

**BACKGROUND:** 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 a 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 ( $H_0$ ) stipulates there is no difference between [ɛ] and [e], and [ɔ] and [o] ( $H_0 = [ɛ] = [e]$ , 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] ( $H_1 = [ɛ] \neq [e]$ , and  $[ɔ] \neq [o]$ ). 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.

## References

- Cambell, G. and King, G. (2013). *Compendium of the world's languages*, 3<sup>rd</sup> ed., London: Routledge.
- Di Paolo, M., Yaeger-Dror, M., and Wassink, A. (2010). *Sociophonetics*. Di Paolo, M. and Yaeger-Dror (ed.) London: Routledge
- Di Paolo, M. (1988). Pronunciation and categorization in sound change. In K. Ferrara, B. Brown, K. Walters & J. Baugh (eds.) *Linguistic change and contact: Proceedings of the 16th Annual Conference on New Ways of Analyzing Variation in Language*. Austin: University of Texas. 84–92.
- Eyamba G. B. (2012). *A Polylectal Grammar of Lingála and Its Theoretical Implications*. Selected Proceedings of the 42<sup>nd</sup> Annual Conference on African Linguistics, ed. Michael R. Marlo et al., 291-307. Somerville, MA: Cascadilla Proceedings Project.
- Harris, J. (1985). *Phonological variation and change: studies in Hiberno-English*. Cambridge: Cambridge University Press.
- Labov, W., Mark, K. and Corey, M. (1991). Near-mergers and the suspension of phonemic contrast. *Language Variation and Change* 3. 33–74.
- Ladefoged, P. (2001). *A course in phonetics*. 4<sup>th</sup> edition, Texas: Harcourt Brace
- Montingea, M. (2006). *Lingala courant: Grammaire pedagogique de reference*. Tokyo: Nagayama Printing Co., Ltd
- Murray, R. W., and Vennemann, T. (1983). Sound change and syllable structure in germanic phonology. *Language* 59.514–528.
- Nunberg, G. (1980). A falsely reported merger in eighteenth-century English: a study in diachronic variation. In William Labov (ed.) *Locating language in time and space*. New York: Academic Press. 221–250.
- Yu, Alan (2007). Understanding near mergers: the case of morphological tone in Cantonese. *Phonology*, 24, pp 187-214

**Table (1) Part of the experiment data**

Subject	Word	F1 [ɔ]	word	F1[o]	Word	F2 [ɔ]	word	F2[o]
1	ndako	562.3	ndako	527.7	ndako	1134	ndako	1186
1	mbeto	493	mbeto	596.9	mbeto	1001	mbeto	1186
1	mino	527.7	mino	458.4	mino	1220	mino	1289
1	moto	527.7	moto	354.5	moto	908.6	moto	1047
1	koyemba	596.9	moto	458.4	koyemba	1082	moto	1082
1	koyemba	596.9	koyemba	437.3	koyemba	1151	koyemba	1101
1	kobela	562	kobela	470.5	kobela	1220	kobela	1001
1	komela	596	komela	404.2	komela	1047	komela	967.9
1	kosenga	562	kosenga	371	kosenga	1151	kosenga	1167
1	Komema	527.7	Komema	371	Komema	1116	Komema	967.9
2	ndako	473.4	ndako	419	ndako	1095	ndako	1014
2	mbeto	473.4	mbeto	473.4	mbeto	1095	mbeto	1176
2	mino	554.4	mino	419.3	mino	1095	mino	878.6
2	moto	554.4	moto	419.3	moto	1068	moto	878.6
2	koyemba	554.4	moto	446.3	koyemba	986.7	moto	1176
2	koyemba	554.4	koyemba	404.2	koyemba	1041	koyemba	1200
2	kobela	554.4	kobela	437.3	kobela	1014	kobela	1067
2	komela	554.4	komela	437.3	komela	959.7	komela	1067
2	kosenga	527	kosenga	404.2	kosenga	1095	kosenga	967.9
2	Komema	527	Komema	404.2	Komema	1041	Komema	967.9
3	ndako	536.8	ndako	470.5	ndako	1001	ndako	1101
3	mbeto	536.8	mbeto	437.3	mbeto	1034	mbeto	1134
3	mino	437.3	mino	470.5	mino	1101	mino	1167
3	moto	470.5	moto	404.2	moto	1134	moto	1067
3	koyemba	503.7	moto	503.7	koyemba	1233	moto	1266
3	koyemba	503.7	koyemba	437.3	koyemba	1067	koyemba	1067