

TITLE: Granger Causality, Information Theory, and Language Change:  
Assessing the Causal Relations for Change across the Tiers of Icelandic Grammar

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ABSTRACT:

Understanding how and why languages change is a major goal of linguistics. It is long hypothesized that change at one level of grammar causes changes at other levels. This is traditionally investigated by comparing the periods during which particular constructions are documented. Such analyses are unable to demonstrate causation. Instead of investigating individual linguistic constructions, I propose that a quantitative macroscopic approach -- abstracting away from the details of individual constructions-- is better suited to address causal relations between change at different levels of the grammar. Using a combination of information theory and time series analyses on a large diachronic corpus of Icelandic, I provide the first explicit demonstration that changes in the internal structure of words (morphology) cause changes in the language's syntax (and not viceversa). The results support a system where change is not steady, but bursty, as in a 'punctuated equilibrium'.