

Resolvendo conflitos em supervisores modulares

SUPERVISORY CONTROL ARCHITECTURE FOR DISCRETE-EVENT SYSTEMS

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Sobre a proposta

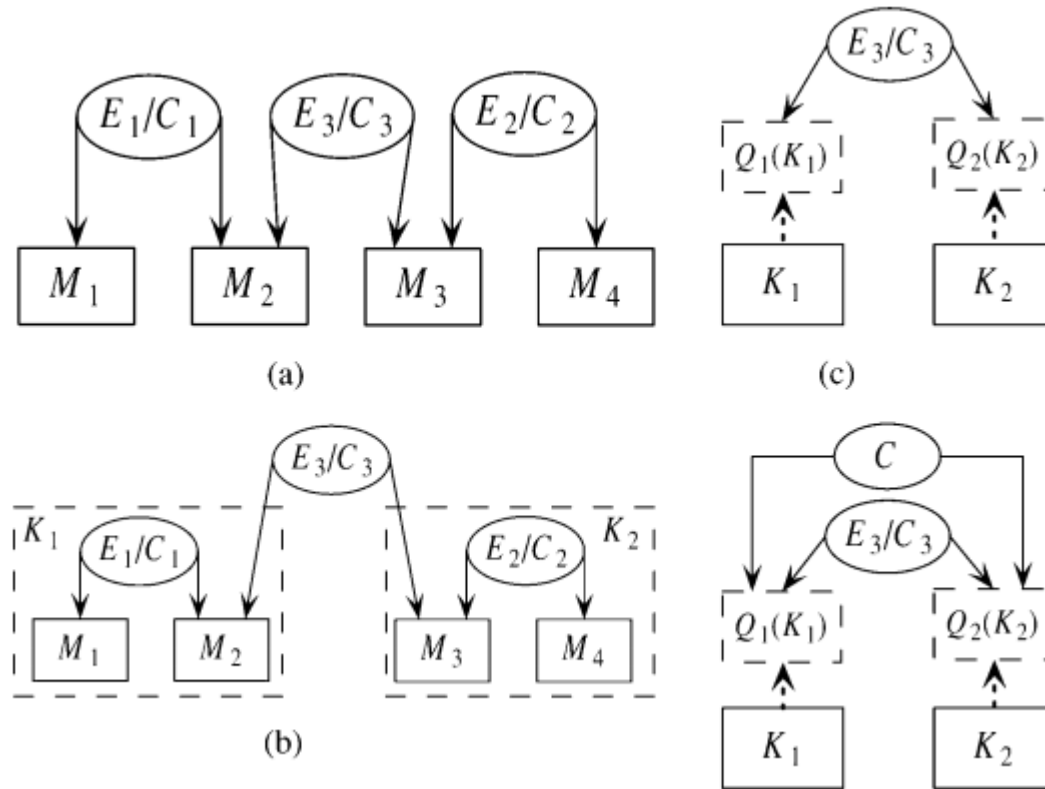
Arquitetura hierárquica e com reduzido esforço computacional para o projeto de supervisores descentralizados.

Os supervisores obtidos são não bloqueantes e ótimos.

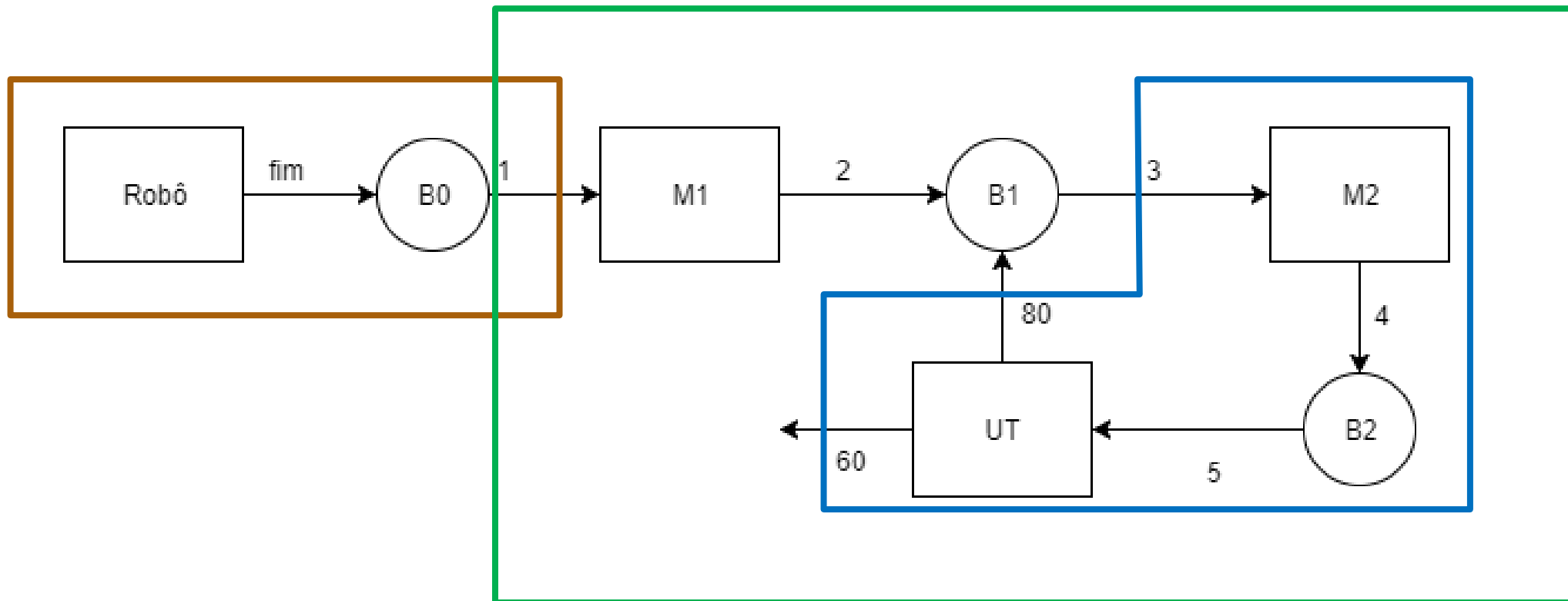
Se dois subsistemas compartilham somente um pequeno número de eventos em comum, suas abstrações devem ser pequenas e projetar um coordenador para evitar o conflito deve exigir somente um esforço modesto.

A proposta resulta em alguns supervisores que são dedicados para resolver os conflitos.

Passos do algoritmo para síntese do resolvidor de conflitos

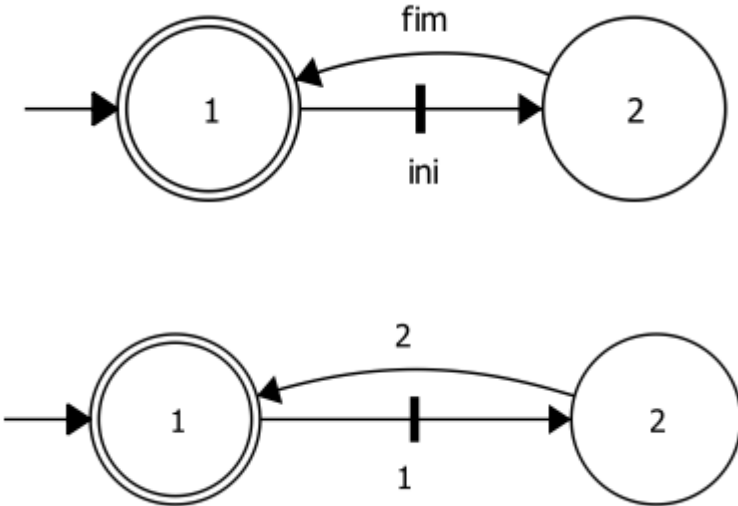


Pequena máquina com retrabalho

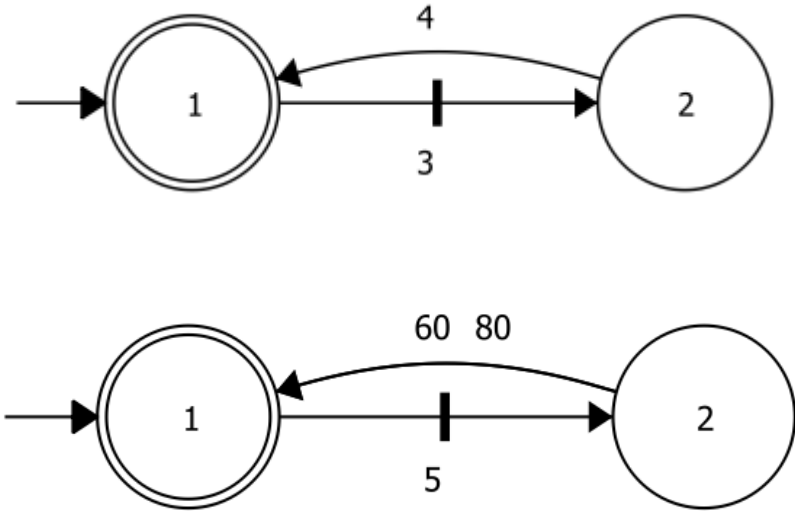


Plantas

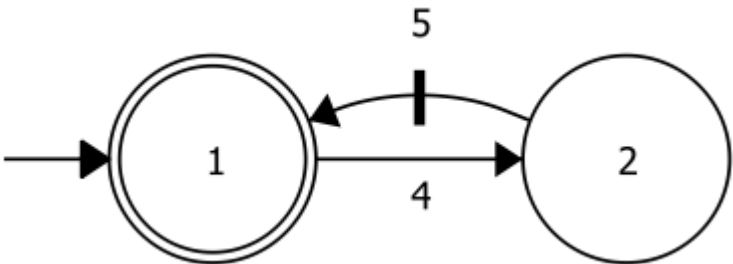
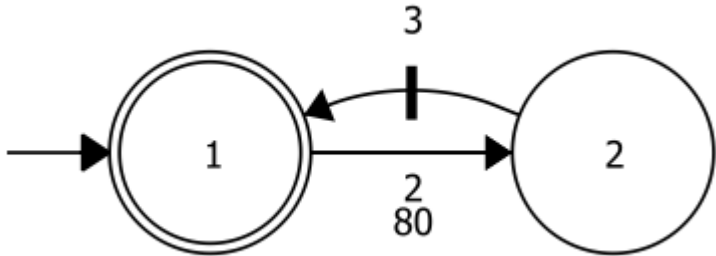
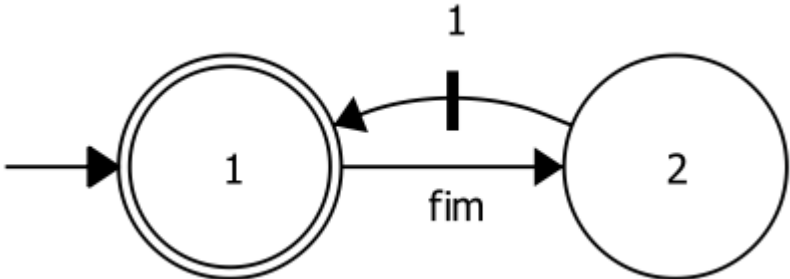
ROBO + M1



M2 + UT



Especificações



Obtenção dos supervisores locais

Gloc0 = robo || M1

Gloc1 = M1 || M2 || UT

Gloc2 = M2 || UT

K0 = Gloc0 || E_B0

K1 = Gloc1 || E_B1

K2 = Gloc2 || E_B2

Sloc0 = SupC(Gloc0, K0)

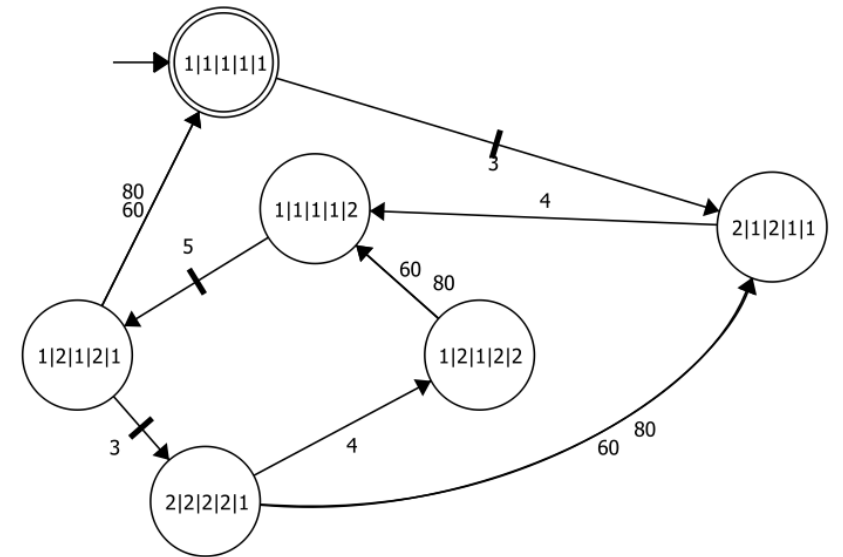
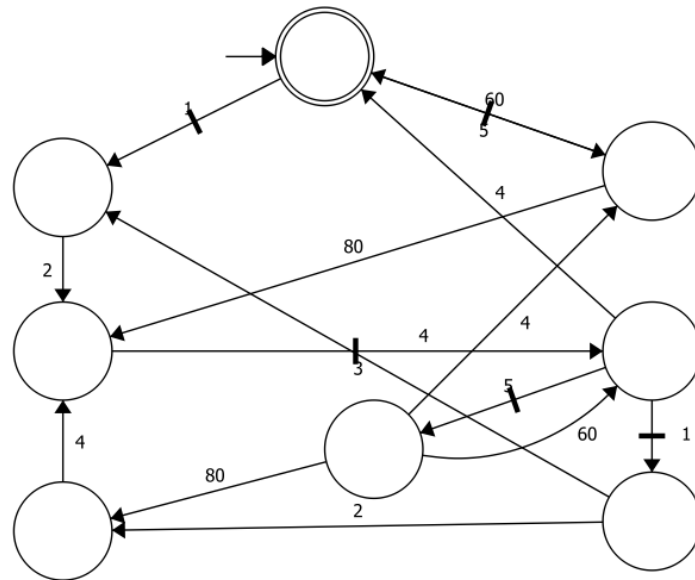
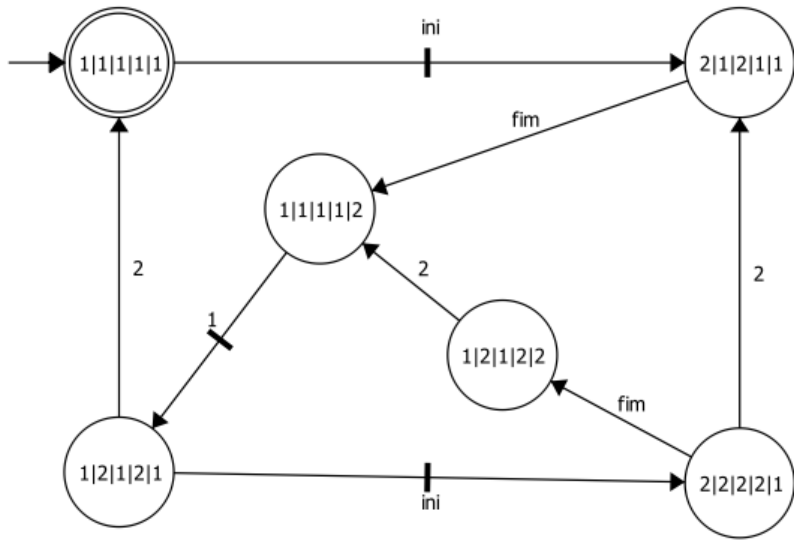
Sloc1 = SupC(Gloc1, K1)

Sloc2 = SupC(Gloc2, K2)

Sloc0 || Sloc1 || Sloc2

- conflito por causa do Sloc1

Sloc0 Sloc1 Sloc2



Encontrando o resolvedor do conflito

$IPR = \text{SupReduce}(G_{loc1}, S_{loc1})$

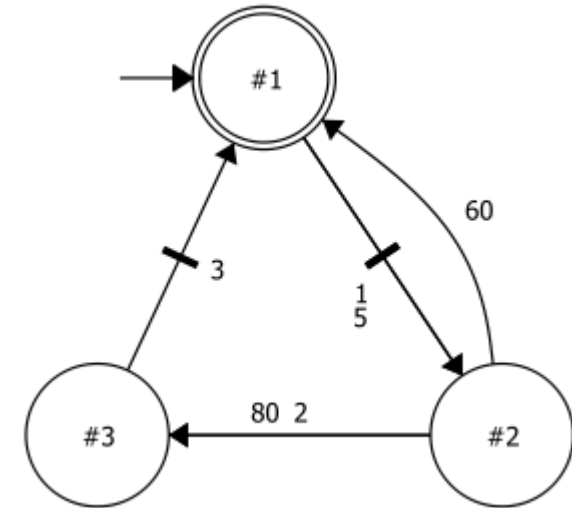
$(S_{loc0} \cap S_{loc2}) \cup S_{loc1}$

- $\text{eventSet} = \{1, 2, 3, 4, 5, 60, 80\}$
- intersecção entre S_{loc0} e S_{loc2} não tem eventos + união com S_{loc1}

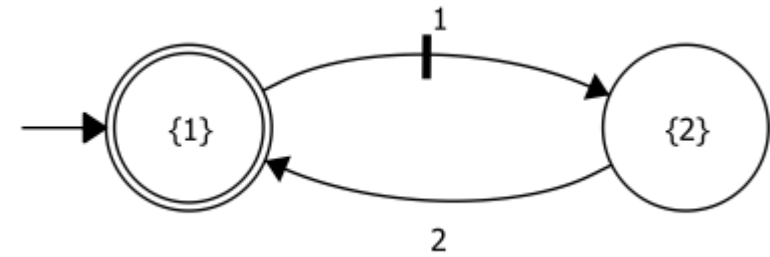
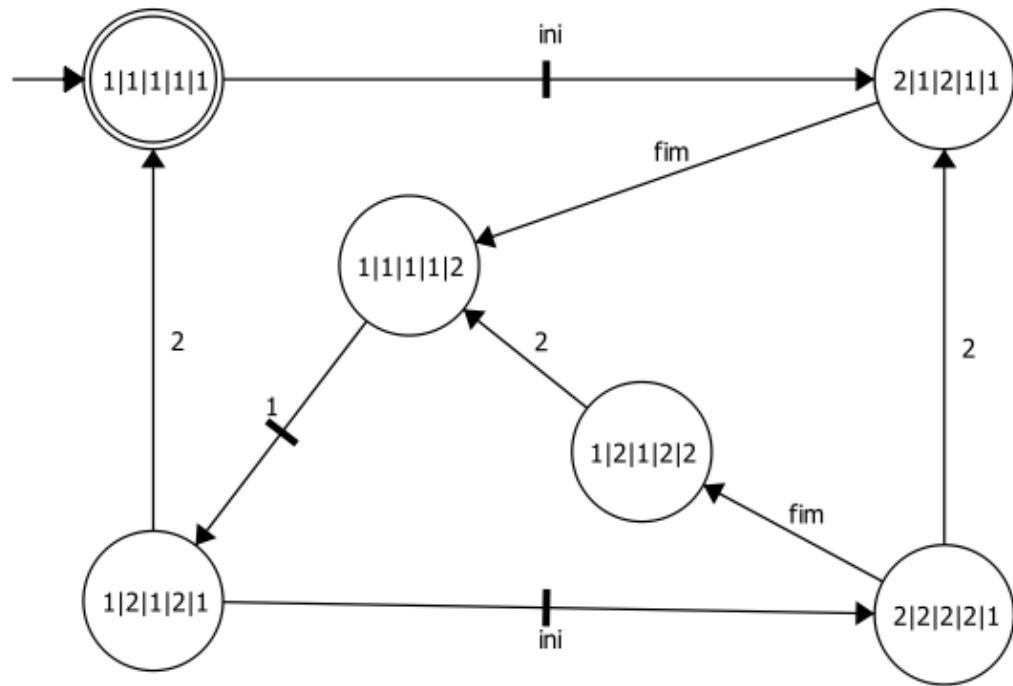
$\text{Int0} = \text{project}(S_{loc0}, \text{eventSet})$

$\text{Int2} = \text{project}(S_{loc2}, \text{eventSet})$

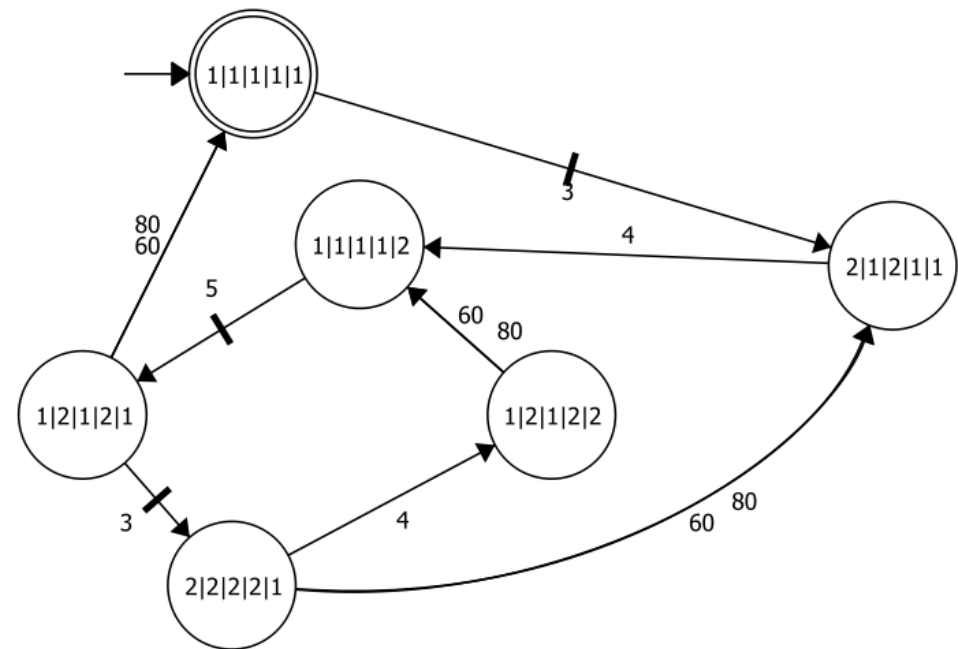
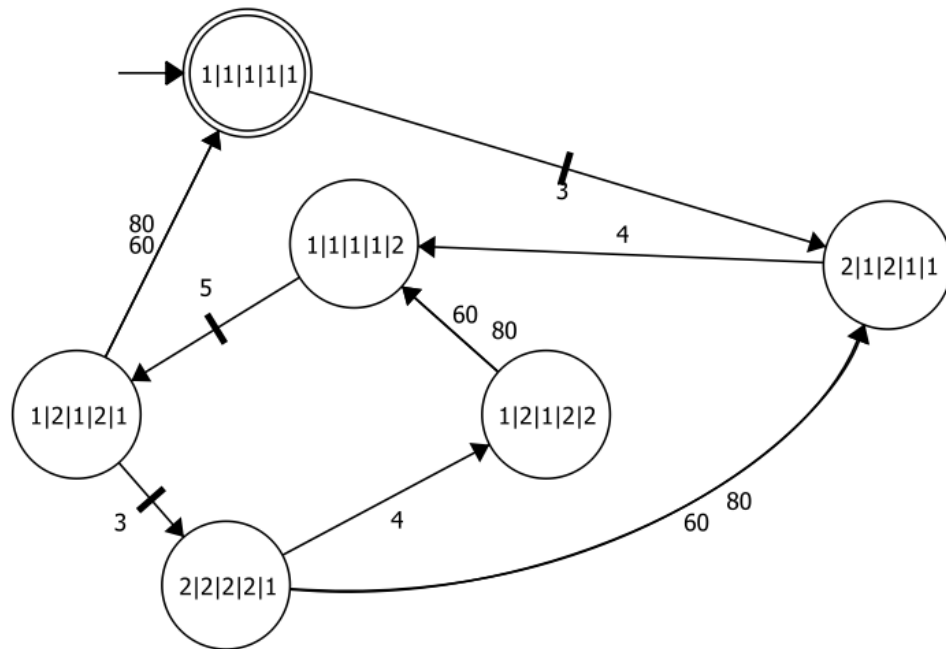
$\text{IntIP} = \text{Int0} \parallel \text{Int2} \parallel \text{IPR}$ (ainda conflito - o que é esperado)



Int0



Int2



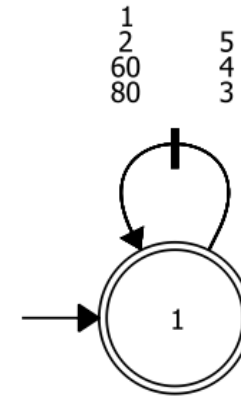
Encontrando o resolvedor do conflito

CS = SupC(IntIP , All)

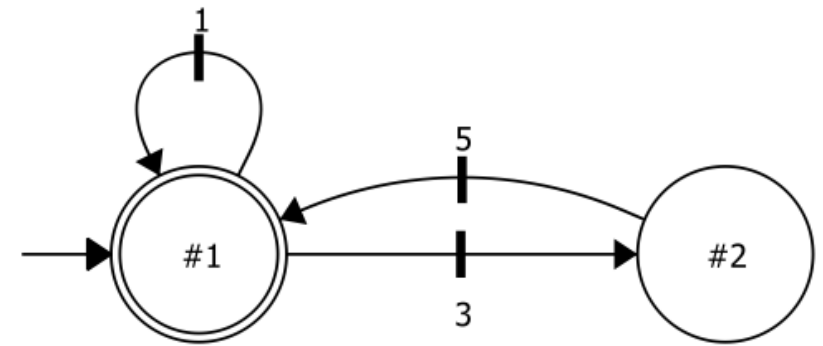
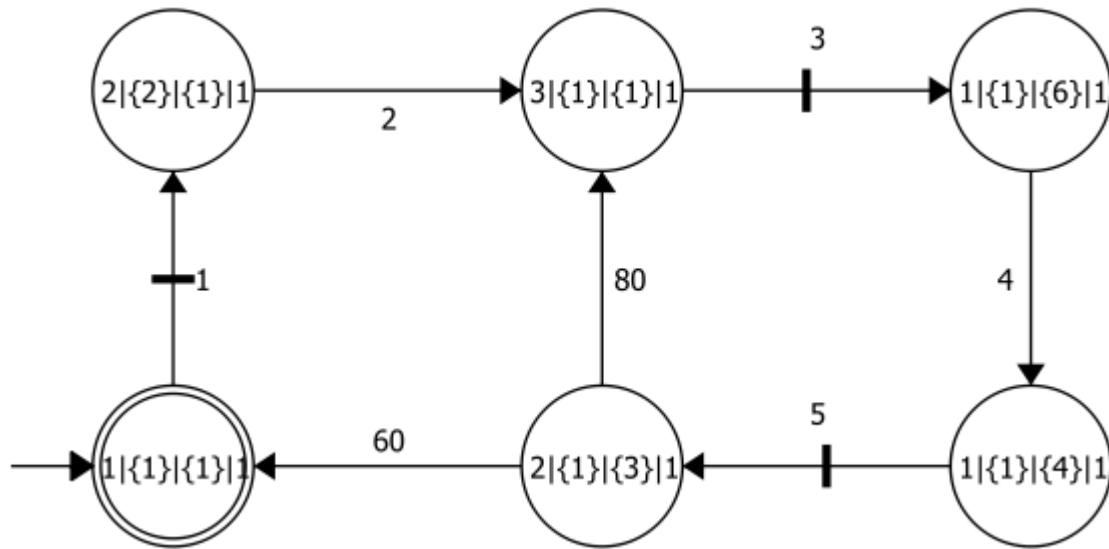
- All é um autômato com um estado com *selfloop* de todo o *eventSet*)

CR = SupReduce(IntIP, CS)

S_loc0 || Sloc1 || Sloc2 || CR => não tem mais conflito



CS e CR



Fim

APRESENTAÇÃO DE BENJAMIN GRANDO MOREIRA



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