Controladores Lógicos Programáveis

Técnico em Automação Industrial

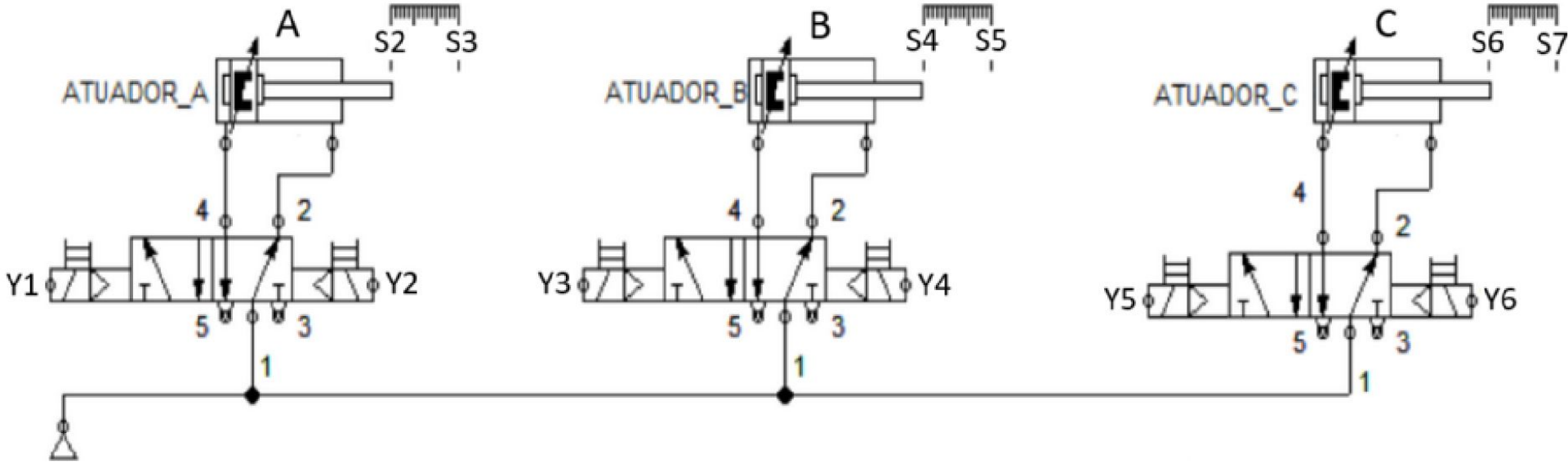
INSTITUTO FEDERAL
São Paulo
Câmpus Salto

Método de Programação por Minimização de contatos

Cascata ou Sequência Mínima

INSTITUTO FEDERAL
São Paulo
Câmpus Salto

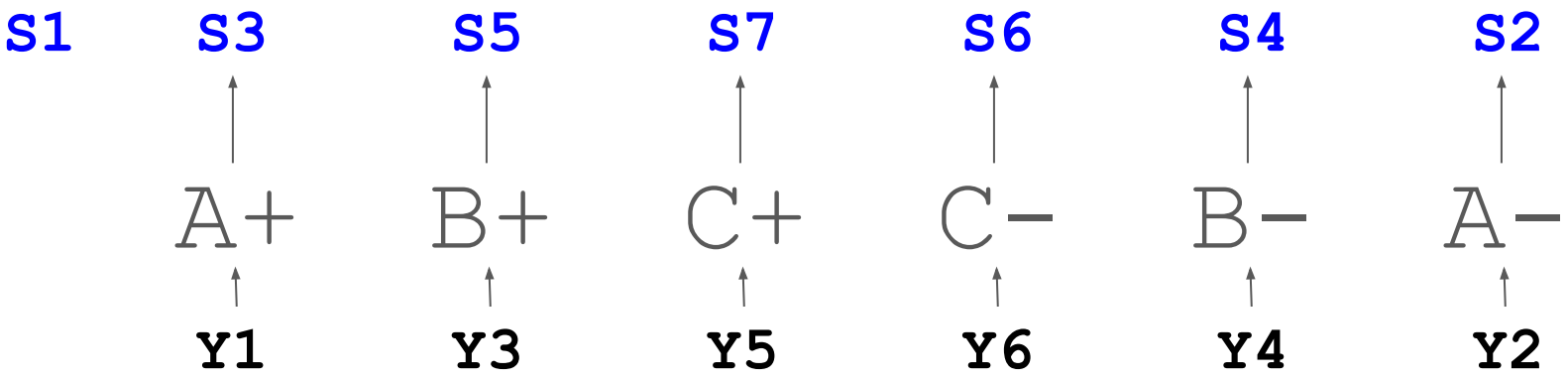
Circuito


A
S2
S3
ATUADOR_A
4
2
Y1
Y2
5
3
1
B
S4
S5
ATUADOR_B
4
2
Y3
Y4
5
3
1
C
S6
S7
ATUADOR_C
4
2
Y5
Y6
5
3
1

Passo 0: Sequência de acionamento

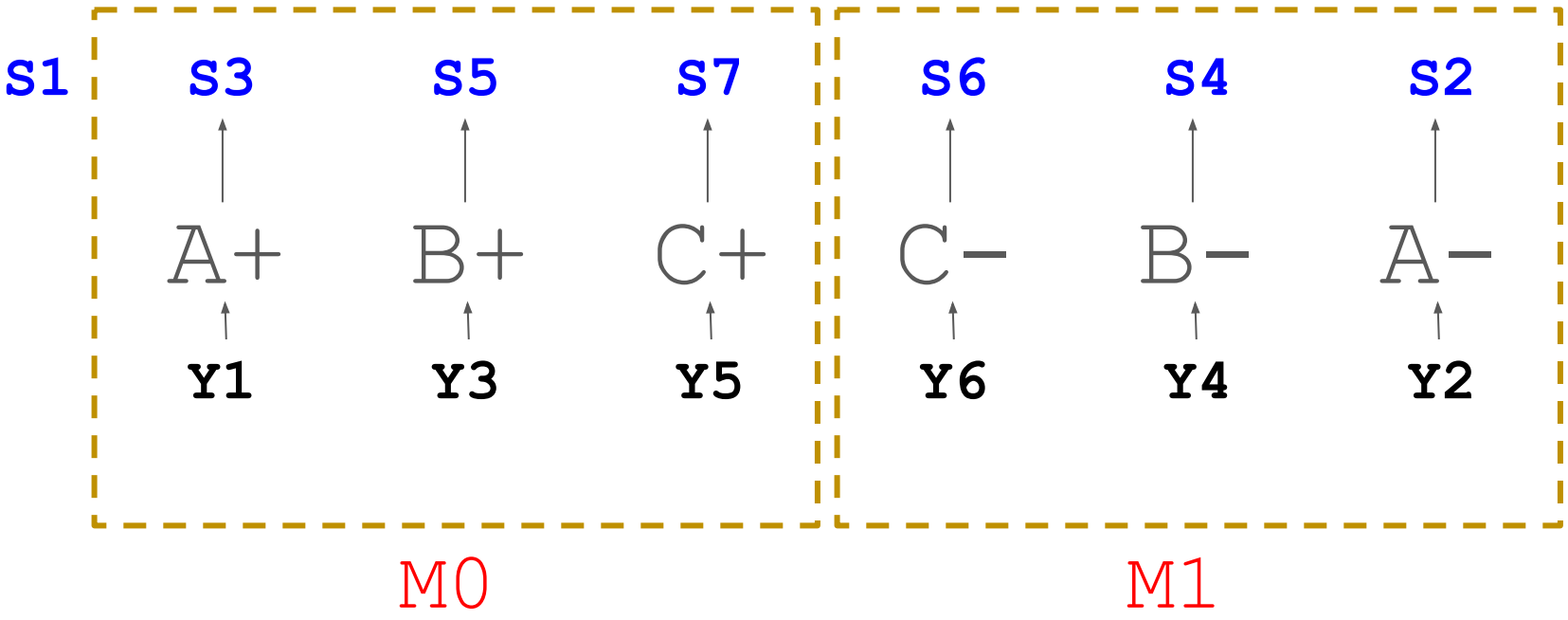
A+ B+ C+ C- B- A-

Passo 1: **Atuadores** e **Fins de Curso**



Passo 2: Agrupamentos e memórias

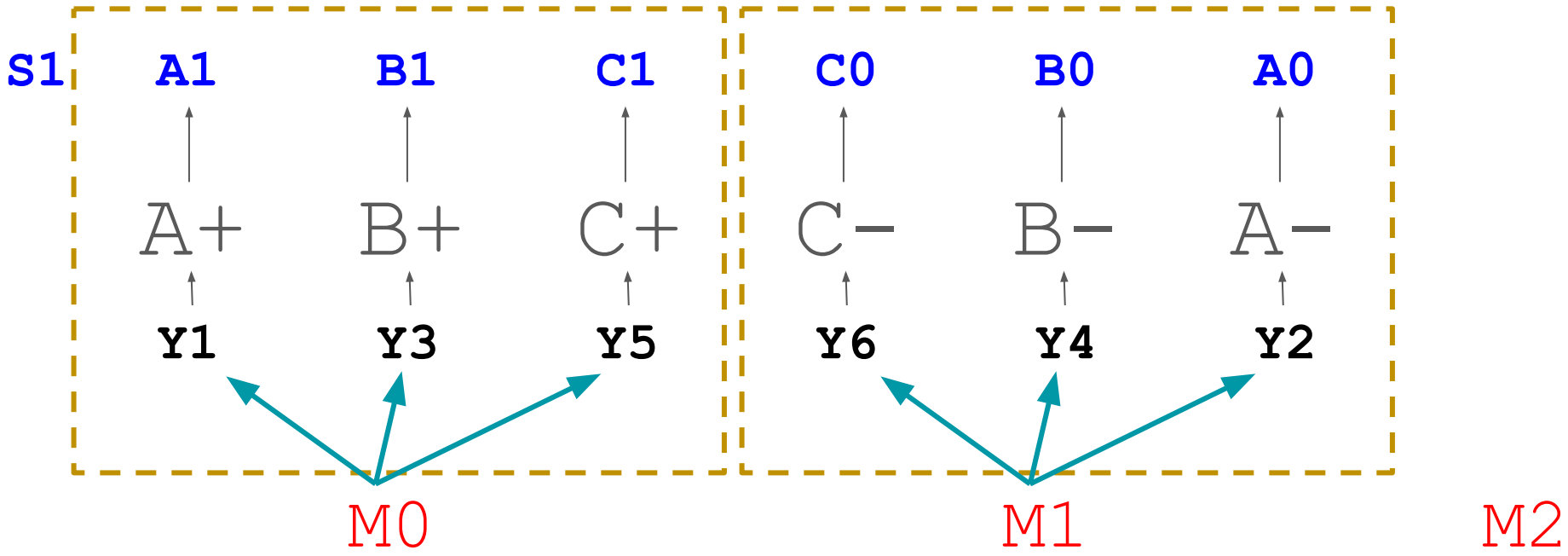
Maior grupo possível, sem repetir qualquer **atuador**.



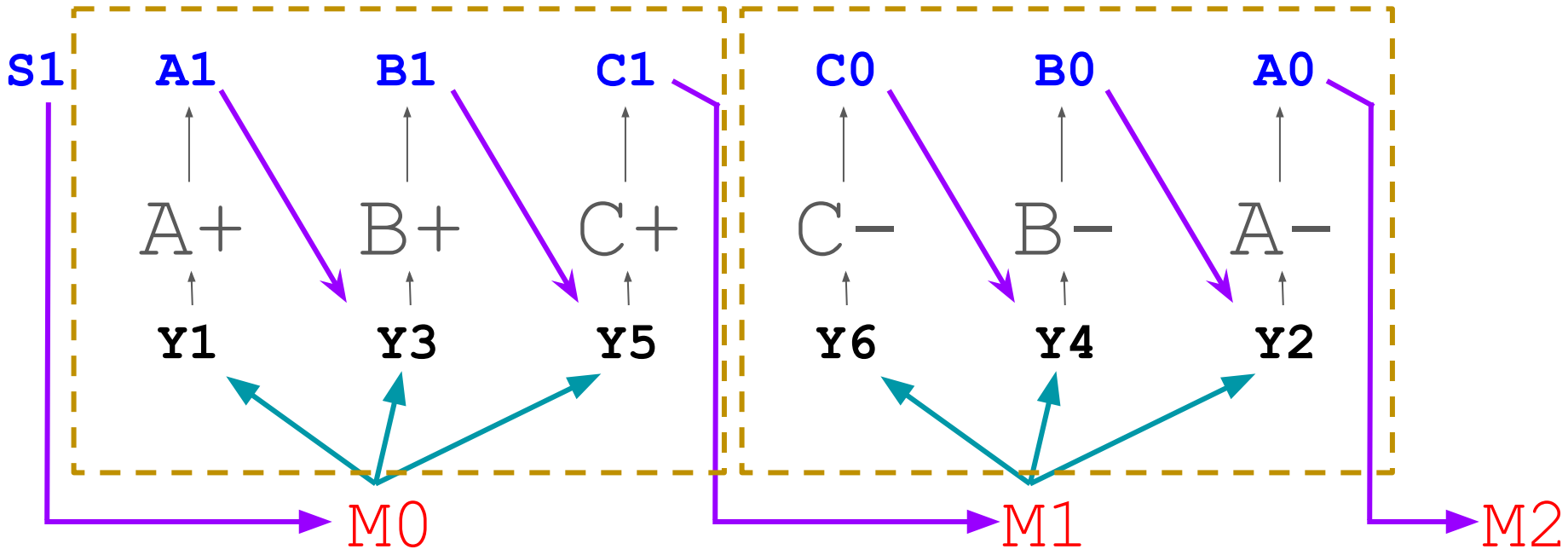
Memórias = Grupos + 1

INSTITUTO FEDERAL
São Paulo
Câmpus Salto

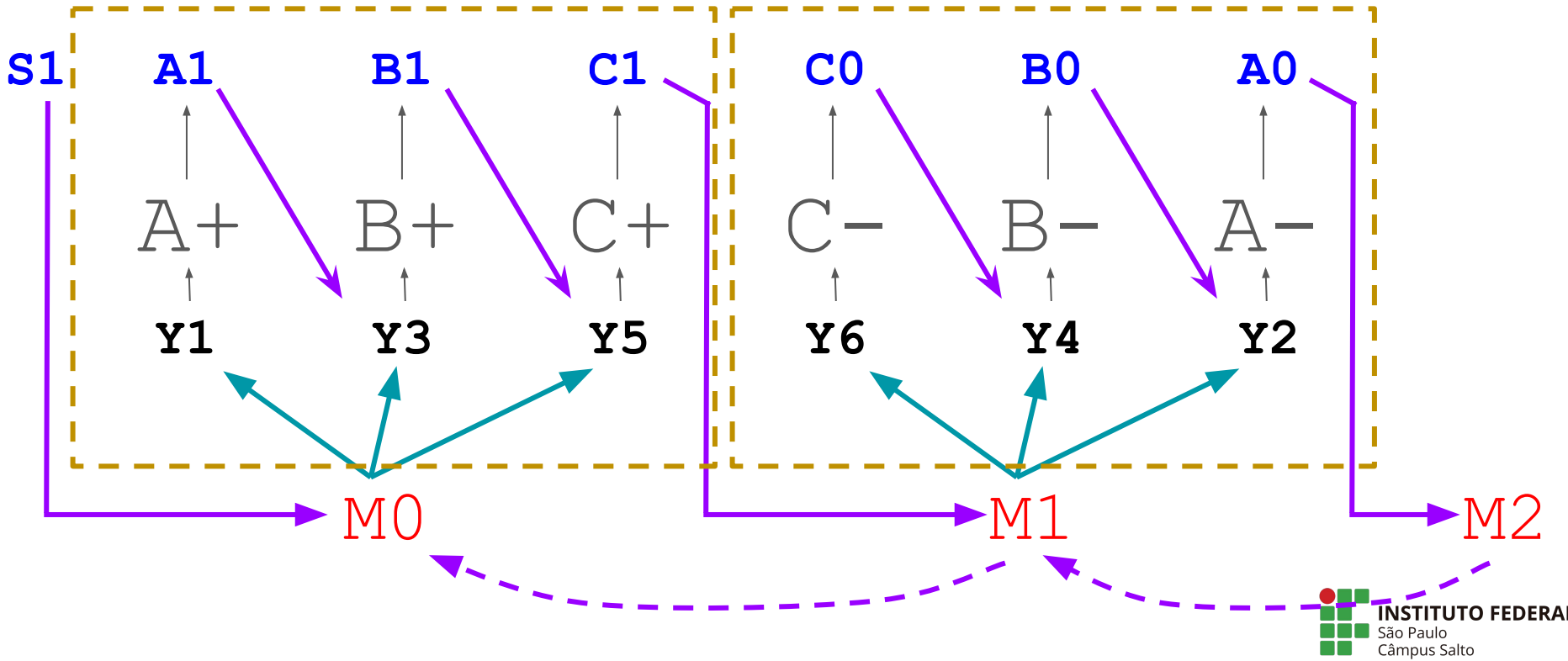
Passo 3: Memórias habilitando atuadores



Passo 4: Acionamento de Memórias e **Atuadores**



Passo 5: Desacionamento de Memória Anterior

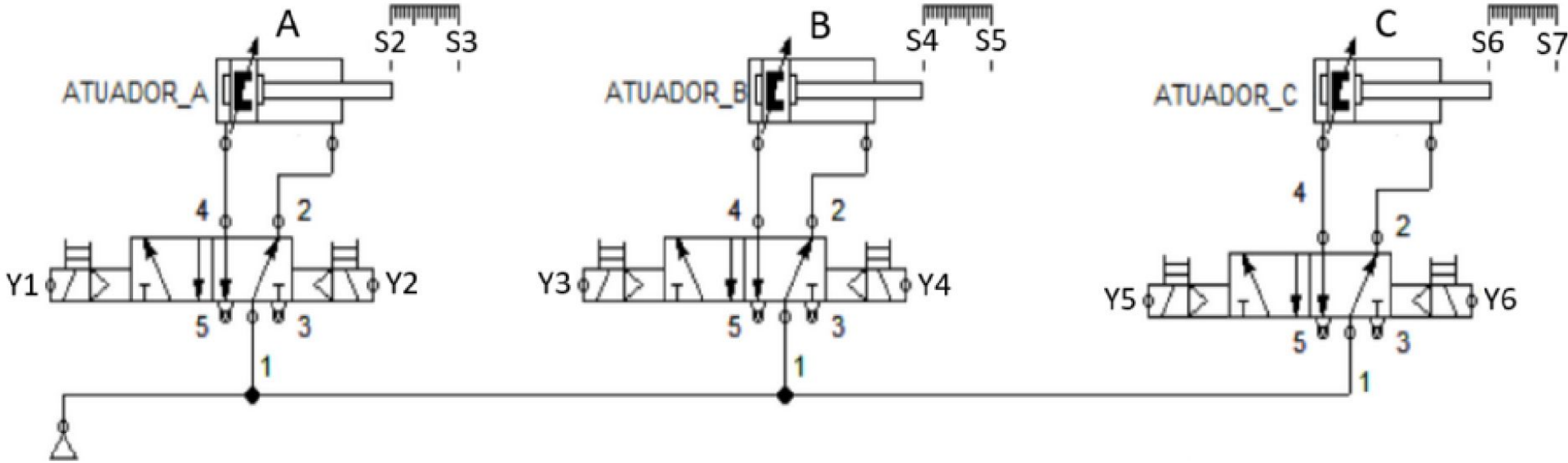


Programação no PLC

Linguagem Ladder

INSTITUTO FEDERAL
São Paulo
Câmpus Salto

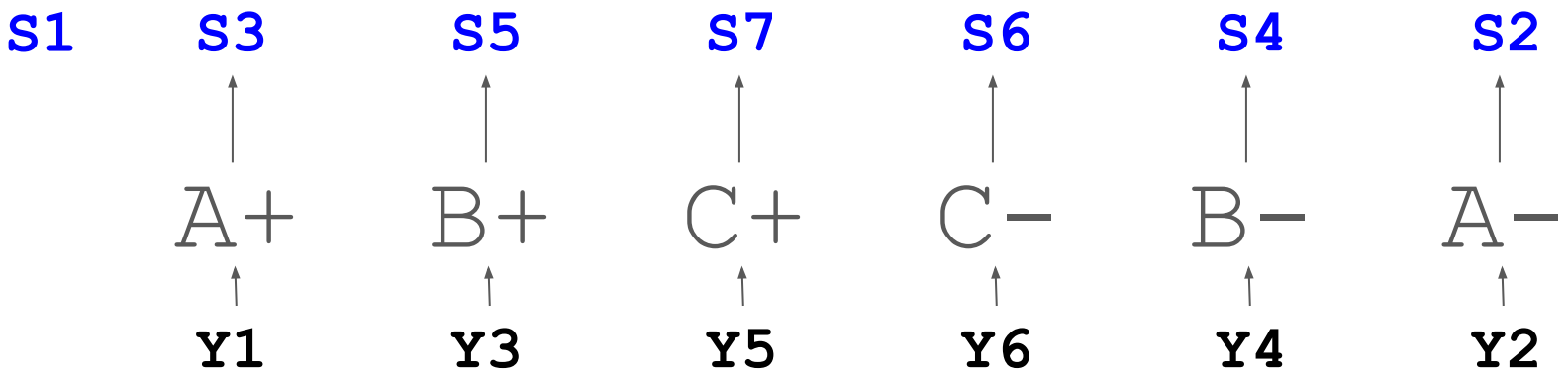
Circuito


A
S2
S3
ATUADOR_A
4
2
Y1
Y2
5
3
1
B
S4
S5
ATUADOR_B
4
2
Y3
Y4
5
3
1
C
S6
S7
ATUADOR_C
4
2
Y5
Y6
5
3
1

Passo 0: Sequência de acionamento

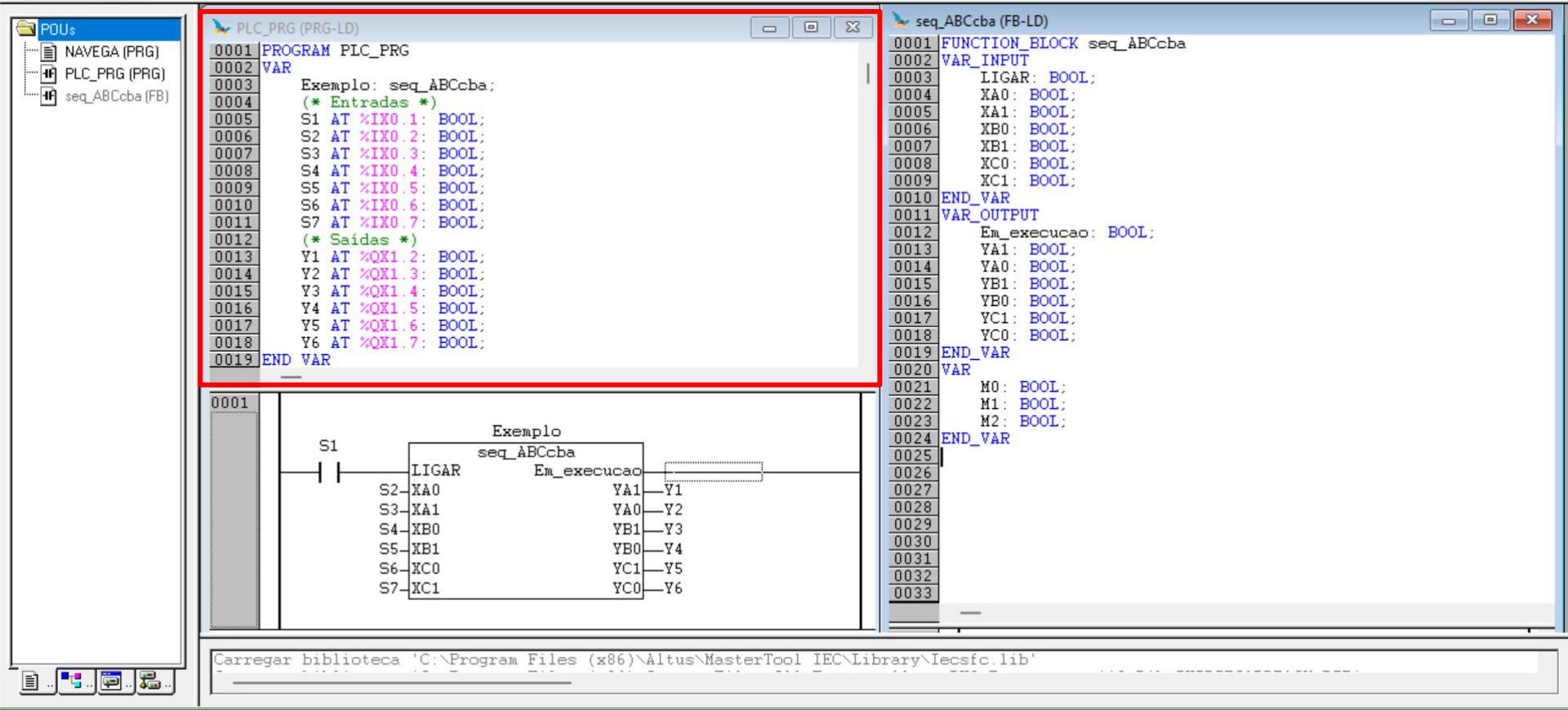
A+ B+ C+ C- B- A-

Passo 1: **Atuadores** e **Fins de Curso**

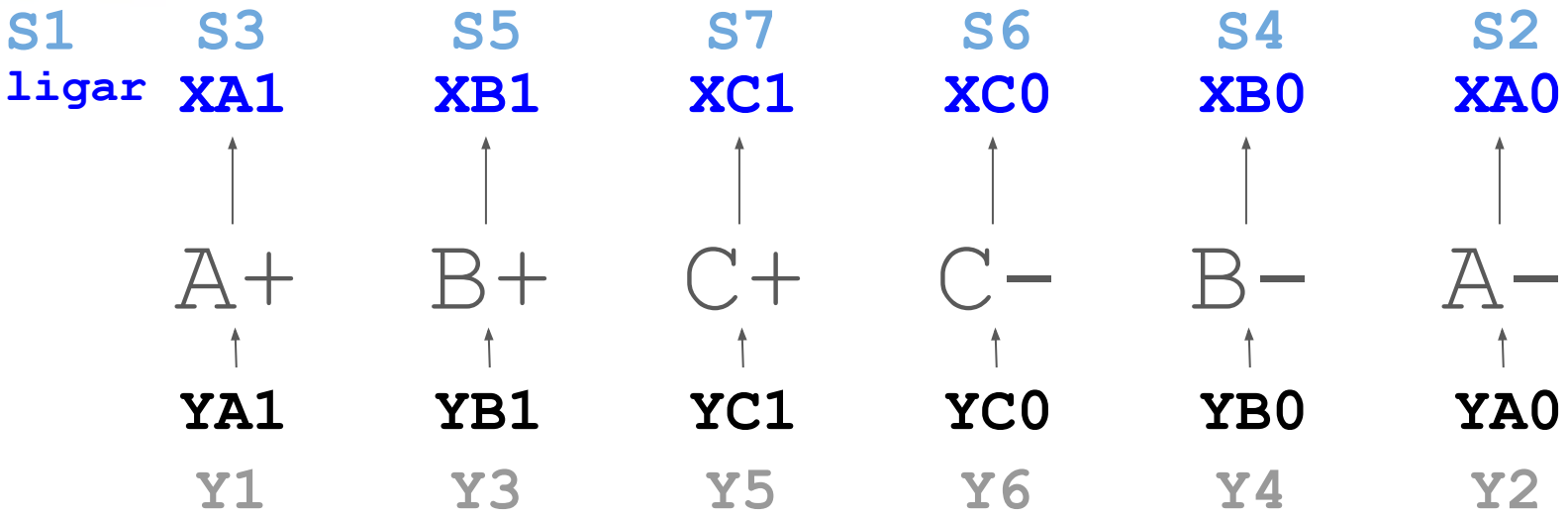


Declaração de Entradas(Fins de curso) e Saídas(Atuadores)

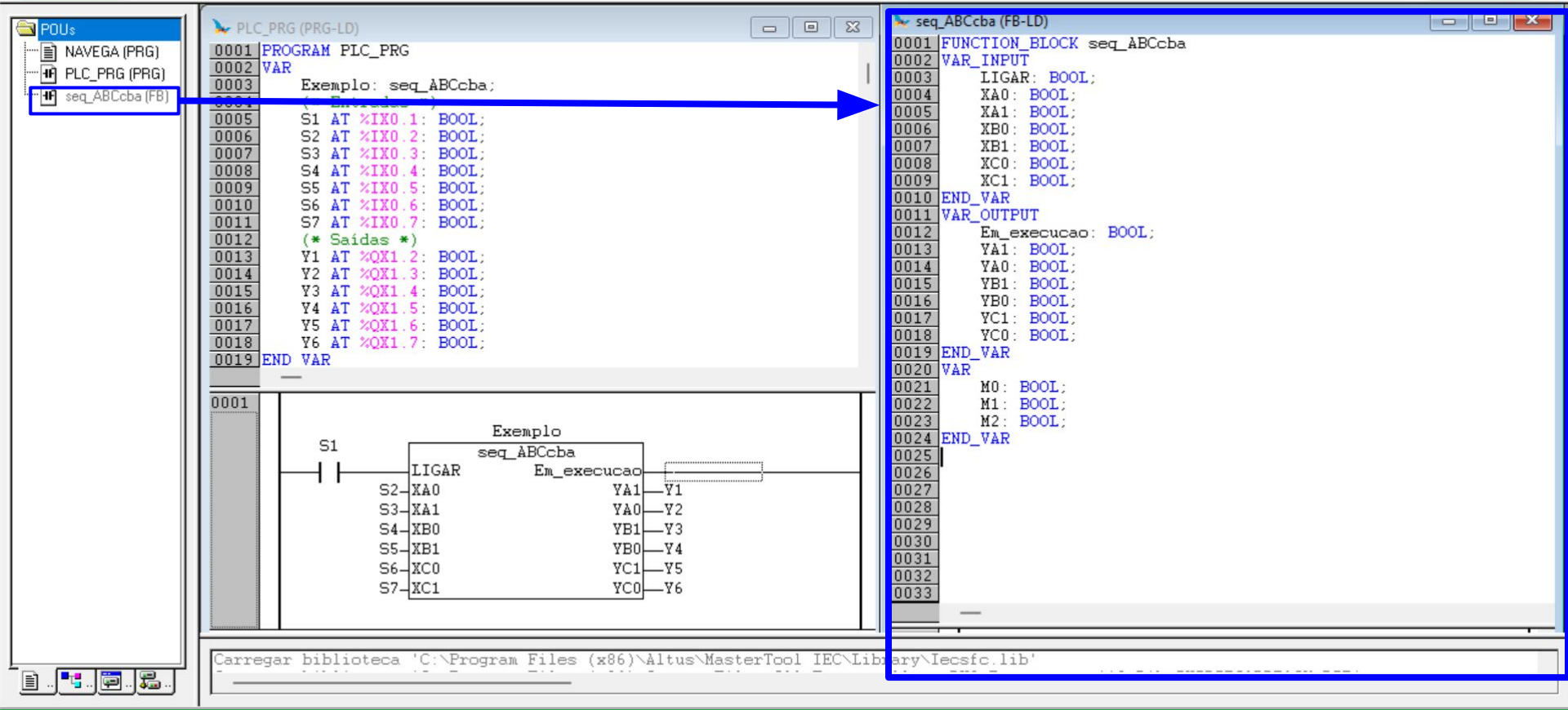
de acordo com o diagrama



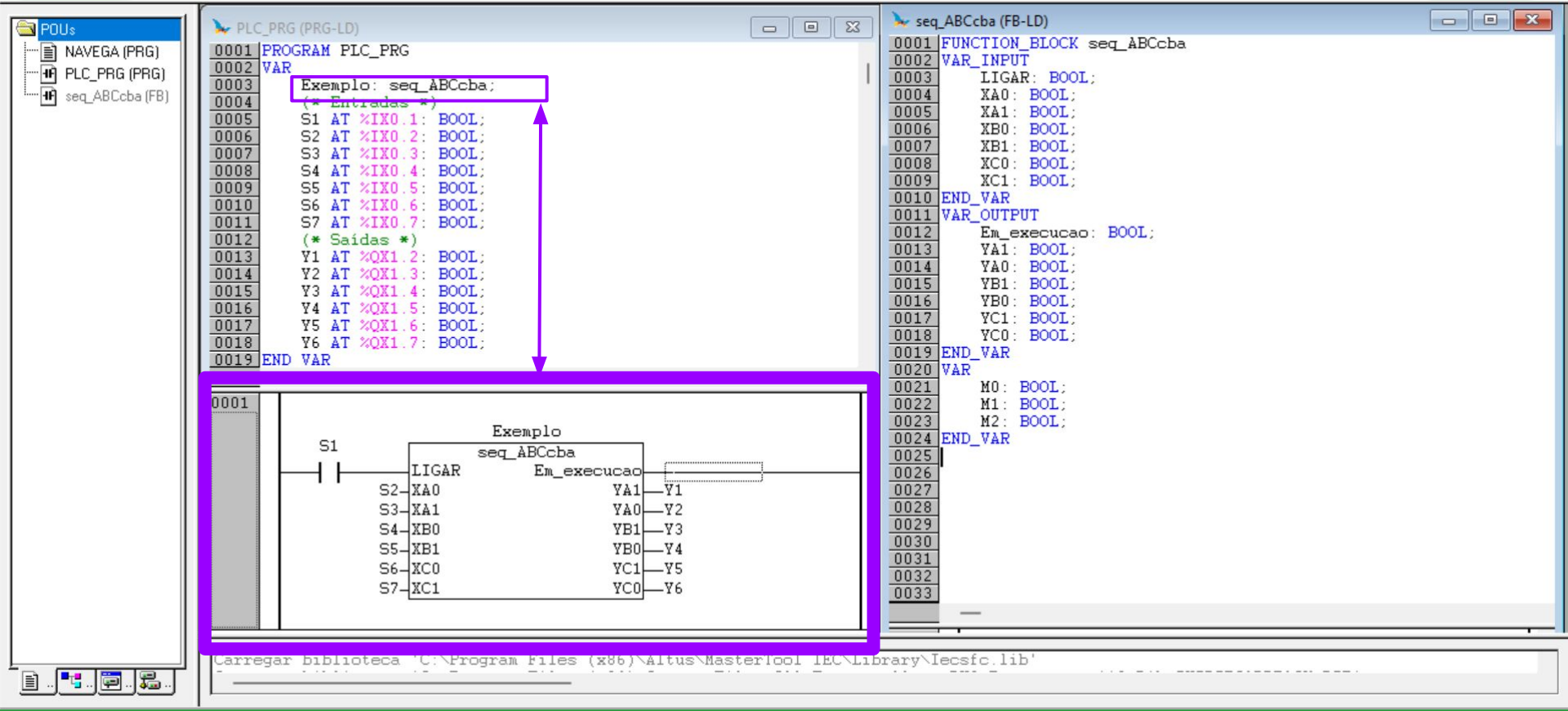
Passo 2: **Atuadores** e **Fins de Curso** no Bloco Funcional



Declaração de interface do Bloco Funcional da Sequência

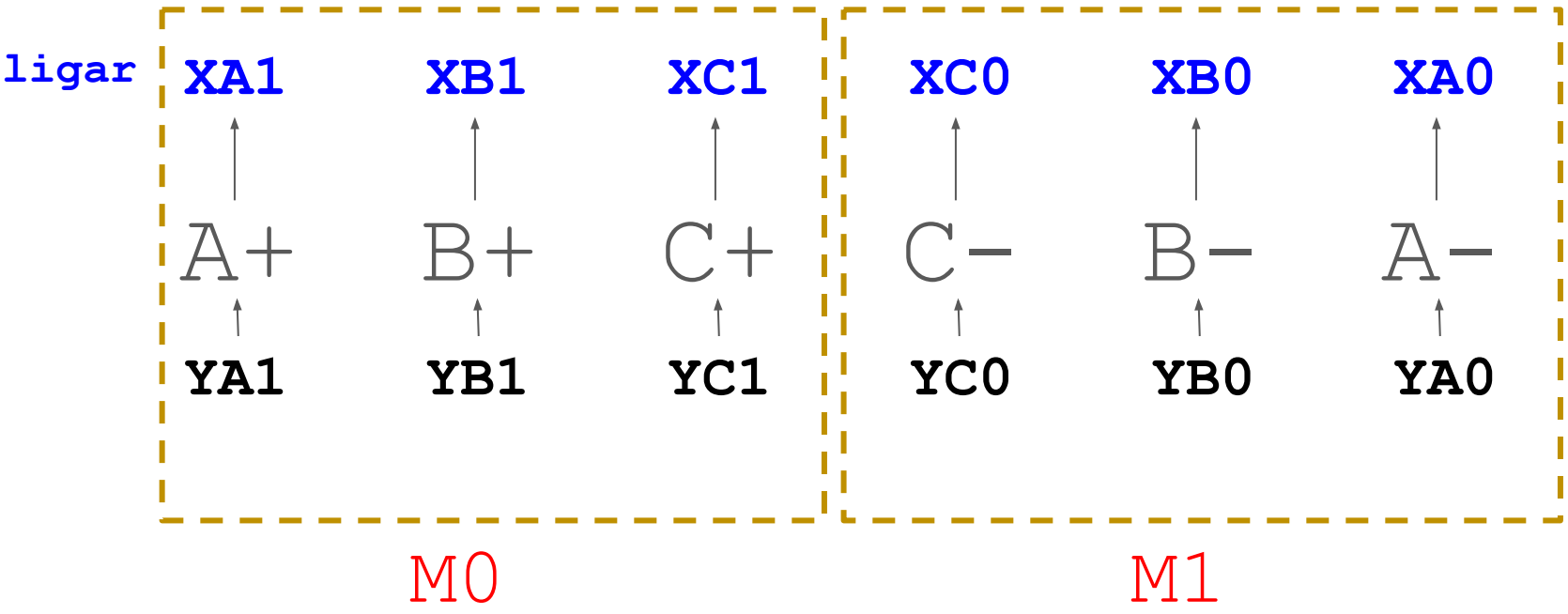


Inserir → Bloco Funcional… → FB def. pelo usuário



Passo 3: Agrupamentos e memórias

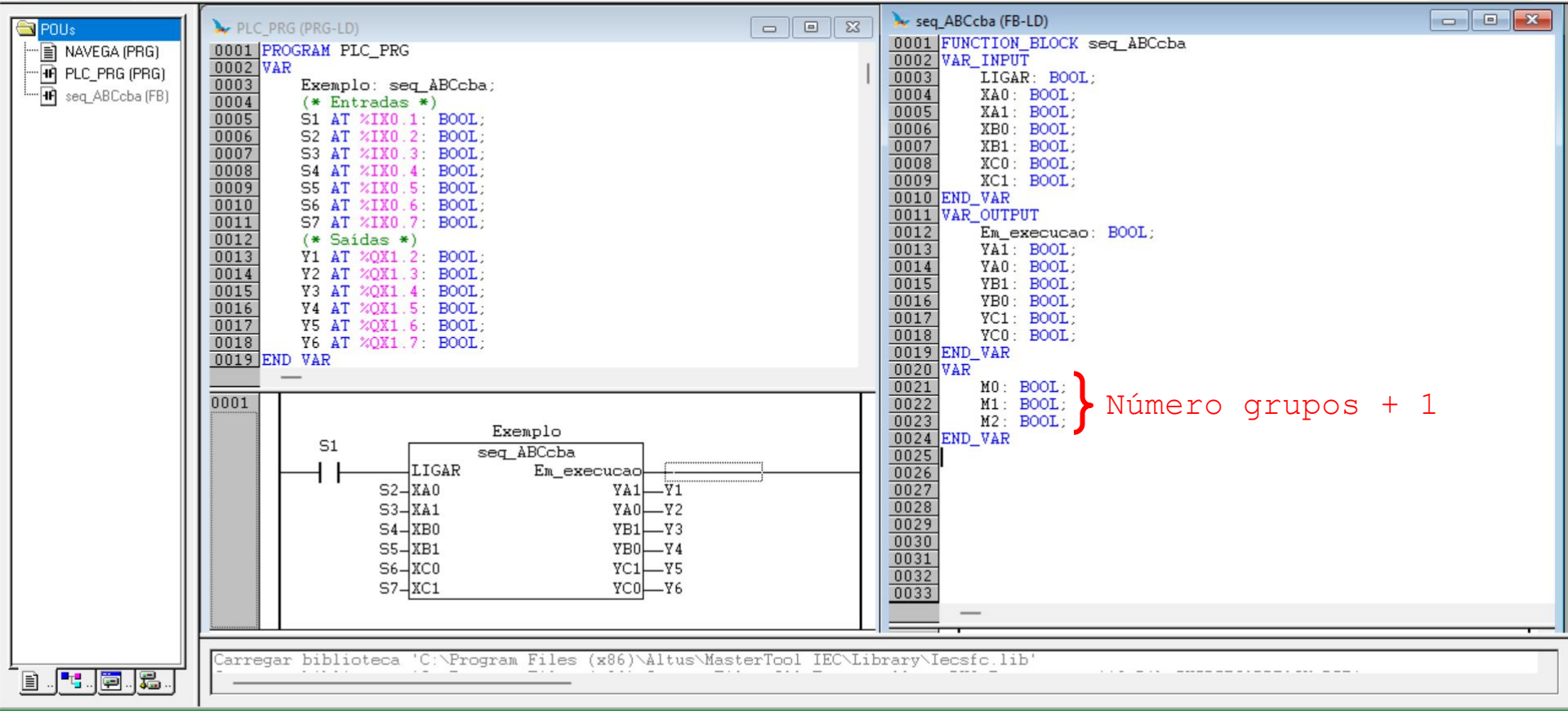
Maior grupo possível, sem repetir qualquer **atuador**.



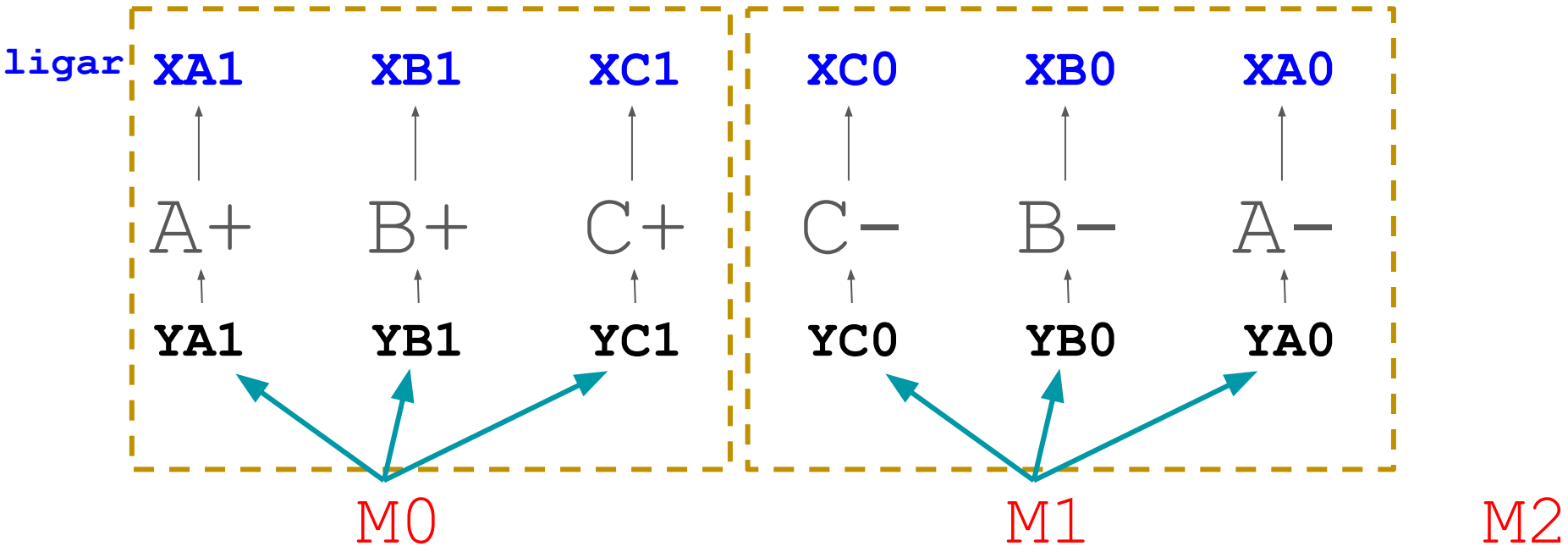
Memórias = Grupos + 1

INSTITUTO FEDERAL
São Paulo
Câmpus Salto

Passo 3: Agrupamentos e memórias

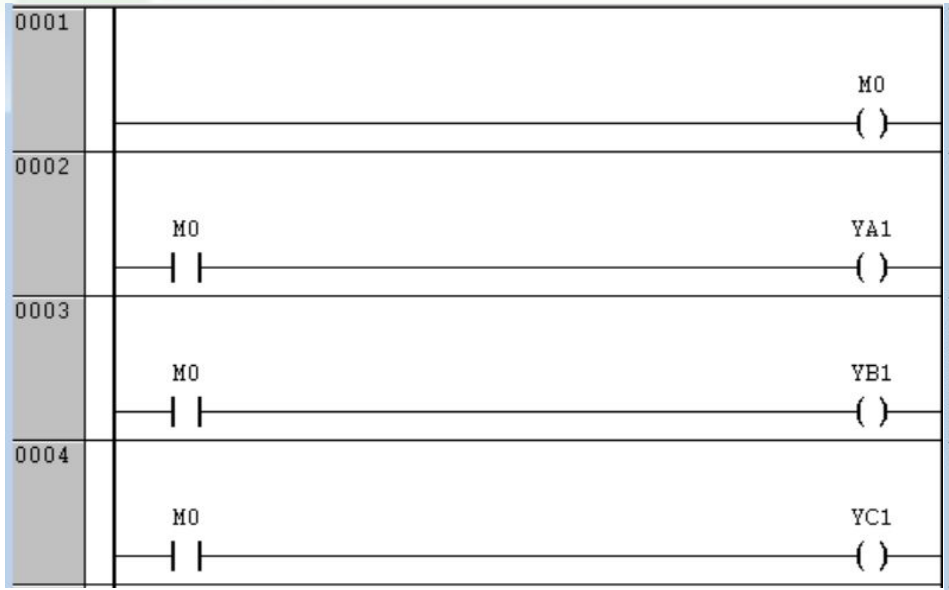


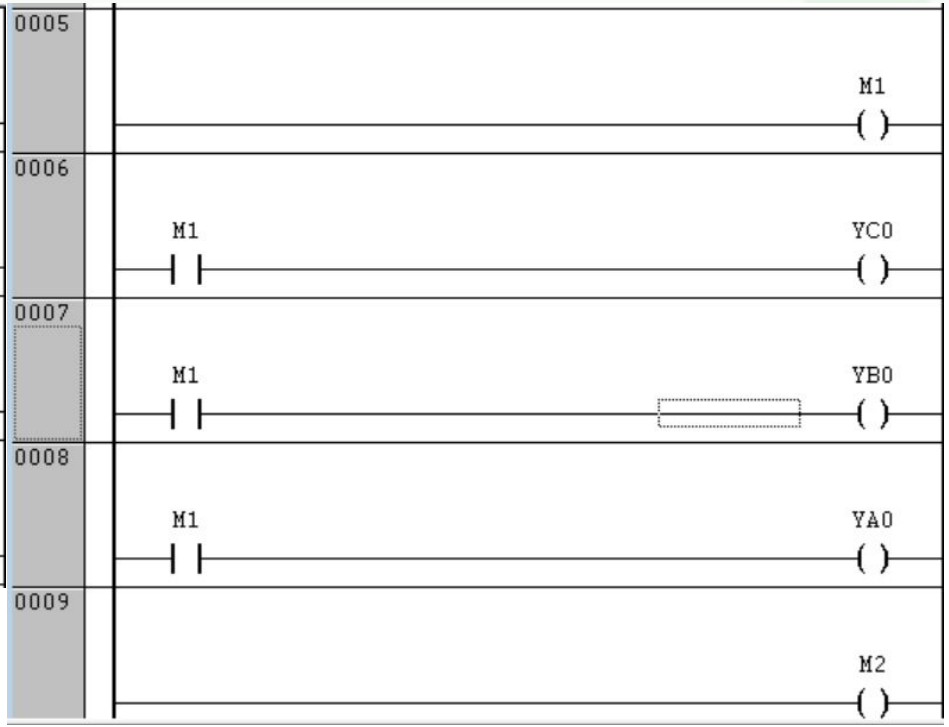
Passo 4: Memórias habilitando atuadores



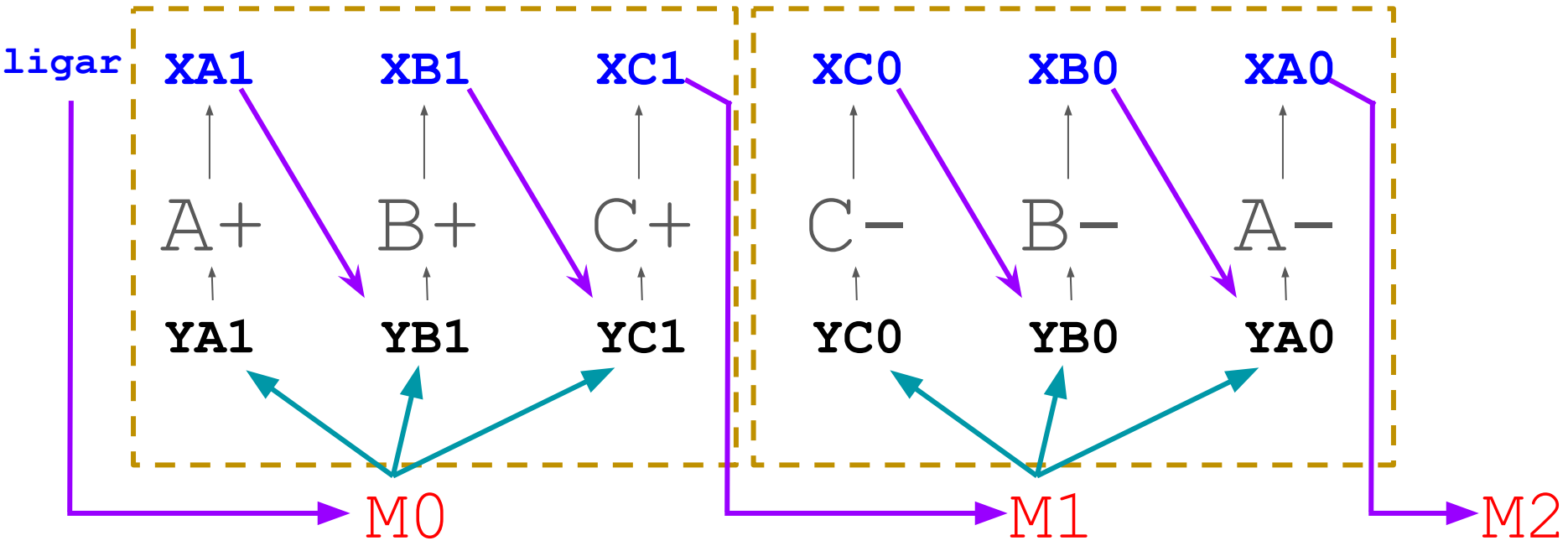
INSTITUTO FEDERAL
São Paulo
Câmpus Salto

Passo 4: Memórias habilitando atuadores

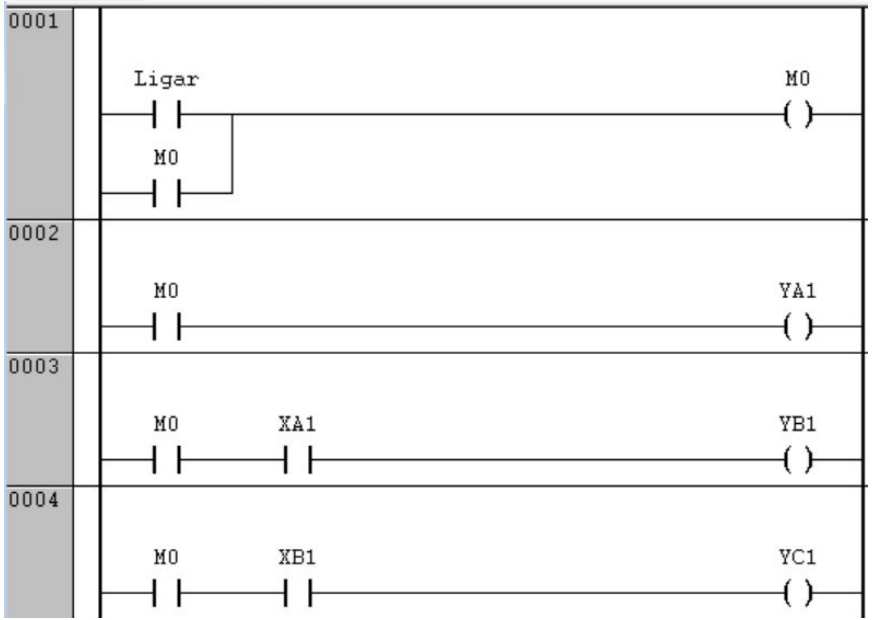


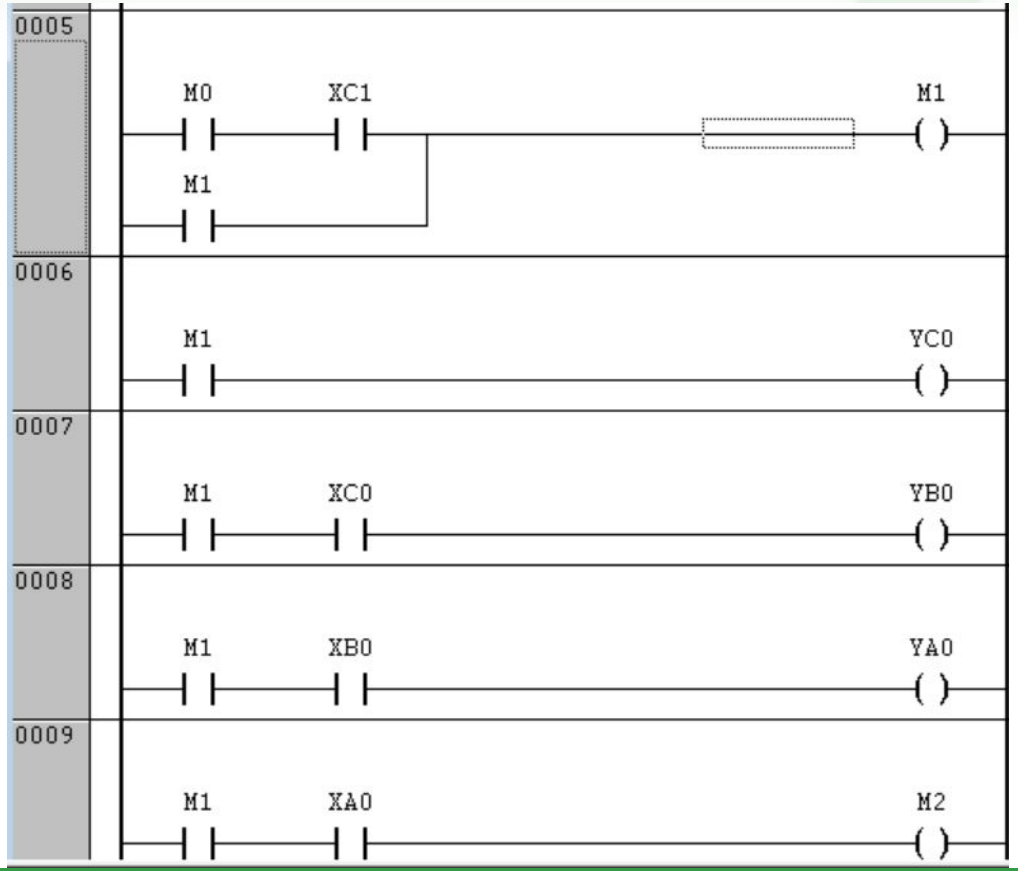


Passo 5: Acionamento de Memórias e **Atuadores**

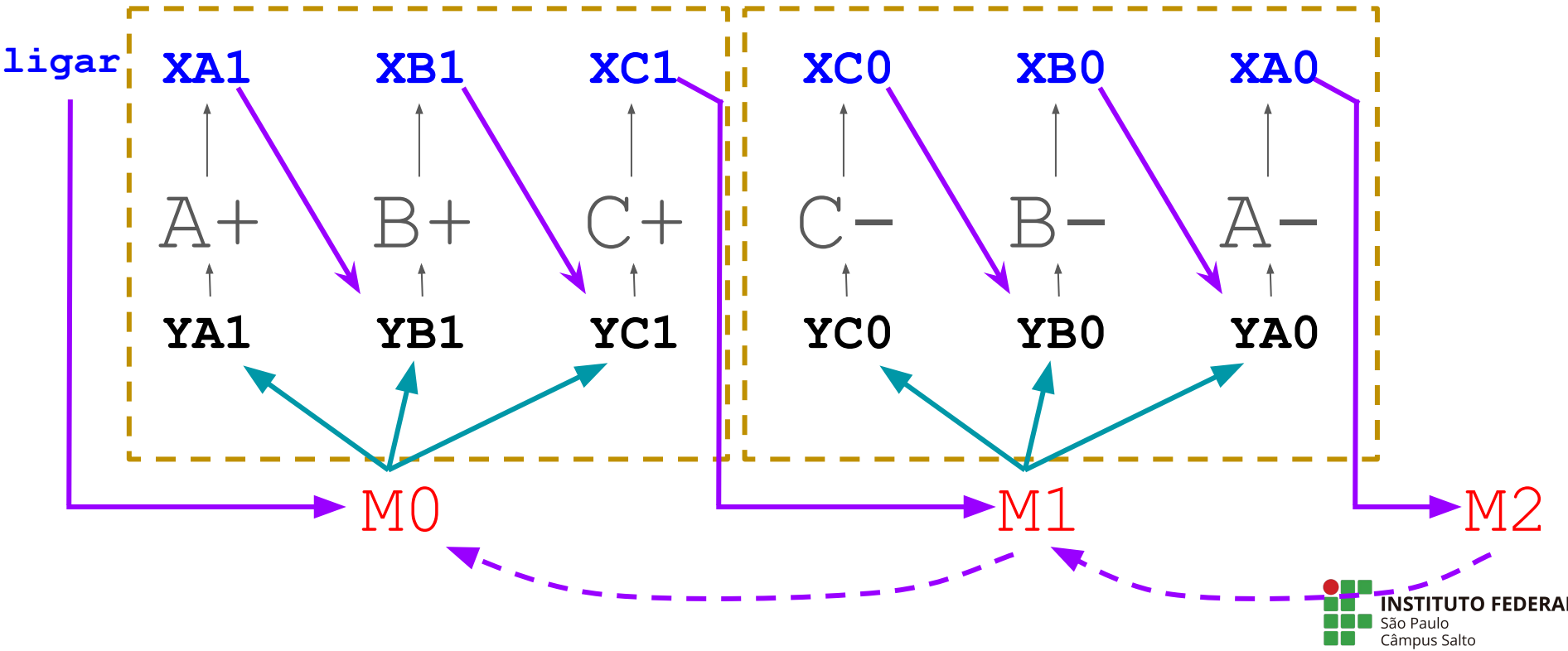


Passo 5: Acionamento de Memórias e **Atuadores**

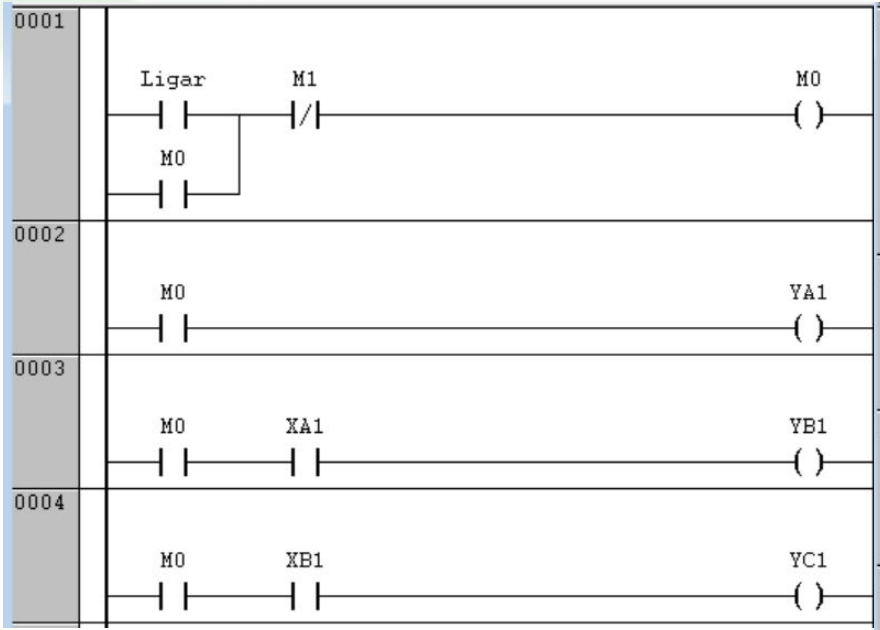


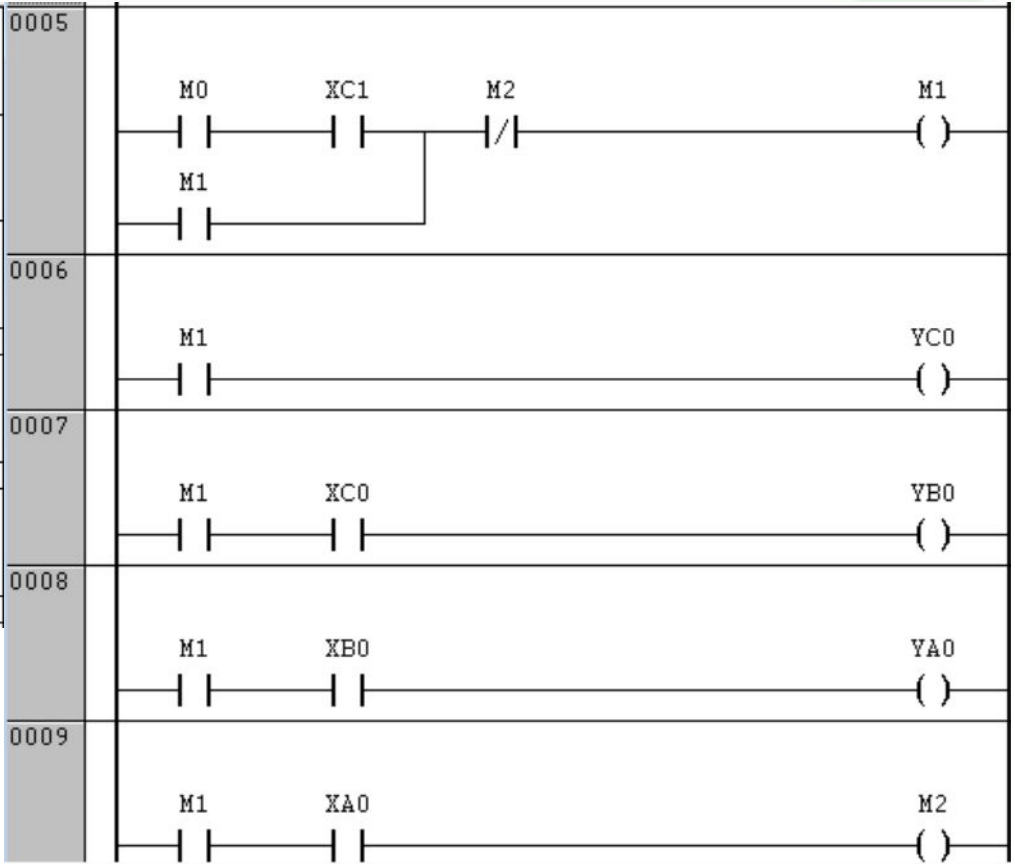


Passo 6: Desacionamento de Memória Anterior



Passo 6: Desacionamento de Memória Anterior





Exercícios

Aplicar o método de Minimização de contatos, para produzir as seguintes sequências de acionamento:

1) A+ C+ C- B+ A- B-

2) A+ A- B+ B- C+ C-

3) A+ C+ [A- B+] B- C-

4) C+ B+ B- A+ C- B+ B- A-

Obs.: [A- B+]: Movimentos simultâneos