Prosody transfer -- Evidence from German speakers acquiring Mandarin tones

Tingting Brengelmann[1] **& Martine Grice**[2]
[1,2] IfL Phonetik, University of Cologne, Germany;
wut@smail.uni-koeln.de; martine.grice@uni-koeln.de;

It has been reported that although producing lexical tones in citation form is unproblematic for English native speakers acquiring Mandarin Chinese, these same speakers appear to have great difficulties producing tones in connected speech (Shih, 2010). It is highly plausible that German learners of Mandarin encounter the same problems. In fact, even advanced German learners appear to struggle with implementing lexical tones correctly at the utterance level. This study investigates just such productions in sentences read aloud.

All four full lexical tones, as well as the lexically defined neutral tone, were embedded in short Chinese sentences with different preceding and following tonal contexts.

Results show that German learners appear to produce one or two syllables in a sentence, typically in initial and final position, as if they were pitch accents, and produce other, mainly medial, syllables in a similar way to how they would produce unaccented words in German. For these advanced learners, the F0 trajectory on the medial words was relatively flat, showing little evidence of tonal targets on these syllables. Their F0 patterns resemble those of intonation languages (and, more specifically, German, Grice & Baumann, 2007), where there is interpolation between accented syllables, and are distinct from the native patterns for which there are clear targets for each syllable (see fig. 1). Another striking difference between native and learners' productions was in the realisation of the neutral tone. Although in Mandarin syllables bearing neutral tones are unstressed, they nevertheless have targets (Chen & Xu, 2006). Results indicate that the learners did not have an independent target for these syllables, but rather extended the F0 value at the end of the previous syllable, producing a flat stretch of F0 over the syllable with neutral tone. Native productions showed clear evidence for an independent target (see fig. 2).

Our results suggest that the sparse distribution of tone in intonational languages like German transfers to production of utterance-level lexical tones in Mandarin. Although learners are aware of the lexical tones, they still have great difficulties in overcoming suprasegmental influences from their L1, even at an advanced level.

Chen, Y., & Xu, Y. (2006). Production of weak elements in speech: Evidence from neutral tone in Standard Chinese. Phonetica 63: 47-75.

Grice, Martine & Stefan Baumann (2007). An Introduction to Intonation – Functions and Models. In Trouvain, Jürgen & Ulrike Gut (eds.): Non-Native Prosody. Phonetic Description and Teaching Practice. Berlin, New York: De Gruyter (= Trends in Linguistics. Studies and Monographs [TiLSM] 186), 25-51.

Shih, Chilin, & Hsin-Yi Dora Lu (2010). Prosody Transfer and Suppression: Stages of Tone Acquisition. Speech Prosody 2010 100968:1-4.

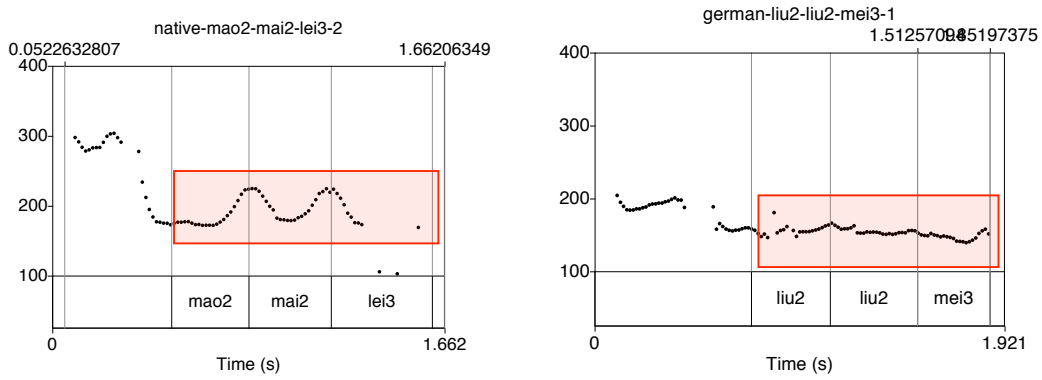

Fig.1: F0 trajectories including sequences of two Rising tones followed by a Low tone. On the left: "*Zhāng Xiǎo Máo mái lěi"* ("Zhang Xiaomao buries buds") for a native speaker. On the right: „*Zhāng Xiǎo Liú liú měi"* ("Zhang Xiaoliu retains magnesium") for a German speaker.

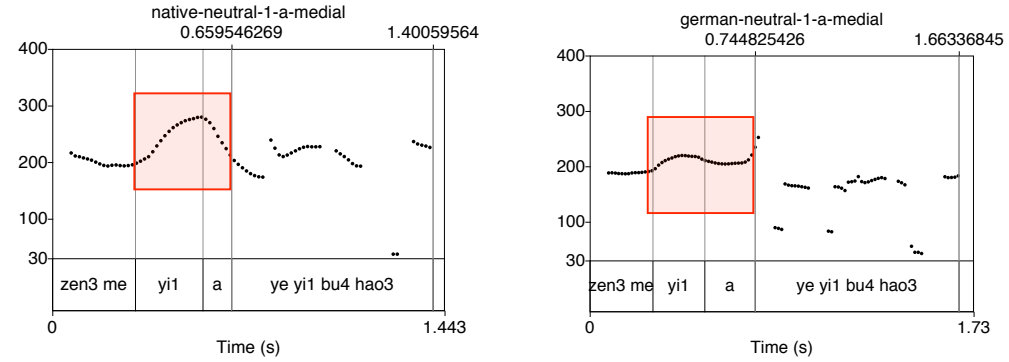

Fig2: F0 trajectory of sentences with a neutral syllable "a" in medial position: "*Zěn me yī a ye yī bù hǎo*" ("No matter how the doctor treats him, he will not be healed"). Native production is on the left, German production is on the right.