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Process Algebra and Information Flow

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Abstract

Controlling information flows through a system is the fundamental issue in information security. It turns out that making precise the notion of information flow, and in particular the absence of information flow, is a remarkably subtle question. Many formalizations have been proposed, many inspired by the seminal ideas of Goguen and Meseguer with their notion of non-interference. Even now the security community has not reached a consensus on its definition. In this talk we show that casting the problem in a process algebraic framework sheds light on many of the sources of controversy. In particular we argue that non-interference reduces to characterizing the equivalence of processes, itself a rather controversial problem in the process algebra world.

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