A Pattern Logic for Lazy Assertions in Haskell

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Abstract

Assertions test expected properties of run-time values without disrupting the normal computation of a program. Here we present a library for enriching Haskell programs with assertions. Expected properties are written in an expressive pattern logic that combines pattern matching with logical operations and predicates. The assertions are both lazy, that is, they do not force evaluation but only examine what is evaluated by other parts of the program, and early, that is, assertion failure is reported as early as possible, before a faulty value is used by the main computation. The implementation is based on lazy observations and continuation-based coroutines.