This dissertation investigates the learnability of grammatically vs. lexically assigned word stress. The learning process is computationally modelled within an Optimality Theoretic framework. The results show that even if they acquire the same language, learners can end up with different grammars. Moreover, the results suggest that first language learners can bootstrap into the phonology of a language by making use of the meaning of a form in combination with its phonetic content.

The proposed model employs four levels of representation: a phonetic representation, a surface phonological representation, an underlying phonological representation, and a representation of meaning. These different levels are connected to each other by different families of constraints. In the comprehension process, the relation between the phonetic form and the phonological surface form is determined by structural constraints. In both the comprehension process and the production process, the relation between the phonological surface form and the phonological underlying form is determined by faithfulness constraints, whereas the relation between underlying form and meaning is determined by lexical constraints. The implication of the last point is that there is no strict demarcation between grammar and lexicon.

This study is of interest to linguists working in computational models of learnability and language acquisition, as well as metrical phonology and Optimality Theory.