Modelling in Event B

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Abstract. *Event B is a formal language used to formalize systems by means of discrete models. These models rely on states (represented by variables) and transitions (represented by events), and thanks to refinement, allows for introducing details and complexity little by little.*
The event B language is introduced, as well as the notions of guards, events, properties, invariant, etc. and demonstrated on several case-studies (fail safe switch sensor system, safety critical ampere meter, smart card safety policy certification, etc.), in their modelling environments.
Proof environment is also demonstrated in depth, through the use of automatic theorem provers and interactive demonstrations. Relations between proof obligations and models are made explicit.
The Rodin platform comes with several plug-ins that extend its functionalities. Some of them are presented in action and their added-value is demonstrated on case-studies (UML-B modeller, ProB model-checker and model animator, Brama model animator).