Modeling the dynamics of use and acquisition in language change

Languages change: A speaker of Modern English would be hard-pressed to make small talk with a speaker of Old English, let alone hold a conversation. How is it that such dramatic differences come about and how can we investigate the causes of change? Given that the linguistic expressions of one generation serve as input to the next, both the use of language in communication and its acquisition through learning are crucial factors in change. In this talk I present formal and quantitative tools for investigating the roles of use and acquisition. In particular, I show how use and acquisition interact and give rise to a cross-linguistically attested historical change in the expression of negation known as Jespersen’s Cycle. The cycle, which can be seen in the history of negation in English, is characterized by two major transitions: from pre-verbal to bipartite negation (ne V > ne V not; where V stands for verb), and from bipartite negation to post-verbal negation (ne V not > V not). I address each transition in turn. First, drawing on experimental evidence of biases in communication, I show how the first transition can be derived from a formal game-theoretic model of information transmission. Second, through a quantitative corpus analysis of Middle English, I show how the first transition changes the evidence available to learners about the structure of negation, ultimately leading to the second transition. Finally, using statistical methods developed in population genetics, I assess alternative hypotheses regarding the causes of both transitions and find that the cycle is best understood as the interaction of use and acquisition. These results offer us an understanding not only of one particular change, but also of how a broad range of factors can be integrated into an explanatory theory of language change.