



DaapLAB



DaapLAB

User Guide



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1 AIM

The Discourse Attributes Analysis Program (DAAP) is a computer-based text analysis system designed by Bernard Maskit (<http://www.thereferentialprocess.org>).

DaapLAB is a standalone application, developed for Windows and MacOS, which implement the fundamental functions of DAAP and enrich it with a filtering algorithm (DaapMAP), allowing to user to automatically highlight the relevant portions of the text.

Moreover, DaapLAB[©] interfaces with Whisper (<https://openai.com/research/whisper>) an open-source AI trained for Speech-to-Text tasks.

The present document aims to guide to the user through the installation of the application, the usage of the software and its capability, and the preparation of the input file.



2 INSTALLATION

Both on Windows and MacOS, the installer is sufficient to correctly install the application: no specific 3rd party tools need to be preinstalled. By the way, the application exploits MATLAB Runtime. The library is automatically installed when the application is installed for the first time, if not already present on the device, so the user shall not perform any external action but run the installer.

2.1 WINDOWS

The default installation path shall be ***C:\Program Files\DaapLAB***.

It is essential not to modify the path. If, for any reason, the suggested path does not correspond to the one specified above, please insert it manually.

2.2 MACOS

The default installation path shall be ***/Applications/DaapLAB***.

It is essential not to modify the path. If, for any reason, the suggested path does not correspond to the one specified above, please insert it manually.



3 APPLICATION STRUCTURE AND CAPABILITIES

3.1 LICENSE

DaapLAB © is license based.

The application opens on Log In page.

The license is generated ONLY after the proper request from the user: the form shall be compiled accurately.

Clicking on Generate Request button, LicenseRequest.txt file is created in the desired folder. The request file shall be sent to **daaplab@outlook.com**.

The screenshot displays the application's license management interface. At the top, there are three buttons: 'Import License' with a folder icon, 'Remove License' with a trash can icon, and 'Log in' with a key icon. Below these buttons, a green message reads 'License File Imported'. A red circle highlights a small square button with a minus sign in the bottom-left corner of this section. Below this section is a registration form with three input fields: 'First name', 'Last name', and 'E-mail'. At the bottom of the form is a 'Generate Request File' button.

Any inaccurate information or modification of the license request file causes the failure of the license activation. Hence, it is mandatory to fill the form properly and never modify the printed file.

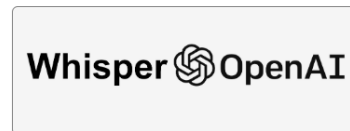
One license at a time can be managed. Once a license expires, before to import the new one, please click on Remove License.

NB: On Windows, depending on the settings of the device, Import License and Remove License button may be gray concept. If it is the case, Administrator privileges are necessary to import and remove license; once the license is imported, also non-admin users are able to login.



3.2 ANALYSIS

The application is divided in two main functions: Analysis and Whisper. Analysis capability is dedicated to the text postprocessing, while Whisper is dedicated to text preprocessing.



The image above presents the two homepages. To return to the main menu, click on the Logo on the bottom left.

3.2.1 Homepage

“Analysis” is organized with a Ribbon Bar and an input section.

The screenshot displays the DaapLAB application interface. At the top, a **Ribbon Bar** contains navigation buttons: Home, Daap, DaapMAP, Smoothed dictionaries, Correlation, Tools, and Statistics. Below the ribbon bar is the **Input Section**, which includes an input field for "Input file and path" with a "Browse" button. The input section is divided into several configuration areas: "Language" (set to Italian), "Task selection" (set to Daap + DaapMAP), "Speaker to Analyze" (set to 1), "Smoothed dictionaries plots" (toggle set to YES), and "Output files" (checkboxes for WRAD.txt, WRRL.txt, and STATS.txt). A red circle highlights the DaapLAB logo in the bottom left corner, which is used to return to the main menu. The text "Ribbon Bar" and "Input Section" are labeled in red on the image. The DaapLAB logo is also circled in red in the bottom left corner of the interface.



The ribbon is used to move to the other pages of the Analysis capability; it is common to all the pages, with some minor differences depending on the selected page.

In the input section, the user can choose:

- Language: Italian, English.
- Task: 3 tasks are available. *Daap* is the standard analysis; *Daap + DaapMAP* add to the regular analysis the filtering criteria, which are described in detail in the dedicated section of the guide; *Segmentation* takes into account only the average scores for each dictionary, for each user-defined segment of the text.
- Speakers: the user can select which speaker to analyze, selecting the related ID number. In the specific case of an interview, where just two speakers are involved, the dedicated checkbox allows to analyze both speakers at the same time. In this mode, *DaapMAP* is not available.
- Smoothed Plot: the switch regulates the visibility the plots of the smoothed trends of all the dictionaries but WRAD and WRRL (and WRS� for English)
- Output files: if a run is performed with a checkbox flagged, the textual output with a local value for each word is printed in the same directory of the input file. Stats.txt prints the average score for each dictionary in a txt file to be easily stored; by the way, the values of the on-going run can be visualized directly in the app.

All these options apply forward to the successive run and not backward to one performed.

Clicking on the Browse button, the user can browse to the input file, to start the analysis. When the file is selected (refer to dedicated section to ensure the input file is properly set), a green Run button is displayed. Pressing on it, it turns automatically red to advise the user the run is on-going.

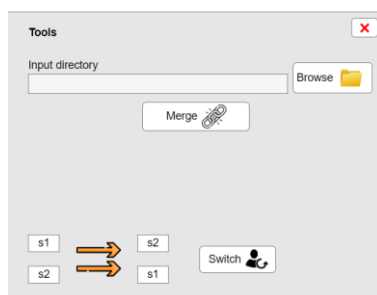
DaapLAB is not responsive while analyze a text. Please avoid to cluster command trying to perform any action on the application.

3.2.2 Tools

DaapLAB provides 2 tools to preprocess the inputs file: Merge and Switch.

Switch changes the label of the speakers of the input text. It is recommended for interviews, as it is designed for just two speakers. The output is a new text file (the original one is not modified).

Merge function needs a directory as input. The result of the operation are two files: the one is the collection of the contents of all the text files present in the selected folder; the other is a legend file, to allow the user to easily recognize which source file is involved in a specific tab (segment of the text).





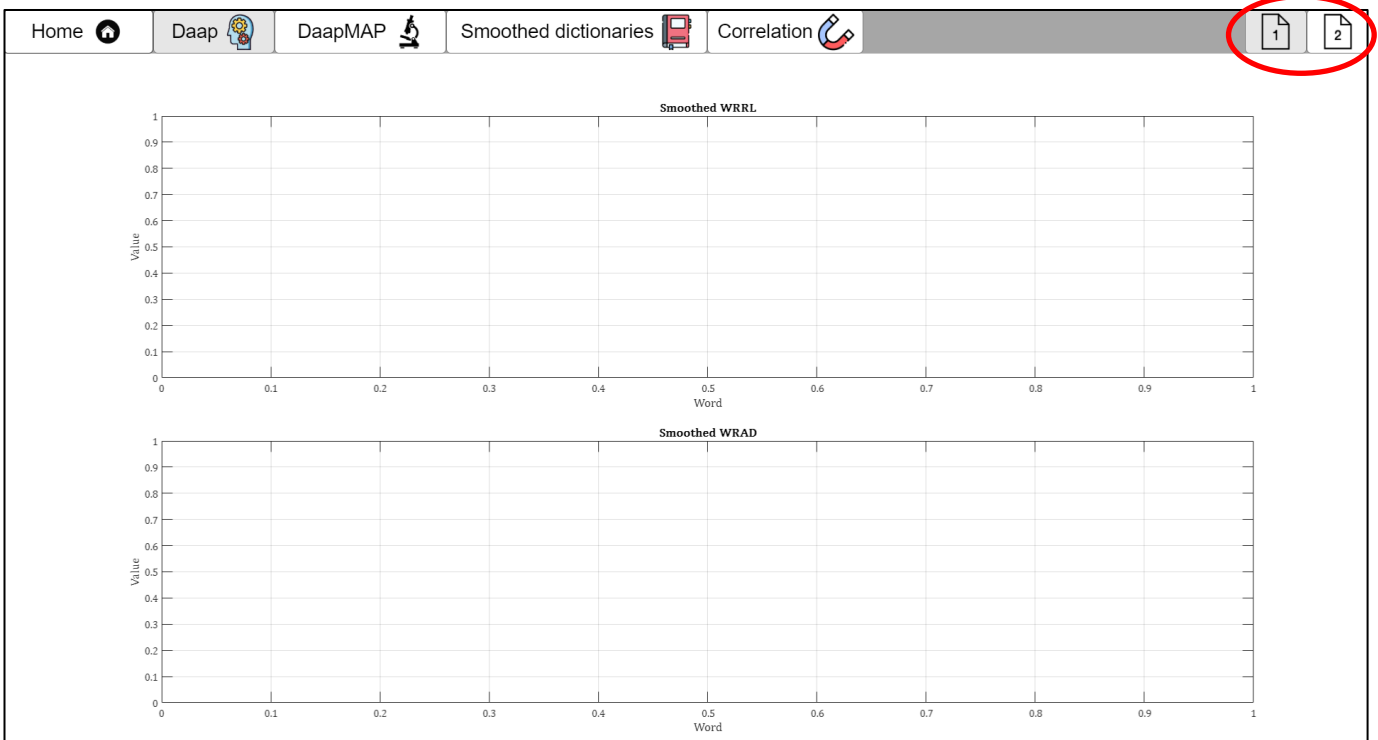
3.2.3 Statistics

One of the major outputs of Analysis are the statistics. They refer to the average score for each dictionary. The panel reports the values at the end of the run. These values concern the whole text, no matter the segmentation. Please use the dedicated Task (*Segmentation*), as discussed earlier, if you desire to have the average score for each segment of the text.

Statistics			
SenS	<input type="text" value="0"/>	AfZ	<input type="text" value="0"/>
DF	<input type="text" value="0"/>	AfS	<input type="text" value="0"/>
Ref	<input type="text" value="0"/>	AfP	<input type="text" value="0"/>
Neg	<input type="text" value="0"/>	AfN	<input type="text" value="0"/>
WRRL	<input type="text" value="0"/>	WRSL	<input type="text" value="0"/>
WRAD	<input type="text" value="0"/>	W.Count	<input type="text" value="0"/>

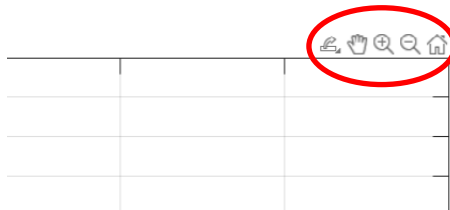
3.2.4 Daap

Daap page presents the plots of WRAD and WRRL. In English version, WRSL is considered too, and it is reported in the second page.





All the plots are interactive; hence, the user can zoom in and out, can inspect the X and Y values of a point on a curve, save the plot in the desired file format. Moving the cursor on a plot, the toolbar appears automatically on the top right.



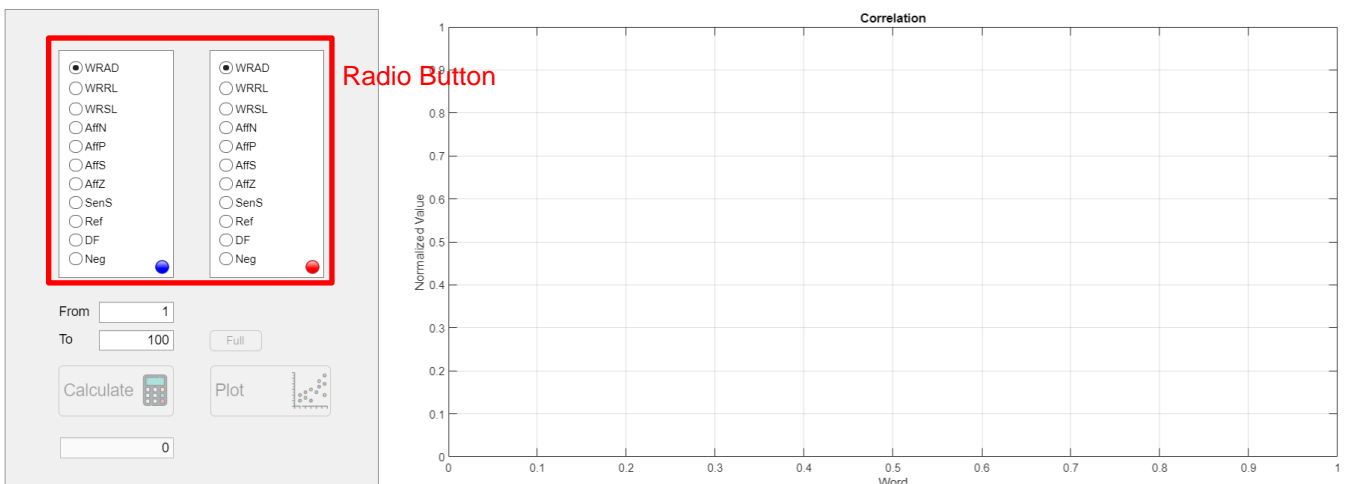
3.2.5 Smoothed Dictionaries

Refer to Daap section.

3.2.6 Covariation

While Statistics popup concerns averages, Covariation page address correlation coefficient comparing different dictionaries.

The user handle completely freely this section: the two radio buttons allow to select the couple of curves which cross correlation is going to be computed on. The user shall also select the portion of text by specifying the number of the words that start and end the portion (the Full button ease this job in the case the user want to consider the whole text).





Two main buttons are available: Calculate and Plot. Calculate button triggers the correlation computation, and the coefficient is printed in the space below. Plot button display in the dedicated space the normalized trends of the selected dictionaries, they are rescaled such that they range from 0 to 1. This function is intended to give to the user visual feedback of the correlation, to compare the trends and eventually focus on smaller portions where the correlation is enhanced, in positive or negative.

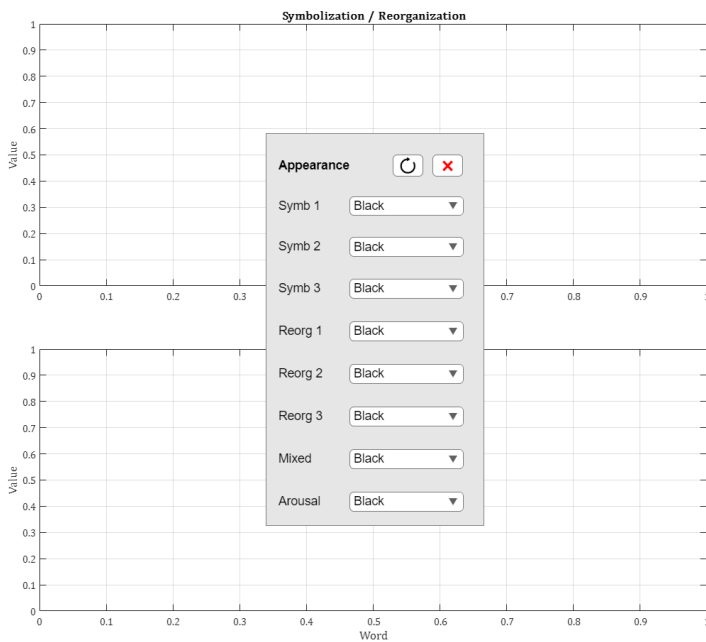
3.2.7 DaapMAP

DaapMAP is the filtering algorithm applied to Daap outputs. It considers WRAD and WRRL only. It considers rescaled data with respect to Daap: 100 as mean and 15 as standard deviation.

DaapMAP identifies three principal phases of the conversation: Arousal, Symbolization and Reorganization.

Settings panel allows to set the criteria used to filter.

Arousal filter collects only portions with a minimum number of words and which average values, both on WRAD and WRRL, don't exceed a tuneable threshold.



Arousal

Consider portions with at least words

Consider only portion with a mean of less then

Symbolization / Reorganization (Primary curve)

Consider portions with at least words and which reach at least once

Warn me if the mean of the portion is less then

Declutter values below

Symbolization / Reorganization (Complementary curve) ?

Type 1

Type 2

Type 3

Mixed

x_1 x_2 x_3

A **B** **C**



Symbolization/Reorganization filter is more complex: the choice of the portion is based on similar parameters with respect to arousal phase. Once a portion is chosen (both on WRAD or WRRL curve), 4 types are identified, based on the behavior of the complementary curve, hence the one not used for the identification of the portion:

- Type 1: the complementary curve mean is below <A>
- Type 2: the complementary curve mean is between <A> and
- Type 3: the complementary curve mean is between and <C>; locally never exceed <C>
- Mixed: whatever the mean, locally exceed <C> at least once

Clicking on the question mark, a brief reminder of this classification is displayed.

Appearance popup allows the user to customize the color of the different phases.

Default options in filtering settings can be reset by clicking on the dedicated button. DaapMAP can update the result without run again the analysis: set the desired parameter and click on Apply Changes in ribbon bar.

DaapMAP always print a DAAPMAP.txt file in the same location of the input file. It reports:

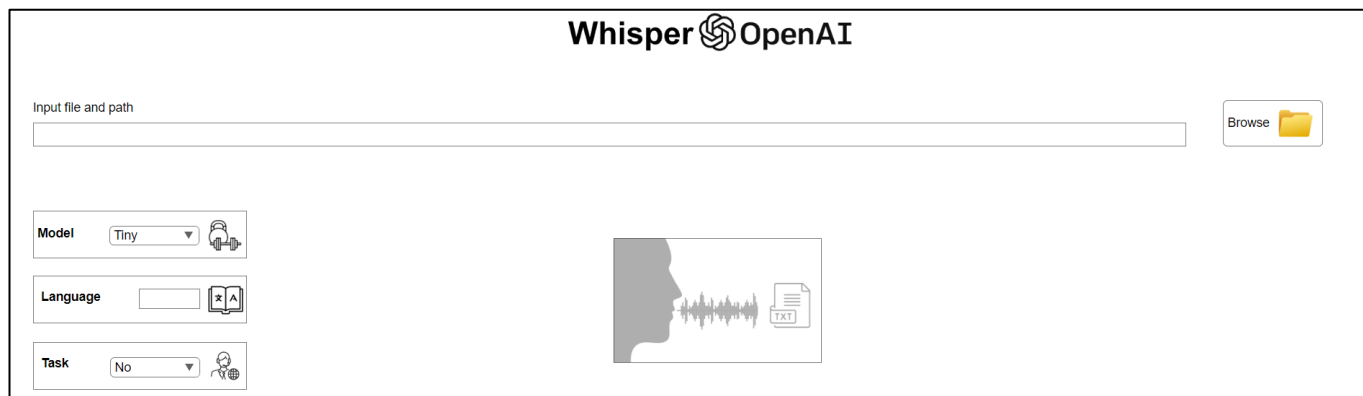
- The type of the portion
- The average score of the two curves in that portion
- The text portion itself



3.3 WHISPER

The workflow of Whisper is the same of Analysis capability: the user shall select an input file (.mp3 or .wav), shall select a model (the greater the model, the more computational resources are needed), a language (the user may specify the language or leave the box empty to make Whisper automatically detect it) and can assign translation task (the transcript of the audio will be automatically translated in English).

The run starts by pressing the central image, which enables only when an input file is selected.



DaapLAB is not responsive while whisper is executing. Please avoid to cluster command trying to perform any action on the application.

Depending on the settings, the run may open the Terminal: it is done on purpose to allow the user to track the Whisper transcription. The user can disable this option, so that the terminal won't open, or simply close it as it opens: the execution will be performed in any case.

At the end of the process, Whisper generates two .txt outputs in the same location of the input audio file: the first is named as the audio and contains the clean transcript. Please note that diarization (i.e. automatic identification of the speakers) is not implemented, hence the file shall be prepared by the user to become an adequate input for Analysis capability; the other file is *Whisper.txt*, and reports the exact content of the Terminal. It is intended to store the timings of the conversations.

3.3.1 Installation – MacOS

To install Whisper on your local machine, *Homebrew* is mandatory.

If it is not already installed, open your terminal, and paste the following command:

```
/bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"
```

Instructions follow after the command is executed.

Once *Homebrew* is installed, execute, once at a time, the following commands in terminal:

```
brew install ffmpeg  
brew install openai-whisper  
nano ~/.zshrc
```



Paste this line at end of the file and close it:

```
export PATH="/usr/local/bin:$PATH"
```

To ensure Whisper has been installed correctly, execute in terminal:

```
source ~/.zshrc  
Whisper help
```

3.3.2 Installation – Windows

To install Whisper on Windows, refer to the official GitHub page (<https://github.com/openai/whisper>)



4 INPUT FILES

4.1 RULES

This section is dedicated to the rules that have to be followed for the proper preparation of the input file.

Rule	Example
The interlocutors are declared with the tag "\s" followed by the identification number	\s1
The segments are declared with the tag "\t" followed by the identification number	\t1
The document must close with the tag "\s(N+1) end" where N is the number of speakers	\s5 end [with 4 speakers]
The change of speakers and segment takes place by declaring a different identifier	
If the user wants to insert notes in the text, use round brackets. The text within them is not considered during the analysis	

4.2 SUGGESTIONS

To speed up the analysis of the text, it is strongly recommended to use progressive identification numbers, starting from 1.

To avoid unwanted changes of segments or speakers, it is strongly discouraged to use the "\" character within the text.

To facilitate the transcription, disfluencies can and shall be inserted simply with dx tags within the text, instead of trying to reproduce the structure in words (some examples in Appendix). It is therefore advisable to use this notation, and, if desired, report the word on which the disfluency occurred in parenthesis, to allow the understanding of the sentence even in subsequent readings by the user.



APPENDIX

In the following, an example of the input file is reported. It shows the correct way to organize speaker turns, text segmentation, text closure, and provide examples of correct and incorrect disfluencies annotations.

\t1

\s1 because I just don't have enough space, I could have the time and space for me, but I'm not able to do my own business, I can't, so I don't study, I don't do anything, I'm getting angry, it can also be a justification because so it's a bit of an excuse for the umpteenth time and then I feel like a loser, A failure. How is it possible that I have done so much without any problem, and now I am not doing anything?

\s2 In what sense has he done so much and now he is not doing anything? What do you think when you say these things so radically?

\s3 I think that before I studied with more motivation, that I dreamed, that I planned to be able to one day research with MM in the field of ecology "I, fuck, **dx (I-) I** threw myself away". So here I find myself having so many brakes, and I'm really afraid **oDXffff** of not being able to do anything **dx (of what-) of what** I wanted to do.

\t2

\s2 but what is it that has determined **this- this dx** advent of confusion, why should you think it be more confused now so that you no longer know if you like or not what you are doing as a studio?

\s1 because I see that everything is static, that anyway I do not have my space, because I do not think of me, I do not design, I let everything go, and I think that everything is already decided, already finished, and that I do not even have the stimulus and the desire suitable **forrr-** to roll up my sleeves and that therefore I will have to take advantage of some help that I do not even know

\s2 but like this, which you just told me, it can go along with the fact that the degree could give you chances that you do not have.

\s1 because now I am neither meat nor fish, if someone wants to hire me

\s4 end



End of the Document