Universität Rostock — Traditio et Innovatio

SYSTEMS BIOLOGY
BIOINFORMATICS
ROSTOCK

SEMS
simulation experiment management system

BiVeS & BudHat

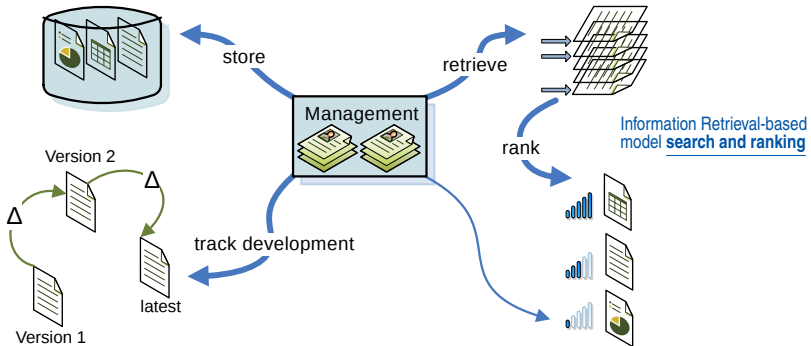## Version Control for Computational Models

MARTIN SCHARM
Department of Systems Biology & Bioinformatics
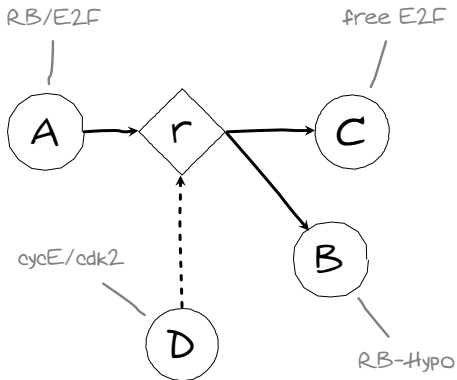Faculty of Computer Sciences & Electrical Engineering
University of Rostock

http://sems.uni-rostock.de

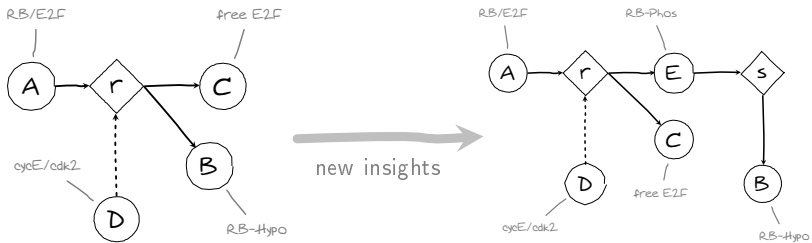7th International CellML Workshop

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SYSTEMS BIOLOGY BIOINFORMATICS ROSTOCK

SEMS — simulation experiment management system

Format-independent, graph-based
model storage

store

retrieve

Management

rank

Information Retrieval-based
model **search and ranking**

Version 2

Δ

Δ

track development

latest

Version 1

Diff-based model
version control

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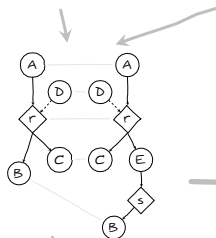Traditio et Innovatio

new insights
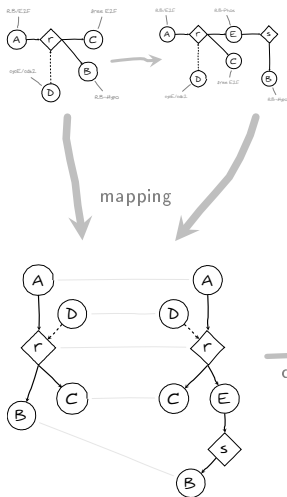
Biochemical Model **Ve**rsion Control **S**ystem

- maps hierarchically structured content
- compares models encoded in standardized formats (currently: SBML and cellML)
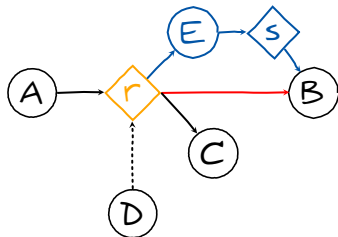- constructs a diff (in XML format)

mapping

diff construction

```
<XML>
   Diff
     ├─ moves
     │   └─ product of r: C
     ├─ deletes
     │   └─ product of r: B
     ├─ inserts
         ├─ species: E
         ├─ product of r: E
         └─ reaction s
</XML>
```

- calls BiVeS to construct the diff
- displays the result in various formats
  - the XML diff
  - a reaction network highlighting the changes using Cytoscape Web
  - a human readable report

lets take a look at our tools in action!

`http://budhat.sems.uni-rostock.de`

BiVeS & BudHat can be integrated in extisting repositories!

Requirements:

- Models must be encoded in standadized formats (e.g. CellML or SBML)

- Each version of a model must be accessible for BudHat (either physically or through an API)

- Java based web server (e.g. tomcat), may run on a seperate node

If you are interested in using our tools feel free to contact us.

- BiVeS = Difference detection for hierarchical structures

- BudHat = Visualization of changes

- Both tools are open source

- We do not want to establish yet another platform

- Our goal is to extend existing models repositories with a valuable version control mechanism

That's it! Stay tuned ;-)

@SemsProject
http://sems.uni-rostock.de
http://budhat.sems.uni-rostock.de

Questions? Suggestions? Recommendations? Drop me an email:
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