Renaming operators are introduced in concrete process algebra (concrete means that abstraction and silent moves are not considered). Examples of renaming operators are given: encapsulation, pre-abstraction, and localization. We show that renamings enhance the defining power of concrete process algebra by using the example of a queue. We give a definition of the trace set of a process, see when equality of trace sets implies equality of processes, and use trace sets to define the restriction of a process. Finally, we describe processes with actions that have a side effect on a state space and show how to use this for a translation of computer programs into process algebra.

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

Keywords:
process algebra; renaming operators; trace set; side effect

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