

# Semi-traces and their application in concurrency control problem

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**Abstract:** The theory of traces was originated by A. Mazurkiewicz to model non-sequential behaviour of a distributed system. The normal form of a trace shows us an optimal way to execute a process occurred on the system. Nevertheless, the independence of actions in many systems is not static and depends on the history of the systems. To describe this fact, D. Kuske and R. Morin proposed a notion of local independence. Basing on the local independence, we introduce a notion of semi-trace, analyze its structure and the relationship between traces and semi-traces. Furthermore, we investigate some applications of semi-traces in concurrency control problem. ?? 2009 Springer Berlin Heidelberg.

**Author Keywords:** Concurrency control; Distributed system; Local independence; Trace

**Index Keywords:** Distributed system; Distributed systems; Normal form; Theory of traces; Behavioral research; Mathematical models; Multi agent systems; Normal distribution; Trace analysis; Concurrency control

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