

*VVUnitAligner* (version 0.5)  
Copyright (C) 2021, 2022. SILVA JR., Leônidas.

*Leônidas SILVA JR.*  
State University of Paraíba (UEPB) / State University of Campinas (UNICAMP/CNPq)  
Grant: *National Council for Scientific and Technological Development* (CNPq), No.  
[151027/2020-0]  
E-mail: <[leonidas.silvajr@gmail.com](mailto:leonidas.silvajr@gmail.com)>

Script implemented by Leônidas Silva Jr., CH/UEPB, Brazil, based originally on Florian Schiel's webMAUS aligner (KISLER et al., 2017). It post-processes canonical/phonological syllable-sized units returned by the original MAUS alignment, into vowel-to-vowel (phonetic syllable<sup>1</sup>) units for latter automatic extraction of metric and acoustic-prosodic parameters (see Silva Jr. & Barbosa's, 2019, 2021, and Barbosa's, 2020 scripts for the reference task).

So far, *VVUnitAligner* script can be used on four different languages; Brazilian Portuguese (BR), English (US), Spanish (ES) and French (FR) (**adjusts are under development**).

As far as new versions are available, they will be updated in our GitHub repository: <<https://github.com/leonidasjr/VVunitAlignerCode>>.

### HOW TO CITE THIS SCRIPT

SILVA JR., L. (2022). **VVUnitAligner**. Computer program for Praat (version 0.51). URL: <<https://github.com/leonidasjr/VVunitAlignerCode>>.

### GETTING STARTED...

- We will start from the point having in mind that you have already installed Praat in your computer.
- Please, consider placing the destination folder in a short directory path (desktop, for instance) in order to avoid long-path conflict.

Before start with the script workflow, let us see the settings for procedures in webMAUS environment:

### 1. *webMAUS* PROCEDURES

Please, access webMAUS (Munich AUTO Segmentation - Munich University) from URL: <<https://clarin.phonetik.uni-muenchen.de/BASWebServices/interface>>.

- A pair of files ('.wav' & '.txt') will be required. The '.wav' file is the audio you want to align. The '.txt' file is the text transcription to be aligned along with the audio file; The pair of files must have the same name (e.g.: '**filename**.wav'/'**filename**.txt');
- Now, go to "PIPELINE without ASR<sup>2</sup>" option as presented in Figure 1

---

<sup>1</sup> For a detailed use of this protocol, see Silva Jr. and Barbosa (2019).

<sup>2</sup> **Pipeline without ASR**: <<https://clarin.phonetik.uni-muenchen.de/BASWebServices/interface/Pipeline>>

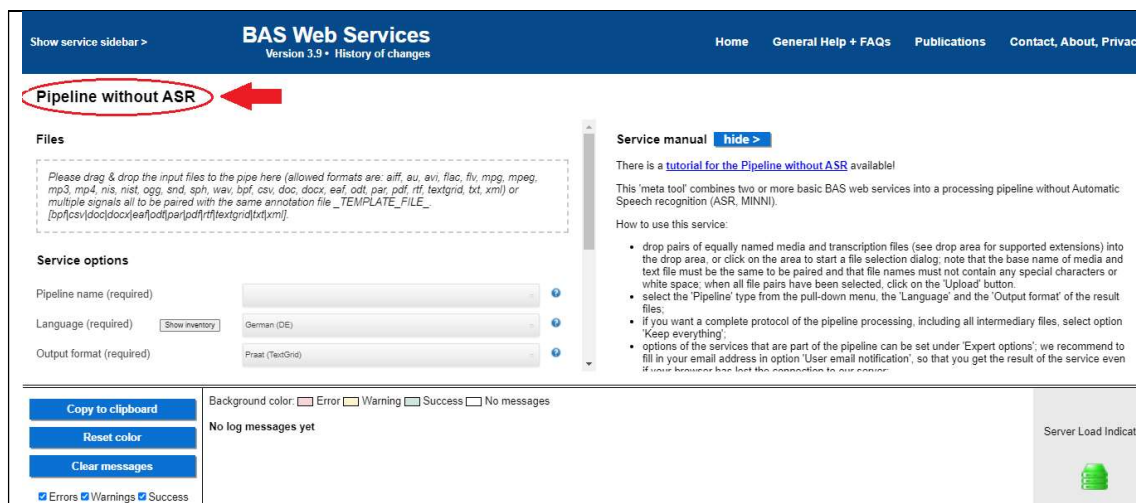


Figure 1

Once in "Pipeline without ASR", select the following options from the menu:

### Files

Drag from your folder ‘**filename.wav**’ and ‘**filename.txt**’ files and drop them to the dashed-rectangular space (or inside-click the dashed rectangle for searching from your computer). A warning message: “Selected files (not yet uploaded)” will appear on your screen. Click on the ‘Upload’ button for forced-alignment processing as showed in Figure 2:

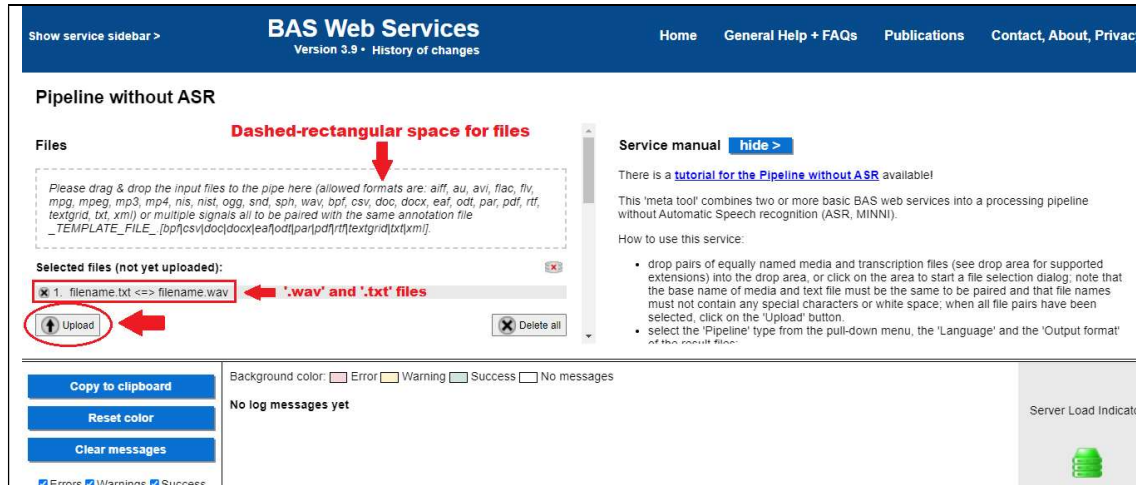


Figure 2

### Service options

For the “Service options”, use the following settings as showed in Figure 3.

- Pipeline name (required) → "G2P - MAUS - PHO2SYL";
- Language (required) → “English (US)”
  - If you are running **Brazilian Portuguese** data, then choose "**Italian (IT)**"<sup>3</sup>;

<sup>3</sup> Since *webMAUS* does not offer, at least until we are aware, any protocol for **Brazilian Portuguese**. So, we have trained and tested the aligner performance for different languages, so that we could be able to

- Output format (required) → "Praat (TextGrid)";
- Keep everything → "false".

Check the "terms of usage" option, and click on "Run Web Service".

Show service sidebar >

## BAS Web Services

Version 3.10 • History of changes

### Pipeline without ASR

**Service options**

Pipeline name (required)

Language (required)  [Show inventory](#)

Output format (required)

"Keep everything"

**Expert Options** *(click to show)*

When selecting 'emuDB' (EMU-SDMS) as output format, the service will pack the resulting EMU-SDMS database into a ZIP file, which can be retrieved by clicking on the 'Download as ZIP-File' button.

**Run**

☒ I have read and accepted the [terms of usage](#) for this service, including the policy of monitoring access to the services (paragraph 5). I hereby confirm that I am a member of an academic institution or that I have obtained a BAS user license for this service. In case of a publication of my results I will use a proper citation to this service.

[Run Web Service](#)

Figure 3

WebMAUS will return (an) output '.TextGrid' file(s) with the same name of the input file (e.g.: **filename**.TextGrid);

To download, click on "Download as ZIP file", as showed in Figure 4. You can also open the file previously by clicking on the it, and copy the whole information as well as save as a '.txt' file.

---

choose a satisfactory option that accounts for BP data. It seems, at least to some extent, that "Italian (IT)" performed more accurate results, by means of segmentation so that when dealing with BP d, *VVUnitAligner* copes with language option "Italian (IT)" better than any other. We yet highlight that manual correction is essential!

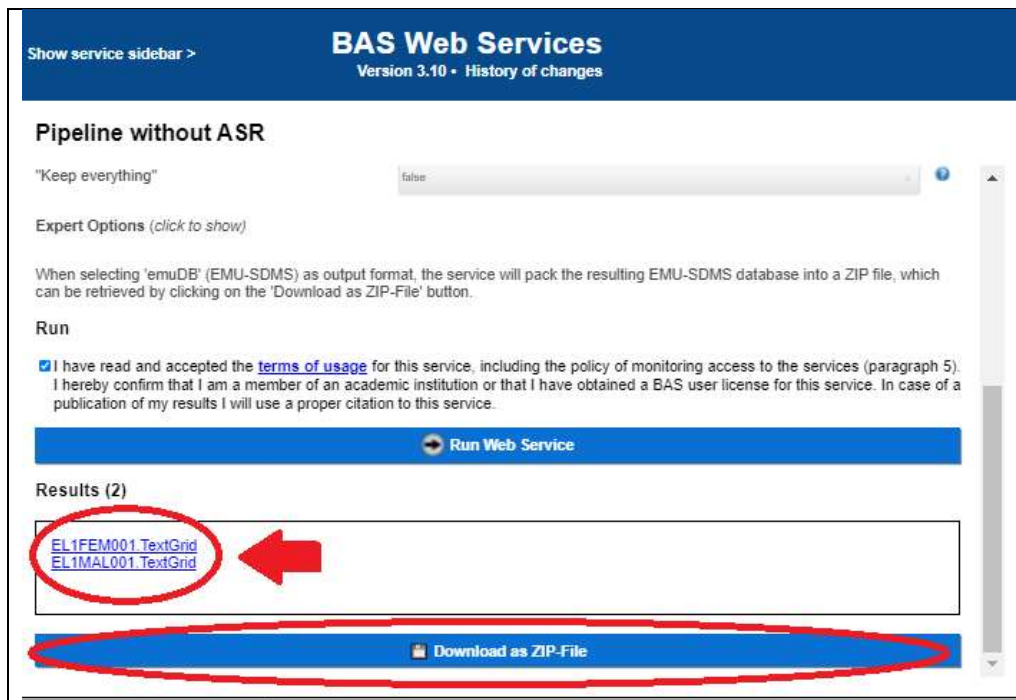


Figure 4

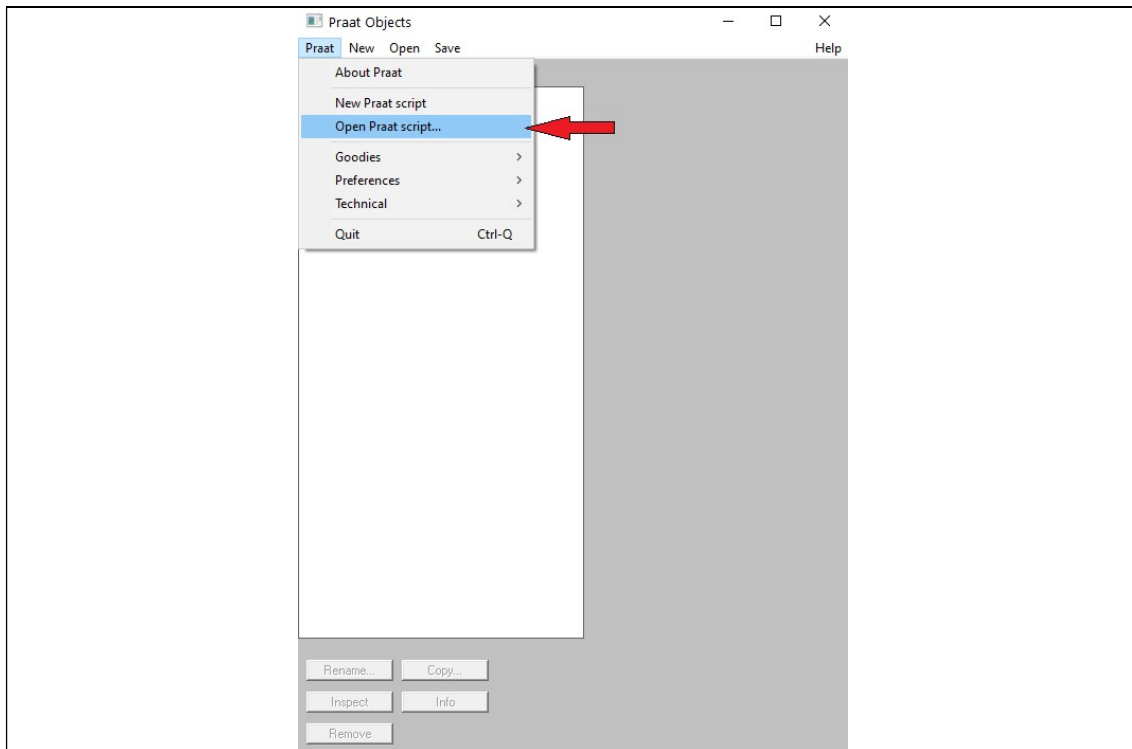
When you extract the '.zip' file, you will now have (a) '.TextGrid' file(s) to run in Praat (e.g.: **filename.TextGrid** – see Figure 8 for TextGrid configuration) along with the sound file.

**REMEMBER** to keep *VVUnitAligner* script in **the same folder** of the files '**filename.wav**' and '**filename.TextGrid**'.

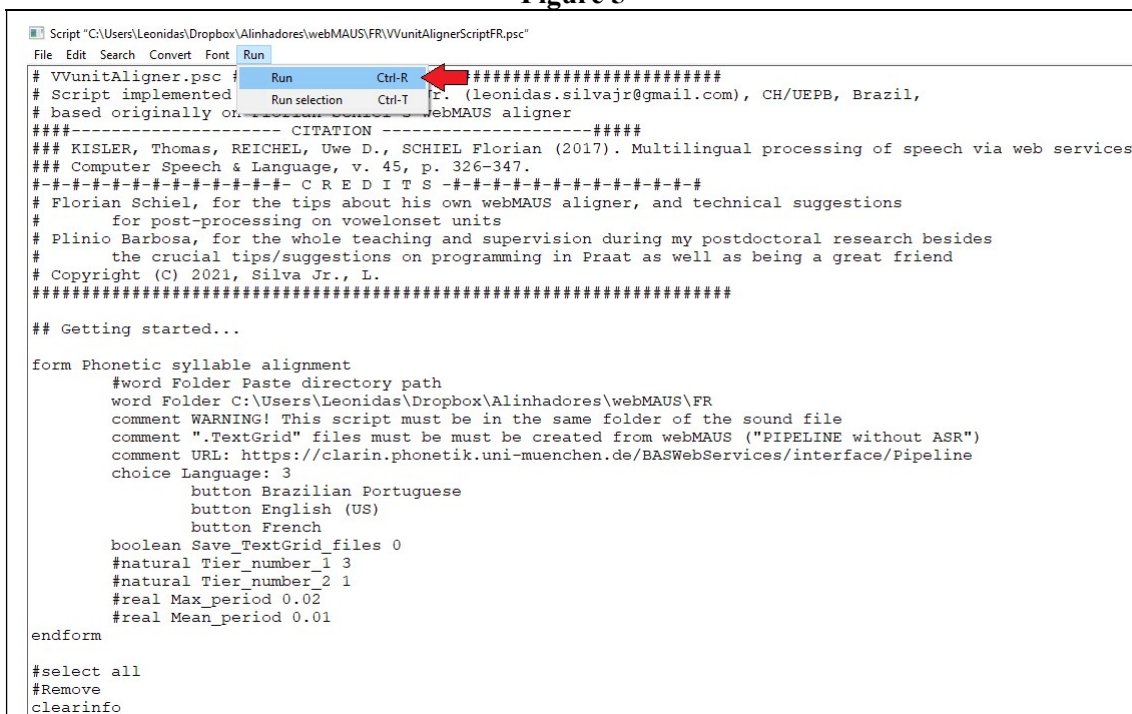
## 2. *VVUnitAligner* PROCEDURES

Now that you have already applied the webMAUS procedures, and your audio, TextGrid, and *VVUnitAligner* script files are in the same folder, you need to run the script. On Praat's drop-down menu, click **Praat >> Open Praat script...** as showed in Figure 5. Now, choose the directory you saved your files, and click on *VVUnitAligner.PSC* file.

For running the script, click **Run >> Run** as showed in Figure 6.



**Figure 5**



**Figure 6**

When you click **Run**, the script will pop-up a window (a form with folder-path, language-choice, and saving-TextGrid options) as showed in Figure 7. Set up your preferences, and click the **Ok** button to run the script.

Run script: Phonetic syllable alignment

Folder:

WARNING! This script must be in the same folder of the sound file

".TextGrid" files must be created from webMAUS ("PIPELINE without ASR")

URL: <https://clarin.phonetik.uni-muenchen.de/BASWebServices/interface/Pipeline>

Language: ☐ Portuguese (BR) ☒ English (US) ☐ French (FR) ☐ Spanish (ES)

☐ Chunk segmentation

Threshold (dB):

Complete the following target-word blanks to chunk the speech

Chunk starting word 1:

Chunk starting word 2:

Chunk starting word 3:

Chunk starting word 4:

Chunk end word:

☐ Save TextGrid files

Figure 7

After running the script, *VVUnitAligner* returns three different '.TextGrid' files:

- The original segmentation (e.g.: MAUS.TextGrid - see Figure 8);

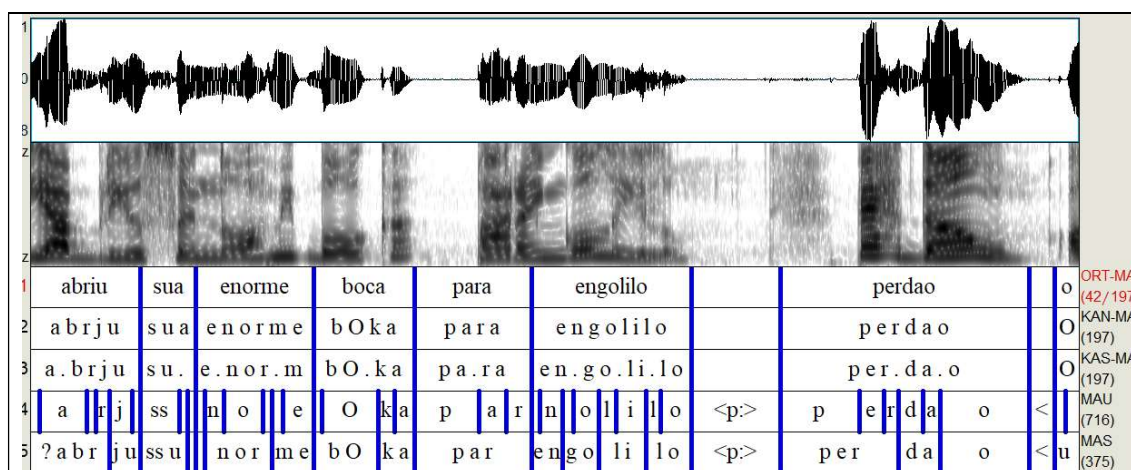


Figure 8

- The blend segmentation (e.g.: MAUS-MAS-VV.TextGrid - see Figure 9), so that the user can work either with webMAUS annotation, and/or general annotation such as V/C/VV/#, and Chunk (CH) labels;



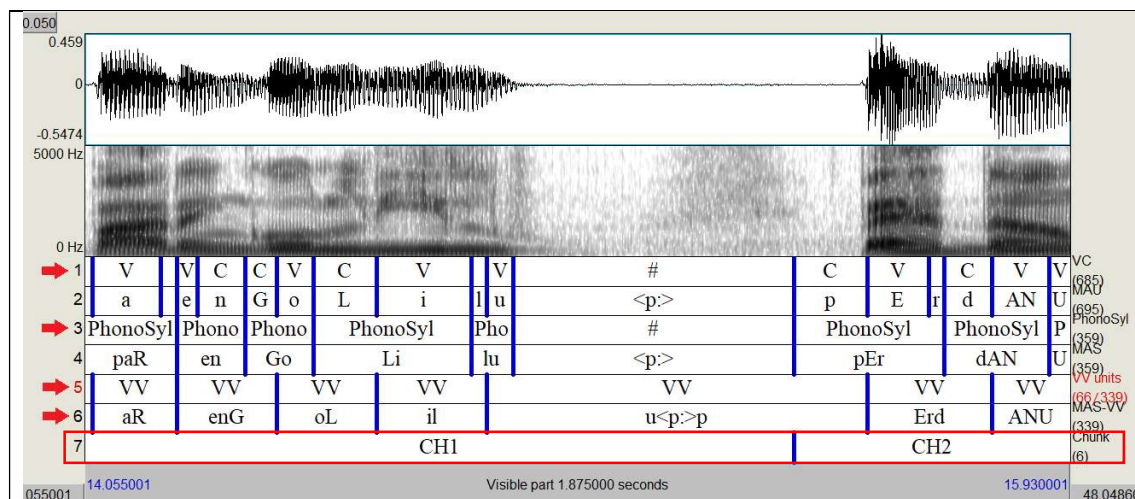


Figure 9

- A workflow segmentation with general annotation, such as V/C/VV/#/CH for using our *SpeechRhythmExtractor*<sup>4</sup> script (see Figure 10) is returned from VVUnitAligner (tier 3 = the reference tier from webMAUS for manual correction).

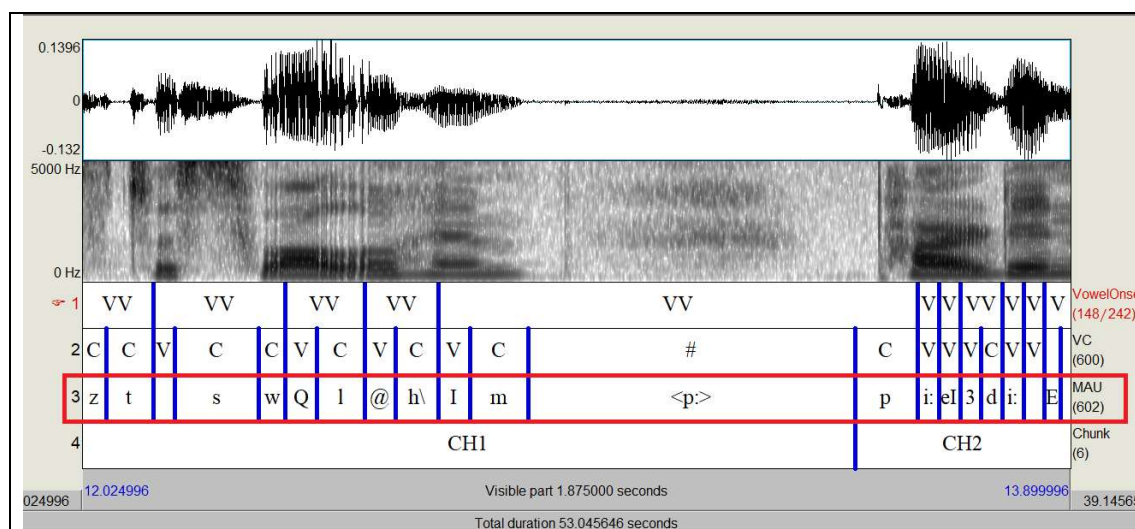


Figure 10

## REFERENCES

KISLER, Thomas, REICHEL, Uwe D., SCHIEL Florian (2017). Multilingual processing of speech via web services. **Computer Speech & Language**, v. 45, p. 326–347.

SILVA JR, L.; BARBOSA, P. A. (2019). Speech rhythm of English as L2: an investigation of prosodic variables on the production of Brazilian Portuguese speakers. **Journal of Speech Sciences**, v. 8, n. 2, p. 37-57. Available at: <<http://revistas.iel.unicamp.br/joss>>.

<sup>4</sup> *SpeechRhythmExtractor* script (SILVA Jr & BARBOSA, 2021): <<https://github.com/leonidasjr/SpeechRhythmCode>>