
ADAM paper, some hints, not exhaustive:

() the abstract deserves some improvements:

- "bounded Petri nets":

-> "bounded" is only required for the approach favoured in your paper; it's not an inherent property of the pn approach per se; so I would delete the attribute here;

- "Simulation is a common practice for analyzing discrete models":

-> I'm not sure I understand what you mean with simulation; in my terminology, simulation requires kinetic information; but you are proposing a tool for qualitative discrete models (according to the first sentence)?

on p.3, the term "exhaustive simulation" is used; what's that? I do know what exhaustive analysis is; but simulation is inherently incomplete in my understanding;

on p.4, "too complex for simulation", thus "instead exhaustive enumeration of the state space": we do it in our framework the other way around; there must be some confusion in the terminology;

- "The key feature of biological systems ...":

-> for which kind of models (application area) does this sparsity not hold? all models (of hw/sw) which I've seen so far share this property.

- "and random models":

-> it's not clear what is meant here;

() "Snoopy provides simulation and built-in animation."

-> both simulation and animation are built-in;

() "Analysis for Petri nets is usually based on a given initial state and does not provide a complete picture of possible dynamics for other initial states."

-> this strong statement applies only for dynamic, i.e. rg-based analysis techniques. analysis methods, which do not depend on the initial marking, include most of the static analysis techniques (those, which do not construct the state space): net reduction, p/t-invariants, and other structural analysis techniques; see, e.g., http://dl.dropbox.com/u/9360195/bertinoro2_2008.pdf

you could change it to:

" rg-based analysis for Petri nets usually depends on a given initial state and does not provide a complete picture of possible dynamics for other initial states."

() "these tools provide a complete analysis of the dynamical behavior only if an exhaustive enumeration of the state space is computationally feasible."

-> it's a very strong statement and ignores all static analysis techniques; it might help if you say more explicitly what you mean with "complete analysis";

() "ADAM determines all non-functional edges"

-> edges in which description? in pn's, non-functional edges would correspond to a transition which never fires, if I got the meaning right?

() "Note that the steady states are the same independent of the update schedule. ..."

-> The following reasoning refers only to the final "steady state" (which is in pn terminology a dead state, if I remember well) and not to the path (firing sequence) to reach this state. in pn context, we have many examples that the update function (= firing rule) may have a strong influence on the the set of reachable states. so it's not obvious to me

that this statement is correct.

() "For probabilistic networks":

-> if the crucial point of "probabilistic networks" is the potential for an out degree larger than 1, then pn's are also "probabilistic networks";

() in section 2, I miss a paragraph stating ADAM's specific contributions to analyse pn's.

() "The key idea behind our algorithms is that discrete models have finitely many states...":

-> this might be true for logical models, but not for pn's in general. "finitely many states" is not an inherent property of discrete models, it's required for the favoured analysis approach;

() end of section 3:

-> I'm missing some pn benchmarks!
likewise, I'm missing "4.2. PN benchmarks computations"

() p.8, "Boolean networks" -> " Markov Chain analysis":

-> for MC analysis, we need a stochastic model, which hasn't mentioned so far;

() "Snoopy and Charlie, software tools for Petri nets, base all their analysis methods on a given initial marking and do not contain any methods to analyze the complete possible phase space, when no marking is given."

-> this strong statement is in its generality wrong; compare my comments above.

() some minors:

- p2, there is no reference for DDLab;
- p3, long or short limit cycles - what does this mean in absolute numbers?
- p3, "For small enough models, ADAM generates a graph of the complete phase space."
-> and else?
- p5, the purpose of the two binary strings on top and bottom is unclear;
- references: capitalize Petri and R;

btw, I would never call something PDS, which stands in the united germany for the SED successor party;

mh, 01/03/2011