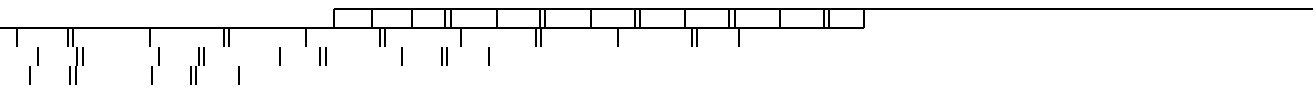
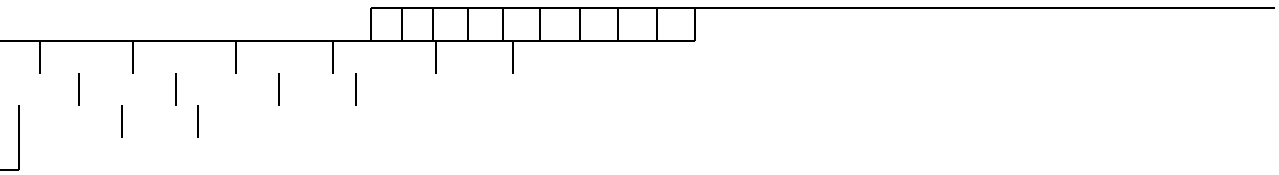
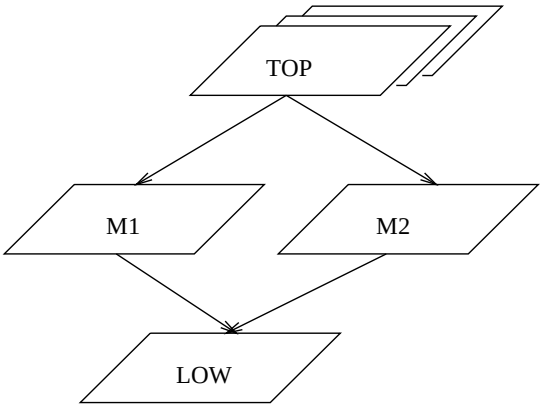
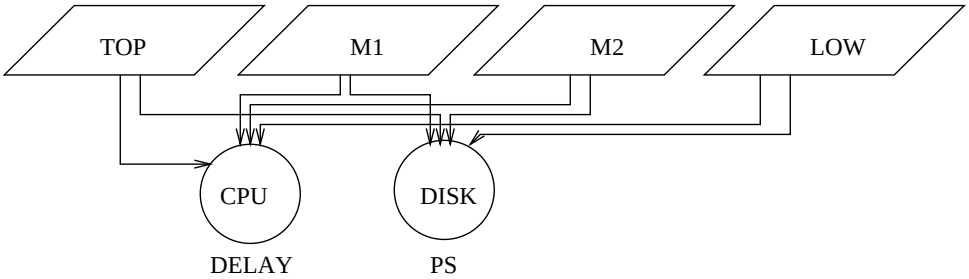


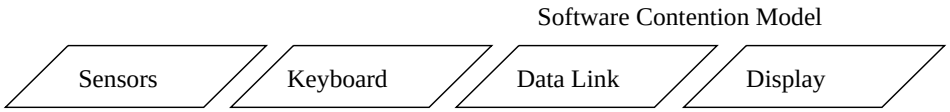


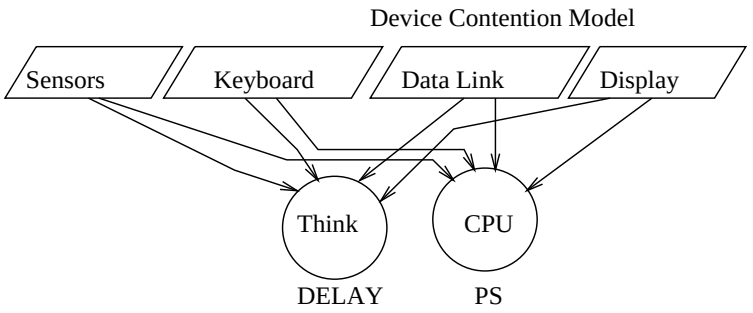
Software Contention Model

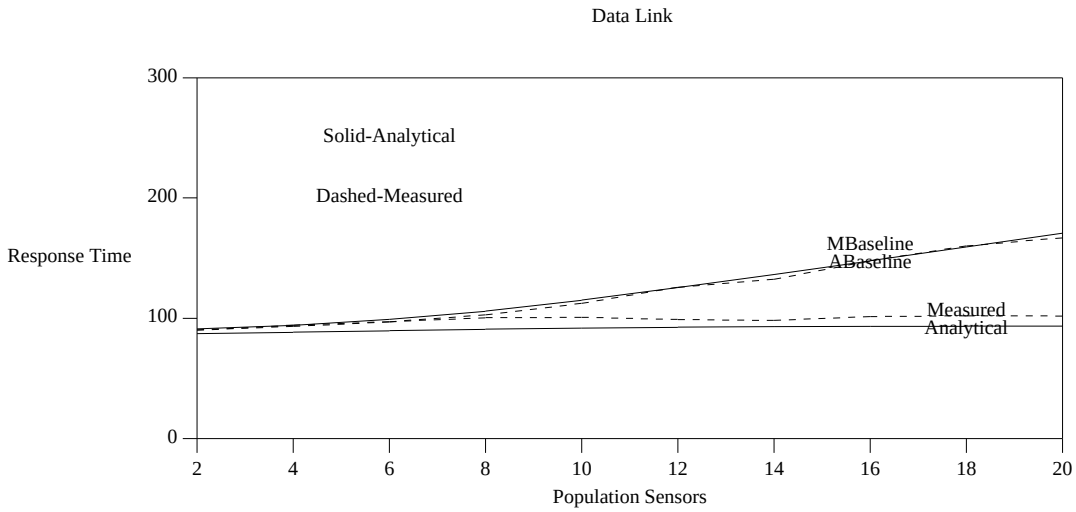


Device Contention Model

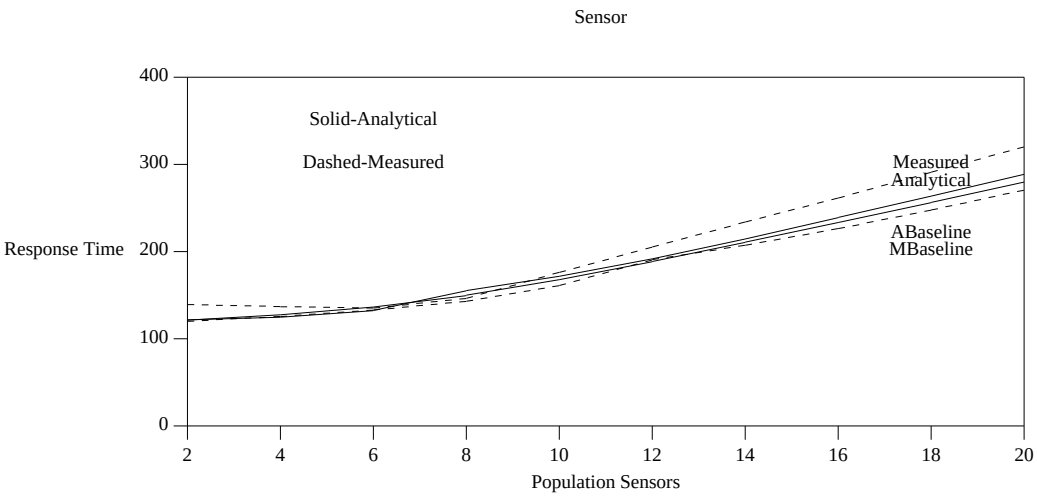


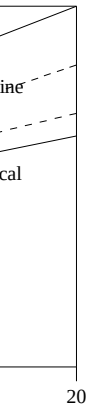

Software Contention Model
Sensors
Keyboard
Data Link
Display


Device Contention Model
Sensors
Keyboard
Data Link
Display
Think
CPU
DELAY
PS


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

20


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


ine
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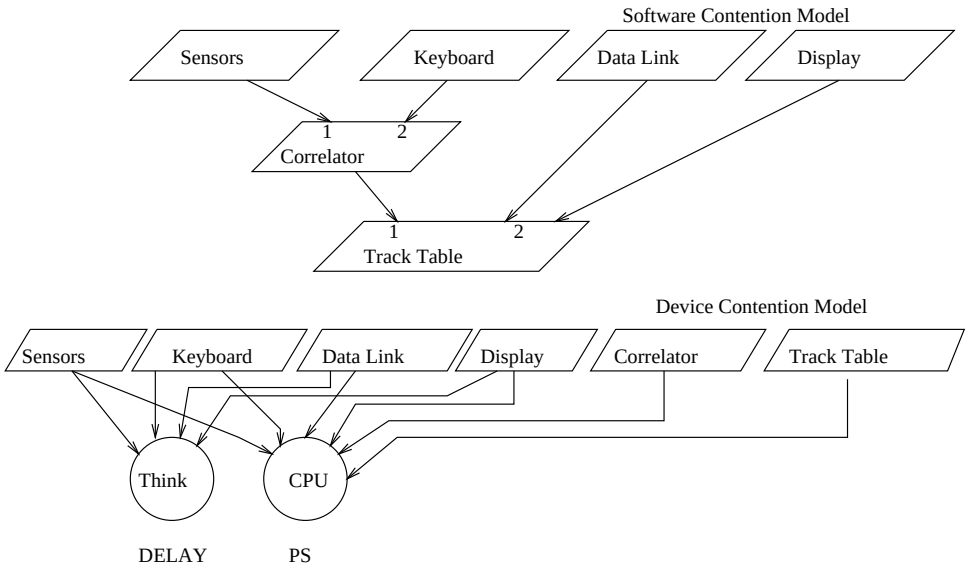
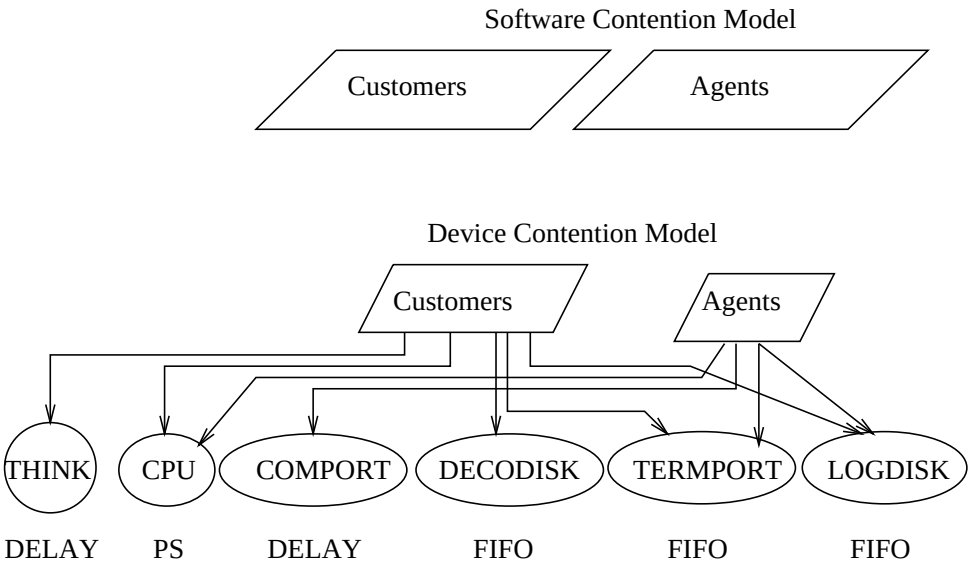
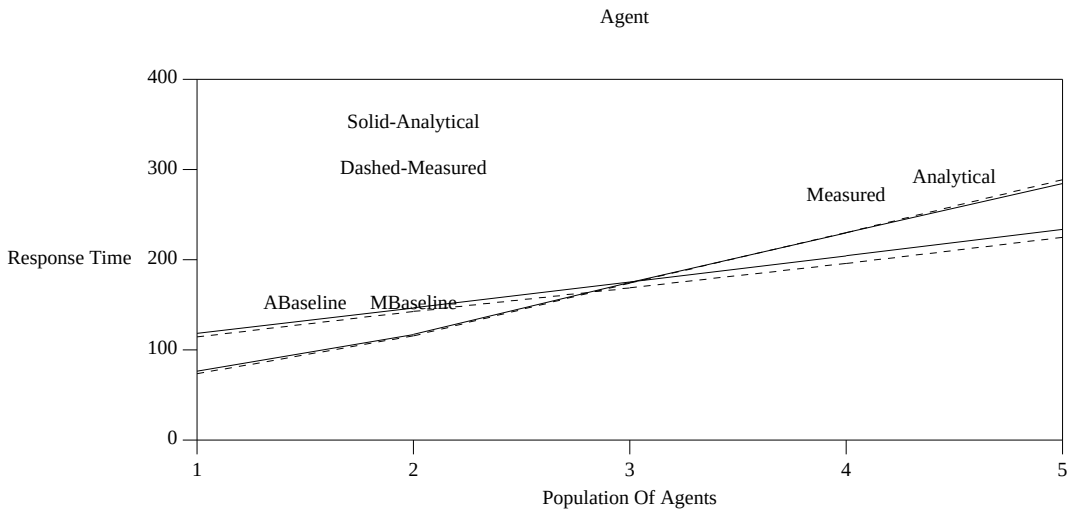
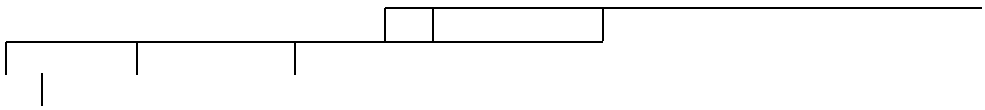
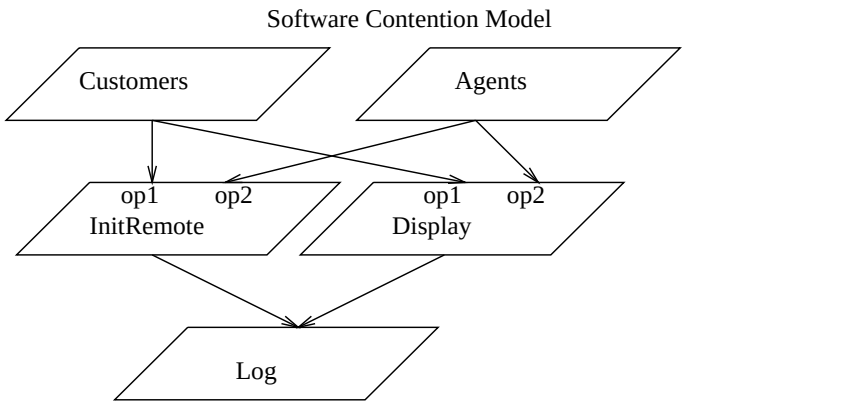
20

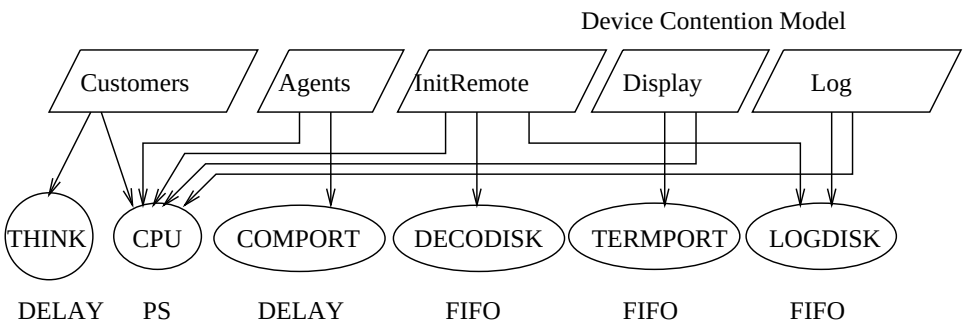

Software Contention Model
Sensors
Keyboard
Data Link
Display
1
2
Correlator
1
2
Track Table
Device Contention Model
Sensors
Keyboard
Data Link
Display
Correlator
Track Table
Think
CPU
DELAY
PS

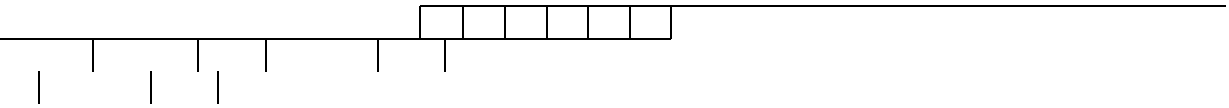

Software Contention Model
Customers
Agents
Device Contention Model
Customers
Agents
THINK
CPU
COMPORT
DECODISK
TERMPORT
LOGDISK
DELAY
PS
DELAY
FIFO
FIFO
FIFO

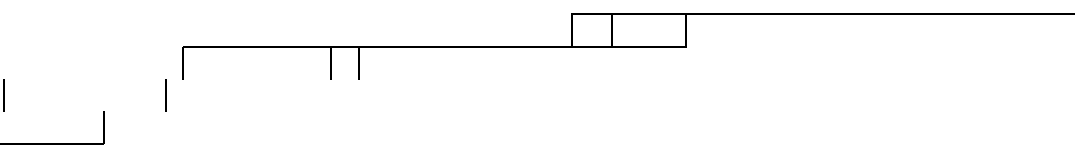

Agent
400
300
200
100
0
Response Time
Solid-Analytical
Dashed-Measured
Analytical
Measured
ABaseline
MBaseline
1
2
3
4
5
Population Of Agents

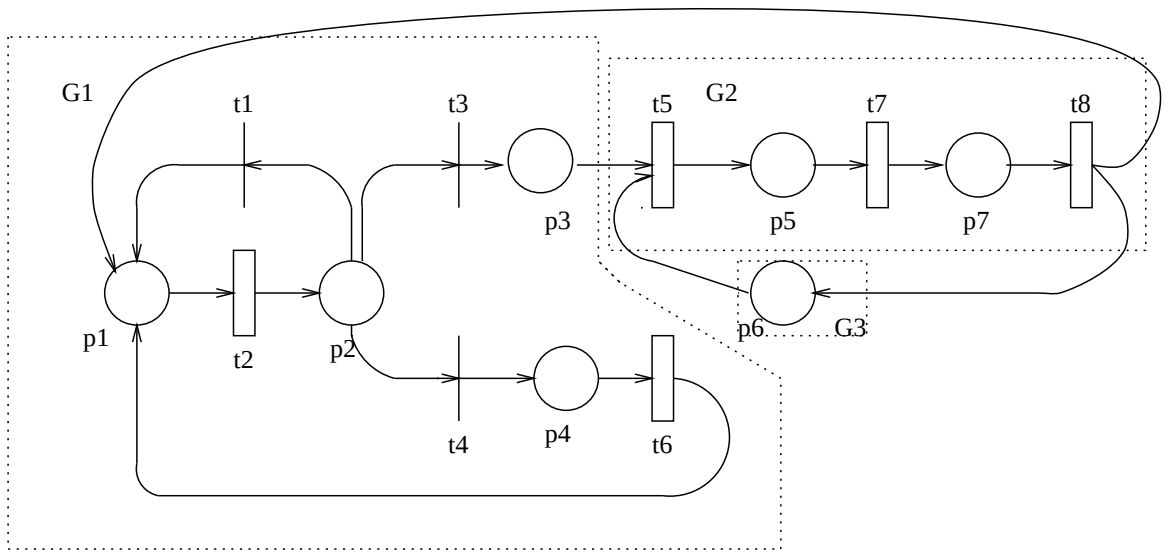


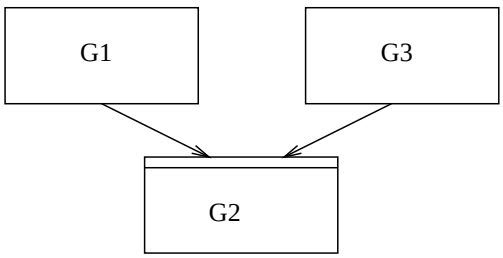

Software Contention Model
Customers
Agents
op1
op2
InitRemote
op1
op2
Display
Log

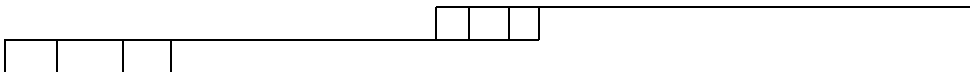

Device Contention Model
Customers
Agents
InitRemote
Display
Log
THINK
CPU
COMPORT
DECODISK
TERMPORT
LOGDISK
DELAY
PS
DELAY
FIFO
FIFO
FIFO

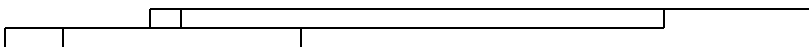


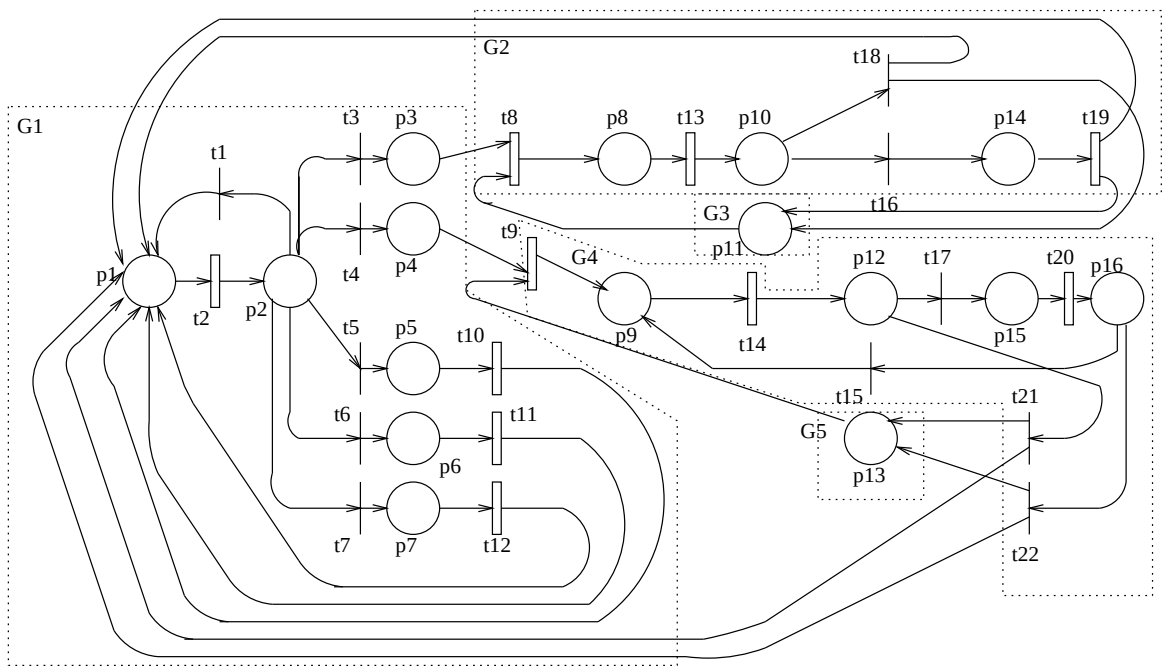



G1
t1
t3
t5
G2
t7
t8
p3
p5
p7
p1
t2
p2
p6
G3
t4
p4
t6


G1
G3
G2






G1
G2
G3
G4
G5
p1
p2
p3
p4
p5
p6
p7
p8
p9
p10
p11
p12
p13
p14
p15
p16
t1
t2
t3
t4
t5
t6
t7
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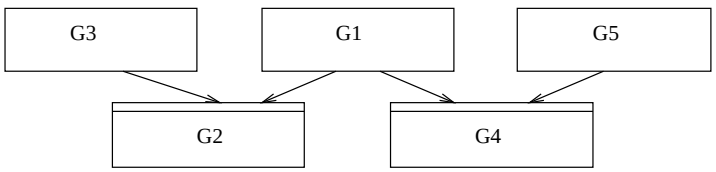
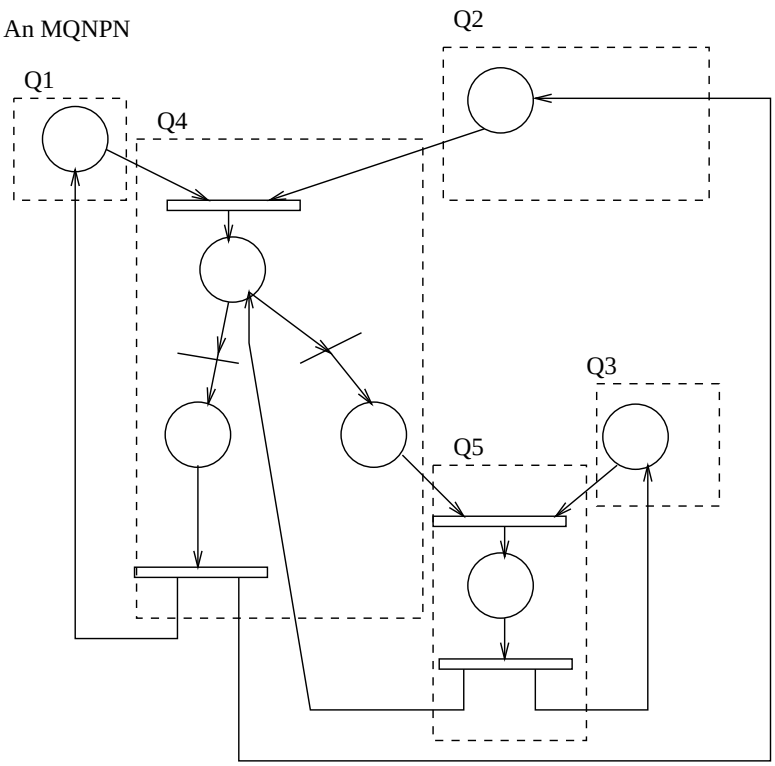
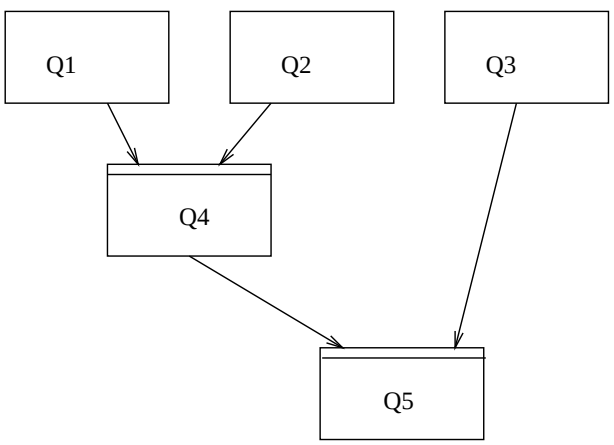
t19
t20
t21
t22

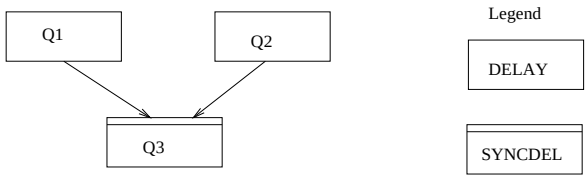

G3
G1
G5
G2
G4

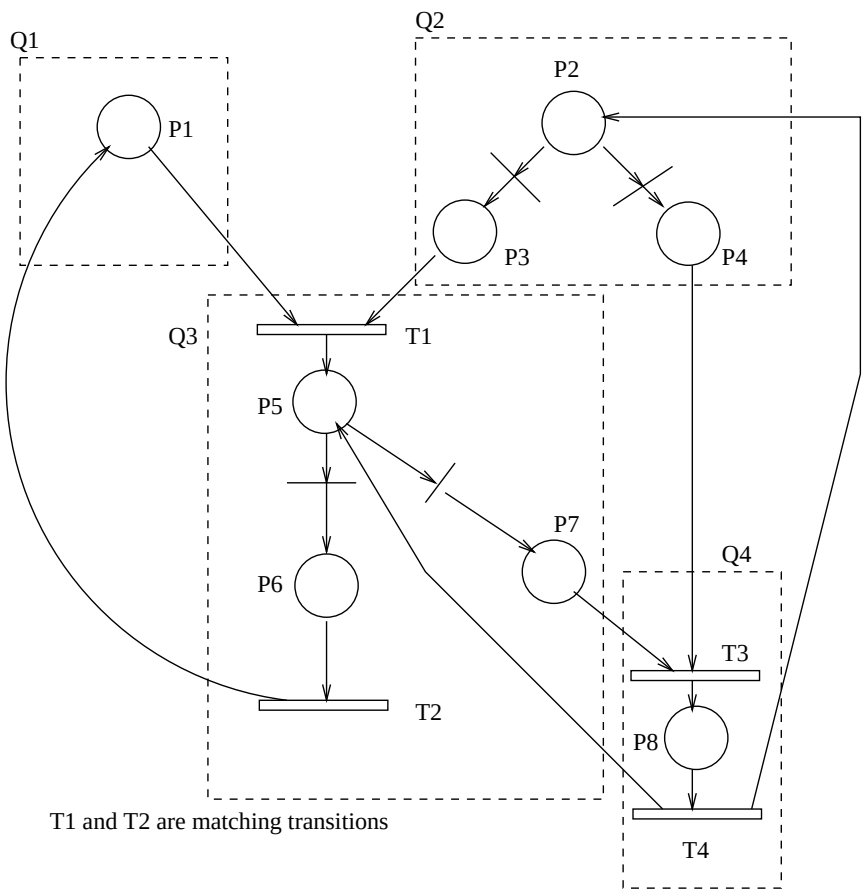
An MQNPN

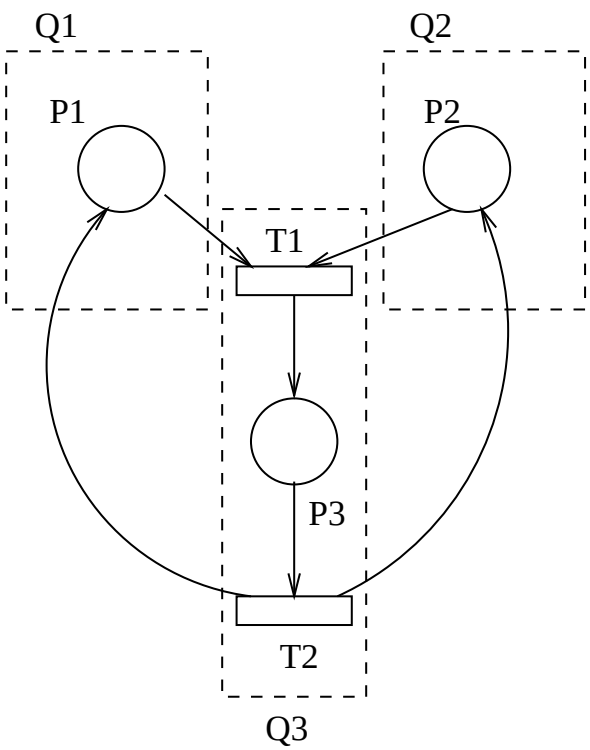


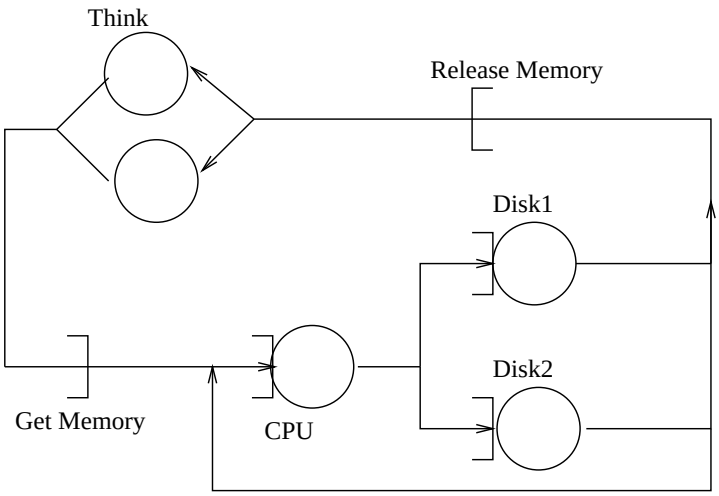
The MQNPN’s corresponding LGM



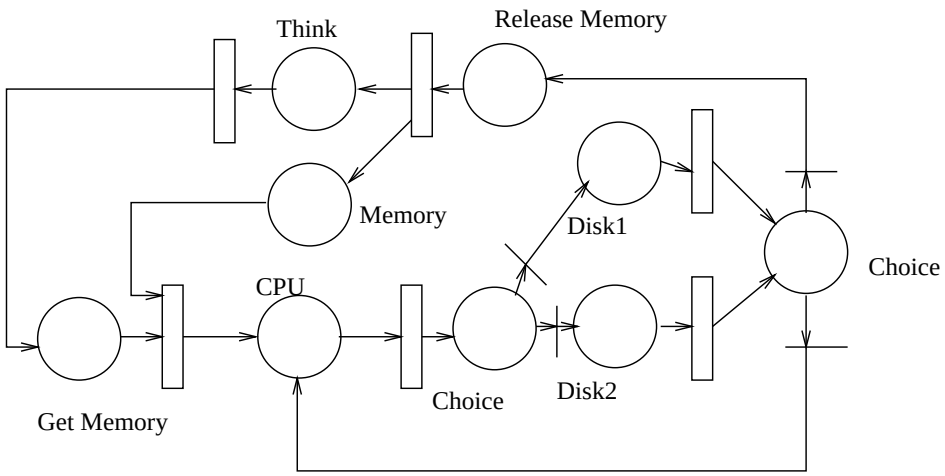

Q1
Q2
Q3
Legend
DELAY
SYNCDEL


Q1
Q2
P1
P2
P3
P4
Q3
T1
P5
P7
Q4
P6
T3
T2
P8
T4
T1 and T2 are matching transitions
T3 and T4 are matching transitions

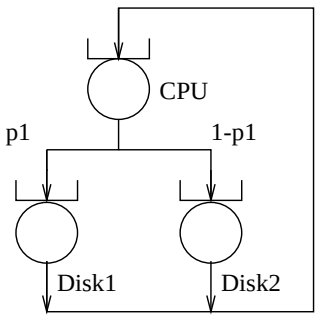

Q1
Q2
P1
P2
T1
P3
T2
Q3



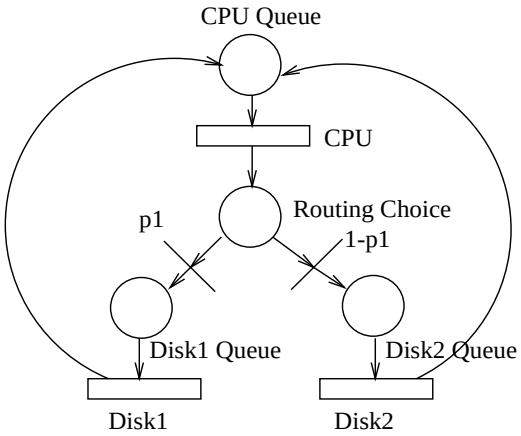
A Non-separable QN



A GSPN With Simultaneous Resource Possession

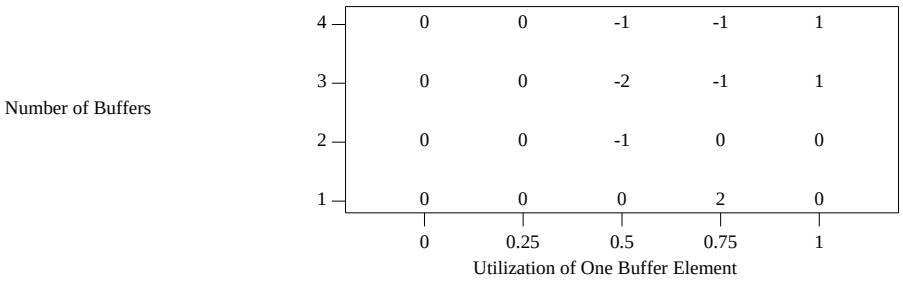
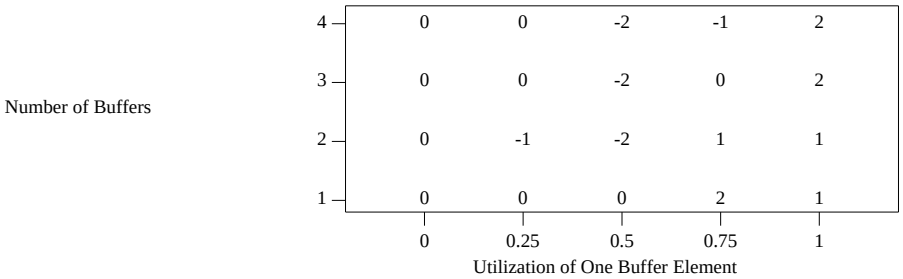


QN-Queueing Network



QNPN-A PN derived from a QN

Three Producers, Six Consumers



Four Producers, Ten Consumers