Relating production and perception of L2 tone

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1. INTRODUCTION

What is the relationship between L2 production & perception?
- Flege (1999): (segmental) L2 production accuracy limited by perception: correlations may exist, but predicted to be modest in advanced learners.
- Strange (1995): perceptual difficulties may persist even after production is mastered: performance may be uncorrelated.
- For tone, consensus seems to be that production leads perception (Yang, 2012)

Our study: speakers of a non-tonal language (Khmer) speaking a tonal L2 (Southern Vietnamese)

1. How well do Khmer-dominant speakers distinguish L2 tones in production?
2. What dimensions are used by Khmer and Vietnamese listeners in perception?
3. How can we measure the relationship between L2 production and perception?

Idea 1: How well does perception predict similarity to a native target?
Idea 2: How well does perception predict distance between L2 productions?

2. METHODS & MATERIALS

Khôn Giang Province (ខ័ណ្ឌកម្ពុជា):
- Home to ~200k Khmers (10% of both provincial population & total in Vietnam)
- Robust, but Vietnamese usage on the rise

Participants and method
- Group Vn: 10 speakers of Southern Vietnamese (18-47, 5 F)
- Group Kh: 18 speakers of KG, Khmer L2 Southern Vietnamese (19-52, 7 F)
- Production: syllable /a/ with each of 5 tones, 3 times in carrier phrase
- Perception: AX discrimination, 30 stimulus pairs, 5 reps, 300 msec inter-stimulus interval

Distance metric
- Fréchet distance: minimizes the maximum distance between two curves
- Provides a global measure of similarity

5. PRODUCTION: PERCEPTION

Idea 1: distance from native target ~ mean discrimination accuracy

For each speaker, correlate distance from Kh to Vn tone (“production accuracy”) with mean discrimination accuracy over all pairs (“perception accuracy”)
- Correlation weak (p=0.3), but in expected direction

Idea 2: distance between L2 pairs ~ pairwise discrimination accuracy
- Does distance between a Kh speaker’s own productions, regardless of similarity to Vn targets, correlate with accuracy for that particular tone pair?
- Similar strength of correlation (p=0.3)

6. CONCLUSIONS

1. Perceptual difficulties may persist even if production is ‘mastered’
2. Perceptual difficulties may (also) be related to speaker-specific acoustic separation (at least for tone)
3. ‘Accuracy’ in L2 tone mastery involves more than just approximating a native speaker target