

# Weakest Precondition Style Reasoning about Probabilistic Programs

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## Abstract

We present a weakest precondition style calculus for reasoning about probabilistic programs in the style of McIver & Morgan. We then give an overview of how this calculus can be extended in a way such that we can reason about **1.** expected runtimes of randomized algorithms and **2.** conditional expected values of random variables for programs with conditioning. We conclude with some computational hardness results on computing bounds on expected values and deciding different flavors of probabilistic termination.