

Tom Lentz

## Phonotactic Illegality and Probability in Speech Perception

Evidence from second language listeners

This book presents empirical evidence on the influence of phonotactics on speech perception, as well as a theoretical inventory and discussion. There are many different viewpoints on phonotactic knowledge: it can be described categorically, as the theory of legality of sound combinations, or gradiently, as a theory that explains the probability of sound combinations. This thesis does not start from linguistic considerations about phonotactic theory, but from evidence on the application of phonotactic knowledge in speech perception. Phonotactic knowledge allows listeners to resolve ambiguities, filter out incorrect structures and segment speech into words. Hence, the acoustic input is transformed to be in accordance with phonotactics. By contrasting the predictions of different theories of speech recognition and of phonotactics, the experiments reported in this thesis give insight in the psychological representations of phonotactics, as well as the process of applying this knowledge to the perception of speech. The experiments include second language listening, as the application of phonotactics from one language to another language reveals the independent contribution of phonotactics. The last chapter of this book includes a discussion of the evidence, leading to the proposal to include a phonotactic preparer in models of word recognition. This preparer has the function of ordering all phonotactically possible interpretations of the acoustic input and removing the impossible percepts. The benefit of the preparer is that it makes it unnecessary to look up improperly interpreted speech in the lexicon. The preparer can explain the experimental evidence on phonotactic effects in speech perception.

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