Reachability problem: Given a Petri net $\mathcal{N}$, and markings $M_0$ and $M$, can marking $M_0$ reach marking $M$ in $\mathcal{N}$?

Study subclasses of Petri nets
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Study subclasses of Petri nets

Branching Immediate Observation nets

Open problem session, Autoboz 2020

Joint work with J. Esparza, M. Raskin
@ Technical University Munich
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Branching Immediate Observation (BIO) nets

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\[ \text{Card}(t - t^*) \leq 1 \]
Branching Immediate Observation (BIO) nets

A Petri net is a BIO net if all of its transitions are of the form:

- Token creation and destruction
- Communication
- Generalize communication-free nets (BPP nets) and immediate observation (IO) nets

\[ \text{Card}(t - t^*) \leq 1 \]
Branching Immediate Observation (BIO)

- unbounded (token creation and destruction)
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\textbf{Open Problems:}
- Applications for BIO nets (e.g. chemical reaction networks)
- Consequences of this result in other domains (data nets, process calculi, formal languages...)

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