Taiwan Mandarin (TM), a variety of Mandarin Chinese spoken in Taiwan, exhibits variety-specific phonological phenomena, such as:

(1) vowel labialization where \( \varepsilon > o/\{p, p^h, m, f\}_\eta \) (e.g., \(/m\varepsilon\eta/ \rightarrow [\text{mo}'] \) “dream”) (Kubler, 1985)
(2) sibilant mergers by de-retroflexion (e.g., \(/\text{san}/ \rightarrow [\text{san}] \) “mountain”) (Chung, 2006)
(3) a syllable-final nasal merger (e.g., \(/\text{min}/ \rightarrow [\text{min}] \) “name”) (Chiu et al, 2021; Fon et al, 2011)
(4) a merger of \(/\text{z}/ \) into \(/l/\) (e.g., \(/\text{la}/ \rightarrow [\text{l}] \) “hot”) (Duanmu, 2007)
(5) interchangeability of \(/n/\) and \(/l/\) (e.g., \(/\text{lan}/ \rightarrow [\text{lan}] \) ”cold”; \(/\text{nan}/ \rightarrow [\text{n}] \) “man”) (Chen, 1999)

Despite these consonant-related findings, the underlying organization of features that gives rise to these specific phonemic patterns remains a puzzle. To address this question, the current study adopts the contrastive hierarchy theory (Dresher, 2009) to identify contrastive features and their hierarchical ordering based on the system-particular phonological processes. Firstly, given the distinct behavior of labial consonants as shown in (1), I propose the highest ranking for the feature \([\text{labial}]\) which divides the inventory into two subsystems. Next, the merging phonemes are paired at the end of branching nodes in the hierarchy under the Minimal Contrast Principle (Oxford, 2015, p.315; Ko, 2011). For example, the sibilant mergers exemplified in (2) can be attributed to the loss of the feature \([\text{posterior}]\), which leads to the convergence of retroflex and non-retroflex consonants in the entire system. This also accounts for the \(/\text{z}/ \rightarrow /l/\) merger in the \([+\text{voiced}]\) division. The interchangeability of \(/n/\) and \(/l/\) in (5) suggests a class-wise merger (Oxford, 2015, p.316) of nasal and non-nasal consonants, leading to the neutralization of \(/n/\) and \(/l/\). This also indicates the ordering \([\pm\text{voiced}] > [\pm\text{nasal}]\). Based on these analyses, this study establishes a contrastive feature hierarchy (Fig 1), which represents the underlying organization of features that accounts for the aforementioned sound changes. This not only provides a holistic explanation for the sound pattern of TM but also serves to unify seemingly unrelated phonological changes, bridging the gap in our understanding of its variety-specific phonology.

Fig 1. Contrastive feature hierarchy of Taiwan Mandarin’s consonant system. The blue-framed indicate contrastive pairs undergoing merger.
References