ABSTRACT VOWEL SOUND CHANGES IN KINSHASA LINGALA

PHILOTHE MWAMBA KABASELE
University of Calgary

BACLGROUND: This paper investigates vowel sound change in Kinshasa-Lingala (KL). It examines the claim that KL speakers do not discriminate between [ɛ] and [e] and [ɔ] and [o] (Cambell and King 2013, Montingea 2006, Bokamba 2012). The paper further tests the observation that there is split of [o] into [o] and [u]. Cambell and King (2013: 965) argue that, "/ɛ ɔ/ are found only in certain dialects (of Lingala) – the urban Lingala of Kinshasa, for example, does not distinguish them from /e o/, and they are not marked in the orthography." Bokamba (2012: 303) and Montingea (2006: 20) attest the reduction of vowel in KL to a-five vowel system. These studies support the account of vowel change from a-seven to a-five vowel system. The analysis of the acoustic features of [ɛ] and [e], and [ɔ] and [o] (Di Paolo, Yaeger-Dror, and Wassink, 2011; Ladefoged, 2001) can challenge the foregoing rhetoric. Because, none of the foregoing studies provided any acoustic evidence to support their claims. These studies can not determine whether KL speakers fail to perceptually or articulatory discriminate between [ɛ] and [e], and [ɔ] and [o], or whether they fail to both perceptually and articulatory discriminate between [ɛ] and [e], and [ɔ] and [o].

HYPOTHESES: The null hypothesis (H_o) stipulates there is no difference between [ɛ] and [e], and [ɔ] and [o] (H_o= [ɛ] = [e], and [ɔ] = [o]). This means [ɛ] and [e], and [ɔ] and [o] have lost their contrast respectively. The alternative hypothesis (H_1) stipulates there is a difference between [ɛ] and [e], and [ɔ] and [o] (H_1= [ɛ] ≠ [e], and [ɔ] ≠ [o]). This implies that there is contrast between [ɛ] and [e], and [ɔ] and [o]; these vowels are still produced as distinct vowels. My hypothesis furthermore stipulates there is split of [o] into [o] and [u]; that is [o] is being raised to [u] position.

EXPERIMENT: Sixteen participants attended the experiment. Subjects were administered tests of both perceptual and articulatory contrast of those pairs of vowels. The expectation, if there is loss of contrast, was to observe participants producing [o] instead of [ɔ] in words that have [ɔ], and [e] rather than [ɛ] in words that formerly contained [ɛ]; this would confirm the loss of articulatory contrast. The articulatory task tested whether [o] is being raised to [u] position. These phonological processes are synchronically observed in KL. [o] apparently splits to [o] and [u] and KL speakers are left with two options in the production of words which had an [o] originally. I further test to determine whether the choice of [u] versus [o] is related to age grading variation between younger people who are projected to use [u] while older folks prefer [o].

THE RESULTS: Only the results of the articulatory contrast test are reported at this stage. T-tests have shown that, articulatory, there are significant differences between the F1 means of the vowels [ɔ] and [o], and of [ɛ] and [e]. These differences, in articulatory contrast, provide the evidence that both pairs of vowel sounds are still produced as distinct phonetic entities. Their perceptual contrast needs to be determined in order to shed more light on this concern. The study has further shown that there is split of [o] into [u] and [o]. [u] and [o] are used in free variation which implies that KL speakers choose between [u] and [o] to produce a word that contains [o]. This choice is not available in the case of the infinitival prefix ko- which is always realized as [o].

CONCLUSION: Unlike what is claimed in the literature, the paper has shown that KL speakers still produce those pairs of vowels with contrast. This implies that [+ATR] is still a preferred vowel feature in the linguistic system of KL. I project to test KL speakers' ability to perceive the contrast of those pairs of vowels in order to identify the phonological process that vowel system of KL is undergoing. If it is attested that KL speakers do not make any perceptual differences between those pairs of vowels, I will confirm the case of near merger

as that was observed in the studies of Labov et al. (1991), Yu (2011), Numberg (1980), Harris (1985), Milroy and Harris (1980), and Di Paolo (1988) to name just a few.

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Table (1) Part of the experiment data

Subject	Word	F1 [ɔ]	word	F1[o]	Word	F2 [ɔ]	word	F2[o]
1	kɔkɔ	562.3	ndako	527.7	kɔkɔ	1134	ndako	1186
1	kɔkɔ	493	mbeto	596.9	kɔkɔ	1001	mbeto	1186
1	munɔkɔ	527.7	mino	458.4	munɔkɔ	1220	mino	1289
1	munɔkɔ	527.7	moto	354.5	munɔkɔ	908.6	moto	1047
1	mɔtɔ	596.9	moto	458.4	mɔtɔ	1082	moto	1082
1	mɔtɔ	596.9	koyemba	437.3	mɔtɔ	1151	koyemba	1101
1	mbɔngɔ	562	kobela	470.5	mbɔngɔ	1220	kobela	1001
1	mbɔngɔ	596	komela	404.2	mbɔngɔ	1047	komela	967.9
1	nɔkɔ	562	kosenga	371	nɔkɔ	1151	kosenga	1167
1	nɔkɔ	527.7	Komema	371	nɔkɔ	1116	komema	967.9
2	kɔkɔ	473.4	ndako	419	kɔkɔ	1095	ndako	1014
2	kɔkɔ	473.4	mbeto	473.4	kɔkɔ	1095	mbeto	1176
2	munɔkɔ	554.4	mino	419.3	munɔkɔ	1095	mino	878.6
2	munɔkɔ	554.4	moto	419.3	munɔkɔ	1068	moto	878.6
2	mɔtɔ	554.4	moto	446.3	mɔtɔ	986.7	moto	1176
2	mɔtɔ	554.4	koyemba	404.2	mɔtɔ	1041	koyemba	1200
2	mbɔngɔ	554.4	kobela	437.3	mbɔngɔ	1014	kobela	1067
2	mbɔngɔ	554.4	komela	437.3	mbɔngɔ	959.7	komela	1067
2	nɔkɔ	527	kosenga	404.2	nɔkɔ	1095	kosenga	967.9
2	nɔkɔ	527	Komema	404.2	nɔkɔ	1041	Komema	967.9
3	kɔkɔ	536.8	ndako	470.5	kɔkɔ	1001	ndako	1101
3	kɔkɔ	536.8	mbeto	437.3	kɔkɔ	1034	mbeto	1134
3	munɔkɔ	437.3	mino	470.5	munɔkɔ	1101	mino	1167
3	munɔkɔ	470.5	moto	404.2	munɔkɔ	1134	moto	1067

3	mɔtɔ	503.7	moto	503.7	mɔtɔ	1233	moto	1266
3	mɔtɔ	503.7	koyemba	437.3	mɔtɔ	1067	koyemba	1067