaker-dependent information in speech sounds, with a particular focus on the Dutch language and on fricative and nasal consonants. Using spontaneous telephone speech corpora, this work provides an empirical contribution to forensic speech science by aiming to answer the question of whether acoustic-phonetic features from consonants should be extracted from and compared across different linguistic environments, also considering the recording condition.

This thesis reports the results of a number of studies on the sources of variation in consonant acoustics. First, it analyses the role of phonetic context and syllabic position for speaker variation that is present in fricative and nasal consonants, which have previously been shown to be useful sounds in forensic speaker comparisons. Second, the interactions between linguistic effects and recording conditions (telephone versus microphone) are investigated. Finally, forensic strength-of-evidence was derived using Bayesian likelihood-ratio modelling to determine the practical consequences of these findings to forensic speaker comparisons.

ISBN 978-94-6093-432-2

DOI <https://dx.medra.org/10.48273/LOT0647>

Laura Smorenburg

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