Bangime semivowel $\varphi$ : an audio tour

Bangime has an unusual glide (semivowel) $\varphi$. This is the IPA symbol for a high front rounded semivowel, similar to that in French words like huit [ $\varphi i t$ ]. It does not occur in Dogon, Songhay, or (to our knowledge) in Mande languages of the zone. However, it does occur in the neighboring cliffs dialect of Bozo-Jenaama as spoken in Kargué and Namagué villages.

The known Bangime words that include this semivowel are listed below. There are several nouns (1), a few verbs (2), but no adjectives, numerals, affixes, or grammatical particles. Transcriptions are for prepausal (e.g. isolation) pronunciations, manifested in this sample in the form of prepausal tone-dropping on the final syllable of underlying M-toned $/ \mathrm{C} \overline{\mathrm{v}} \mathrm{C} \overline{\mathrm{v}} /(1 \mathrm{a}, \mathrm{c}, \mathrm{d}, \mathrm{o}-\mathrm{q}, \mathrm{s} ; 2 \mathrm{a}, \mathrm{i}, \mathrm{j})$. Tones are irrelevant to the articulation of $\varphi$ and can be disregarded here.

## (1) Nouns

initial (including $C y$ clusters), $\mathrm{n}=7$
a. sqī̀
b. $\varphi \grave{j} \grave{\jmath}$
'moon'

c. $\varphi_{1 i}^{j} \dot{\varepsilon}(1$ of 2$)$ 'water'

d. $\psi i \bar{j} \dot{\varepsilon}$ (2 of 2) 'day-night transition' in $\psi i \bar{j} \bar{\varepsilon}\left[\varnothing k u \overline{W^{n}}{ }^{n}\right]$ 'night fell'
e. Yèbè
in: पèbè [ $\varnothing$ kū $\left.W^{n} \grave{j}\right]$ 'it was just before nightfall'
f. पદ̨̀̀rí 'drinking glass' (< French verre)

g. yàà
'price'

h. ч’̀े ${ }^{n} \quad$ 'rain (n)'
(rounding of $\varphi$ is clearest in definite $\bar{a} \varphi \bar{\rho} W^{n}$ 'the rain') $\square$
intervocalic, $\mathrm{n}=11$ (or 10 , excluding 'shell; tree bark')


(2) Verbs (shown in 3Sg perfective form with kóó ý ).
initial, $\mathrm{n}=3$ (or 1 , excluding 'buy' and '(rain) fall')
a. kóó [ந́ पījè]
'he/she ascended'
b. kóó [ý yàà-rà] 'he/she bought', cf. noun 'price' $(1 \mathrm{~g}) \quad \square$
c. kóó [ $\mathfrak{y}$ प̄̄m-b̀̀] 'it rained', cf. noun 'rain' (1h)
(rounding of $\varphi$ is clearest in perfective-2 $\varphi \grave{\jmath}-W^{n}$ ‘it rained') $\square$ intervocalic, $\mathrm{n}=6$ (5 excluding 'sing')
d. kóó [ந́ gùपغ̀rè]
'he/she wove (rope)'

e. kóó [ǵnùqèntà]
'he/she went in and came out the other end'
f. kóó [ŋ́ ŋù $\left.{ }^{n} \grave{\varepsilon}-r \grave{\varepsilon}\right]$
'he/she sang', cf. noun 'song' (1r) $\square$
g. kóó [ŋ́ tùЧغ̀-rદ̀] (1)
'he/she carried on head'

h. kóó [ŋ́ tùपદ̀-rè] (2)
'he/she transplanted, grafted' $\square$
i. [à प̀̀ $\left.W^{n}\right]$ kóó [ǵ प̄̄m-b̀̀] 'it rained, the rain fell', cf. noun 'rain' (1h)
j. kóó [ń sūù̀̀] 'he/she descended' $\square$
(2d) and (2e) have also been heard with $j$ instead of $\varphi$, the distinction being phonetically subtle. In the case of '(rain) fall' (2c), the rounding of $\varphi$ has been heard most clearly in perfective-2 $\varphi \grave{-}-W^{n}$, as opposed to perfective-1 kóó [ $\emptyset$ ч $\left.\bar{\jmath} m-b \grave{\jmath}\right]$, where the flanking
rounded vowels mask the rounding of $\varphi$. This verb also has inflected forms beginning \#чu, including imperfective $\varphi \grave{u}-W^{n} \grave{j}$. This transcription is "correct" as underlying form, but it is heard as [jùwǹ̀].

The breakdown by position (initial versus intervocalic) and by quality of adjacent vowels, combining nouns and verbs (including verbs with variable $\varphi \sim j$ ), is in Table 1 below. Pairs involving phonologically related nouns and verbs ('rain' and 'rain fall', 'buy' and 'price') are counted as singletons. 'Calabash' and 'shell; tree bark' may be the same lexical item and are counted here as a singleton. However, homonyms ('carry on head' and 'transplant, graft', 'water' and 'day/night transition', and 'dream' and 'néré tree (Parkia)') are counted as distinct items. Nasalized $\psi^{n}$ in 'sing'/‘song' is not distinguished in the numbers from $\varphi$.

Table 1

| initial | 8 | \#_i (or \#C_i $)$ | 5 |
| :---: | :---: | :---: | :---: |
|  |  | \#_e | 1 |
|  |  | \#_ $\varepsilon$ | 1 |
|  |  | \#_a | 1 |
| intervocalic | 15 | \#Cu_ $\varepsilon$ | 13 |
|  |  | \#Cu_e | 1 |
|  |  | \#Cu_i | 1 |

The opposition $i$ versus $u$ is effectively neutralized after initial $\psi$ and before intervocalic $\varphi$. There are no cases of initial \#чu... (other than underlying forms of 'rain fall' where $\varphi$ is realized as $j$ ), and no cases of intervocalic \#Сiч... However, in sūqì (1h) the wordfinal $i$ is clearly unrounded.

In initial position, there is a preference for a following $i(5 / 7)$ or less often another other front vowel (2/7). The exceptions are a pair of examples each with a and $\Omega$, but each pair consists of a verb and a cognate noun ('rain' and 'rain fall', 'price' and 'buy'), so each pair reduces to a single root. $\varphi_{\partial े W^{n} ~ ' r a i n ' ~ c a n ~ s o u n d ~ l i k e ~[j o ̀ w n '] ~ w i t h ~ u n r o u n d e d ~ s e m i v o w e l ~}^{\text {n }}$ $j$ in isolation, but in the definite form the rounding in $\varphi$ is audible (and the lip-rounding visible) after the low vowel of definite proclitic $\bar{a}$.

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\begin{equation*}
\bar{a} \varphi \bar{\rho} \grave{W}^{n} \text { 'the rain' } \tag{3}
\end{equation*}
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$\square$
In the relatively numerous \# $\ddagger i \ldots$ examples, the rounding extends phonetically in part to the $i$, so yìjè 'moon' is heard as something close to [ $4 y ̀ j \grave{j}]$. The phonetics, and the analysis, are complicated by that fact that all of the initial \#чi... examples are either followed by unrounded palatal semivowel $j$ or else (in 'grain-based meal') have long ii which (in Bangime) is not distinguishable from underlying/iji/.

The intervocalic examples all involve preceding $u$ and following $\varepsilon$, less often another front vowel $i$ or $e$. The preceding $u$ has a fronted articulation, e.g. súq́́ is approximately [sýyć]. One could therefore consider the possibility of reanalysing the "u" as /i/ before intervocalic $\varphi$.

The stems in (4) show that $w$ and $j$ can also occur in $\# \mathrm{Cu}_{-} \varepsilon$, and that initial \#wi and \#ju contrast with \#чi.
a. nùwè 'fat (n)'

b. pújjé 'wife'

c. wààớcíbí 'obligation’

d. kóó [ŋ́ wìndè] 'he/she wrote'


When initial $\varphi$ is followed by a nonhigh vowel ( $\varphi e, \varphi \varepsilon$, and especially $\varphi a, \varphi \supset$ ), $\varphi$ can be heard with a labialized release, as in ( $1 \mathrm{~g}-\mathrm{h}$ ) above. That is, the lip rounding extends beyond the retraction of the palatal approximation of the blade of the tongue. A low-level phonetic transcription $\left[j^{w}\right]$ or $\left[\varphi^{w}\right]$ roughly captures this.

