

## HQSYN16 - Task #4211

Task # 3677 (New): RA3b - Phonetically justified parameters (spectral tilt, ...)

Task # 3970 (Closed): Formant-based join cost computation

### Praat script to compute spectral slopes

02.06.2017 09:29 - Tihelka Dan

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                             |                        |            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|------------------------|------------|
| <b>Status:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Closed                                                      | <b>Start date:</b>     | 02.06.2017 |
| <b>Priority:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Normal                                                      | <b>Due date:</b>       |            |
| <b>Assignee:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Hanzlíček Zdeněk                                            | <b>% Done:</b>         | 0%         |
| <b>Category:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                             | <b>Estimated time:</b> | 0.00 hour  |
| <b>Target version:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                             | RA3: Phonetically justified parameters for speech synthesis |                        |            |
| <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                             |                        |            |
| This has been suggested in <a href="#">#4176</a> :                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                             |                        |            |
| <p>We can try experimenting with some spectral slope measures. These typically compare energy in specific spectral bands. I would try the measure which Honza Volín introduced, which calculates the ratio of a low and high frequency band energy. The low band is defined as 350-1100 Hz (so it excludes the band corresponding to F0), the high band includes the 2300-5500 Hz frequency range (excluding the F2 range, which is important to convey phonemic differences).</p> |                                                             |                        |            |
| <p>Thus, we need spectral slope values computed somehow. Radek S. suggested that <i>"In Praat, you can use the command Get band energy difference... 350 1100 2300 5500."</i></p>                                                                                                                                                                                                                                                                                                  |                                                             |                        |            |
| <p>Could you, please, have a look at such slopes computation? For <i>spkr_AJ</i> now (and store them to data/non-mastered/zkracene-pauzy/param/spectral-slopes/). For more details about slopes computation contact Radek or Tomáš, or see <a href="#">#971</a> where some description of spectral slopes is given.</p>                                                                                                                                                            |                                                             |                        |            |

### History

#### #1 - 07.06.2017 12:30 - Hanzlíček Zdeněk

- Status changed from New to Assigned

#### #2 - 08.06.2017 09:59 - Tihelka Dan

- Description updated

#### #3 - 09.06.2017 16:03 - Hanzlíček Zdeněk

- File *get\_slope.py* added

- Assignee changed from Hanzlíček Zdeněk to Tihelka Dan

I gave up programming in PRAAT, since all my efforts were in vain.  
Therefore I wrote a simple script in Python (utilizing [SPTK toolkit](#)).  
Computed values are stored in ASF format in the requested directory.

#### #4 - 22.08.2017 14:33 - Tihelka Dan

- Status changed from Assigned to Resolved

- Assignee changed from Tihelka Dan to Hanzlíček Zdeněk

Just few notes to ASF format:

- there is no space allowed in the comment block. Correct must be:

```
#!ASF!#  
#  
# band_1_avg, band_2_avg ... average amplitudes inside frequency bands  
# width ... distance between centra of band 1 and band2 [Hz]  
# slope = ( band_2_avg - band_1_avg ) / width.
```

- there must be a space after/before special comment tag:

```
< band_1_begin = 350 >
```

I recommend to use `asf.ASF` class to build and store the ASF format, instead of hand-crafted writer.  
I have fixed the issues by myself, so just keep them in mind. You can close the task now ...

**#5 - 16.09.2017 22:24 - Hanzlíček Zdeněk**

- *Status changed from Resolved to Closed*

## Files

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|              |         |            |                  |
|--------------|---------|------------|------------------|
| get_slope.py | 5.31 KB | 09.06.2017 | Hanzlíček Zdeněk |
|--------------|---------|------------|------------------|