SCCharts, KIELER and the Eclipse Layout Kernel
Statecharts for Safety-Critical Applications and a Pragmatics-Aware Modeling Environment

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We present a graphical language, SCCharts1 [4], designed for specifying safety-critical reactive systems. SCCharts use a statechart notation and provide determinate concurrency based on a synchronous model of computation (MoC), without restrictions common to previous synchronous MoCs. Specifically, we lift earlier limitations on sequential accesses to shared variables, by leveraging the sequentially constructive MoC [5].

The SCCharts demonstrator is part of the Kiel Integrated Environment for Eclipse Rich Client (KIELER)2, see Fig. 1. The demonstration shows how to write an SCChart model using a textual notation, from which a graphical view is generated on the fly using the Eclipse Layout Kernel (ELK)3 [3]. This allows pragmatics-aware modeling, which aims to combine the best of the textual and graphical modeling worlds [1] by separating the underlying model from automatically generated, adaptable views. We also present a compilation chain that allows efficient synthesis of software and hardware [2].

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1http://www.sccharts.com
2http://www.rtsys.informatik.uni-kiel.de/en/research/kieler
3https://www.eclipse.org/elk

REFERENCES


Fig. 1. An SCChart modeled with KIELER. The graphical view is synthesized automatically from the textual ABR0.sct model. Layout directives (starting with @) govern the filtering and drawing, e.g., region HandleA is collapsed. The view also helps to navigate in the model; here, the user has clicked in region HandleB, which selects the corresponding part in the text.