A wish list for multilingual intonation training

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Intonation is an important carrier of linguistic meaning, and is therefore an essential part of L2 pronunciation. It is also probably the most difficult part to implement in a systematic and scalable way in an L2 pronunciation training platform in which exercises are based on cross-language comparison: This requires an agreed system for cross-language intonation labeling (IPrA), a multilingual database which reflects the use of intonational categories in different languages, and knowledge about how L1 affects the perception and production of L2 intonation.

The multilingual L2 pronunciation training platform CALST (*Computer-Assisted Listening and Speaking Tutor*) has been developed as a complement to foreign language courses. Besides vocabulary training, it offers exercises for Norwegian sound contrasts, consonant clusters, word stress, word accents and (on a very basic level) intonation. The aim is to offer L2 learners exercises in each of these areas dependent on their native language. This requires a) access to databases which contain relevant typological information and b) knowledge about the way typological differences affect L2 acquisition. These two information sources are not always available. In the talk, we shall explain how this type of information is used to tailor exercises to the learner's native language, and we shall also explain the limitations of this approach. Special attention will be given to the word accent and intonation exercises (for focus and particle verbs) developed for Norwegian. To make up for lacking speech typological and L2 acquisition knowledge, all user results are logged together with the learner's L1, offering the possibility to a) generalize these to other learners with the same L1 and b) hopefully analyze them in terms of L2 acquisition theories.

A wish list for multilingual intonation training would provide answers to the following questions:

- Is it possible to define a consistent cross-language IPrA labels at the broad phonetic level?
- Is it possible to define how these signal different meanings?
- How transferable are L1 pitch accents or boundary tones to signal other meanings in L2?
- Is it possible to define the perceptual distance between intonation contours in a way that reflects their perception by native speakers of the L2?
- Would a granularity of IPrA labels which reflects only distinctions which are phonological (can signal different meanings) in *any one* language suffice to guarantee comprehensibility in L2 intonation?
- Is it possible to determine the frequency of use of IPrA labels to signal a given meaning in order to enable high-variability "immersion" L2 intonation training?
- What are the most important intonational phenomena for L2 training?

The availability of a cross-language intonation database and a platform logging the responses from L2 intonation exercises may help to further our understanding of L2 intonation. A platform like L1-L2*map* (https://l1-l2map.hf.ntnu.no), extended with intonational information which can be used for contrastive analysis, could be used by researchers as a basis for investigating L2 intonation acquisition. Unfamiliar (use of) L2 intonation labels could be linked to listening and pronunciation exercises in a pronunciation training system like CALST (https://www.ntnu.edu/isl/calst). Since CALST logs all user responses in a results database, this can form a basis for intonational analysis which maybe can help to advance our understanding of the L2 acquisition of intonation.