

BEHAVIOURAL NET PROPERTIES, OVERVIEW

MARKABILITY of places

- markable (*place liveness*)
- **k-bounded** (*1-bounded / safe*)
- unbounded

LIVENESS of transitions

- zero times firing (*m_0 -dead*)
- finite times firing (*dead, non-live*)
- **infinite times firing, probably** (*live*)
- infinite times firing, definitely (*livelock free*)

general semantic properties

REACHABILITY of states

- dead states
- reproducibility
- **reversibility** (*m_0 - home state*)
- bad states (*facts*)
- user-specified states

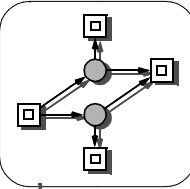
NET INVARIANTS

- transition invariants
- place invariants

special semantic properties

temporal relationship of logic formulae

- safety properties
- progress properties



QUALITATIVE ANALYSIS METHODS, OVERVIEW

NET REDUCTION

STRUCTURAL PROPERTIES

LINEAR PROGRAMMING

- place / transition invariants
- state equation
- trap equation

static analysis

STATE SPACE ANALYSIS

- (complete) reachability graph

compressed state spaces

- BDDs, NDDs, ..., xDDs
- Kronecker products

dynamic analysis

reduced state spaces

- coverability graph
- symmetry
- stubborn sets

(model checking)

branching process