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7. **Тезисы доклада:**

τ-EQUIVALENCES FOR ANALYSIS OF CONCURRENT SYSTEMS MODELLED BY PETRI NETS WITH SILENT TRANSITIONS

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Petri nets are powerful formalism both for modelling and behavioural analysis of concurrent systems. Silent transitions are transitions labelled by special "silent" action denoted by 'τ'. They are used to abstract from internal components of a specified system.

A notion of equivalence is central in any theory of systems. Behavioural equivalences allow one to compare, reduce them and prove their correctness.

τ-equivalences are relations which abstract from silent actions. In this paper, we consider a wide set of basic τ-equivalences which differently respect concurrency and conflict in a system behaviour. These are trace, bisimulation and conflict preserving relations. In addition, we investigate a set of back-forth bisimulation relations which provide an operational characterization of equivalences for popular temporal logics with past modalities. To obtain expressive enough set of equivalences, we introduce a number of new ones.

All the equivalences are compared and the diagram of their interrelations is obtained.

A practical relevance of all the considered notions for top-down design of concurrent systems is treated.

We also compare equivalences on a subclass of sequential nets with silent transitions to better understand the role of concurrency in the definitions of these relations and simplify their check.