Snoopy - a Tool to Design and Animate / Simulate Graphs

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= Data Structures and Software Dependability =
http://www-dssz.informatik.tu-cottbus.de/software/snoopy.html

Basic Properties

- Extensible
  - the generic design supports facile implementation of new graph types
- Adaptive
  - simultaneous use of several graph types
  - GUI adopts dynamically to the graph type in the active window
- Platform Independent
  - Implementation: C++, wxWidgets [12], Xerces [13]
  - supported for Windows and Linux (Suse)

Main Features

- hierarchy by subgraphs
- logical (fusion) nodes
- different shapes for net elements
- colouring of graph elements (e.g. paths or invariants)
- digital signature by md5 encryption [16]
- reachability graph
- place/transition Petri net
- extended Petri net
  - (read / inhibitor / reset arcs)
- continuous Petri net [17]
- EDL-signature net [18]
- fault tree [20]

Graph Classes

- fault tree [20]
- EDL-signature net [18]
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  - place/transition Petri net
- reachability graph

Exports to other Tools

- eps
- Xfig
- FrameMaker

Fault Tree

- SyRePa [7]

Continuous Petri Net

- LaTeX
- SBML, e.g. Copasi [1]

Petri Nets Export

- IID-CTL, IID-LTL [10]
- INA [6]
- LOLA [2]
- MARIA [3]
- PEP [5]
- PN MC-KIT [4]
- PROD [6]
- Tina [9]

N-Version Programming Petri Net and its Fault Tree

Pusher Case Study as Hierarchical Petri Net

Product Büchi Net of two Processes and a LTL-Formula as Extended Petri Net

Animation / Simulation

- Petri Nets
  - step forward / backward
  - play forward / backward
  - firing-rules: single, intermediate and maximal step
- Continuous Petri Nets
  - step forward
  - play forward
  - 12 stiff / unstiff ODE solvers

Outlook

- coloured stochastic Petri nets
- generalized animation / interaction concept
- advanced evaluation of invariants, e.g. automatic colouring

Analysis Methods / Tools

- Copasi: http://www.copasi.org, 2006
- Maria: http://www.tcs.hut.fi/Software/maria, 2005
- PEP: http://theoretica.informatik.uni-oldenburg.de/~pep, 2004

References

- Graphviz: http://www.graphviz.org, 2005
- Xerces: http://xerces.apache.org, 2005

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