What is common to all those formats?

PSI-MI

FieldML

NuML

Representation formats

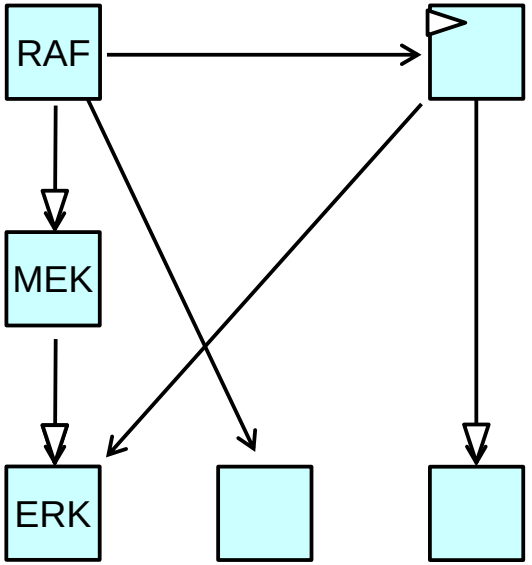
for systems to systems communication

What about systems to users?

Systems Biology Graphical Notation

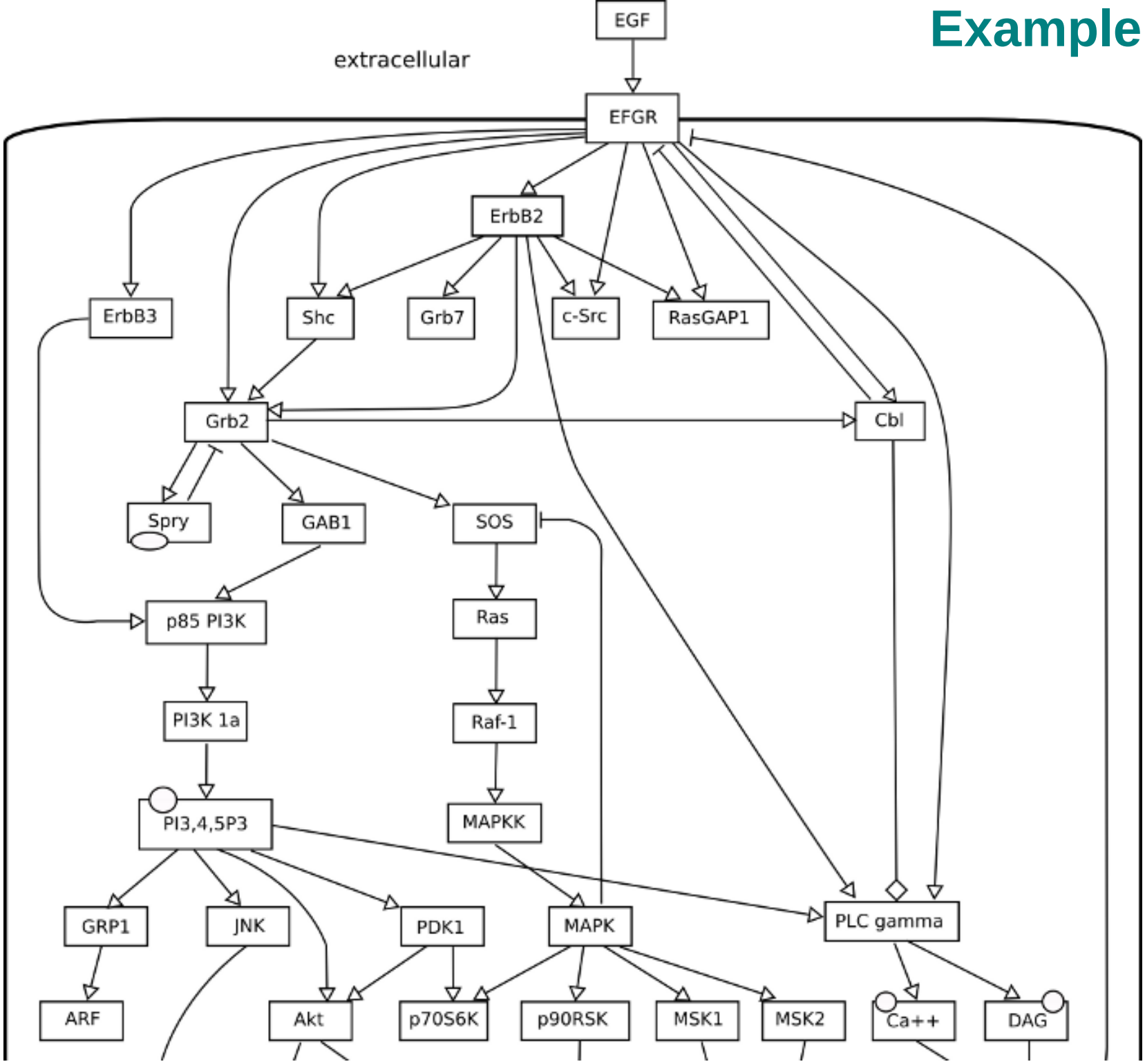
- An unambiguous way of graphically describing and interpreting biochemical and cellular events
- Limited amount of symbols
Re-use existing symbols
+ Smooth learning curve
- Can represent logical or mechanistic models, biochemical pathways, at different levels of granularity
- Detailed technical specification, precise data-models and growing software support
- Developed over seven years by a diverse community, including biologists, modellers, computer scientists etc.

Activity-Flows

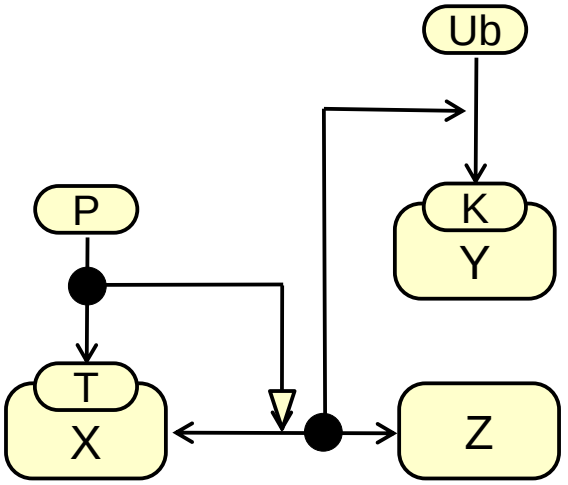


- Directional
- Sequential
- Non-mechanistic
- Logical modelling
- Signalling pathways, gene regulatory networks
- KEGG, STKEs

Example of Activity Flow map

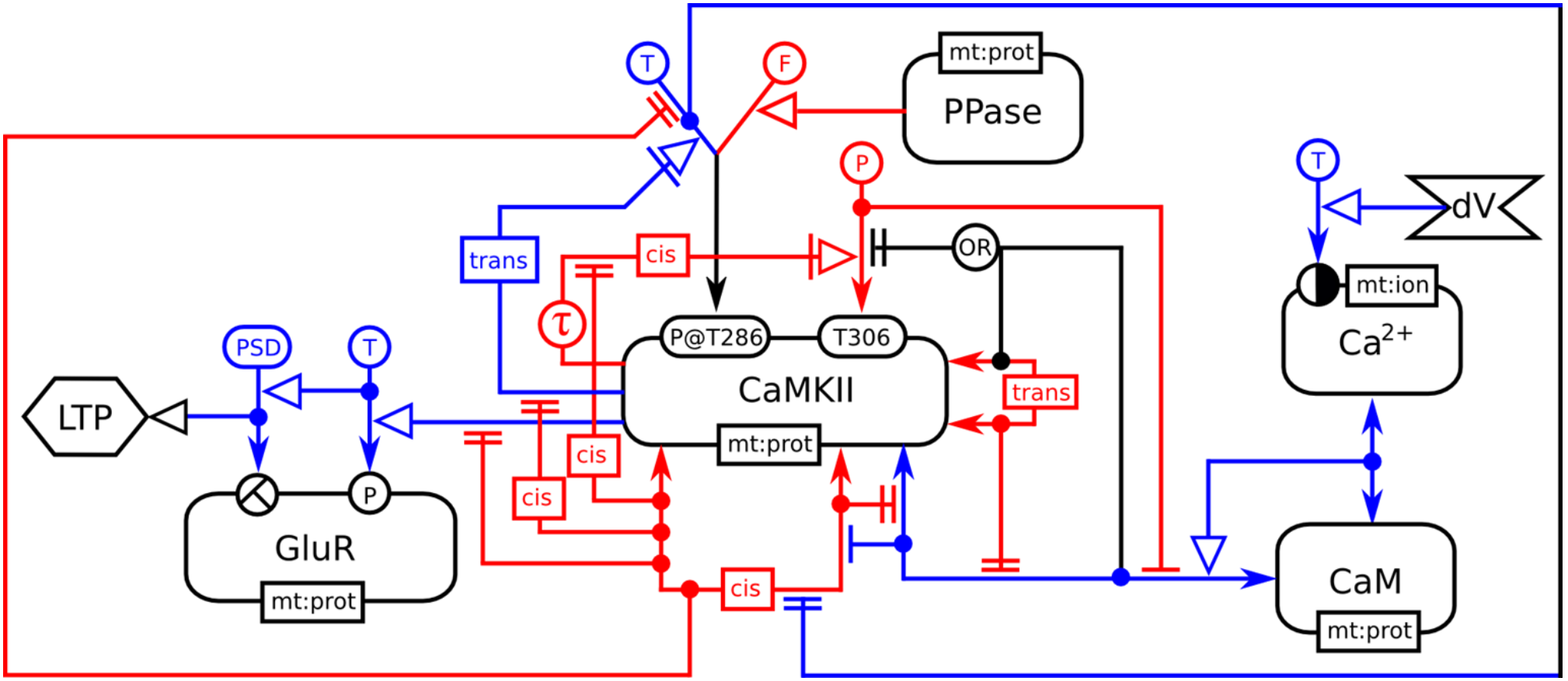


Entity Relationships



- Directional
- Non-sequential
- Mechanistic
- Independent rules: no explosion
- Rule-based modelling
- Molecular Biology
- MIM

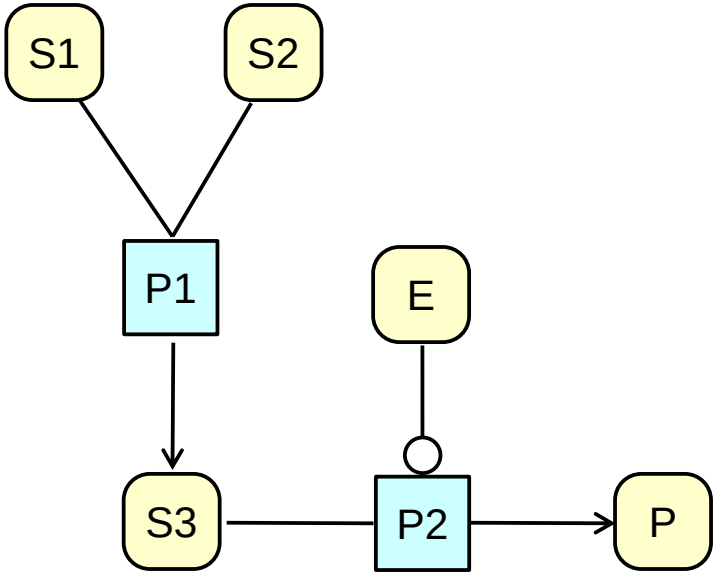
Example of Entity Relationaships map



increases synaptic weight

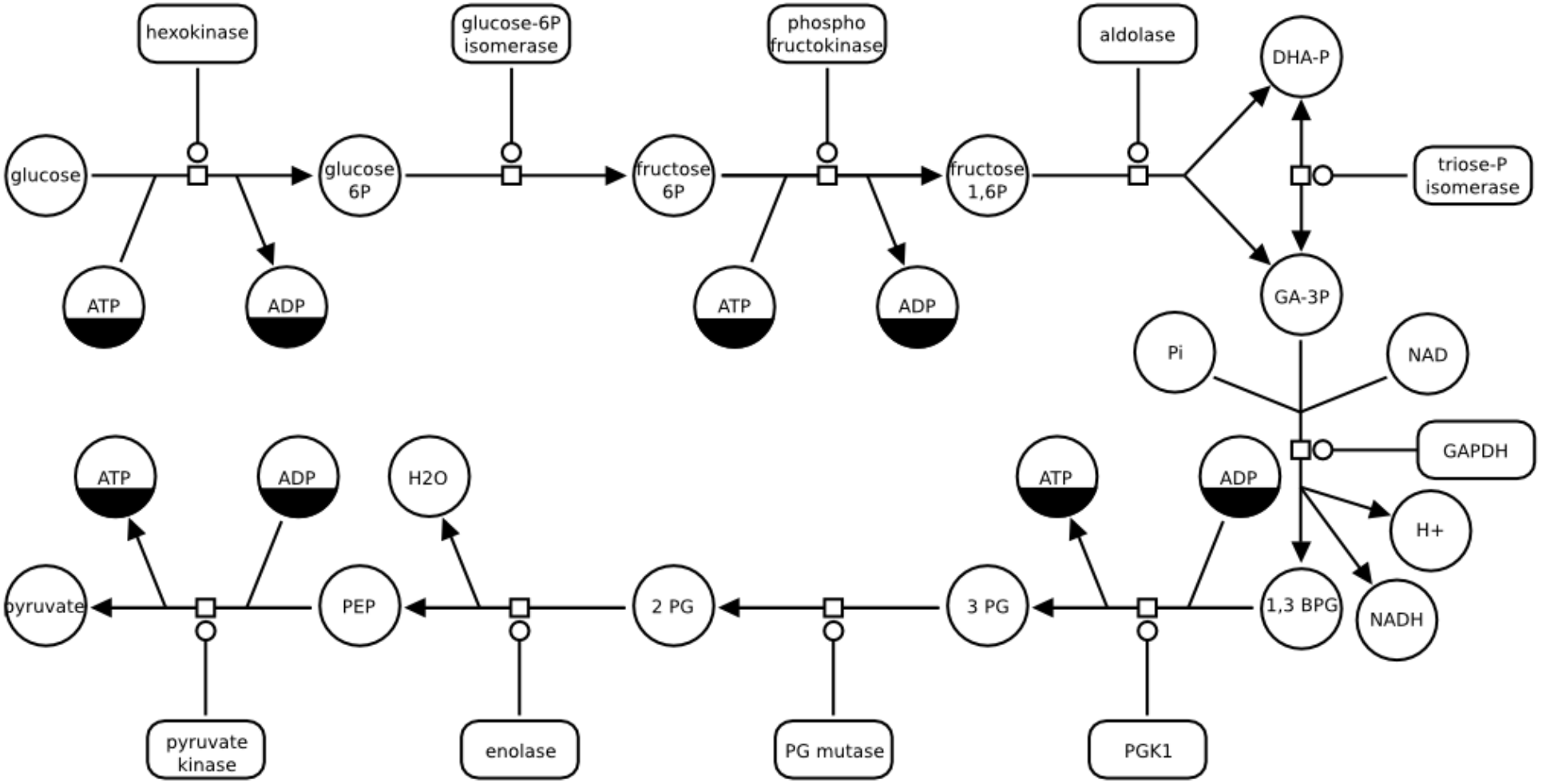
decreases synaptic weight

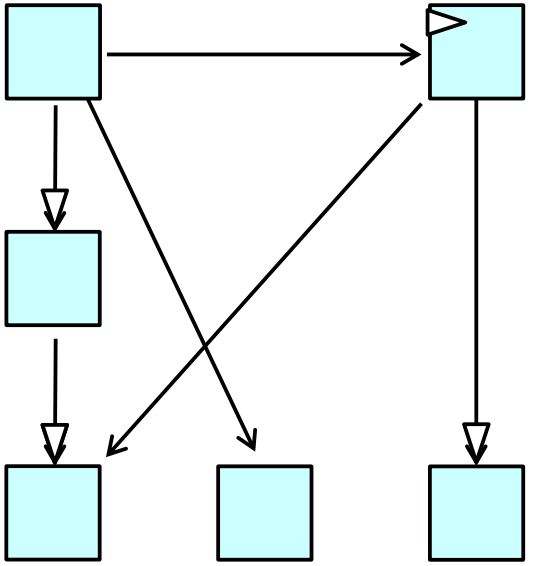
Process Descriptions



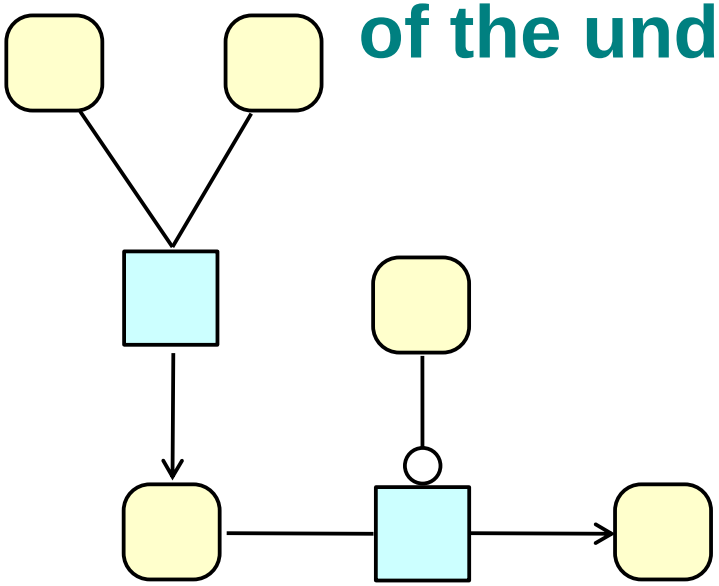
- Directional
- Sequential
- Mechanistic
- Subjected to combinatorial explosion
- Process modelling
- Biochemistry, Metabolic networks
- KEGG, Reactome

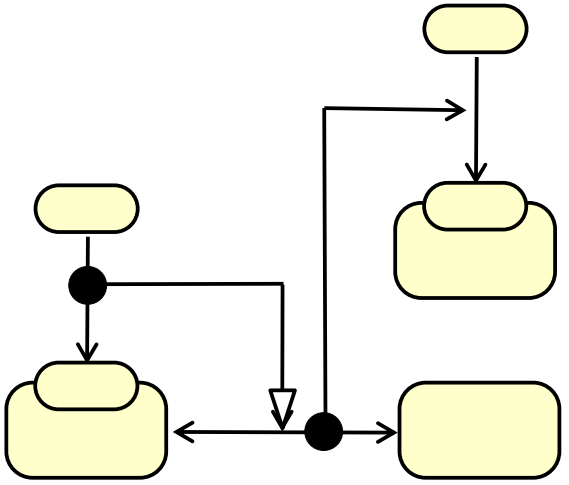
Example of Process Descriptions map

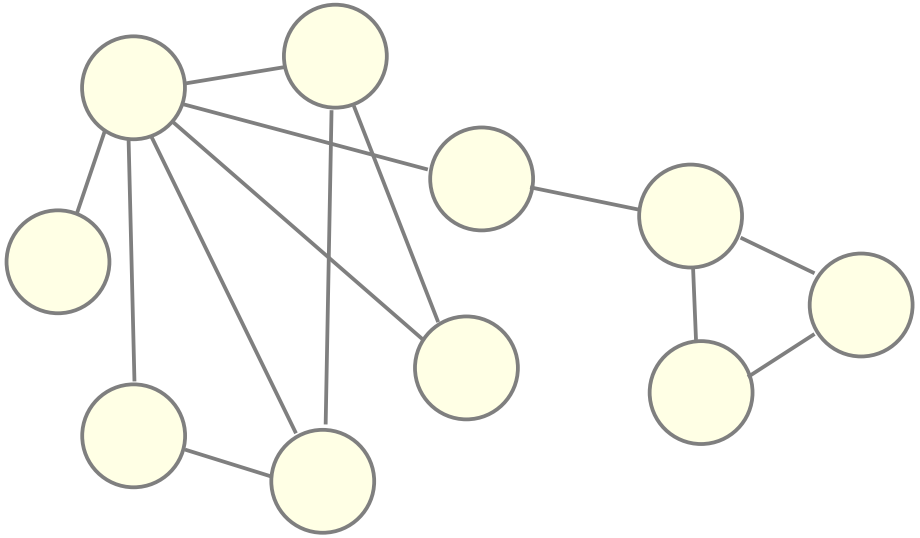


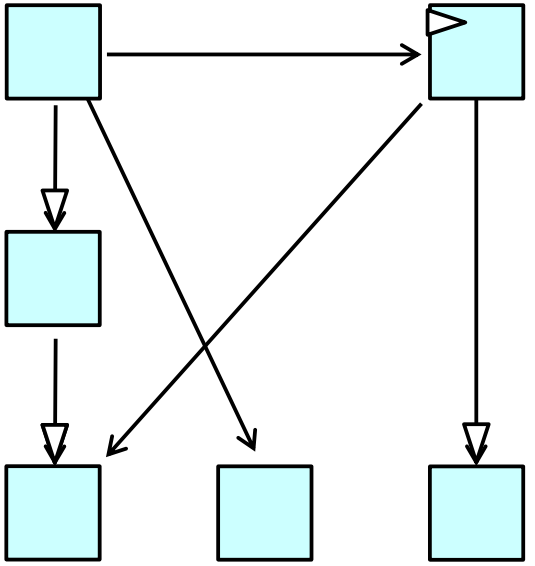


The three views are orthogonal projections of the underlying biological phenomena

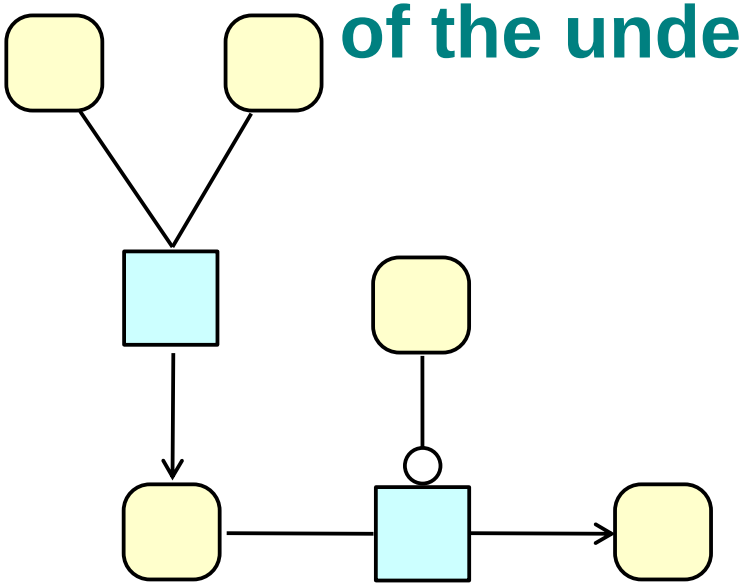


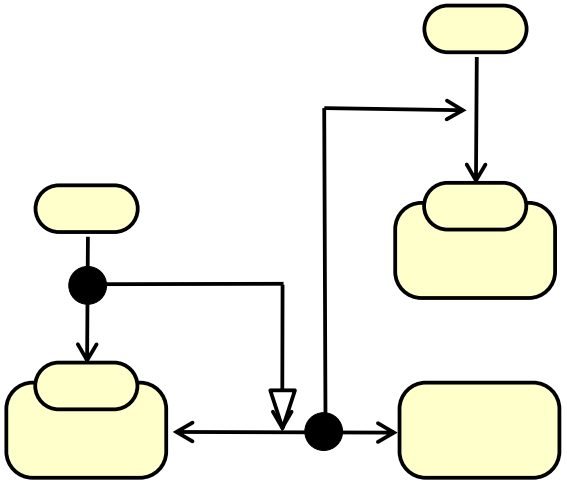






The four views are orthogonal projections of the underlying biological phenomena





Resources

- Main source of information: http://sbgn.org/
  - Specifications, templates, examples
  - Meeting discussions, votes and their results
- How to participate
  - Mailing list sbgn-discuss@caltech.edu
  - Bug tracker on Sourgeforce
- To implement support for SBML: LiSBGN and SBGNML
- Meetings
  - COMBINE, HARMONY, dedicated editor meetings

Governance

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Nicolas Le Novère

Falk Schreiber

Anatoly Sorokin

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Update on SBGN governance

- Editorial board

Stuart Moodie

Huaiyu Mi

Falk Schreiber

Anatoly Sorokin

- Scientific committee

Nicolas Le Novère

Paul Thomas

New election to replace NLN

term 2013-2015

Nomination period to be announced after

COMBINE 2012

General SBGN issues: documentation split

Until last year, there was only one specification per language. It was becoming too technical and directed towards software developers. The editors decided to split it in two documents:

- The normative specification is the official description of a language. It describes in details the list of symbols, their syntax, semantics, the way to organise a layout etc. It is geared towards an audience made of developers of SBGN-supporting tools.
- The user-manual is meant to teach end-users what is SBML and how to use it to describe pathways and models. Its language is much less technical and does not cover syntactic or semantic subtleties.

General SBGN issues: SBGN competition

New standard format:

→ Announce at COMBINE X

→ Deadline at HARMONY X+1

→ Results at COMBINE X+1

Three competitions:

- Map
- Software
- Outreach

SBGN competition 2013 is now launched!

General SBGN issues: vote on groups

[edit] Question 1. Are-you in favour of introducing a "group" feature in SBGN languages?

Choice	Votes	Fraction
Yes	10	90.9%
No	1	9.1%
I do not know	0	0%

Decision:

The creation of groups will be introduced in the three SBGN languages.

General SBGN issues: vote on groups

[edit] Question 2: Should-we specify the way a group is displayed?

Choice	Votes	Fraction
Yes	7	63.6%
No	4	36.4%
I do not know	0	0%

Decision:

The he way of representing groups will be specified.

General SBGN issues: vote on groups

[edit] Question 3: If we were to advise a way to represent groups, what should it be (multiple answers possible)?

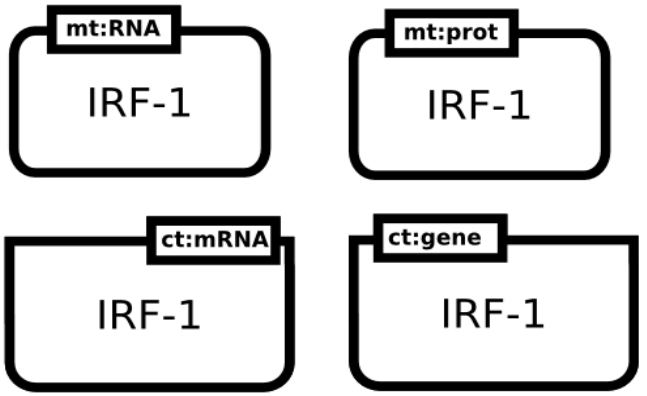
Choice	Votes	Fraction
A spatial grouping	4	36.4%
A contour	7	63.6%
A background	8	72.7%
Highlighting glyps	4	36.4%
Unsure	2	18.2%
None of the above	0	0%

Decision:

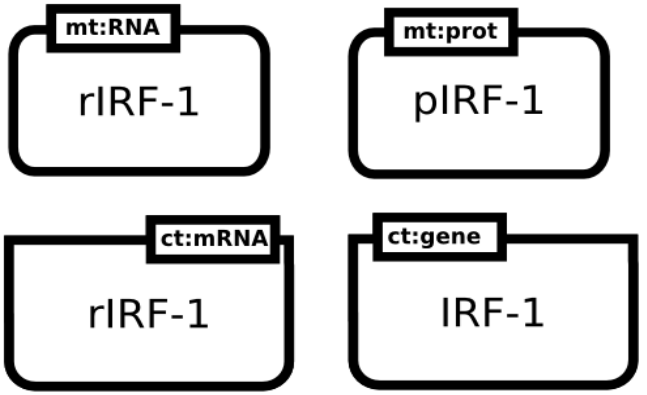
Because of the result of Q2, we must take a decision. Since contour and background came clearly first, the editors decided to go for a background for the time being. In the future, explorations will be done to see if we can allow contours as well (Still allowing the backgrounds). creation of groups will be introduced in the three SBGN languages.

Update on SBGN PD: vote on “types”

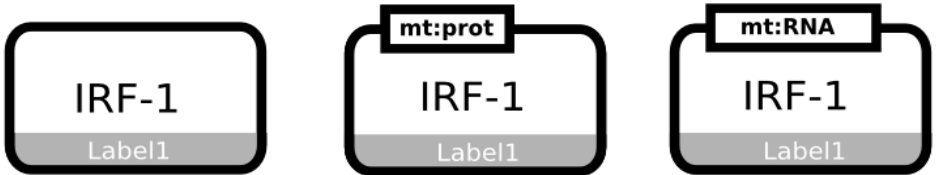
Case I) mt/ct discriminates between EPNs of the same name.



Case 2) mt/ct is ignored when differentiating EPNs. The EPN name must be used to discriminate.



Otherwise the EPNs are identical even thought they carry Units of Information with different mt/ct content. As below:



Update on SBGN PD: vote on “types”

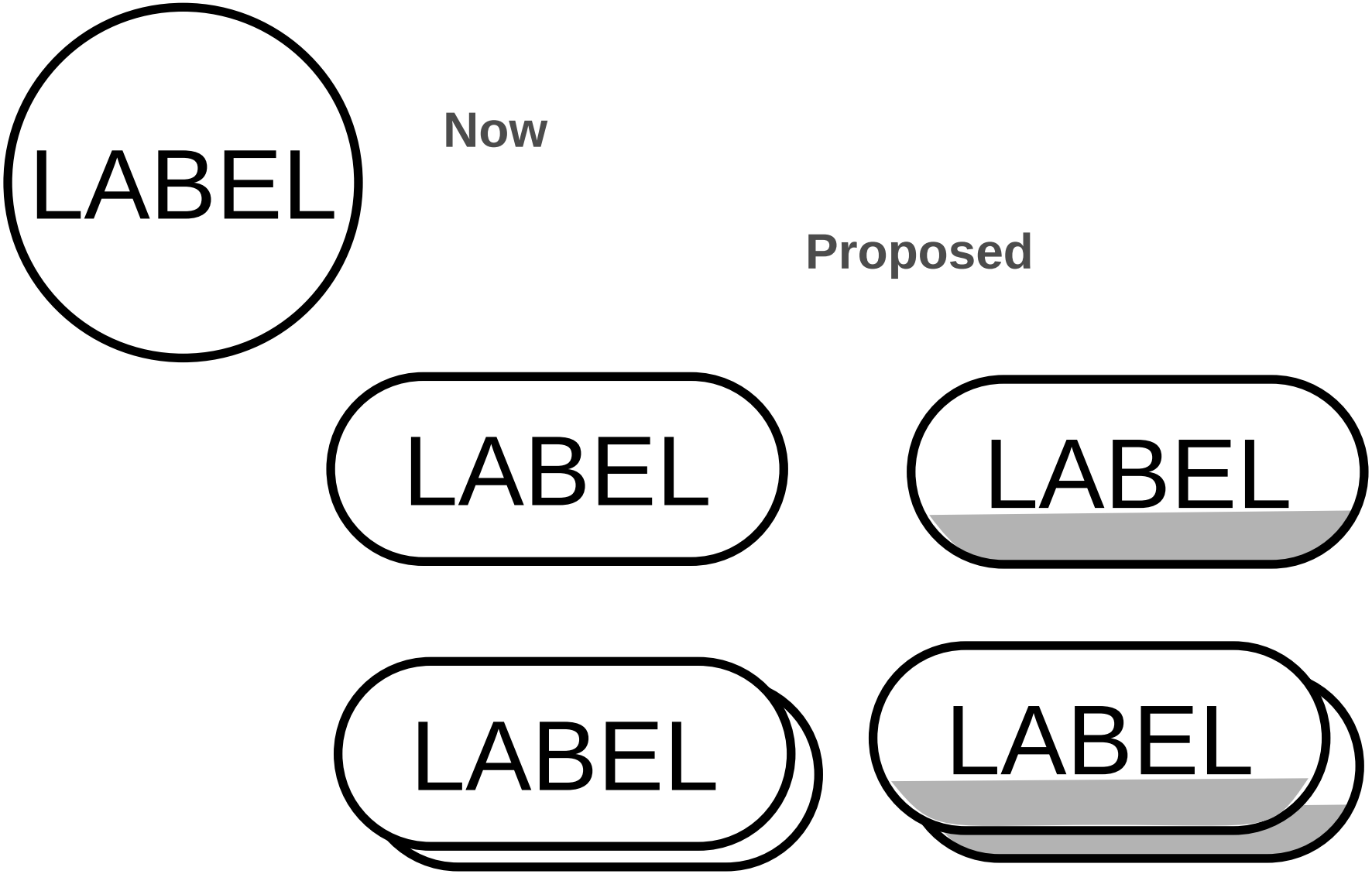
[edit] "Do you think the mt and ct Controlled Vocabularies should be used to discriminate between otherwise identical EPNs?"

Choice	Votes	Fraction
yes	10	76.9%
no	3	23.1%

Decision:

mt and ct units of information will be part of EPN identity

Update on SBGN PD: vote on “simple chemical”



Update on SBGN PD: vote on “simple chemical”

[edit] "Do you agree that the Stadium symbol (shown above) should be used to represent the Simple Chemical in SBGN PD Level 1 Version 2.0?"

Choice	Votes	Fraction
yes	11	68.8%
no	5	31.3%

[edit] "If you chose NO please state why"

Choice	Votes	Fraction
I would like to keep the current symbol for Simple Chemical	1	20%
I would like to defer this change until Level 2 of SBGN PD	4	80%

Decision:

The change will be incorporated into L1V2.0. We will allow the stadium to be drawn in such a way as it can also be a circle. This will preserve compatibility with previous version of SBGN PD.

SBGN support news

- Cytoscape, via CySBGN
- Panther 7.2 (PD and AF) (PANTHER 8.0 will be released in December, which will support SBGN-ML)
- Reactome 41 provides SBGN-ML
- Vanted 2.1 via SBGN-ED 1.3
- ?

Update on SBGN PD: Specifications

- Fist draft of a user manual is available for SBGN PD Level 1 Version 1.3

  http://sbgn.svn.sourceforge.net/viewvc/sbgn/ProcessDiagram/trunk/UserManual/sbgn_PD-level1-user.pdf

- A first draft of SBGN PD Level 1 Version 2 is ready for review

  http://sbgn.svn.sourceforge.net/viewvc/sbgn/ProcessDiagram/trunk/sbgn_PD-level1.pdf

Update on libSBGN - SBGN-ML

Tobias Czauderna next

Acknowledgements

Visionary: **Hiroaki Kitano**

SBGN editors: Emek Demir, Nicolas Le Novère, *Huaiyu Mi*, *Stuart Moodie*, Falk Schreiber, Anatoly Sorokin, Alice Villéger

All members of the SBGN community