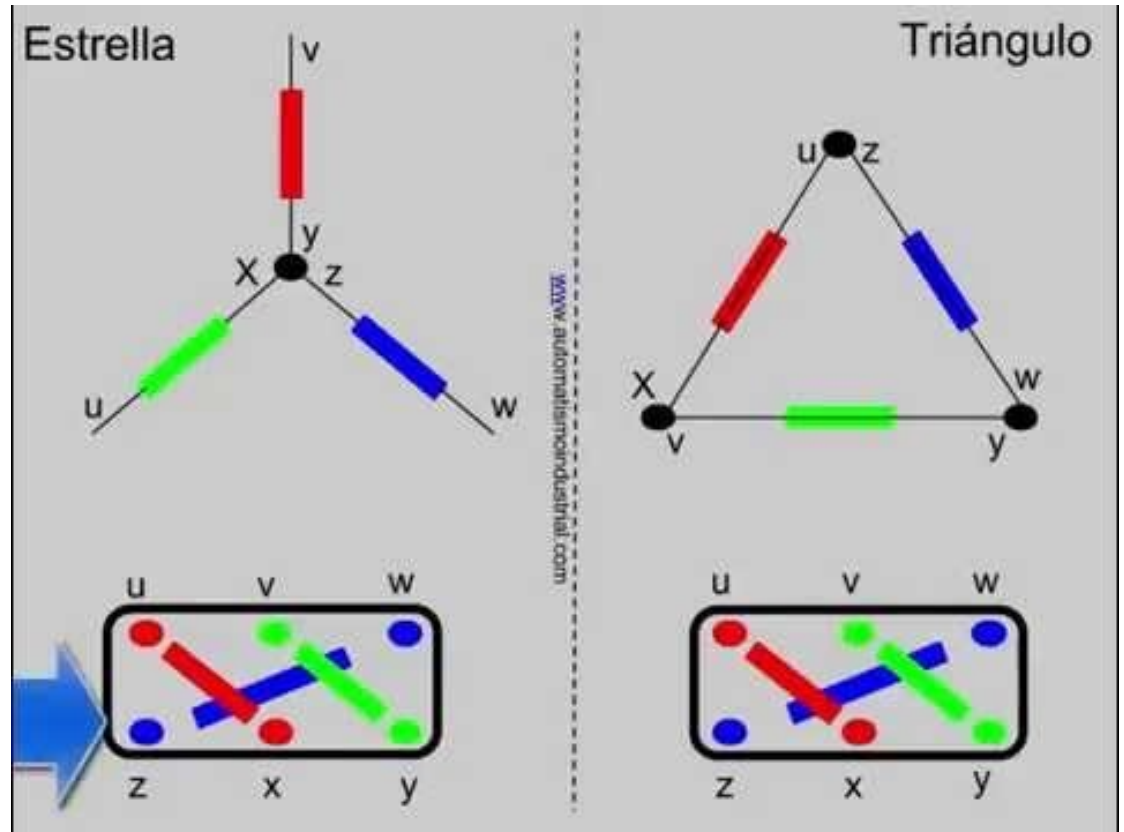


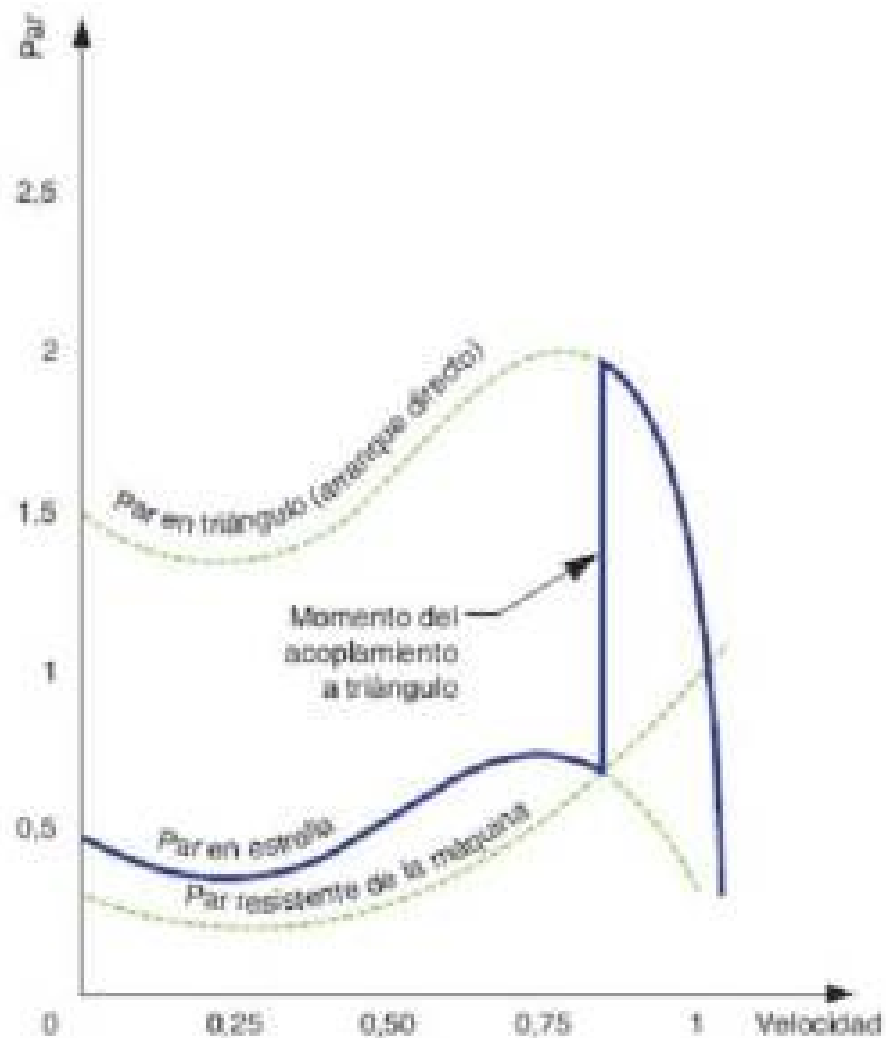
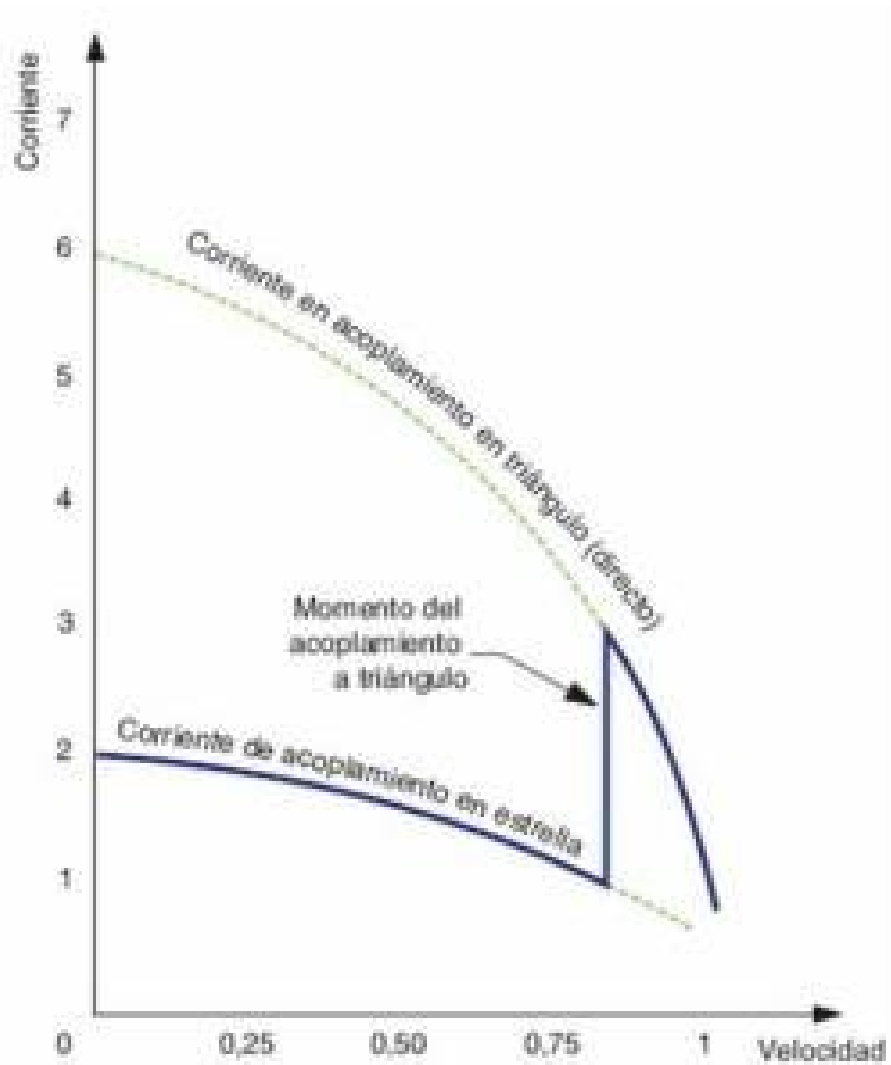
Autómatas

Curso de Mecatrónica

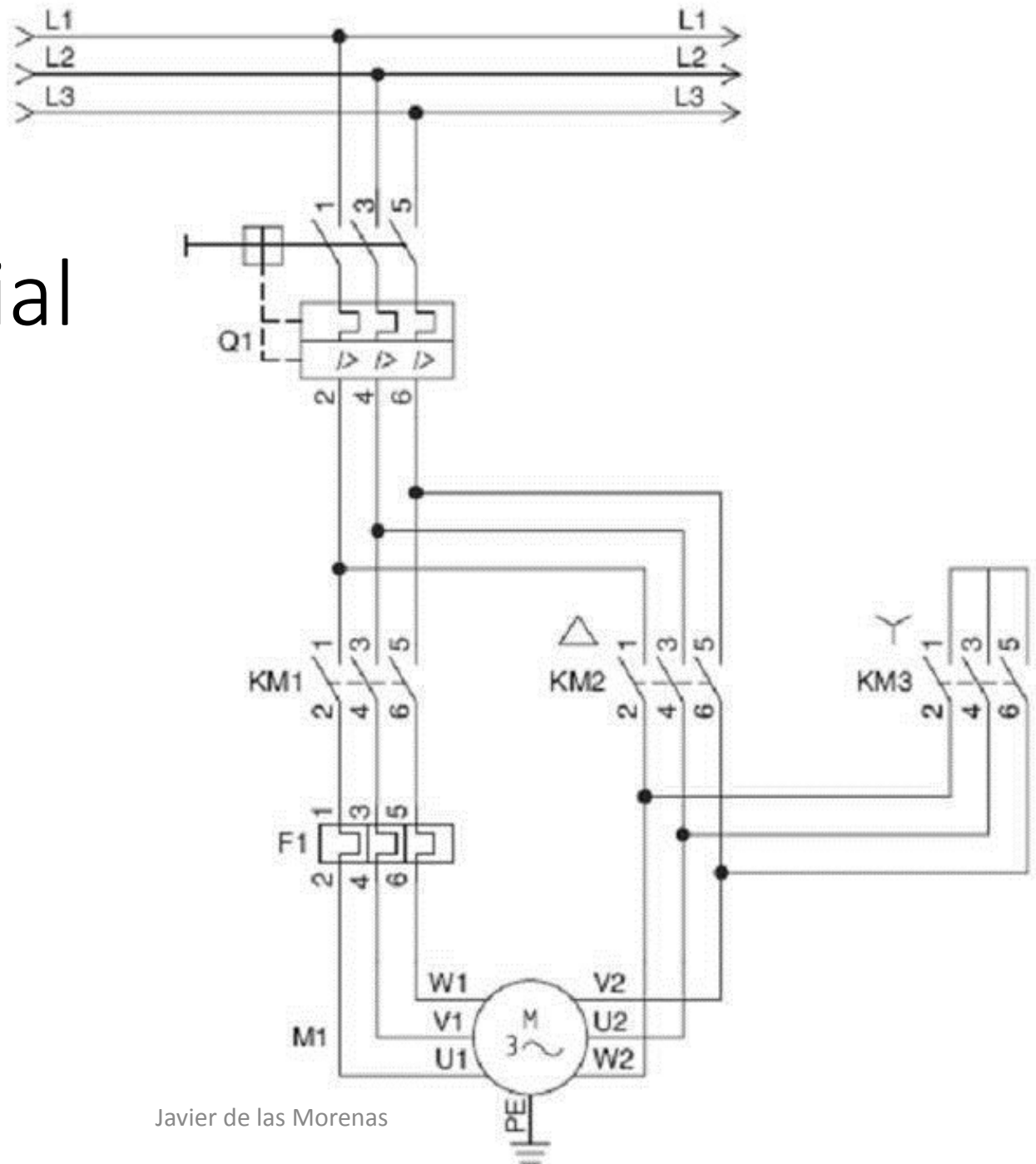
CASO PRÁCTICO:

Conversión automatismo arranque estrella-triángulo con Autómatas

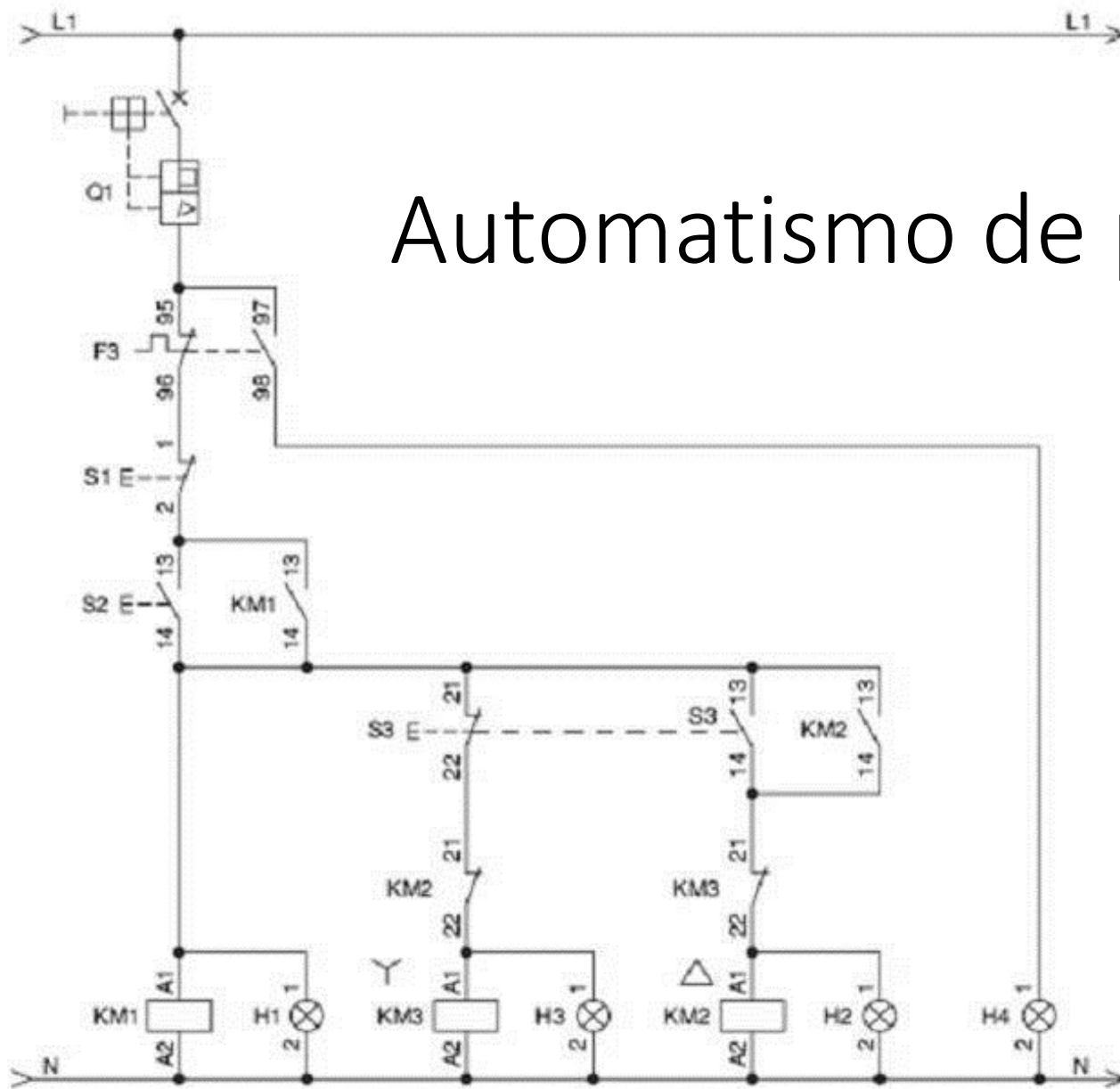




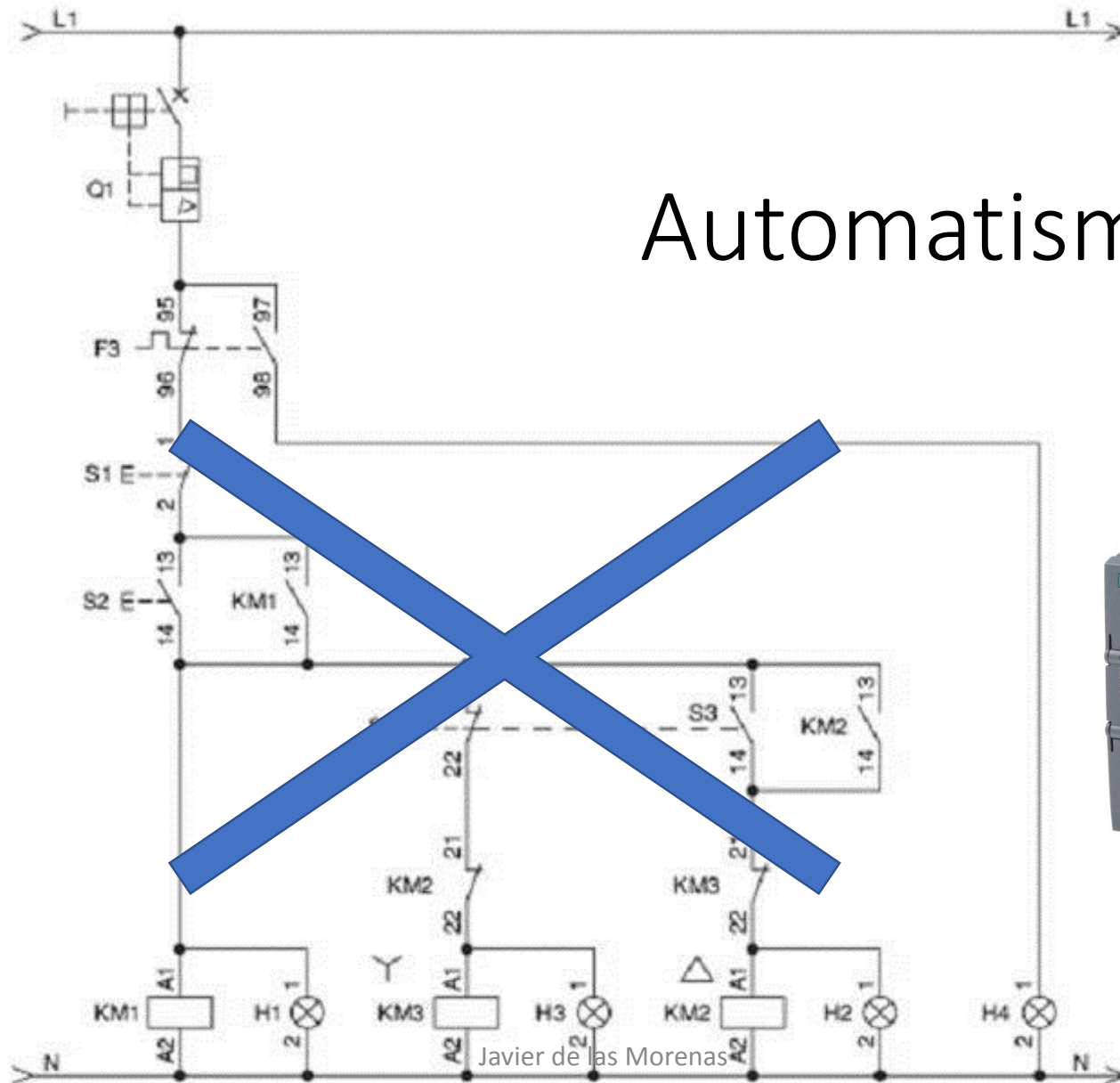
Circuito inicial

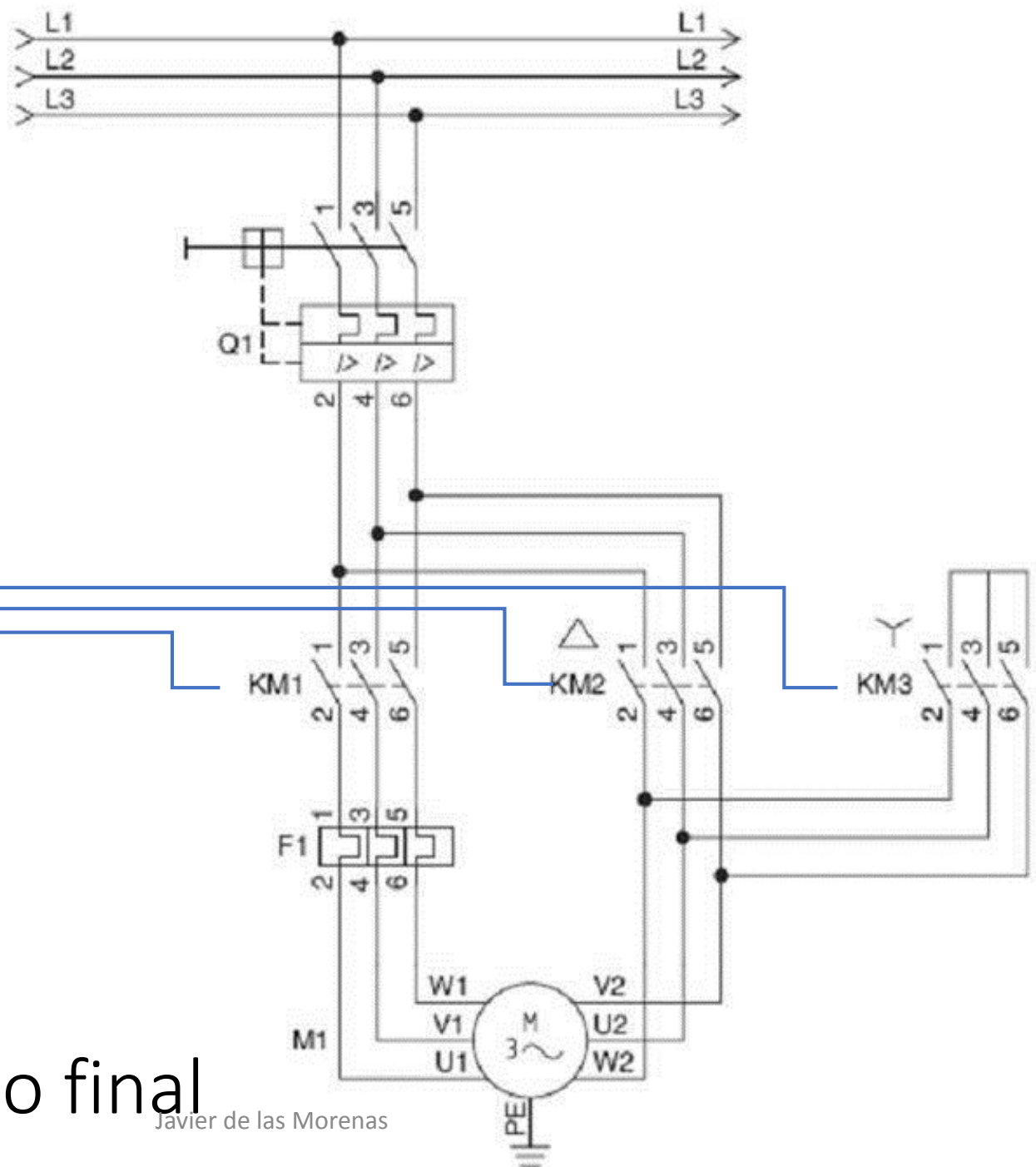
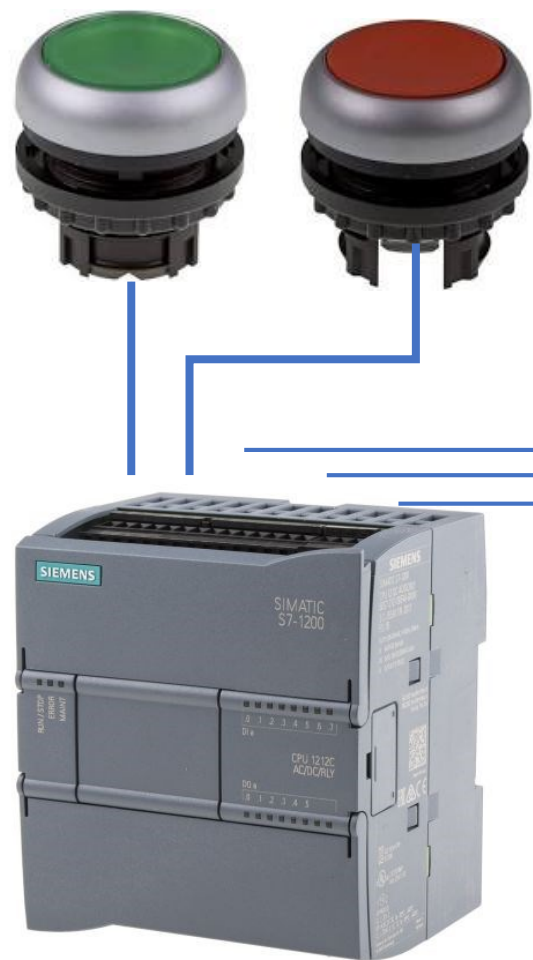


Automatismo de partida



Automatismo final





Automatismo final

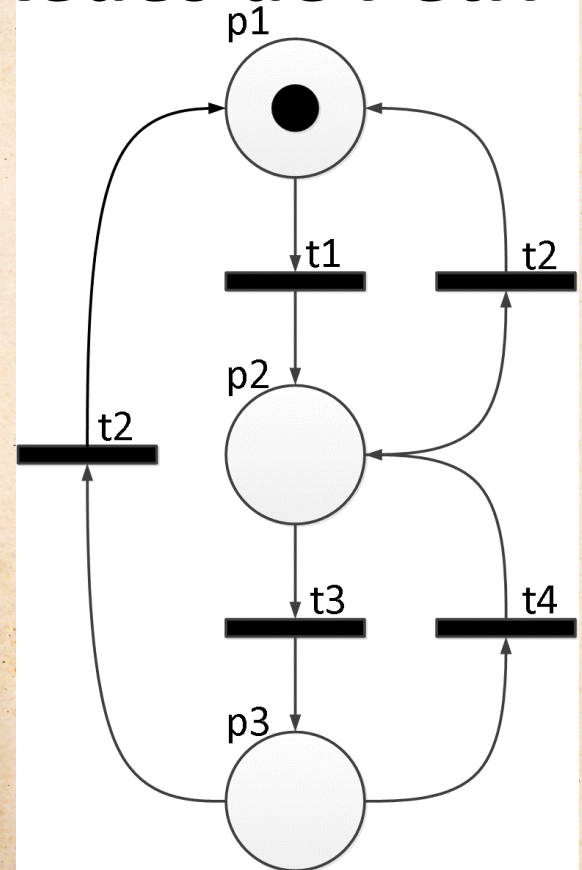
Javier de las Morenas

A man with a dark beard and glasses is looking upwards and to the right with a questioning expression. He is wearing a blue patterned button-down shirt. A large white thought bubble with a blue outline is positioned above his head, containing the text '¿Cómo?'. The background is a textured, light-colored wall.

¿Cómo?

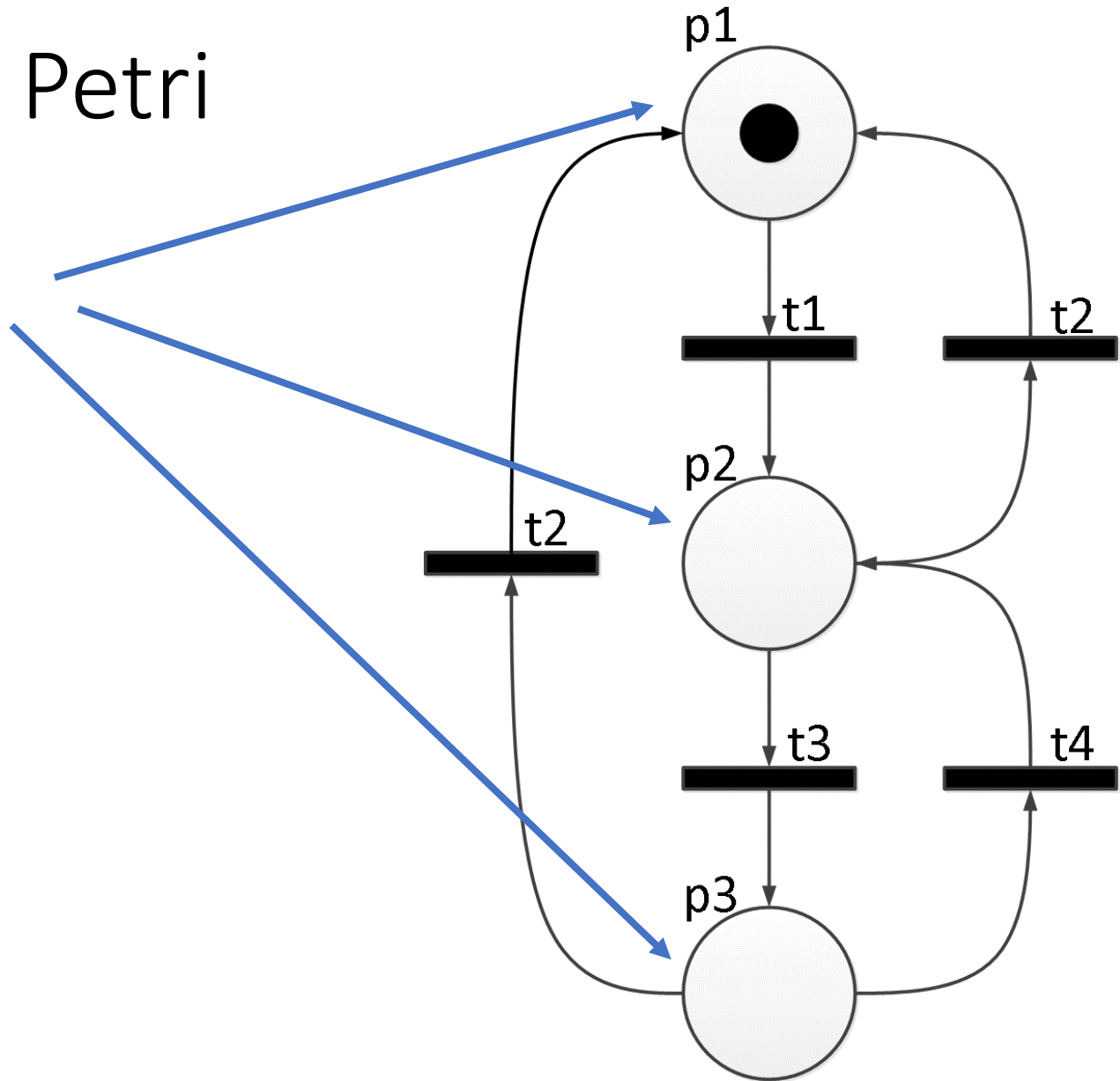
¿Cómo?

Redes de Petri



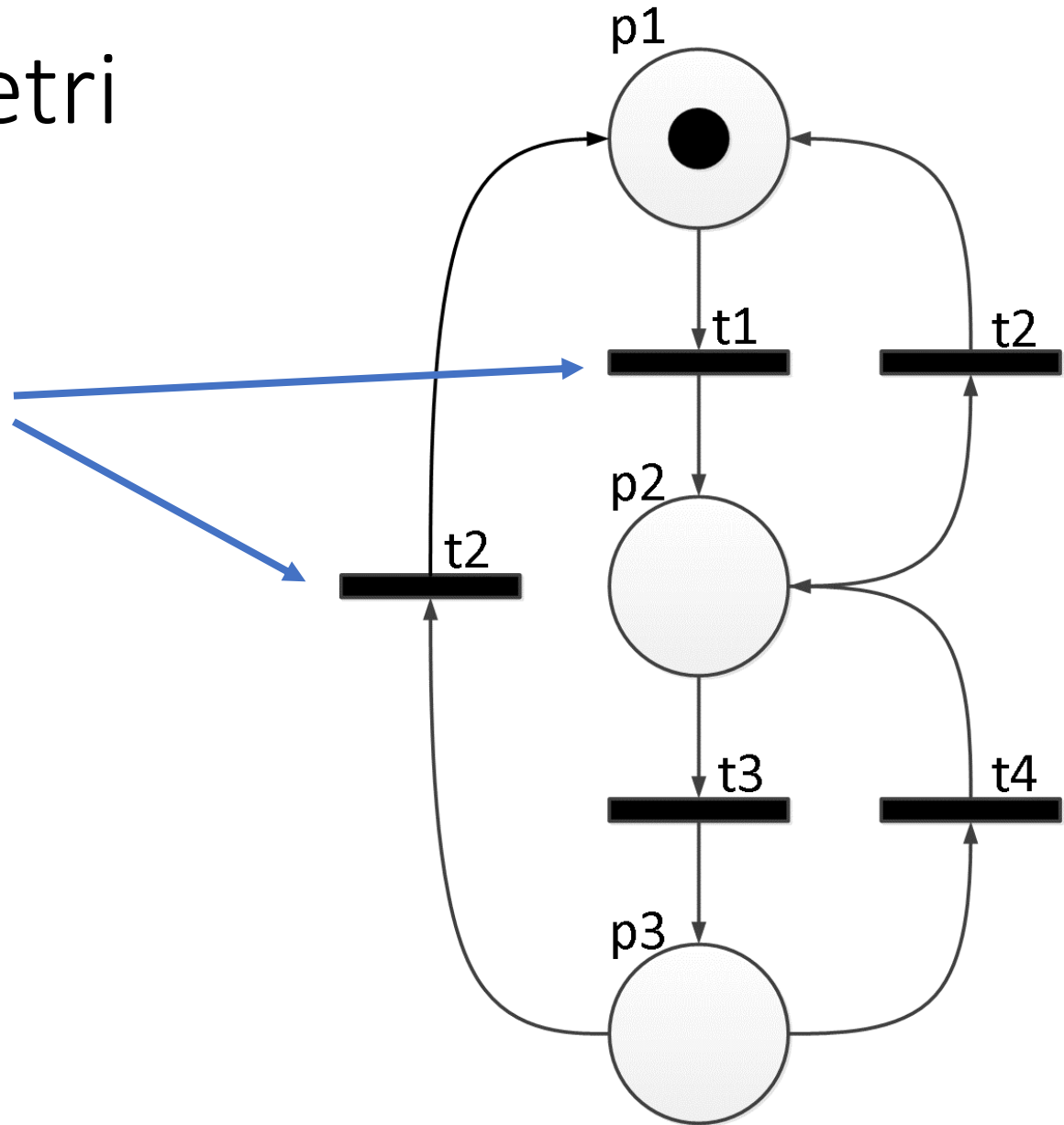
Red de Petri

- Lugares



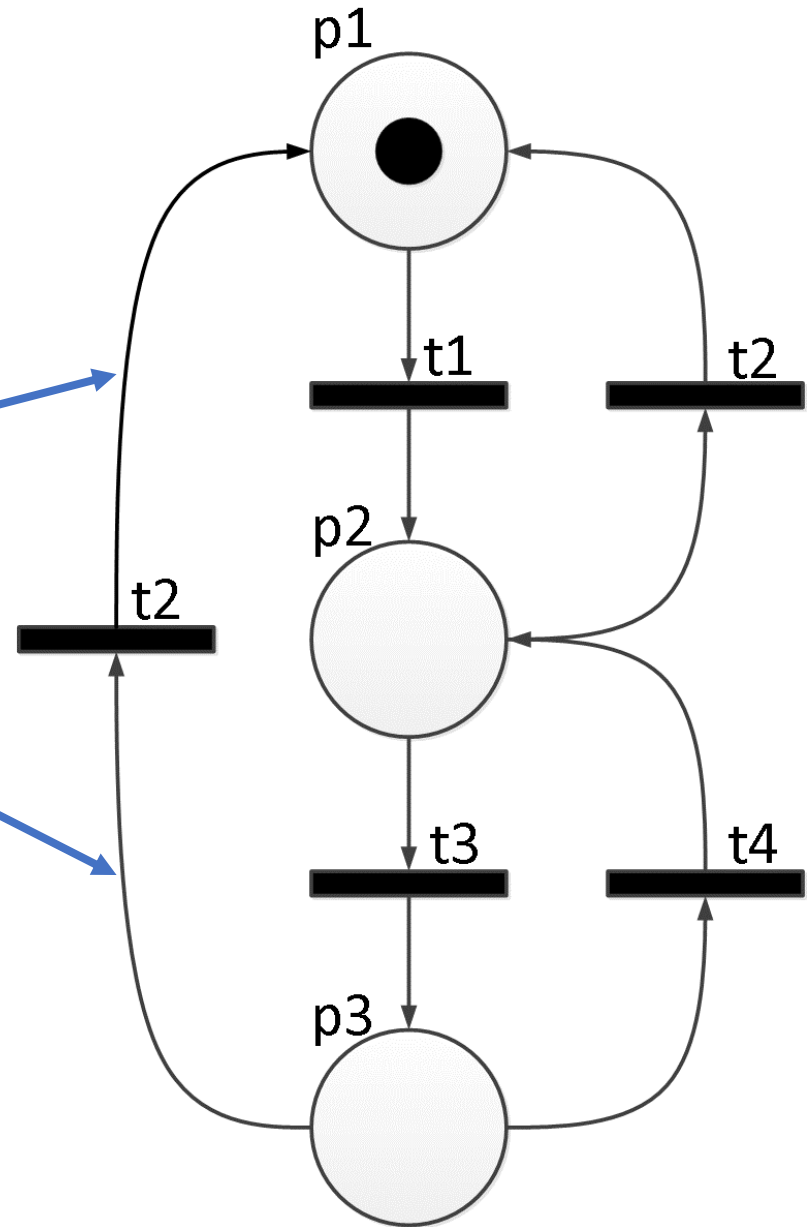
Red de Petri

- Lugares (O)
- Transiciones



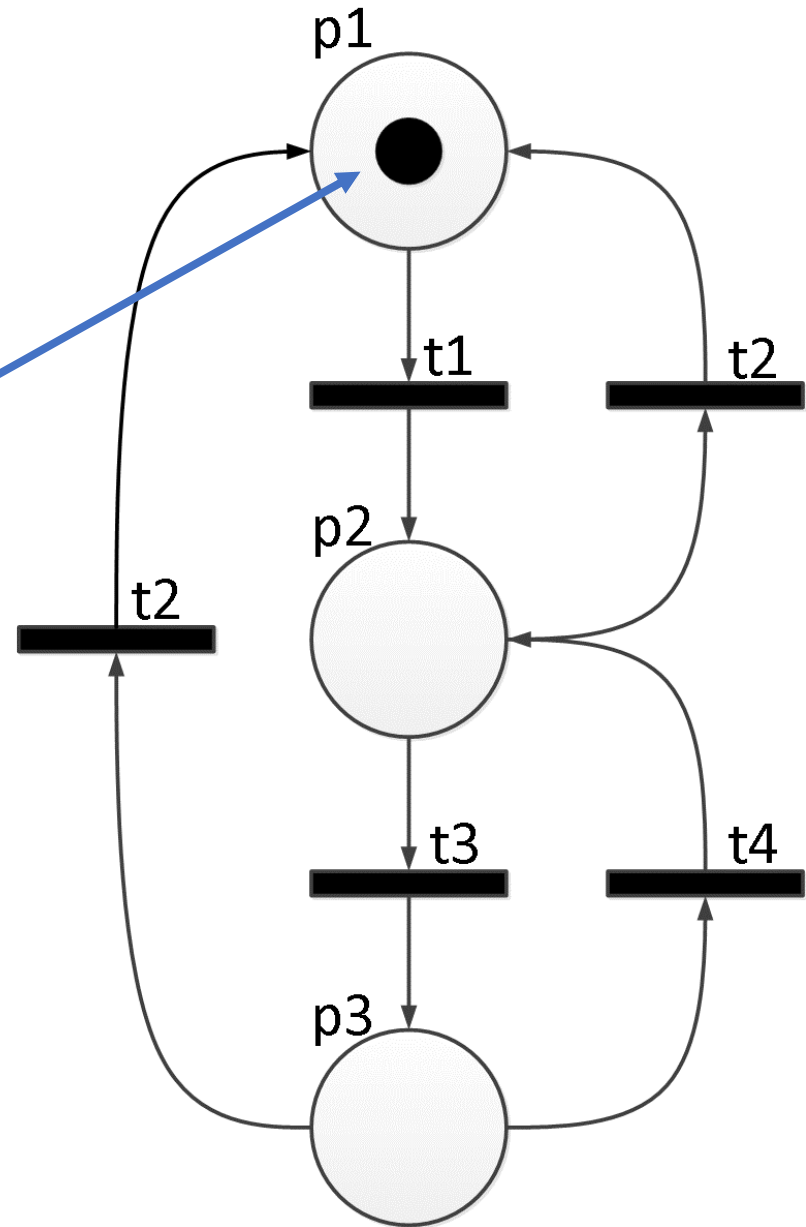
Red de Petri

- Lugares (O)
- Transiciones (-)
- Arcos



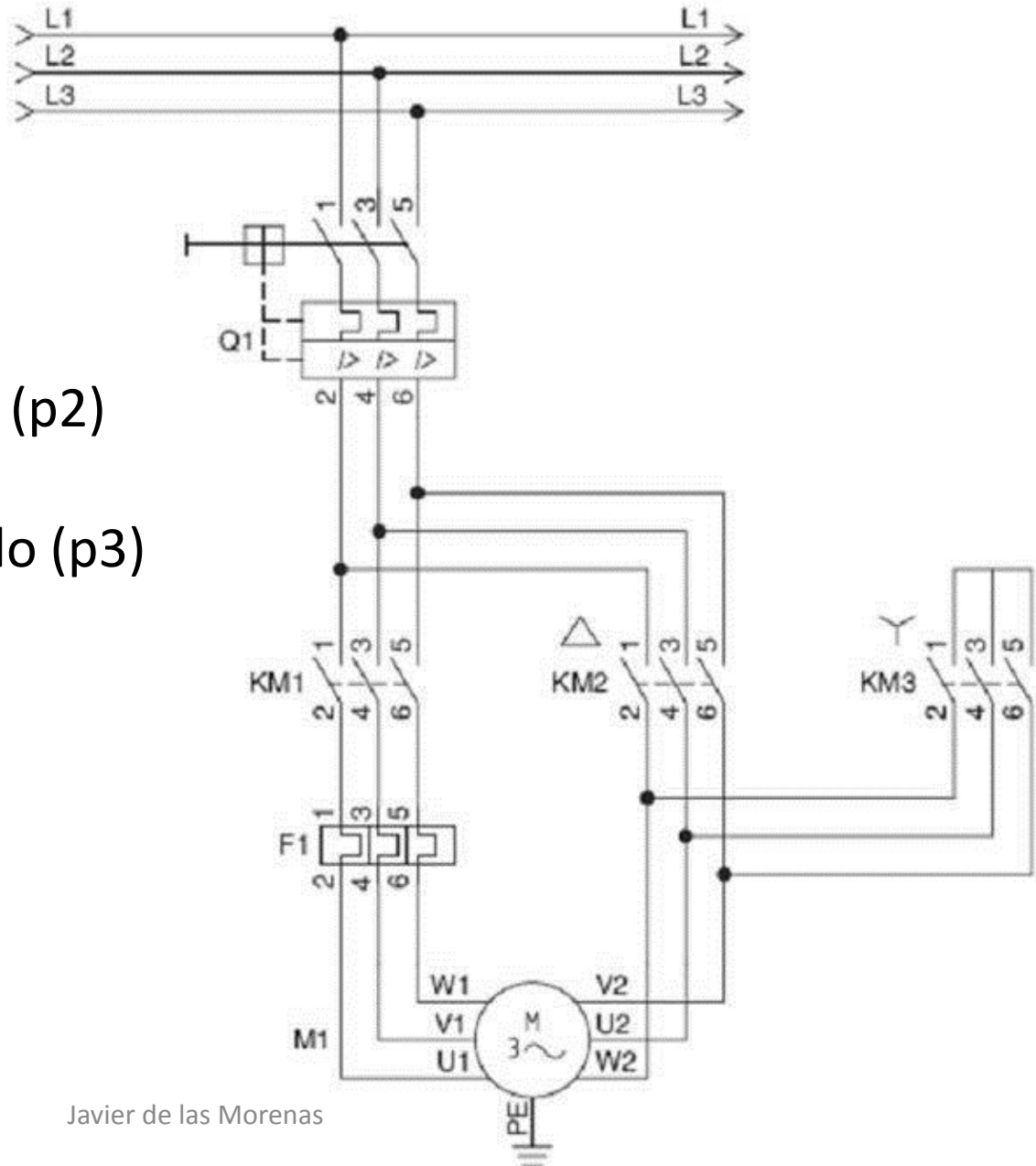
Red de Petri

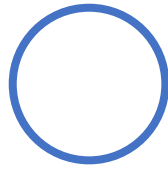
- Lugares (O)
- Transiciones (-)
- Arcos (->)
- Marcas



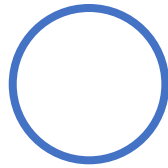
Arranque estrella-triángulo

- Lugares (estados):
 - Parado (p1)
 - Conexión estrella (p2)
 - KM1+KM3
 - Conexión triángulo (p3)
 - KM1+KM2

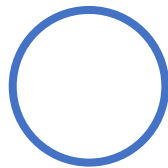




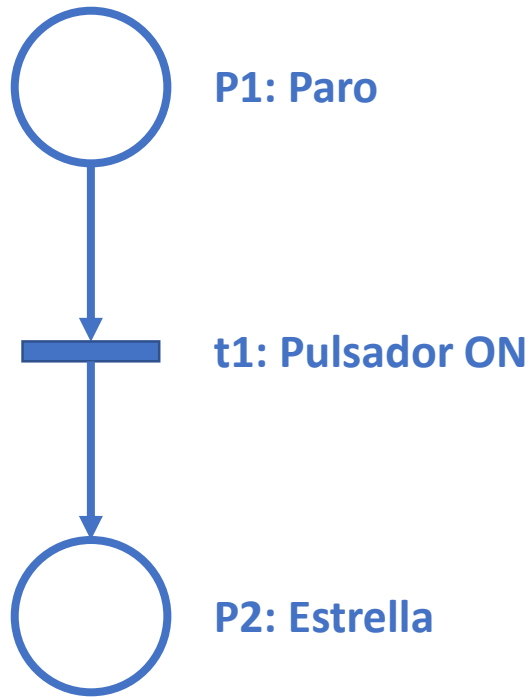
P1: Paro

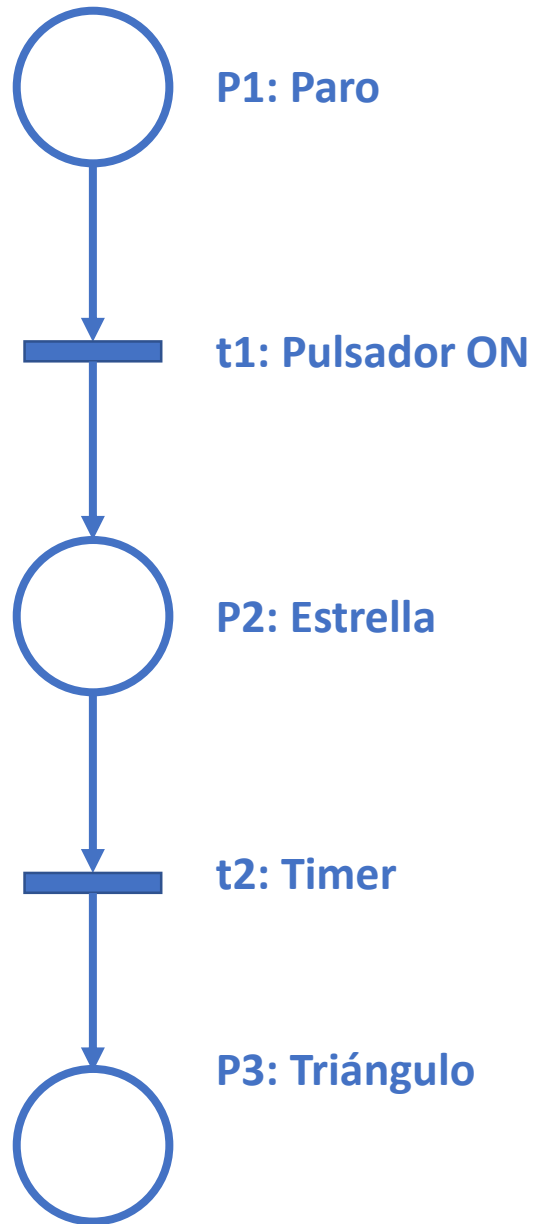


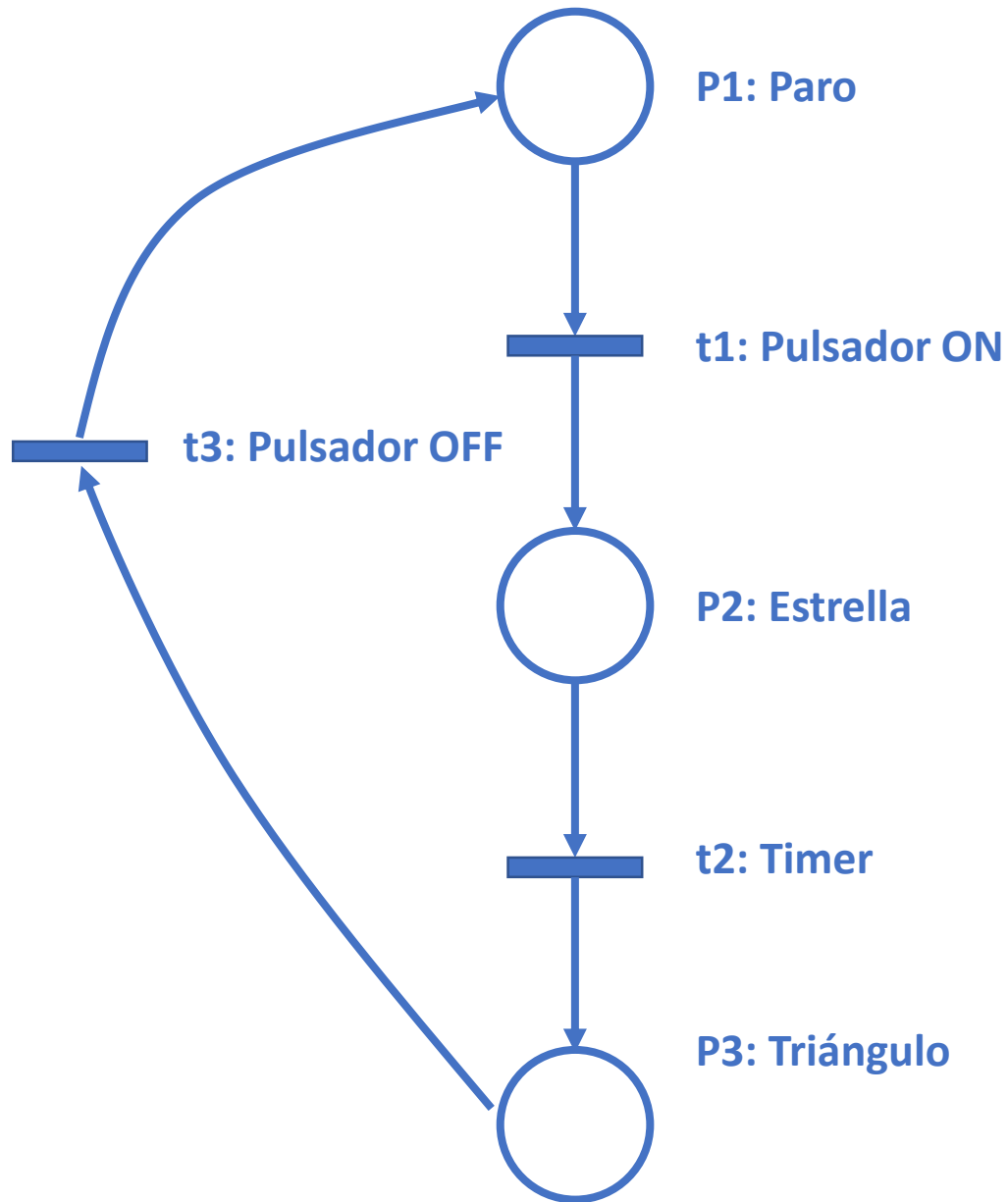
P2: Estrella

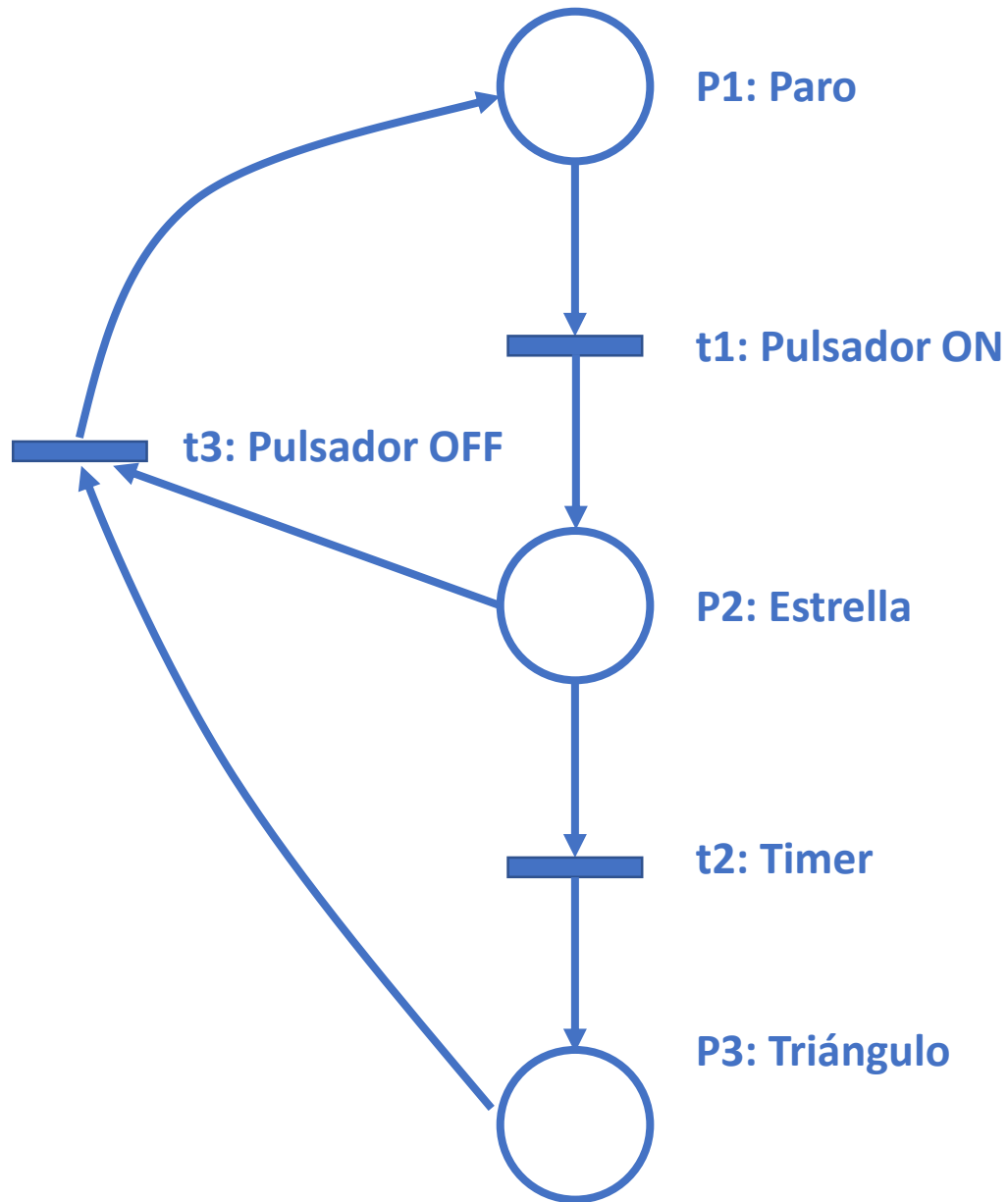


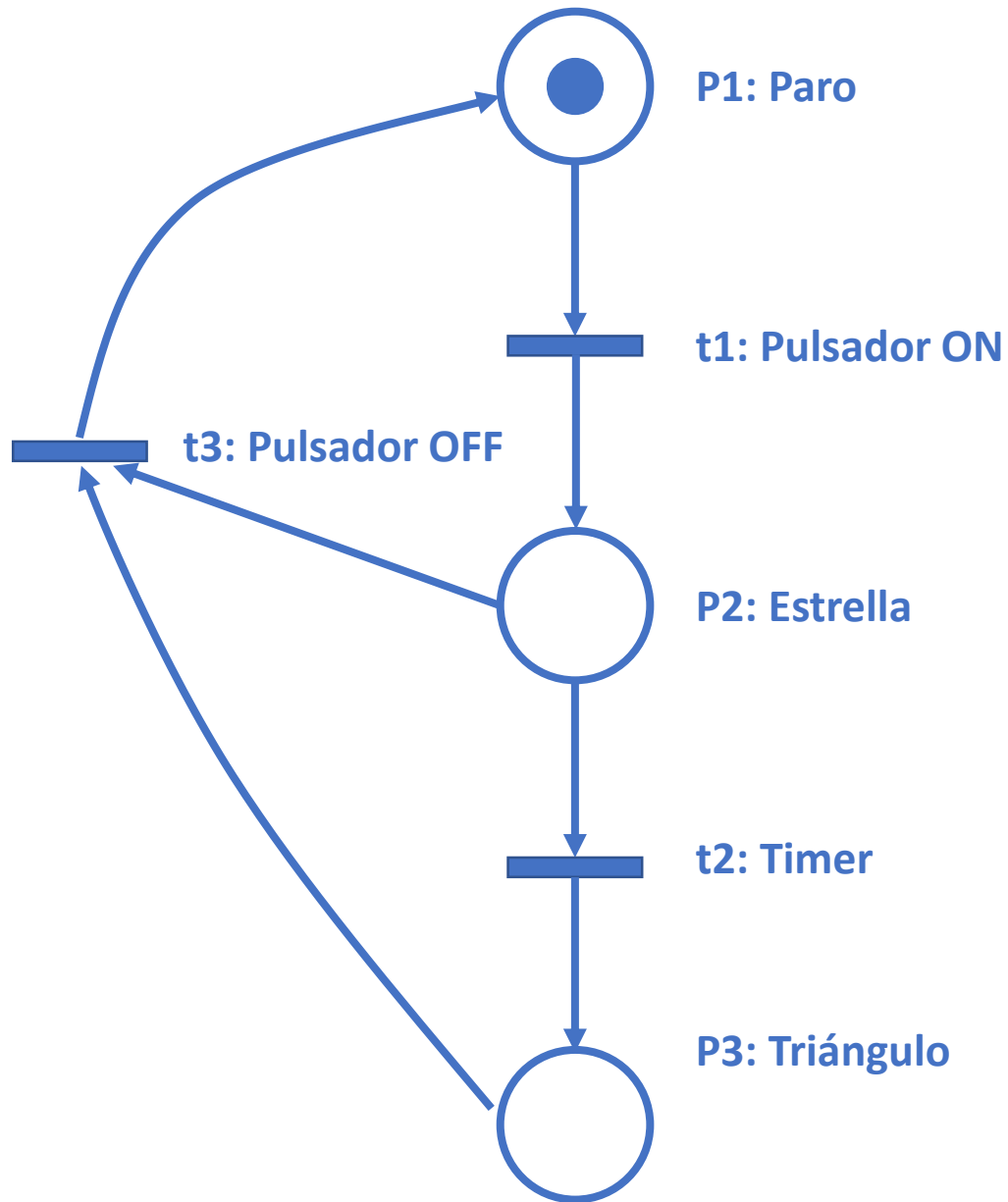
P3: Triángulo

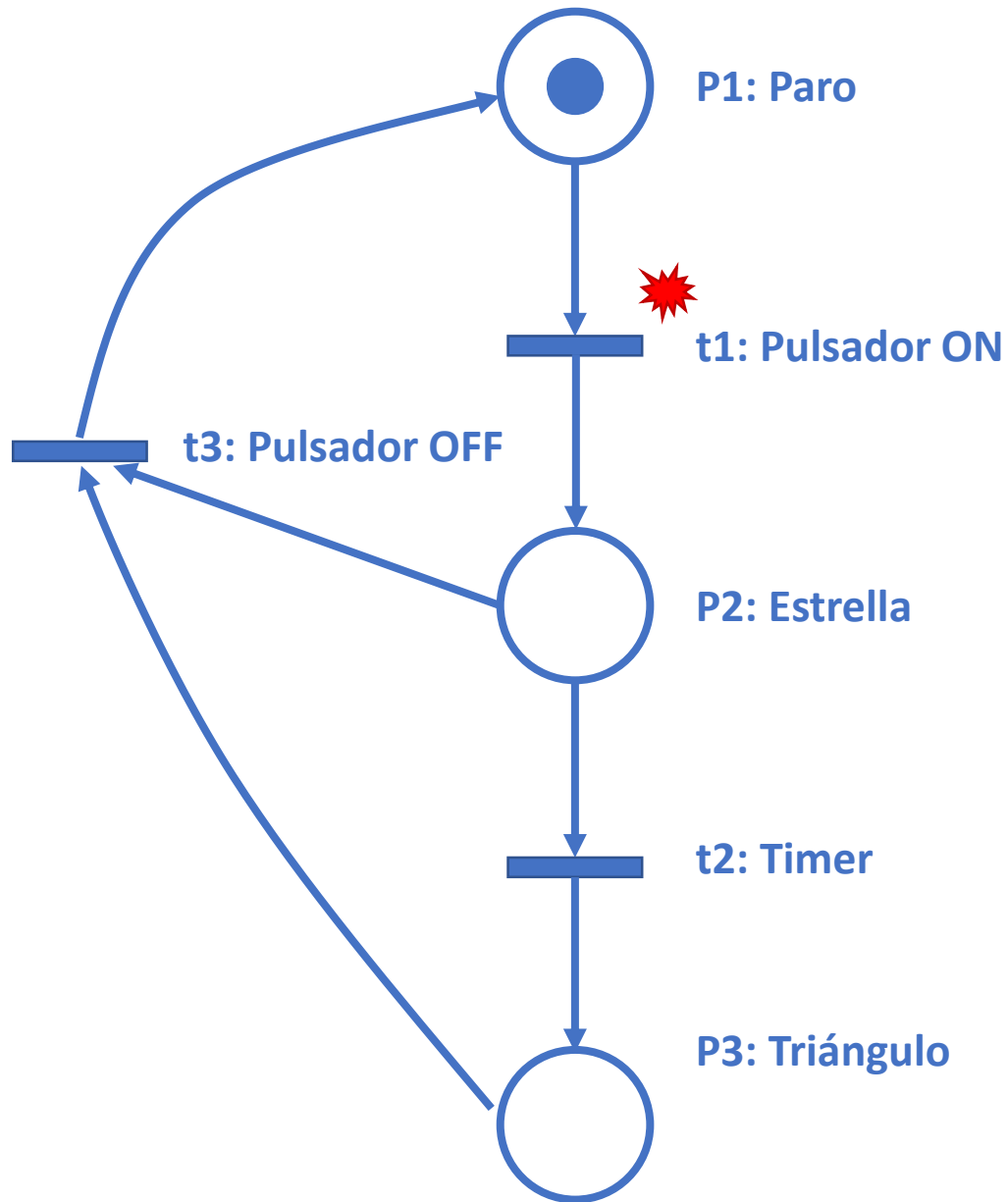


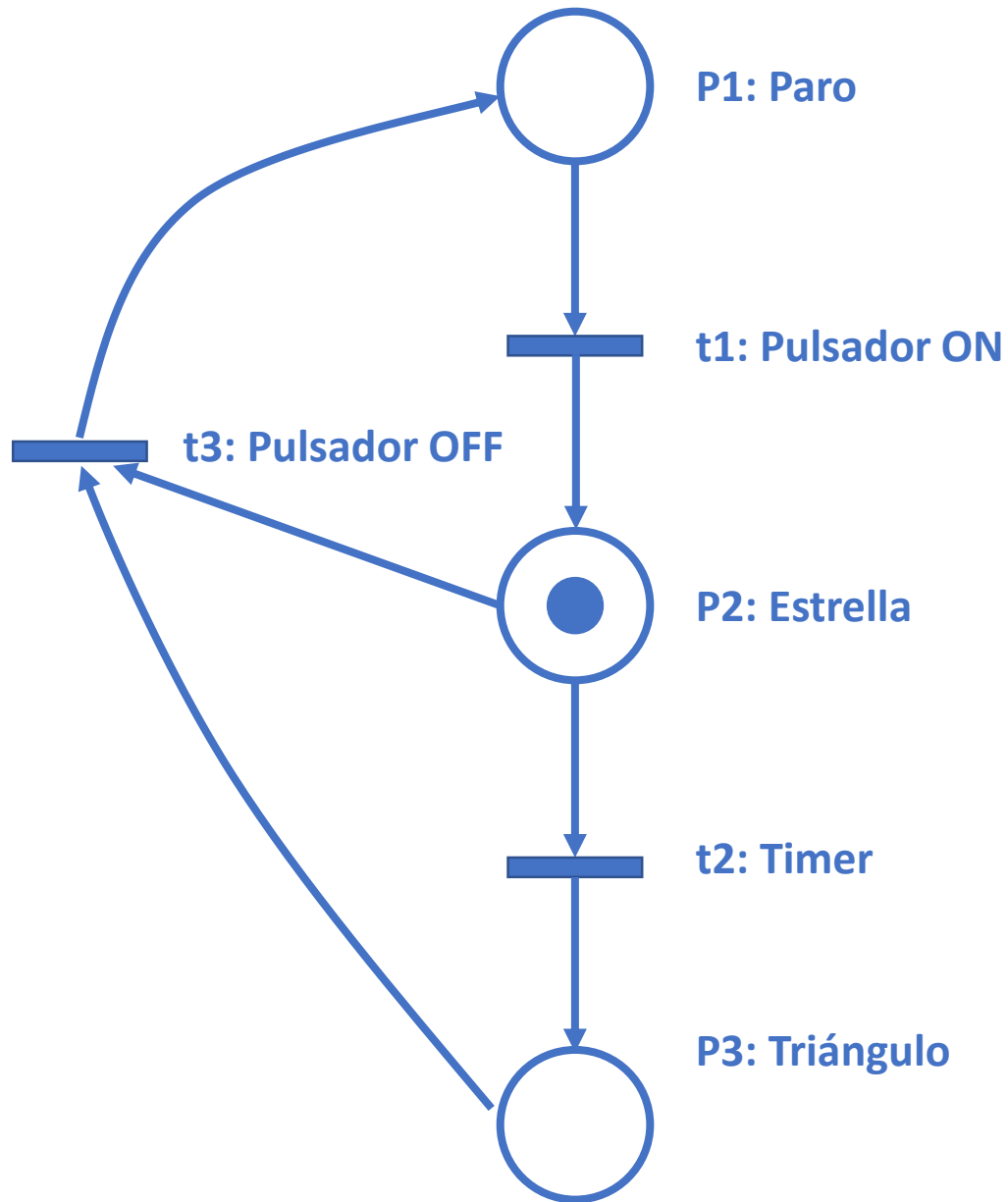


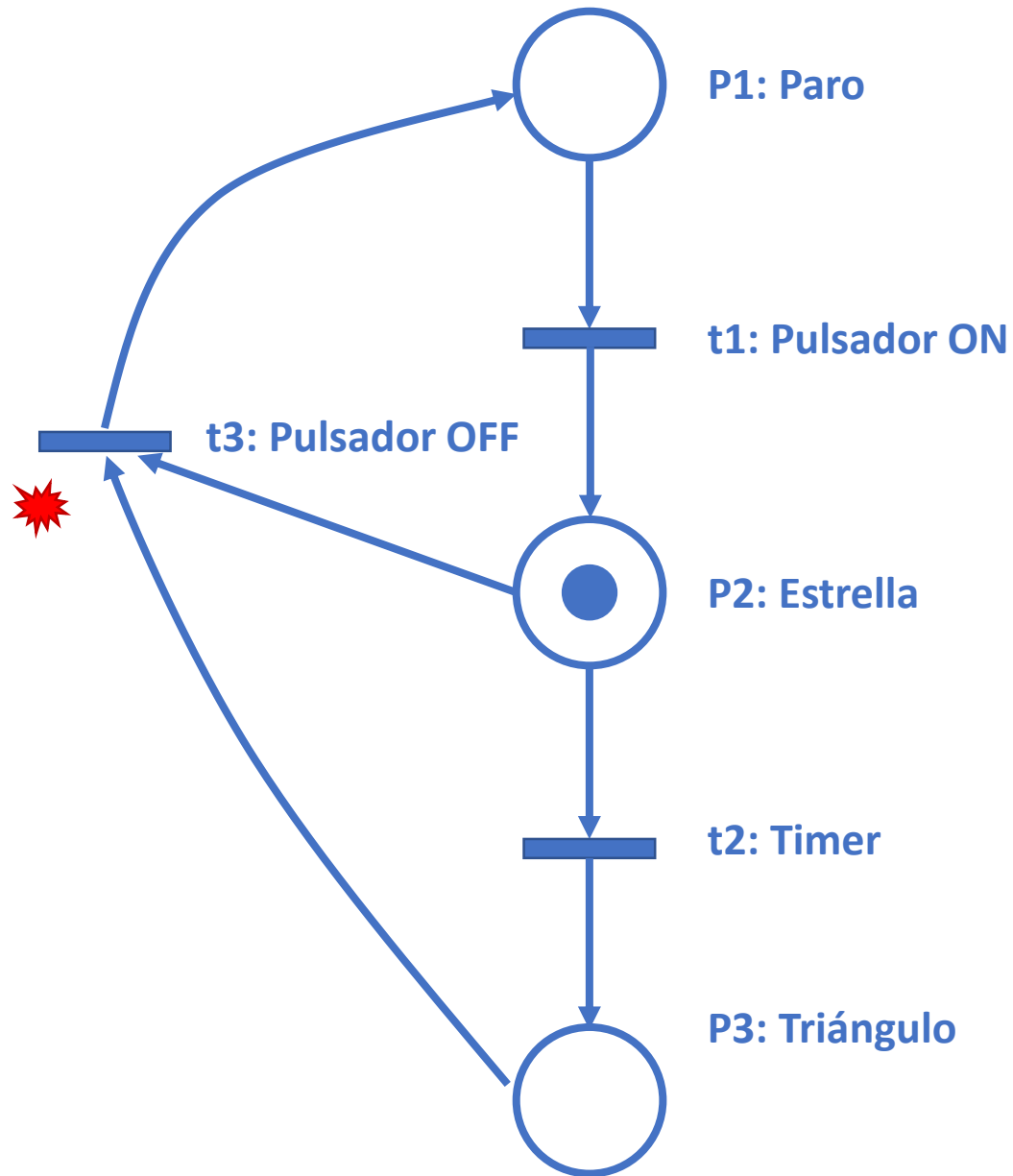


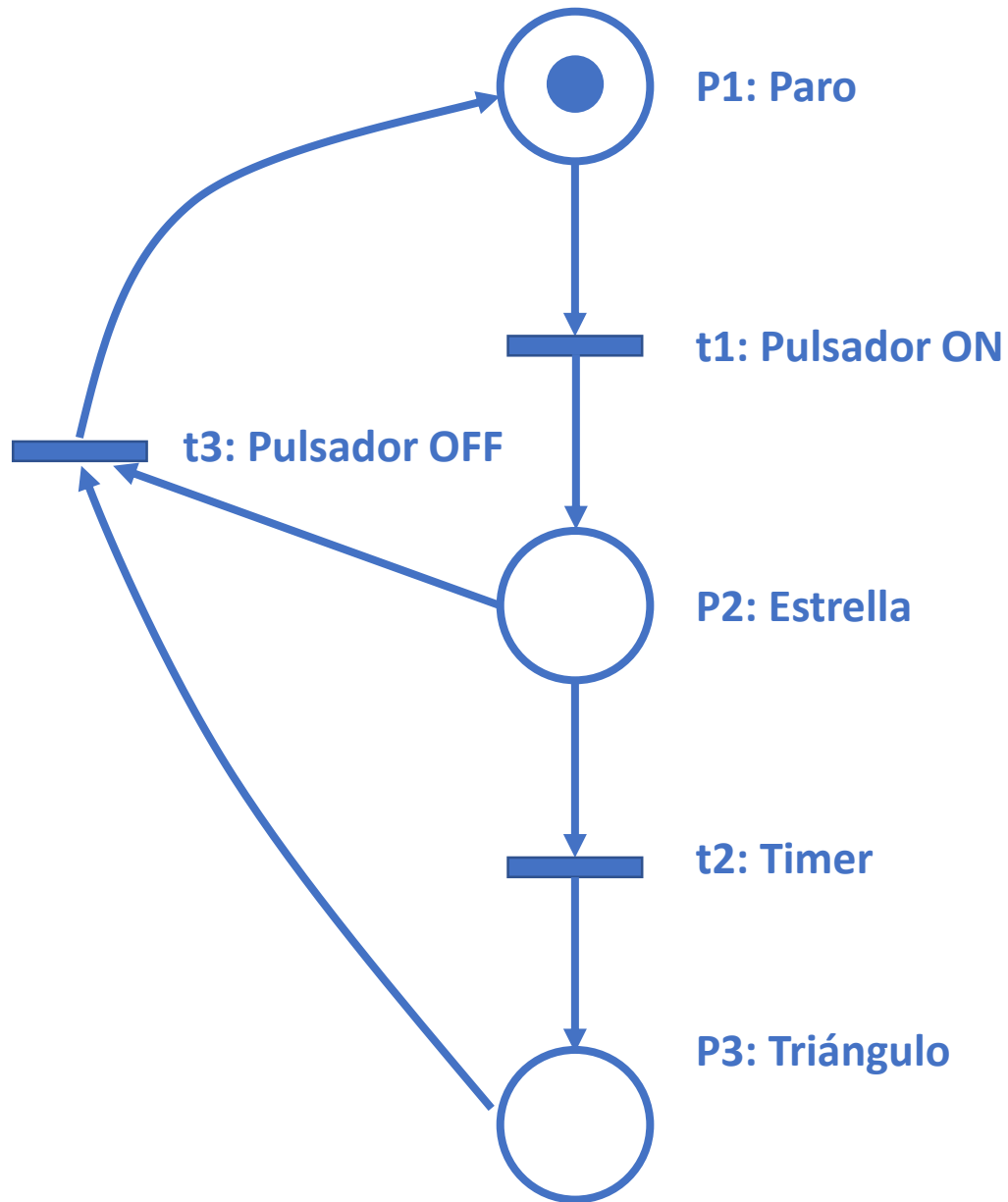


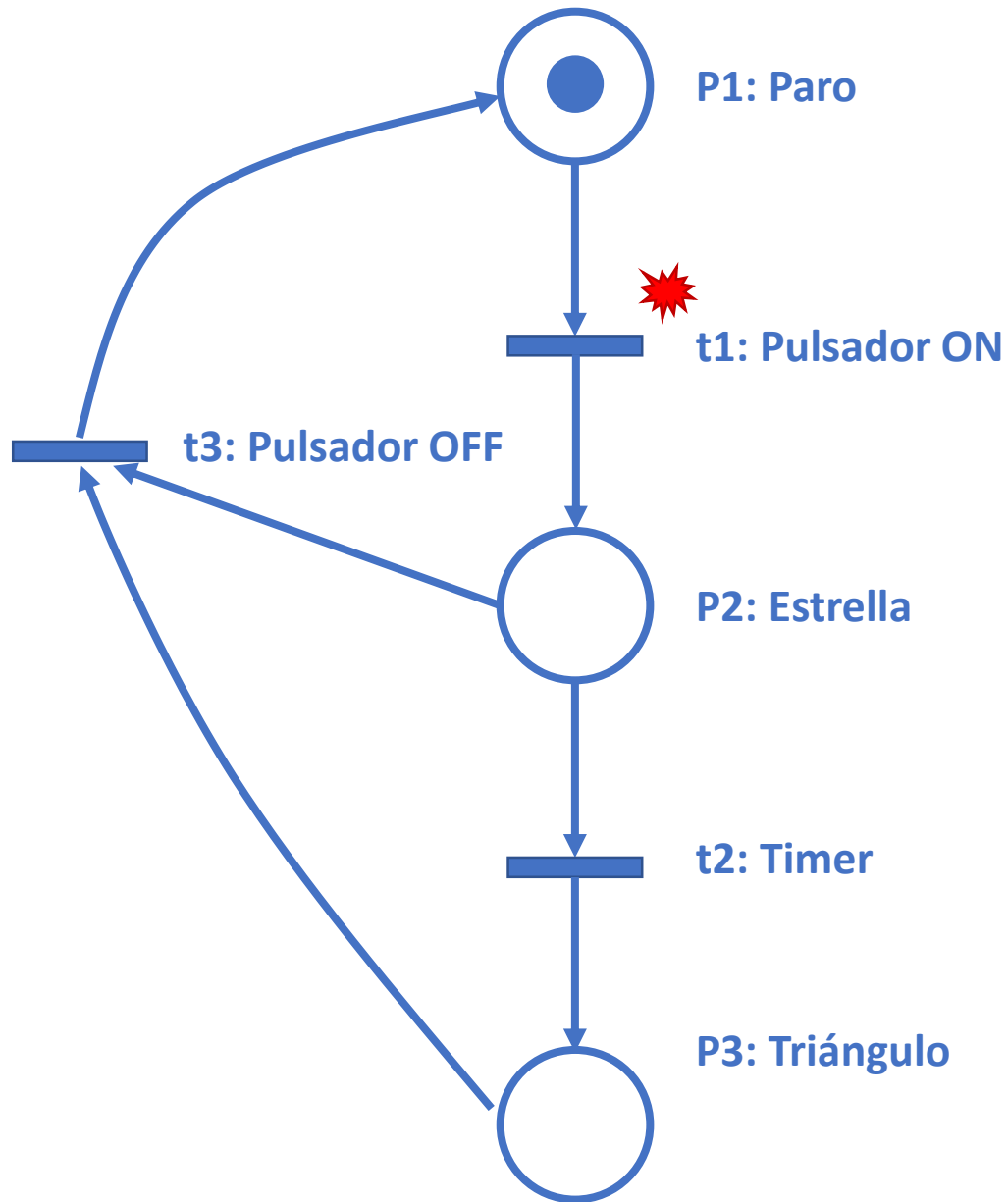


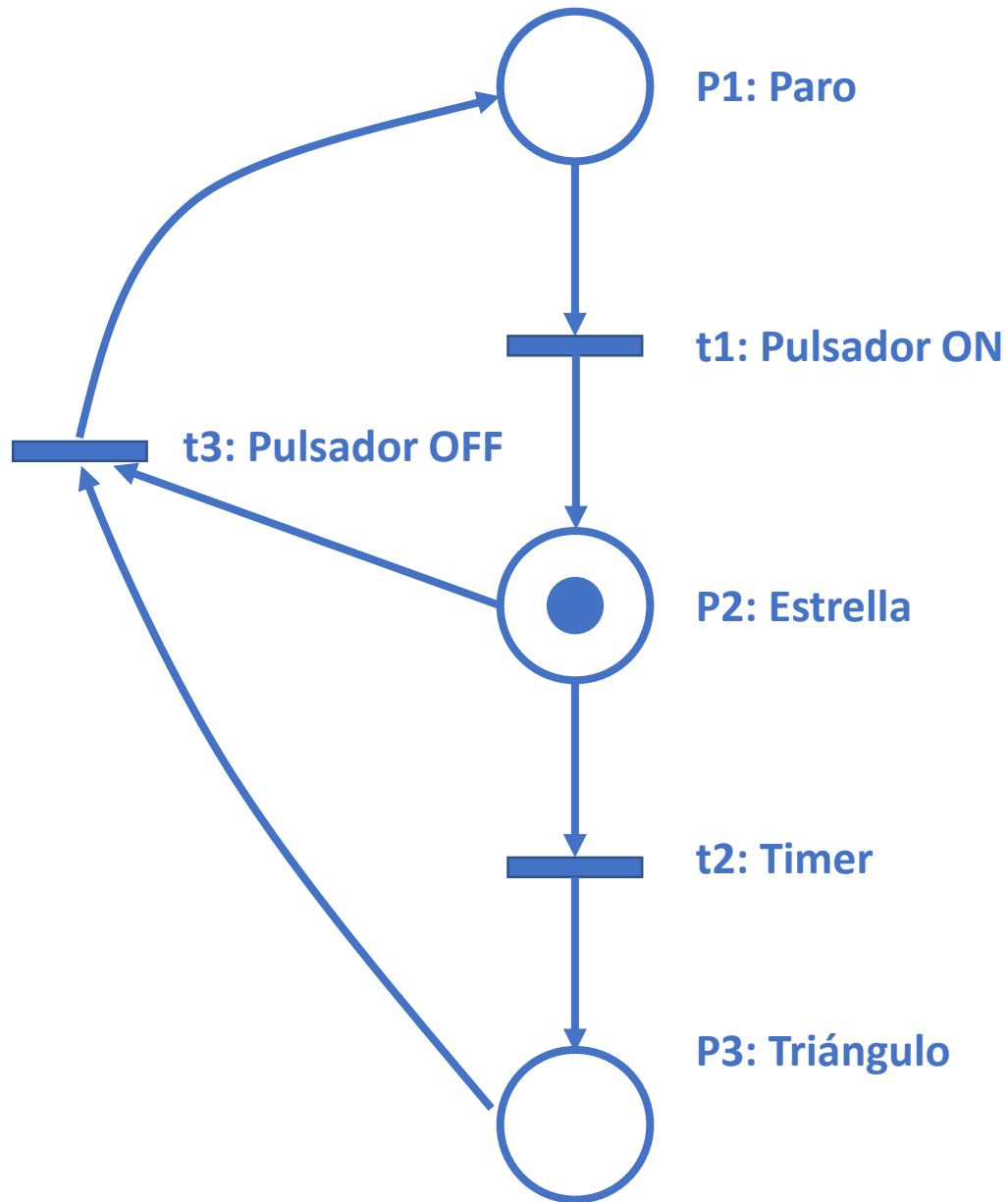


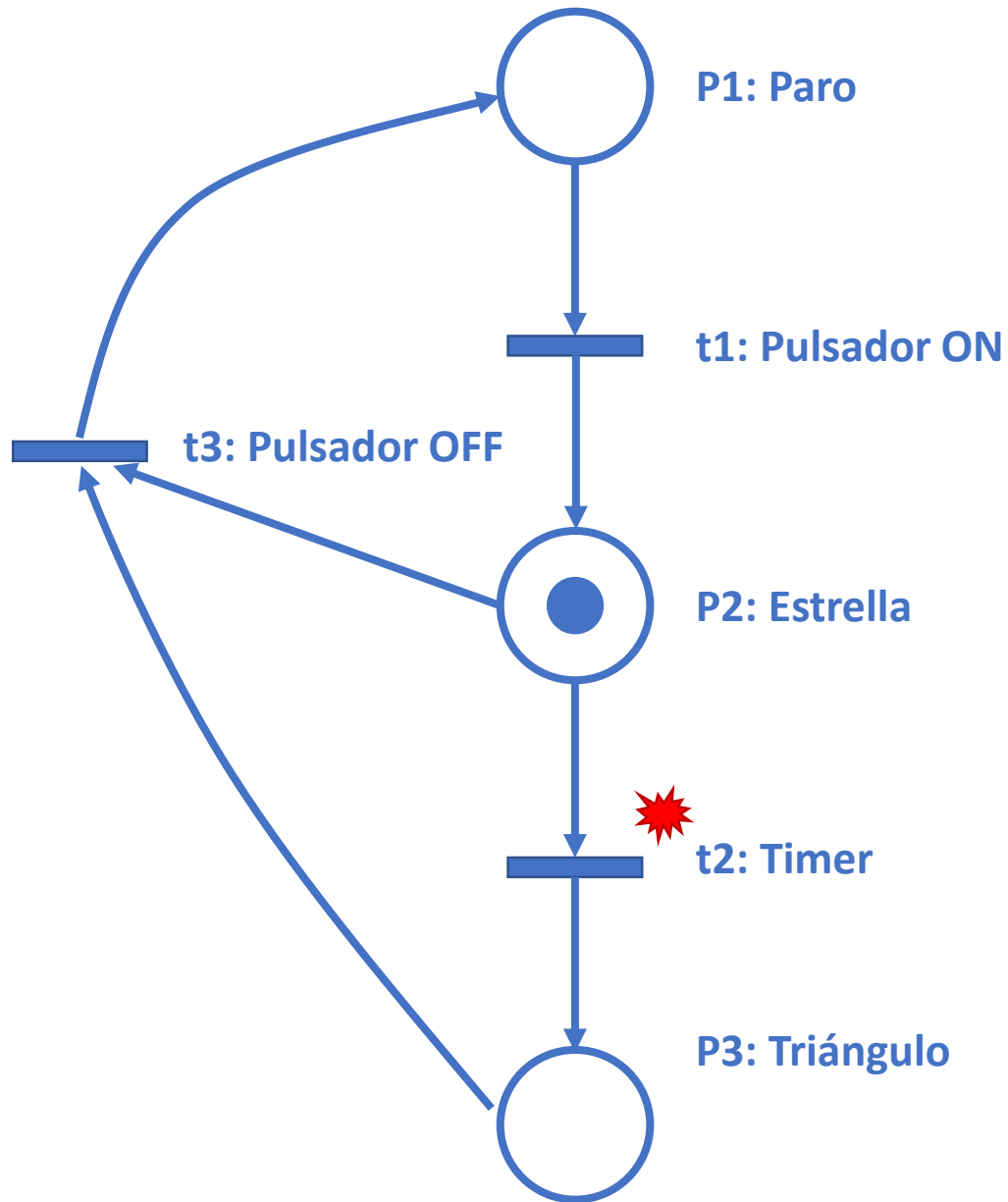


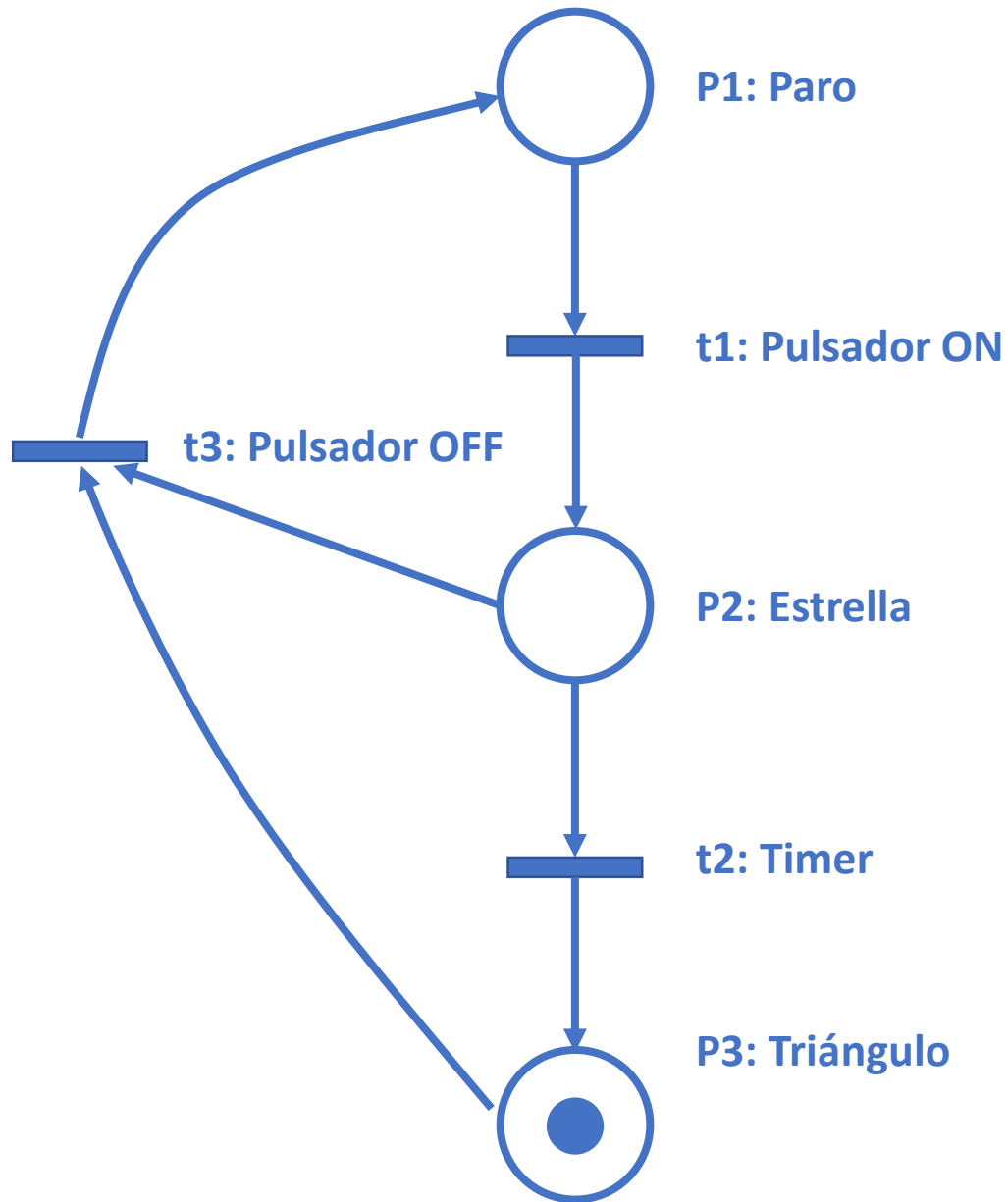


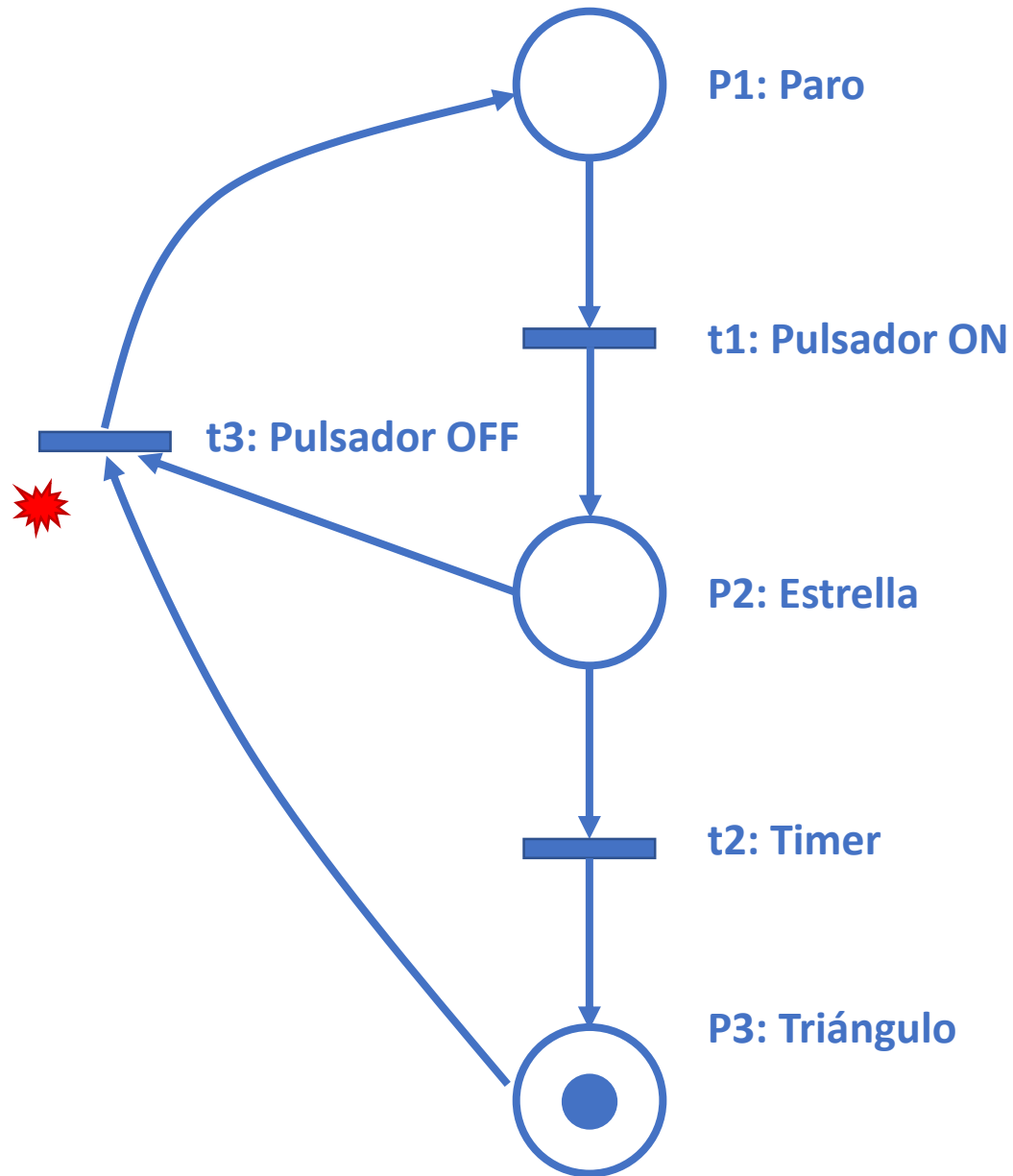


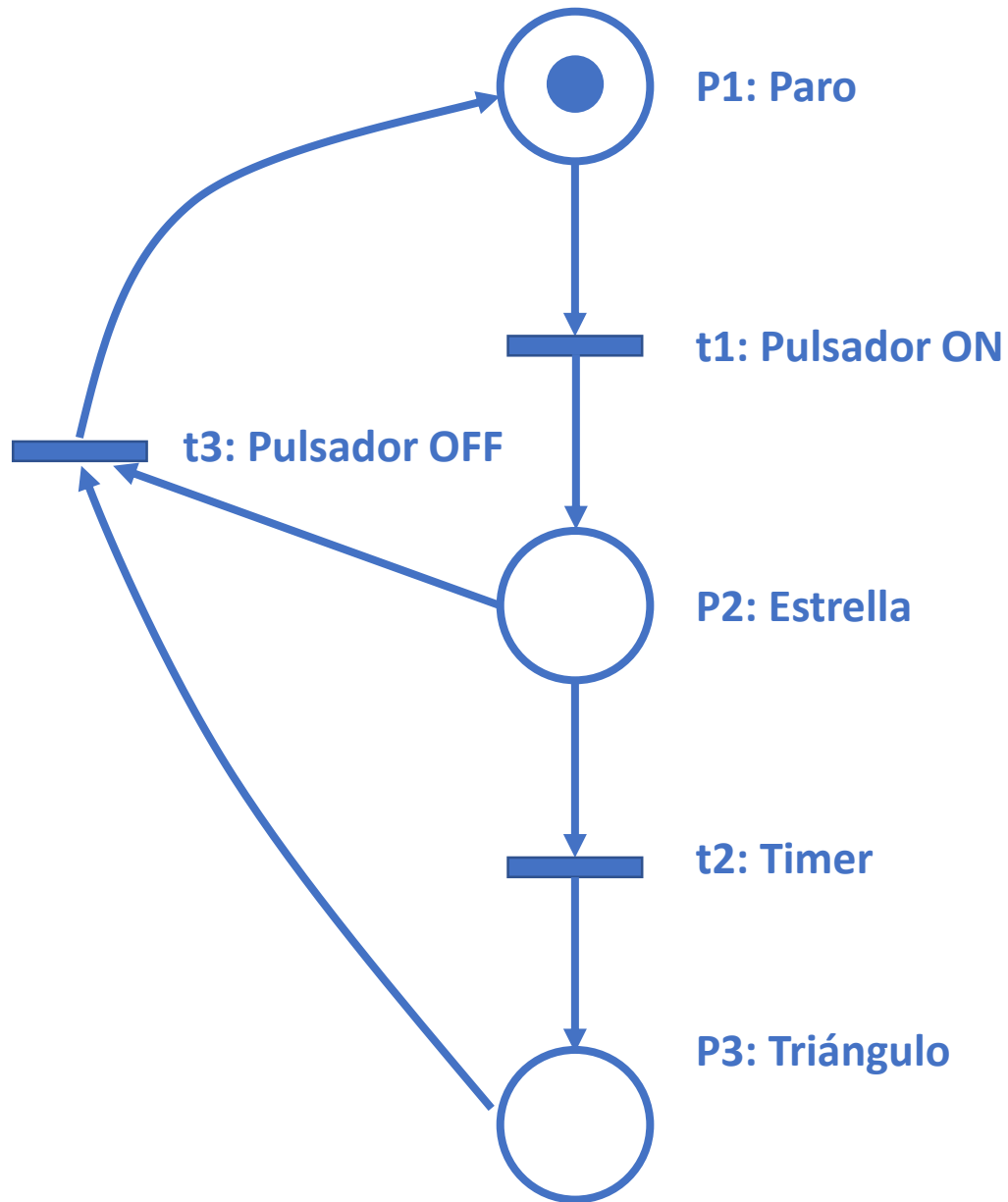














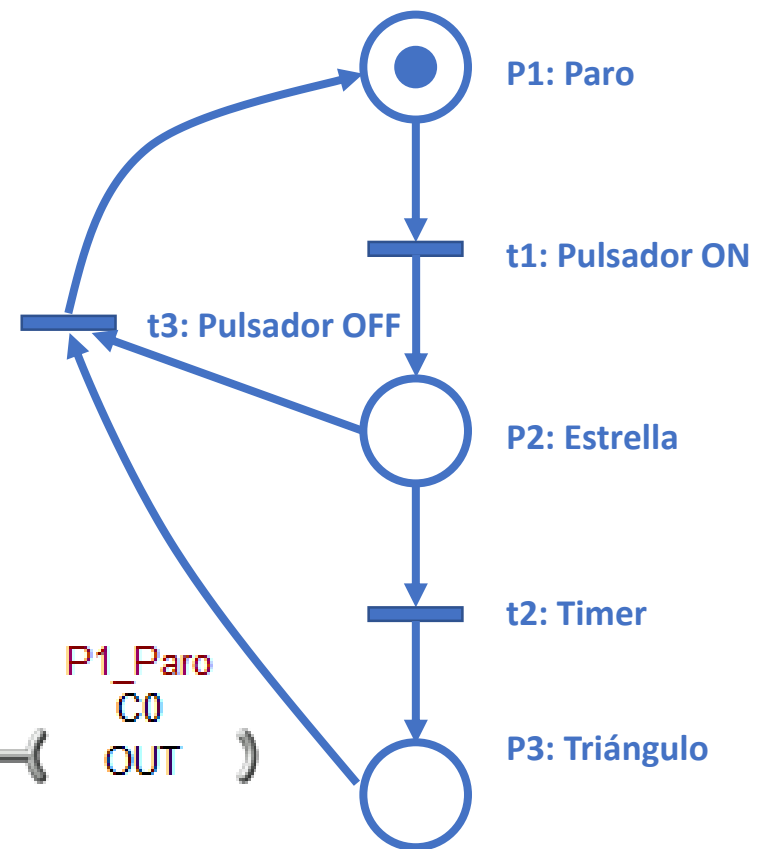
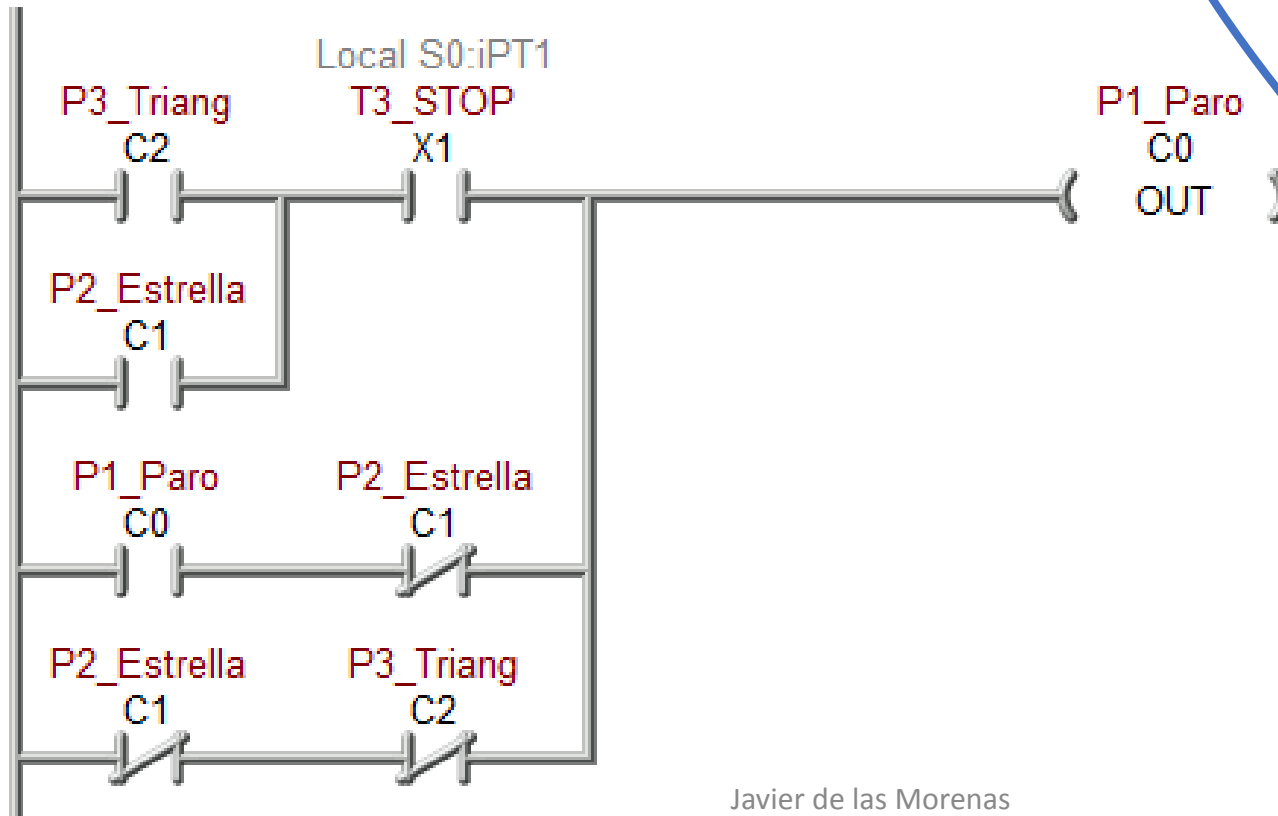
*¿Y de Red
de Petri a
Diagrama
de
contactos?*

Tabla de variables

Element	Nickname
C0	P1_Paro
C1	P2_Estrella
C2	P3_Triang
T0	T2_TIMER
T0.Done *	T2_TIMER.Done
X0	T1_START
X1	T3_STOP
Y0	KM1
Y1	KM3
Y2	KM2

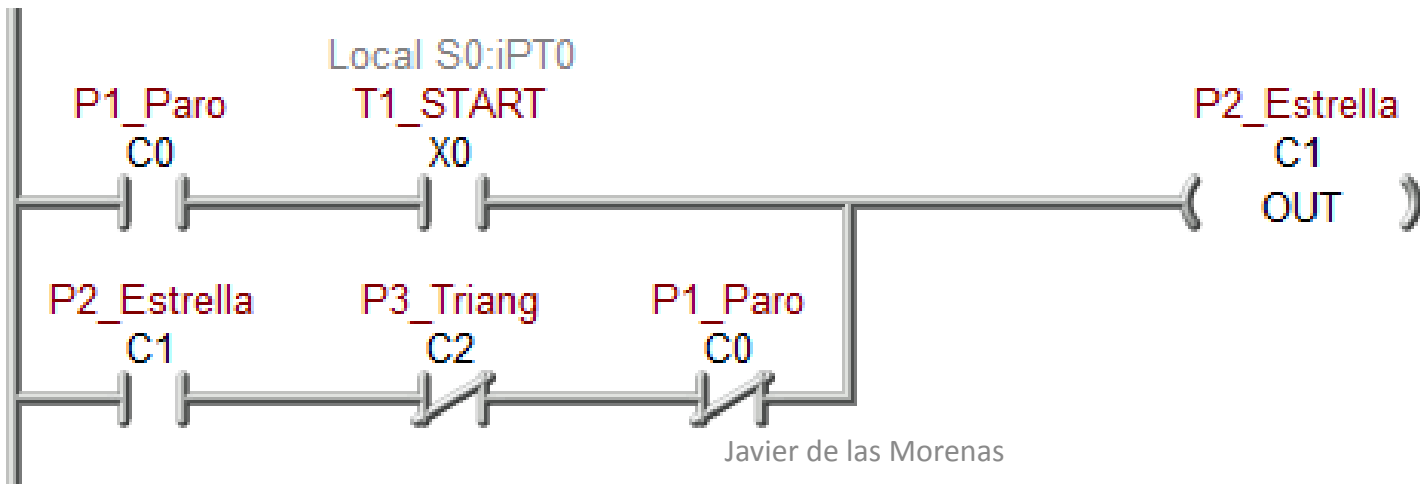
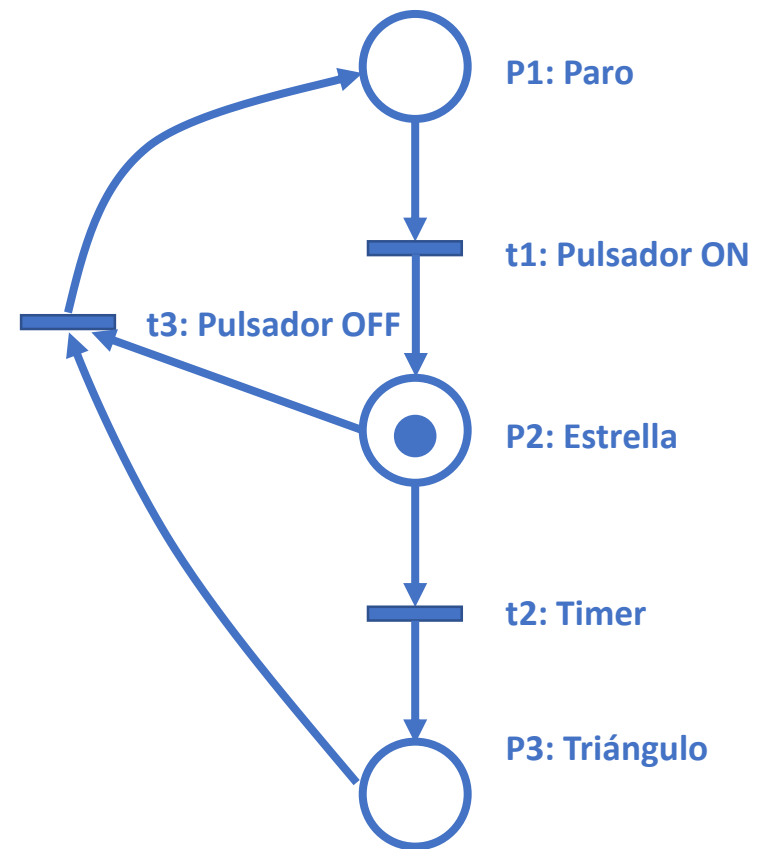
¿Cuándo estaré en P1?

- Cuando esté en P2, suceda t3 (OFF)
- Cuando esté en P3, suceda t3 (OFF)
- Estando en P1, NO se active P2



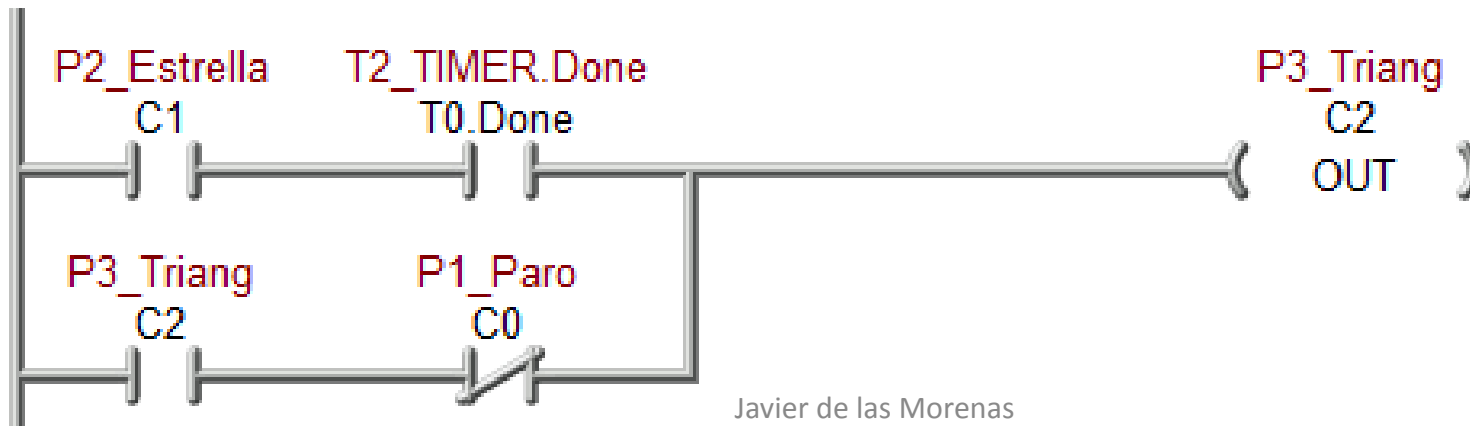
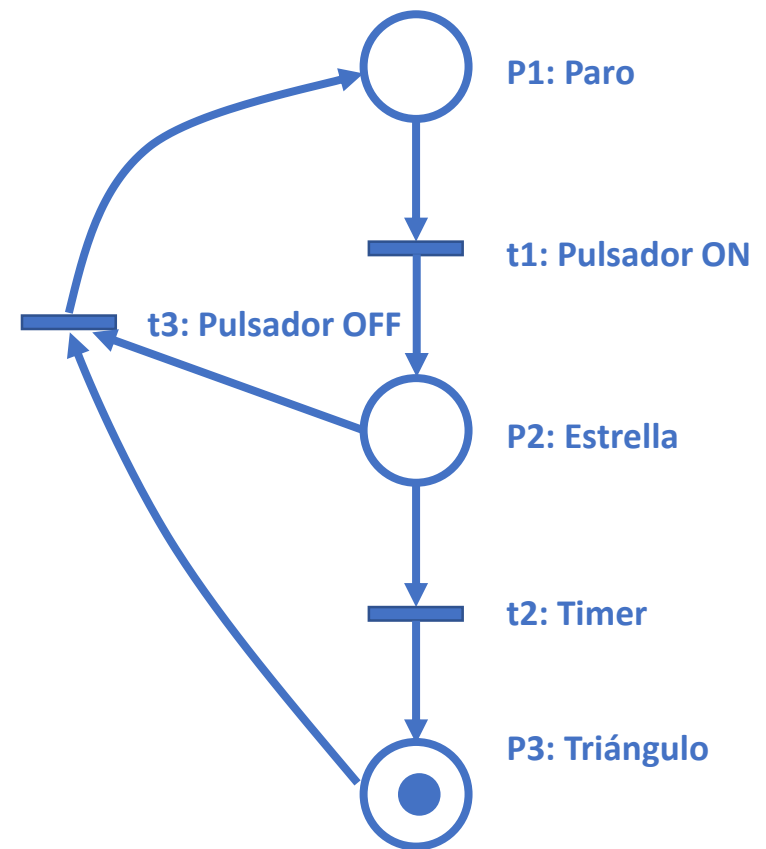
¿Cuándo estaré en P2?

- Cuando esté en P1, suceda t1 (ON)
- Estando en P2, NO se active P1 (t3)
- Estando en P2, NO se active P3 (t2)



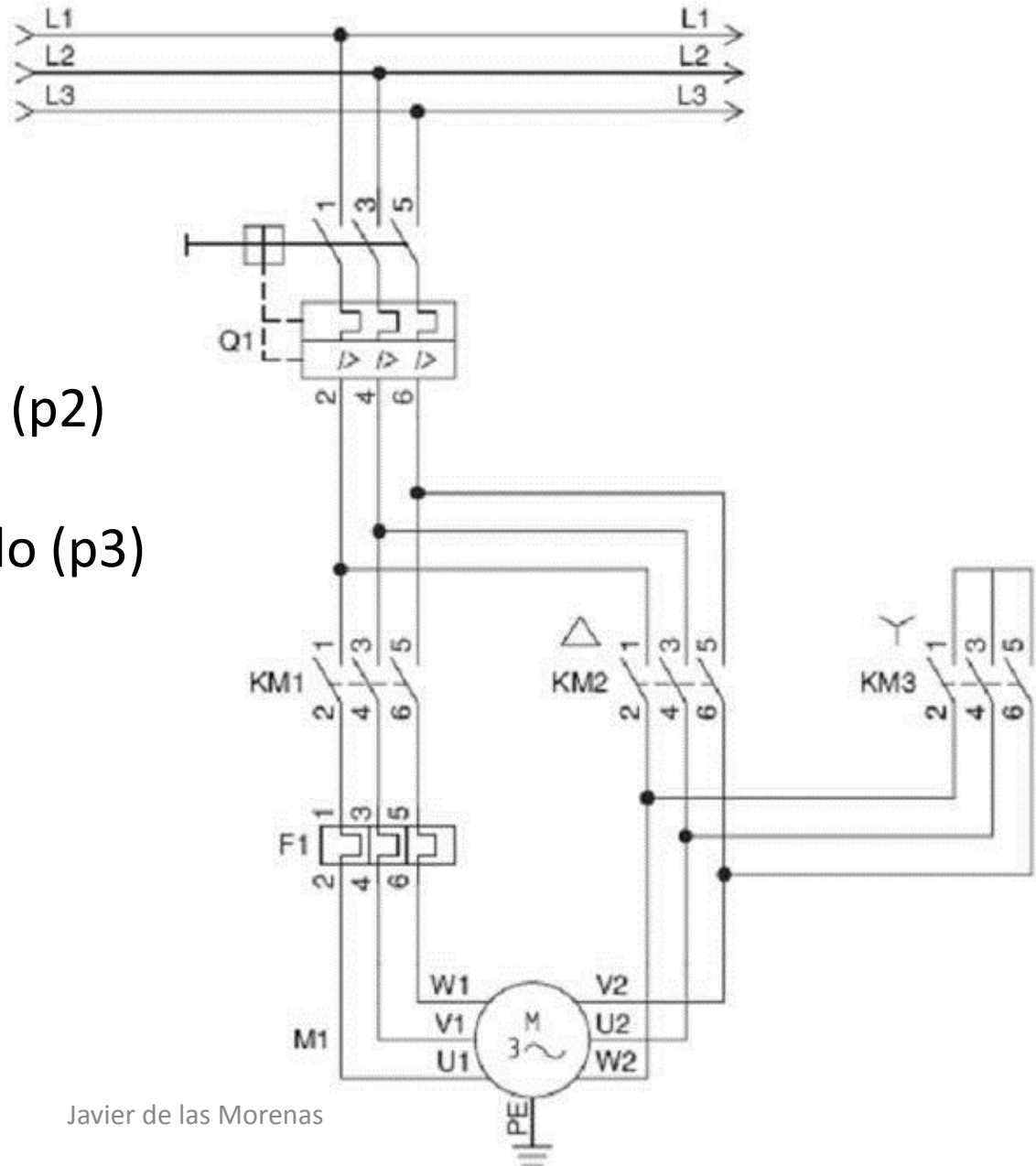
¿Cuándo estaré en P3?

- Cuando esté en P2, suceda t2 (Timer)
- Estando en P3, NO se active P1 (t3)



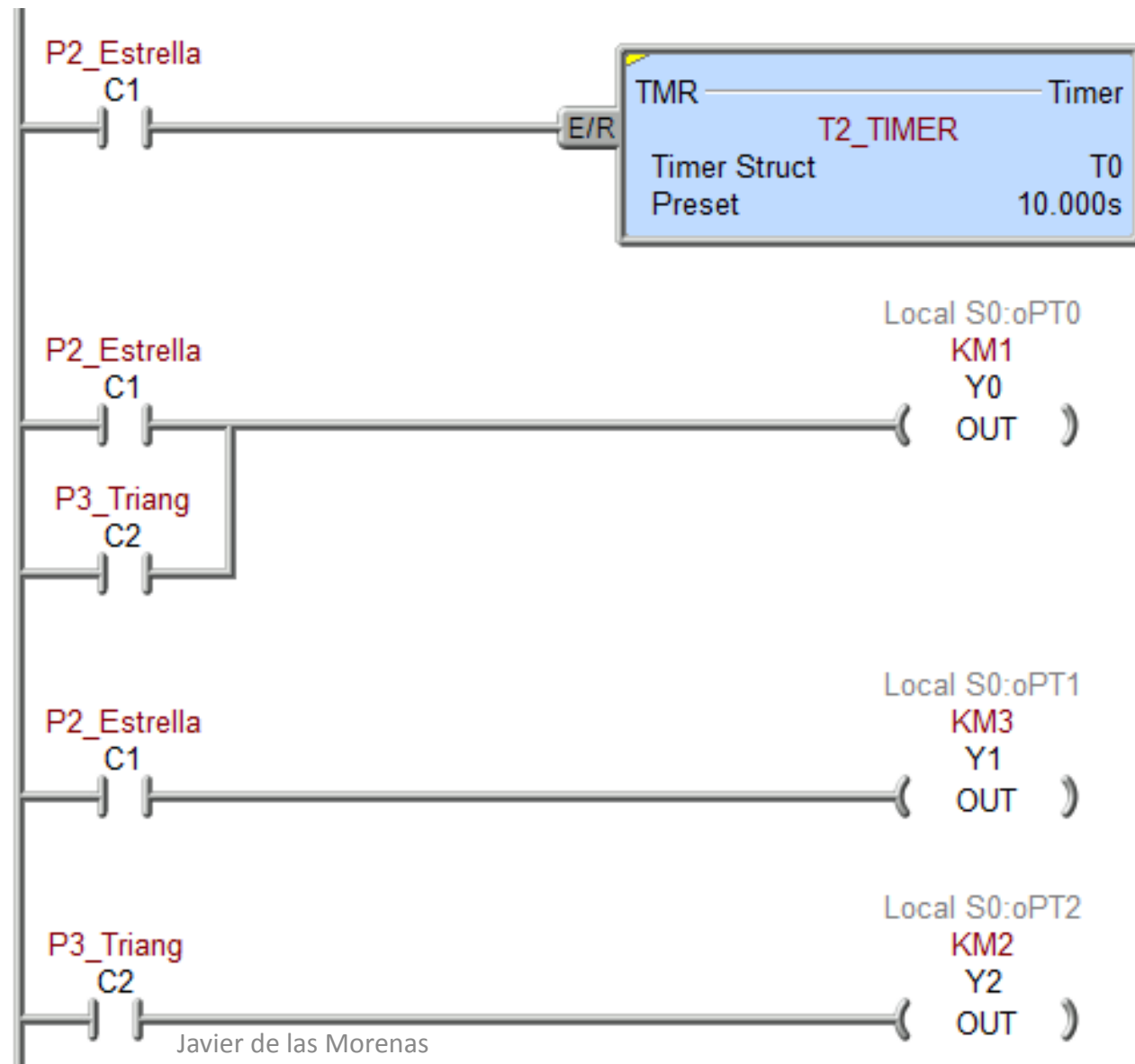
Arranque estrella-triángulo

- Lugares (estados):
 - Parado (p1)
 - Conexión estrella (p2)
 - KM1+KM3
 - Conexión triángulo (p3)
 - KM1+KM2



SALIDAS

- Parado (P1)
- Estrella (P2)
 - KM1+KM3
- Triángulo (P3)
 - KM1+KM2



SIMULADOR

Do-more Simulator

File Sim

Do-more Sim

DM v2.3.0
Sim v2.3.0

PWR

SerRX

RUN

SerTX

ROM

EthRX

ERR

EthTX

RUN

TERM

STOP

16 DI

X0	X8
X1	X9
X2	X10
X3	X11
X4	X12
X5	X13
X6	X14
X7	X15

16 DO

Y0	Y8
Y1	Y9
Y2	Y10
Y3	Y11
Y4	Y12
Y5	Y13
Y6	Y14
Y7	Y15

8 Analog Inputs

WX0	0
WX1	0
WX2	0
WX3	0
WX4	0
WX5	0
WX6	0
WX7	0

8 Analog Outputs

WY0	0
WY1	0
WY2	0
WY3	0
WY4	0
WY5	0
WY6	0
WY7	0

C Memory

C0C1C2C3C4C5C6C7C8C9C10C11C12C13C14C15C16C17C18C19C20C21C22C23

Counters

CT0 .Acc	0	Done
CT1 .Acc	0	Done
CT2 .Acc	0	Done

Timers

T0 .Acc	0	Done
T1 .Acc	0	Done
T2 .Acc	0	Done

V Memory

V0	0
V1	0
V2	0
V3	0
V4	0
V5	0
V6	0
V7	0

D Memory

D0	0
D1	0
D2	0
D3	0
D4	0
D5	0
D6	0
D7	0

R Memory

R0	0.000
R1	0.000
R2	0.000
R3	0.000
R4	0.000
R5	0.000
R6	0.000
R7	0.000

Strings

MSG	
ERR	
SS0	
SS1	
SS2	
SS3	
SL0	

Exit

SIMULADOR

Do-more Simulator

File Sim

Do-more Sim

DM v2.3.0
Sim v2.3.0

PWR SerRX
RUN SerTX
ROM EthRX
ERR EthTX

RUN
TERM
STOP

16 DI

X0	X8
X1	X9
X2	X10
X3	X11
X4	X12
X5	X13
X6	X14
X7	X15

16 DO

Y0	Y8
Y1	Y9
Y2	Y10
Y3	Y11
Y4	Y12
Y5	Y13
Y6	Y14
Y7	Y15

8 Analog Inputs

WX0	0
WX1	0
WX2	0
WX3	0
WX4	0
WX5	0
WX6	0
WX7	0

8 Analog Outputs

WY0	0
WY1	0
WY2	0
WY3	0
WY4	0
WY5	0
WY6	0
WY7	0

C Memory C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21 C22 C23

Counters

CT0 .Acc	0	Done
CT1 .Acc	0	Done
CT2 .Acc	0	Done

Timers

T0 .Acc	0	Done
T1 .Acc	0	Done
T2 .Acc	0	Done

V Memory

V0	0
V1	0
V2	0
V3	0
V4	0
V5	0
V6	0
V7	0

D Memory

D0	0
D1	0
D2	0
D3	0
D4	0
D5	0
D6	0
D7	0

R Memory

R0	0.000
R1	0.000
R2	0.000
R3	0.000
R4	0.000
R5	0.000
R6	0.000
R7	0.000

Strings

MSG	
ERR	
SS0	
SS1	
SS2	
SS3	
SL0	

Exit

SIMULADOR

Do-more Simulator

File Sim

Do-more Sim

DM v2.3.0
Sim v2.3.0

PWR

SerR

RUN

SerT

ROM

EthR

ERR

EthT

RUN
TERM
STOP

16 DI

X0	X8
X1	X9
X2	X10
X3	X11
X4	X12
X5	X13
X6	X14
X7	X15

16 DO

Y0	Y8
Y1	Y9
Y2	Y10
Y3	Y11
Y4	Y12
Y5	Y13
Y6	Y14
Y7	Y15

8 Analog Inputs

WX0	0
WX1	0
WX2	0
WX3	0
WX4	0
WX5	0
WX6	0
WX7	0

8 Analog Outputs

WY0	0
WY1	0
WY2	0
WY3	0
WY4	0
WY5	0
WY6	0
WY7	0

C Memory

C0

C1

C2

C3

C4

C5

C6

C7

C8

C9

C10

C11

C12

C13

C14

C15

C16

C17

C18

C19

C20

C21

C22

C23

Counters

CT0 .Acc	0	Done
CT1 .Acc	0	Done
CT2 .Acc	0	Done

Timers

T0 .Acc	0	Done
T1 .Acc	0	Done
T2 .Acc	0	Done

V Memory

V0	0
V1	0
V2	0
V3	0
V4	0
V5	0
V6	0
V7	0

D Memory

D0	0
D1	0
D2	0
D3	0
D4	0
D5	0
D6	0
D7	0

R Memory

R0	0.000
R1	0.000
R2	0.000
R3	0.000
R4	0.000
R5	0.000
R6	0.000
R7	0.000

Strings

MSG	
ERR	
SS0	
SS1	
SS2	
SS3	
SL0	

Exit

SIMULADOR

Do-more Simulator

File Sim

Do-more Sim

DM v2.3.0
Sim v2.3.0

PWR SerRX
RUN SerTX
ROM EthRX
ERR EthTX

RUN
TERM
STOP

16 DI

X0	X8
X1	X9
X2	X10
X3	X11
X4	X12
X5	X13
X6	X14
X7	X15

16 DO

Y0	Y8
Y1	Y9
Y2	Y10
Y3	Y11
Y4	Y12
Y5	Y13
Y6	Y14
Y7	Y15

8 Analog Inputs

WX0	0
WX1	0
WX2	0
WX3	0
WX4	0
WX5	0
WX6	0
WX7	0

8 Analog Outputs

WY0	0
WY1	0
WY2	0
WY3	0
WY4	0
WY5	0
WY6	0
WY7	0

C Memory

C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23
----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Counters

CT0 .Acc	0	Done
CT1 .Acc	0	Done
CT2 .Acc	0	Done

Timers

T0 .Acc	0	Done
T1 .Acc	0	Done
T2 .Acc	0	Done

V Memory

V0	0
V1	0
V2	0
V3	0
V4	0
V5	0
V6	0
V7	0

D Memory

D0	0
D1	0
D2	0
D3	0
D4	0
D5	0
D6	0
D7	0

R Memory

R0	0.000
R1	0.000
R2	0.000
R3	0.000
R4	0.000
R5	0.000
R6	0.000
R7	0.000

Strings

MSG	
ERR	
SS0	
SS1	
SS2	
SS3	
SL0	

Exit

SIMULADOR

Do-more Simulator

File Sim

Do-more Sim

DM v2.3.0
Sim v2.3.0

PWR SerRX
RUN SerTX
ROM EthRX
ERR EthTX

RUN
TERM
STOP

16 DI

X0	X8
X1	X9
X2	X10
X3	X11
X4	X12
X5	X13
X6	X14
X7	X15

16 DO

Y0	Y8
Y1	Y9
Y2	Y10
Y3	Y11
Y4	Y12
Y5	Y13
Y6	Y14
Y7	Y15

8 Analog Inputs

WX0	0
WX1	0
WX2	0
WX3	0
WX4	0
WX5	0
WX6	0
WX7	0

8 Analog Outputs

WY0	0
WY1	0
WY2	0
WY3	0
WY4	0
WY5	0
WY6	0
WY7	0

C Memory C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21 C22 C23

Counters

CT0 .Acc	0	Done
CT1 .Acc	0	Done
CT2 .Acc	0	Done

Timers

T0 .Acc	0	Done
T1 .Acc	0	Done
T2 .Acc	0	Done

V Memory

V0	0
V1	0
V2	0
V3	0
V4	0
V5	0
V6	0
V7	0

D Memory

D0	0
D1	0
D2	0
D3	0
D4	0
D5	0
D6	0
D7	0

R Memory

R0	0.000
R1	0.000
R2	0.000
R3	0.000
R4	0.000
R5	0.000
R6	0.000
R7	0.000

Strings

MSG	
ERR	
SS0	
SS1	
SS2	
SS3	
SL0	

Exit

SIMULADOR

Do-more Simulator

File Sim

Do-more Sim

DM v2.3.0
Sim v2.3.0

PWR SerRX
RUN SerTX
ROM EthRX
ERR EthTX

RUN
TERM
STOP

16 DI

X0	X8
X1	X9
X2	X10
X3	X11
X4	X12
X5	X13
X6	X14
X7	X15

16 DO

Y0	Y8
Y1	Y9
Y2	Y10
Y3	Y11
Y4	Y12
Y5	Y13
Y6	Y14
Y7	Y15

8 Analog Inputs

WX0	0
WX1	0
WX2	0
WX3	0
WX4	0
WX5	0
WX6	0
WX7	0

8 Analog Outputs

WY0	0
WY1	0
WY2	0
WY3	0
WY4	0
WY5	0
WY6	0
WY7	0

C Memory

C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23
----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Counters

CT0 .Acc	0	Done
CT1 .Acc	0	Done
CT2 .Acc	0	Done

Timers

T0 .Acc	0	Done
T1 .Acc	0	Done
T2 .Acc	0	Done

V Memory

V0	0
V1	0
V2	0
V3	0
V4	0
V5	0
V6	0
V7	0

D Memory

D0	0
D1	0
D2	0
D3	0
D4	0
D5	0
D6	0
D7	0

R Memory

R0	0.000
R1	0.000
R2	0.000
R3	0.000
R4	0.000
R5	0.000
R6	0.000
R7	0.000

Strings

MSG	
ERR	
SS0	
SS1	
SS2	
SS3	
SL0	

Exit

SIMULADOR

Do-more Simulator

File Sim

Do-more Sim

DM v2.3.0
Sim v2.3.0

PWR SerRX
RUN SerTX
ROM EthRX
ERR EthTX

RUN
TERM
STOP

16 DI

X0	X8
X1	X9
X2	X10
X3	X11
X4	X12
X5	X13
X6	X14
X7	X15

16 DO

Y0	Y8
Y1	Y9
Y2	Y10
Y3	Y11
Y4	Y12
Y5	Y13
Y6	Y14
Y7	Y15

8 Analog Inputs

WX0	0
WX1	0
WX2	0
WX3	0
WX4	0
WX5	0
WX6	0
WX7	0

8 Analog Outputs

WY0	0
WY1	0
WY2	0
WY3	0
WY4	0
WY5	0
WY6	0
WY7	0

C Memory

C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21 C22 C23

Counters

CT0 .Acc	0	Done
CT1 .Acc	0	Done
CT2 .Acc	0	Done

Timers

T0 .Acc	0	Done
T1 .Acc	0	Done
T2 .Acc	0	Done

V Memory

V0	0
V1	0
V2	0
V3	0
V4	0
V5	0
V6	0
V7	0

D Memory

D0	0
D1	0
D2	0
D3	0
D4	0
D5	0
D6	0
D7	0

R Memory

R0	0.000
R1	0.000
R2	0.000
R3	0.000
R4	0.000
R5	0.000
R6	0.000
R7	0.000

Strings

MSG	
ERR	
SS0	
SS1	
SS2	
SS3	
SL0	

Exit

En funcionamiento

- Simulador Do-more

Información automatismo estrella-triángulo:

<https://automatismoindustrial.com/motores/1-3-3-motores-asincronos/arranque-estrella-triangulo/>

Simulador:

<https://support.automationdirect.com/products/domore.html>

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