Visualizing Event-B Models with B-Motion Studio

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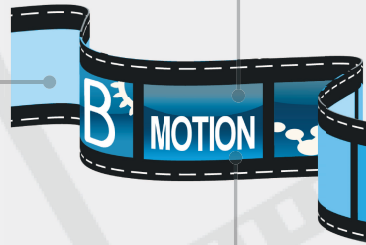
INTRODUCTION

B-Motion Studio makes creation of graphical domain specific visualizations for formal models easier. Both, Brama [1] and a tool [4] we previously developed used Flash based technology to create rich graphical visualizations of formal models. Brama was sucessful in industrial projects and helped ClearSy obtain several contracts. Both tools still needed to wire the model with the visualization by providing gluing code in either ActionScript or Java.

B-Motion Studio [3] uses expressions and predicates in B itself to link the formal model with its visualization using the ProB Animator [2] for Rodin as its execution engine. The visualization observes the animation of the formal model. On the other hand the visualization drives the animation by linking action handlers to events or sequences of events within the formal model.

CONTROLS AND OBSERVERS

Controls are graphical elements linked to aspects of the formal model. B-Motion Studio can be extended by a library of controls for a domain, e.g., gauges. By default B-Motion Studio comes with labels, images, buttons and some basic shapes. A control is associated with observers that change its properties (position, image, text, ...) depending on a set of predicates or expressions evaluated in the state of the B model.
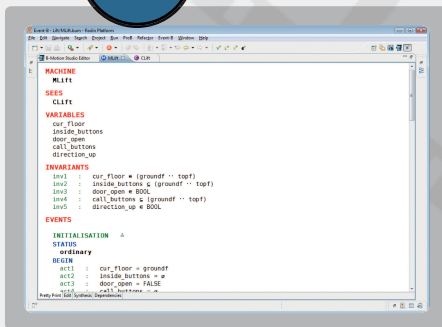
ADVANTAGES OF B-MOTION STUDIO

- Graphical visualizations for Event-B
- Rapid generation of explorable Presentations
- No additional programming language required
- Customizable for particular domains
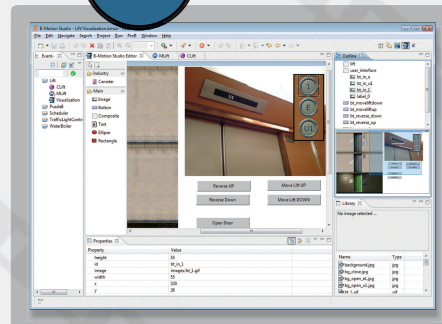- Comprehensive graphical editor

PREDEFINED COMPONENTS

Images, Labels, Buttons, Shapes

1. Model

2. Create

Play

References:
[1] ClearSy System Engineering, Brama Tool, http://www.brama.fr/index-en.php
[2] M. Leuschel and M. Butler, ProB: An Automated Analysis Toolset for the B Method, International Journal on Software Tools for Technology Transfer (STTT), 2008
[3] L. Ladenberger, A Visual Editor for B-Animations, Bachelor's Thesis, 2009
[4] J. Bendisposto and M. Leuschel, A generic Flash-based Animation Engine for ProB, B2007, LNCS 4355