

Tones and iambic stress in Wenzhounese

Chen Xie (chen.xie@ling-phil.ox.ac.uk) | University of Oxford

In tonal languages, lexical stress is often obscured because a major acoustic correlate for stress (i.e. pitch) is used to signal lexical or grammatical contrast. This is also the case for the Chinese dialect Wenzhounese, which has eight lexical tones but does not have perceptually salient stress in words with toned syllables. Previous research often takes tonal patterns as evidence for stress, which would conclude that Wenzhounese has iambic stress because its tone sandhi rules are right dominant: usually only the rightmost syllable in a word can surface with its underlying tone. Without additional evidence for stress, such argumentation is circular. In this paper, I offer a non-circular argument for iambic stress in Wenzhounese, based on evidence from the blocking of tone sandhi, reduplication, *A-not-A* questions, metrical structure in folk verse, and the surface distribution of tonal contours.

To begin with, right dominance is indicative of iambic stress because unstressed positions are more prone to phonological reduction than stressed positions. The association between right dominance and iambic stress implies that when an unstressed syllable is stressed (e.g., via contrastive focus), it will block a right-dominant rule (Duanmu 2004: 83). This is borne out in Wenzhounese. Consider the following trisyllabic compounds. (The square brackets delimit morphosyntactic phrasing and the parentheses prosodic phrasing.)

- (1) a. [[ts^həŋ³³ [me³¹ sou⁴²]] ‘penicillin’
 (34 (22 34)) *Default surface tones*
 (33) (22 34) *First syllable focused*
- b. [[fioŋ³¹ dzy³¹] ləu²²] ‘Hongqiao Road’ (proper noun)
 (34 (22 34)) *Default surface tones*
 (11 12) (22) *First two syllables focused*

Regardless of a word’s morphosyntactic structure, the default prosodic phrasing is (σ(σσ)), where the last two syllables undergo disyllabic tone sandhi and the first syllable tone is dissimilated (Chen 2000: 480–481). In (1a), the first syllable gets to preserve its underlying tone when it is stressed under focus, suggesting that its default tonal dissimilation is due to lack of stress. Similarly, the first two syllables in (1b) can form a tone sandhi domain when stressed, whereas stressing the final syllable makes no difference to prosodic phrasing. This shows that the final syllable is already stressed: additional information-structural stress does not alter a prosodic structure that already manifests lexical stress.

The second argument concerns reduplication. First consider Mandarin Chinese, which is arguably trochaic (Duanmu 2004, 2007) and whose output of reduplication is strong-weak (e.g., *kàn* ‘look’ → *kàn-kan* ‘take a look’): the first syllable preserves its tone, but the second syllable is shortened and loses its tonal contrast. In Wenzhounese, reduplicated nouns and adjectives can be weak-strong (e.g., *dzau*²⁴ → *dzau*⁰-*dzau*²⁴ ‘uncle’) or strong-strong (e.g., *ku*³³ → *ku*³³-*ku*³³ ‘brother’), but not strong-weak. Reduplicated verbs may be strong-weak only if they allow the weak-strong pattern, but not *vice versa*. Therefore, weak-strong reduplication is less marked in Wenzhounese, suggesting that the strong syllable is stressed under an iambic foot.

The third piece of evidence comes from the *A-not-A* question formation.

- (2) a. ni **xihuan**-bu-**xihuan**/ **xi**-bu-**xihuan** kan shu a?
 you like-NEG-like li-NEG-like read book Q
 ‘Do you like to read books?’

- b. ni **ei**cy-fu-**ei**cy/ ***ei**-fu-**ei**cy ts^hz səu a?
 you like-NEG-like li-NEG-like read book Q
 ‘Do you like to read books?’

Both Mandarin (2a) and Wenzhounese (2b) can signal interrogatives by copying a verb and placing a negator (*bu* and *fu*, respectively) between the verb and its copy. Mandarin further allows the negator *bu* to appear inside the verb, e.g., *xi-bu-xihuan* in (2a). *Bu* can even interrupt monomorphemic English trochees, as in *ni hap-bu-happy?* ‘Are you happy?’ (Myers 2022: 56). This special placement of *bu* is similar to infixation or endoclysis found in languages like Ulwa (McCarthy & Prince 1995) and Pashto (Bögel 2015), which are sensitive to stress/foot structure. If we assume that Mandarin has trochaic stress, *bu*’s apparent violation of Lexical Integrity (e.g., Bresnan & Mchombo 1995) in *xi-bu-xihuan* is simply due to its sensitivity to stressed syllables (i.e. *xi* in this case). In the same vein, *fu* in Wenzhounese cannot occur after the first syllable of a disyllabic word because stress is on the second syllable, not the first.

Fourth, Duanmu (2004: 93, 2007: 280ff) observes that Mandarin folk verse has a strong-weak rhythm. That is, a weak monosyllable cannot occur in odd-numbered positions unless another weak monosyllable follows it. Wenzhounese has exactly the reverse pattern, as exemplified by the nursery rhyme in (3), where syllables in weak positions (W) undergo shortening and tonal neutralisation.

- | | | | | | | | | | | | | |
|-----|----------------------|-----|-----|----------|------|--|-------|-----|-----|--------------------|-----|------|
| (3) | W | S | W | S | S | W | S | W | W | W | S | S |
| | [a- | me] | [ni | [eə | naŋ] | [a- | ma] | [ko | ni] | [tɕ ^h i | vaŋ | daŋ] |
| | A- | kid | you | amenable | A- | mom | teach | you | eat | wonton | | |
| | ‘Be a lamb, my kid.’ | | | | | ‘Mom’s gonna teach you to eat wonton.’ | | | | | | |

Finally, Wenzhounese has level, falling, rising, and falling-rising tonal contours underlyingly (Chen 2000; Zhengzhang 2008). In disyllabic words, these tonal contours can occur freely on the final syllable. On the initial syllable, falling-rising tones can never occur, and rising tones can occur only if the final syllable bears a falling-rising tone. If Wenzhounese has iambic stress, we can easily explain the distribution of these complex tones by the cross-linguistically pervasive asymmetry between a metrical head and its dependent (Dresher & van der Hulst 1998). The head–dependent asymmetry requires the head to be at least as complex as its dependent, where complexity can be defined by Hyman’s (2007: 11) markedness ranking of tonal contours: Rising-falling, Falling-rising > Rising > Falling > High, Low.

In sum, this paper pioneers the systematic investigation of Wenzhounese stress, showing that iamb plays an active role not only in tonal patterns, but also in other respects of Wenzhounese phonology. Iambic stress sets Wenzhounese apart from closely related Chinese dialects like Shanghainese and Suzhounese, which are trochaic (Duanmu 1999, Zhu 2023).

Selected References: Dresher, B. E., & van der Hulst, H. (1998). Head-dependent asymmetries in phonology: complexity and visibility. *Phonology*, 15, 317–352. Duanmu, S. (2004). Left-headed feet and phrasal stress in Chinese. *Cahiers de Linguistique – Asie Orientale*, 3(1), 65–103. Hyman, L. M. (2007). Universals of tone rules: 30 years later. In T. Riad & G. Carlos (Eds.), *Tones and tunes: Typological studies in word and sentence prosody* (Vol. 1, pp. 1–34). De Gruyter Mouton. Zhu, Y. (2023). A metrical analysis of light-initial tone sandhi in Suzhou Wu. *Natural Language & Linguistic Theory*. <https://doi.org/10.1007/s11049-023-09572-7>.