Encoding Tone Sandhi in Zhangzhou Southern Min: An Inter-disciplinary Exploration

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Abstract:

This study comprehensively explores the nature of tone sandhi in Zhangzhou, a Southern Min variety spoken in the southern part of Fujian province in southern China. This dialect presents a typical right-dominant tone sandhi system, whose sandhi domain is aligned with the boundary of syntactic phrases but is irrelevant to their internal structures. The sandhi (non-rightmost; non-phrase-final) tones are phonologically inert to the category of following tones, because, regardless of whether their subsequent tone is rising, level, or falling, they present a consistent tendency. The non-sandhi tones (rightmost; phrase-final) are highly sensitive to the phonetics of their occurring environments and present statistically significantly different variants, questioning the conventional default-principle on the specification of tone sandhi dominancy in Sinitic languages. Tonal neutralisations occur across linguistic contexts, creating difficulty in the determination of the directionality of tonal alternation, and the totality of tonal contrasts in this dialect. The nature of Zhangzhou tones is morphological. Each tone functions as a single morpheme that has two or more allomorphs (tonemes) that are independently stored in native speakers’ mental grammar but are phonetically distant in real-world utterances. The relation between sandhi and citation tones are morphophonemic, while is allophonic between non-sandhi and citation tones, challenging those conventional proposals that assume a circular tonal alternation in Southern Min and posit various rule-based and/or OT-based explanations.

As indicated, investigating tone sandhi is not simply an issue to identify how tonal pitch is changed from one form to another. But rather, it turns out to be a series of sophisticated issues in relating to how tone sandhi operates as a system; how its operation may affect the sound pattern of the language being concerned; how its operation may be constrained by linguistic factors that go beyond phonology; how its inducing various tonal forms in connected speech are related to each other, as well as how its inducing various tonal forms are abstractly modelled in the mental grammar of native speakers. This study is scientifically grounded in acoustic utterances from 21 native speakers from the urban area of Zhangzhou city. The exploration substantially stretches and advances our knowledge of tone sandhi as an important language phenomenon in Southern Chinese dialects. It is hoped to serve as a model to investigate the nature of tone sandhi in languages where relevant. This study also enlightens the discussion on how human beings employ various linguistic levels (phonetics, phonology, semantics, morphology, and syntax) to encode a complex speech phenomenon as part of their cognitive activities, and how they decode the complexity in their language practices.

Keywords: tone sandhi, encoding, phonology, phonetics, syntax, morphology, Southern Min
Figure 1. Syntactic relevance of tone sandhi domain.

Figure 2: Right-dominant tone sandhi in Zhangzhou.

Figure 3: Phonetic sensitivity of rightmost tones.

Figure 4: Morphological nature of Zhangzhou tones in general syntactic context.