Contact ↔ analogy ↔ innovation: mapping cascades in the loss of the Middle Norwegian nominative

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In 1968, Weinreich, Labov & Herzog famously define the 'actuation problem' as one of the central unsolved questions of historical linguistics. In their framing:

> Why do changes in a structural feature take place in a particular language at a particular time, but not in other languages with the same feature, or in the same language at other times?

This is a problem of prediction. Languages are complex systems built upon complex systems and so their evolution may be chaotic: just as no event in social history is fully predictable, the actuation problem in its strictest form may be unsolvable. Yet just as in social history, big changes in language history can typically be broken down into many much smaller components, and for these, cause and effect can often be identified and so timing explained. Viewed this way, the actuation problem may become more tractable.

In this paper I will follow this line of reasoning through an exploration of the loss of the nominative case in Middle Norwegian (for traditional accounts of this change cf. Indrebø 1951, Seip 1955, Mørck 2005). Using data from over 4000 medieval charters (cf. Mørck 1999), we can see that this changed progressed by a slow *s*-curve over the period 1350-1500. However, breaking the change down into a series of microparametric changes in single lexical items or narrowly defined morphological contexts ('micro-changes', cf. Mathieu & Truswell 2017) we instead see much more rapid *s*-curves, some taking as little as two decades. The gradual *s*-curve for the whole dataset is partly due to the accumulation of these individual micro-changes (a picture reminiscent of lexical diffusion in phonology, cf. Wang 1969). The frequency of micro-changes gradually accelerates, suggesting a picture in which each micro-change is triggered by analogy with those which have already taken place (the 'snowball effect' of Ogura & Wang 1991). The more that have taken place, the more are likely to take place, resulting finally in a cascade which constitutes the macro-change described in traditional histories as 'the loss of the nominative'. This can be modelled using conformity-driven stochastic models of variable grammars across a population of speakers, following the method described in Burridge, Blaxter & Vaux (2020); such modelling also allows us incorporate the assumption that lexical items are more susceptible to analogical influence from formally similar lexical items, creating clusters of micro-changes.

Using kernel smoothing then allows to examine not only the timing but also the geography of these changes (Blaxter 2019, 2021). Most follow the same spatial pathway, running north-to-south and east-to-west across Norway, even though they may be separated by a century from each other. This confirms a picture in which micro-changes both spread by contact and are also innovated internally through a build-up of analogical parallels: the places where the previous micro-changes are most advanced are therefore the places where the next are most likely to be innovated. The final picture is still not one in which the actuation of either micro- or macro-change is fully predictable. Nevertheless, the factors influencing the likelihood of micro-changes are clear, and the overall trajectory of the macro-change appears inevitable once the initial micro-changes have taken place.

References

Blaxter, Tam. 2019. Ther varom mid j hia: Tracing linguistic diffusion in the history of Norwegian using kernel density estimation. *Dialectologia et Geolinguistica* 27(1). 5–34. https://doi.org/10.1515/dialect-2019-0002.

Blaxter, Tamsin S. T. 2021. *Diachronic dialectology: new methods and case studies in medieval Norwegian* (Publications of the Philological Society 53). Chichester, United Kingdom: Wiley Blackwell.

Burridge, J., T. Blaxter & B. Vaux. 2020. Evolutionary paths of language. *EPL (Europhysics Letters)* 128(2). 28003. https://doi.org/10.1209/0295-5075/128/28003.

Indrebø, Gustav. 1951. *Norsk målsoga*. Bergen: J. Griegs boktr.

Mathieu, Eric & Robert Truswell (eds.). 2017. *Micro-change and Macro-change in Diachronic Syntax*. Vol. 1. Oxford University Press. https://doi.org/10.1093/oso/9780198747840.001.0001.

Mørck, Endre. 1999. Sociolinguistic studies on the basis of medieval Norwegian charters. In Ernst Håkon Jahr (ed.), *Language change: advances in historical sociolinguistics*, 263–290. Berlin: Mouton de Gruyter.

Mørck, Endre. 2005. Morphological developments from Old Nordic to Early Modern Nordic: Inflexion and word formation. In Oskar Bandle, Ernst Håkon Jahr, Allan Karker, Hans-Peter Naumann, Ulf Teleman & Kurt Braunmüller (eds.), *The Nordic Languages: An International Handbook of the History of the North Germanic Languages*, 1128–1148. Berlin, New York: Walter de Gruyter.

Ogura, Mieko & William S-Y. Wang. 1996. Snowball Effect in Lexical Diffusion: The Development of -s in the Third Person Singular Present Indicative in English. In Derek Britton (ed.), *English historical linguistics 1994: papers from the 8th International Conference on English Historical Linguistics (8. ICEHL, Edinburgh, 19-23 September 1994)* (Amsterdam Studies in the Theory and History of Linguistic Science v. 135), 119–141. Amsterdam ; Philadelphia: J. Benjamins.

Seip, Didrik Arup. 1955. *Norsk språkhistorie til omkring 1370*. 2nd edn. Oslo: H. Aschehoug & Co.

Wang, William S-Y. 1969. Competing Changes as a Cause of Residue. *Language* 45(1). 9. https://doi.org/10.2307/411748.

Weinreich, Uriel, William Labov & Marvin Herzog. 1968. Empirical foundations for a theory of language change. In Winfred P. Lehmann & Yakov Malkiel (eds.), *Directions for Historical Linguistics*, 97–195. Austin/London: University of Texas Press.