How does language change take place and could developments be predictable? In this study, Arjen Versloot evaluates these questions, supported by analysis of the decline in the use of unstressed vowels in the Frisian language between 1300 and 1550. This decline is found, for example, in the words: Old Frisian *sitta* ‘to sit’ > Modern Frisian *sittie* and Old Frisian *sone* ‘son’ > Modern Frisian *soan*.

The study presents two models of language change. Model one considers the duration and intensity of vowels in individual words, rather than abstract, underlying phonemes. The order and timing of vowel reduction can thus be predicted with 95% accuracy over a period of 200 years.

In the second model, the language user is regarded as a ‘calculating speaker’, evaluating what he hears from others, estimating the reception by listeners, and is little lazy in his articulation. With an accuracy of over 90%, the model predicts the order and timing of changes in verbal and nominal endings where vowel reduction is involved.

These results of the study support the hypothesis of language as a deterministic, dynamic system, where the ‘grammar’ and its change are the outcomes of self-organization in the language system.

The models are fed with detailed data from late-medieval Frisian texts, providing a significant amount of new information about Open Syllable Lengthening, Vowel Balance, Vowel Harmony and Apocope/Syncope. One of the remarkable conclusions is that 15th and 16th centuries Frisian was probably a tonal language, just like modern Norwegian.