

Structural properties

ordinary — all arcs have multiplicity one	..... yes
simple free choice — all transitions sharing a common input place have no other input place	..... no ^(a)
extended free choice — all transitions sharing a common input place have the same input places	..... no ^(b)
state machine — every transition has exactly one input place and exactly one output place	..... no ^(c)
marked graph — every place has exactly one input transition and exactly one output transition	..... no ^(d)
connected — there is an undirected path between every two nodes (places or transitions)	..... yes ^(e)
strongly connected — there is a directed path between every two nodes (places or transitions)	..... ? ^(f)
source place(s) — one or more places have no input transitions	..... no ^(g)
sink place(s) — one or more places have no output transitions	..... ? ^(h)
source transition(s) — one or more transitions have no input places	..... no ⁽ⁱ⁾
sink transitions(s) — one or more transitions have no output places	..... no ^(j)
loop-free — no transition has an input place that is also an output place	..... no ^(k)
conservative — for each transition, the number of input arcs equals the number of output arcs	..... yes ^(l)
subconservative — for each transition, the number of input arcs equals or exceeds the number of output arcs	..... yes ^(m)
nested units — places are structured into hierarchically nested sequential units ⁽ⁿ⁾ no

Behavioural properties

safe — in every reachable marking, there is no more than one token on a place	..... yes
dead place(s) — one or more places have no token in any reachable marking ?
dead transition(s) — one or more transitions cannot fire from any reachable marking	..... ? ^(o)
deadlock — there exists a reachable marking from which no transition can be fired	..... yes ^(p)
reversible — from every reachable marking, there is a transition path going back to the initial marking	..... no ^(q)
live — for every transition t , from every reachable marking, one can reach a marking in which t can fire	..... ? ^(r)

Size of the marking graphs

Parameter	Number of reachable markings	Number of transition firings	Max. number of tokens per place	Max. number of tokens per marking
$N = 2$	11 ^(s)	14 ^(t)	?	?
$N = 3$	383 ^(u)	559 ^(v)	?	?
$N = 4$	? ^(w)	340 193 ^(x)	?	?

^(a) stated by [CÆSAR.BDD](#) version 2.6 on all 4 instances (2, 3, 4, and 5).
^(b) stated by [CÆSAR.BDD](#) version 2.6 on all 4 instances (2, 3, 4, and 5).
^(c) stated by [CÆSAR.BDD](#) version 2.6 on all 4 instances (2, 3, 4, and 5).
^(d) stated by [CÆSAR.BDD](#) version 2.6 on all 4 instances (2, 3, 4, and 5).
^(e) stated by [CÆSAR.BDD](#) version 2.6 on all 4 instances (2, 3, 4, and 5).
^(f) stated by [CÆSAR.BDD](#) version 2.6 to be true on 3 instance(s) out of 4, and false on the remaining 1 instance(s).
^(g) stated by [CÆSAR.BDD](#) version 2.6 on all 4 instances (2, 3, 4, and 5).
^(h) stated by [CÆSAR.BDD](#) version 2.6 to be true on 1 instance(s) out of 4, and false on the remaining 3 instance(s).
⁽ⁱ⁾ stated by [CÆSAR.BDD](#) version 2.6 on all 4 instances (2, 3, 4, and 5).
^(j) stated by [CÆSAR.BDD](#) version 2.6 on all 4 instances (2, 3, 4, and 5).
^(k) stated by [CÆSAR.BDD](#) version 2.6 on all 4 instances (2, 3, 4, and 5).
^(l) stated by [CÆSAR.BDD](#) version 2.6 on all 4 instances (2, 3, 4, and 5).
^(m) stated by [CÆSAR.BDD](#) version 2.6 on all 4 instances (2, 3, 4, and 5).
⁽ⁿ⁾ the definition of Nested-Unit Petri Nets (NUPN) is available from <http://mcc.lip6.fr/nupn.php>
^(o) stated by [CÆSAR.BDD](#) version 2.6 to be false on 1 instance(s) out of 4, and unknown on the remaining 3 instance(s).
^(p) stated by [CÆSAR.BDD](#) version 2.6 to be true on 1 instance(s) out of 4, and unknown on the remaining 3 instance(s); confirmed at MCC'2014 by Helena on all 4 colored instances.
^(q) stated by [CÆSAR.BDD](#) version 2.6 to be false on 1 instance(s) out of 4, and unknown on the remaining 3 instance(s).
^(r) stated by [CÆSAR.BDD](#) version 2.6 to be false on 1 instance(s) out of 4, and unknown on the remaining 3 instance(s).
^(s) computed at MCC'2013 by Alpina, and ITS-Tools; confirmed at MCC'2014 by Helena.
^(t) confirmed at MCC'2014 by Helena.
^(u) computed at MCC'2013 by ITS-Tools; confirmed at MCC'2014 by Helena.
^(v) computed at MCC'2014 by Helena.

^(w) either 270 156, as computed at MCC'2013 by ITS-Tools, or 220 819, as computed at MCC'2014 by Helena.
^(x) computed at MCC'2014 by Helena.