ATR harmony system and central vowels in Akebu (Kwa)

The vocalic system of Akebu (Table 1), a poorly studied Kwa language of Togo (~70 000 speakers), is typologically unusual in two aspects.

Table 1. Akebu vowel system

	front	central (-ATR)	back
high +ATR vs. -ATR	i - ɪ	ɨ	u - ʊ
mid +ATR vs. -ATR	e - ɛ	ə	o - ɔ
low		a	

First, the ATR harmony and the presence of the interior vowels (those within the interior regions of the vowel space, including front rounded vowels, unrounded non-low back vowels, and non-low central vowels, see Rolle et al. 2017), were shown to be two mutually exclusive vowel system profiles within the Marco-Sudan Belt (Rolle et al. 2017). In a survey of 615 languages of the Macro-Sudan Belt only 24 languages (scattered sporadically from Senegal to Sudan) showed the co-occurrence of these patterns (Rolle et al. 2017: 12). Akebu, in turn, features both the ATR harmony and the following interior vowels: /ɨ, ə, a/.

Second, in those languages which still exhibit the co-occurence of these two patterns and have several central vowels (e.g. such Eastern Kru languages as Bété, Godie, Koyo, see Marchese 1983), the latter constitute the ATR harmony pairs exactly like the front and the back vowels. In contrast, the three central vowels of Akebu can be qualified as [-ATR] and opposed only by height. This is supported by both the ATR harmony patterns (a-c) and the phonetic data (d).

(a) The vowel /a/ is able to co-occur root-internally with all the vowels of the [-ATR] set, including the two non-low central vowels. The latter, in turn, can only combine with each other, and with /a/, see (1), where prefixes and suffixes mark one of the seven noun classes:

(1)   **ɟàŋ̀tá**-yə́ 'lion', **síná**-wə́ 'rainbow', kɨ-**cómá**-kə́ 'job', kɨ-**kpáʈə̀**-kə̄ 'foot', **kɨ́tə̀ə̀**-wə̄ 'ground', **tīɨ̄jtə̀ə̀**-wə̄ 'village'.

(b) The similar grouping of the central vowels is observed in two harmony processes in (2) and (3), which are based on the features of backness and ATR and apply to harmonizing affixes and clitics:

(2)   V [non-high]   →   e / e, i
                                  o / o, u
                                  ə / ə, ɨ
                                  a / a, ɛ, ɔ, ɪ, ʊ

(3)   V [high]   →   i / e, i
                                  u / o, u
                                  ɨ / a, ə, ɨ
                                  ʊ / ɔ, ʊ
                                  ɪ / ɛ, ɪ.

(c) All the affixes that do not harmonize for ATR (for example, the prefixal and the suffixal noun class markers in (1), as well as pronouns and prepositions), can only contain the central vowels /ɨ/ and /ə/ and, rarer, the high vowels /ɪ, ʊ/ of the [-ATR] set. Classifying the central vowels in the [-ATR] set would account for this preference considering a strong cross-linguistic tendency for [-ATR] vowels to occur in non-assimilatory contexts in languages with the ATR contrast in high vowels (Casali 2016).

(d) The [-ATR] character of the three central vowels is also verified by our acoustic survey of the F_1 and F_1 bandwidth (B_1) values, based on the data collected in field from six male Akebu speakers.

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