TEMA 4. CADENAS DE MARKOV

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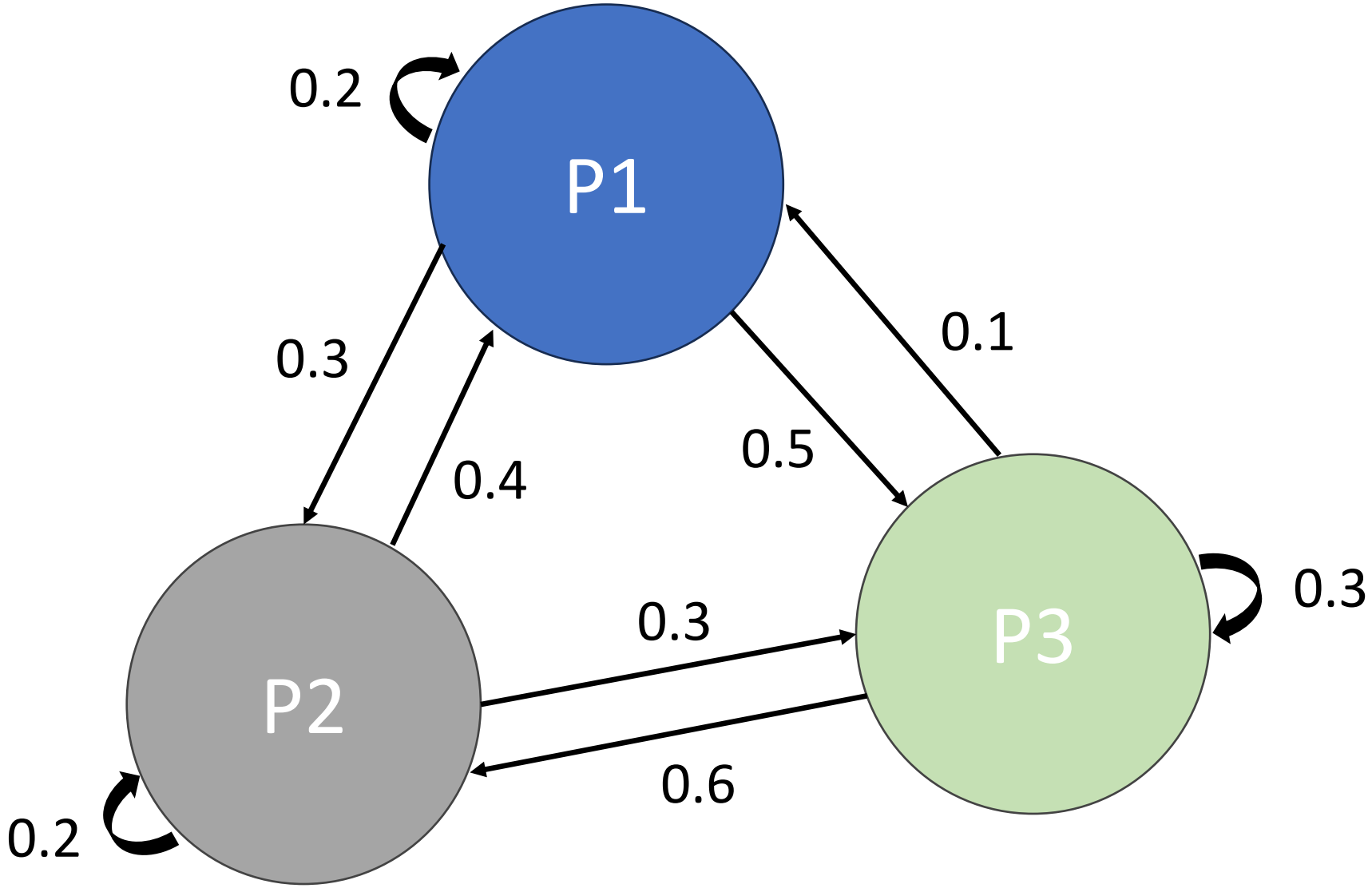
Número finito de estados

Probabilidad de ocurrencia de un evento depende del suceso inmediatamente anterior

Las probabilidades permanecerán constantes en el tiempo

CADENAS DE MARKOV



MATRIZ DE TRANSICIÓN

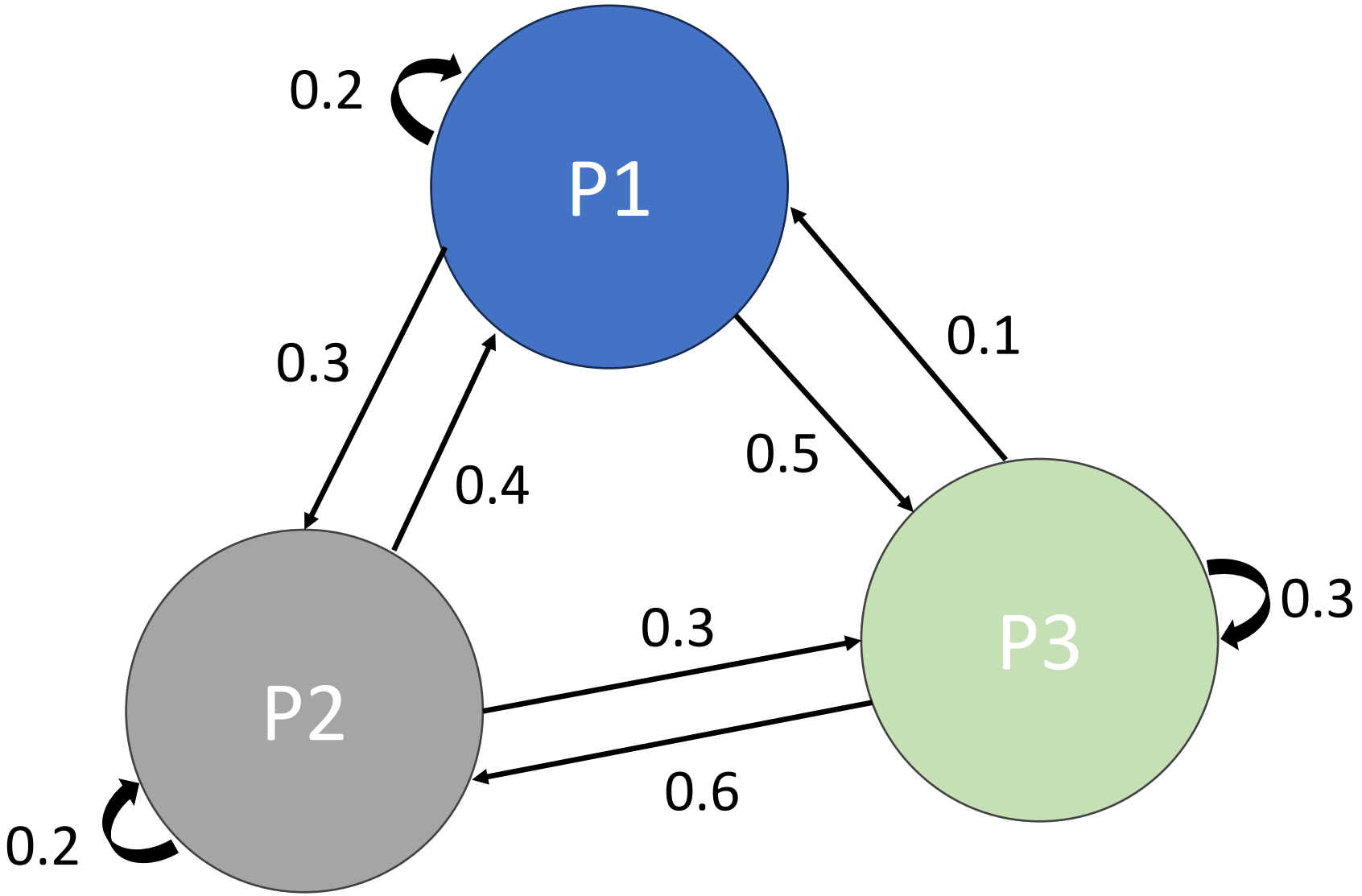
	P1	P2	P3
P1	2	3	5
P2	4	2	4
P3	1	6	3

ESTADO INICIAL

M_0

M_1

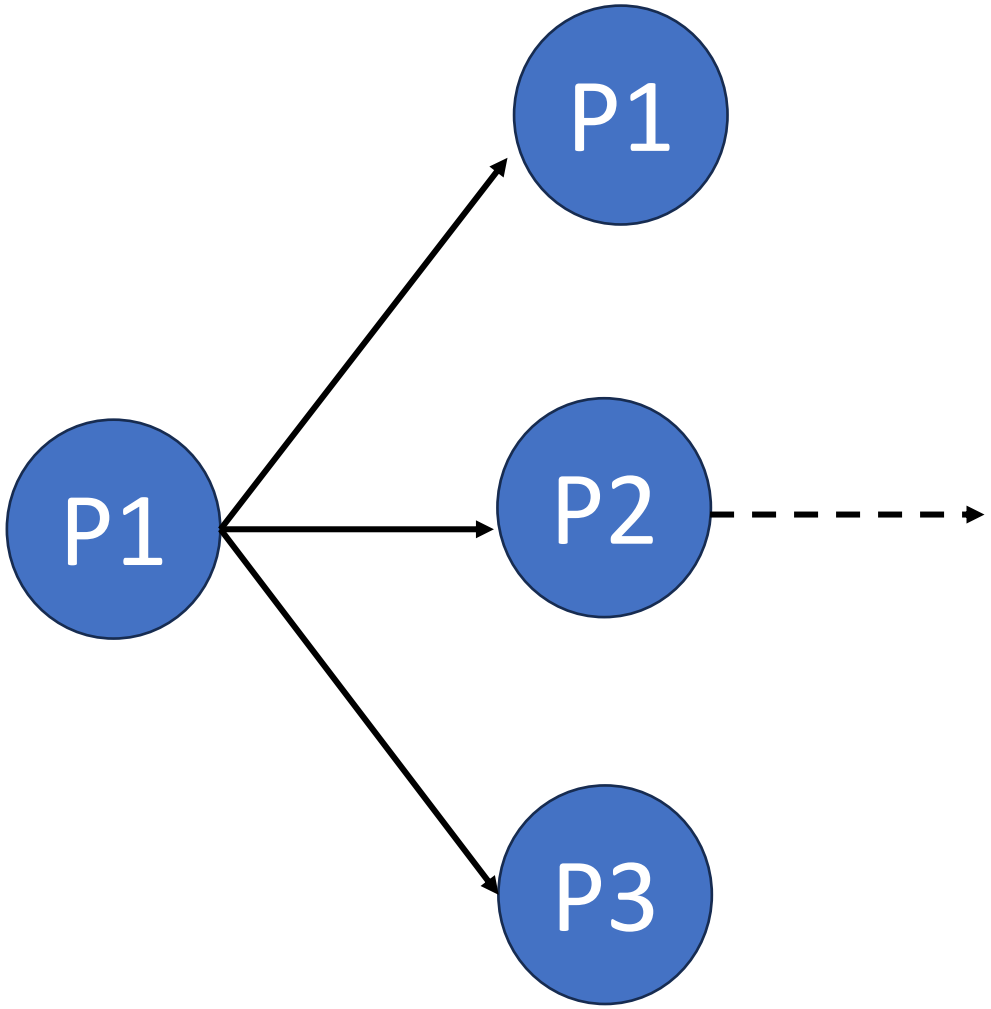
CADENAS DE MARKOV



	P1	P2	P3
P1	2	3	5
P2	4	2	4
P3	1	6	3

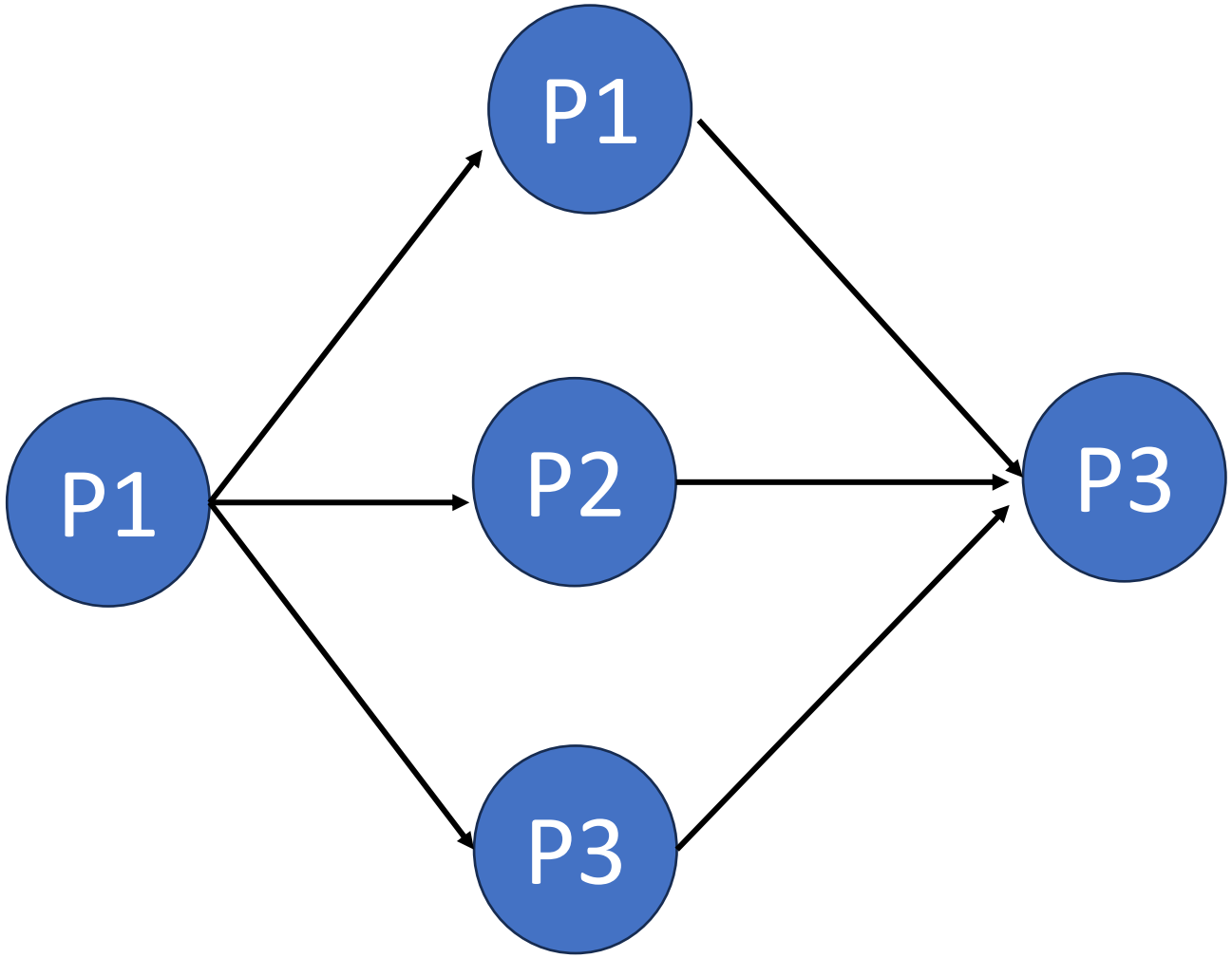
$P1P1$	$P1P2$	$P1P3$
$P2P1$	$P2P2$	$P2P3$
$P3P1$	$P3P2$	$P3P3$

CADENAS DE MARKOV



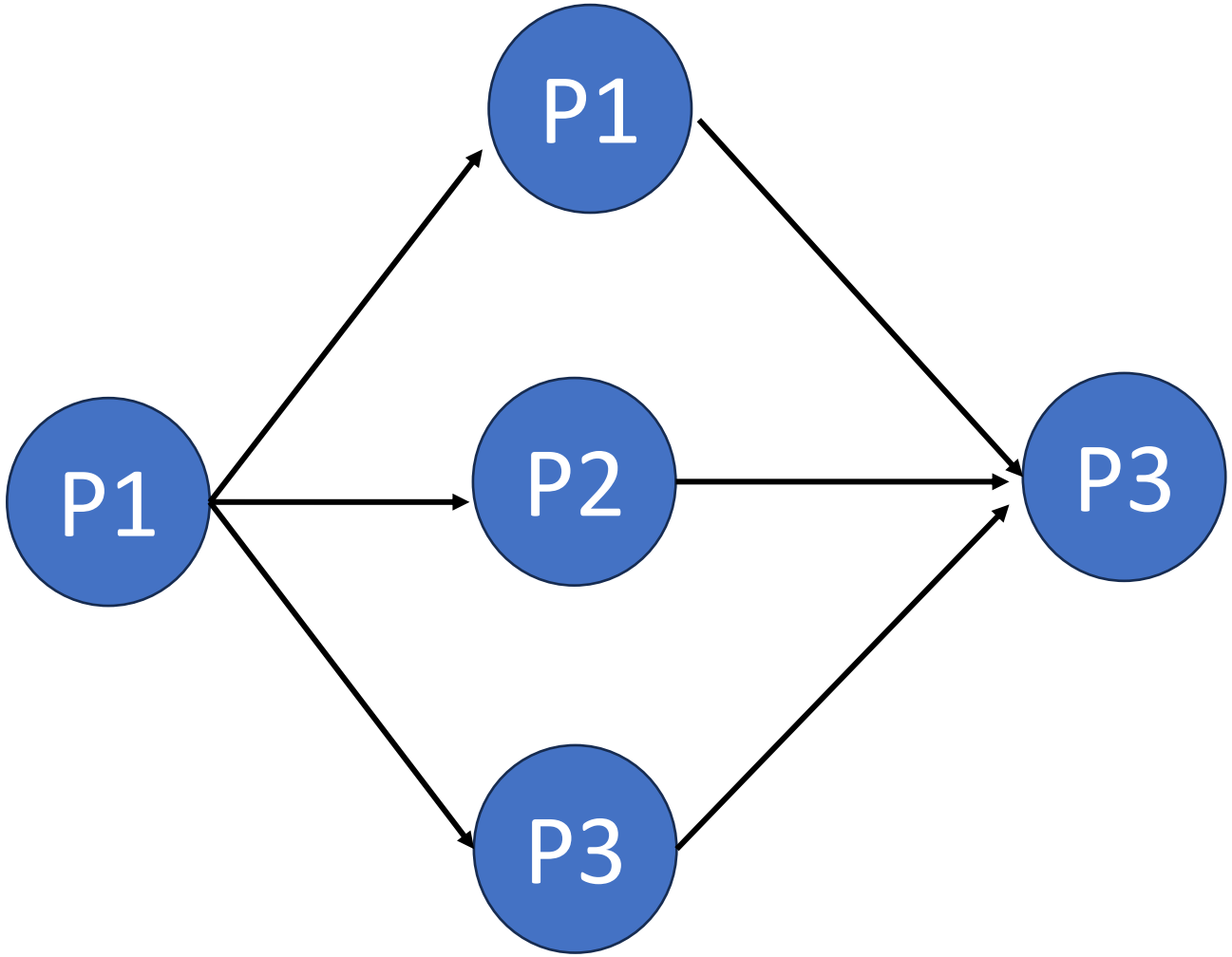
M_0 M_1 M_n

MATRIZ DE DOS PASOS



M_0 M_1 M_2

MATRIZ DE DOS PASOS

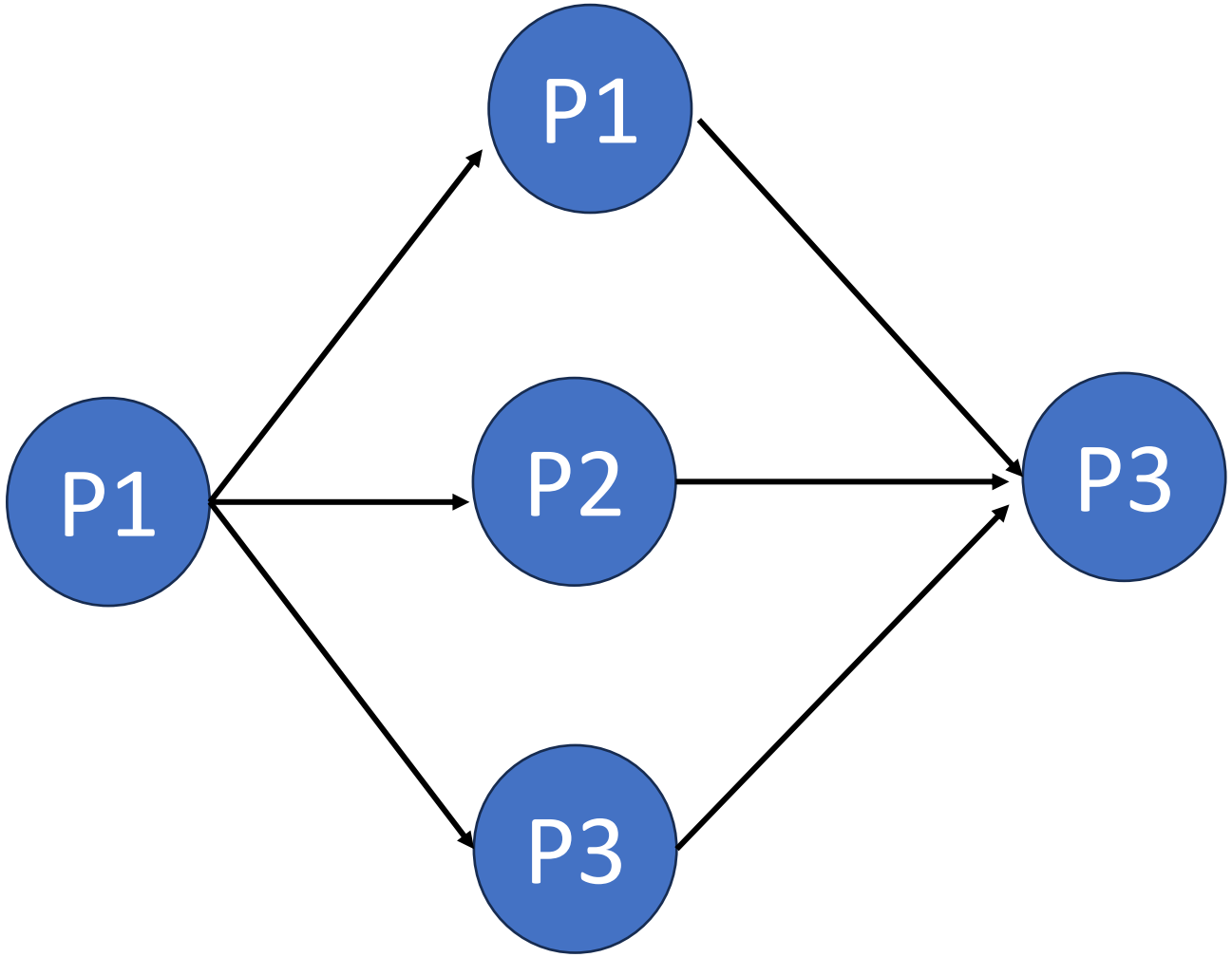


$$\begin{matrix} P1P1 & P1P2 & P1P3 \\ P2P1 & P2P2 & P2P3 \\ P3P1 & P3P2 & P3P3 \end{matrix}$$

P1P1+P1P2+P1P3+P1P3+P2P3+P3P3

M_0 M_1 M_2

MATRIZ DE DOS PASOS



M_0 M_1 M_2

$$\begin{matrix} P1P1 & P1P2 & P1P3 \\ P2P1 & P2P2 & P2P3 \\ P3P1 & P3P2 & P3P3 \end{matrix}$$

P1P1+P1P2+P1P3+P1P3+P2P3+P3P3

$$\begin{matrix} P1P1 & P1P2 & P1P3 \\ P2P1 & P2P2 & P2P3 \\ P3P1 & P3P2 & P3P3 \end{matrix}$$

MATRIZ DE DOS PASOS

	P1	P2	P3
P1	2	3	5
P2	4	2	4
P3	1	6	3

*

	P1	P2	P3
P1	2	3	5
P2	4	2	4
P3	1	6	3

2(2)+3(4)+5(1) =21 2(3)+3(2)+5(6) =42 2(5)+3(4)+5(3) =37

21	42	37
—	—	—
—	—	—

MATRIZ DE TRANSICIÓN

	P1	P2	P3
P1	2	3	5
P2	4	2	4
P3	1	6	3

*

	P1	P2	P3
P1	2	3	5
P2	4	2	4
P3	1	6	3

MATRIZ DE DOS PASOS

	P1	P2	P3
P1	2	3	5
P2	4	2	4
P3	1	6	3

$*$

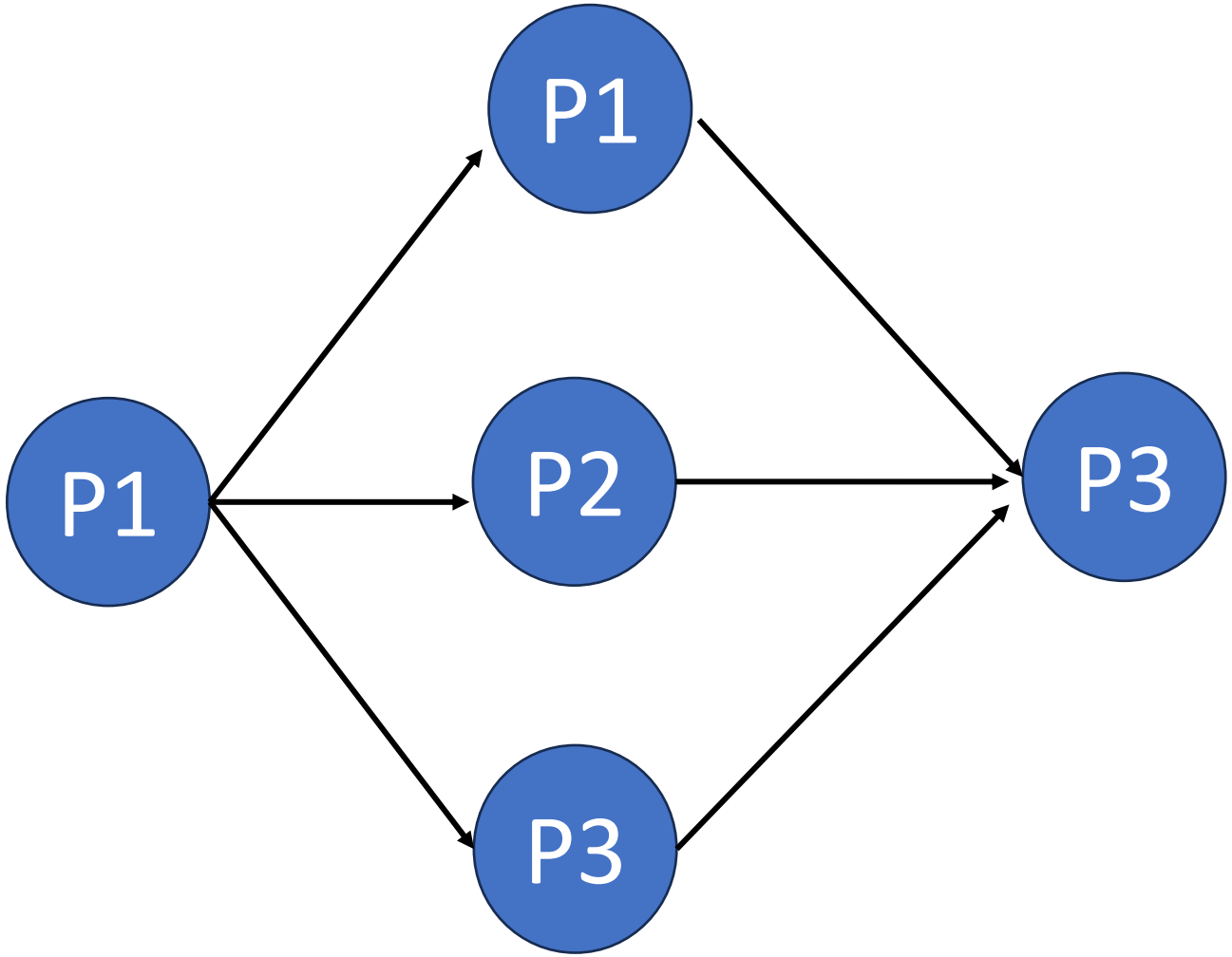
	P1	P2	P3
P1	2	3	5
P2	4	2	4
P3	1	6	3

2(2)+3(4)+5(1) =21 2(3)+3(2)+5(6) =42 2(5)+3(4)+5(3) =37

$$\begin{matrix} 21 & 42 & 37 \\ 20 & 40 & 40 \\ 30 & 33 & 38 \end{matrix}$$

$$M_n = [M1]^n$$

MATRIZ DE DOS PASOS



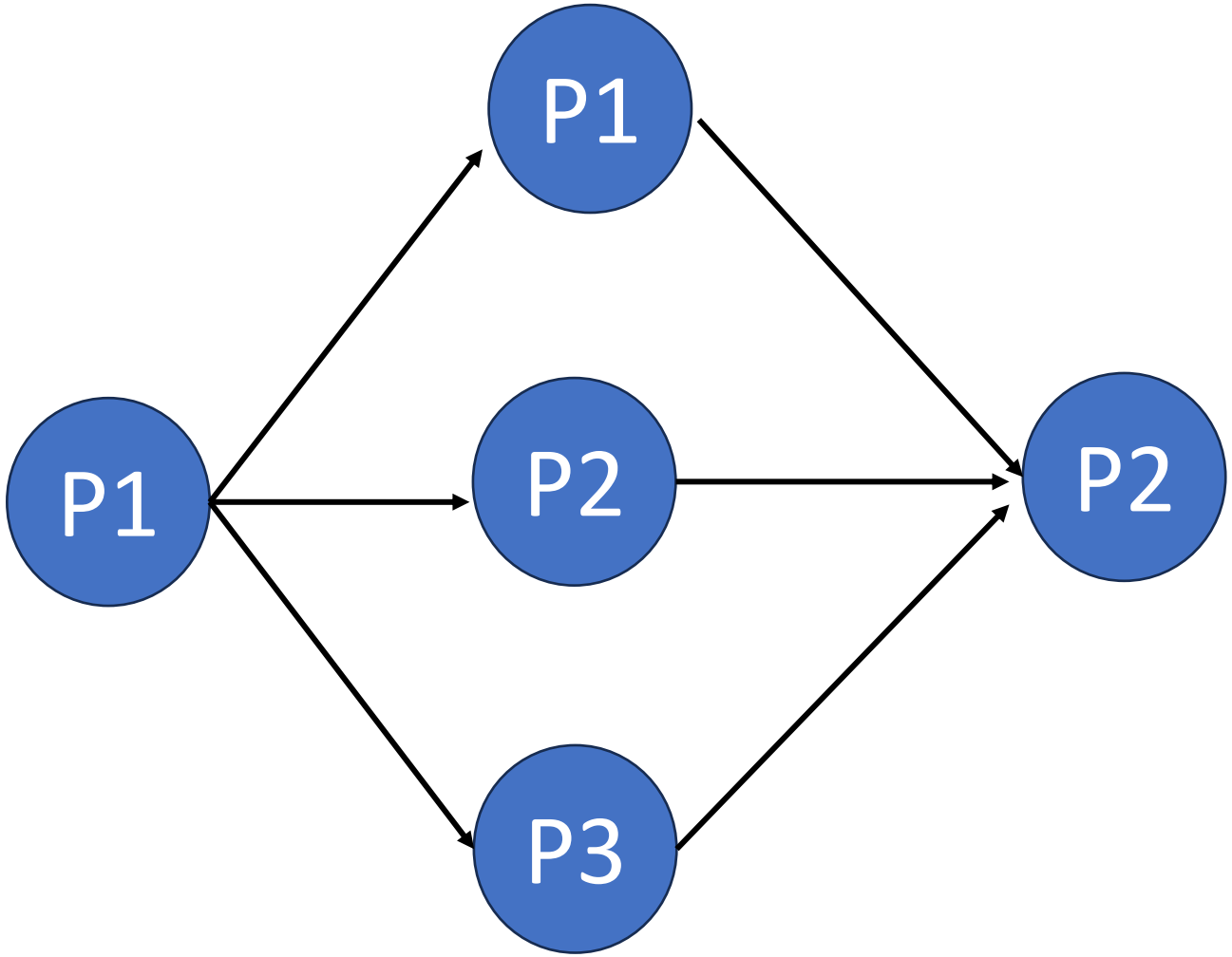
$P1P1$	$P1P2$	$P1P3$
$P2P1$	$P2P2$	$P2P3$
$P3P1$	$P3P2$	$P3P3$

P1P1+P1P2+P1P3+P1P3+P2P3+P3P3

21	42	37
20	40	40
30	33	38

M_0 M_1 M_2

MATRIZ DE DOS PASOS



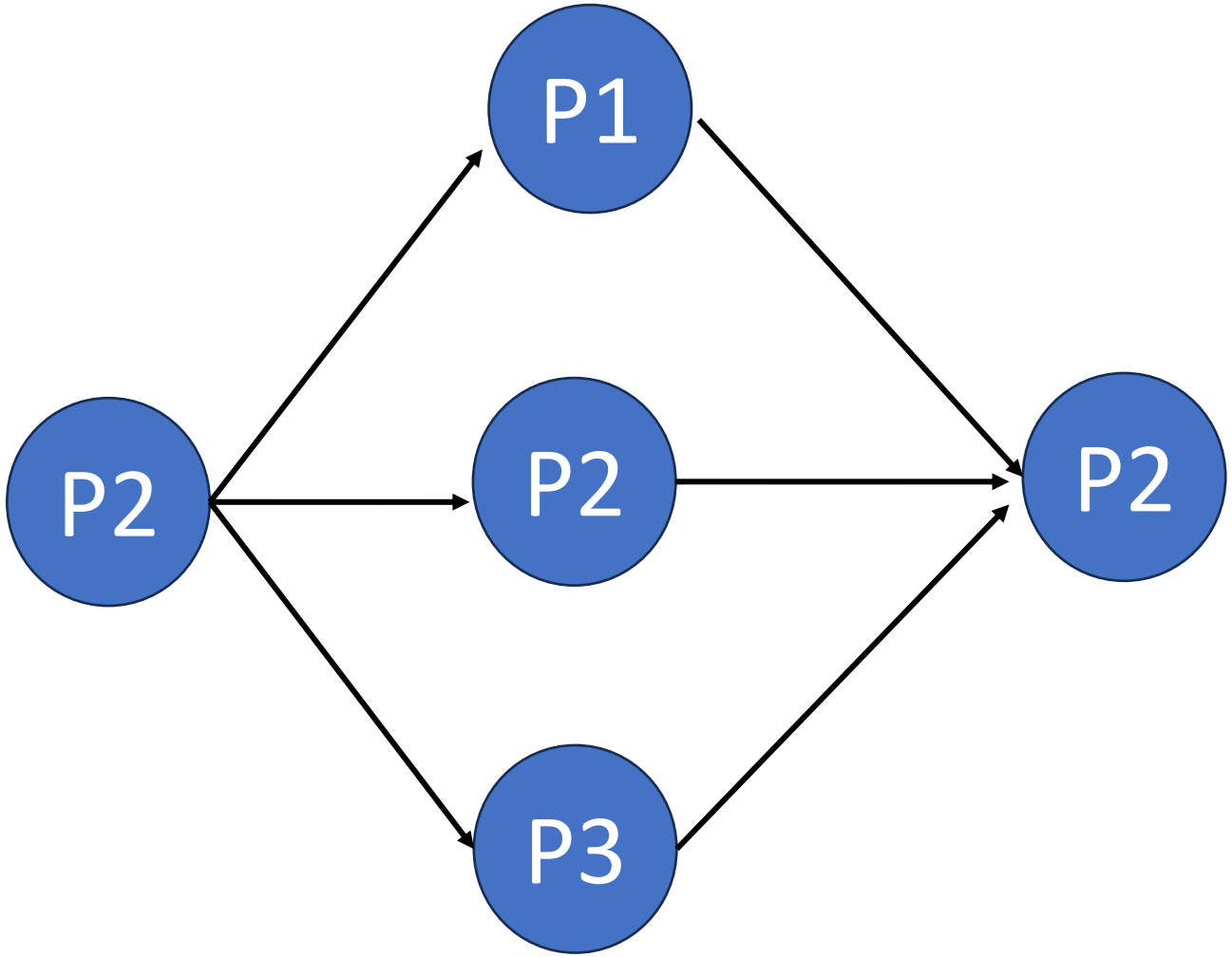
$P1P1$	$P1P2$	$P1P3$
$P2P1$	$P2P2$	$P2P3$
$P3P1$	$P3P2$	$P3P3$

P1P1+P1P2+P1P3+P1P2+P2P2+P3P2

21	42	37
20	40	40
30	33	38

M_0 M_1 M_2

MATRIZ DE DOS PASOS



M_0 M_1 M_2

$P1P1$	$P1P2$	$P1P3$
$P2P1$	$P2P2$	$P2P3$
$P3P1$	$P3P2$	$P3P3$

P2P1+P2P2+P2P3+P1P2+P2P2+P3P2

21	42	37
20	40	40
30	33	38