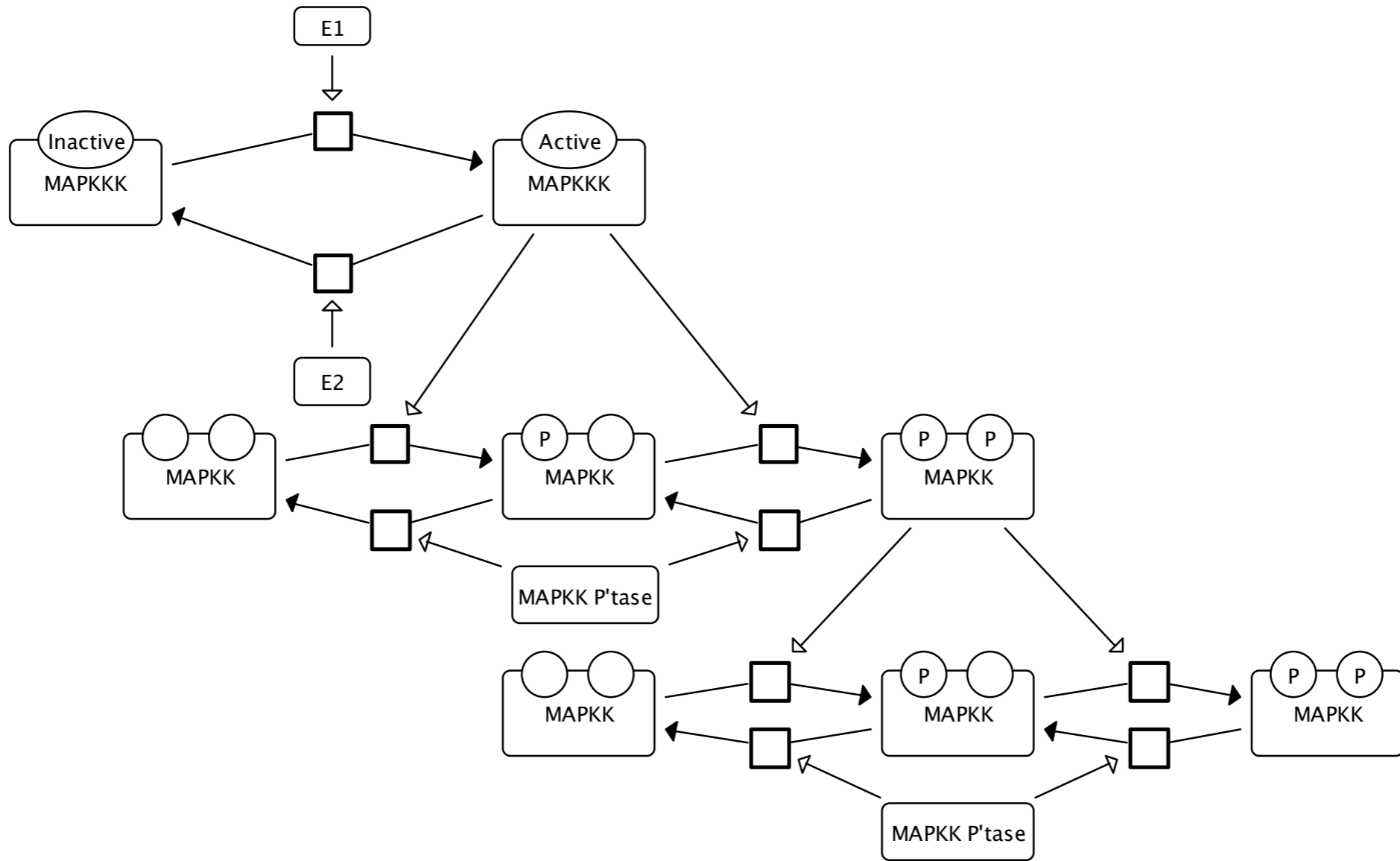


Systems Biology Graphical Notation Process Diagram

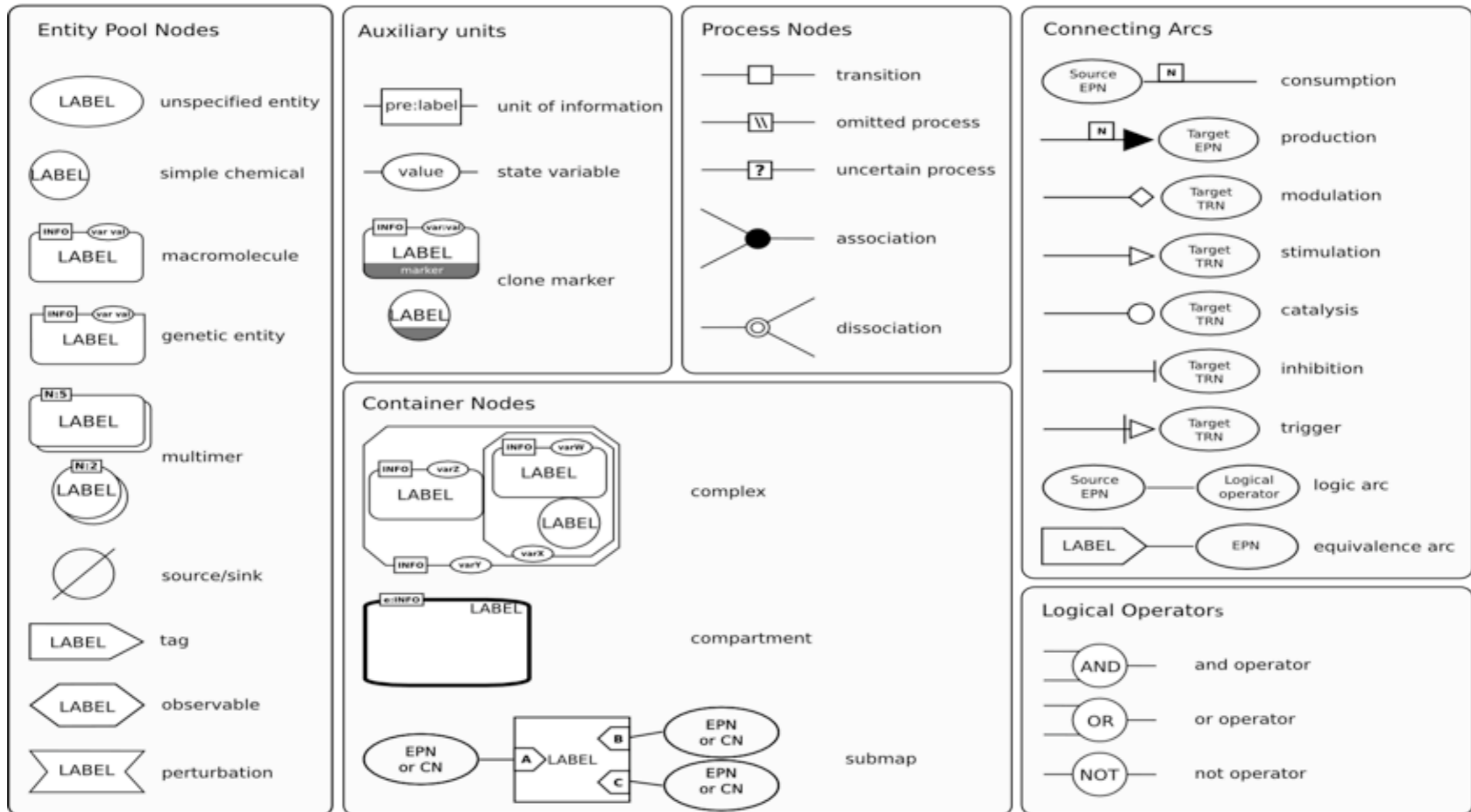
Stuart Moodie
University of Edinburgh

www.sbggn.org

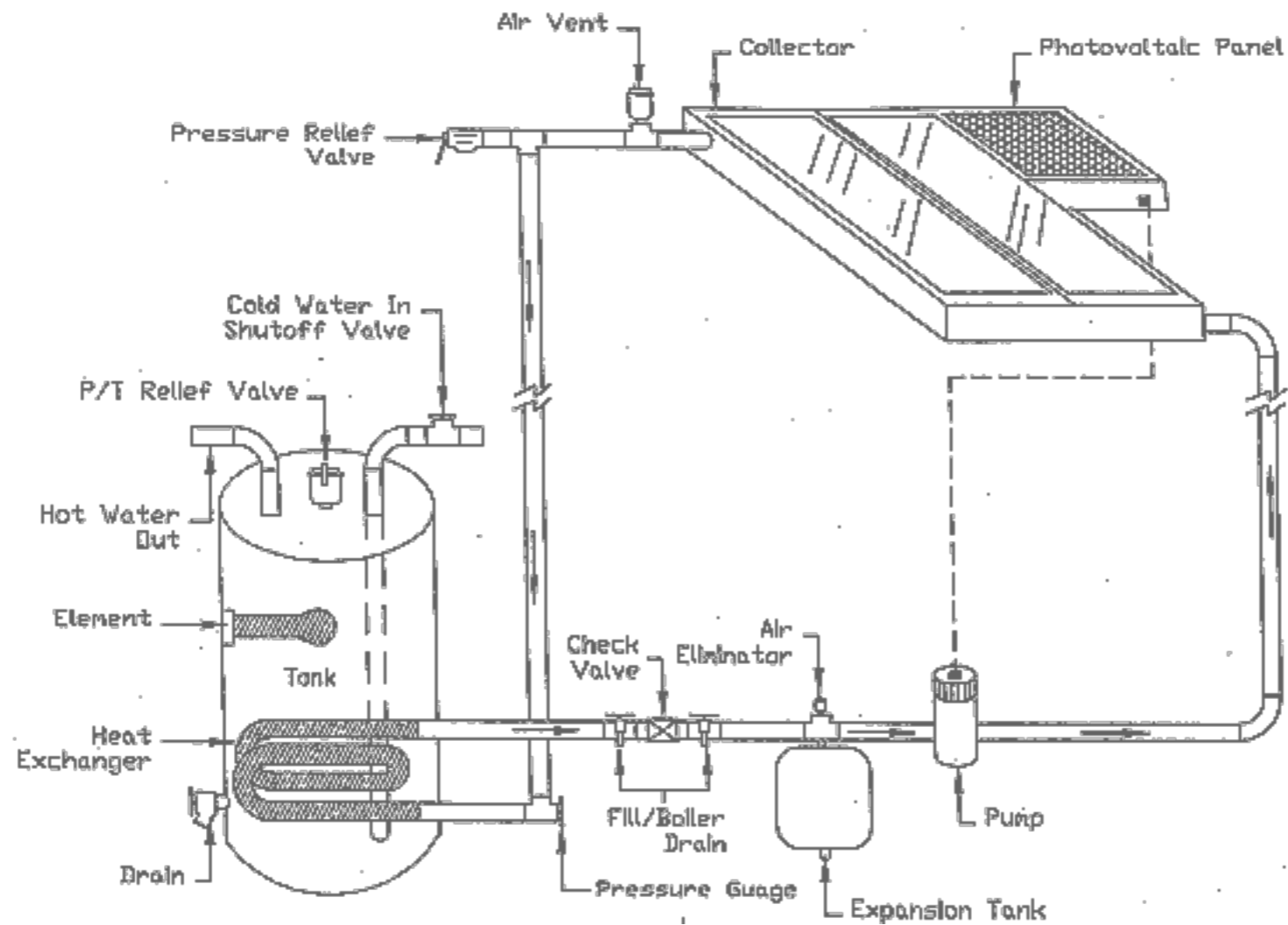


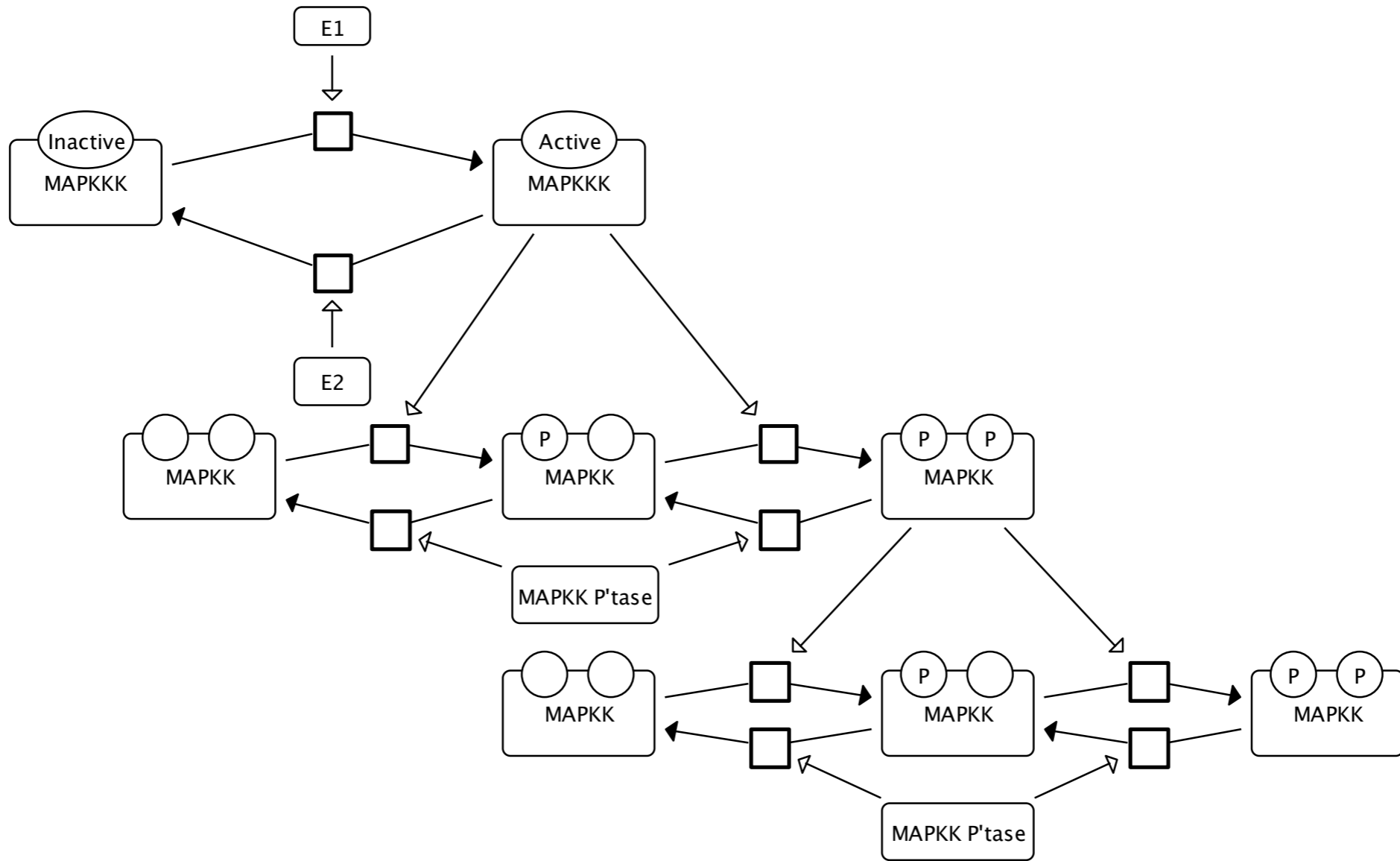
SBGN: Process Diagram

SYSTEMS BIOLOGY GRAPHICAL NOTATION REFERENCE CARD

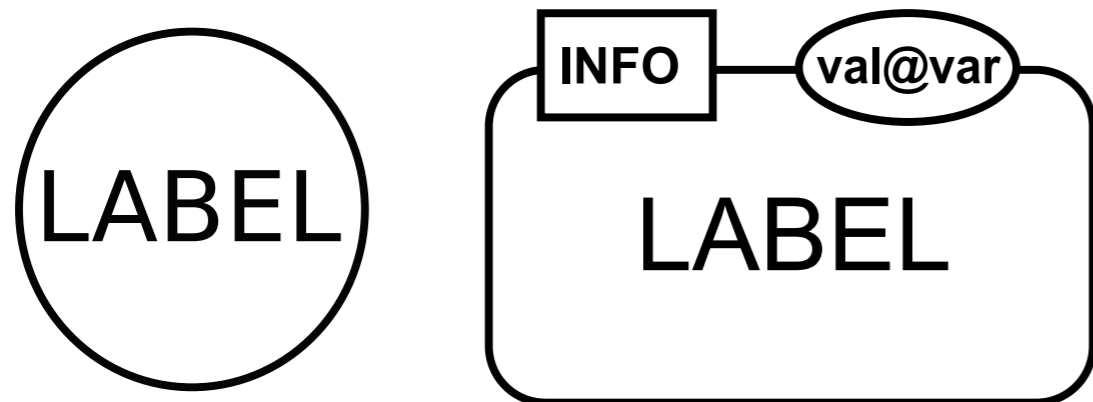


Process Flow Abstraction

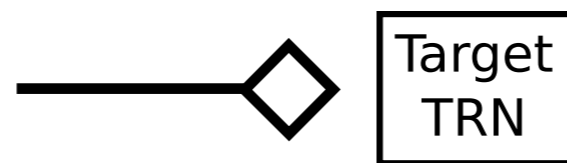
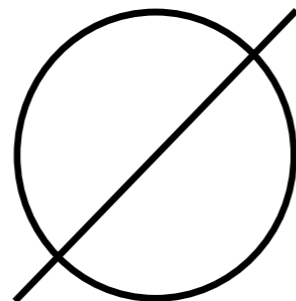
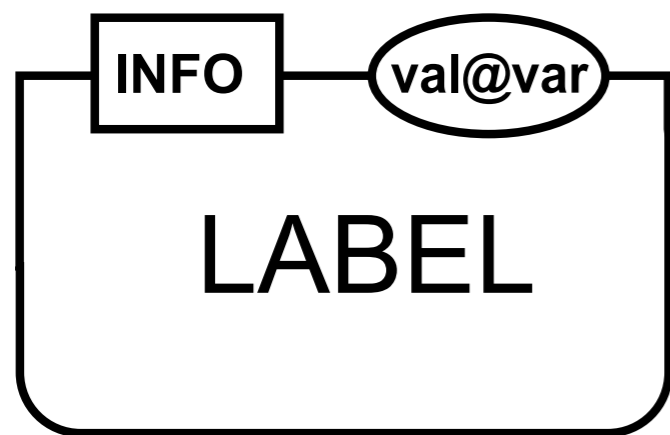




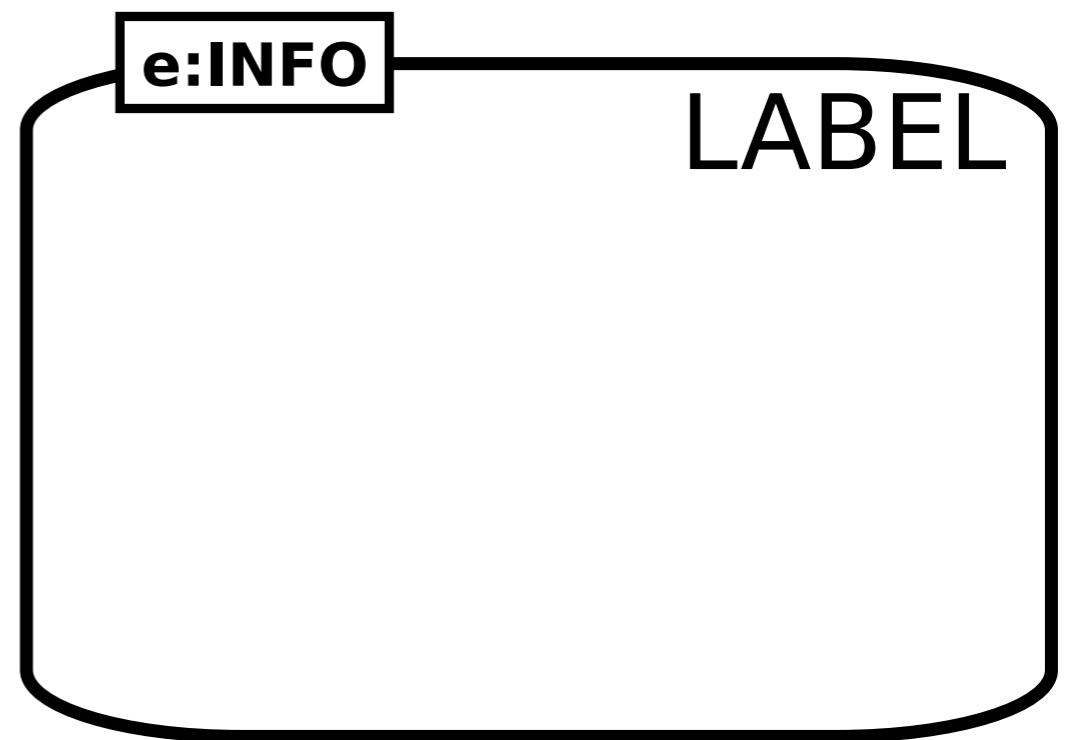
The Main Glyphs



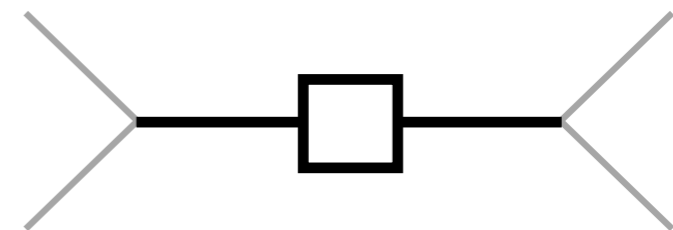
Entity Pool Nodes



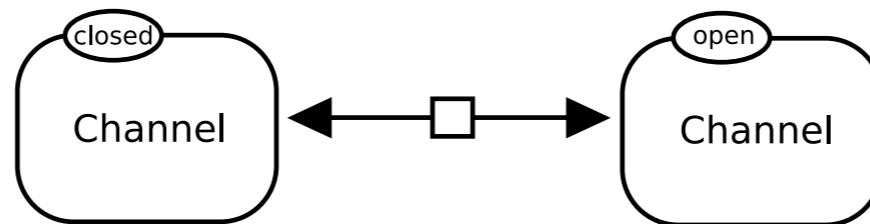
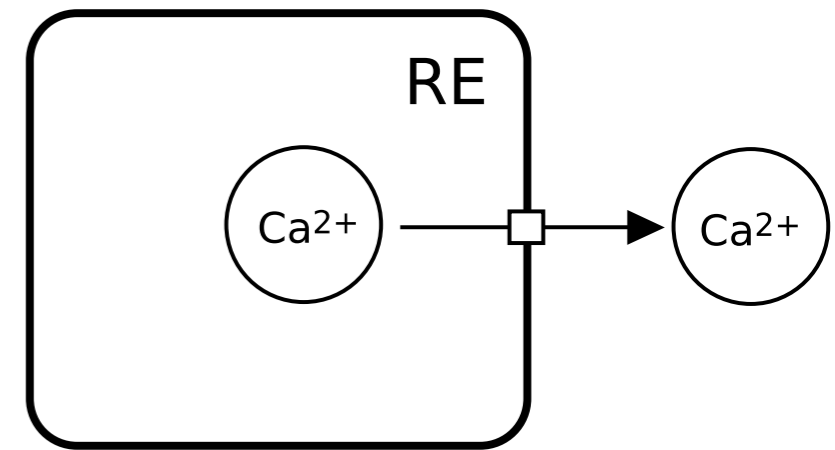
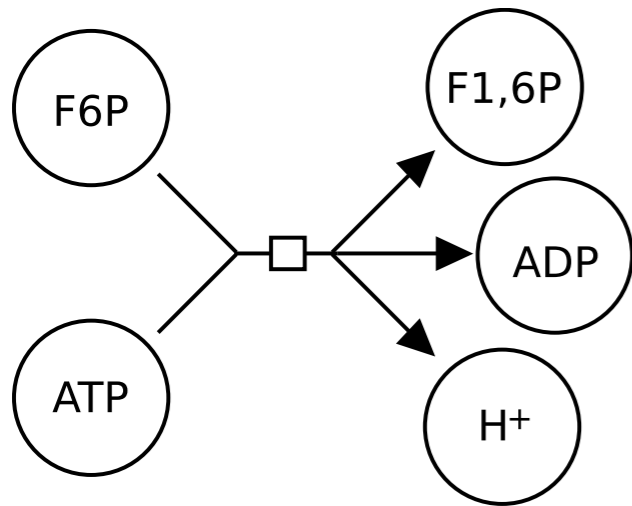
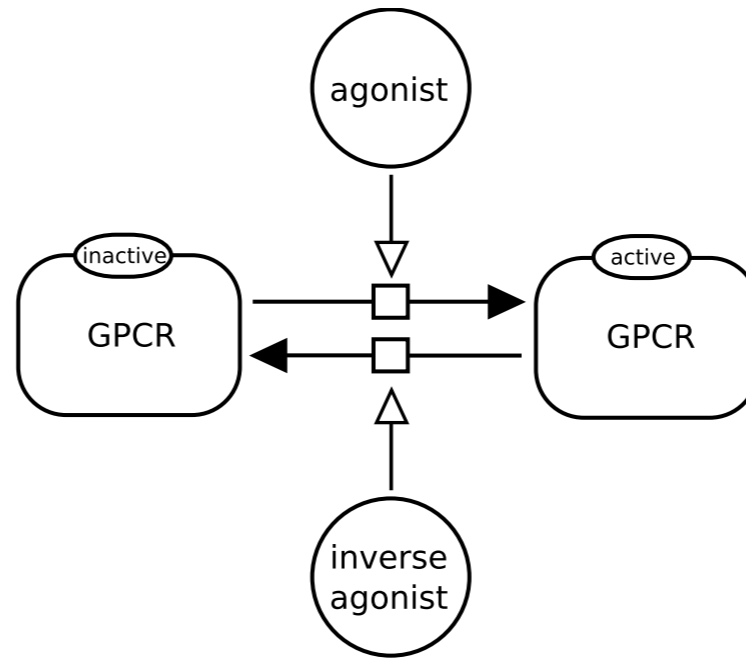
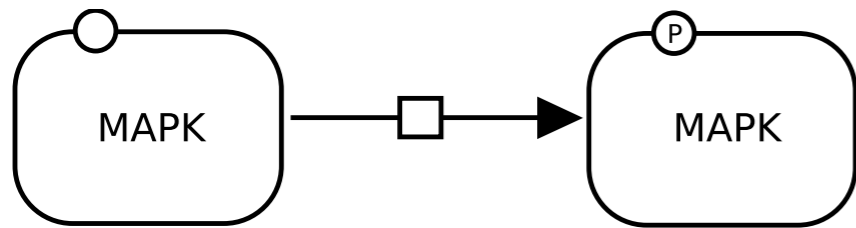
Modulation



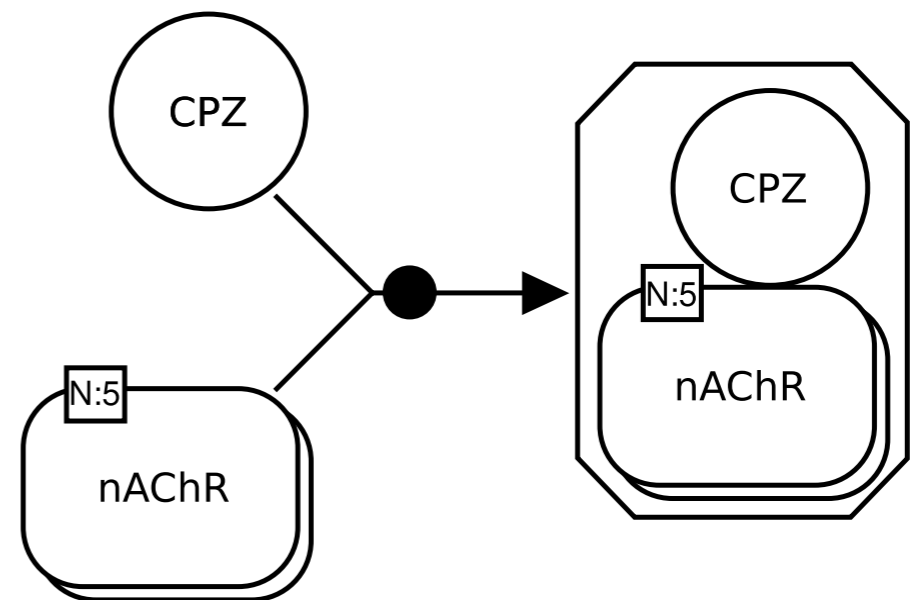
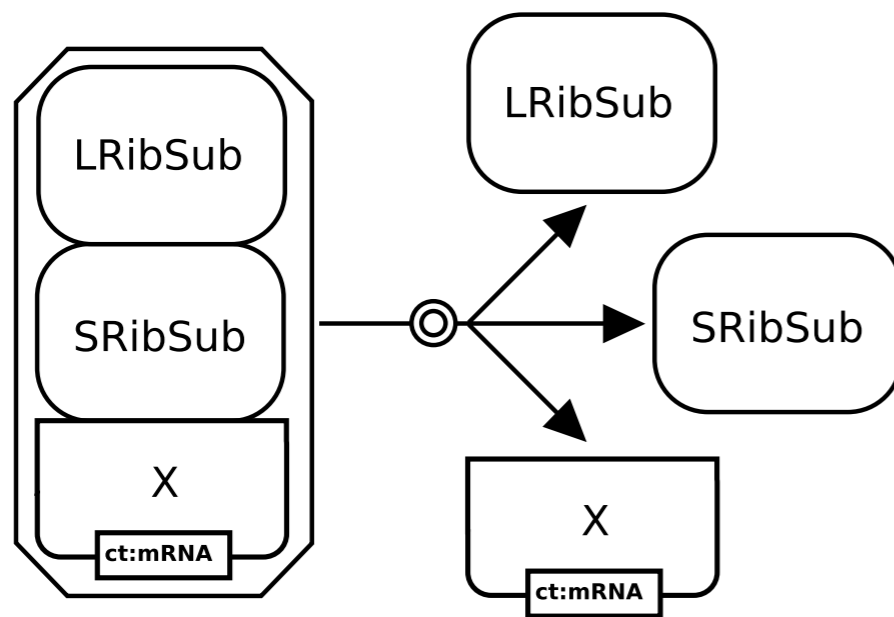
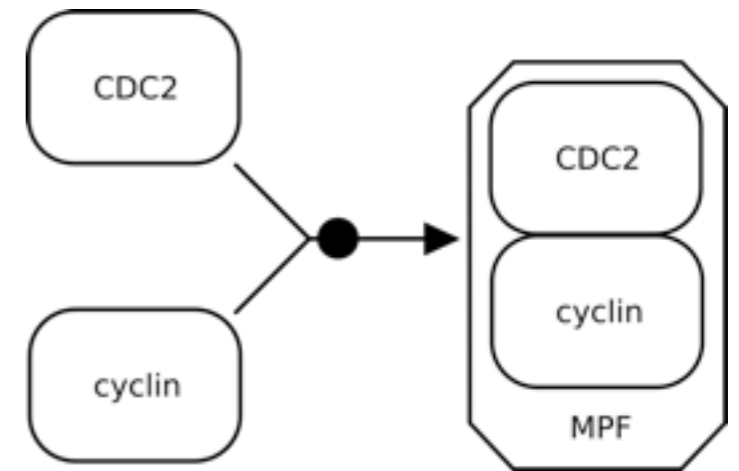
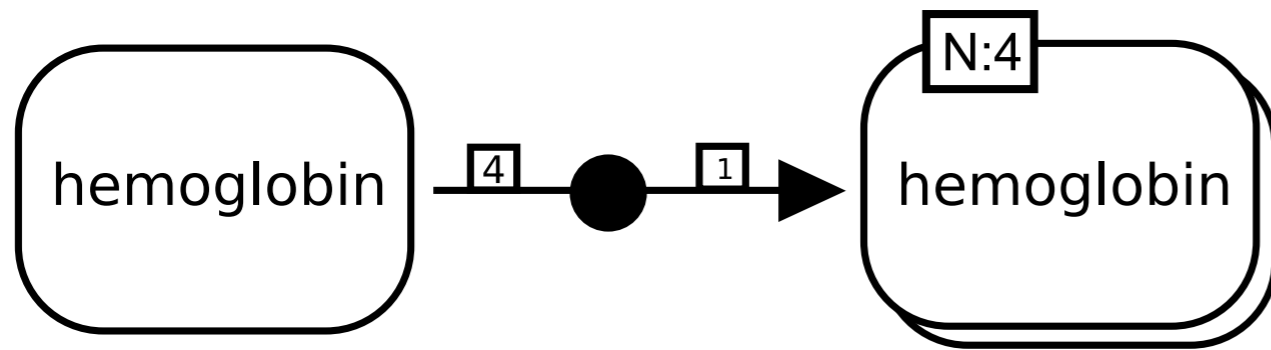
Compartment



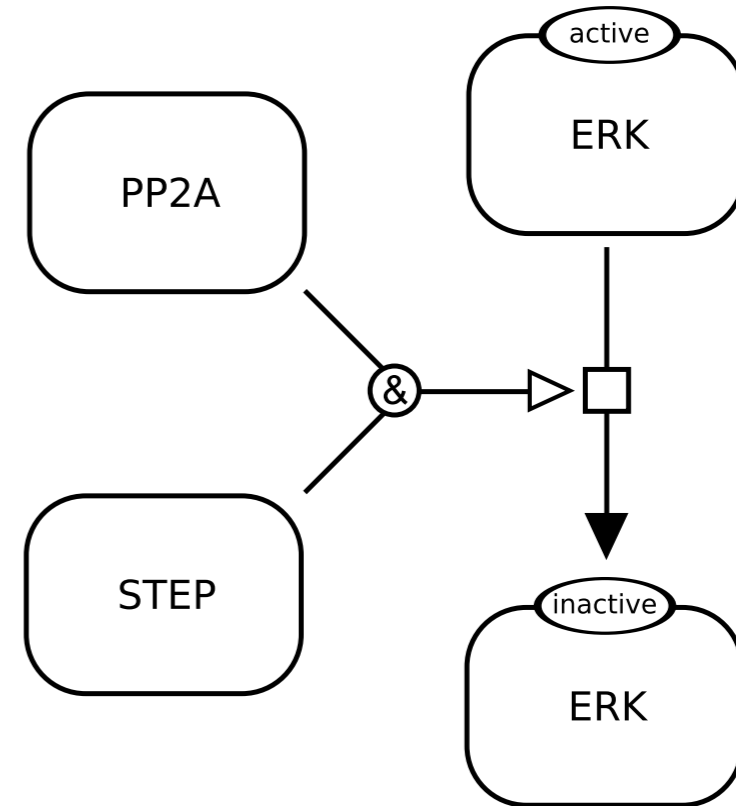
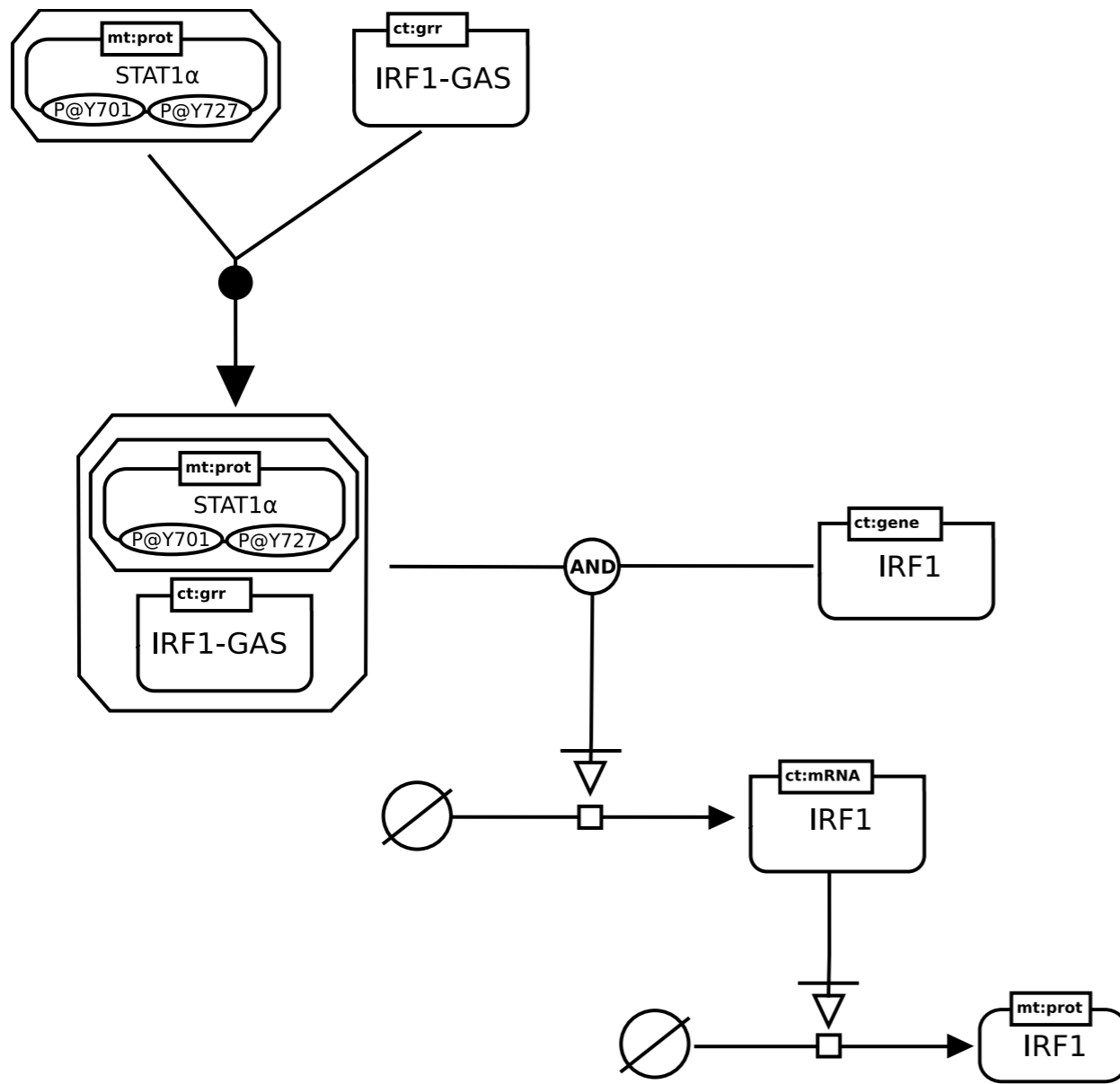
Transition



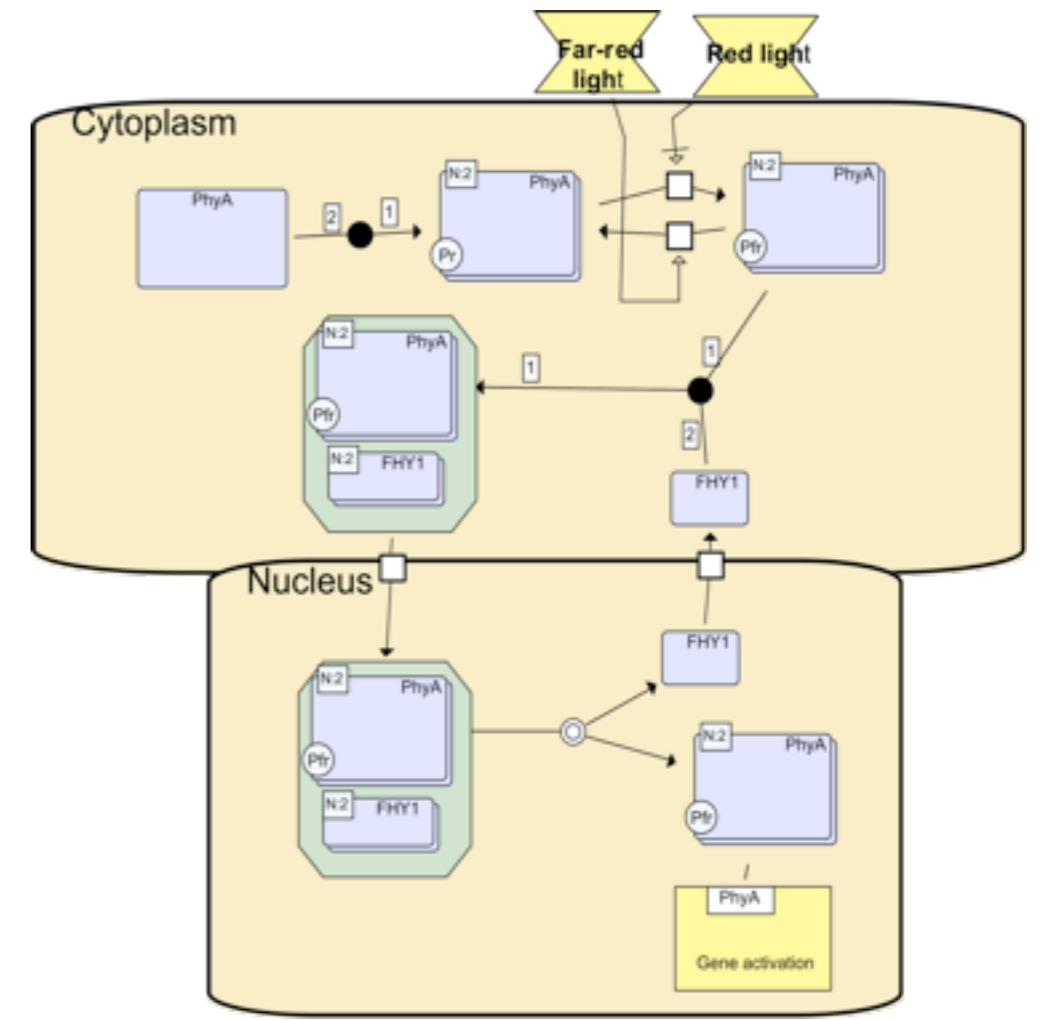
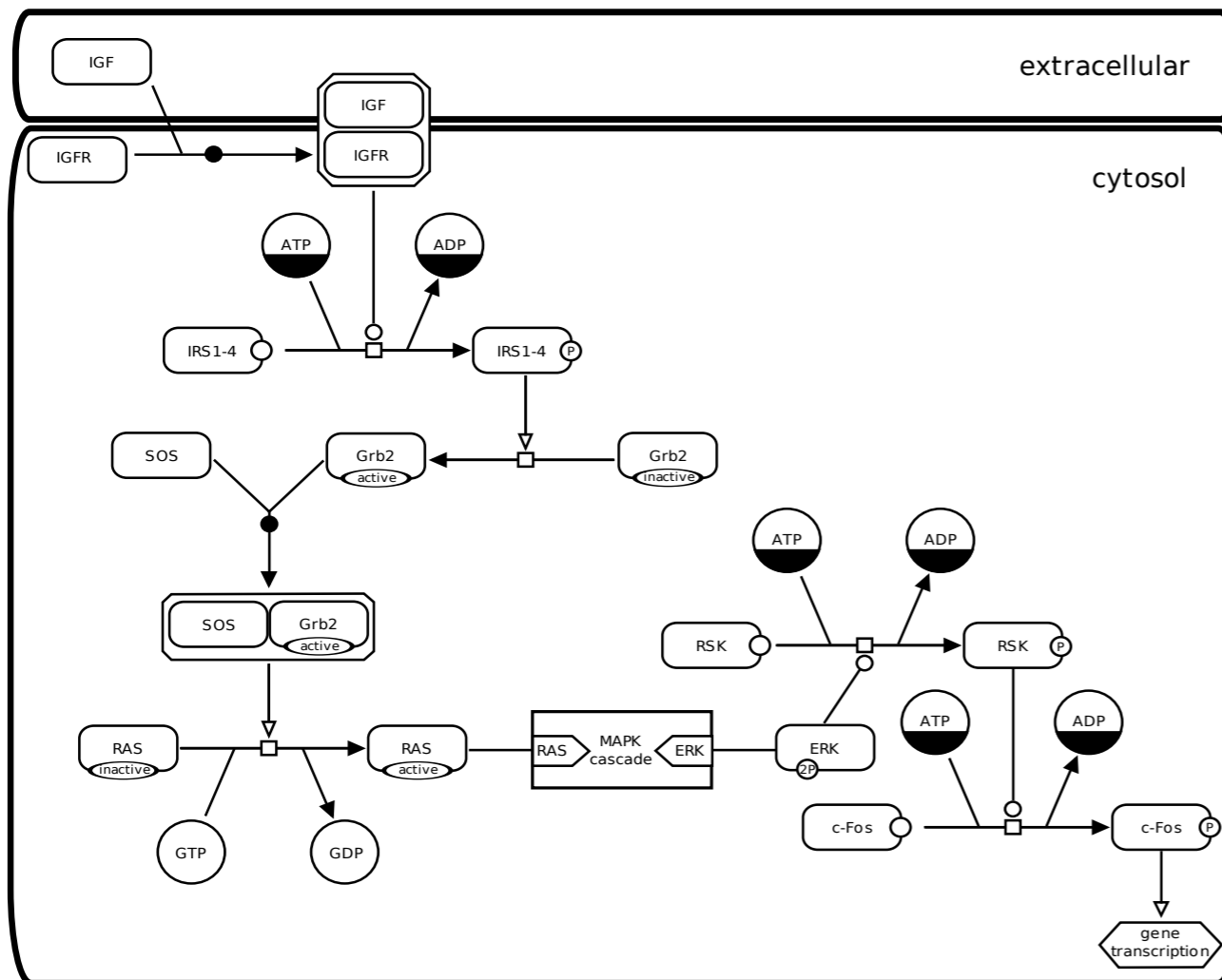
Process Flow



Complex Formation

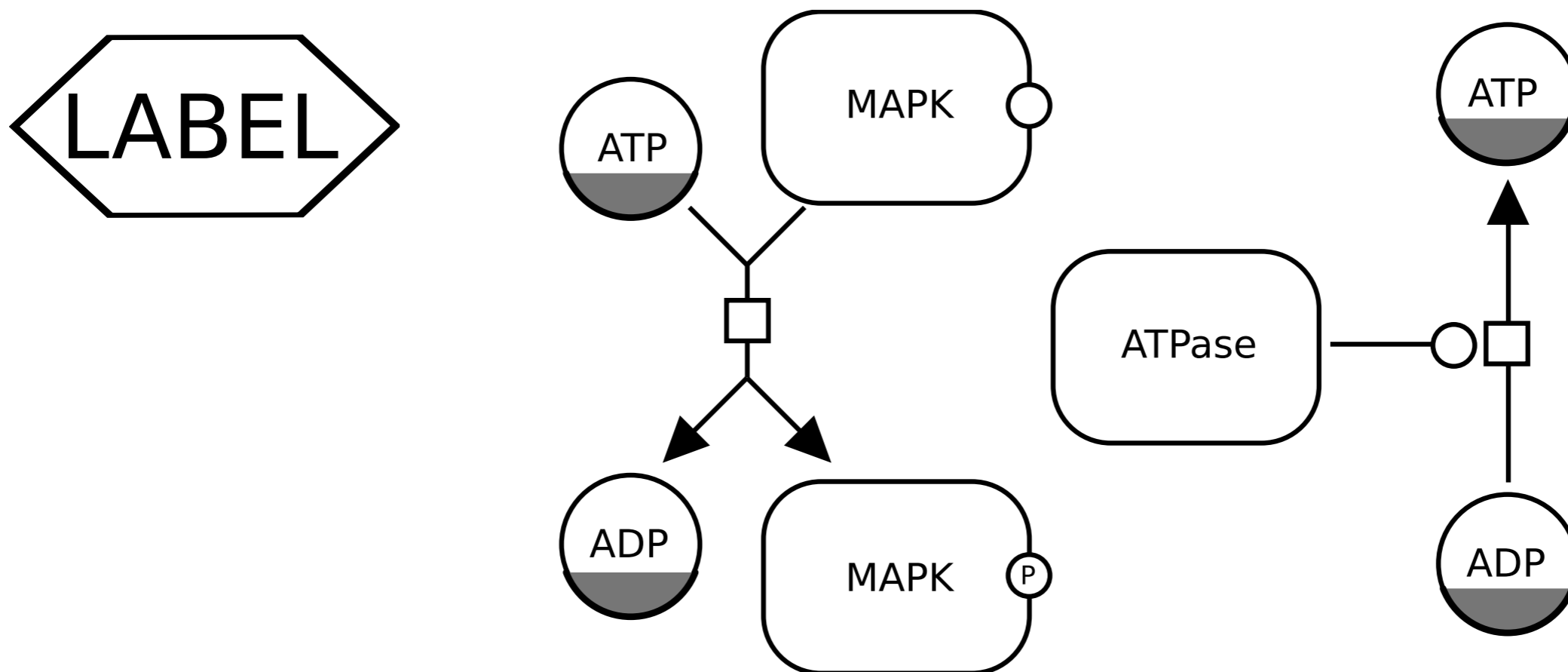
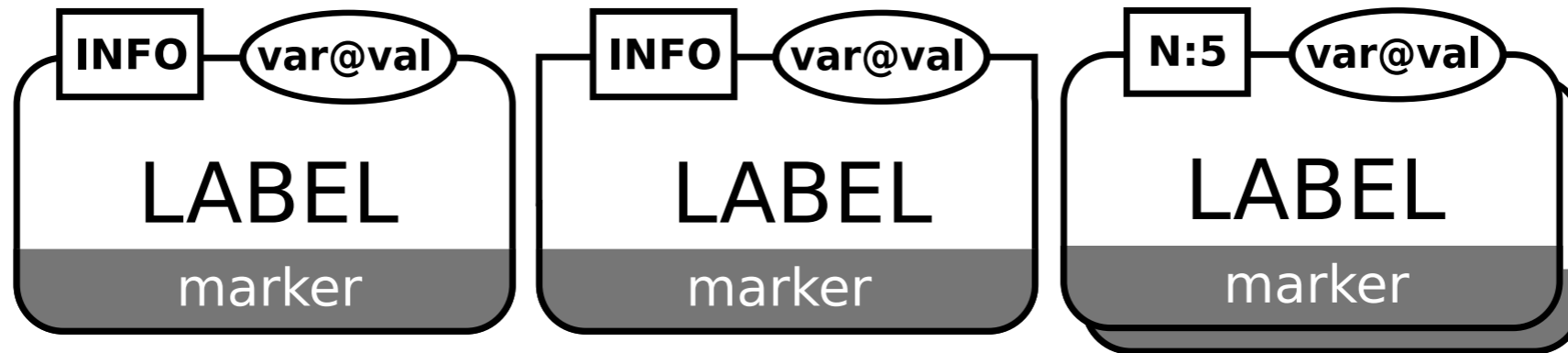


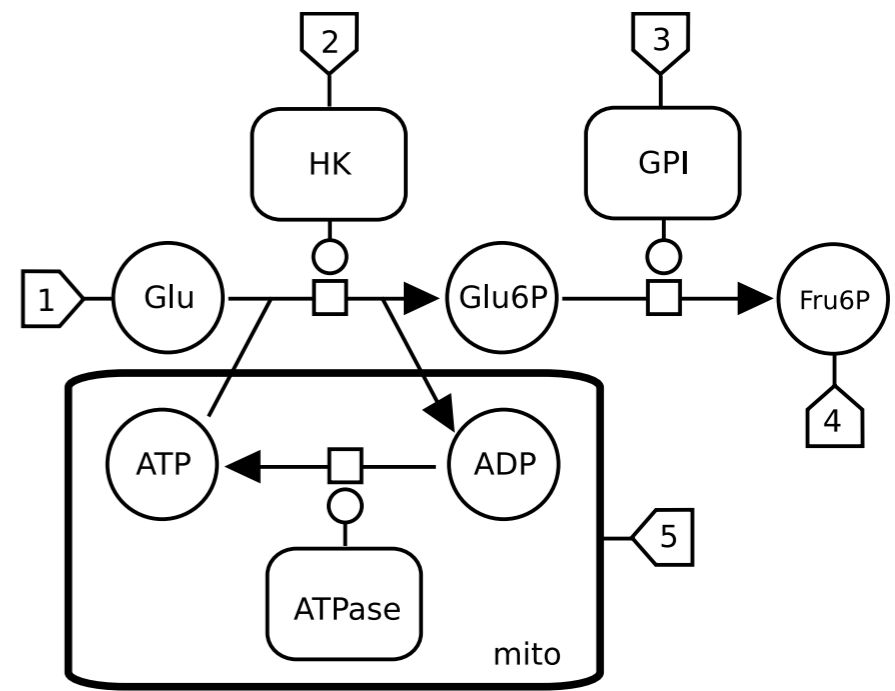
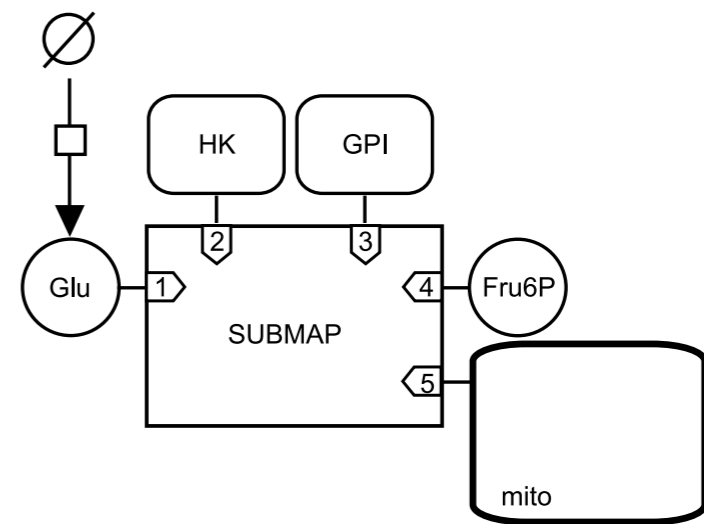
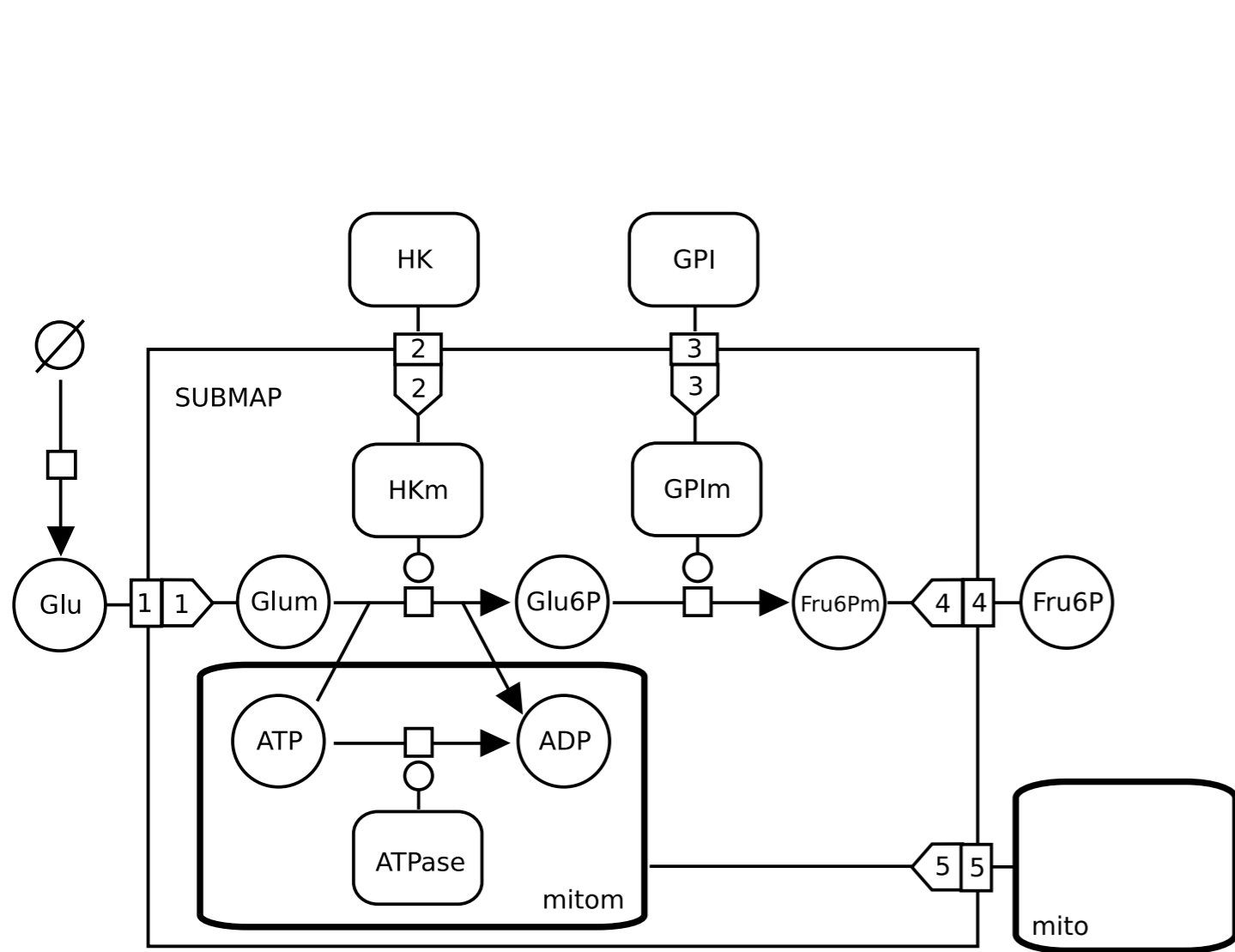
Summarising information: Logic gates



Relating to the “Outside World”: Perturbation/Observable

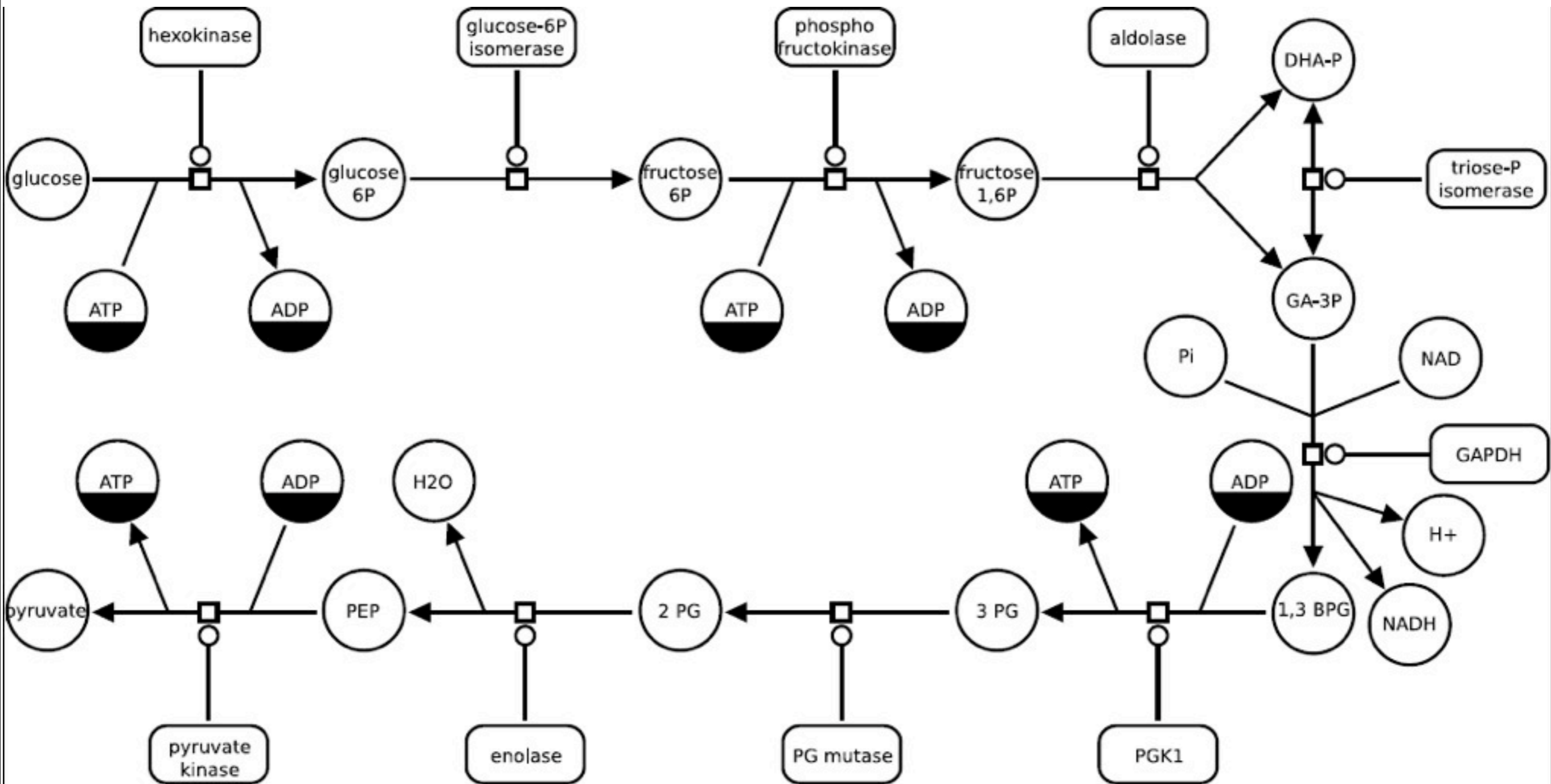
Redundant EPNS: Cloning



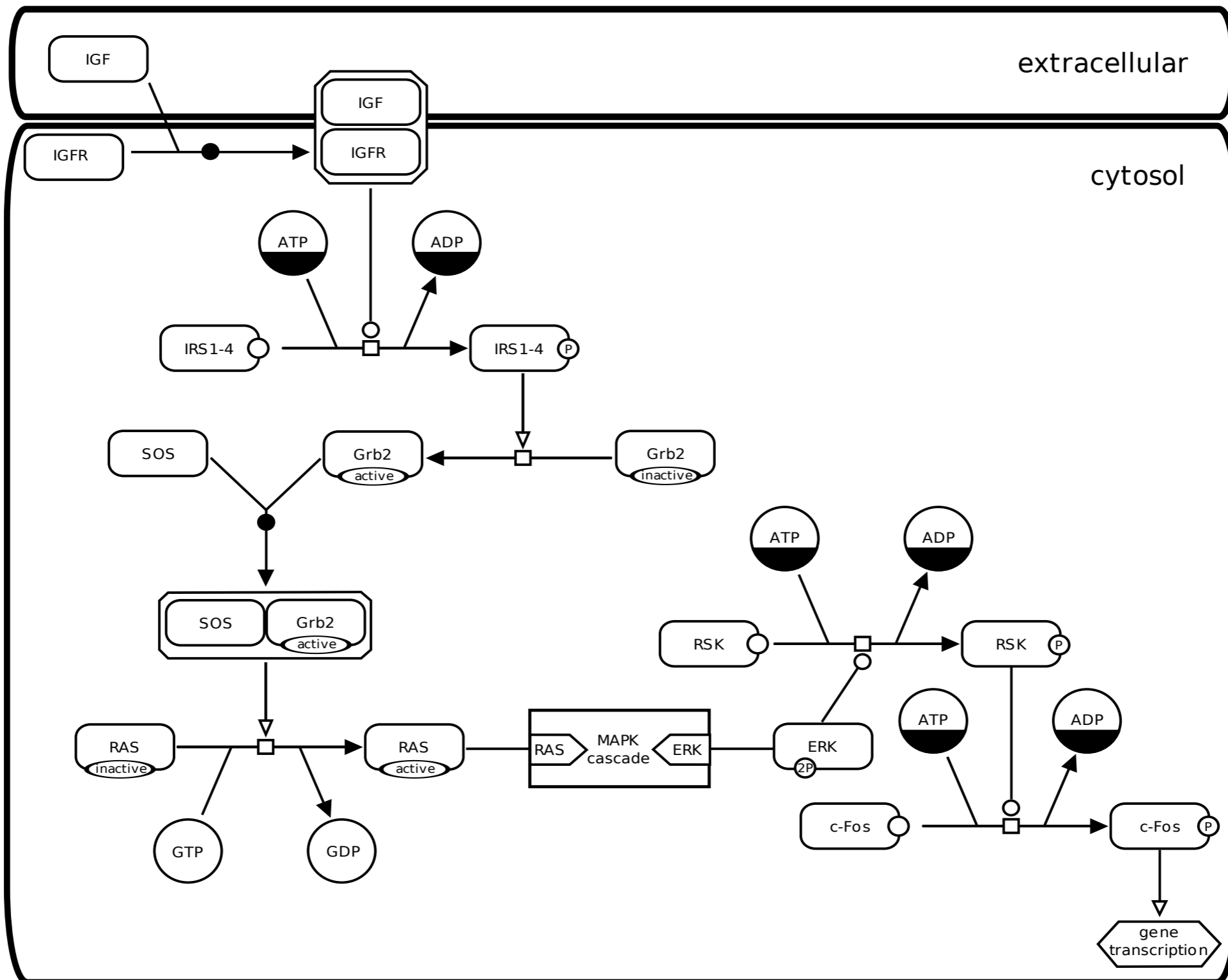


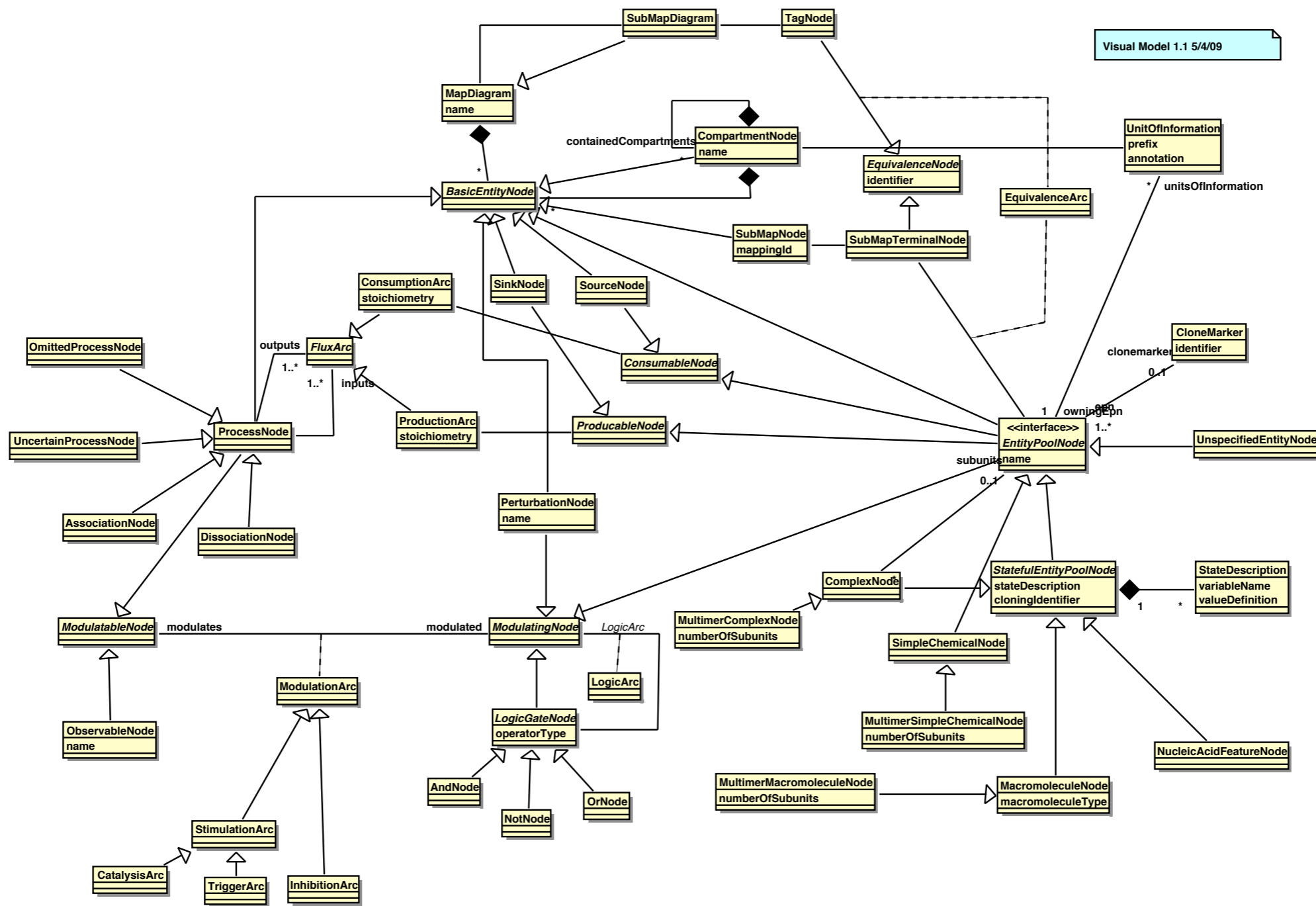
Reducing complexity:

Process Diagram Examples



Insulin Signalling





Visual PD Model

Unresolved issues

- Multi-compartment entities
- Logical combinations of states
- Non-chemical “entities” e.g. voltage
- Generics
- Translocation & transformation of compartments
 - vesicular transport

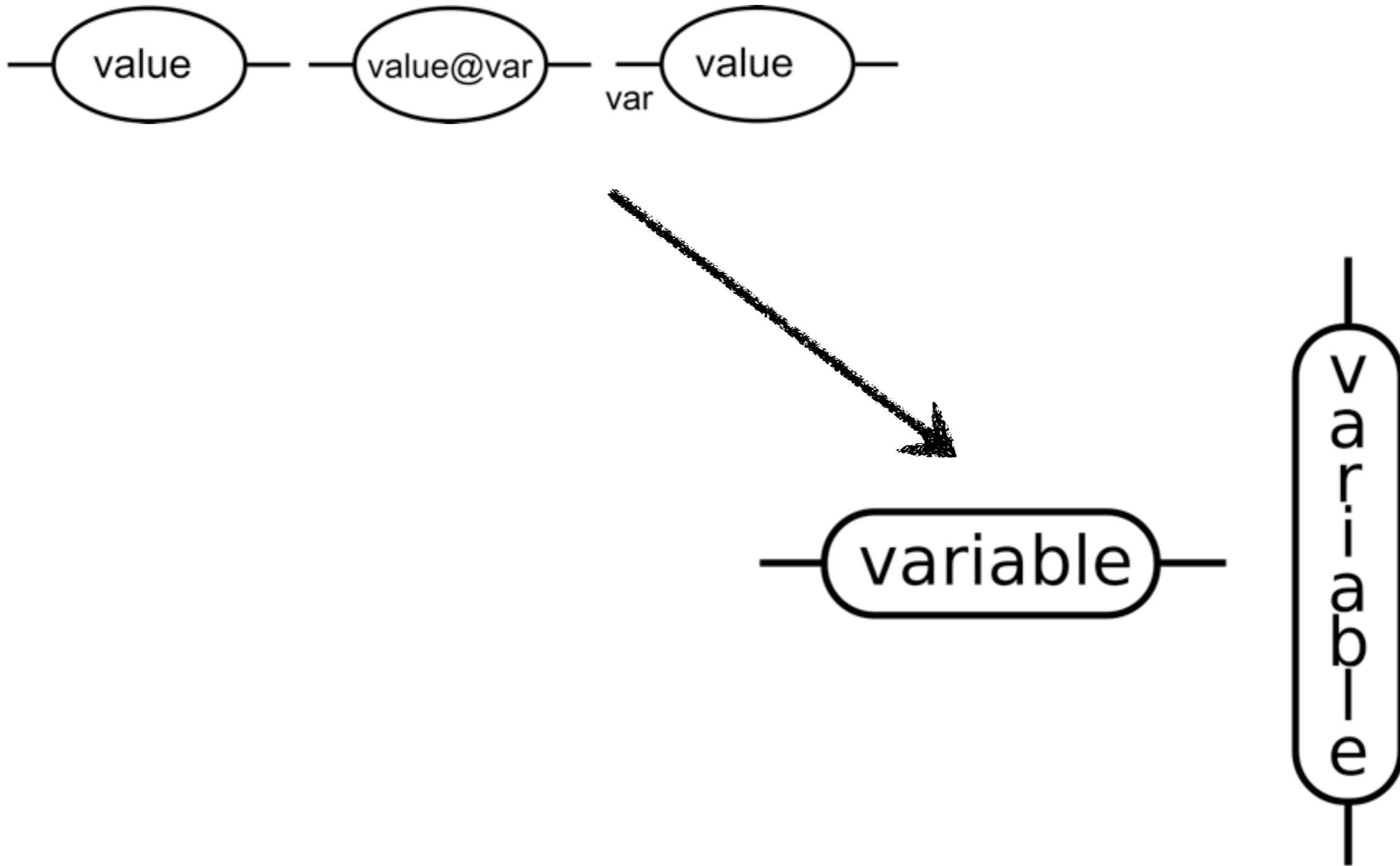
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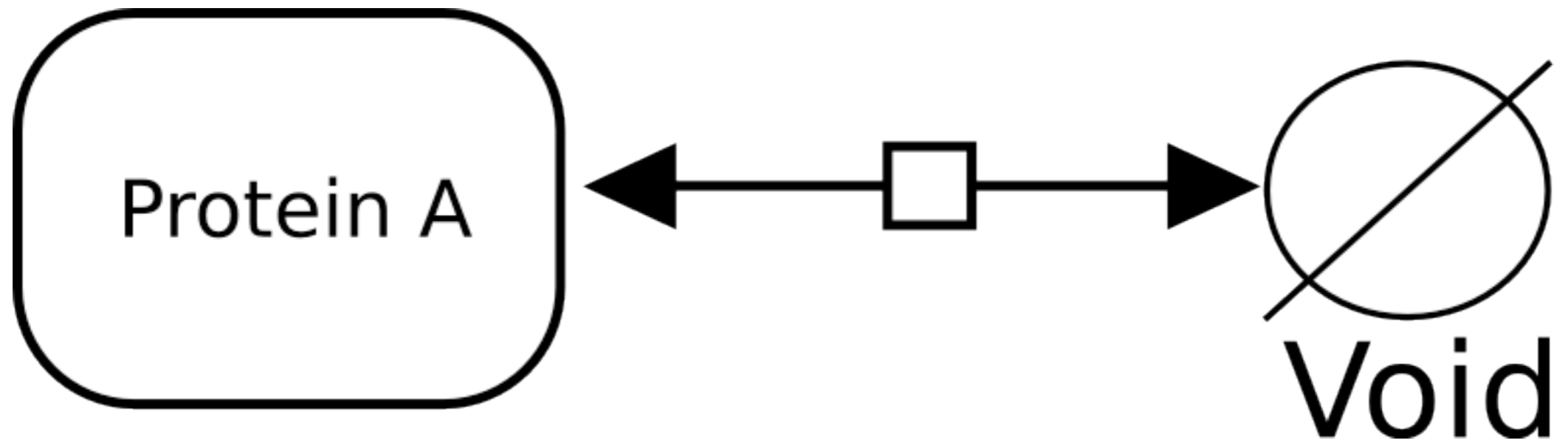
Future releases

- LI R1.1
 - Bug fixes
 - Clarification of reversible process (?)
 - Summary of validation rules
- LI R2.0
 - Stadium (Sausage)
 - Address Source/Sink

New State Variable Glyph



Source/Sink



Future Work

- libSBGN-PD
 - Validation
 - Exchange format