A Semantic Approach to Correctness, of Concurrent Transaction Executions (Classic Reprint)

By Paul G Spirakis

Forgotten Books, United States, 2015. Paperback. Book Condition: New. 229 x 152 mm. Language: English . Brand New Book ***** Print on Demand *****.Excerpt from A Semantic Approach to Correctness, of Concurrent Transaction Executions One of the main Issues in concurrency control is the question of what constitutes a legal or correct behavior of a group of transactions updating the database simultaneously. It seems that the undesirable effects of concurrent transaction executions can be put into three classes: violation of integrity constraints, inconsistent outputs to users and racing. An intuitive way to define correctness of transaction schedules is then to require that the scheduler avoid all three types of anomalies. In this paper, we formalize this notion of correctness. To do this, we develop a new, desirable, semantic property of transaction schedules, which we call independence. Then, we give a partial answer to the following question: Is there any intermediate class of schedules, between the classes of serializable and correct schedules, that has an easy membership test? We first prove a negative result. For integrity constraints in the form of linear inequalities and for linear semantics of transaction actions, we show that the serializable schedules are the only class of...

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