On the Power of Randomization in Online Algorithms*

S. Ben-David
Technion, Haifa, Israel

A. Borodin†
University of Toronto, Toronto, Canada

R. Karp
University of California at Berkeley
and
International Computer Science Institute
Berkeley, California

G. Tardos‡
Eötvös University
Budapest, Hungary

A. Wigderson†
Hebrew University, Jerusalem, Israel

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‡Part of this research was performed while this author was a visitor at the Hebrew University
Abstract

Against an adaptive adversary, we show that the power of randomization in online algorithms is severely limited. We prove the existence of an efficient “simulation” of randomized online algorithms by deterministic ones, which is best possible in general.

The proof of the upper bound is existential. We deal with the issue of computing the efficient deterministic algorithm, and show that this is possible in very general cases.