

## Functions computable by Boolean circuits of logarithmic depth and branching programs of a special type

Vasiliev A.

*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

---

### Abstract

D. M. Barrington proved the coincidence of the class NC1 of functions computable by the circuits of logarithmic depth with the class of functions computable by branching programs of constant width and polynomial length (BWBP). In this paper, the structure of branching programs suggested by the Barrington method is defined more exactly. Namely, it is proved that we can compute all functions from NC1 and only them by the k-OBDDs of polynomial size and width 5. This can be reformulated as  $\text{poly}(n)\text{-OBDD}_5 = \text{NC1}$ . © MAIK Nauka 2008.

<http://dx.doi.org/10.1134/S1990478908040145>

---