PD L1V2.0 CHANGELOG

This version is based on the specification L1V1.3 and the previous release candidate that was proposed in December 2015.

The previous release candidate proposed a completely new overall structure, compared to L1V1.3. It focused the presentation of the glyphs on the underlying conceptual model described using UML diagrams, rather than on the glyphs themselves. Realizing that the new version was much more difficult to read and understand, the SBGN Editors decided to build a new release candidate that would keep the structure of L1V1.3 while introducing the changes that had been voted on by the community, and incorporated in the previous release candidate. Following are all modifications brought to this new release candidate, compared to L1V1.3.

Major modifications (in red)

New glyphs:

- Equivalence operator
- Annotation
- Submap terminal (were implicit)
- Empty set (replace Source and Sink)
- Subunits (were implicit)

Changes in glyphs:

- State variable: ellipse to stadium
- Simple chemical: circle to stadium

Changes in semantics:

- Process identity is now set to “instance”

Edited sections (in blue)

Changes in the structure of the specification:

- Arcs section was broken into three new sections: Flux arcs, Modulation arcs, Logic arc
- Referring to other nodes and arcs section was moved towards the end of chapter 2
- Encapsulation section was moved towards the end of chapter 2

Changes in the style of the specification:

- Container, label and auxiliary units entries have been homogenized throughout the specification
- Figures have been redrawn with SBGN-ED, and homogenized throughout the specification

- Connectivity has been added for all nodes under the form of Incoming arcs and Outgoing arcs entries

Modifications section by section

1 Introduction
- 1.1 SBGN levels and versions
- 1.2 Developments, discussions, and notifications of updates
- 1.3 Note on typographical convention

2 Process Description Glyphs
- For all glyphs:
  - homogenized the text (container, label and auxiliary units entries)
  - redrew all figures with SBGN-ED
- For all nodes:
  - added Incoming arcs and Outgoing arcs entries
- Added new subsection Annotating nodes and arcs

2.1 Overview

2.2 Controlled vocabularies used in SBGN Process Description Level 1
- 2.2.1 Entity pool node material types
- 2.2.2 Entity pool node conceptual types
- 2.2.3 Macromolecule covalent modifications
- 2.2.4 Physical characteristics
- 2.2.5 Cardinality

2.3 Auxiliary Units
- Added two new subsections: Subunits and Submap terminal
- 2.3.1 Glyph: Unit of information
- 2.3.2 Glyph: State variable
  - Rewrote the standfirst
  - Rewrote the label entry
- 2.3.3 Glyph: Clone marker

2.4 Entity pool nodes
- 2.4.1 Glyph: Unspecified entity
- 2.4.2 Glyph: Simple chemical
- 2.4.3 Glyph: Macromolecule
- 2.4.4 Glyph: Nucleic acid feature
- 2.4.5 Glyph: Multimer
  - Added text to the standfirst
  - Added Table 2.8 showing the different glyphs
- 2.4.6 Glyph: Complex
- 2.4.7 Glyph: Source and Sink
  - Replaced by Empty set
- 2.4.8 Glyph: Perturbing agent

2.4.9 Examples of complex EPNs

2.5 Referring to other Nodes

- Moved this section towards the end of the document

2.5.1 Glyph: Tag

- Rewrote standfirst

2.6 Defined sets of entity Pool nodes

2.6.1 Glyph: Compartment

2.7 Encapsulation

- Moved this section towards the end of the document

2.7.1 Glyph: Submap

- Rewrote standfirst
- Rewrote text explaining the examples
- Rewrote caption of figures

2.8 Process nodes

- For all glyphs:
  - Removed Origin and Target entries

2.8.1 Glyph: Process

2.8.2 Glyph: Omitted process

2.8.3 Glyph: Uncertain process

2.8.4 Glyph: Association

2.8.5 Glyph: Dissociation

2.8.6 Glyph: Phenotype

2.9 Arcs

- Split this section into three new sections: Flux arcs, Modulation arcs, Logic arc

2.9.1 Glyph: Consumption

- Moved to new section Flux arcs

2.9.2 Glyph: Production

- Moved to new section Flux arcs

2.9.3 Glyph: Modulation

- Moved to new section Modulation arcs

2.9.4 Glyph: Stimulation

- Moved to new section Modulation arcs

2.9.5 Glyph: Catalysis

- Moved to new section Modulation arcs

2.9.6 Glyph: Inhibition

- Moved to new section Modulation arcs

2.9.7 Glyph: Necessary stimulation

- Moved to new section Modulation arcs

2.9.8 Glyph: Logic arc

- Moved to new section Logic arc

2.9.9 Glyph: Equivalence arc

- Moved to section Encapsulation
- Rewrote standfirst

2.10 Logical operators

- Added a standfirst

- Added new subsection Equivalence operator
- For all glyphs:
  - Removed Origin and Target entries

2.10.1 Glyph: And
- Rewrote the definition

2.10.2 Glyph: Or
- Rewrote the definition

2.10.3 Glyph: Not
- Rewrote the definition

3 Process Description Language Grammar

3.1 Overview

3.2 Concepts

3.3 The conceptual model
- Figure 3.1:
  - Removed Sink and Source
  - Added Empty set
  - Added Equivalence operator
  - Added Submap terminal
- Table 3.1:
  - Removed Sink and Source
  - Added Empty set
  - Added Equivalence operator
  - Removed “Subunits” from Complex and Complex multimer entry
  - Changed Process entry to “instance”

3.4 Syntax

3.4.1 Node connectivity
- Table:
  - Removed Sink and Source
  - Added Empty set
  - Added Equivalence operator
  - Added Submap terminal

3.4.2 Containment definition
- Table:
  - Removed Sink and Source
  - Added Empty set
  - Added Equivalence operator
  - Added Submap terminal

3.5 Semantic rules
- Added new subsection Equivalence operator at the end

3.5.1 EPNs

3.5.2 Process Nodes
- Reversible processes subsection:
  - Removed rule 2 on sinks

3.5.3 Cloning

- Table 2.3:
  - Removed Sink and Source
  - Added Empty set
  - Added Equivalence operator
  - Removed Additional rule in Process entry

3.5.4 Compartment spanning

3.5.5 Submaps

4 Layout Rules for a Process Description

- Redrew all figures with SBGN-ED

4.1 Introduction

4.2 Requirements

4.2.1 Node-node overlaps

4.2.2 Node-edge crossing

4.2.3 Node border-edge overlaps

4.2.4 Edge-edge overlaps

4.2.5 Node orientation

4.2.6 Node-edge connection

4.2.7 Node labels

4.2.8 Edge labels

4.2.9 Compartments

4.3 Recommendations

4.3.1 Node-edge crossing

4.3.2 Labels

4.3.3 Avoid edge crossings

4.3.4 Branching of association and dissociation

4.3.5 Units of information

4.4 Additional suggestions

5 Acknowledgments

- Added subsection Level 1 Release 2.0

5.1 Level 1 Release 1.0

5.2 Level 1 Release 1.1

5.3 Level 1 Release 1.2

5.4 Level 1 Release 1.3

5.5 Comprehensive list of acknowledgments

- Updated the list

Appendices

- Added a new Appendix “Examples of use of the equivalence operator”

A Complete examples of Process Description Maps

- Redrew all images with SBGN-ED

B Reference card

- Updated with new glyphs

D Issues postponed to future levels

E Revision History

- To be updated