

SolutionVizArg University Project

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1 Introduction

solutionVizArg is an interactive visualization tool for the analysis of solutions for an argumentation framework. Solutions for semantics of argumentation framework are gathered from Aspartix.

1.1 System Requirements

1.2 Installation

1.3 Initial First Run

The initial first run of the system is for configuring the aspartix tool. The tool *solutionVizArg* asks for the creation of a folder named *Argument-data* in */home* directory or */Users* for Mac system users. Please accept the creation of this folder and unpack the Aspartix tool in this folder. For ubuntu users the aspartix script file *aspartix.sh* will be in *"/home/Aspartix-data/ASPARTIX-D"*.

2 User Interface

SolutionVizArg has a simple Graphical User Interface (GUI) composed of:

- menu bar
- toolbar
- dock or toolbox
- a canvas for visualization
- status bar.

2.1 The Menu

The top of the window consists of the menu bar, composed of 6 menus:

- File: Options to load, save the apx file, print the graph in pdf format, new window and close, exit the window.
- Edit: Options to create, delete, select, deselect and find arguments, create, delete attacks, change color of background and change color of all arguments.
- Graph Layout: Layout options for the argumentation framework.
- Options: Antialiasing, Debug and other View options.
- Visualize: Options to visualize the Solutions by size, shape, layouts and iteration.
- Help: pdf guide to the tool.

2.2 The toolbar

Below the menu the tool bar provides some very important features:

The "select semantic" consists of a combo box comprising of "ST", "PR", "CO" and "GR" namely stable, preferred, complete and grounded respectively. The "Aspartix" button calls the external aspartix tool stored at ".../Aspartix-data/ASPARTIX-D" for the solution.

The button "Calculate Data" is to be used before using the "Visualize" menu and after using the "Aspartix" button. "Normalize Data" is used to normalize the data produced by "Calculate Data".

The button "ReloadAF" can be used to view the initial argumentation framework text.

The button "Load AF from text" can be used to create the argumentation framework by writing text into the text space.

The "Rotate" tool is used to rotate the argumentation framework on the canvas.

2.3 The toolbox

The toolbox on the left consists of the area for displaying the text loaded or created. The toolbox also consists of 3 tabs Layout, statistics and number of extensions tab.

2.4 The canvas

The canvas displays the argumentation framework as directed graphs.

2.5 Status Bar

The status bar at the bottom displays the status of the processes executed.

3 Argumentation Framework Creation

To start working on the visualization tool, we need to create the argumentation framework on the canvas. We can create an argumentation framework in 3 different ways:

- create/delete arguments and attacks from the menu bar
- create/delete arguments and attacks by canvas interaction
- create arguments and attacks by writing in the text box on the left
- create argumentation framework by uploading an apx file. Ctrl+O is the shortcut for uploading.

3.1 Create/Delete Arguments

To create a new argument, you can mouse double left click on the canvas or click on the "Add Argument" button. The keyboard shortcut is Ctrl+X. By typing "arg(argument name)." in the text space and pressing "Load AF from text" we can create arguments.

We can find an argument in large argumentation frameworks on the canvas by clicking "Edit -> Argument -> Find Argument" or by key shortcut Ctrl+F. Press Ctrl+A to select all arguments on the canvas. Press Ctrl+Shift+A to deselect all arguments.

To delete an argument we can select the argument and by mouse right click to obtain the menu to delete that particular argument or by Ctrl+backspace and enter the argument name that you need to remove or you can also delete by going to menu "Edit -> Argument".

Note: Ctrl+backspace may not work on Mac systems.

3.2 Create/Delete Attacks

To create a new attack, you can mouse middle click on the source argument and again middle click on the target argument or click on the "Add Attack" button to enter the source argument name and target argument name. The keyboard shortcut is Ctrl+E. By typing "att(argument name1, argument name2)." in the text space and pressing "Load AF from text" we can create attacks.

To delete an attack we can select the attack and by mouse right click to obtain the menu to delete that particular attack or by Ctrl+Z and enter the source argument name and target argument name that you need to remove or also delete by going to menu "Edit -> Attack".

4 Layout of Argumentation framework

Graph layout for argumentation framework:

- Random
- Random circle
- Force Layout

To remove the guide circles created from random circles click "Graph Layout – > Remove Layout Guidelines". The shortcut key is Ctrl+5.

5 Getting the Solution

The procedure for Getting the solution, after creating or loading the apx file:

- Click Save or Ctrl+S
- Select semantic from combo
- Click Aspartix.

The argumentation framework can be edited until Aspartix is clicked. After creating the argumentation framework we can save our text as a temporary file by pressing "Save" on the toolbar or menu File. The shortcut key is Ctrl+S. After clicking Aspartix we get the solution in the text box.

Now that we have the solution, which is visible in the text box. We can still rollback to the argumentation framework by clicking "reloadAF" and continue editing the argumentation framework.

Note: Skip first step i.e. Save when argumentation framework uploaded by Ctrl+O, but Save if some changes have been made to the argumentation framework.

6 Visualizing and Analysing

After the Solution sets are visible in the text box. The procedure for visualizing is as follows:

- Click on "Calculate Data" (must be clicked to use the data for visualization.)
- Visualize by changing size
- Visualize by changing shape
- Visualize in Circular layout
- Visualize in Linear layout

- Visualize in Linear layout with x-axis value randomising (Only used after using the above method).
- Iterative visualizing by coloring the arguments.
- Visualizing by searching an argument.

Visualizing by searching an argument can be done by right clicking on any argument, clicking the "Get extensions" button and selecting the particular extension.

All the above methods can be rolled back by clicking on the button "Normalize Data". In order to reuse the solution data press on "Calculate Data".

7 Others

To zoom in or zoom out use the mouse scroll bar. To rotate enter the amount in the rotate combo, the canvas rotates in a circular manner.