Expanding the proof rule base of AtelierB automated prover

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Abstract—**AtelierB is a tool for formal software development through refinement, using the B-method. It incorporates an automated prover, which has been recognized as the most thorough prover for B set theory, and has been used as a basis for many others. Nevertheless it has multiple shortcomings. Various approaches have been suggested and taken to improve its performance, including extensions to the proof rule base, created by the users. In this work we aim to create such an extension, ensuring that all added rules are sound and well-reasoned. We also aim to identify any limitations of this approach. The secondary goal is to improve the robustness of the software without straying from pure B method, and taking into account the ease of use. As a metric of our success, we use the benchmarks proposed by Conchon and Iguernala [1].**

Index Terms—

I. INTRODUCTION

REFERENCES

[1] S. Conchon and M. Iguernlala, "Increasing Proofs Automation Rate of Atelier-B Thanks to Alt-Ergo" in *Proc. 1st Int. Conf. Reliability, Safety and Security of Railway Systems* (RSSRail 2016), Springer, 2016, pp. 243-253