Application of Verification Methods to Specifications
in Concern with Safety of Signalling Equipment

Natsuki TERADA   Takashi TOYAMA

Formal methods are expected to increase reliability of software, including that of signalling systems. We modeled the specification of automatic block systems for single line with formal specification languages, and verified the model with theorem proving and satisfiability problem solver. For theorem proving we used B Method which is characterized with theorem proving and stepwise refinement. It yields a very powerful result as far as safety is concerned, but it requires a lot of effort especially when many variables are used. On the other hand, satisfiability problem solver can easily find truth of the difficult proposition, but the domain of the proposition has some restrictions. We also have compared two methods.