Contour change as restructuring of tonal variation
The case of Tone 4 in Thai

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Although our understanding of segmental changes has advanced tremendously since the time of the Neogrammarian, our knowledge of tonal change is currently limited to tonogenetic phenomena (e.g. Haudricourt, 1954; Hombert et al., 1979; Maddieson, 1984; Svantesson, 1991; Thurgood, 2002). In particular, it is still a mystery how phonetic characteristics of lexical tones, i.e. pitch heights and contour shapes, change over time. One promising line of research is to investigate synchronic tonal variation, as advocated by the phonetic approach (Blevins, 2004; Garrett & Keith, 2013; Ohala, 1993) to diachronic phonology, which views sound change as phonological reanalysis based on the structured phonetic variation that arises from speech production and perception.

The phonetic change of Tone 4 in Bangkok Thai is an important case study for the study of tonal changes. Typically labeled as "High", Thai Tone 4 has changed dramatically since the beginning of the 20th century from a high falling tone in 1916 (Bradley, 1916) to a high rising tone in 1962 (Abramson, 1962) before becoming the mid rising tone observed today (e.g. Abramson, 1979; Morén & Zsiga, 2006; Thepboriruk, 2010). Drawing on advances in the phonetic study of lexical tone, Pittayaporn (2007) proposes production- and perception-based mechanisms for tonal changes to explain these spectacular changes. In this account, a lexical tone undergoes a contour change when its phonetic variants found in different environments are reorganized so that an innovative variant becomes "phonologized". Although various studies on tonal variation by age group (Panroj, 1990; Teeranon, 2007; Teeranon & Rungrojsuwan, 2009; Thepboriruk, 2010) have demonstrated clearly that the innovative mid rising realization is gaining grounds, they do not address how the structure of the tonal variation has changed from one generation to the next.

This presentation will reports on a pilot apparent-time study of Tone 4 in Bangkok Thai, focusing on how its positional variation differs among four generations of speakers. Based on Garrett and Johnson's (2013) theory of the directional asymmetry of sound change, it is hypothesized that the variation was initially gradient and explainable as a result of gestural mechanics. In particular, the tone is realized with a relatively flat contour in weak prosodic positions but with relatively steep rise in strong positions. Furthermore, this rise may often be relatively convex due to constraints on pitch production discussed by Xu (2001, 2004), among others. However, it is further hypothesized that the variation became categorical in the subsequent generations so that Tone 4 now came to have three categorically-distinct variants: [flat], [rise] and [convex]. Finally, it is hypothesized that the innovative convex variant eventually won out as the canonical realization of the tone, due to auditory enhancement.

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