

Felice Cardone and Edgar Daylight, Unbounded nondeterminism: an introduction for the philosopher of computing

Abstract. A system displays unbounded nondeterminism when all its behaviors are terminating but may end in each one of an infinite set of possible final states. Such a phenomenon has been excluded by Dijkstra from his theory of nondeterministic mechanisms, yet it is closely related to computationally significant properties like fairness or the guarantee that, in a concurrent system, requests will eventually be served even when there is no bound on service delay. Others, like Hewitt, have argued that unbounded nondeterminism may be realized in computational systems. We provide a survey of their arguments and related issues, with a special attention to assumptions on systems modeling.