Abstract: On the Perception and Production of German rounded front vowels by a Naïve Native Speaker Listener of English

The study at hand is a case study on the perception and production of German front rounded vowels /y/ and the tense counterpart /y:/, as well as /ø/ and its tense counterpart /ø:/. The naïve native speaker of English is usually unfamiliar with rounded front vowels. American English, (and Canadian, which is a variant thereof) does not have rounded front vowels, but only unrounded ones. The aim of the study was to investigate to what vowels of the L1 American English phonetic inventory the foreign German vowels would be assimilated.

In a perception study, Levy and Strange (2009), who conducted a similar study on French and German rounded front vowels, reported systematic assimilations from /y/ to /u/ and /ø/ to /ʌ/ by American naïve listeners, suggesting that they would perceive the manner of articulation (rounded), but not the place of articulation (frontedness).

The participant of this study was a 46-year-old female native speaker of American English from Victoria, BC, Canada. She reported that she was normal-hearing and had never been exposed to German before. She participant underwent a production and perception task of German front rounded vowels. The stimuli for the production task included a word list of German real mono- or disyllabic words of the two German rounded front vowels and their lax counterpart, including a variety of distractors. She was asked to repeat the tokens she heard after the researcher (a native speaker of German). For the perception task, 80 tokens containing the critical German target vowels, as well as 16 distractors, were recorded by a German native speaker. They were then embedded into an English carrier sentence "I have three gəCVCə". The targeted vowels would always occur in either bilabial or alveolar context. The participant was then given a practice

sheet with underlined vowels of English, such as m<u>oo</u>d, b<u>e</u>d, g<u>oo</u>d, h<u>i</u>d, b<u>a</u>d, l<u>a</u>te. Upon listening to the sentences containing the German rounded front vowels, she was asked to circle the English word containing the vowels that resembled those that she had heard in the stimuli the most. Additionally, the sheet also contained a 'goodness' rating scale from 1-7 for the participant to rate the quality of the German vowels /ø/ and /y/ and their tense counterparts. The results of the production study revealed that the subject produced almost all German front rounded vowels /ø/ and /ø:/ in the right place and manner of articulation without significant foreign accent, the only exception being two stimuli, for which she substituted /ø/ for /ɛ/. For German /y/ and /y:/, the subject consistently substituted American English /ʊ/ and /u:/. It stood out that the roundedness of /y:/ outweighed the feature of frontedness to the participant. For the perception task, the subject showed an overall assimilation pattern of German /ø:/ and /ø/ to /u:/ and /ʌ/, whereas /y:/ and /y/ were consistently assimilated to /u:/ and / ʊ/. Moreover, the German /y:/ vowels received high goodness ratings on the 1-7-Likert scale.

References:

Strange, W., Levy, E.S., & II, F.F. (2009). Cross-language categorization of French and German vowels by naïve American listeners. *The Journal of Acoustical Society of America*. 1461-1776.

Appendix: Bilabial and Alveolar German front rounded vowels combined (80 tokens)

German Front Vowels	Vowels Assimilated	[ʌ]	[u:]	[ʊ]	[ɪ]	[æ]	[eɪ]
[ø]	20	7	3	6	1	2	1
[ø:]	20	4	12	4			
[y]	20	7	3	8	2		
[y:]	20		14	6			

Total for all 80 German front rounded vowels in both contexts	[ʌ]	[u:]	[ʊ]	[ɪ]	[æ]	[eɪ]
	22.5%	40%	30%	3.75%	2.5%	1.25%