An Executable Formal Semantics For A Functional Actor Language

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Abstract. A simple reference actor language has been proposed in [], serving as a sound mathematical calculus foundation for various actor languages used in distributed applications that involves concurrency. Even though the authors of [] provided in the paper an operational semantics of the actor language, an executable implementation was not given. In this project, we will give the reference actor language an implementation that by construction conforms to its formal operational semantics using the K framework [], a rule-based semantic framework. We will show that our executable formal semantics are capable of executing some meaningful actor systems examples. We hope our executable formal semantics can be served as a starting point for future work in developing automatic equivalence provers using K framework.