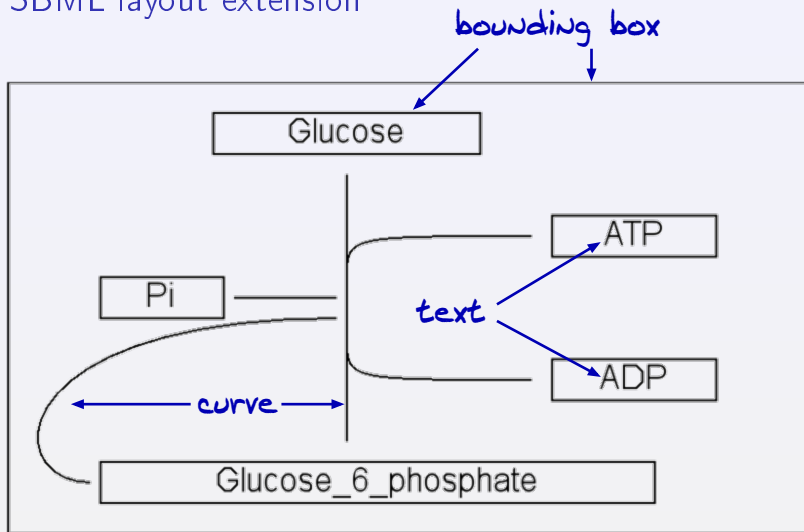


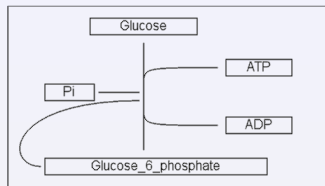
Graphical Layout & Rendering

- ▶ Ralph Gauges
Updates on the SBML Layout and Render Extension
- ▶ Huaiyu Mi
BioPAX support in CellDesigner
- ▶ (Fedor Kolpakov)
Andrey Zinovyev
*Encoding and exchanging graphical representation:
architecture and formats*
- ▶ 30 minute discussion

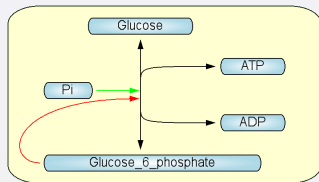
the SBML layout extension



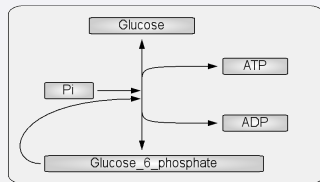
the SBML layout extension



Application A

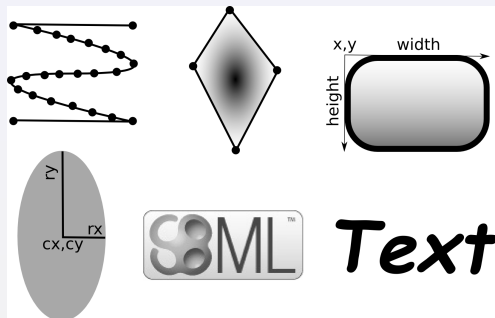


Application B



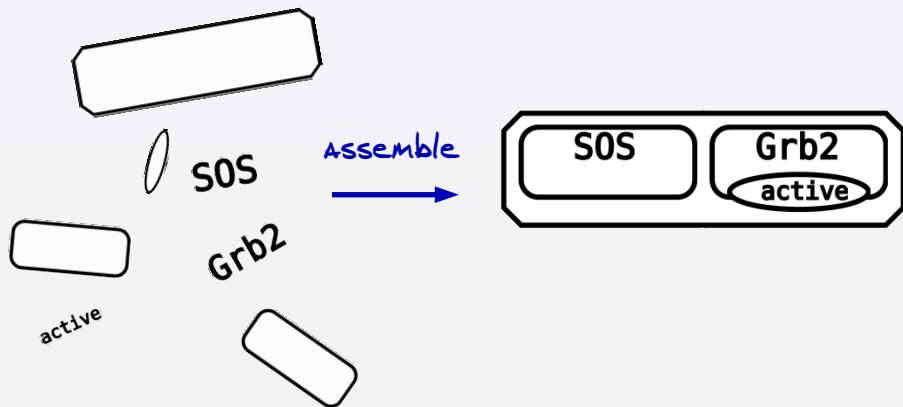
the SBML render extension

- ▶ color & color gradient definitions
- ▶ some primitives



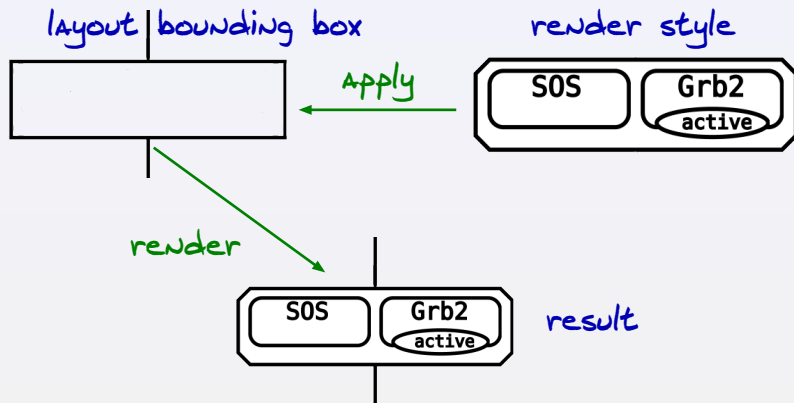
the SBML render extension

- ▶ use primitives to create more complex shapes (styles)



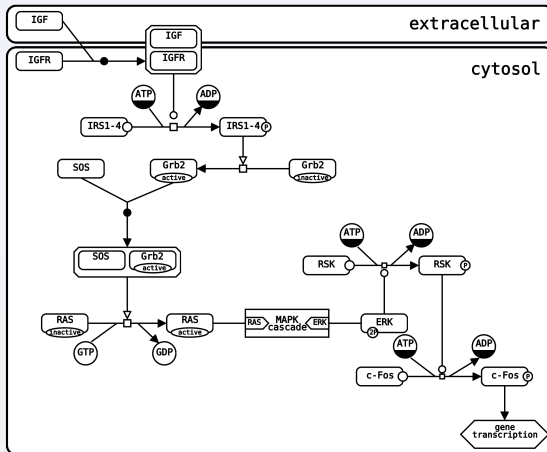
the SBML render extension

- ▶ assign style to layout element



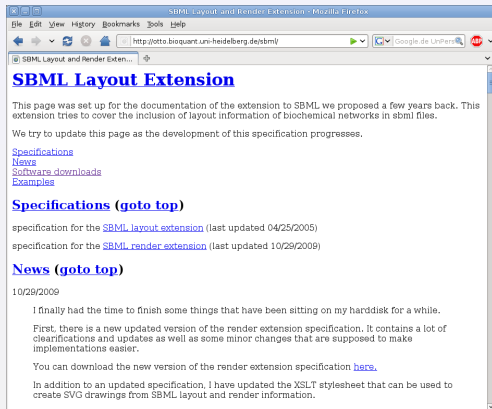
the SBML render extension

- ▶ rendered diagram



updated webpage

<http://otto.bioquant.uni-heidelberg.de/sbml/>



updated render specification

- ▶ updated due to feedback and from issues found during implementations
- ▶ changes since last version:
 - updated information on render information in SBML Level 3 documents
 - new examples in appendix
 - general documentation improvements
 - ... (see change log in spec)

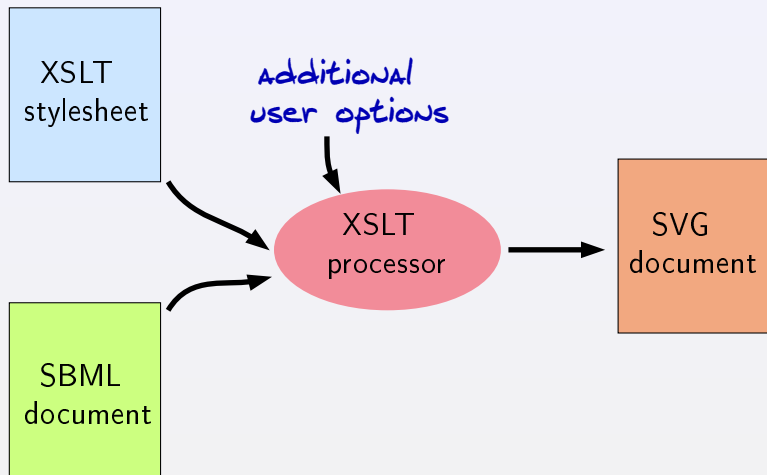
current layout and render implementation

- ▶ layout extension already part of libsbml
- ▶ render extension as separate patch against libsbml 3.4.1
 - + it works
 - can read only SBML Level 2 files with layout annotations
 - sparsely documented
 - C++ only (no language bindings)
 - not enough unittests

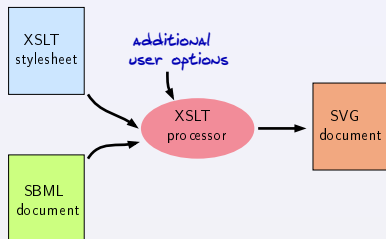
new libsbml 4 patch

- ▶ patch against libsbml 4.1.0
- ▶ support for layout and render information in SBML Level 3 documents
- ▶ updated API (more consistent with libsbml API)
- ▶ all classes and methods are now documented
- ▶ many new unittests (126)
- ▶ language bindings for Java and python with unittests

improvements to XSLT stylesheet



improvements to XSLT stylesheet



- ▶ support for layout and render information in SBML Level 3 documents
- ▶ general bugfixes

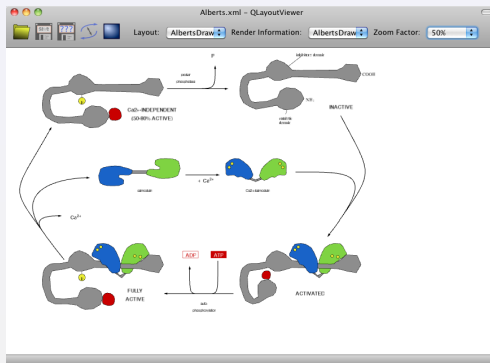
testcases

- ▶ systematic testcases for features in the render (and layout) extension
- ▶ some complex examples that combine many of the features
- ▶ written in C++ using the layout and render classes from patched libsbml
- ▶ each test for SBML Level 2 as well as SBML Level 3

↔ helped testing the libsbml patch as well as the XSLT stylesheet

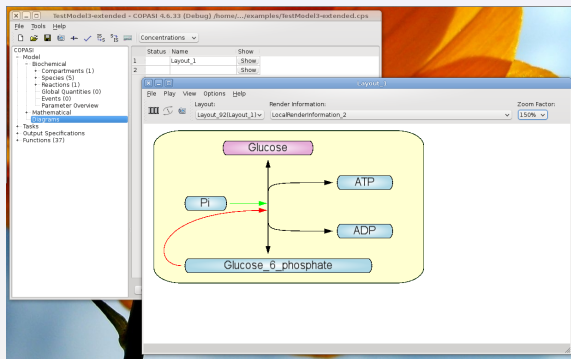
OpenGL based renderer

- ▶ written in C++
- ▶ OpenGL (1.5) based
- ▶ Qt4 based GUI demo application (obsolete)



COPASI implementation

- ▶ layout support available for some time
- ▶ new COPASI version uses libsbml 4.1.0 with patch
 - (preliminary) support for SBML Level 3 files
 - support for render extension (import, export, load & save)



acknowledgements

- ▶ Sven Sahle, Katja Wegner & Ursula Rost (specification)
- ▶ Sven Sahle & Stefan Hoops (feedback, discussion & COPASI implementation)
- ▶ Frank Bergmann (feedback & discussion)

That's it!