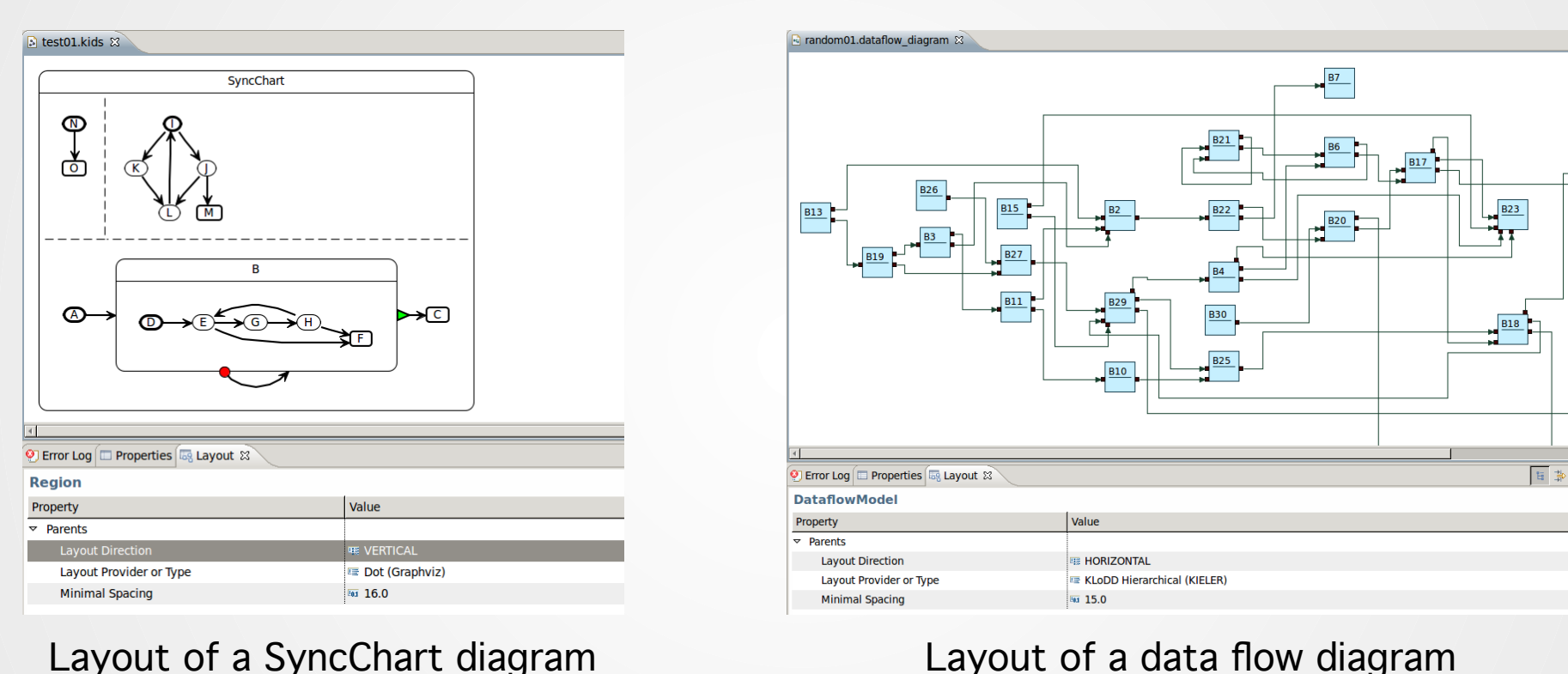


## Automatic Layout

KIML – KIELER Infrastructure for Meta Layout [2]



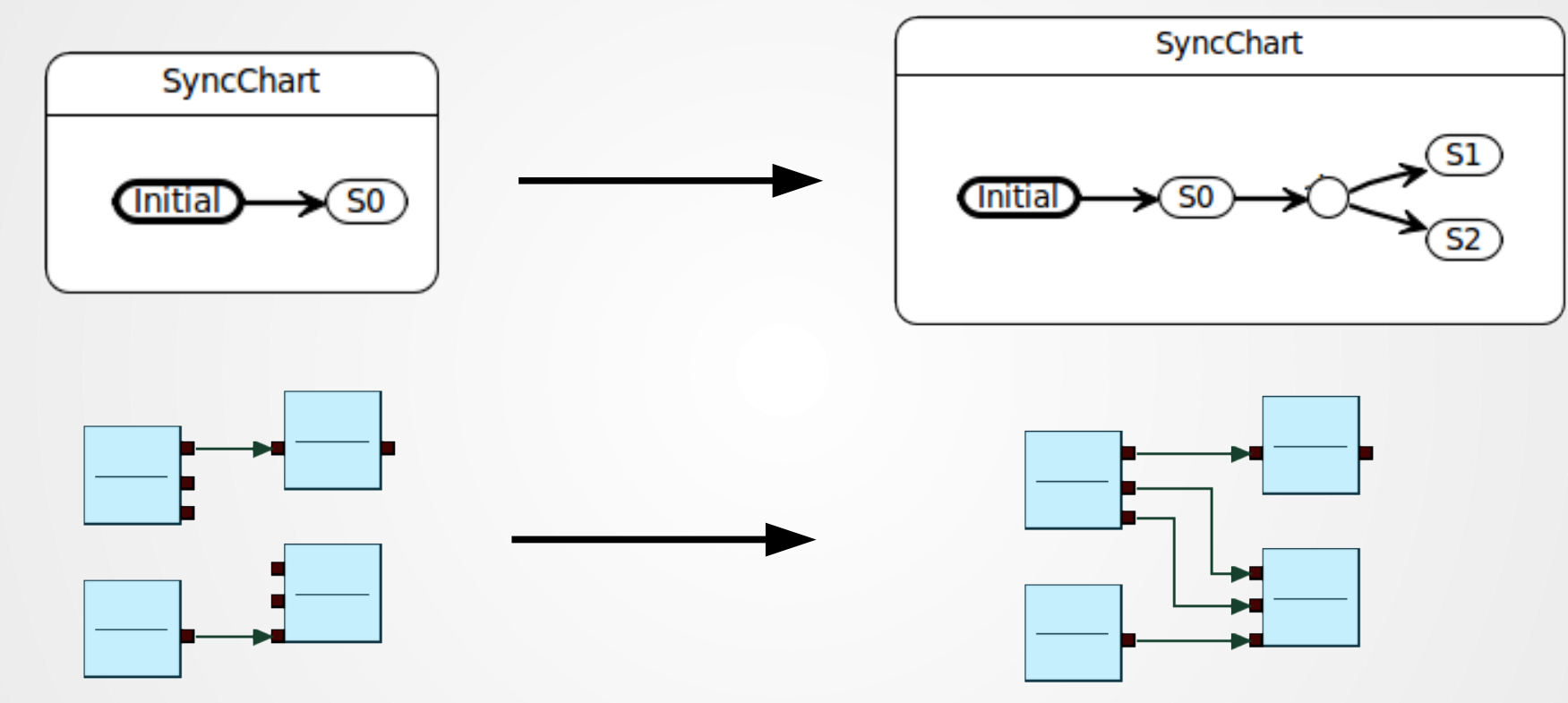
- Automatic layout of GMF diagrams
- Generic interface for layout algorithms
- Flexible configuration of layout options by the user

## Textual Editing

- Synchronization of graphical models with textual representations
- Connect textual editors created with Xtext to GMF editors
- Transformation of the Esterel language to SyncCharts

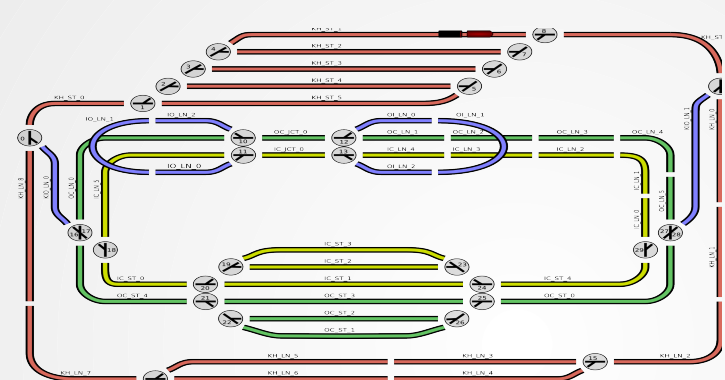
## Structure Based Editing

KSBasE – KIELER Structure Based Editing



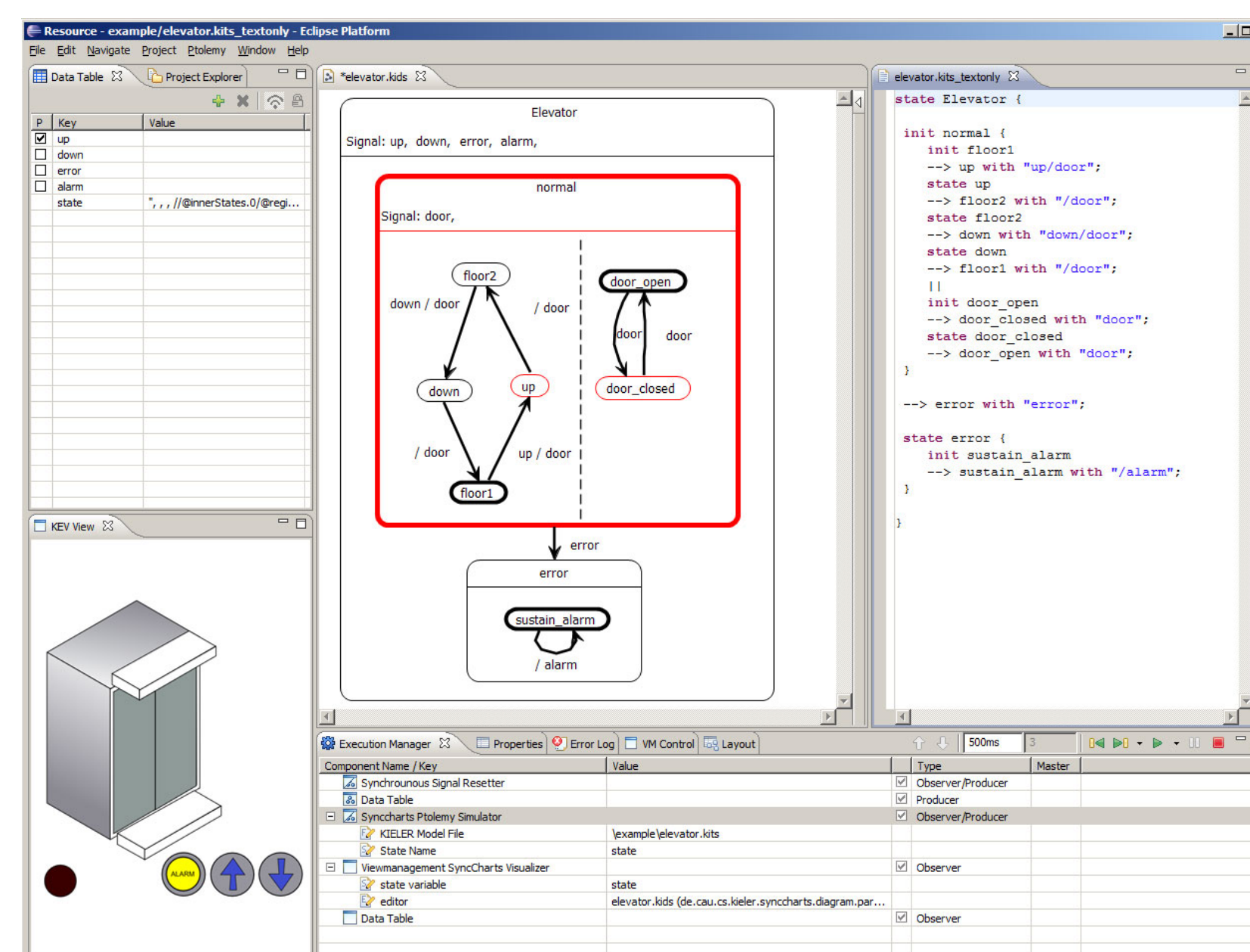
- Improve editing of graphical models by using model transformations for arbitrary operations
- Generic interface for GMF diagram editors

## Environment Visualization



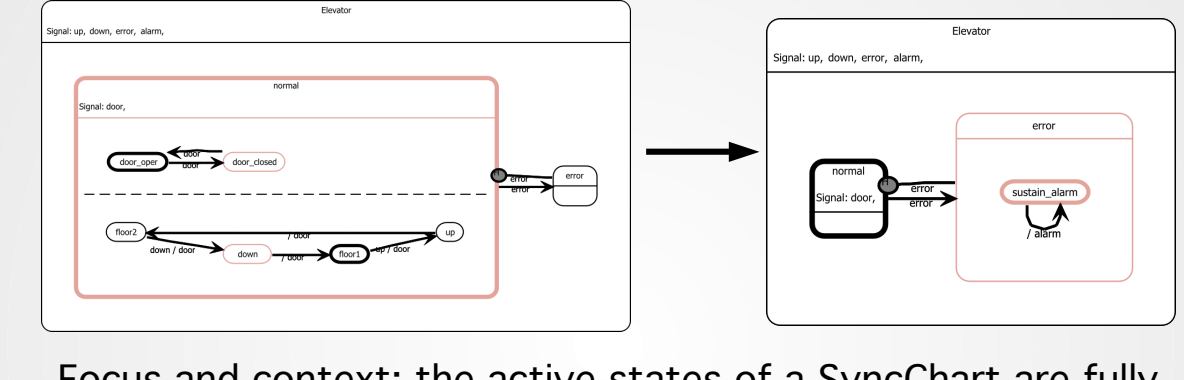
Visualization of a railway model

- SVG based rendering of arbitrary environments for simulation
- Specification of animations
- GUI for testing and demonstration of behavioral models



KIELER: Enhancing graphical modeling in Eclipse by integrating into existing frameworks such as EMF, GMF, and TMF [1]

## View Management

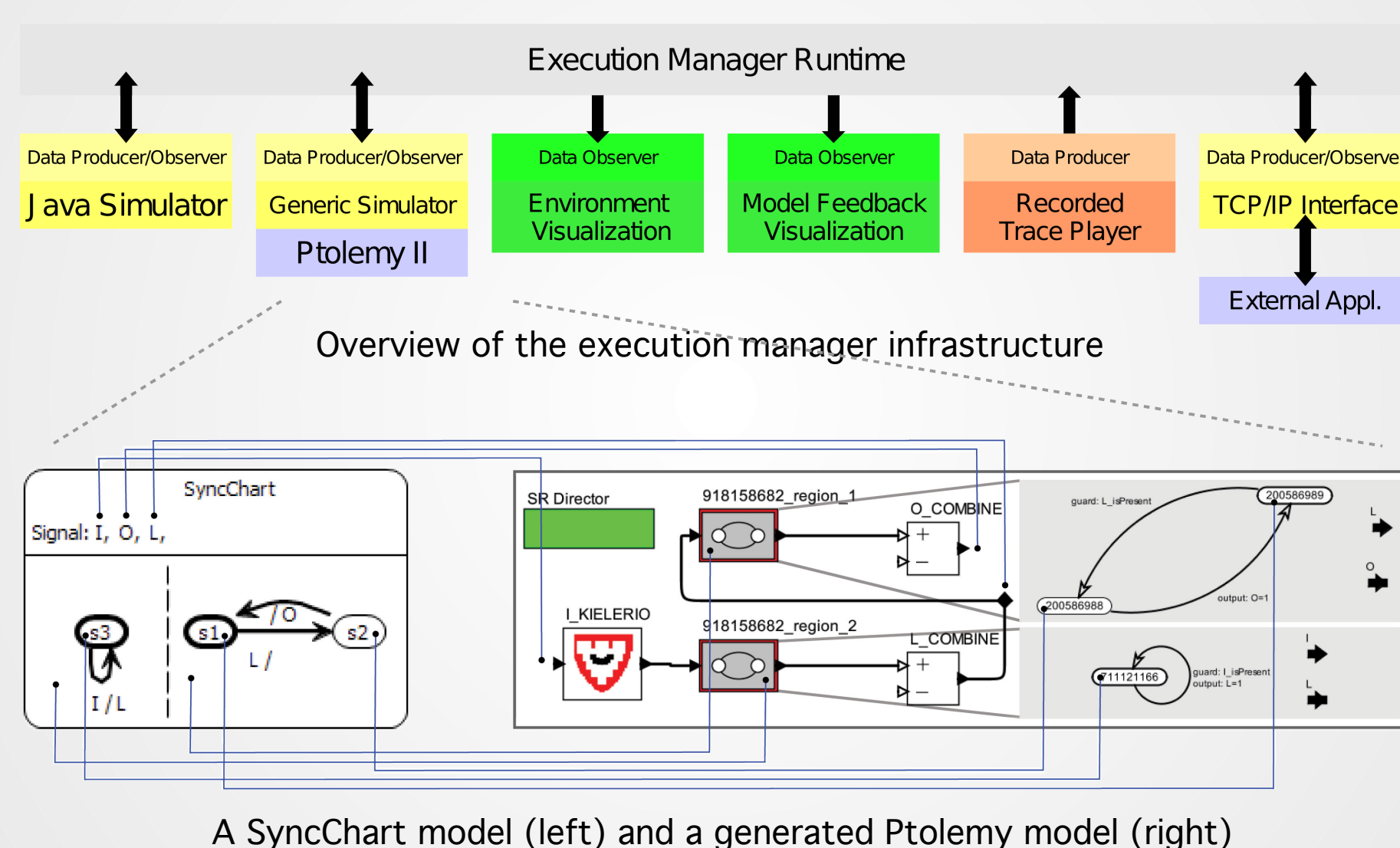


Focus and context: the active states of a SyncChart are fully shown, while other states are collapsed

- Dynamically create and layout graphical views of the model
- Arbitrary conditions can trigger different visual effects

## Model Execution

KIEM – KIELER Execution Manager



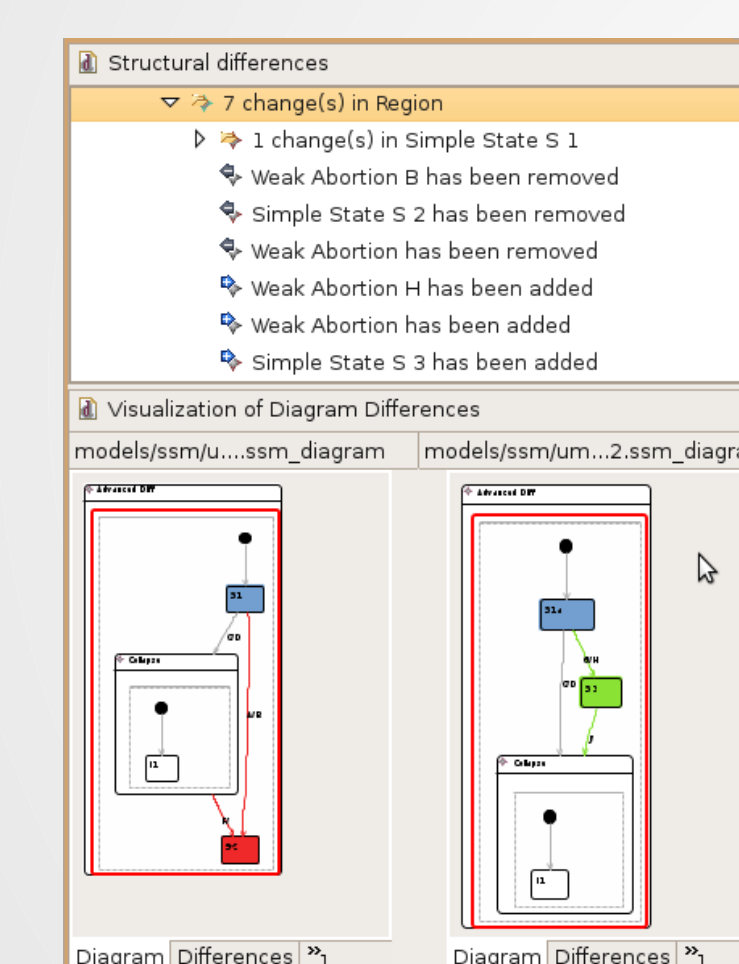
The semantic domain of Ptolemy is used as a possible simulation backend for KIEM.

## Code Generation

- Generate code with Xpand
- Connect executable code to KIEM
- Examples:
  - SyncCharts in C
  - Dataflow to Lustre

## Model Comparison

KiViK – KIELER Visual Komparison [3]



- Visualizes differences in two versions of a model graphically
- Integrates into standard Eclipse GMF and comparison mechanisms
- Employs EMF Compare project as differencing engine
- Employs automatic layout and automatic zooming and scrolling for navigation

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### Further Information:

<http://www.informatik.uni-kiel.de/rtsys/kieler>

[1] Hauke Fuhrmann and Reinhard von Hanxleden. On the Pragmatics of Model-Based Design. Technical Report 0913, Christian-Albrechts-Universität zu Kiel, Department of Computer Science, May 2009.

[2] Miro Spönemann, Hauke Fuhrmann, Reinhard von Hanxleden, and Petra Mutzel. Port Constraints in Hierarchical Layout of Data Flow Diagrams. In *Proceedings of the 17th International Symposium on Graph Drawing (GD'09)*, LNCS, Chicago, September 2009.

[3] Arne Schipper, Hauke Fuhrmann, and Reinhard von Hanxleden. Visual Comparison of Graphical Models. In *Proceedings of the Fourth IEEE International Workshop UML and AADL*, held in conjunction with the 14th International Conference on Engineering of Complex Computer Systems (ICECCS'09), Potsdam, Germany, 2009.