

# Writing Proofs in Dafny

K. Rustan M. Leino 

*Amazon Web Services*

Seattle, WA

leino@amazon.com

**Abstract**—Dafny is a verification-aware programming language. In a nutshell, the language is Java-like and has support for writing specifications and proofs. It has a long history of being used in education, has been the cornerstone of several ambitious research projects, and is in industrial use at AWS.

This tutorial teaches how to write various kinds of proofs in Dafny. It covers proofs of imperative and functional programs, as well as the formalization of models and mathematical proofs. It demonstrates different proof styles and shows how to think about and debug proofs in the Dafny setting.

The tutorial does not assume any prior experience in using Dafny or other proof assistants.