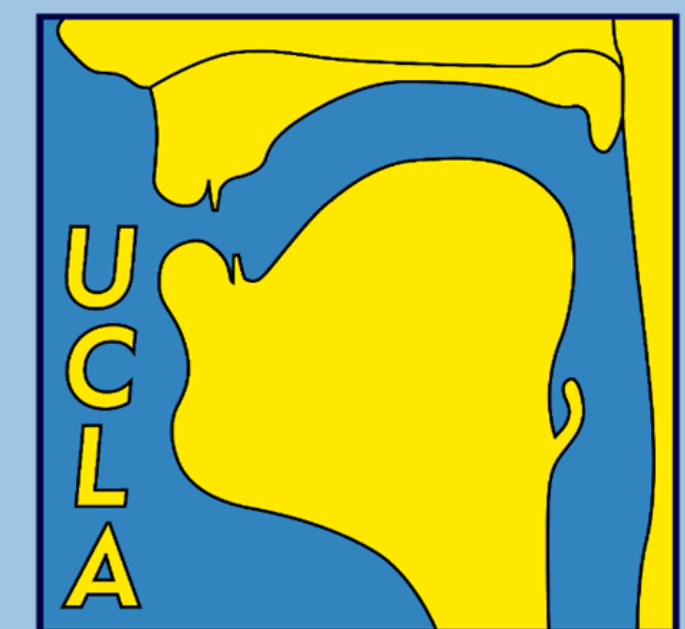




Syllabification of vocoids in Malay: Evidence from musical text-setting



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Background

- Phonemic status of glides in Malay (Austronesian):
 - Phonemic /j, w/ (Maris 1980; Farid 1980; Teoh 1994)
 - Derived from /i, u/ in syllable margins (Ahmad 2005)
- Syllable structure of Malay: (C)V(C), optional onsets & codas
- Vowel hiatus /V.V/ is actively repaired in multiple ways, depending on vowel quality and prosodic juncture involved.

Morpheme-internal /i.a/ and /u.a/ sequences

- Morpheme-internal /i.a/ and /u.a/ sequences are repaired via fission, and not via gliding (Ahmad 2005:32).
- E.g., /bəru₁a₂ŋ/ 'bear' → [bə.ru₁.w₁a₂ŋ] *[bə.rw₁a₂ŋ]

INPUT: /bəru ₁ a ₂ ŋ/	ONSET	CODA/COND	*COMPLEX	DEP-IO	INTEGRITY-IO	IDENT-IO[SYL]
a. bə.ru ₁ .a ₂ ŋ	*!					
b. bə.r.w ₁ a ₂ ŋ		*!				*
c. bə.rw ₁ a ₂ ŋ			*!			*
d. bə.ru ₁ .ʔa ₂ ŋ				*!		
e. bə.ru ₁ .w ₁ a ₂ ŋ					*	

Musical text-setting

- The structural distinction between [Cu₁.w₁a₂] and [Cw₁a₂] is often difficult to diagnose, both in speech or through native speaker intuitions.

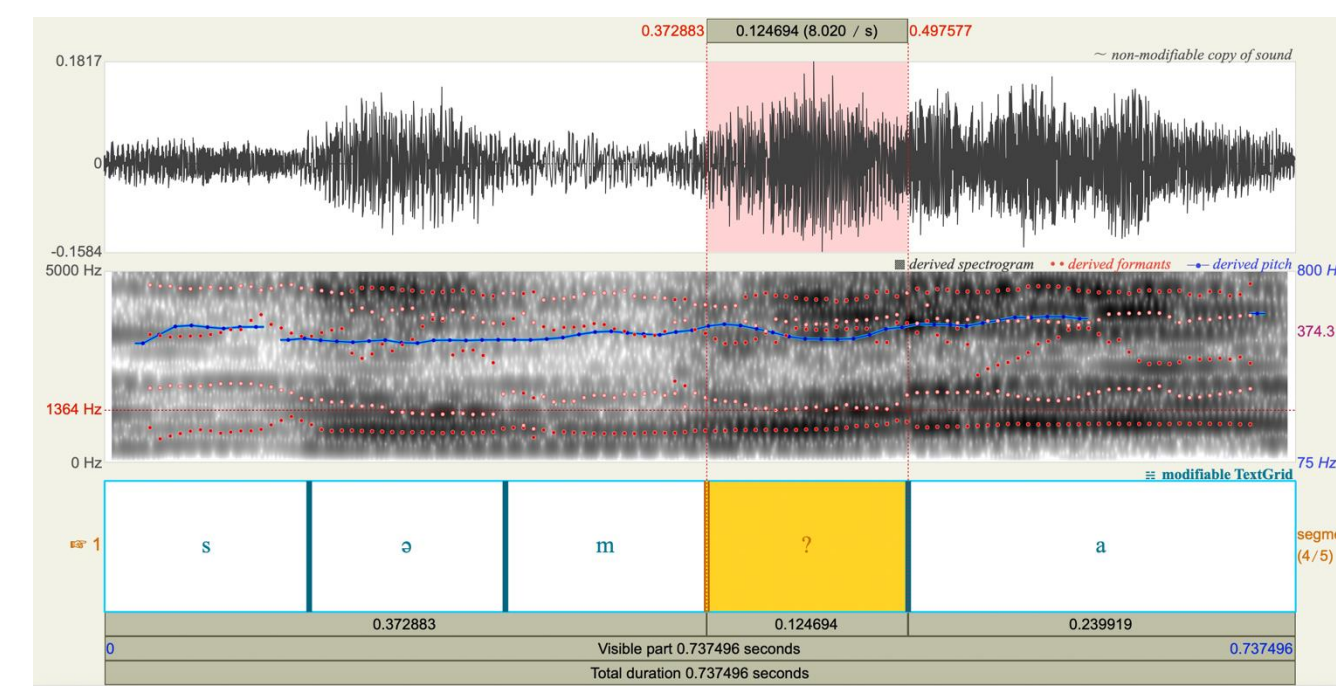
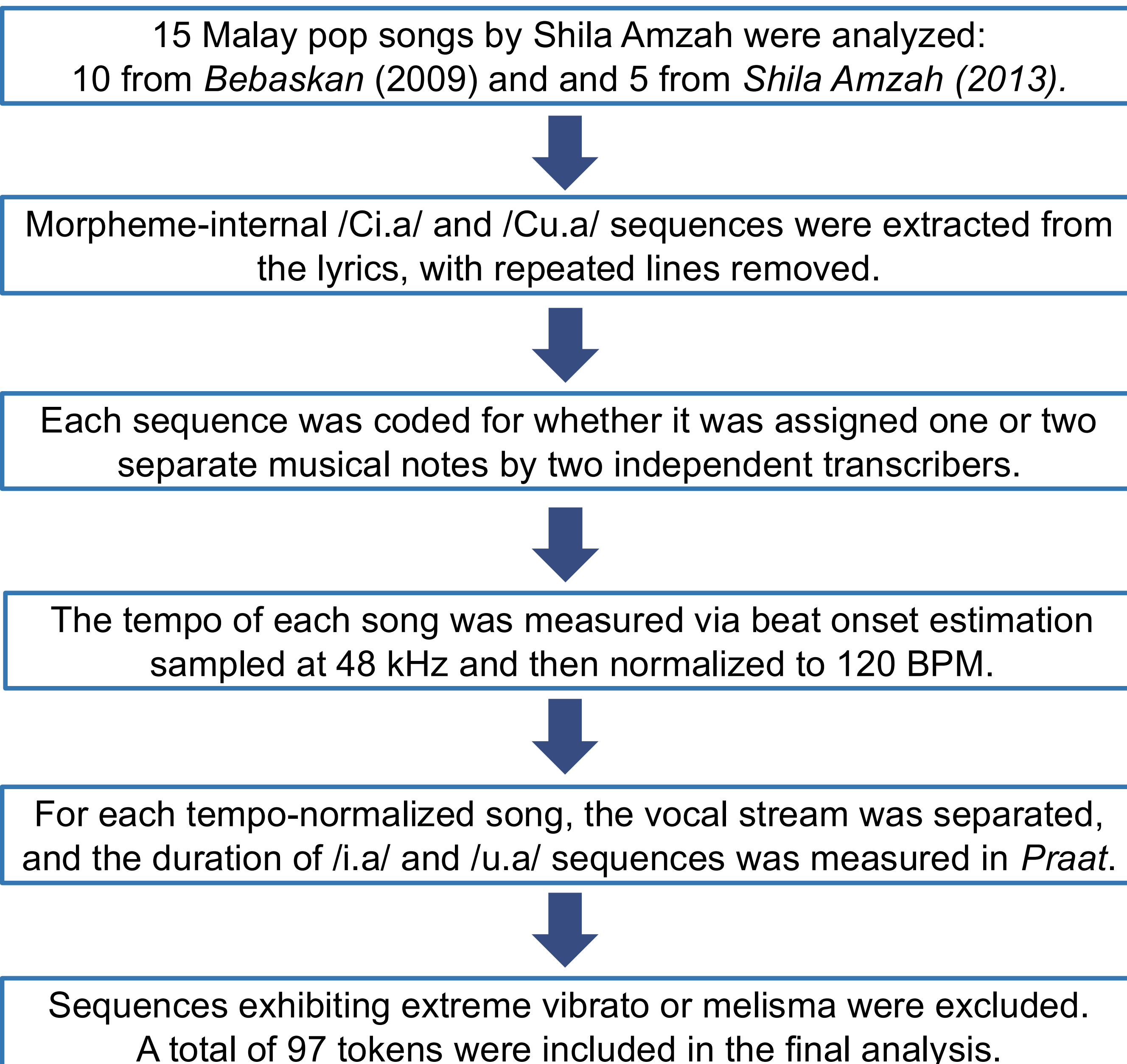


Figure 1: Spectrogram of /səmuə/ 'all'

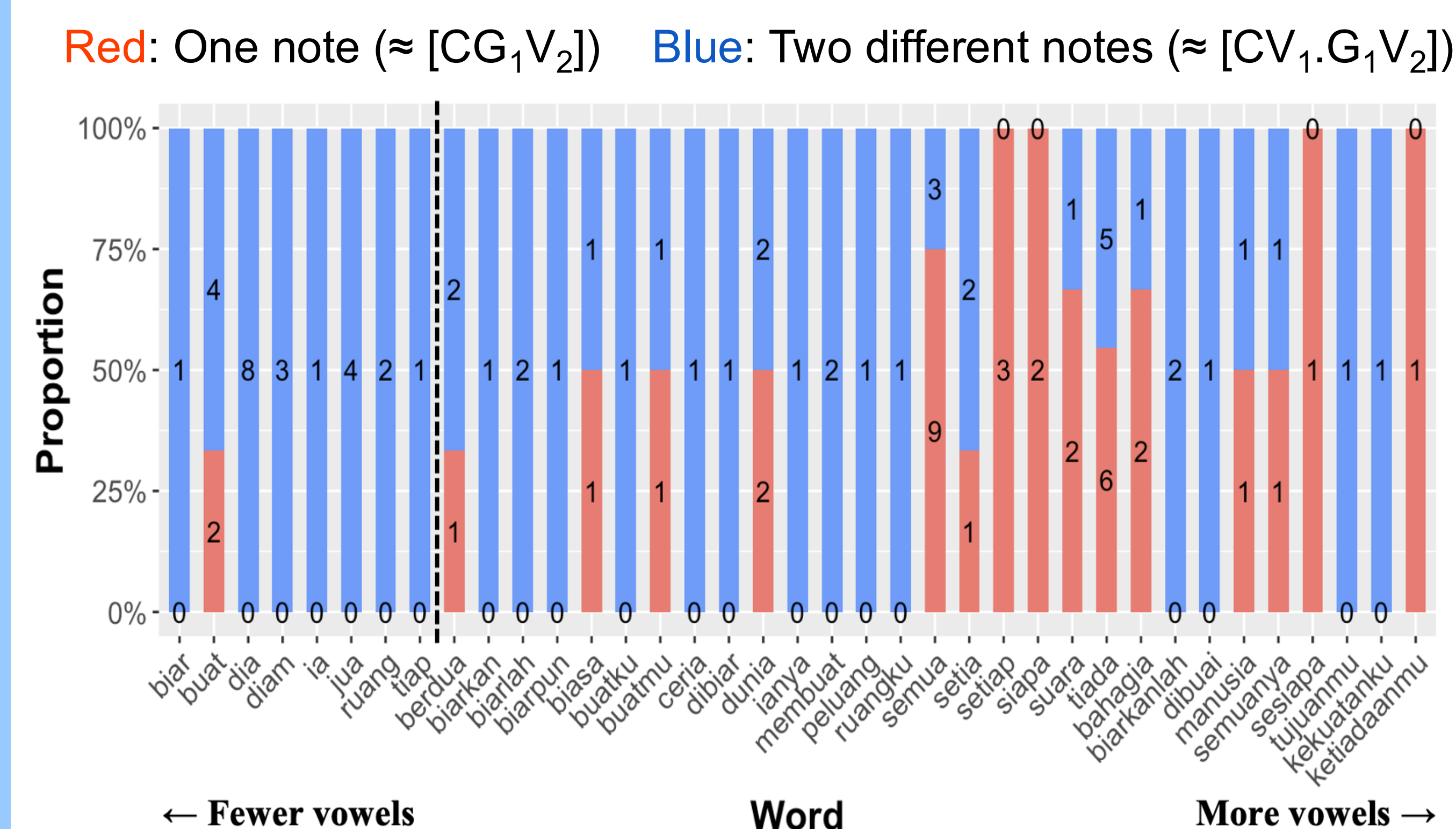
- Following Ng (2017), the number of notes assigned to a word in singing reflects the number of syllables a speaker assigns in speech (cf. English *style*, *fire*, *time*).
- Predictions:
 - Two vowels under fission (e.g., [Cu₁.w₁a₂]) are more likely to map onto **two separate musical notes** rather than one.
 - Two vowels under fission are expected to be **longer in duration** than gliding (cf. Davidson & Erker 2014).

Methods



Results: Individual words

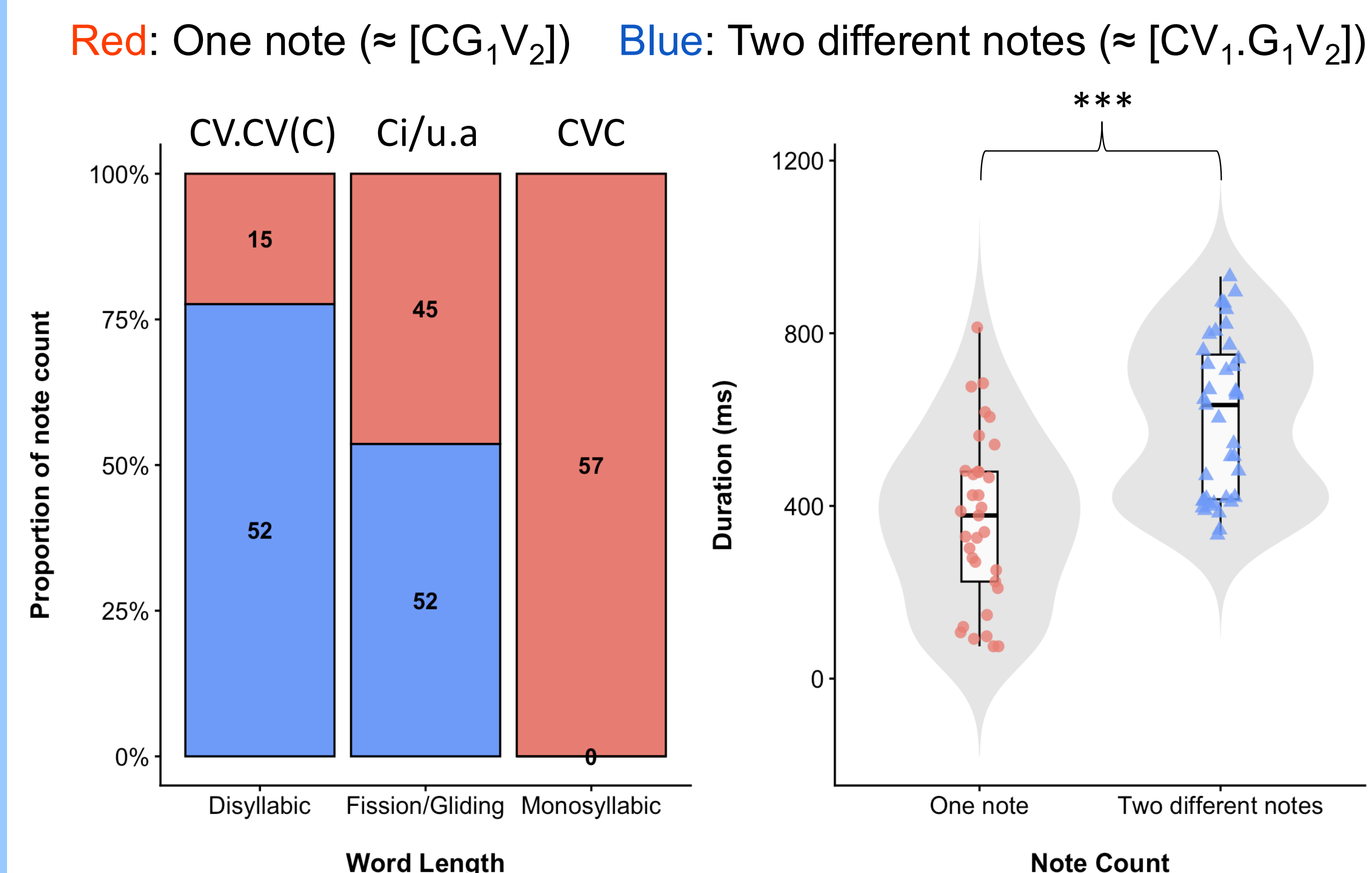
Figure 3: Proportion of one-note vs. two-note settings by word



- Words with fewer than two vowels were significantly less likely to receive one-note settings ($\beta = -2.741$, $SE = 0.905$, $z = -3.029$, $p < 0.01$) than words with more than two vowels.
→ prosodic minimality effect and frequency matching (Adelaar 1992)

Results: Aggregate

Figure 2: Proportion of one-note vs. two-note settings by word length (left); Duration of /i.a/ and /u.a/ sequences in milliseconds by note count (right)



Discussion

- Traditional analyses of Malay syllable structure are overly categorical, since forms with complex onsets are attested.
- The growing tolerance of onset clusters in Malay likely stems from two sources (Soh & Nomoto 2019):
 - Influx of loanwords from Sanskrit and English (e.g., Sanskrit *swasta* 'private', English *struktur* 'structure')
 - Optional schwa deletion at the phonetic level (e.g., /səgəra/ 'immediate' → [sə.gə.ra]~[sə.gra]) (Clynes & Deterding 2011:264)
- Finally, the study demonstrates the practical use of musical text-setting to probe structural distinctions that are more difficult to diagnose in speech.

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Acknowledgements

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