

Displaying and Storing Theorems with SAGE

This project was created with the objective of facilitating the study of mathematical theorems – specifically how they depend on each other.

The main functionality of this project is in its ability to display a graph, visually depicting how one theorem requires another. Axioms, Definitions, and actual Theorems are all treated as theorems, but a Definition for instance will simply say “Definition” for its proof.

Although you may enter in individual theorems by hand at the command line (or notebook) one-by-one, in order to use the `theorem_graph` class you must have an XML file containing the database of theorems you wish to work with. One such XML file – `Baby_Rudin.xml` – is already provided, and is a partial implementation of Rudin’s Principles of Real Analysis. This may be used as an example for how to write your own databases, or as a functional tool for studying basic Real Analysis.

An XML schema file is also provided -- `TheoremsSchema.xsd`. In order to write up your own theorems database, an XML editor that supports schema validation is recommended. Microsoft has a free XML editor that is pretty good and simple to use, and supports schemas. Liquid XML Studio is another free application that looks very good, and is a little less simple but a little more powerful it seems.

The functions and classes are documented thoroughly, so go ahead and dive in.