

Parallel programming with Sklml

Quentin Carbonneaux* François Clément* Pierre Weis*

August 31st, 2011

Writing parallel programs is not easy, and debugging them is usually a nightmare. To cope with these difficulties, the *skeleton programming* approach uses a set of predefined patterns for parallel computations. The skeletons are higher order functional templates that describe the program underlying parallelism. Sklml (*[ˈskələmɛl]*) is a new framework for parallel programming that embeds an innovative compositional skeleton algebra into the OCaml language. Thanks to its skeleton algebra, Sklml provides two evaluation regimes to programs: a regular sequential evaluation (merely used for prototyping and debugging) and a parallel evaluation obtained via a recompilation of the same source program in parallel mode. Sklml was specifically designed to prove that the sequential and parallel evaluation regimes coincide.

*INRIA Paris-Rocquencourt