Swe-Clarin research collaborations at the Humanities Lab, Lund University
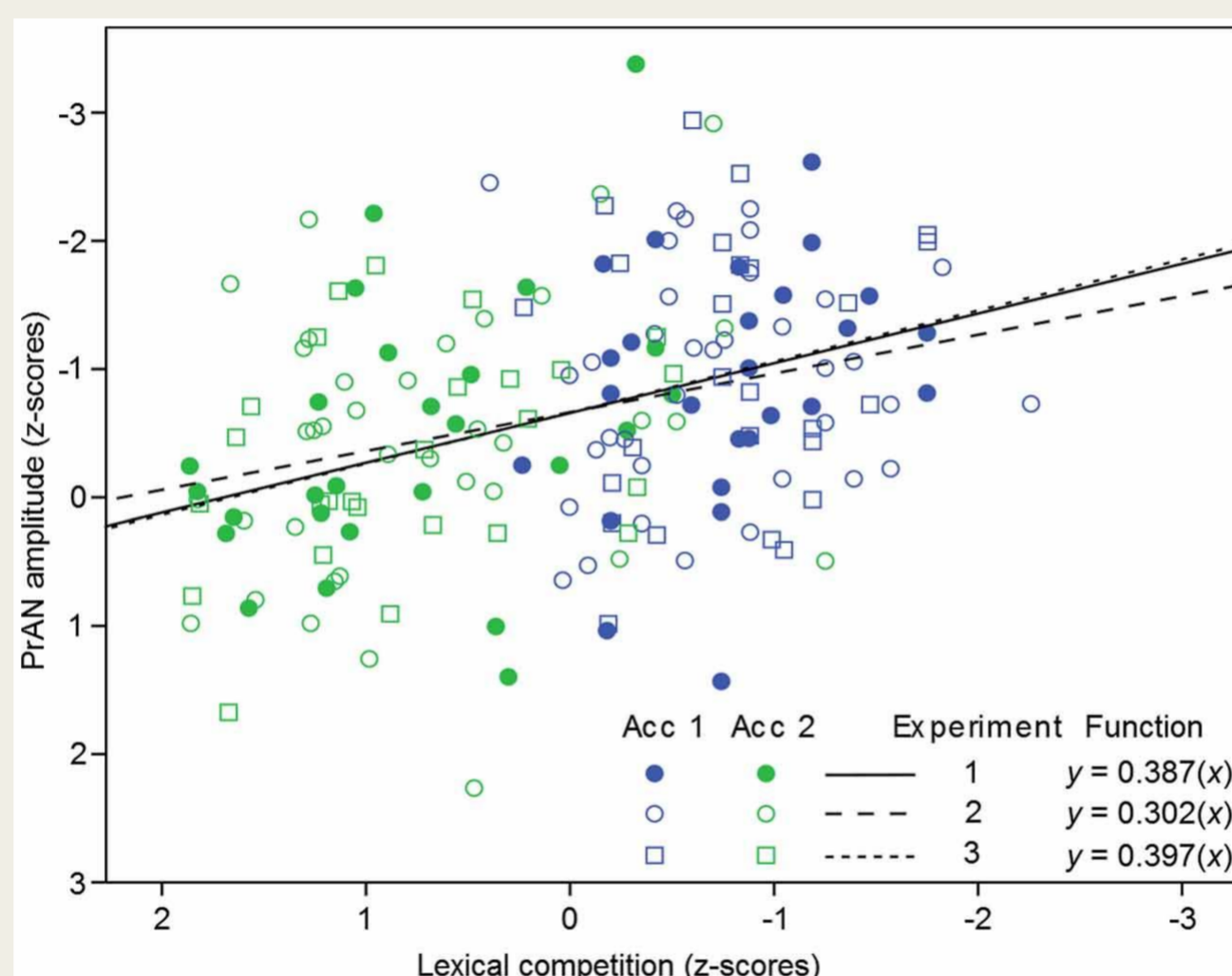
Johan Frid

ERP-lexical competition

- Neurolinguists (Pelle Söderström, Mikael Roll and Merle Horne, LU).

- Investigates a proposed ERP effect, the pre-activation negativity (PrAN).

  - accent 1 has been found to give rise to a slightly left-lateralized increased negativity over frontocentral electrode sites at 136–280 ms as compared to accent 2
  - Hypothesises that this is related to lexical competition

- **Swe-Clarin**: Development of a method for calculation of a lexical competition score.

- Database of word initial fragments (WIFs) and syllables from the Swedish NST lexicon; frequency filtered with word frequencies from the Swedish PAROLE corpus.

Test at: https://goo.gl/kDi04J

- PrAN is sensitive to lexical competition, in particular to the number of continuations which can complete a given word-initial fragment.

- Published in Söderström et al (2016a, b).

Söderström P, Horne M, Frid J and Roll M (2016a) Pre-Activation Negativity (PrAN) in Brain Potentials to Unfolding Words. Front. Hum. Neurosci. 10:512.
Söderström, P, Horne, M, Frid, J and Roll, M (2016b) A brain potential signalling linguistic pre-activation?: an analysis of the pre-activation negativity (PrAN). Annual Meeting of the Society for the Neurobiology of Language.

MEPAC

- Project run by Anna W Gustafsson (Swedish, LU) and Charlotte Hommerberg (English, Linné).

- Investigates the use of metaphor in the experience of end-of-life care.

- **Swe-Clarin**: Corpus based on blogs by patients, family carers and healthcare professionals.

- Development of a Swedish version of the UCREL semantic analysis system (Lancaster) which will aid the detection of metaphors.

- Swedish model for the TreeTagger POS system

  - Test at: https://goo.gl/7hk3mK

- Additional funding from the Crafoord foundation.

MUMOP

- Project on multimodal prominence (Gilbert Ambrazaitis, LU & David House, KTH).

- Interplay of verbal prosody (pitch accents) and visual prosody (head and eyebrow beats).

- Word-based annotation of head and eyebrow movements based in video data.

- **Swe-Clarin**: Development of a system for training a classifier to recognise head movements in video data.

L: Face detection using OpenCV; x-y coordinate of white dot
R: Angular velocity (red) and word intervals (blue) as a function of time

- Train: features of temporal functions.

- Predict: labels (movement/no movement).

- 85% correct (xgboost; baseline 78%)

- Presented at MMSYM 2016 and at the Swe-Clarin inauguration event.

Frid, J, Ambrazaitis, G, Svensson Lundmark, M & House, D (2016). Towards classification of head movements in audiovisual recordings of read news. MMSYM 2016.

MDCS

- eSSENCE-funded project run by Jonas Björk at the Division of occupational and environmental medicine, LU.

- **Swe-Clarin**: Information extraction from scientific articles. NLP methods to extract information such as the hypothesis, the data set, the statistical method used etc.

- PLOS abstracts -> CoreNLP -> labels -> nbsvm.

- Prototype: