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NEGATIVE VOT IN THREE MONTENEGRIN-ACCENTED ENGLISH IDIOLECTS

ETTIEN KOFFI AND MARTINA ABAT

ABSTRACT

This investigation of VOT (Voice Onset Time) of stop consonants in Montenegrin-accented English started as linguistic curiosity when Abat realized in Prof. Koffi's LabPhon (Laboratory Phonology course) that she produced [b, d, g] with negative VOT while many of her American classmates and other L2 students in the course did not. She recorded another female Montenegrin speaker of English whose voiced stops also had negative VOT. This made her more curious and motivated her to record yet another female Montenegrin whose voiced stops also turned out to have negative VOT. It is not uncommon for speakers to produce negative VOT. However, it is unusual for three out of three speakers of the same language to have negative VOT. These phonetic "coincidences" have aroused Koffi's suspicion that maybe [b, d, g] are produced with negative VOT in Montenegrin. This may turn out to be only a conjecture. However, it is a conjecture worth pursuing because it may conceal a deeper linguistic reality about Montenegrin and/or Montenegrin-accented English waiting to be discovered. A large-scale study needs to be undertaken to establish whether this is a case of a negative phonetic transfer of VOT or not.

1.0 Introduction

The mutually intelligible dialects of former Serbo-Croatian have now split into autonomous "languages" since the end of the Yugoslav war of the 1990s. These new "languages" Montenegrin, Serbian, and Croatian are mutually intelligible even though orthographic reforms are underway in some quarters to make them appear in writing as different languages. This effort notwithstanding, the underlying phonological realities of these three "languages" are quite similar. Consequently, we take it for granted that the vowel inventory of Croatian found in Landau et al. (1999:66-69) and the inventory of consonants in Miller-Ockhuizen and Zec (2003:131) for Serbian are also valid for Montenegrin. We, therefore, assume that Montenegrin has six stop consonants / p, b, t, d, k, g/. Though [b, d, g] are the focus of this paper, [p, t, k] cannot be skipped altogether. For this reason, the first part of the paper is devoted to these three voiceless stops, while the second part focuses on their voiced counterparts. The speakers are referred to in the paper as Talker 1, 2, and 3. Their speech samples were recorded on a 2011 Dell Inspiron M5040 laptop computer with a built-in microphone. Collectively, they produced 54 utterances containing the words <pot>, <tot>, <cot>, <bought>, <dot>, and <got>. Each talker pronounced each word three times (3 x 3 x 6). The mean VOT is reported in Tables 1 and 2, but only the spectrograms of the pronunciation of Talker 3 are displayed throughout the paper.

2.0 Definition and a Quick Review of VOT

VOT corresponds to the length of time that elapses between the release of closure and the onset of the vibration of the vocal folds. This interval is measured in milliseconds. Kent and Read (1992:120) note that "VOT has been one of the most

frequently measured phenomena in speech research.” Ladefoged (2003:98) contends that the study of VOT is or should be a necessary component of the description of every language. He writes, “When making the description of a language, the VOT of the stop consonants should always be given, as it varies considerably from language to language.” Yet, to the best of our knowledge no VOT study has been made of Montenegrin or Montenegrin-accented English. Unless some VOT studies are buried in some archives somewhere or in the innermost bowels of the Internet, we will go out on a limb and claim that this is the first VOT study of Montenegrin-accented English.

3.0 Voiceless Stops

The VOT of voiceless stops is in general longer than that of voiced stops. Furthermore, voiceless stops that are produced in front of the mouth have a shorter VOT compared with those that are produced in the middle or the back of the mouth. Consequently, it is expected that the VOT of [p] will be shorter than that of [t], which in turn will be shorter than that of [k]. The mean VOT measurements reported by Talkers 1, 2, and 3 bears this out:

Talkers	/p/	/t/	/k/
Talker 1	13	17	15
Talker 2	49	56	71
Talker 3	47	74	82
Mean	36 ms	49 ms	56 ms

Table 1: Mean VOT of Voiceless Stops

Aspiration is one of the attendant features of VOT. The more aspirated a voiceless consonant is, the longer its VOT. According to Byrd and Toben (2010:131), the average VOT of /p/ in General American English (GAE) is 25 ms, that of /t/ is 34 ms, and the one for /k/ is 42 ms. However, according to Lisker and Amramson (1964:394), when words are produced in isolation the VOT of [p, t, k] are respectively 58 ms, 70 ms, and 80 ms. We see that the VOTs produced by Talker 1 are markedly below these averages. In other words, this talker does not aspirate voiceless stops in words such as <pot, tot, cot>. Talkers 2 and 3 produce VOT values that are similar to those of GAE talkers. Another oddity about the pronunciation of Talker 1 is that her VOT for [k] is shorter than that of her [t]. Her pronunciation does not follow expected VOT patterns. Apart from Talker 1 though, the pronunciations of Talkers 2 and 3 conform to expected patterns. Aspiration is clearly visible in all the spectrograms produced by Talker 3:

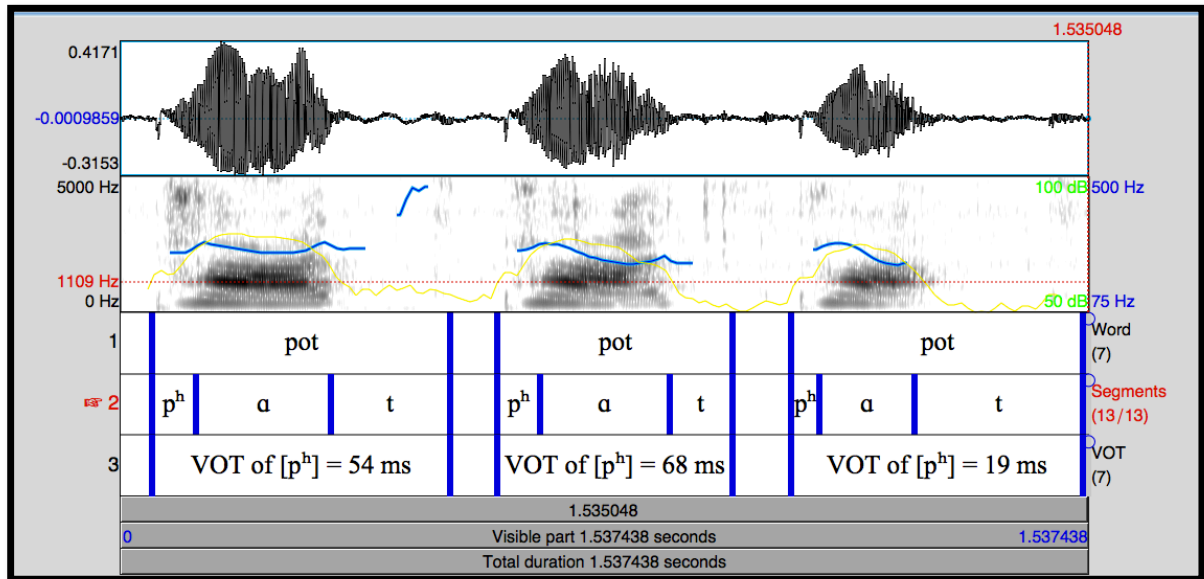


Figure 1: Spectrogram of <Pot> by Talker 3

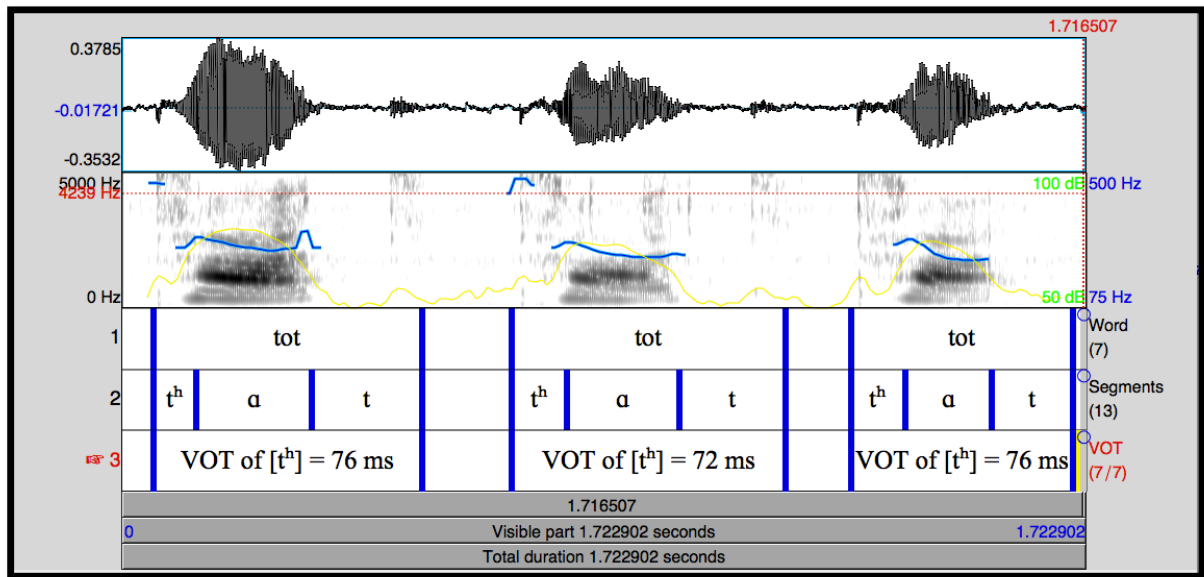


Figure 2: Spectrogram of <Tot> by Talker 3

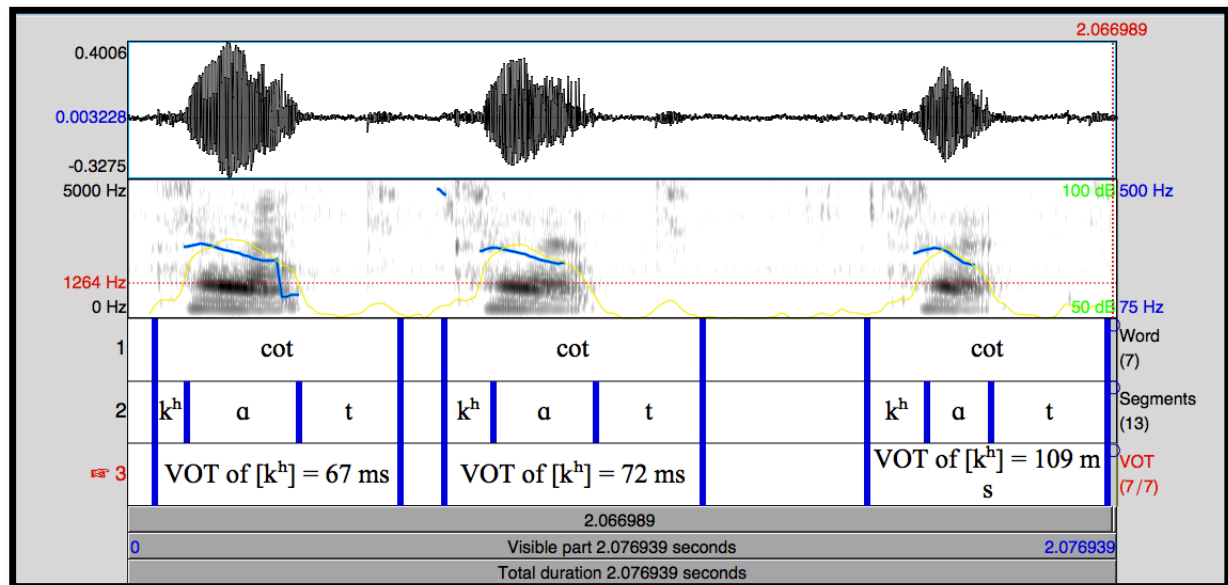


Figure 3: Spectrogram of <Cot> by Talker 3

4.0 Voiced Stops

As mentioned previously, by far the most interesting VOT feature of Montenegrin-accented English is the fact that [b, d, g] are produced with negative VOTs by all three talkers, as shown in Table 2:¹

Talkers	/b/	/d/	/g/
Talker 1	-5	-39	-37
Talker 2	-29	-65	-46
Talker 3	-66	-51	-67
Mean	-33 ms	-51 ms	-50 ms

Table 2: Mean VOT of Voiced Stops

Saying that [b, d, g] have a negative VOT means that the talkers' vocal folds begin vibrating even before these stop segments are released. Of course, negative VOTs have been reported for GAE. In Lisker and Abramson (1964:395), Talker TR produced [b, d, g] with negative VOTs. However, what is surprising about the three talkers of Montenegrin English in this study is that they *all* have negative VOTs. In the following spectrographs, the presence of a red ring indicates the areas that correspond to a negative VOT:

¹ Negative VOT is sometimes referred to as "lead" VOT, whereas as positive VOT is known as "lag" VOT.

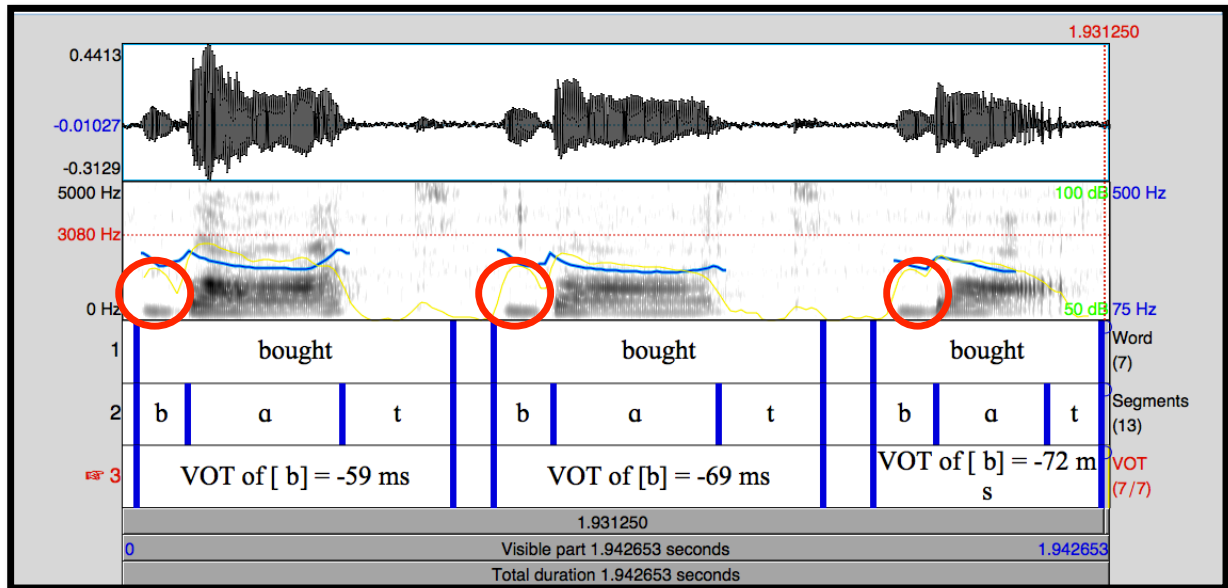


Figure 4: Spectrogram of <Bought> by Talker 3

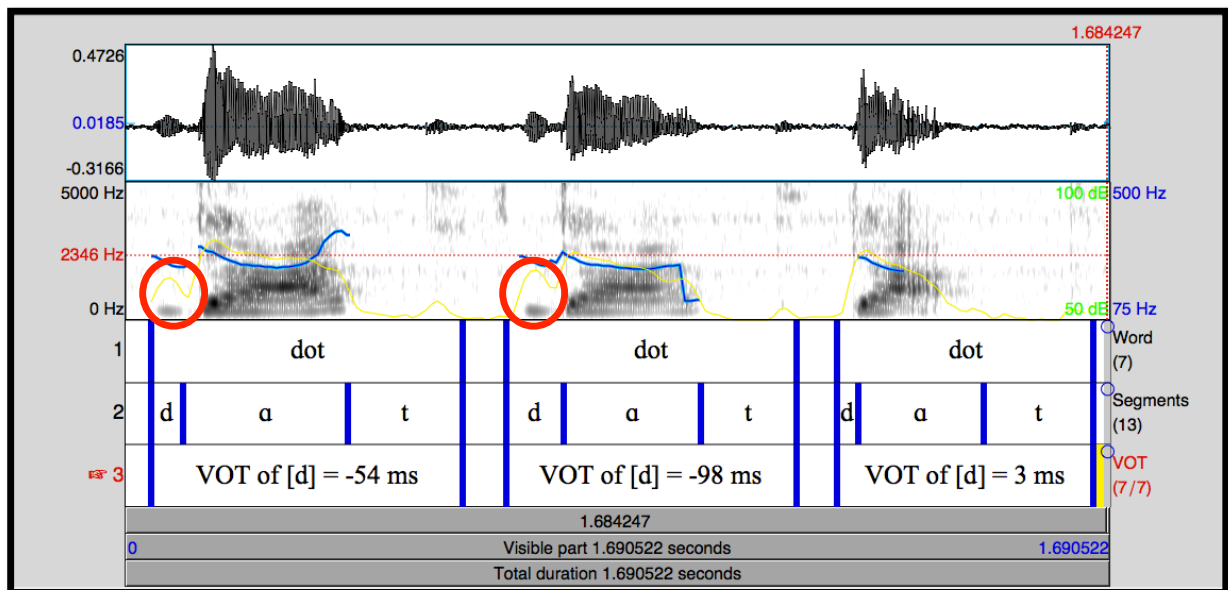


Figure 5: Spectrogram of <Dot> by Talker 3

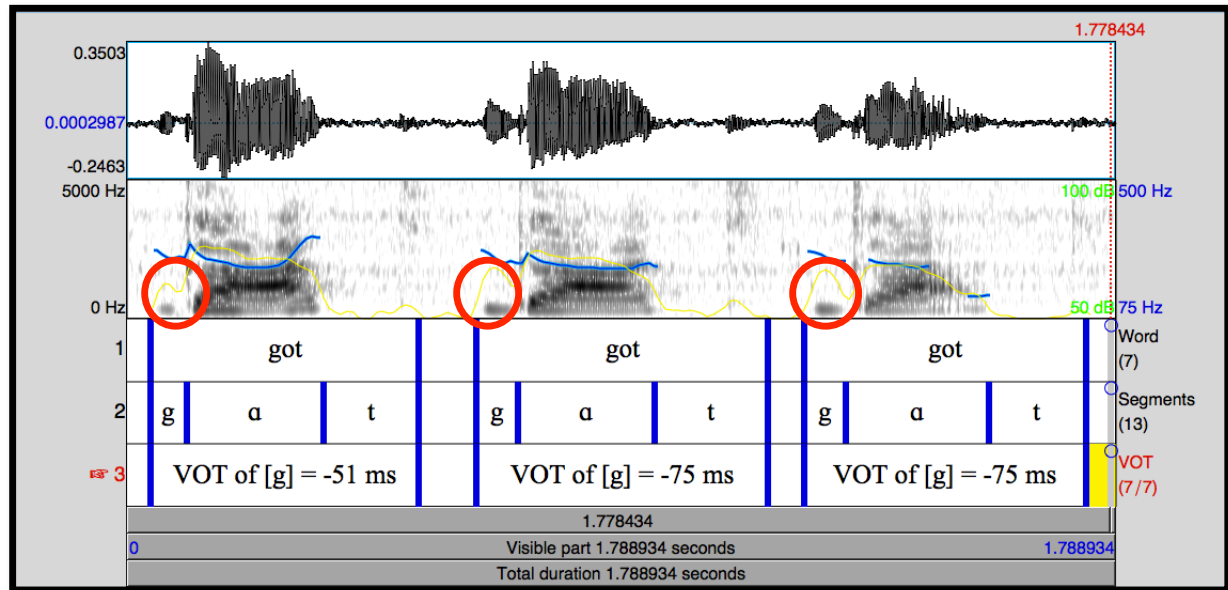


Figure 6: Spectrogram of <Got> by Talker 3

Here too, the pronunciation of Talker 1 stands out because it does not conform to expected universal patterns. She is the only one whose VOT for [g] is shorter than that of [d]. The production of Talkers 2 and 3 corresponds to universal patterns.

5.0 VOT and Intelligibility of Montenegrin-Accented English

Segmental intelligibility issues arise when essential phonetic features of the L2 sounds are sufficiently different from those of the L1. Do the ways in which these three Montenegrin talkers produce stop consonants cause GAE hearers to misunderstand them? The answer is no for two reasons. First, in the case of voiceless stops, the VOTs of two out of three talkers are in line with expected GAE norms. Generally, aspiration becomes visible when the VOT is 25 ms long or longer. The mean VOT measurements of [p, t, k] suggest that these segments are aspirated in word-initial positions. However, it must be observed that Talker 1 does not aspirate any of her voiceless stops. Nevertheless, the lack of aspiration does not interfere with intelligibility because aspiration is not phonemic in English. GAE hearers will just take note of the fact that her voiceless stops are accented. Second, though all three talkers produce [b, d, g] with a negative VOT, their pronunciation does not impinge on intelligibility because what counts most in the perception of voiced stops is the vibration of the vocal folds. The spectrographs show convincingly and unambiguously that [b, d, g] are voiced. The only thing that makes the pronunciation of these three talkers stand out acoustically is that their vocal folds start vibrating several milliseconds before the release of closure. However, GAE hearers who listen to these three talkers are not likely to perceive any difference because the buzzing noise happens deep in the throats of the talkers.

6.0 Summary

VOT is a widely studied acoustic phonetic phenomenon. However, we have not found any literature on VOT in Montenegrin or in Montenegrin-accented English. Preliminary spectrographic evidence show that the three talkers produce voiced stops

with negative VOT. However, the 54 spectrograms on which this claim is based are not enough. A study involving at least a dozen or two dozen speakers of Montenegrin and Montenegrin English is needed to shed additional light on VOT in general, and on VOT transfer from L1 to L2 in particular. Overall, segmental intelligibility is not affected because GAE hearers are not likely to misunderstand these three Montenegrin talkers on account of their pronunciation of [p, b, t, d, k, g].

ABOUT THE AUTHORS

Ettien Koffi is a professor of Linguistics. He teaches the linguistics courses in the TESOL/Applied Linguistics M.A. program in the English Department at Saint Cloud State University, MN. He has written three linguistic books: *Language Society in Biblical Times* (1996), *Applied English Syntax* (2010), and *Paradigm Shift in Language Planning and Policy: Game Theoretic Solutions* (2012). He is the author of many peer-reviewed articles on various topics in linguistics. His primary area of specialization is at the interface between acoustic phonetics and phonology. He has extensive experience in emergent orthographies and in the acoustic phonetic and phonological description of dialect variation. He can be reached via email at: enkoffi@stcloudstate.edu.

Martina Abat is an undergraduate student from Montenegro. She studies English language and literature at University of Montenegro. In 2012, Martina received a scholarship from the Department of State to study in the United States for one academic year. Her native language is Montenegrin, but she is also fluent in English, which she has been studying for 13 years. She can be reached via email at: abatmartina@gmail.com.

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