



- (1) Disyllabic Hateruma words with no initial aspiration
- a. CV:CV (heavy-light)  
[po:cī] ‘a broom’, [ka:ra] ‘a roof tile’, [pa:cī] ‘a bee’
  - b. CVCCVC (heavy-heavy)  
[kan.gan] ‘a mirror’

The strong aspiration pattern is also found in plosives when a word has three light syllables only (CVCVCV): /kipusī/ [k<sup>h</sup>ipusī] ‘smoke’, /katana/ [k<sup>h</sup>atana] ‘knife’

If strong aspiration in initial plosives were a mechanism how Hateruma speakers make initial syllables heavy, what would happen when a disyllabic word begins a nasal or a voiced plosive? Interestingly, our data show no CVCV word with an initial consonant that is a nasal or a voiced plosive. Most disyllabic words with these onsets in (2) show that the initial syllable has a long vowel or a coda consonant.

- (2) Disyllabic Hateruma words other initials
- a. nasal initial  
/ma:su/ ‘salt’, /na:bi/ ‘a pan’, /niccī/ ‘a chest’
  - b. voiced plosive initial  
/gokka/ ‘a hen’, /ganzan/ ‘a mosquito’

**Discussion** We have shown that Hateruma adopts three strategies in creating a heavy syllable; (a) a long vowel (CV:), (b) a coda consonant, and (c) an aspirated onset consonant. This pattern means that strong (and long) aspiration of a word-initial plosive in Hateruma behaves the same as introducing a mora. Assigning a mora to an initial consonant is not new since it has been argued in Topintzi (2008), in which Marshallese and Triqui have initial geminates that are moraic even though they are onsets. Topintzi & Davis (2018) also argue that Cypriot Greek has moraic geminates that are accompanied by aspiration. What unifies Topintzi (2008) and current study is that a language can have a moraic onset if such an onset is accompanied with longer duration: gemination in Marshallese, strong aspiration in Hateruma, and both gemination and aspiration in Cypriot Greek. In sum, onsets are moraic only when the closure in geminates is lengthened or when VOT is lengthened.

**Implication** The cross-linguistic implication of this study is that an additional mora can be realized not only with a long vowel or a coda consonant, but also by phonetically lengthening the initial plosive (longer aspiration in Hateruma). It also suggests that cross-linguistically onset without phonetic lengthening may not be assigned to a mora.

### References:

- Topintzi, N. (2008) On the existence of moraic onset geminates. *Natural Language and Linguistic Theory* 26: 147. <https://doi.org/10.1007/s11049-008-9034-4>
- Topintzi, N. and Stuart D. (2018) On the weight of edge geminates. In: Haruo Kubozono (ed.). *The Phonetics and Phonology of Geminate Consonants*. Oxford University Press. 260-282.
- Aso, R. (2015) Hateruma (Yaeyama Ryukyuan) In: P. Heinrich, S. Miyara, M. Shimoji (eds.) *Handbook of the Ryukyuan Languages: History, Structure, and Use*. Walter de Gruyter. 189-227.