

**The phonetic realization of singleton-geminate contrasts in three languages of Indonesia**

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This paper examines the timing properties of singleton-geminate contrasts in three Austronesian languages of Indonesia: Buginese, Madurese and Toba Batak. This study details the hitherto poorly described phonetic properties of the consonant systems of these languages, and investigates the role of prosodic organization in the phonetic implementation of duration. Results show that in each of the languages, singleton-to-geminate closure ratios tended to be smaller for voiceless than voiced sounds and greatest for voiced stop geminates. Strikingly, voicing was systematically observed throughout the closure portion of the voiced stop geminates (despite the aerodynamic difficulties of sustaining voicing in obstruents), hypothesized here to be the result of a voicing enhancement strategy. In all cases, singleton-geminate duration differences in stops were realized during the closure and not the following burst or VOT. All three languages also exhibit closed syllable shortening preceding geminates, suggesting a syllable-based timing strategy.