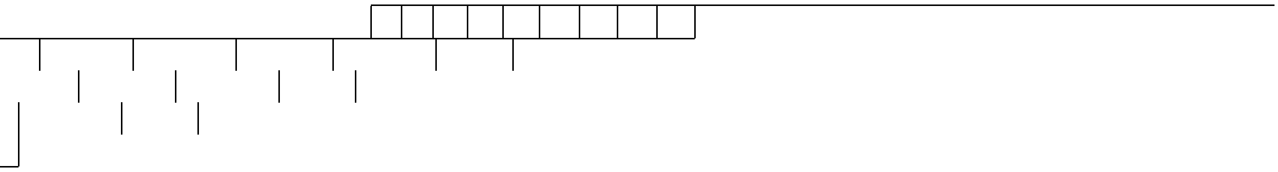
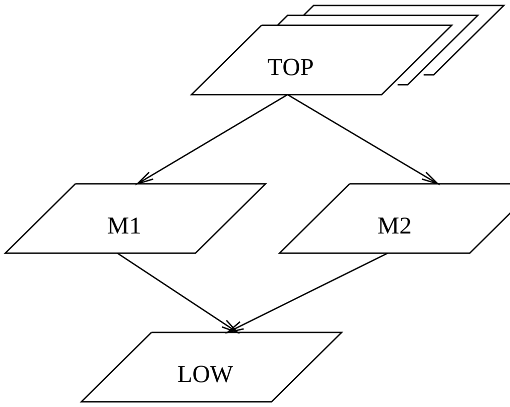
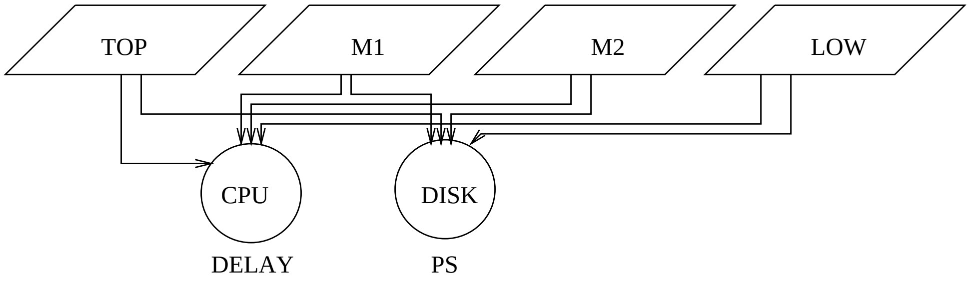


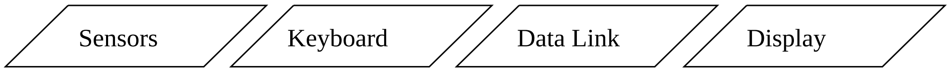
Software Contention Model



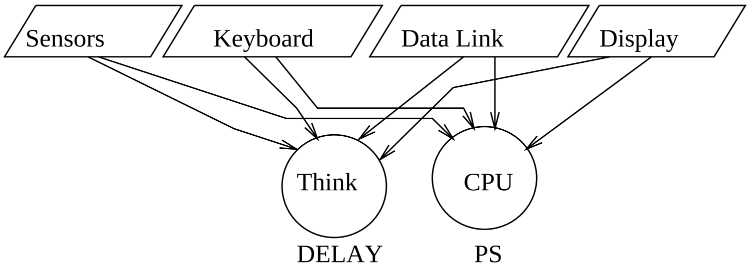
Device Contention Model

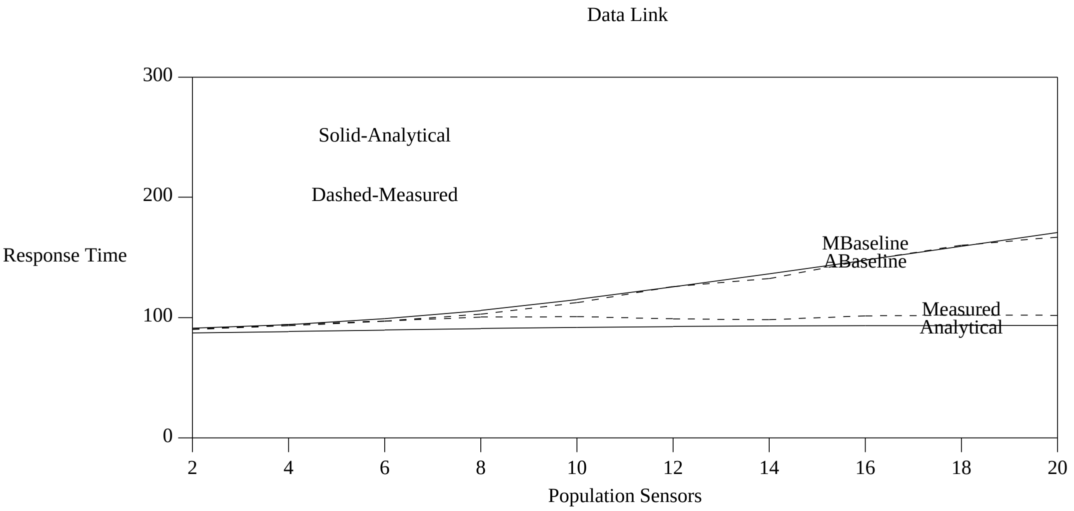


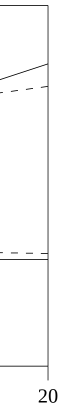
Software Contention Model

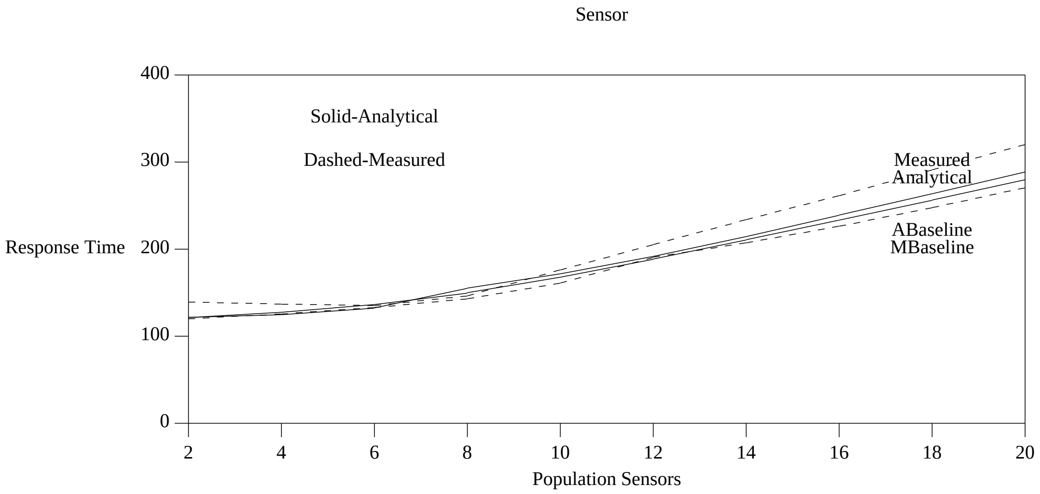


Device Contention Model



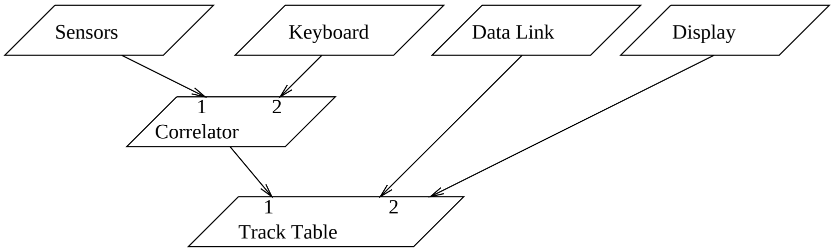

Data Link
300
200
100
0
Solid-Analytical
Dashed-Measured
Response Time
MBaseline
ABaseline
Measured
Analytical
2
4
6
8
10
12
14
16
18
20
Population Sensors


20

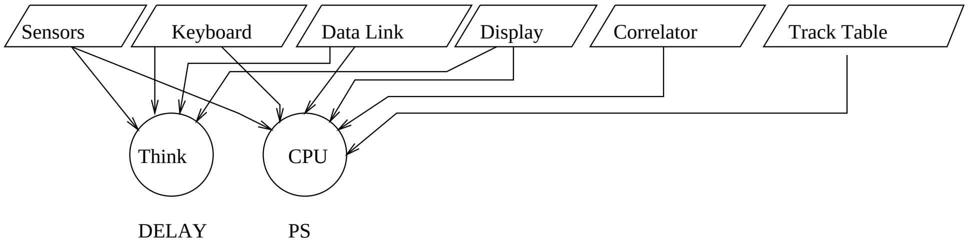

Sensor
Solid-Analytical
Dashed-Measured
Response Time
400
300
200
100
0
2
4
6
8
10
12
14
16
18
20
Population Sensors
Measured
Analytical
ABaseline
MBaseline

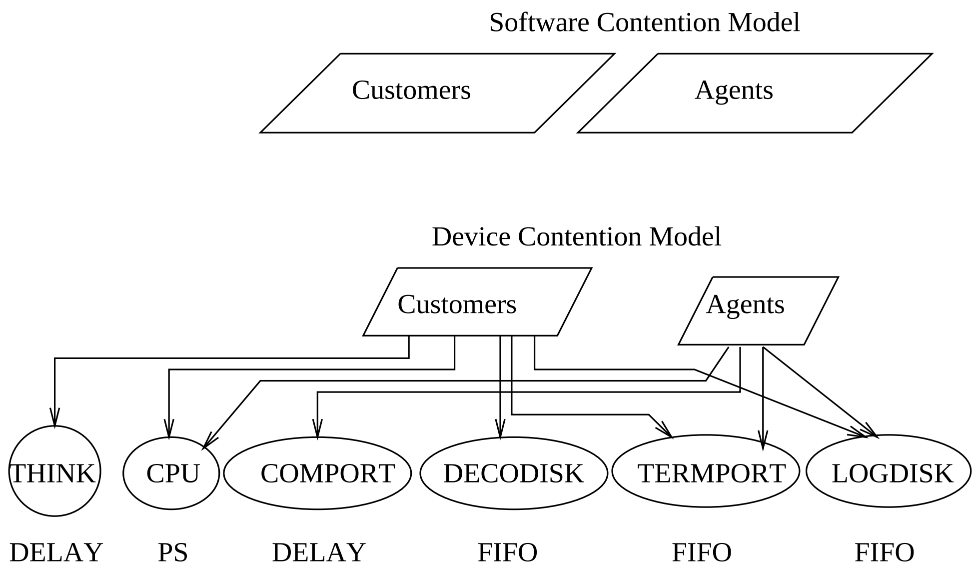

20

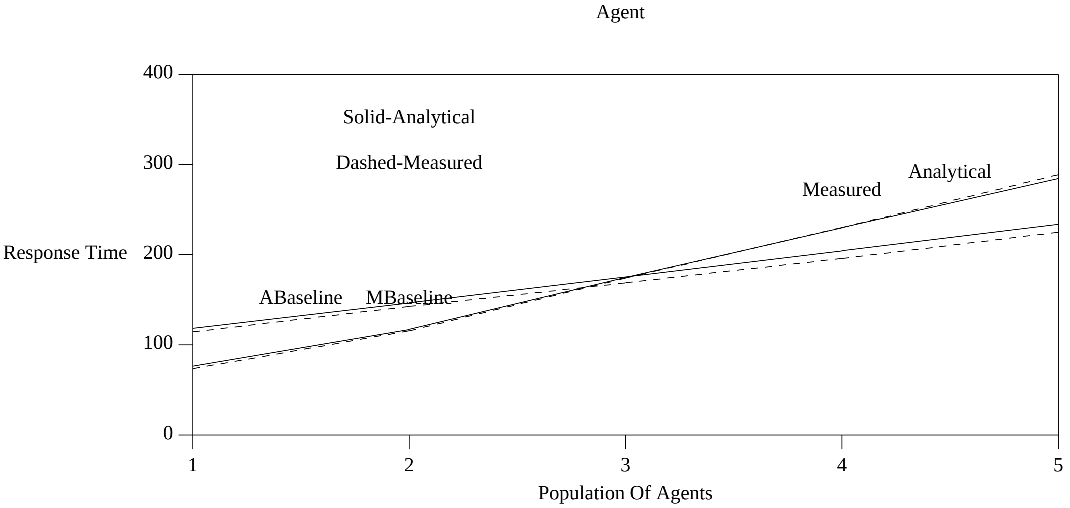
Software Contention Model

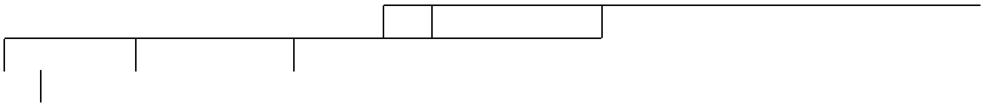


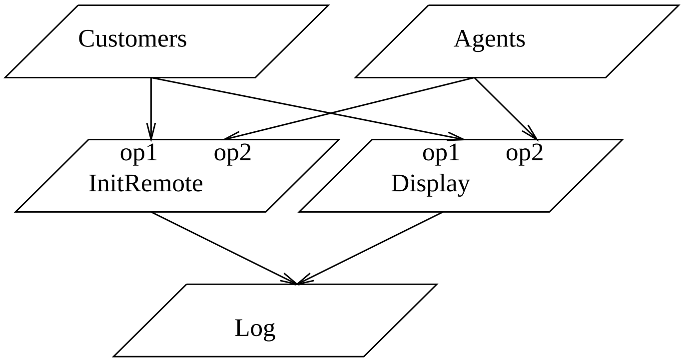
Device Contention Model



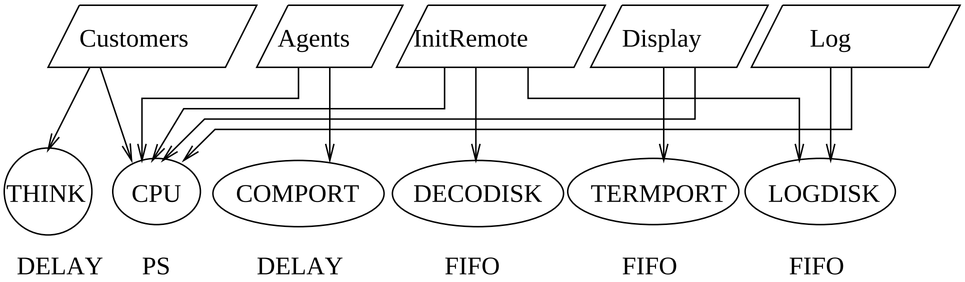

Software Contention Model
Customers
Agents
Device Contention Model
Customers
Agents
THINK
CPU
COMPORT
DECODISK
TERMPORT
LOGDISK
DELAY
PS
DELAY
FIFO
FIFO
FIFO


Agent
400
300
200
100
0
Response Time
Solid-Analytical
Dashed-Measured
Measured
Analytical
ABaseline
MBaseline
1
2
3
4
5
Population Of Agents

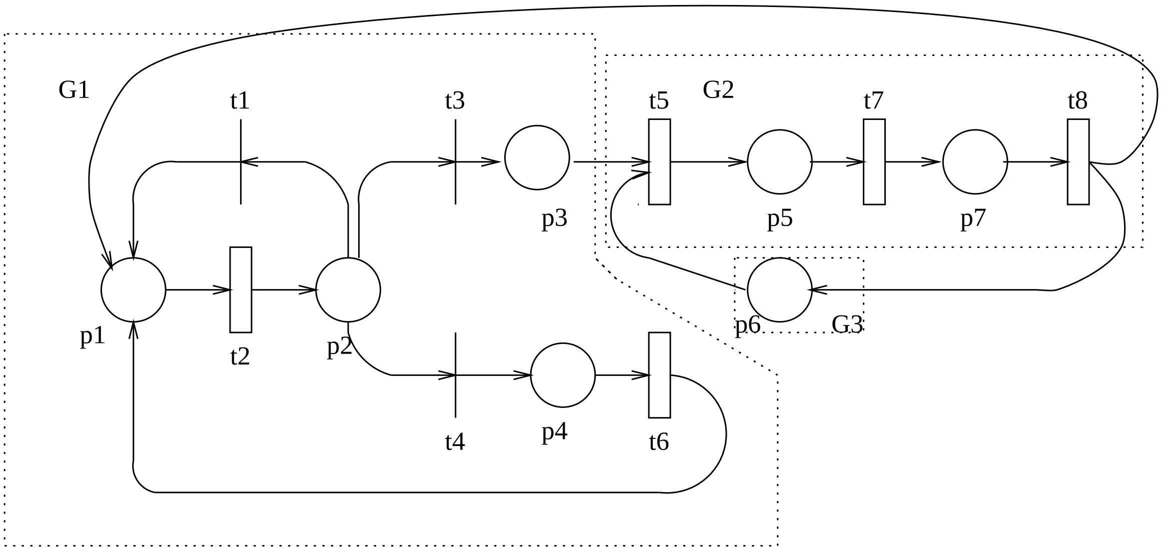


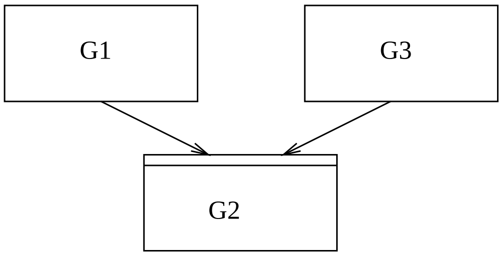


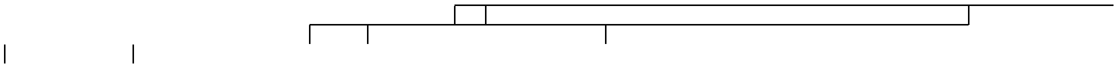
Software Contention Model

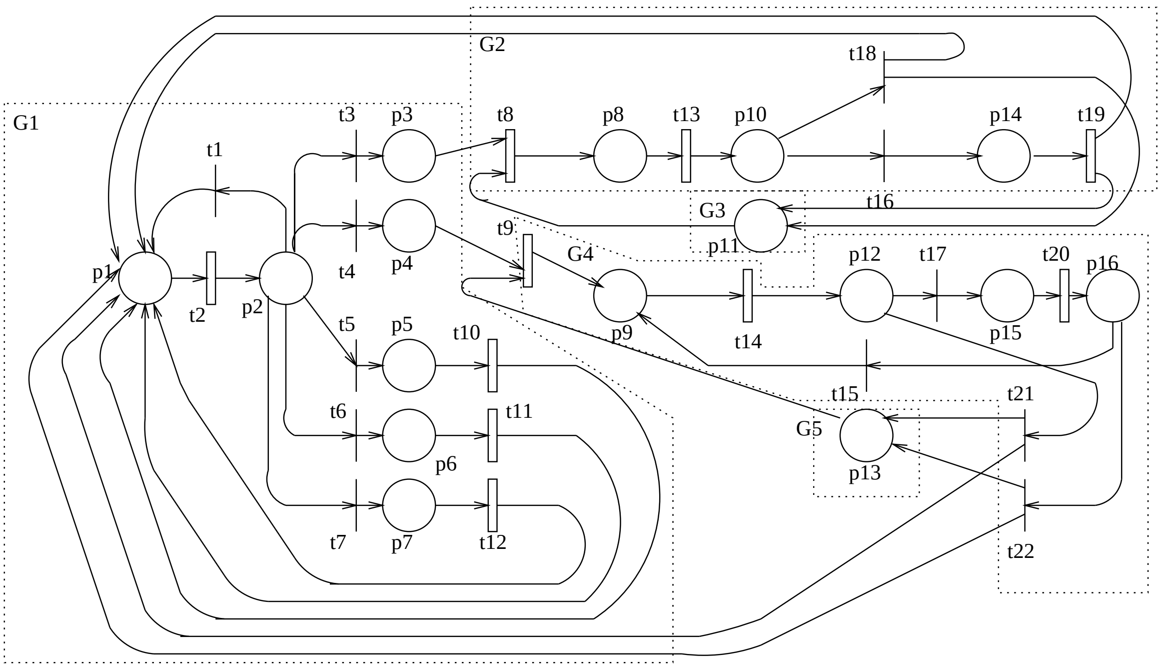


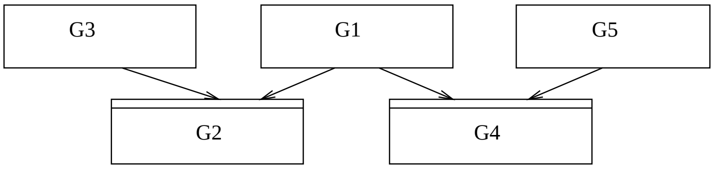
Device Contention Model


G1
t1
t3
t5
G2
t7
t8
p3
p5
p7
p1
t2
p2
p6
G3
p4
t4
t6

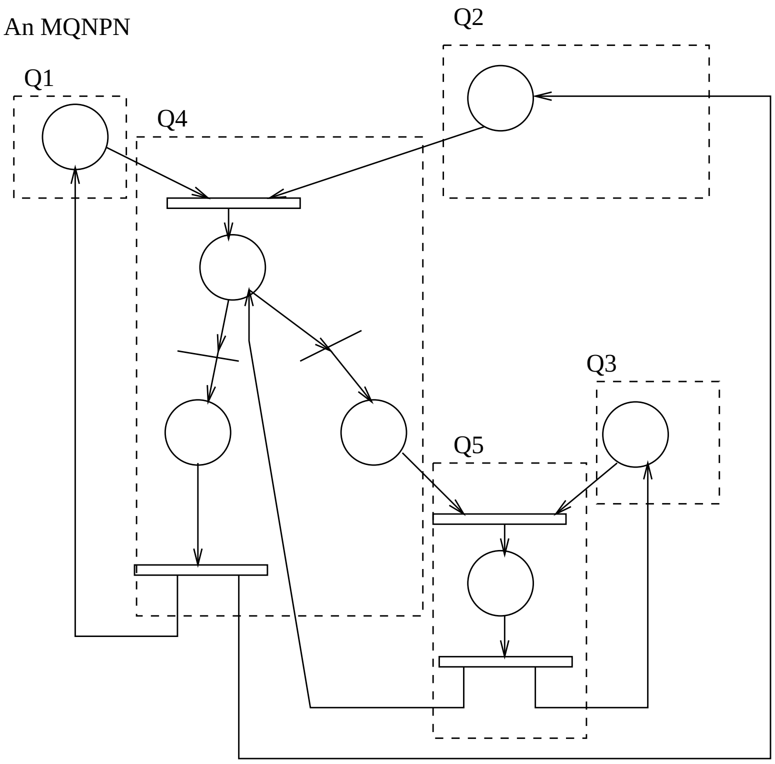

G1
G3
G2



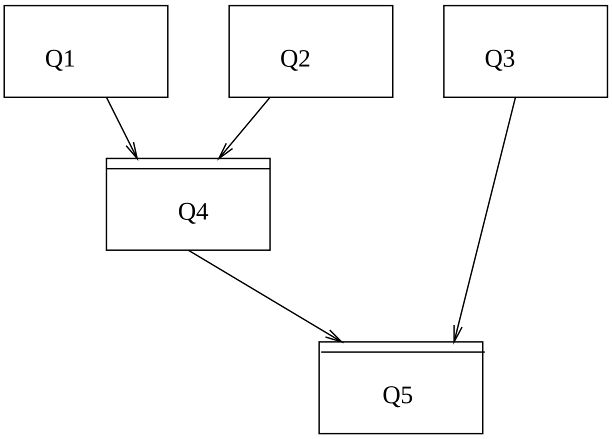

G2
t18
G1
t3
p3
t8
p8
t13
p10
p14
t19
t1
t16
G3
t9
p11
G4
p12
t17
t20
p16
p1
t2
p2
t4
p4
p9
t14
p15
t5
p5
t10
t15
t21
t6
t11
G5
p6
p13
t7
p7
t12
t22

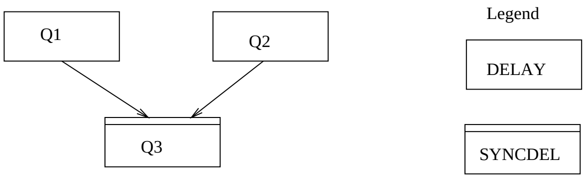

G3
G1
G5
G2
G4

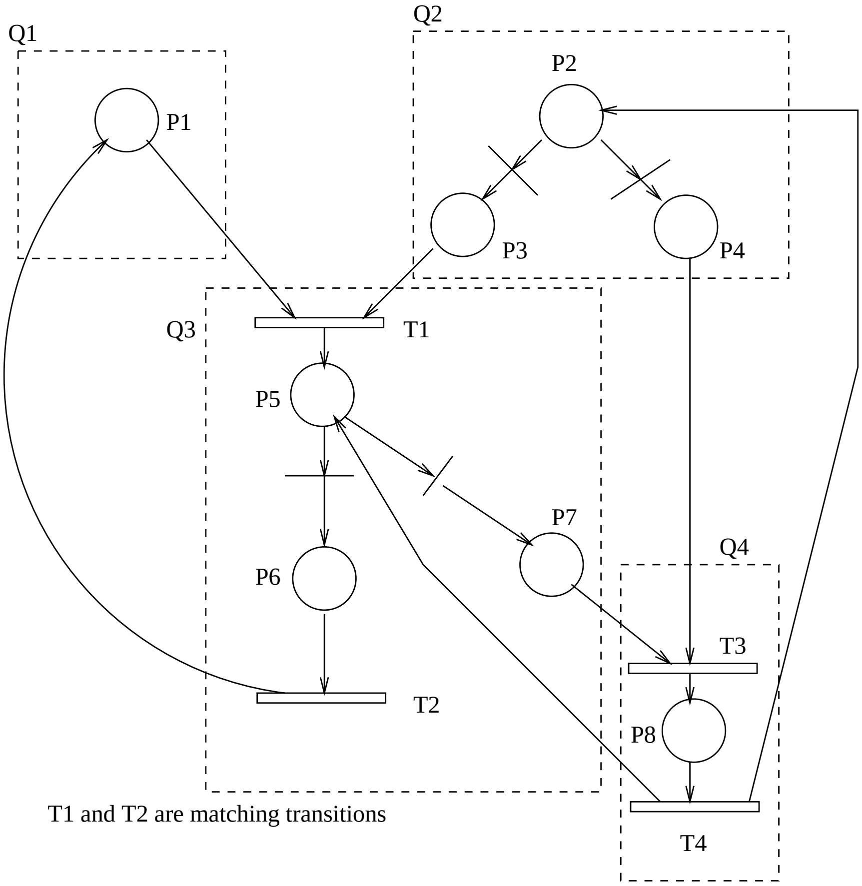
An MQNPN



The MQNPN's corresponding LGM

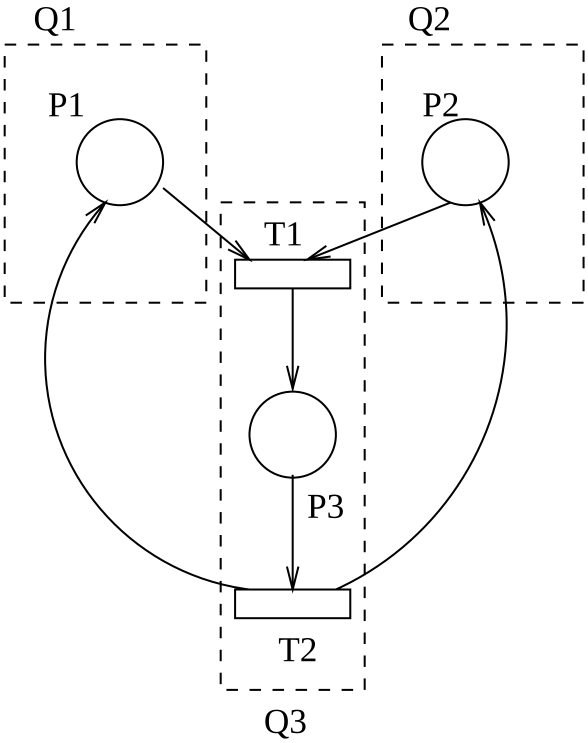


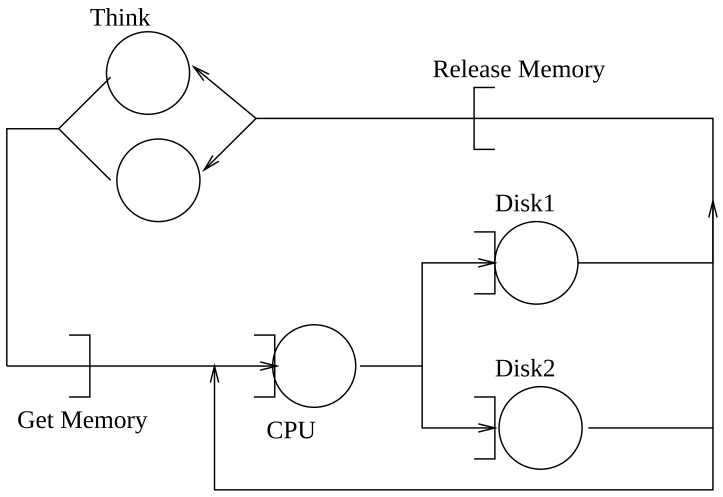

Q1
Q2
Q3
Legend
DELAY
SYNCDEL



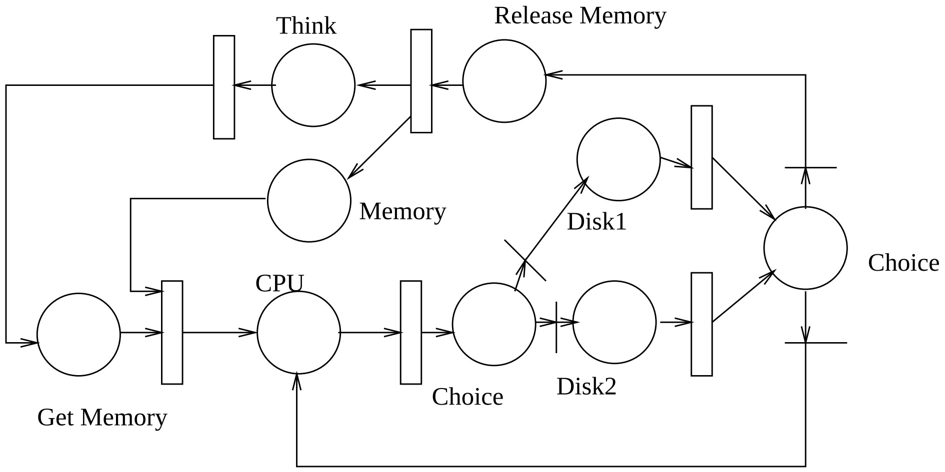
T1 and T2 are matching transitions

T3 and T4 are matching transitions

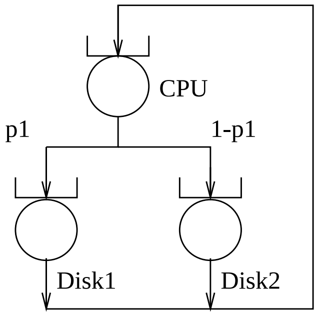

Q1
Q2
P1
P2
T1
P3
T2
Q3



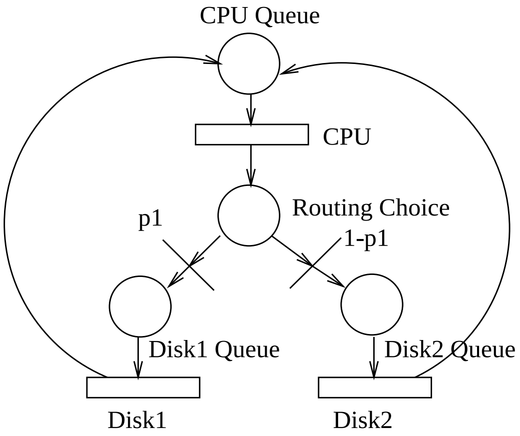
A Non-separable QN



A GSPN With Simultaneous Resource Possession



QN-Queueing Network



QNPN-A PN derived from a QN

Three Producers, Six Consumers

Number of Buffers	Utilization of One Buffer Element: 0	0.25	0.5	0.75	1
4	0	0	-1	-1	1
3	0	0	-2	-1	1
2	0	0	-1	0	0
1	0	0	0	2	0

Four Producers, Ten Consumers

Number of Buffers	Utilization of One Buffer Element: 0	0.25	0.5	0.75	1
4	0	0	-2	-1	2
3	0	0	-2	0	2
2	0	-1	-2	1	1
1	0	0	0	2	1