

Production of Syllables in Ukrainian and Russian

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Background

This study compares how Russian and Ukrainian speakers utter and perceive voicing in their respective languages.

Voicing and Voicing Assimilation

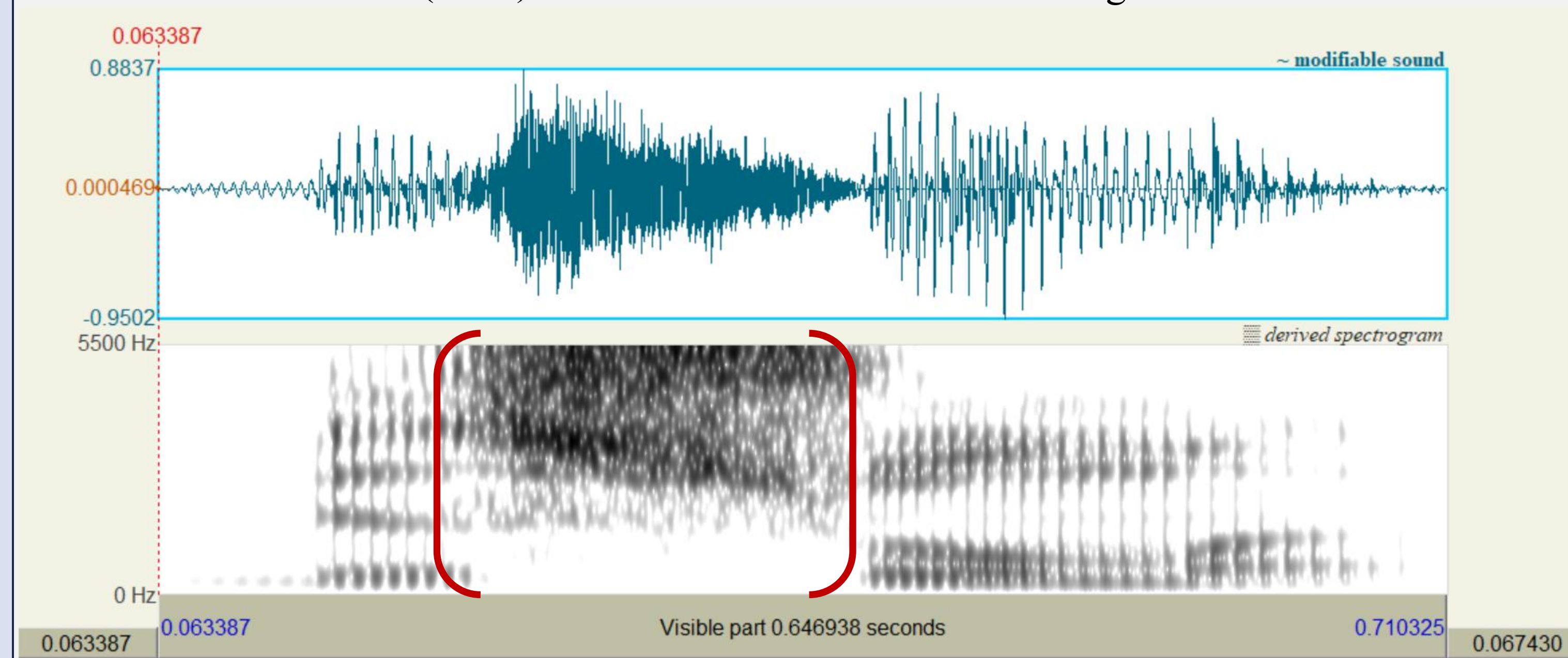
- Voicing refers to the vibration of the vocal folds during speech.
- Voicing distinguishes sounds and meaning, i.e [s] vs. [z]
- In some languages, consonants can have their voicing altered by a preceding or following consonant (i.e. voicing assimilation).
- In Russian, consonants assimilate in voicing to the consonant that follows it (Burton & Roblee, 1997).
- In Ukrainian, consonants can become voiced when followed by a voiced consonant but not devoiced when followed by an unvoiced one (Czaplicki, 2007).

Research Questions

- 1) How does voicing assimilation manifest within and between words in Russian and Ukrainian?

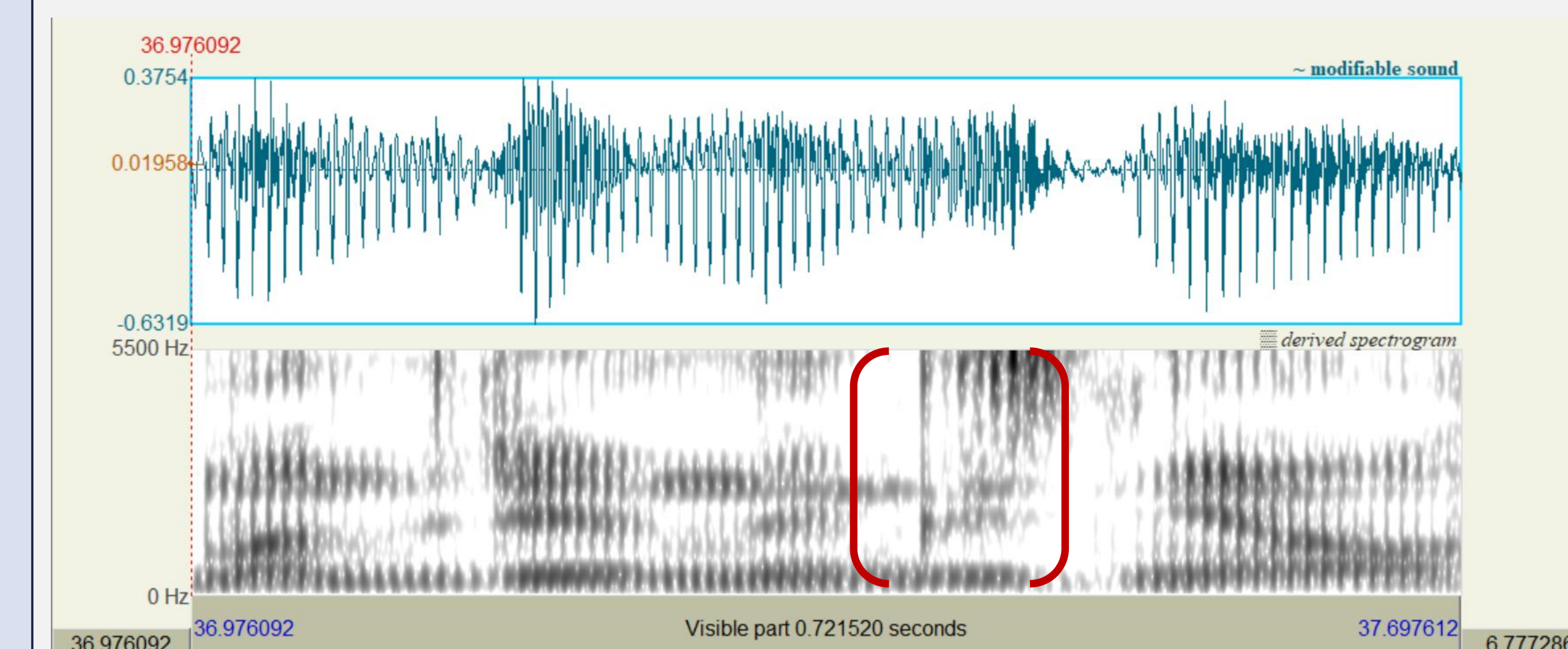
Example: Devoicing Assimilation in Russian

- Phrase: “без шума” [bʲɪz ˈʂumə]
 - Translation: “Without Noise”
 - Sound file from Yanushevskaya and Bunčić (2015)
- Bracketed cluster**
[z] + [ʂ] → [s] + [ʂ]
- Lack of voice bar is evidence of devoicing assimilation



Example: Voicing Assimilation in Ukrainian

- Phrase: “мандрівник зняв” [mandrɪvˈnɪk znʲav]
- Translation: “the traveler took off [his cloak]”
- Expect to see [k] with no voice bar followed by [z] with voice bar if there is no voicing assimilation.
- Sample recording shows [g] with voice bar followed by [z], showing evidence of voicing assimilation.
- Sound file from Pompino-Marschal et al. (2017)



Methods

To answer the research questions, the study analyzed Ukrainian and Russian speech data from the Journal of IPA (Yanushevskaya and Bunčić, 2015; Pompino-Marschal et al. 2017)

Analysis

- Recordings of speakers were analyzed through a speech analysis software (Praat).
- To observe voicing assimilation, the study looked at words and phrases in the speech data which contained two adjacent consonants.
- Using Praat, consonant clusters were determined to have assimilation or not based on the presence of contrastive voicing.
- Voicing of a consonant is indicated by the presence of a voice bar in its spectrogram and periodicity in its waveform.
- Contrasts in voicing within clusters will provide evidence for a lack of voicing assimilation.

Results

- Evidence from speech data shows that Voicing Assimilation is present in both languages.
- Regressive Voicing Assimilation; the preceding consonant assimilates to the following
- Assimilation within and across word boundaries
- *Key difference:* Ukrainian consonants only assimilate to become voiced; they do not devoice when followed by a voiceless consonant.

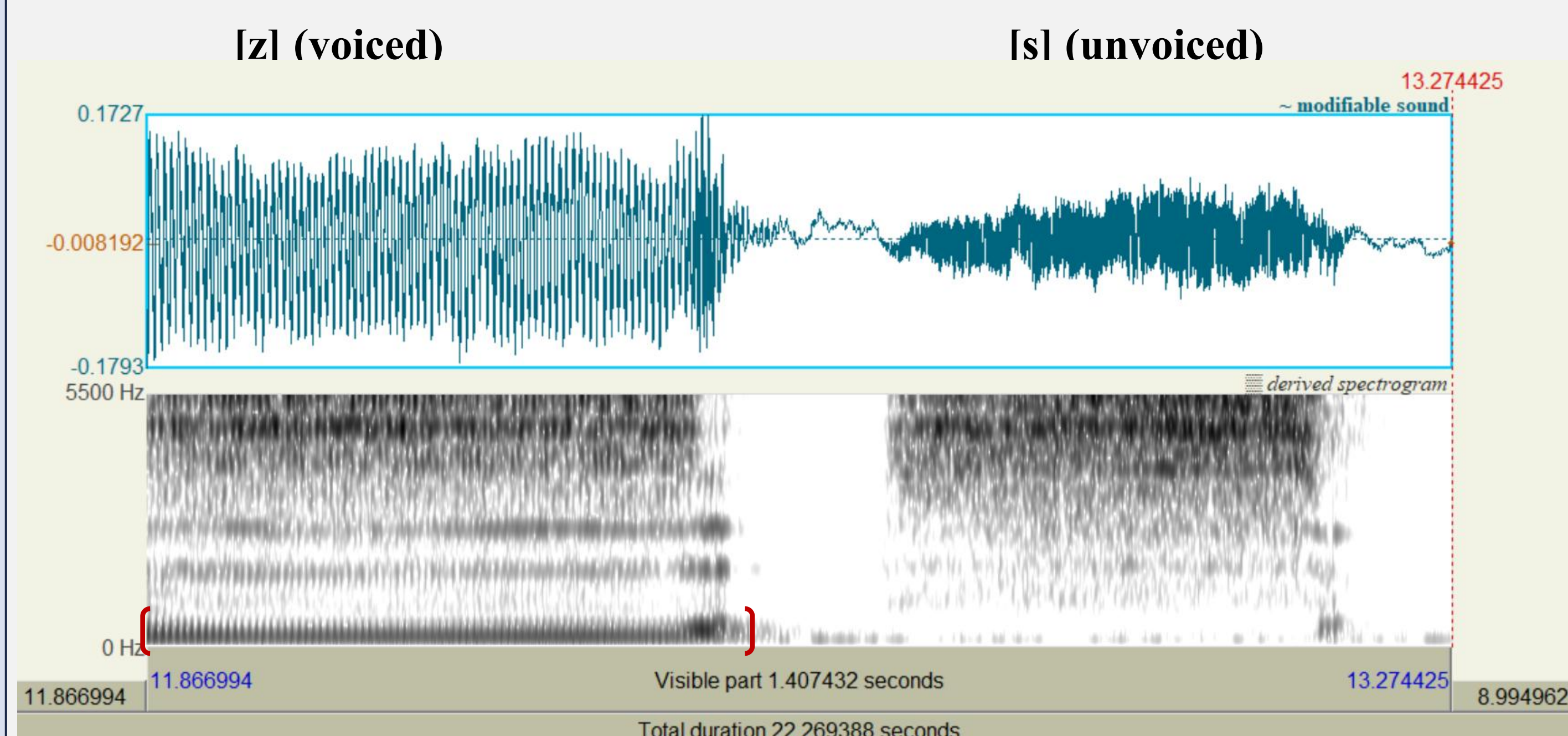
Conclusions

- Evidence of differences in voicing assimilation will provide further evidence distinguishing Ukrainian and Russian as languages with unique sound structure.
- The study provides acoustic analysis to support prior literature on voicing assimilation.

Works Cited

- Burton, M. W., & Roblee, K. E. (1997). A phonetic analysis of voicing assimilation in Russian. *Journal of Phonetics*, 25(2), 97–114.
- Czaplicki, B. (2007). Syllable structure of Ukrainian. An OT perspective. *Poznań studies in contemporary linguistics*, 43(2), 23–41.
- Pompino-Marschal, B., Steriopolo, E., & Żygis, M. (2017). Ukrainian. *Journal of the International Phonetic Association*, 47(3), 349–357.
- Yanushevskaya, I., & Bunčić, D. (2015). Russian. *Journal of the International Phonetic Association*, 45(2), 221–228.

Voicing Contrast



Voice Bar = Voicing