Package 'visvow'

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Type Package

Title Visible Vowels: Visualization of Vowel Variation

Version 1.3.11

Description Visualizes vowel variation in f0, F1, F2, F3 and duration.

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Encoding UTF-8

RoxygenNote 7.2.3

Imports shiny, shinyBS, tidyr, PBSmapping, splitstackshape, plyr, dplyr, formattable, ggplot2, plot3D, MASS, ggdendro, ggrepel, readxl, WriteXLS, DT, psych, pracma, Rtsne, vegan, effectsize, grid, svglite, Cairo, tikzDevice, shinybusy, Rdpack

RdMacros Rdpack

Depends R (>= 4.0.0)

ByteCompile TRUE

URL https://www.visiblevowels.org/

Suggests testthat, R.rsp

VignetteBuilder R.rsp

NeedsCompilation no

Repository CRAN

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Contents

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normalizeDuration   *Normalize duration*

Description

Normalize duration of vowels.

Usage

```
normalizeDuration(vowelTab, replyNormal)
```

Arguments

vowelTab	A data frame containing acoustic vowel measurements; the format is described at https://www.visiblevowels.org/#help .
replyNormal	Choose from: "none", "Lobanov".

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normalizeFormants   *Normalize vowel formants.*

Description

Scale and/or normalize formants F1, F2 and F3.

Usage

```
normalizeFormants(vowelTab, replyScale, replyNormal, replyTimesN)
```

Arguments

vowelTab	A data frame containing acoustic vowel measurements; the format is described at https://www.visiblevowels.org/#help .
replyScale	Choose from: "Hz", "bark I", "bark II", "bark III", "ERB I", "ERB II", "ERB III", "ln", "mel I", "mel II", "ST".
replyNormal	Choose from: "none", "Peterson", "Sussman", "Syrdal & Gopal", "Miller", "Thomas & Kendall", "Gerstman", "Lobanov", "Watt & Fabricius", "Fabricius et al.", "Bigham", "Heeringa & Van de Velde I", "Heeringa & Van de Velde II", "Nearey I", "Nearey II", "Barreda & Nearey I", "Barreda & Nearey II", "Labov log-mean I", "Labov log-geomean I", "Labov log-mean II", "Labov log-geomean II", "Johnson".
replyTimesN	If measurements are provided for multiple time points per vowel, provide the indices of the time points that should be included when descriptives such as minimum, maximum, mean and standard deviation are calculated by some normalization methods; when there is just one time point, give index 1; a set of multiple indices are given as a vector, for example, when there are three indices and you want the first and third index be used, give c(1,3).

visvow	*Visible Vowels*

Description

Visible Vowels is an app that visualizes vowel variation in f0, F1, F2, F3 and duration.

A vowel is a speech sound produced without audible impediment to the airflow in the mouth and/or throat. Each vowel has a particular pitch (except when whispered), quality (timbre) and duration. f0 is the fundamental frequency of the periodic waveform and determines the perceived pitch. The quality is determined by the formants. Formants are resonance frequencies that define the spectral shape of vowels (and vowel-like sounds). The formant with the lowest frequency is called F1, the second-lowest F2, and the third F3. F1 is correlated with tongue height. The closer the tongue approaches the palate, the lower F1. F2 correlates with tongue retraction and lip protrusion. The more the tongue is positioned towards the front of the mouth, and the wider the lips are spread, the higher F2. F3 correlates with the tongue-blade position. The closer the blade is to the lips, the higher is F3. The acoustic vowel duration primarily corresponds with the perceived duration of a vowel sound. See Johnson (2012).

Usage

```
visvow()
```

Details

visvow() opens Visible Vowels in your default web browser.

References

Johnson K (2012). *Acoustic and Auditory Phonetics*, 3rd edition. Wiley-Blackwell, Chichester.

See Also

The Help tab in the app provides more information about the format of the input file. Details about scale conversion and speaker normalization procedures and some specific metrics are found in the vignette.

Index