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A simple program for the visualization of FO

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Abstract

The main aim of this paper is to present a simple program that has been developed at our Laboratory and the name of which is Pit.

The scope of such a program ranges from visualisation to editing of FO. Pit, indeed, allows a user to visualise up to six FO graphs within a single window and to perform over each of them both editing operations (such as clear or cut), measurements and splitting.

Visualisation can be performed on a time÷frequency diagram or on a percentage lasting÷frequency diagram: in the first case we use an absolute scale so to visualise pitches with their effective length whereas in the other case we allow a comparison of pitches of different lengths by displaying them as if they have the same length.

Editing operations are very simple both because they have been planned to allow a user to remove unwanted FO values (clear) or to cut the length of a pitch by eliminating a part of the graph.

As to measurements Pit allows the user to perform simple measures over each pitch and to save the measured values within text files so to allow subsequent statistical computations.

With splitting we mean the possibility for the user to fix one or more markers on a pitch graph so to split it in two or more parts: by justifying, in the simplest case, the two parts at the starting point this operation, for instance, allows an easy comparison of the shape of the pitch at the beginning and at the end of a phrase.

When the six pitches are displayed within a single windows, they can be qualitatively compared among themselves but can be even justified by fixing an independent marker on each FO so to allow the investigation of their behaviour starting from speech dependent positions.

The program is be considered as a module to be inserted within either a graph or a pipeline of co-operating applications of which it represents a terminal node. As to the pipeline we have an acquisition module (producing speech files), a module that performs analysis and extract FO according to some algorithm (producing pitch files) and Pit that displays the result of such analysis: its nature of terminal module prevents Pit from producing new pitch files so to maintain a full consistency between a speech file and the corresponding pitch file.