Abstract

Two distinct models for the notion of communicating processes are introduced, developed and related. The first, called the possible-futures model, is a generalization to nondeterministic systems of the familiar derivative (Nerode equivalence class) construction. The second, called the acceptance-refusals model, is a slight strengthening of a model introduced by Hoare, Brookes, and Roscoe. The PF model can be mapped onto the AR model homomorphically, and the equivalence classes of this map can be characterized by imposing a very natural equivalence relation on the PF model. The resulting quotient algebra admits a complete partial order structure in which the algebraic operations are continuous.