

# Preliminary comparison of New Caledonian & Metropolitan French mid vowels

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## 1. Introduction

New Caledonian French (NCF) is a distinct regional dialect shaped by the complex social history of the territory [1]. The phonetics and phonology of NCF have been very infrequently addressed academically, however. One area of interest highlighted in the few descriptions of NCF sound systems (e.g. [1], [2]) is the realization of mid vowels. Standard French is said to contain two series of phonemic mid-vowels, mid-close /e, ø, o/ and mid-open /ɛ, œ, ɔ/. Realization of these vowels is complicated by the *loi de position* (LdP), a rule of complimentary distribution whereby the mid-open phone is realized in closed syllables and the mid-close phone in open ones. This is more of a tendency than a strict rule in many metropolitan varieties of French, while in others it is followed more closely [3]. It has been suggested that NCF contains just one series of phonemic mid vowels, /e, œ, o/, and that these may be realized as ‘positional variants’ [1] (which may refer to allophonic variation according to the LdP). This claim remains to be tested experimentally. This poster presents a preliminary acoustic comparison of mid vowels produced by New Caledonian and Metropolitan French speakers.

## 2. Method

Pilot recordings were made of one male NCF (NC01) and one male Metropolitan French speaker (FR01) producing real or non-words of the form /pVp/ (or /pV/ for certain vowels), and real /CVC/, /CV/, and /CVCC/ words (sampling rate: 44.1kHz/16-bit). Words were elicited in carrier phrases, produced x2 for FR01 and x4 for NC01 (i.e. FR01, 4 tokens/word, total N=80; NC01 – 8 tokens/word, total N=160):

*Je dis X encore.* X. – /pVp/, /CVC/ & /CVCC/ words

*Je dis X parfois.* X. – /pV/ & /CV/ words

The relevant words were segmented and annotated in Praat, then converted for use with the Emu Speech Database System and analysis using the Emu/R package in R. Vowel targets were extracted at the midpoint of formant steady states, and plotted (F1~F2) by underlying Standard French phoneme. Euclidean distances (and ERatio comparisons) were also calculated to quantify the position in the F1~F2 space of mid-close vowels /ø, o/ realized in closed syllables, relative to the same vowels in open syllables, and to mid-open vowels /œ, ɔ/ in closed syllables (following the procedure outlined in [4]).

## 3. Results & Discussion

New Caledonian speaker NC01 appears to follow the *loi de position* categorically. For this speaker, the mid-close phonemes are systematically realized as mid-open phones when produced in closed syllables (i.e. *saute* & *sotte* are both

realized [sɔt]). This is evident in both the F1~F2 plot (Figure 1, left), and in consistently negative Euclidean distance values, which indicate that all closed syllable /ø, o/ productions by this speaker are closer in the F1~F2 space to closed syllable /œ, ɔ/ than to open syllable /ø, o/. By contrast, for Metropolitan French speaker FR01 (Figure 1, right), the mid-close phonemes are typically realized as mid-close regardless of syllable type (i.e. *saute* [sɔt] & *sotte* [sɔt]). There are some outliers in this speaker’s realizations of both mid-close and mid-open phonemes, however, occurring in non-words (*peupe/peûpe*, *pôpe*) or words of relatively low lexical frequency (*jeûne* n. ‘fast’). Euclidean distance values ranging from negative to positive reflect this variability, indicating that for FR01, some tokens of closed syllable /ø, o/ are closer to open syllable /ø, o/, while others are more similar to closed syllable /œ, ɔ/.

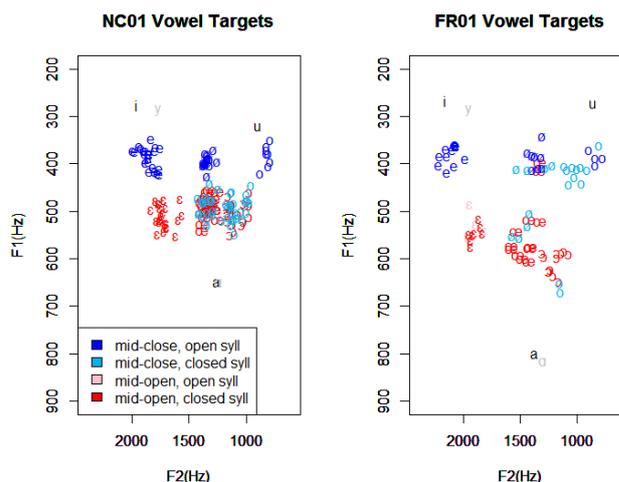


Figure 1. F1 ~ F2 (Hz) plots of NC01 & FR01 vowels

Preliminary results support the original premise ([1]) that NCF mid vowels, unlike those of many metropolitan varieties, are subject to systematic allophonic variation according to the LdP. This finding is also borne out in analysis of data from additional NCF speakers.

## 4. References

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