Title: Bounded-arity hierarchies in fixed-point logics

Author: Martin Grohe

Abstract: In this paper we prove that for each *k* the expressive power of *k*-ary fixed-point logic, i.e. the fragment of fixed-point logic whose fixed-point operators are restricted to arity $\le k$, strictly exceeds the power of *(k-1)*-ary fixed-point logic. This solves a problem that was posed by Chandra and Harel in 1982.

Our proof has a rather general form that applies to several variants of fixed-point logic and also to transitive-closure logic.