Variations of focus prominence in three tone languages

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Prominence-marking constitutes an important dimension in prosodic typology [1]. However, this current framework characterises all tone languages as having head-prominence and does not account for variations in this aspect. Although tone languages prioritise tonal identity over pragmatically-driven f0 changes, typological differences exist such as in post-focal compression [2]. The current study presents three distinctive types of prominence-marking found in closely related tone languages and suggests that the variations point to systematic differences in the prosodic function.

Three dialects from distinct Chinese language families were chosen: Guangzhou Cantonese, Chengdu dialect (a south-west Mandarin), and Changsha dialect (a Xiang variety). Prominence was elicited by embedding a target sentence with SVO structure in several focus conditions: (1) broad focus as an answer to the question 'what happened?' (2) subject focus induced by correction (3) object focus induced by wh-question (Changsha and Chengdu). The sentences were constructed in a way that the subject and object, excluding suffixes, have the same tonal category. A maximally dynamic tone reaching the ceiling of the tonal space was selected for analysis in the first instance, which is a high falling tone in Chengdu, and a high rising one in Changsha and Cantonese, since this would show the clearest peak and valley patterns in reaching the high target. Time-normalised f0 was converted to semitones relative to 50Hz. Figure 1 presents preliminary results based on two repetitions of two males and two females in each dialect.

To avoid inaccuracies in determining the extrema, total f0 movement was calculated as a replacement of pitch excursion, by adding up the absolute value of f0 difference between successive normalised time points. Results show that under the subject focus condition, in Cantonese and Changsha, focus boosted the f0 movement on the subject relative to the no-focus condition by 30% and 28% respectively, but by 149% in Chengdu. Total f0 movement on post-focal position was reduced most drastically in Chengdu (-49%), followed by Changsha (-42%) and Cantonese (-24%). Under the object focus condition, the total f0 movement resembled that of broad focus, except that the pre-focus subject in Chengdu also had greatly reduced f0 movement (-43%). In summary, Chengdu showed clear boosted and suppressed prominence in different contexts, resembling standard Mandarin [3] but to a greater extent such that the suppression almost obscured the tonal target. On the other hand, total f0 movement barely changed in Cantonese, in accordance with previous literature [4]. Changsha presented an intermediate type, where pitch was utilized in marking prominence as in Chengdu including post-focal compression, yet the tone target was always achieved.

The various degrees of f0 movement involved in prominence marking can be explained in terms of different constraints on realising tonal targets [5]. As a potentially important typological dimension, we will show that it has reflexes in the prosodic structure both on the lexical and post-lexical level, leading to systematic difference in the realisations of neutral tone, tone sandhi, stress, prominence and rhythm. Results, including other phonetic features, from 16 speakers with three repetitions will be presented.
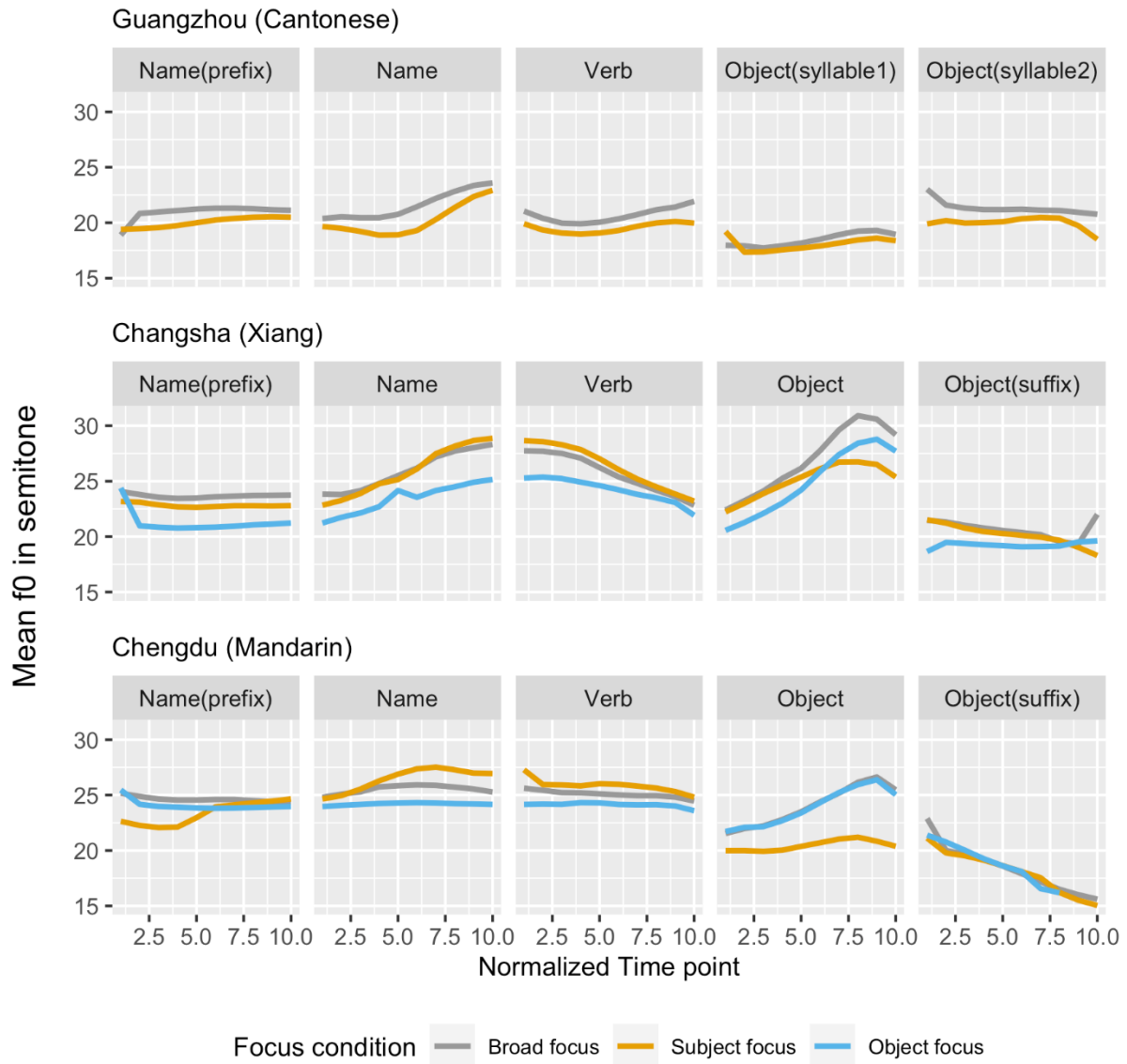
Figure 1. Average F0 contour over the time course of the target sentence. Sentences are of the form "name prefix+name+verb+(aspect marker)+object".

References
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