Production and Perception of Marginal Contrast:
Length Contrast in Thai Mid Vowels

Vowel length is contrastive for all monophthongs in the Thai vowel system (Table 1). However, short and long open-mid vowels, /ɛ-ɛː/ and /ɔ-ɔː/, are not fully contrastive for length. There are no minimal pairs, their distribution is partially predictable, and they show a high degree of variability within and across speakers [2]. This is a result of emerging contrast through a split. Similar phenomena are usually referred to as ‘marginal contrast'. This phenomenon has challenged the traditional definitions of *contrast* and *allophony* [1].

To investigate phonetic patterns of the marginally contrastive vowels, I conducted an acoustic study and a perception study. In both studies, open-mid vowels /ɛ-ɛː/ and /ɔ-ɔː/ were compared with fully contrastive low vowels /a - aː/.

Acoustics study: 20 Thai native speakers were asked to read existing words and nonce words presented in Thai orthography, in map task and reading task. The duration of vowels and final consonants are measured. The result shows that the durational ratio of vowels in full and marginal contrast in rimes are similar. The mean ratio of short and long marginally contrastive vowels is not closer together than the fully contrastive vowels, but the marginally contrastive vowels are more widely distributed and show overlap between two categories (Figure 1).

Perception study: A discrimination task was designed with audio stimuli of short vowels lengthened and long vowels shortened in steps. The expected result is that the speakers should divide the low vowels into two groups corresponding to short and long vowels with a sharper boundary and shorter reaction time than the open-mid vowels. In a pilot study with two native speakers, fully contrastive vowels are more perceptually distinct than the marginally contrastive ones.

This paper proposes that the realization in production and perception of marginal contrast and emerging contrast through a split is distinct from full contrast. It also yields insights into phonological theories and theories of sound change.

Reference:

[1] Hall, Kathleen Currie. 2013. A typology of intermediate phonological relationships. The Linguistic Review 30.215 – 75.

[2] Pittayaporn, Pittayawat. 2015. Contrasts and phonotactics in the diffusion of vowel shortening in Thai. Paper presented at the Phonetics and Phonology in Europe 2015, University of Cambridge, UK.

Table 1 Thai vowel system

	Front		Mid		Back	
	short	long	short	long	short	long
High	i	iː	ɯ	ɯː	u	uː
Closed Mid	e	eː	ɤ	ɤː	o	oː
Open Mid/Low	ɛ	ɛː	a	aː	ɔ	ɔː
Diphthong	iə		ɯə		uə	

Figure 1 *Distribution of durational ratio of vowels in rimes*
(Top: fully contrastive vowels /a, aː/; Bottom: marginally contrastive vowels /ɛ, ɛː/)