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Abstracts of Short Communications and Posters

Section:

14. Mathematical Aspects of Computer Science

1991 MS Classification: 03, 68
Natarajan, Raja, Tata Institute of Fundamental Research, India
Combinators for Concurrency
We design a system with six *Basic Combinators*, which is powerful enough to embed the full asynchronous π-calculus, including replication. Our *Combinatory Calculus* presents a significant departure from those propounded by Schönfinkel and Curry. Instead it is based on an hitherto unexplored method used by Quine and Bernays for the general elimination of variables in linguistic formalisms. Our combinators are designed to eliminate the requirement of *names* that are bound by an *input prefix* and the accompanying mechanism of *substitution*. One of the distinctive features of the approach is that it can be used to rework several process calculi in order to derive equivalent combinatory versions.
Reference: N. Raja and R. K. Shyamasundar, Combinatory Formulations of Concurrent Languages, *ACM Trans. Program. Lang. Syst.* **19** (1997), 899–915.