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Weak and strong fairness in CCS. (English) Zbl 0551.68021

Mathematical foundations of computer science, Proc. 11th Symp., Praha/Czech. 1984, Lect. Notes Comput. Sci. 176, 245-254 (1984).

[For the entire collection see Zbl 0544.00022.]

This paper examines the issue of weak and strong fairness. The framework is Milner's Calculus of Communicating Systems and the approach is operational. The problem addressed is that of giving finite rules for generating all and only the admissible execution sequences when fairness is assumed. This aim is achieved by defining two calculi, one for weak and the other for strong fairness. Both calculi are extensions of standard CCS; they do not involve random assignment or transformations. A distinguishing feature of the weakly fair calculus is that, unlike standard approaches which appeal to random assignment, it does not involve predictive choice. This is because there is a local characterization of weak fairness. [This paper is just an extended abstract; a more complete version, with the same title, has appeared as Techn. Rep., Dept. Comput. Sci., Univ. Edinburgh, CSR-167-85, Jan. 1985, 50 pages.]

MSC:

68N25 Theory of operating systems
68Q65 Abstract data types; algebraic specification

Keywords:

concurrency; transition systems; weak and strong fairness; Calculus of Communicating Systems; CCS