

Teasing apart the prosodic effects of focus and of defocus: syntax-prosody mismatches in right dislocation

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This study provides evidence for syntax-prosody mismatches in Cantonese and Mandarin in relation to (de)focus. First, while focus has prosodic effects like postfocal compression (PFC) [1,2], whether the *lack* of focus in a clause (*Defocus*; different from givenness, [3,4]) has prosodic roles is relatively unknown. Second, dislocated elements in right dislocation in Cantonese and Mandarin *resist* focus interpretation and manifest *defocus* [4,5]. Right dislocation has two variants with a different number of syntactic clauses. One involves displacement of a phrase with a gap and a one-clause structure [4,6]. Another one involves copying of a phrase and a two-clause structure [7,8].

This study recruits acoustic cues to examine the prosodic phrasing of right dislocation in Cantonese and Mandarin. We ask whether the phrasing of gapped and copying right dislocation shows a *mismatch* with their syntactic structure, in having one or two intonational phrases (IPs) [9]. This offers us a case to tease apart focus and defocus in prosody, as focus does *not* trigger rephrasing/mismatch in both languages. Cantonese lacks PFC [10], and PFC in Mandarin is argued to preserve prosodic phrasing [11] (*i.e.*, PFC is not a result of prosodic phrasing, [12]).

The stimuli have a 2x2 factorial design, varied by Number of Clauses (1 vs. 2) and Word Order (Canonical vs. Dislocated) (Table 1). Each of the 4 conditions has 12 items, with syllables in the same tones (distributed over Tone 1-4). 13 native speakers of each language were recruited (n=26) to read aloud stimuli in a context with 3 repetitions, randomized with fillers (target:filler=1:0.5; total tokens=3744). Three prosodic cues were measured: (i) Pitch reset, as calculated by subtraction of the maximal f_0 value of the 8th syllable (for one-clause conditions) or 10th syllable (for two-clause conditions) from that of the 7th/9th syllable; (ii) Final-lengthening, which involves the comparison of the duration of the sentence-final particle (SFP) across conditions; and (iii) Pause, as measured by the silence before the frication noise of the 8th/10th syllables, which all have a fricative onset. These cues have been shown to diagnose IP boundaries in both languages [13,14]. Linear mixed effects regression models were conducted for cues (i)-(ii).

The results revealed that number of clauses, word order, and their interaction have effects on the subtraction of f_0 values in both languages (Fig.1-2). Dislocated sentences have significantly lower subtracted f_0 values than two-clause canonical sentences (both $p < .001$). In Cantonese, copying right dislocation's subtracted f_0 value is slightly yet significantly higher than one-clause canonical sentences ($p < .001$), whereas it is the reverse in Mandarin ($p < .007$). There is no difference between gapped and copying cases. Moreover, the two fixed effects and their interaction also have effects on SFP duration (Fig. 3-4). The SFPs in dislocated sentences are significantly shorter than both canonical sentences (all $p < .001$), with no difference among gapped and copying cases. Additionally, there are individual differences for both variables, as validated by significant model improvement with by-Participant random slope. Lastly, pauses are almost exclusively found in two-clause canonical sentences (mean: 431ms in Cantonese, 245ms in Mandarin). Among dislocated sentences, only 8 tokens in Cantonese (0.008%) have a pause (mean: 64 ms).

The findings suggest that there are no IP boundaries before the dislocated elements, which are consistent with the phonological evidence such as boundary tone placement and tone sandhi reported in [15]. In two-clause canonical sentences, the syllable before the IP boundary was lengthened and the syllable after the IP boundary showed pitch reset, and there were pauses between the two syllables. These cues of IP boundaries were absent in the dislocated sentences. Nevertheless, there is a phonological phrase boundary before the dislocated elements, as can be seen from the slight pitch reset in Cantonese dislocated sentences. The slight reset is not detectable in Mandarin due to PFC. Therefore, copying right dislocation manifests a case of syntax-prosody mismatch: while the host clause and the dislocated elements underlyingly are two clauses, they form only one IP (Fig. 5). Since focus independently does not trigger prosodic rephrasing in both languages [10,11], the mismatch cannot be attributed to focus. Rather, it should be attributed to the defocus nature of dislocated elements, which cannot receive prosodic prominence and fail to form an IP [15]. We conclude that in addition to the presence of focus [16], the *lack* of focus can also trigger syntax-prosody mismatches, and the two effects should be distinguished from each other.

