

ILLUSTRATIONS OF THE IPA

Cicipu

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Cicipu ([tʃɪtʃɪpù], ISO 639–3 code *awc*) is spoken by approximately 20,000 people in northwest Nigeria, with the main language area straddling the boundary between Kebbi and Niger states. The language belongs to the Kambari subgroup (not Kamuku as stated by Lewis, Simons & Fennig 2013) of Kainji (Benue-Congo), although it is heavily influenced by the *lingua franca* Hausa, in which almost all speakers are fluent. There are several identifiable dialects, with native speakers of Cicipu generally listing seven. Of these, Tirisino is the most prestigious and least endangered dialect, and this is the one presented here. Tikumbasi is the most divergent of the dialects, with the /o/ vowel in the other dialects consistently corresponding to /e/ in Tikumbasi (for example /pó:pò/ ‘hello’ ~ /pé:pè/, /tʃíkó:tò/ ‘drum’ ~ /tʃíkʷé:tè/). The distinction between /o/ and /ɔ/ has been lost in Tikumbasi.

The analysis presented in this Illustration is based on a database of 1400 nouns and verbs not identifiable as loanwords, as well as approximately ten hours of recorded and annotated text. This material was collected during four field trips by the author between 2006 and 2011, funded by the Hans Rausing Endangered Languages Project, the University of London Central Research Fund, and the Kay Williamson Educational Fund, and is available online at www.cicipu.org. For further details on the language see McGill (2009).

Most of the recordings accompanying this account were provided by Tirisino speakers Markus Yabani and Musa Danjuma. At the time of recording, both men were in their 30s and they had lived all their lives in the Tirisino village of Inguwar Rogo, near Sakaba. Some supplementary recordings were provided by Ibrahim Danjuma, Mohammed Mallam, Garba Daniel, and Yabani Ga’allah of the same village. The orthography used in this paper was approved by representatives of the Cicipu community in Sakaba, April 2010.

Consonants

Consonant phonemes

There are 27 consonant phonemes in Cicipu. This number has been arrived at by counting /kʷ/, /gʷ/, /ʔʷ/, /ʔʲ/, /hʷ/, and /hʲ/ as single phonemes with secondary articulations, rather than as two-phoneme sequences. This analysis has been adopted in order to avoid admitting onset clusters, which are otherwise absent in the language (see Hyman 1975: 96 for similar logic applied to Igbo); an alternative analysis would be to say that there are only 21 consonant

phonemes, and to stipulate /kw/, /gw/, /ʔw/, /ʔj/, /hw/, and /hj/ as the only permissible onset clusters.

| | Bilabial | Labio-dental | Alveolar | Post-alveolar | Palatal | Velar | Labial-velar | Glottal |
|---------------------|----------|--------------|----------|---------------|---------|--------------------------------------|--------------|---------------------------------|
| Plosive | p b | | t d | | | k g k ^w g ^w | | ʔ ʔ ^w ʔ ^j |
| Affricate | | | | tʃ dʒ | | | | |
| Implosive | ɓ | | ɗ | | | | | |
| Nasal | m | | n | | | | | |
| Flap | | | r | | | | | |
| Fricative | | v | s z | | | | | h h ^w h ^j |
| Approximant | | | | | j | | w | |
| Lateral approximant | | | l | | | | | |

Every noun word in Cicipu consists of an obligatory noun prefix followed by a stem. In the following list, the relevant phonemic contrasts are the root-initial ones, given after the hyphen.

| CONSONANT | PHONETIC | PHONOLOGICAL | ORTHOGRAPHIC | GLOSS |
|----------------|--|---|--------------|------------------|
| p | ùpátʃí | ù-pátʃí | upaci | difficulty |
| b | kàbárá | kà-bárá | kabara | old man |
| t | kàtádá | kà-tádá | katada | palm (of hand) |
| d | kàdábá | kà-dábá | kadaba | bush/countryside |
| k | mākántú | mà-kántú | makantu | knife |
| k ^w | māk ^w áʔá | mà-k ^w áʔá | makwa'a | orphan |
| g | ùgálù | ù-gálù | ugalu | side |
| g ^w | māg ^w áwá | mà-g ^w áwá | magwāwā | deaf/mute |
| ʔ | tʃíʔádi | tʃí-ʔádi | ci'adi | trap |
| ʔ ^w | ʔ ^w áʔ ^w :á: | ʔ ^w áʔ ^w :á: | 'wa''waa | houses |
| ʔ ^j | mòʔ ^j ʔ ^j ʔ ^j | mò-ʔ ^j ʔ ^j ʔ ^j | mø'yø'yø | fish |
| tʃ | kàtʃá:tʃùwà | kà-tʃá:tʃùwà | kacaacuwa | fine loincloth |
| dʒ | k ^w ùdʒénè | kù-dʒénè | kujene | river |
| ɓ | māɓásà | mà-ɓásà | mabasa | mole (on skin) |
| ɗ | ùdǎngà | ù-dǎngà | udānga | tree |
| m | kāmāngá | kà-māngá | kamānga | rope |
| n | ìnámà | ì-námà | inama | meat |
| r | kàrákātāu | kà-rá↓kátáu ¹ | karakatau | heel |
| v | kàvára | kà-vára | kavara | goat hut |
| s | k ^w ùsájú | kù-sájú | kusayu | spear |
| z | àzá | à-zá | aza | people |
| h | tʃíhávì | tʃí-hávì | cihavi | scratching |
| h ^w | | | | |
| h ^j | àh ^j áʔà | à-h ^j áʔà | ahyā'ā | arrows |

¹ Evidence for downstep can be seen in the phrase /kà-rá↓kátáu kè/ [kàrákātāu k^jè] 'it's a heel'.

| | | | | |
|---|--------|---------|--------|------|
| j | kàjájù | kà-jájù | kayayu | root |
| w | māwâ: | mà-wâa | mawâa | dog |
| l | kàlânà | kà-lânà | kalana | scar |

The phoneme /h^w/ is marginal in Cicipu. So far it has only been found in the time adverb /h^wâ²â/ ‘day before yesterday’ and a number of verbs borrowed from Hausa (e.g. /h^wara/ ‘start’ from Sokoto Hausa *hwara*; compare *fara* in standard Hausa).

Allophonic variation

As well as the labialised and palatalised phonemes which appear in the consonant chart above, there are a number of non-phonemic allophones with these modifications. /m/, /v/, and /s/ have labialised allophones [m^w], [v^w], and [s^w] before the rounded vowels /o/, /ɔ/, and /u/, while /k/ and /g/ have palatalised allophones [k^j] and [g^j]. [k^j] occurs before both front vowels /i/ and /e/, whereas [g^j] has only been found before /i/ (contrast /kèk:éĩ/ [k^jèk:éĩ] ‘clapperless bell’ with /gédù/ [gédù] ‘above’). Examples follow:

Labialised and palatalised allophones

| ALLOPHONE | PHONETIC | PHONOLOGICAL | ORTHOGRAPHIC | GLOSS |
|----------------|---|--------------|---------------------|--------------------|
| m | kàmǎngá | kà-mǎngá | kamānga | rope |
| m ^w | k ^w òg ^w :úm ^w ó | kò-g:úmó | koggumo | log |
| v | kàvára | kà-vára | kavara | goat hut |
| v ^w | k ^w òv ^w ò:tʃi | kò-vó:tʃi | kovooci | wild custard apple |
| | v ^w ò:m ^w ò | vò:mò | vøømø | monkey |
| s | k ^w ùsájú | kù-sájú | kusayu | spear |
| s ^w | àk ^j :ís ^w ó | à-kí:só | okiiso ² | spirits |
| | ùs ^w ò: | ù-sò: | usøø | he/she drank |
| k | màkǎntú | mà-kǎntú | makāntu | knife |
| k ^j | àk ^j :ís ^w ó | à-kí:só | okiiso | spirits |
| | k ^j èk:éĩ | kèk:éĩ | kekkēi | clapperless bell |
| g | ùgálù | u-gálù | ugalu | side |
| g ^j | síngí | síngí | sīngi | hair |

Before rounded vowels /k/, /g/, /ʔ/, and /h/ do not appear to contrast with their labialised counterparts, and so the underlying consonant in such sequences cannot be determined. Similarly before front vowels /ʔ/ and /h/ do not contrast with their palatalised counterparts. For the phonological transcriptions in this paper, in such cases of neutralisation I have (arbitrarily) chosen the unmodified phonemes (i.e. /k/, /g/, /ʔ/, /h/).

There are only two phonemic nasals in Cicipu, /m/ and /n/. All nasal-consonant (NC) clusters in Cicipu are homorganic, with [ŋ] and [ŋ] occurring before velar and labio-dental consonants, respectively. Examples follow (see below for [ŋ]):

Homorganic nasal-consonant clusters in Cicipu

| CLUSTER | PHONETIC | PHONOLOGICAL | ORTHOGRAPHIC | GLOSS |
|---------|--------------------------------------|--------------|--------------|-------|
| mb | k ^w óg ^w :òmbò | kó-g:òmbò | koggõmbo | bat |
| nt | màkǎntú | mà-kǎntú | makāntu | knife |
| ŋg | kàmǎngá | kà-mǎngá | kamānga | rope |

Morpheme-internal NC clusters are only found when the C is a plosive and the cluster occurs after a nasal vowel; in fact the nasal component could be argued to be absent

² In the accompanying recording this word is pronounced with a careful [a] prefix. In normal speech vowel harmonisation would make [òk^j:ís^wó] a more likely pronunciation.

phonologically (see McGill 2009: 109–111 for details). Thus, [mɣ] clusters are only found across morpheme boundaries e.g. /m̄-vàrì/ [m̄v̄àrì] ‘wild dogs’, where the root /-v̄àrì/ follows the syllabic NC5 prefix /m̄/.

Ungeminated /r/ is realised as a flap [ɾ], both utterance-initially and utterance-medially, as in /rìbá/ [rìbá] ‘sink!’ and /kà-rá↓kátáú/ [kàrákātāú] ‘heel’. A long /r/ is realised as an approximant [ɹ] as in /r:éi/ [r:éi] ‘towns’, optionally followed by a flap [ɾ], for example /ké↓-r:éi/ [kɛ.ɹɛi] ‘of-towns’. Sometimes /r/ surfaces as a mild retroflex/post-alveolar [ɽ] (this can be heard especially in the [kɛ.ɹɛi] token accompanying this paper, which might be transcribed [kɛ.ɹ̥ɛi]). Unlike in Hausa (Newman 2000: 394–395), there is not believed to be a phonemic distinction between coronal and post-alveolar flaps.

The approximants /j/ and /w/ have nasalised allophones [j̃] and [w̃] which occur in the neighbourhood of nasalised vowels, as shown by /kù-jùjù:/ [kùj̃j̃ù:] ‘sand’ and /ù-wâ:wâ:/ [ùw̃â:w̃â:] ‘recovering’, respectively.

The bilabial plosives /p/ and /b/ sometimes undergo lenition to [ɸ] and [β] when they occur intervocally, especially in quick speech. For example, /jápù/ ‘two’ may surface as [jáɸù] and /dzì:bò/ ‘have breakfast’ as [dzì:βò].

The fricative [ʃ] is non-phonemic, apart from in borrowings such as the Hausa loan *shawara* [ʃáwàrà] ‘advice’. In native words the phone only occurs as a variant of /s/ before [i] for some speakers, as in /rú:sì/ [rú:ʃi] ‘rainy season’; the precise nature of the variation is not understood.

Long consonants

All twenty-seven consonantal phonemes may be geminated, including the glottal fricatives and plosives, and all of these geminates may be found word-initially. This is unusual cross-linguistically (McGill 2012). Nineteen of these have been found root-initially in nouns:

Root-initial geminates in nouns

| CONSONANT | PHONOLOGICAL | ORTHOGRAPHIC | GLOSS |
|------------------|------------------------------|----------------------|----------------------|
| p: | kà- p :átá | kappata | cave |
| b: | kà- b :ángà | kabbānga | raffia palm stem |
| t: | mò- t :órí | mòttòri | spurge plant, k.o. |
| d: | kà- d :írí | kaddiri | stack |
| k: | kà- k :úrí | kökkuri | wizard, k.o. |
| k ^w : | mà- k^w :áí | makkwāi | legume, k.o. |
| g: | kó- g :òmbò | koggõmbo | bat |
| g ^w : | | | |
| ʔ: | kà- ʔ :í: | ka ^h ĩ | terrapin |
| ʔ ^w : | | | |
| ʔ̃: | | | |
| tʃ: | kè- tʃ :émé | kecceme | deleb-palm |
| dʒ: | kà- dʒ :íĩ | kajjĩĩ | tree, k.o. |
| ɸ: | | | |
| d̃: | ká- d̃ :ĩmbáú | kaddĩmbāu | pool |
| m: | kà- m :átúwí | kammatūwi | wizard, k.o. |
| n: | mà- n :ú | mannu | bird |
| r: | | | |
| v: | kò- v :óʔù | kovvo ^h ũ | area with long grass |
| s: | ká- s :à | kassa | leaf |
| z: | kà- z :íjǎ | kazzĩyǎ | Isobertia doka tree |
| h: | kà- h :ú:tʃi | kahhūuci | cloud |
| h ^w : | | | |
| h̃: | | | |

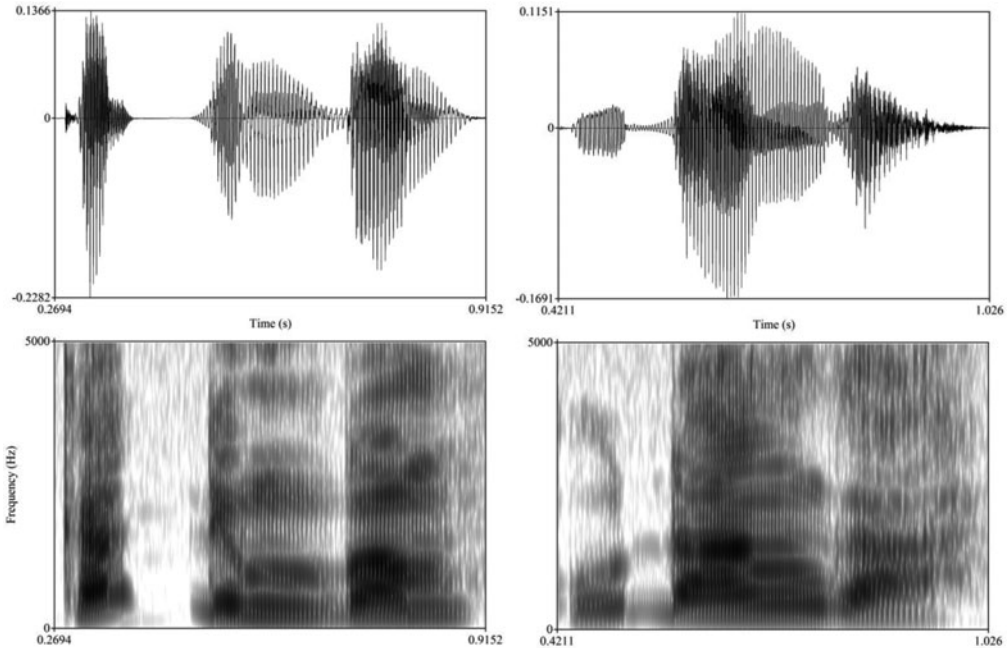


Figure 1 ká-dǐmbáú 'pool' (left) vs. ù-dǎngà 'tree' (right).

| | | | |
|----|----------|---------|-----------------|
| j: | | | |
| w: | mà-w:ájí | mawwayi | broken calabash |
| l: | tjí-lú | cillu | neck |

The geminate implosive /dǐ/ is realised with an almost complete glottal closure, as evidenced by the apparently zero amplitude and very faint spectrogram bands of /ká-dǐmbáú/ 'pool' in Figure 1, which contrast with those of /ù-dǎngà/ 'tree'.

All except one of the gaps in the list of root-initial geminates in nouns above are covered by the verb forms given in the list of word-initial geminates in verbs below. Although all Cicipu verb roots begin with short consonants, the second person singular realis (2PS\RLS) is formed by geminating the first consonant of the root, giving rise to a word-initial geminate. This list contrasts the short consonants found in the imperative forms with the geminates found in the 2PS realis forms. The realis forms are given in two contexts: utterance-initially (e.g. /p:ásà/ 'you(s) crossed'), and then after the independent 2PS pronoun (PRO) /ìvó/ (e.g. /ìvó p:ásà/ 'YOU(S) crossed').

Geminates occurring word-initially in verb forms

| CONSONANT | PHONOLOGICAL | | | GLOSS |
|------------------|---------------------|--------------------------------------|--------------------------|----------------------|
| | IMPERATIVE | 2PS\RLS | 2PS.PRO 2PS\RLS | |
| p: | pàsá | p:ásà | ìvó p:ásà | cross! |
| b: | bòlò | b:ólò | ìvó b:ólò | seek! |
| t: | tàn:á | t:án:à | ìvó t:án:à | come down! |
| d: | dámá | d:ámà | ìvó d:ámà | speak! |
| k: | kàbá | k:ábà | ìvó k:ábà | take! |
| k ^w : | k ^w ántá | nì-k ^w :ántá ³ | ìvó k ^w :ántá | rap! (e.g. knuckles) |

³ No recording was made of /k^w:ántá/ 'you(s) rap'. /nì-k^w:ántá/ means 'when you(s) rap'. This word may in fact be borrowed from Hausa *k̀wangwara* 'rap'.

| | | | | |
|------------------|----------------------------------|----------------------|--------------------------|------------------------------|
| g: | gàv́á | g:á:và | ìvó g:á:và | kick! |
| g ^w : | g ^w è:dé | g ^w :è:dè | ìvó g ^w :è:dè | thank! (Hausa: <i>gode</i>) |
| ʔ: | ʔísànú | ʔ:ísànù | ìvó ʔ:ísànù | stand! |
| ʔ ^w : | ʔ ^w á: | ʔ ^w :á: | ìvó ʔ ^w :á: | pass! |
| ʔ ⁱ : | | | | |
| tʃ: | tʃá: | tʃ:á: | ìvó tʃ:á: | give! |
| dʒ: | dʒít:ó | dʒ:ít:ò | ìvó dʒ:ít:ò | blink! |
| b: | bǎngàlá | b:ǎngàlà | ìvó b:ǎngàlà | slap! |
| d: | dāv́á | d:ávà | ìvó d:ávà | pound! |
| m: | màtá | m:átà | ìvó m:átà | give birth! |
| n: | nàhá | n:áhà | ìvó n:áhà | leave! |
| r: | rèʔè | r:éʔè | ìvó r:éʔè | persuade! |
| v: | vàsá | v:ásà | ìvó v:ásà | beat! |
| s: | sùmá | s:úmà | ìvó s:úmà | run! |
| z: | zá: | z:â: | ìvó z:â: | find! |
| h: | hèlùwé | h:élùwè | ìvó h:élùwè | winnow! |
| h ^w : | h ^w à:rá ⁴ | h ^w :â:rà | ìvó h ^w :â:rà | start! (Hausa: <i>fara</i>) |
| h ⁱ : | h ⁱ á: | h ⁱ :â: | ìvó h ⁱ :â: | say! |
| j: | já: | j:â: | ìvó j:â: | arrive! |
| w: | wì:ná | w:î:nà | ìvó w:î:nà | sell! |
| l: | làpá | l:ápà | ìvó l:ápà | know! |

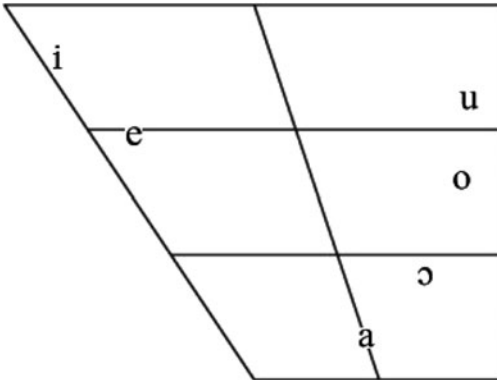
No known verbs begin with /ʔⁱ/, one of the rarer phonemes in the language, and so it is not possible to demonstrate a long /ʔⁱ/ here.

The data presented in the above list as well as in McGill (2012) show that there are morphophonological reasons for postulating word-initial geminates; however, the precise nature of the phonetic differences between word-initial short and long consonants is yet to be investigated experimentally.

Vowels

Monophthongs

There are six contrastive monophthongs.



⁴ From Sokoto Hausa *hwara* ‘start’.

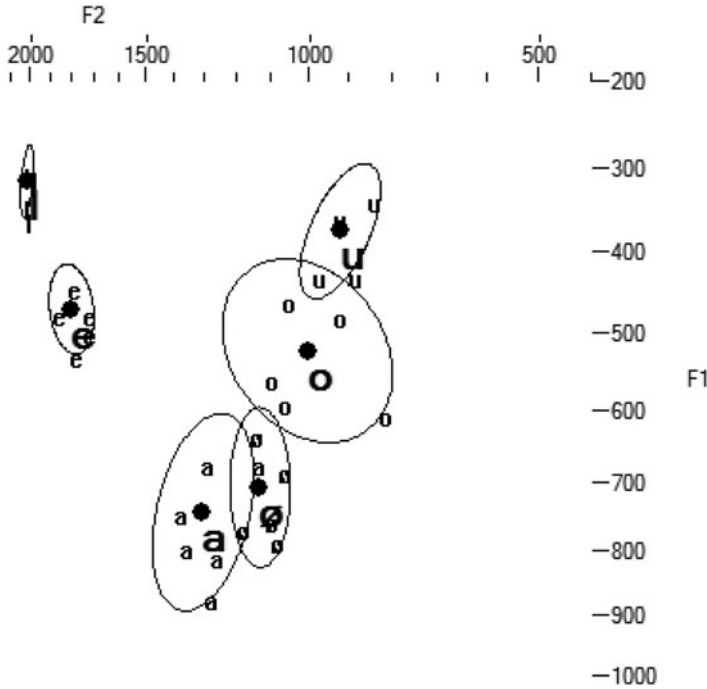


Figure 2 Bark chart of Cicipu vowels.

| VOWEL | PHONOLOGICAL | ORTHOGRAPHIC | GLOSS |
|-------|--------------|--------------|----------------------|
| i | n-ù-pìtí | n-upití | while he/she stepped |
| e | pèté | pete! | split! |
| a | pàtá | pata! | beg! |
| u | kùdú | kuđu! | throw! |
| o | kòdó | kođo! | peck! |
| ə | kòdɔ | kəđo! | cut down! |

The Bark chart (Figure 2) shows the F1/F2 distribution of the vowels of a single male speaker, measured in Hertz and based on thirty tokens of short oral vowels.

The lack of a high central vowel phoneme is unusual in (Western) Kainji, where most other languages have two central vowels, /a/ and /ə/. A schwa-coloured (i.e. centralised) vowel does occur in Cicipu as an allophone [ö] of /o/ in the environment $_CV[+high]$, that is when the next vowel in the word is /i/ or /u/. Examples include /kòjòngólì/ [kòjòŋg^wólì] ‘k.o. large ant’ and /dò:sònù/ [dò:sòn^u] ‘swim!’. When such words are pronounced carefully, the surface vowel quality is never [ə] or [ɐ].

/i/ may be optionally realised as [u] in the neighbourhood of a rounded vowel; the following example shows both /gutu/ and /gitu/ in almost identical environments.

- (1) h-ǎjà è-ʔésù gútù níjù-nò é-ʔèsù gītù
 3P-come\RLS 3P-again\RLS go_back\RLS send\RLS-VENT 3P-again\IRR go_back\IRR
 ‘they again sent for them to come back again’

Matters are further complicated by the influence of the approximant /j/ on a preceding /u/, or conversely /w/ on a preceding /i/. For example, /guja/ ‘be able to’ is pronounced [g^wija] (demonstrated by the verb form /íg:ùjà/ [íɡ:^wijà] ‘you(S) should be able to’; note verbs in

Cicipu are inherently toneless – see below), and /tì-wómó/ ‘chieftaincy’ is pronounced [tù-wómó]. In general, the distribution of the high vowels /i/ and /u/ is problematic, just as in Hausa (Newman 2000: 399–400).

Vowel length and nasalisation

All vowels contrast in both length and nasality. Short vowels are more common than long vowels, by a ratio of approximately 7:1 in the lexicon. Oral vowels are considerably more common across the lexicon than nasal vowels, with a ratio of about 5:1 in the words collected so far. Examples are listed here:

| VOWEL | PHONOLOGICAL | ORTHOGRAPHIC | GLOSS |
|-----------------|--------------|--------------|---------------|
| a | dàpá | dapa! | burn! |
| a: | gà:tá | gaata! | cut! |
| ã | kã?á | kã'ã! | scoop out! |
| ã: | tá: | tãa! | shoot! |
| e | kè-ré?è | kere'e | tongue |
| e: | tʃi-ré:nè | ciireene | fireplace |
| ẽ | ù-sé?è | usẽ'è | he/she carved |
| ẽ: ⁵ | | | |
| i | tʃitá | cita! | sting! |
| i: | tʃi:tá | ciita! | squash! |
| ĩ | kà-jívá | kayíva | vein |
| ĩ: | kà-hí:vì | kahíivi | navel |
| o | tòmó | tomo! | die out! |
| o: | tò:mó | toonó! | come home! |
| õ | kò-?úwõ | ko'úwõ | hemp |
| õ: | mò-tõ: | motõo | saliva |
| ɔ | jònó | yønø! | pull! |
| ɔ: | tòmó | tøømø! | chew! |
| õ | rù-kõ?õ | rukõ'õ | pool |
| õ: | kò-kõ: | køkõø | egg |
| u | kùrò | kurø! | grow up! |
| u: | kù:lá | kuula! | call! |
| ũ | kù-jùjù: | kuyüyüu | sand |
| ũ: | kà-hhú:tʃi | kahhüuci | cloud |

Diphthongs

Cicipu has the following diphthongs, all of which are falling (i.e. from an open to a closed vowel quality): /ai/, /au/, and perhaps /ei/ and /eu/ (see below).

| DIPHTHONG | PHONOLOGICAL | ORTHOGRAPHIC | GLOSS |
|-----------|--------------|--------------|-------------------|
| ai | má:dái | maadāi | wonder |
| au | kà-sâu | kasāu | grave (i.e. tomb) |
| ei | ù-séi | usēi | pain |
| eu | kè-rèzêu | kerezēu | cotton |

⁵ There is one word in the corpus with a lengthened /ẽ/. However, [bê:] ‘slowly’ is an ideophone and therefore unsuitable for demonstrating phonological contrasts. /e/ is the least common vowel in Cicipu and it seems likely that more data would fill the gap.

Table 1 Vowel co-occurrence restrictions in CVCV noun roots where V_1 and V_2 are both short oral vowels (V_1 down the left, V_2 along the top).

| | i | e | a | ɔ | o | u |
|---|----|----|----|----|----|----|
| i | 17 | 1 | 25 | 2 | 20 | 17 |
| e | 5 | 11 | | | | 13 |
| a | 21 | | 40 | | | 14 |
| ɔ | 6 | | | 17 | | 8 |
| o | 3 | | | | 9 | 3 |
| u | 8 | 1 | 9 | 1 | 9 | 14 |

Other than in borrowed words, diphthongs are limited to root-final position (of either mono- or multi-syllabic roots). Thus, they differ from both short and long vowels in their distributional properties: short vowels do not occur in monosyllabic roots, and long vowels occur as the last vowel of a multi-syllabic root only rarely.

Almost all diphthongs are nasalised (discounting loanwords); the only two attested exceptions involve /au/: /tʃ:átʃáu/ ‘ankle bracelet’ and /kà-rá↓kátáu/ ‘heel’.

Evidence from related languages and loanwords such as /kà-nàbâi/ ‘account’ (Hausa *labari*) and /kà-lízâi/ ‘horse bit’ (Hausa *linzami*) suggests that Cicipu diphthongs have come about due to the loss of a consonant which previously separated two different vowels.

The distribution of /ei/ and /eu/ is problematic, and it has not been possible to find good contrasts with /ẽ:/, with analysis hampered by the rarity of all of these sounds. In the examples collected so far, [ẽi] occurs only after /d g k p s t/, [ẽu] occurs only after /n z/, and [ẽ:] occurs only after /b/. It would therefore be theoretically possible to analyse all of these as allophones of /ẽ:/, reducing the number of diphthongs to two.

These sounds are analysed as diphthongs rather than vowel–glide sequences for phonotactic reasons, since there are no unambiguous word-final codas in Cicipu. However, a bi-syllabic analysis could also be appropriate.

Vowel harmony

There is widespread vowel harmony in Cicipu, of the kind called ‘total’ by Aoki (1968: 142; see also Hyman 1975: 234 on vowel copying/reduplication). This harmony is manifest not just as a distributional constraint operating on all word classes within the lexicon but also as an active process affecting many nominal and verbal affixes.

The six vowels can be divided into (i) the four non-high vowels {o, ɔ, e, a}, which form a set of mutually exclusive harmonic counterparts, and (ii) the two high vowels {i, u}, which are neutral and so may occur with any vowel from the first set. Vowels from the first set {o, ɔ, e, a} are mutually exclusive in roots, regardless of word class. So if a root contains /a/, its other vowels must come only from the set {a, i, u}, /e/ only occurs with {e, i, u}, and so on. Put more concisely:

(2) If there are two [–high] vowels in a phonological word then they must be identical.

The vowel harmony system operates across all lexical roots, apart from some borrowings. Table 1 shows the distribution of V_1 and V_2 in native CVCV noun roots where both Vs are short and oral (there are 274 such roots in the database used for this study).

Vowel harmony in words is root-controlled. Affixes vowels are either /i u/, or a harmonising vowel, written here as /A/; there are no invariant affix vowels from the harmonising set {o, ɔ, e, a}. Thus, for example, the NC1 class prefix /kA-/ has four allomorphs {ko, kɔ, ke, ka}, as illustrated in the following:

| PHONETIC | ORTHOGRAPHIC | GLOSS |
|--------------------------------------|--------------|--------------------|
| kàbára | kabara | old man |
| k'èrɛʔè | kere'e | tongue |
| k ^w òv ^w ó:tʃí | kovooci | wild custard apple |
| k ^w ə-k ^w ɛ̃: | køkøø | egg |

If the stem contains only high vowels, then the affix vowel usually surfaces as [a], as in /kÀ-kúlù/ [kàk^wúlù] ‘hailstone’ (but see below).

The high vowels /i/ and /u/ are neutral and usually transparent, as illustrated by (3)–(5) (see McGill 2011 for some exceptions to transparency).

- (3) [k^wòg^w:úm^wó̃]
 kÀ-g:úmó
 NC1-log
 ‘log’
- (4) [k^wòmí^wò:nî:]
 kÀ-mísò:nî:
 NC1-story
 ‘story’
- (5) [òsìtʃíjó hè]
 À-sì-tʃíjó h-è
 3P-HAB-get AG2-PRO
 ‘they get them’

In some words, the mid vowels [e] and [o] (or [ɔ]) may surface unexpectedly as affix vowels. A case in point is the word [níjù-nò] ‘send/RLS-VENT’ from (1) above. The ventive suffix is underlyingly -nA, and so we should expect [níjù-nà] here. This is an instance of an optional (i.e. lexically-specified) process of affix vowel assimilation which occurs when the root contains only high vowels, whereby an affix vowel A is realised as either:

- [e], if the root contains only /i/, as in (6), or;
- [o] (or sometimes [ɔ]), if the root contains only /u/, as in (7)), or a mix of /i/ and /u/, as in (8) and (9)).

In contrast, in the (b) examples no assimilation has taken place and these forms are consistent with the vowel harmony process described above. It is not yet known if there is any way to predict whether this assimilatory process will apply.

- (6) a. [èdʒ:íí] À-dʒ:íí ‘African rosewood trees (NC2)’
 b. [àtʃí:(hè)] À-tʃí:(hè) ‘(it is) upper grinding stones (NC2)’
- (7) a. [k^wòlú:] kÀ-lú: ‘knee (NC1)’
 b. [ká:l:ù] kÀ-l:ù ‘hunger (NC1)’
- (8) a. [k^wòsít:ú] kÀ-sít:ú ‘fig tree (NC1)’
 b. [kàsídù] kÀ-sídù ‘whip (n.) (NC1)’
- (9) a. [k^wɔk^w:úrí] kÀ-k:úrí ‘wizard, k.o. (NC1)’
 b. [kàh^w:ú:tʃí] kÀ-h:ú:tʃí ‘cloud (NC1)’

Note that the (a) forms are not disharmonic according to (2) above, since they only contain a single non-high vowel – it is just that (2) alone cannot explain why the prefix surfaces with a mid vowel. For further examples see McGill (2011).

Anderson (1980) briefly discussed prefix–root vowel harmony in nouns for the Eastern Kainji language Amo. He states that ‘[t]hough this vowel harmony may provide a phonetic “target”, considerable variation still exists even on individual words’ (1980: 157). This is true for Cicipu affix-vowel harmony to some extent, especially in the Tidipo dialect. An example

of failure to harmonise in Tirisino can be seen in the token [àkʲí:sʷó] ‘spirits’ in the list of labialised and palatalised allophones above (compare example (10) from the same speaker).

- (10) [àkʲí:sʷó sàdó:nû pâ:]
 à-kí:só sî-dô:nù pâ:
 NC2-spirit HAB-live here
 ‘spirits live here’

Tone

Cicipu vowels are found with two contrastive tones: H and L, with contour tones being found on long vowels and diphthongs. Examples of contrast are given in the list below; see also the verb forms in the list of geminates occurring word-initially in verb forms above, which illustrate tone contrast in monosyllabic words.

Tone contrasts

| ROOT TONES | PHONOLOGICAL | ORTHOGRAPHIC | GLOSS |
|------------|--------------|--------------|--------------------|
| H | kù-sá: | kusãa | mountain |
| L | ká-s:à | kassa | leaf |
| H | kà-tá: | katãa | shoe |
| HL | ù-tâ: | utãa | bow (i.e. hunting) |
| H | t:í: | ttĩi | container |
| HL | tî: | tĩi | shit |
| H H | ká:já | kaaya | room |
| H L | ká:jà | kaaya | bean |
| H H | tjù-kúlú | cukulu | tortoise |
| H L | kà-kúlù | kakulu | hailstone |

Predictable tones in verbs

Verb lexemes are inherently toneless, deriving their surface tones from their Tense-Aspect-Mood properties (such systems are called ‘predictable’ by Kisseberth & Odden 2003: 61). Perhaps the most important grammatical function of tone in Cicipu is to mark the distinction between realis and irrealis mood. Other than the 2PS form (where there is also a segmental difference), it is only the tone which distinguishes the two moods: compare /ù-dúkʷà/ ‘he/she went’ with /ú-dùkʷà/ ‘he/she should go’. In the orthography, irrealis verbs are written with an acute accent over the first vowel, for example, *údukwa*.

Falling or rising tones can occur phonetically as a consequence of applying a particular tone pattern to a long vowel, diphthong, or sequence of two vowels. This is illustrated by example (11), where the first two tones of the realis LHL pattern fall on the long vowel.

- (11) [wũ:tò]
 u-uto\LHL
 3S-go_out\RLS
 ‘he/she/it went out’

Note that while LH tones can arise from the overlay of grammatical tone patterns, they are never lexically specified.

Downdrift and downstep with ‘Plateauing’

Tones in Cicipu utterances undergo automatic terraced downdrift within each intonation group, whereby the pitch of each H is lower than that of the one before. Successive L tones also decline in pitch, but by less, and thus the distinction between H and L is less towards the end of an intonation group than at the beginning.

Non-automatic downstepped H tones also occur. For example, in the post-verbal complement position of non-imperative clauses, objects whose initial vowel is underlyingly H always surface at the same pitch level as the previous (underlying) L. Subsequent L tones are even lower. Examples (12)–(14) demonstrate three phonetic levels of pitch in realis clauses (for these examples, there are accompanying whistle tracks produced by the speaker). The phonetic pitch of these utterances can be explained by assuming a ‘Plateauing’ rule (Goldsmith 1990: 36), causing HLH to become H↓HH. Thus, in (12), for example, underlying /tíndà kás:à/ is realised as [tínd↓á kás:à] by the delinking of the L from the /a/ of /tíndà/ to become a floating tone, and the consequent backward spreading of the H tone of /kás:à/.

- (12) H M M L
 tíndà kás:à
 1P.see\RLS NC1.leaf
 ‘we saw a leaf’
- (13) H M M M L
 tíndà ká:já h’á?ù
 1P.see\RLS NC1.hut yesterday
 ‘we saw a hut yesterday’
- (14) H M M M L M
 tíndà ká:já dò:rí
 1P.see\RLS NC1.hut formerly
 ‘we saw a hut formerly’

The same phenomenon has been observed in a heterogeneous set of syntactic environments (see McGill 2009: 137–139), which suggests a more general description is possible.

Transcription

The text provided is Markus Yabani’s retelling of the Hausa audio version of ‘The North Wind and the Sun’.

Phonemic transcription

Vowel elision and coalescence are common at word boundaries, with the rightmost vowel quality usually dominant, e.g. /ámbe lè: ú:wâ:jà/ (line 5) surfaces as [ámbeú:wâajà]. As discussed above, certain grammatical constructions induce tonal downstep, and where this occurs word-internally, it is indicated by ↓. Downstep at word boundaries (e.g. between a verb and its complement) is not marked here. Rightward-spreading of high tones is common, and this too has been omitted. Tense-Aspect-Mood tone patterns superimposed on verbs are glossed using a backslash (e.g. 3P-do\RLS).

kànàbâi kâmpà kànàbâi kú:↓léndzì kè / nù:pépi / k^wá:kúl:è gó, ùléndzì nù:pépi / wú↓k:údu, wú↓sá?à vú:↓jéjù / àjà: gâd:ámà / ùléndzì wùh’â: wùdâ: ùpépi ù?úsù / ùpépi wú↓k:údu kúmá wú↓sá?à vú:↓jéjù, ùh’â: / ùdâ: ùléndzì ù?úsù / tò k^wá:kúl:è, séi gâ wúnà z:á wù:tònò kúdu / ìn mèt:égù mé:vì mú:↓jéjù, ùjú:ní / dègèlè:, mèt:égù mánà kúmá, ùv’á?à mè / ùv’á?ilâ mè, kám kám / dègèlè: / ùpépi wùh’â: tò, ìndú ámbè lè: ú:wâ:jà / wájà ùg^wáda ù?úsù wé:vì / dègèlè: ánà wâ:jàná / ù?úngònò / bùbùbùbù / ù?ósù ?ésènú, ù?ósù ?ésènú, ù?ósù ?ésènú / mèt:égù mé:l:è, ùgújà tšé ùp^ó?ò mè / ùgújà tšé ùp^ó?ò z:á vil:è mè:t:égù / dègèlè:, ùjâ: ùjâ: ùjâ: ùjâ: ùjâ: ùjâ:, ùjâ: ùjâ:ká vú:↓gújâ:ní wé:vì,

ùjâ: íjà:ká vú:↓ʔúsù wé:vi, ùgújà tʃé / dègèlê:, wájà ùtʃá: kàlà:híjà / wájà ùsál:àmà zʔá
 víl:è / dègèlê:, ùléndzì wájà ùhʔá: tò ìndú ámbè lê: ú:wá:jà / ùléndzì wájà wũ:tònd /ánà
 wũ:tònd:ò, ùhwà:rà ùgʔárùwànà / ùʔésù ùgwárùwànà, ùʔésèndù ùsídí / wùjâ: ùsídí, ùʔósù
 ùtʃá: ùsídí gèi / dègèlê:, zʔá víl:è wũ:wà tʃá:ʔwái tìdâ:mùkʔì vî / évi ìn kàtíi kè:vi /wá:jà,
 ùpʔʔè mè:tégù /

Orthographic transcription

Kanabai kampa kanabai k-ulenji ke, n-upepi. Kwaakulle go, ulenji n-upepi wu-kkudu, wu-sa'a v-uyeyu, ayâa gaddama. Ulenji wuhyâa wudaa upepi u'úsû. Upepi wu-kkudu kuma wu-sa'a v-uyeyu, uhyâa uđaa ulenji u'úsû. To kwaakulle, sei ga wuna zza wuutono kudu in mettegu mee vi m-uyeyu, uyûuni. Degelee, mettegu mana kuma, uvãã me, uvãã me kam kam. Degelee upepi wuhyâa to, indu ambe lee u-uwaaya. Waya ugwada u'úsû weevi. Degelee ana waayana u'ungono bu-bu-bu-bu. U'osu 'esenu, u'osu 'esenu, u'osu 'esenu. Mettegu melle, uguya ce upõõ me, uguya ce upõõ zza ville mettegu. Degelee, uyâa uyâa uyâa uyâa uyâa uyâa, uyâa iyaaka v-uguyaani weevi, uyâa iyaaka v-u'úsû weevi, uguya ce. Degelee, waya ucaa kalaahiya, waya usallama zza ville. Degelee, ulenji waya uhyâa to indu ambe lee u-uwaaya. Ulenji waya wuutono. Ana wuutonno, uhwaara ugwaruwana. U'esu ugwaruwana, u'esenu usidí. Wuyâa usidí, u'osu ucaa usidí gèi. Degelee, zza ville wuuwa caa'wái tidaamukwi vi. Evi in katíi keevi waaya, upõõ mettegu.

Interlinear version

kànàbâi ká-mpà kànàbâi k-ùlénjí k-è, n-ùpépí / kwáakúllè gó, ùlénjí n-ùpépí/
 account AG1-this account AG1-sun AG1-COP and-wind that_day TOP sun and-wind
this story is a story of the sun, and the wind / one day, the sun and the wind /

wú-kkúdù, wú-sá'á v-ùyéyù / à-yâa gàddámà / ùlénjí wù-hyâa
 AG7-south AG7-time AG8-cold 3P-do\RLS test sun AG7-say\RLS
of the south, of the cold season / they held a contest / the sun said

wù-dâa ùpépí ù'úsù / ùpépí wú-kkúdù kúamá wú-sá'á v-ùyéyù,
 AG7-surpass\RLS wind power wind AG7-south and AG7-time AG8-cold
it was stronger than the wind / and the cold south wind,

ù-hyâa / ù-dâa ùlénjí ù'úsù / tò kwáakúllè, séi gá wú-nà zʔá
 3S-say\RLS 3S-surpass\RLS sun power OK that_day then there_is 3S-ART person
it said / it was stronger than the sun / OK one day a certain person

w-ùtò-nò kúdù / ìn mètégù mé-evì m-ùyéyù, ù-yúu-ní /
 3S-go_out\RLS-VENT south with shirt AG4-3S.POSS AG4-cold NC7-wear-NMLZR
came out of the south / wearing his cold-weather shirt /

dègèlêe, mètégù má-nà kúamá, ù-vá'á m-è / ù-vá'á <ìl>à m-è,
 then shirt AG4-ART and 3S-tie\RLS AG4-PRO 3S-tie\RLS <PLAC> AG4-PRO
then, the shirt, he tied it / he tied it,

kám kám / dègèlêe / ùpépí wù-hyâa tò, ìndú ámbè lêe ú-u-wâyà /
 tight tight then wind AG7-say\RLS OK there_is 1S.PRO:LOC there LOC-NC7-come
tight / then / the wind said OK, here I come /

w-áyà ù-gwádà ù'úsù wé-evì / dègèlêe ána w-áyà-nà /
 3S-come\RLS 3S-measure\RLS power AG7-3S.POSS then when 3S-come\RLS-PFV
then it tested its strength / then when it came/

ù-'úngò-nò / bù-bù-bù-bù / ù-'ósù 'ésènù, ù-'ósù 'ésènù,
 3S-rise\RLS-VENT [SFX] 3S-again\RLS add 3S-again\RLS add
it rose up / bu-bu-bu-bu / it increased, it increased,

ù-'ósù 'ésènù mètétègù mé-llè, ù-gúyà cé ù-p'ò'ò m-è /
 3S-again\RLS add shirt AG4-that 3S-can\RLS NEG NC7-remove AG4-PRO
it increased / that shirt, it couldn't remove it /

ù-gúyà cé ù-p'ò'ò zzá ví-llè mètétègù / dègèlêe, ù-yâa ù-yâa
 3S-can\RLS NEG NC7-remove person AG8-that shirt then 3S-do\RLS 3S-do\RLS
it couldn't remove the shirt from that person / then, it tried

ù-yâa ù-yâa ù-yâa ù-yâa, ù-yâa íyàaká
 3S-do\RLS 3S-do\RLS 3S-do\RLS 3S-do\RLS 3S-do\RLS limit

v-ù-gúyáa-ní wé-evì,
 AG8-NC7-can-NMLZR AG7-3S.POSS
to the utmost of its ability,

ù-yâa íyàaká v-ù'úsù wé-evì, ù-gúyà cé / dègèlêe, w-áyà
 3S-do\RLS limit AG8-power AG7-3S.POSS 3S-can\RLS NEG then 3S-come\RLS
it tried to the limit of its strength, it couldn't do it / then it

ù-câa kàlaahíyà / w-áyà ù-sállàmà zzá ví-llè / dègèlêe,
 3S-give\RLS peace 3S-come\RLS 3S-take_leave\RLS person AG8-that then
yielded / it took its leave of that person / then

ùlénjí w-áyà wù-hyâa tò, ìndú ámbè lêe ú-u-wâayà / ùlénjí
 sun AG7-come\RLS AG7-say\RLS OK there_is 1S.PRO:LOC there LOC-NC7-come sun
the sun said OK here I am / then the sun

w-áyà w-ùtò-nò / ána w-ùtò-nò / ù-hwâarà
 AG7-come\RLS AG7-go_out\RLS-VENT when AG7-go_out\RLS-VENT-PFV 3S-start\RLS
came out / when it came out / it started

ù-gwárùwà-nà / ù-'ésù ù-gwárùwà-nà, ù-'ésènù ùsídí / wù-yâa
 NC7-bulge-VENT 3S-again\RLS NC7-bulge-VENT 3S-add\RLS heat AG7-do\RLS
growing in size / it got bigger, and increased the heat / it made

ùsídí, ù-'ósù ù-câa ùsídí g'èi / dègèlêe, zzá ví-llè w-ùwà
 heat 3S-again\RLS NC7-give heat much then person AG8-that 3S-feel\RLS
heat, it gave a lot more heat / then, that person felt

cáa'wáí tì-dâamùkwì vî / éví ìn kátíí ké-evì /
 sweat AG6-worry\RLS 3S.PRO 3S.PRO and head AG1-3S.POSS
his sweat bothering him / him by himself

w-áyà, ù-pó^hò mètégù /
 3S-come\RLS 3S-remove\RLS shirt
he removed his shirt /

Abbreviations

| | |
|-------|---|
| 1 | 1st person |
| 2 | 2nd person |
| 3 | 3rd person |
| AG | agreement marker (followed by noun class) |
| ART | article |
| COP | copula |
| HAB | habitual |
| IMP | imperative |
| IRR | irrealis |
| k.o. | kind of |
| LOC | locative |
| NC | noun class (followed by noun class) |
| NEG | negator |
| NMLZR | nominaliser |
| P | plural |
| PFV | perfective |
| PLAC | pluractional |
| POSS | possessive |
| PRO | pronoun |
| RLS | realis |
| S | singular |
| SFX | sound effects |
| TOP | topicaliser |
| VENT | ventive |

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