SBML Layout & Rendering Packages

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SBML Layout Package

SBML Level 3 Package Specification

SBML Level 3 Package: Layout ('layout')

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Version 1 Release 1

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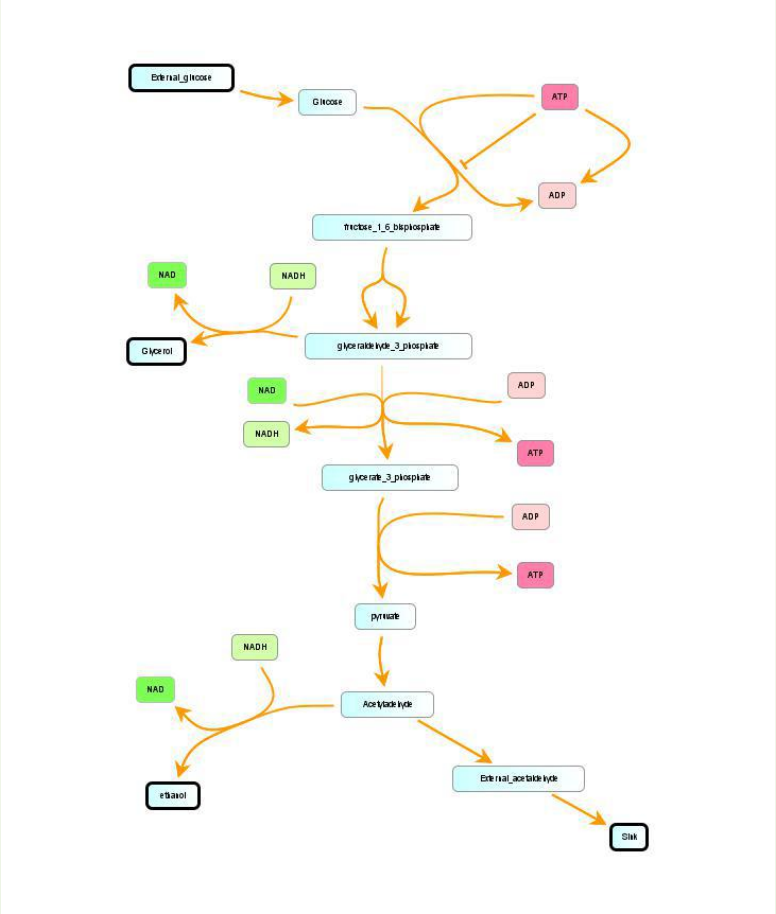
The latest release, past releases, and other materials related to this specification are available at
http://co.mbine.org/specifications/sbml.level-3.version-1.layout.version-1.release-1.pdf

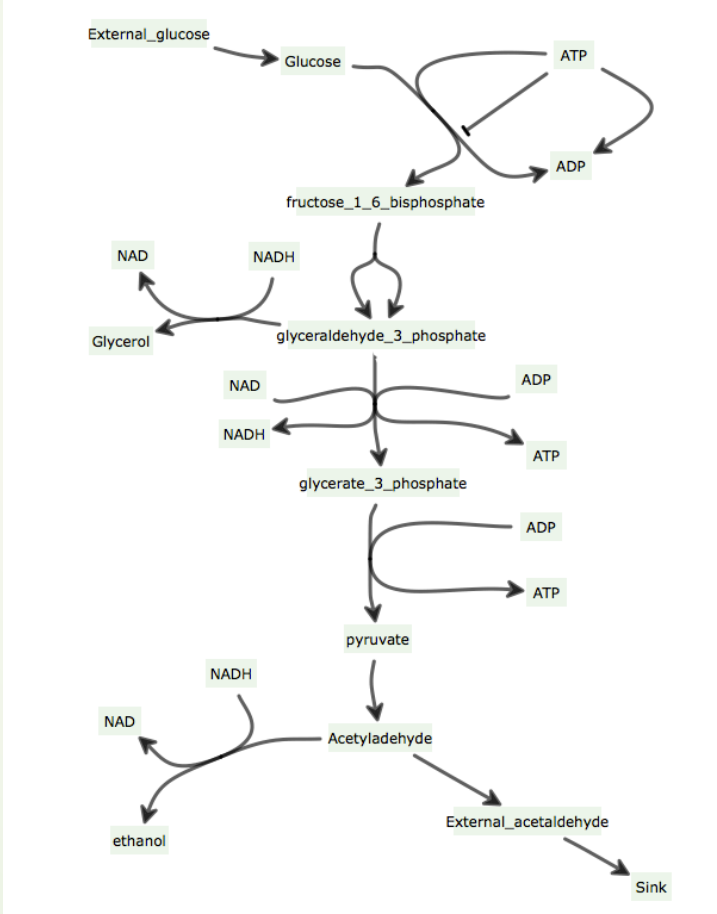
This release of the specification is available at
http://sbml.org/Documents/Specifications/Layout_Level_1_Version_1

Released 13th August 2013

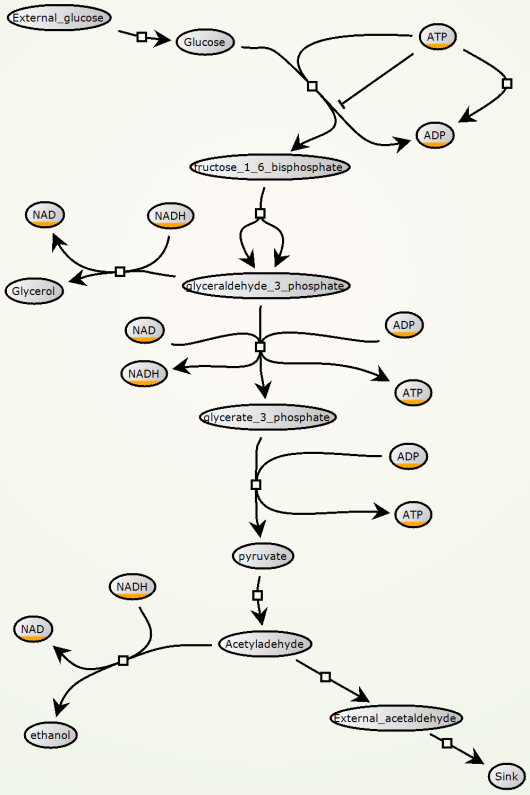
SBML Layout Package



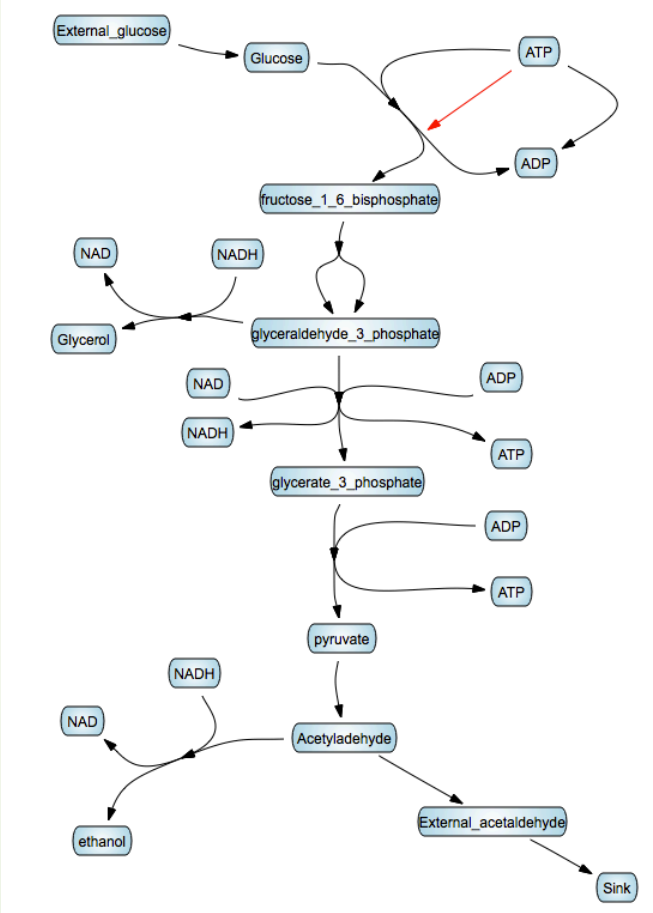
SBML Layout Package



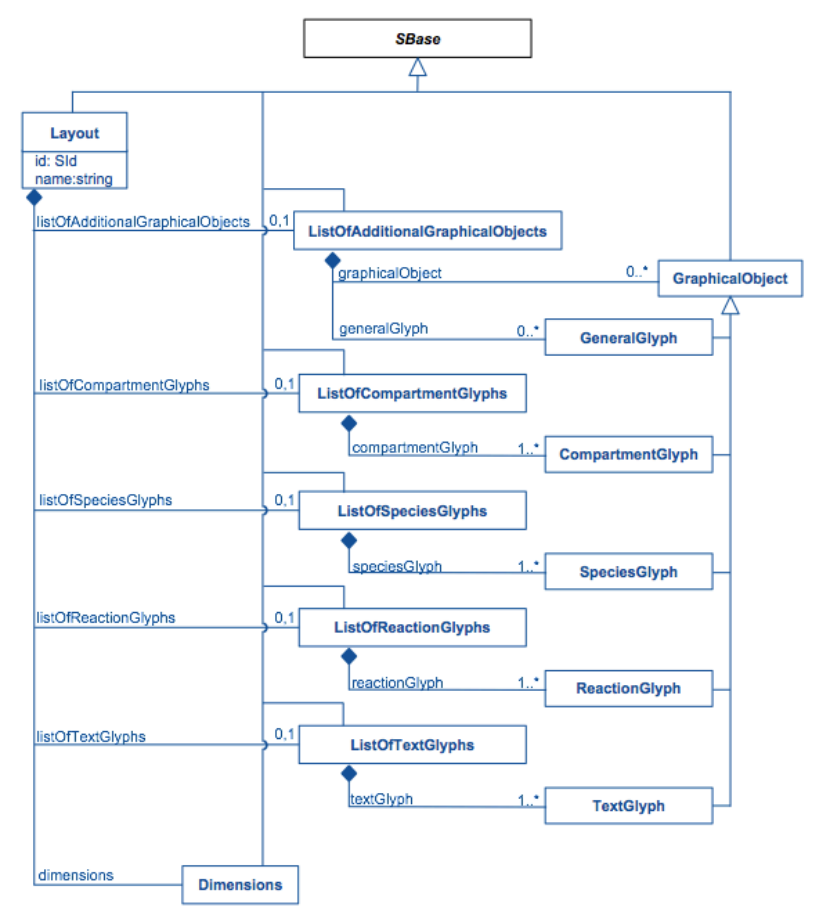
SBML Layout Package



SBML Layout Package



SBML Layout Package Structure



SBML Render Package

Complementing layout information with
render information in SBML files

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May 25, 2011

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

How does it work?

- List of Color Definitions:

```
<listOfColorDefinitions>
     <colorDefinition id="yellowComp" value="#ffffccff" />
     <colorDefinition id="grayComp" value="#e0e0e0ff" />
</listOfColorDefinitions>
```

- List of Gradient Definitions:

```
<listOfGradientDefinitions>
       <linearGradient x1="0%" y1="0%" x2="100%" y2="0%”
                       id="LinearGradient_0"
spreadMethod="reflect">
            <stop offset="0%" stop-color="#ccffff" />
            <stop offset="100%" stop-color="#ffffff" />
       </linearGradient>
```

How does it work?

List of Styles:

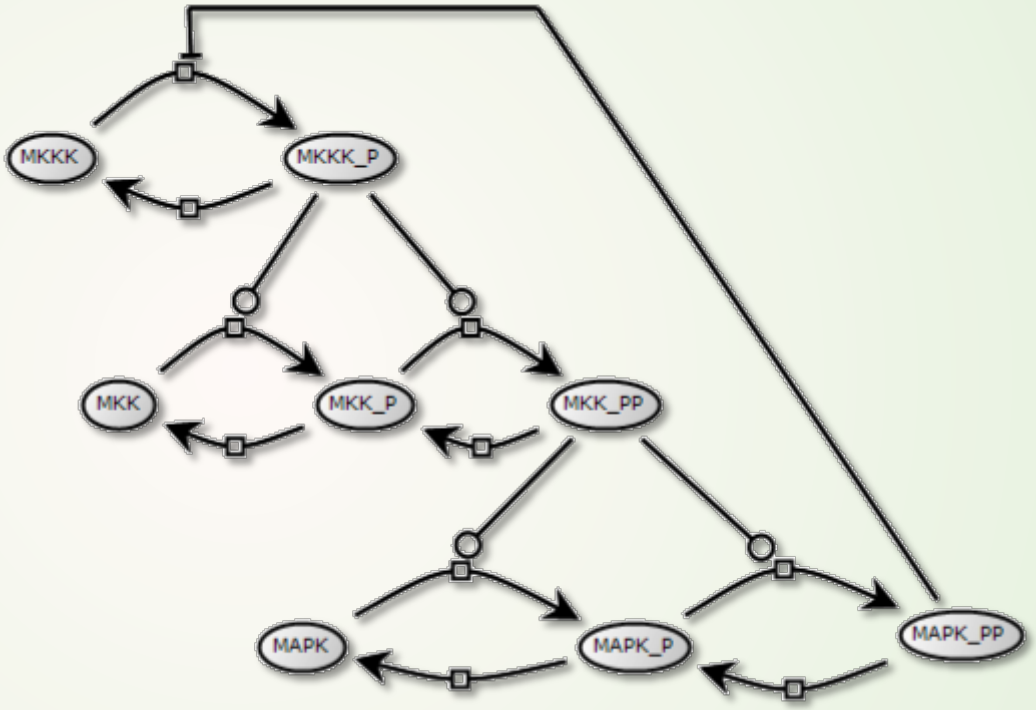
```
<listOfStyles>
   <style idList="glyph0 glyph2 glyph14 glyph34 ">
     <g stroke="Color_2" stroke-width="5" fill="yellowComp"  />
   </style>
   <style roleList=”gray_fill">
     <g stroke="Color_2" stroke-width="5" fill="grayComp"  />
   </style>
   <style typeList=”SPECIESGLYPH">
     <g stroke="orange" stroke-width="2" fill="OrangeGradient_0" />
   </style>
   …
```

Tool Support

- Libraries:
  - Implementation in LibSBML, including validation
    - Binaries released regularly,
    - Online Validator: http://sbml.org/Facilities/Validator
    - REST API available: http://sbml.org/Facilities/Documentation/Validator_Web_API
  - Implementation available in JSBML
  - .NET library: http://sbmllayout.sf.net
    - SBGN support (PD, ER, AF)
    - Rendering support for: WinForms, WPF, Qt4DotNet
    - Online App + API available from: http://sysbioapps.dyndns.org

Tool Support

- Applications:
  - COPASI
  - iBioSim
  - SBW
  - SBML2TikZ
  - Cytoscape
  - CySBML



- Converters: JD / CD / SBGN → Layout

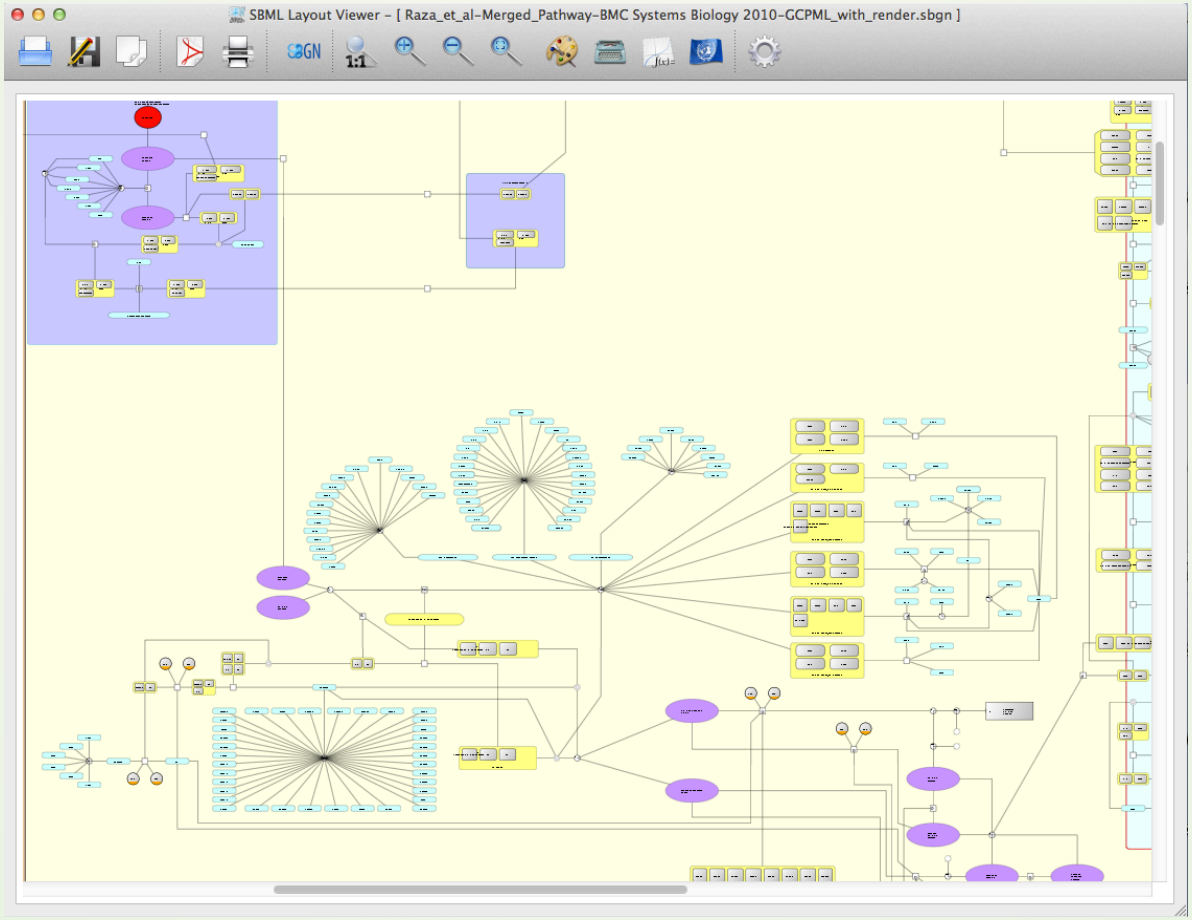
Bringing Color to SBGN$_{ML}$

SBGN-ML

Extensions:

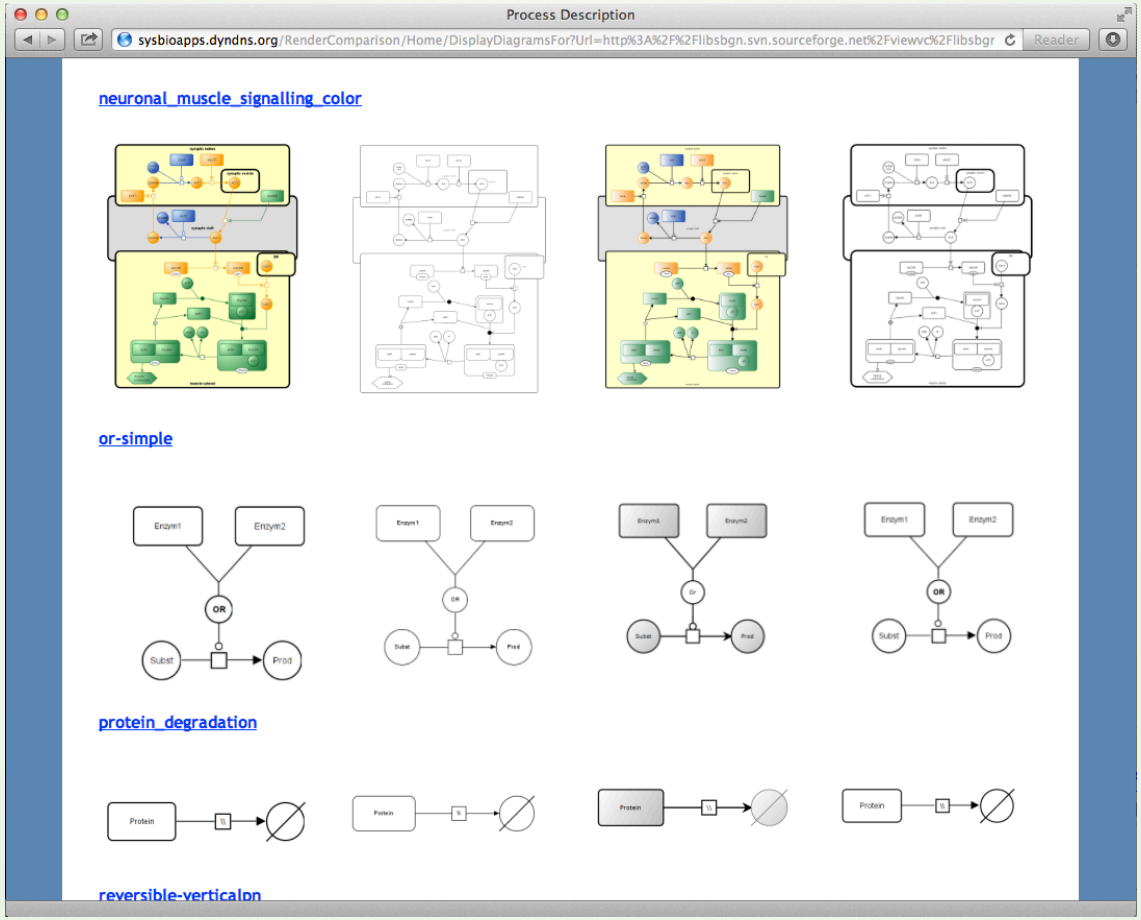
```
<map language="process description">
  <extension>
   <renderInformation id="example" programName="SBML Layout"
    programVersion="3.0"
    xmlns="http://projects.eml.org/bcb/sbml/render/level2">

     <listOfColorDefinitions>…</listOfColorDefinitions>
     <listOfGradientDefinitions>…</listOfGradientDefinitions>
     <listOfStyles>…</listOfStyles>

   </renderInformation>
  </extension>
…
```

Implementation



Layout Viewer as Available With SBW: http://sbw.sf.net

Implementation



Online under: http://sysbioapps.dyndns.org/RenderComparison

More Information

- Blog:
  http://frank-fbergmann.blogspot.com
- Java example:
  http://www.sbgn.org/LibSBGN/SBGN-ML_Extensions
- Online Application for testing:
  http://sysbioapps.dyndns.org
- Programs to download:
  - COPASI: http://copasi.org
  - SBW: http://sbw.sf.net

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- Funding
  Ursula Kummer, Mike Hucka, Herbert Sauro
- Working Groups
  sbml-layout@lists.sourceforge.net, sbml-render@lists.sourceforge.net