

## Phoneme change and cognition: A neurolinguistic approach on cross-dialectal comprehension

While communicating, differences in speakers' dialect phoneme inventories may cause comprehension difficulties, which may lead to competence modifications. Misunderstandings during communication caused by such dialect differences are thus thought to trigger dialect change (Labov, 2010; Schmidt & Herrgen, 2011). For the most part, previous findings are based on production data, but neurolinguistics experiments using electroencephalography (EEG) can also help to gain a better understanding of the effects caused by cross-dialectal communication. The main advantage of such studies is that they provide an insight into speech processing of linguistic stimuli in the range of milliseconds. For the investigation of neural effects involved in phoneme change processes, it is essential to adapt classic event-related potential (ERP) designs to the requirements of dialectology.

Using production data from the end of the 19<sup>th</sup> (*Sprachatlas des deutschen Reichs*) and 20<sup>th</sup> century (*Bayerischer Sprachatlas*) a phoneme change from /*oa*/ to /*o:*/ and /*ou*/ can be observed in the Middle High German (MHG) *ô* phoneme (e.g., *Brot* 'bread', *Rosen* 'roses'). It is assumed that these competence modifications are triggered when Central Bavarian listeners systematically misunderstand the variants used by the Bavarian-Alemannic speakers in interaction (Schmidt & Herrgen, 2011).

This talk presents an ERP study in which cross-dialectal communication between Bavarian-Alemannic speakers and Central Bavarian listeners is simulated. Using an adapted oddball design containing full sentences combined with a semantic rating task, Central Bavarians were exposed to Bavarian-Alemannic dialect variants which either have different meanings in both of the dialect areas (/roasn/ 'roses' respectively 'journeys') or only occur in the Bavarian-Alemannic transition zone (/loas/ 'sow'). Since /*ou*/ and /*o:*/ appear jointly as a result of the phoneme change, this contrast is investigated as well (/lõ:/, /lõũ/ 'wage'). The central question is whether different neural effects can be elicited for these contrasts. The results indeed show a mismatch detection between expected (native) and encountered (non-native) dialect forms resulting in an N200 and late positive component (LPC) for /roasn/ and /loas/ which is absent for /lõũ/ (Lanwermyer et al., 2016; Lanwermyer, 2019). These results support the assumption that non-native dialect variants lead to enhanced neural costs during cross-dialectal comprehension. The phoneme change can thus be interpreted as a strategy to avoid costly communication difficulties in close dialect contact settings. Hence, neurolinguistic experiments allow a deeper insight into the interplay between speech cognition and interaction which cannot otherwise be achieved by production data.

## References

- Labov, William. (2010). *Principles of linguistic change: Volume 3: Cognitive and cultural factors* (Language in Society 39). Malden, Oxford: Wiley-Blackwell.
- Lanwermyer, Manuela. (2019). *Sprachwandel und Kognition: Elektrophysiologische Untersuchungen zu Synchronisierungen im Varietätenkontakt* (Zeitschrift für Dialektologie und Linguistik. Beihefte 177). Stuttgart: Steiner.
- Lanwermyer, Manuela, Karen Henrich, Marie J. Rocholl, Hanni T. Schnell, Alexander Werth, Joachim Herrgen & Jürgen E. Schmidt. (2016). Dialect variation influences the phonological and lexical-semantic word processing in sentences: Electrophysiological evidence from a cross-dialectal comprehension study. *Frontiers in Psychology* 7:739.
- Schmidt, Jürgen E. & Joachim Herrgen. (2011). *Sprachdynamik: Eine Einführung in die moderne Regionalsprachenforschung* (Grundlagen der Germanistik 49). Berlin: Erich Schmidt Verlag.