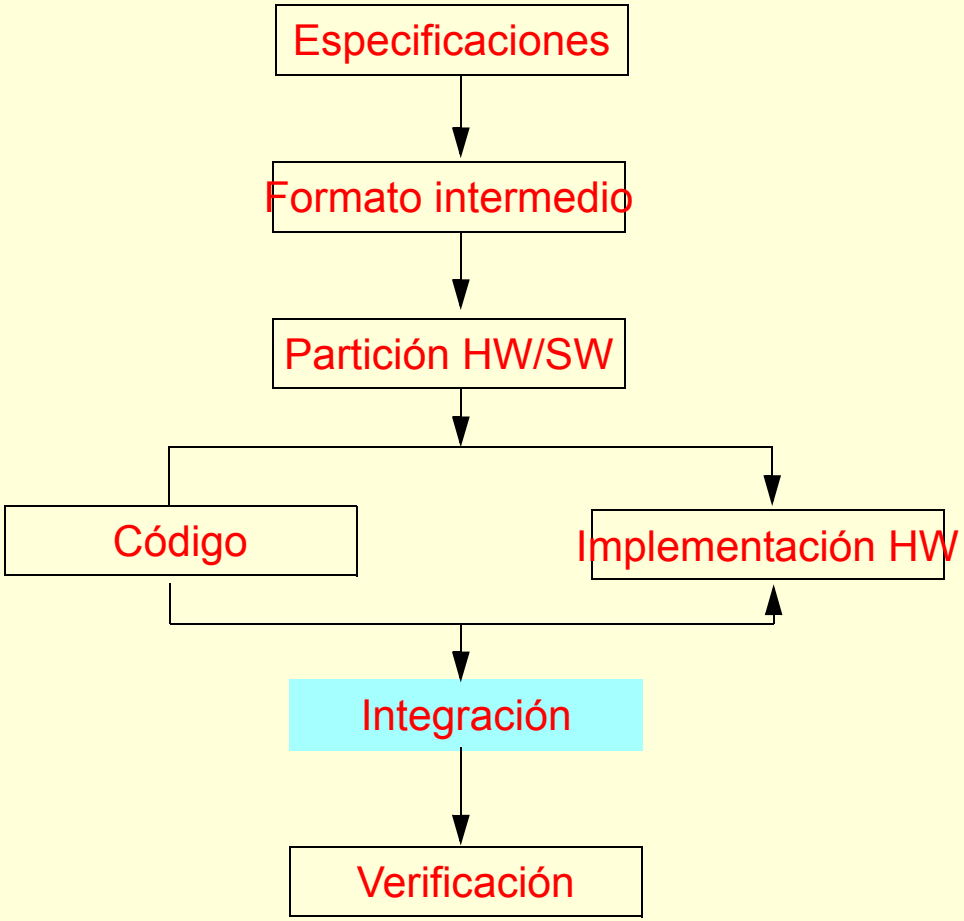
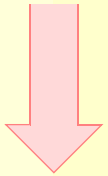
# TEMA VI: COMUNICACIONES




LA INTEGRACIÓN DE TODOS LOS COMPONENTES EN UN MISMO SISTEMA A TRAVÉS DE LOS MECANISMOS DE COMUNICACIÓN ENTRE ELLOS

# Mecanismos de comunicación

- Mensajería síncrona
- Mensajería asíncrona
- Llamadas a procedimientos remotos
- Monitores



- Elevada diversidad de dispositivos y procesadores que necesitan comunicarse
- Prestaciones complejas
- Falta de apoyo apropiado para el desarrollo y debugueo de los sistemas software

# Flujo de diseño

Unión de canales → Líneas de Dato, Líneas de Identificación, Líneas de control

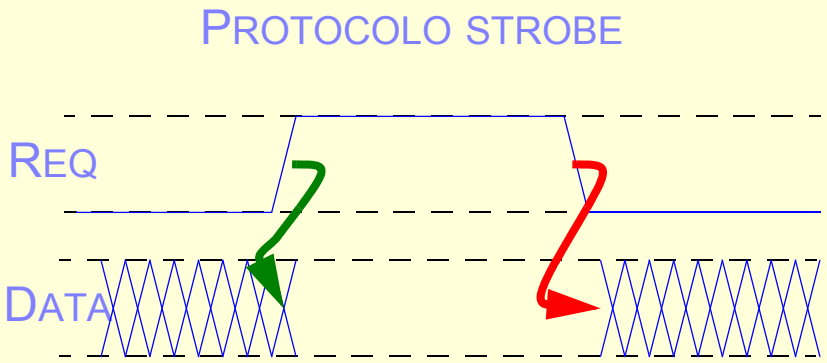
↓

Refinamiento de las comunicaciones → Protocolo de Comunicaciones

↓

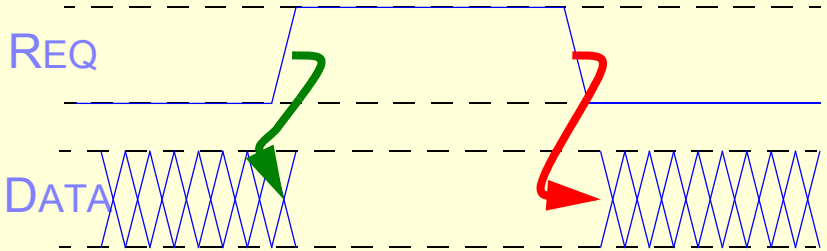
Generación de interfaces → Implementación física o software

# Protocolo de Comunicaciones

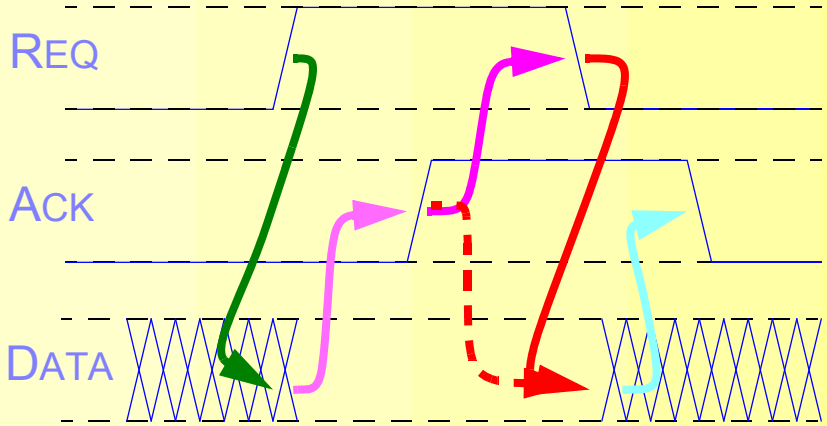


# Protocolo de Comunicaciones

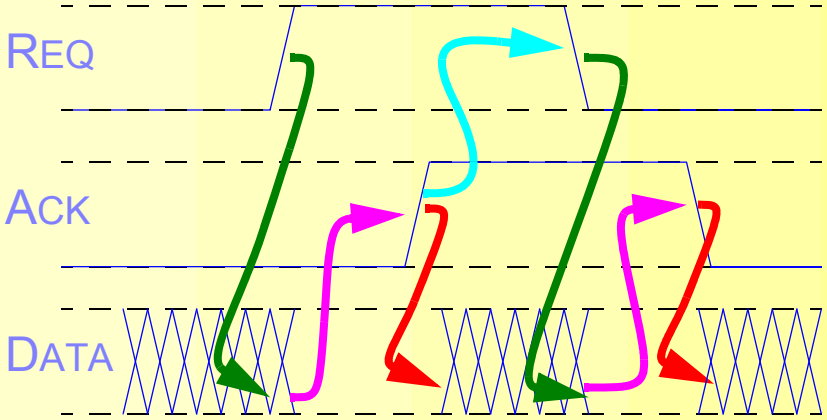
PROTOCOLO STROBE




PROTOCOLOS HANDSHAKE

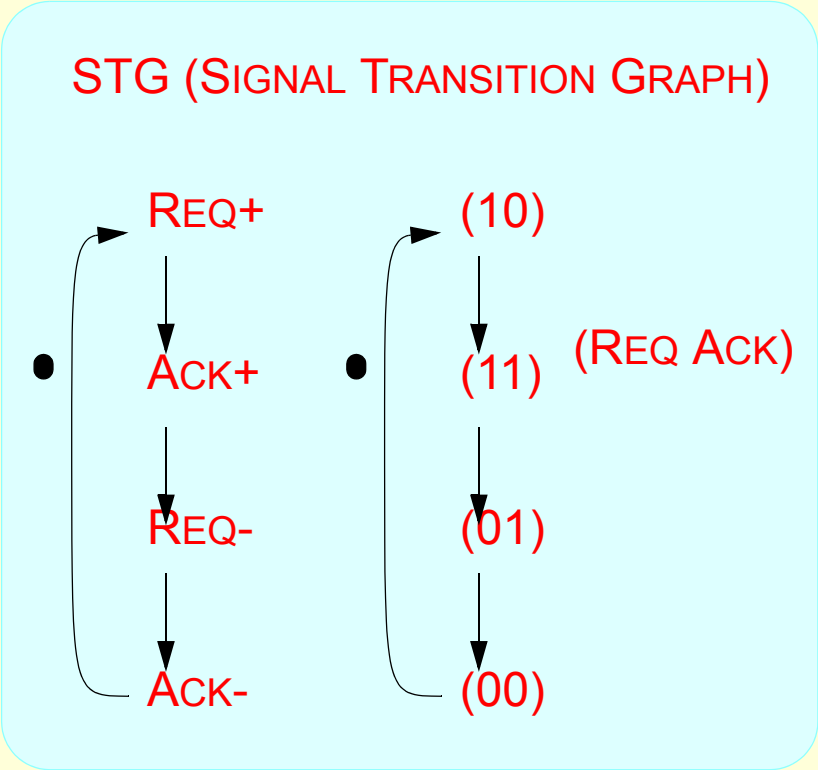


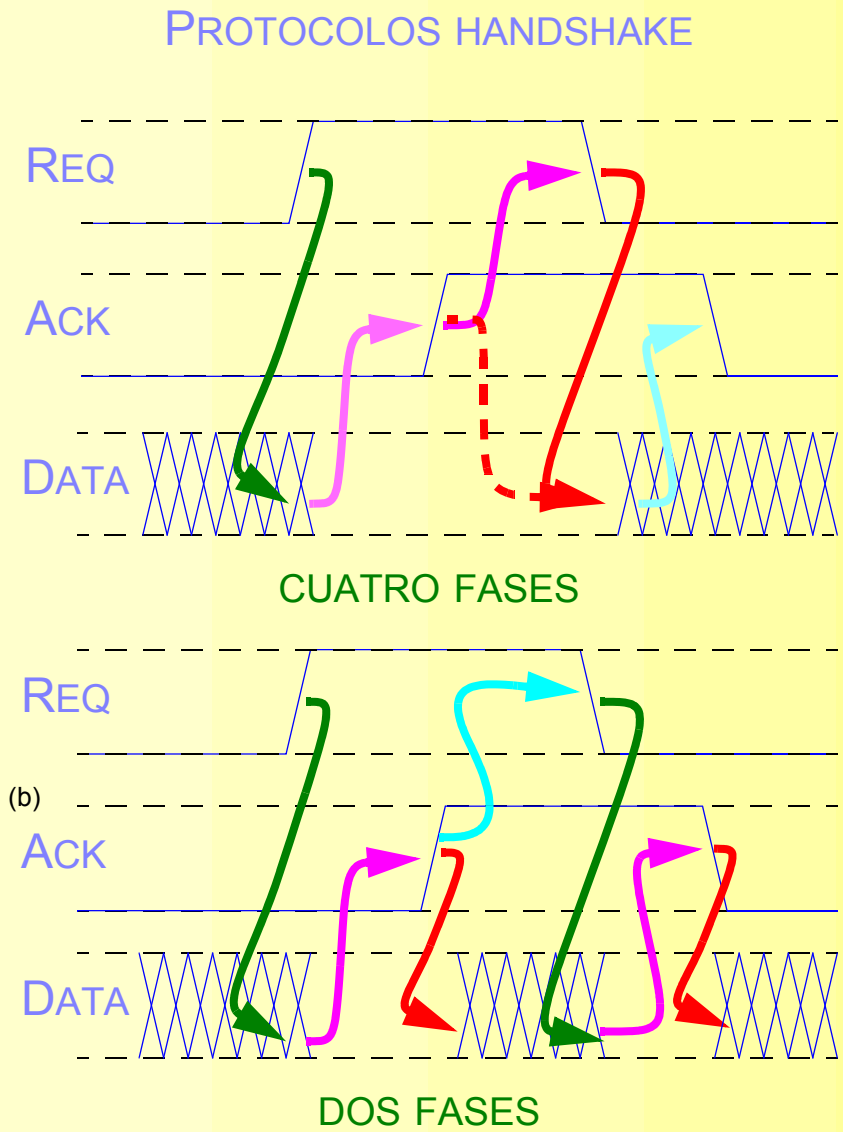

CUATRO FASES




DOS FASES

# Protocolo de Comunicaciones



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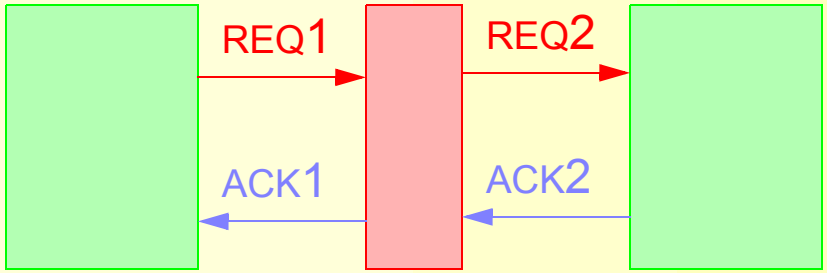

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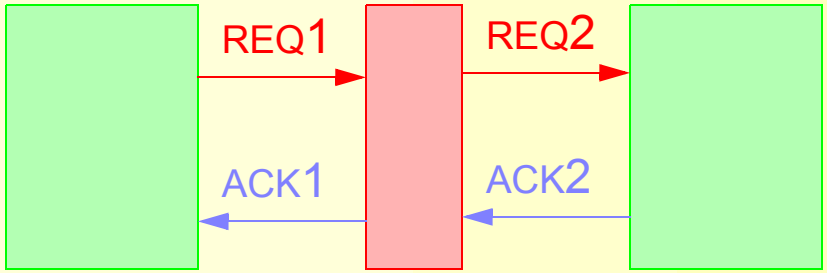


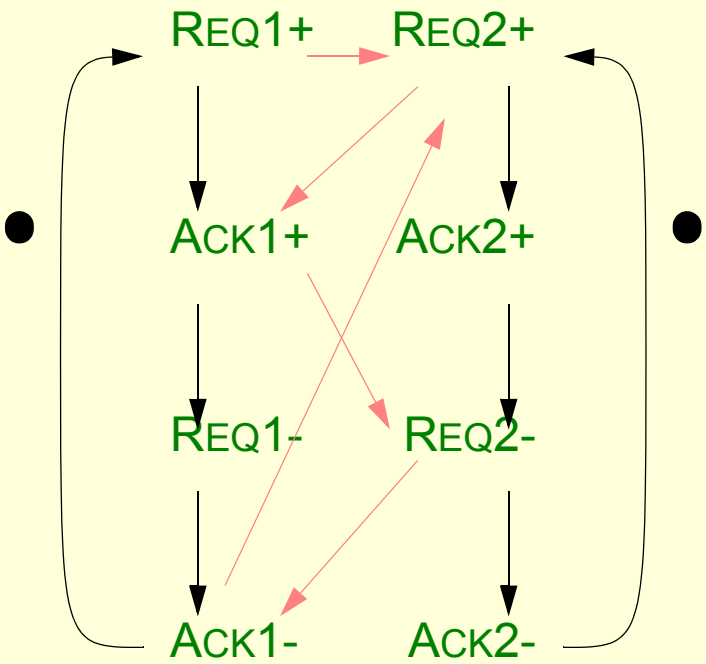


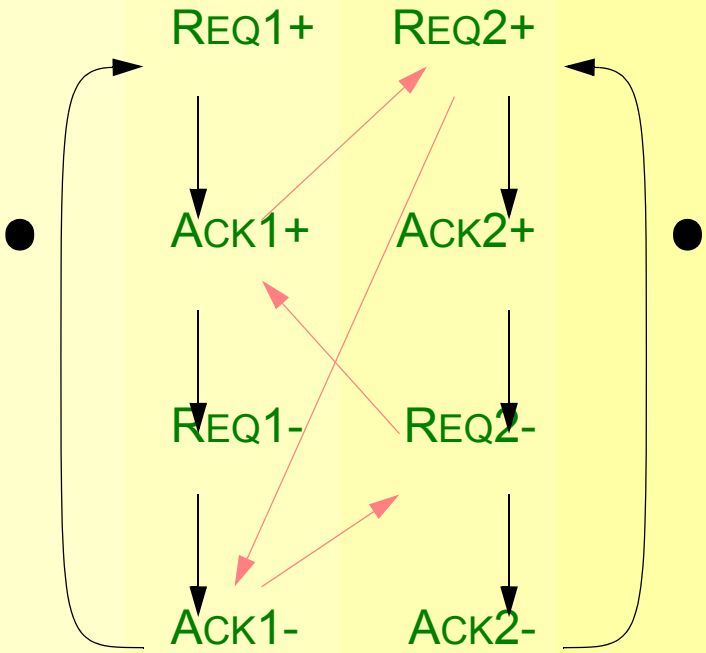

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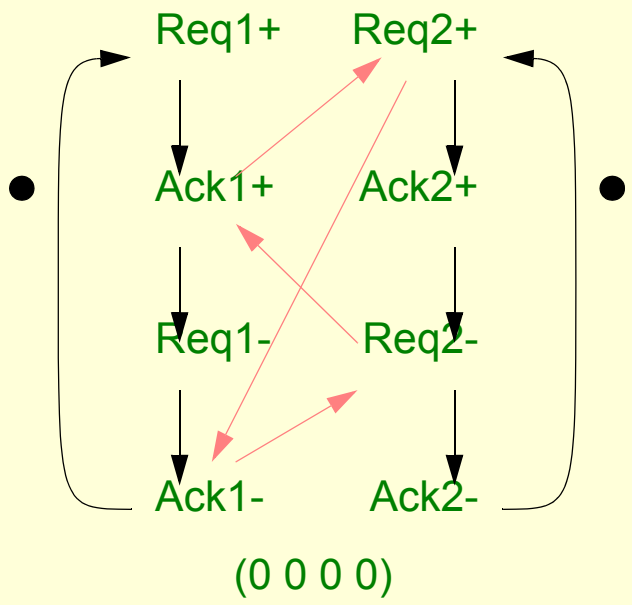

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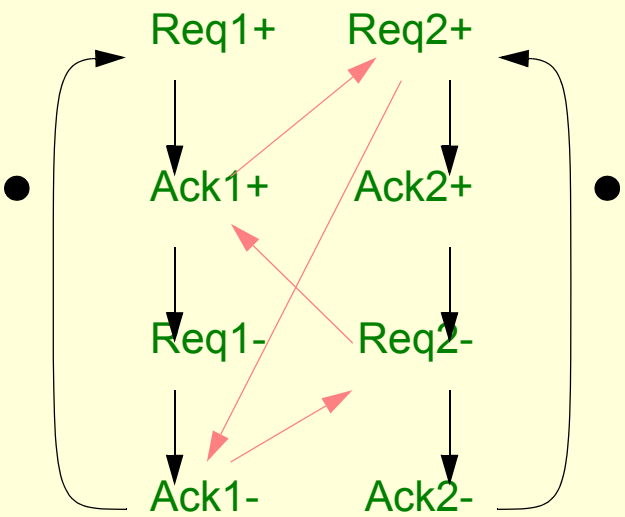


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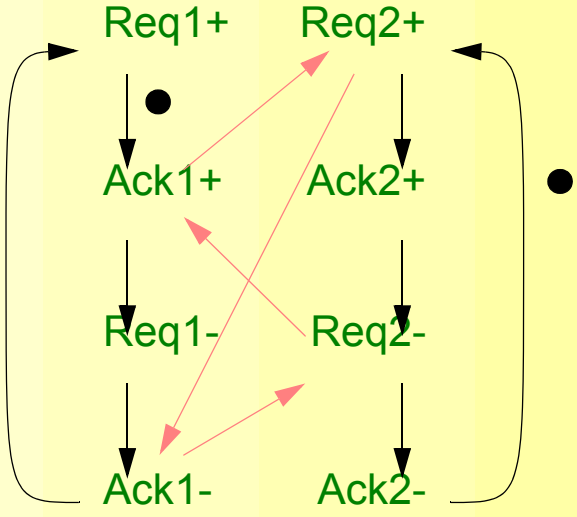


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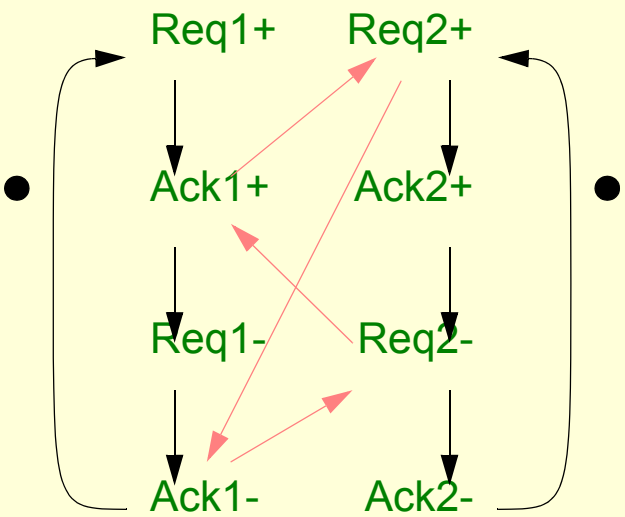


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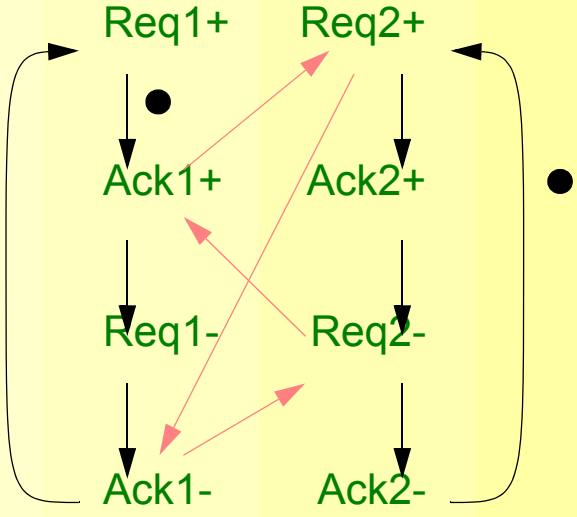


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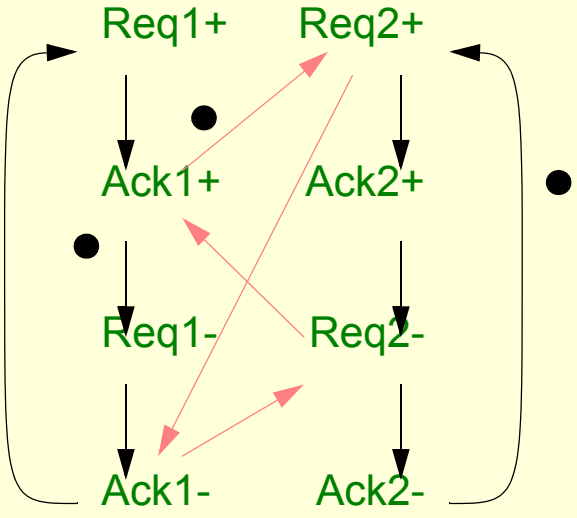


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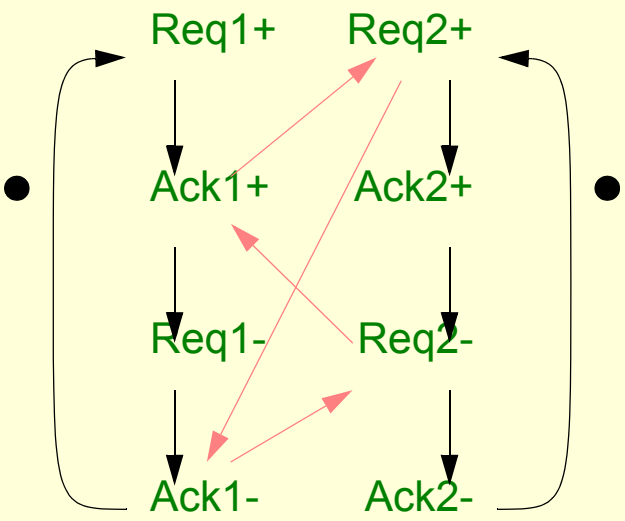


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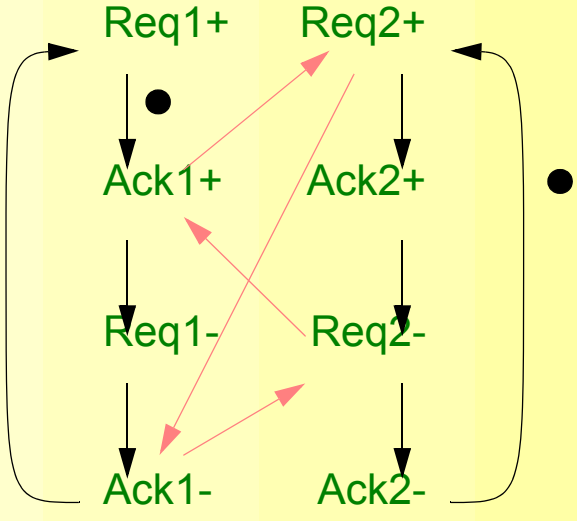


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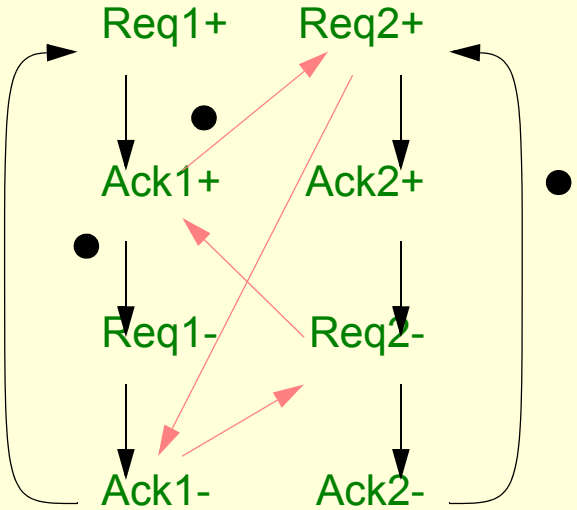


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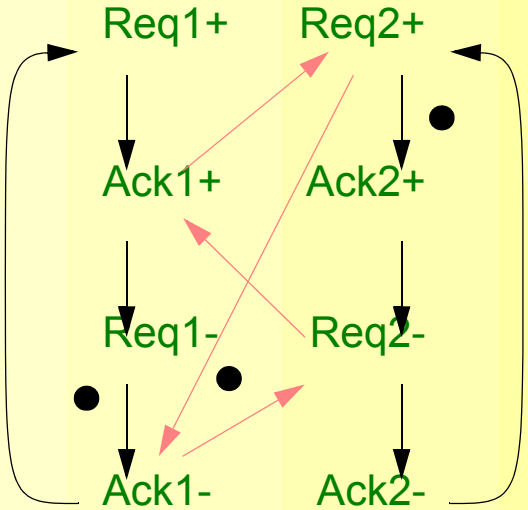


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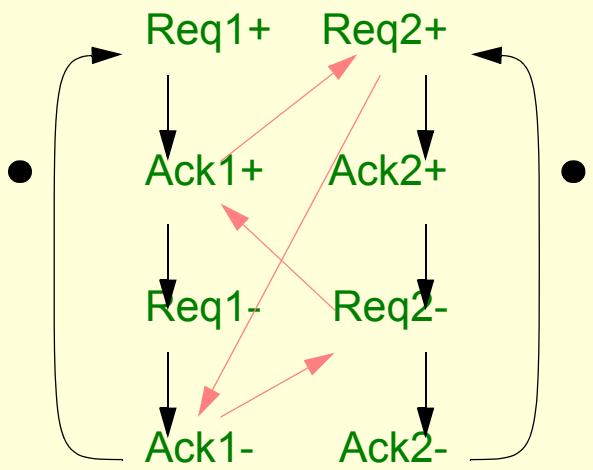


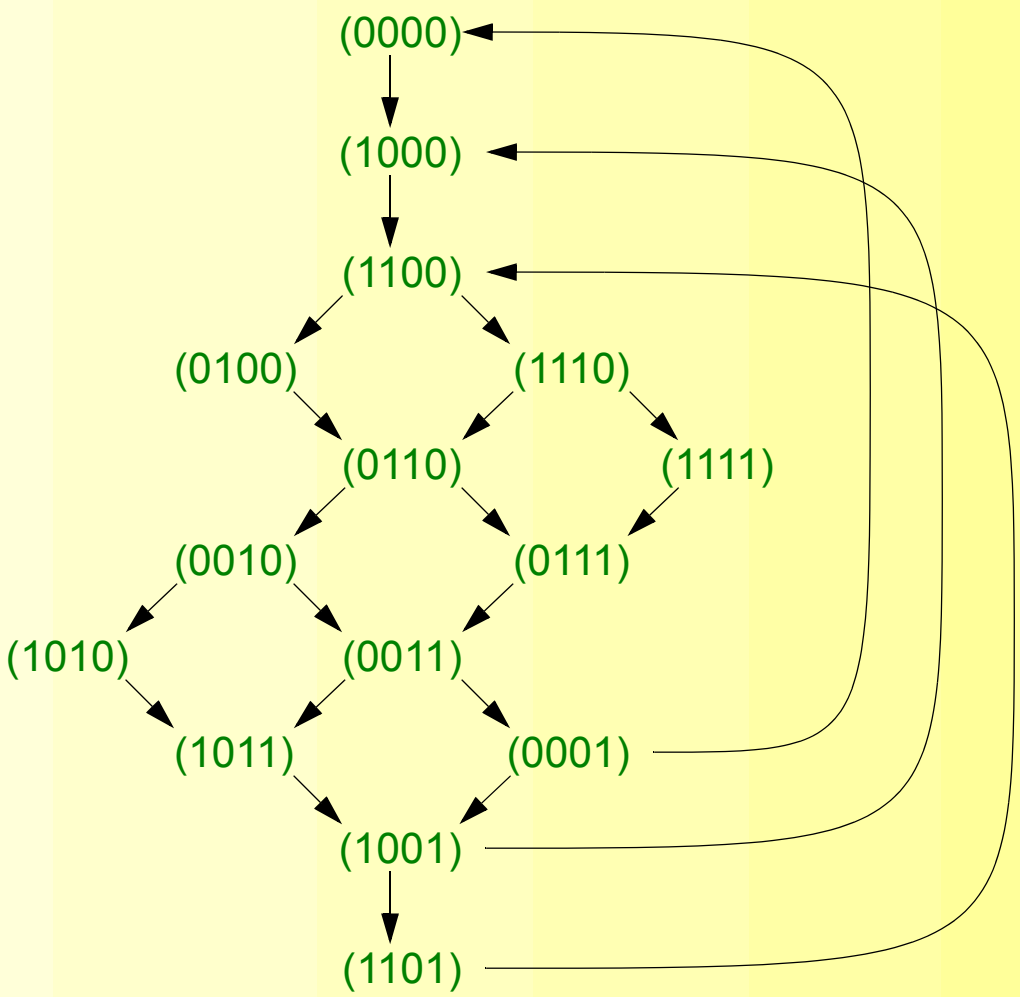

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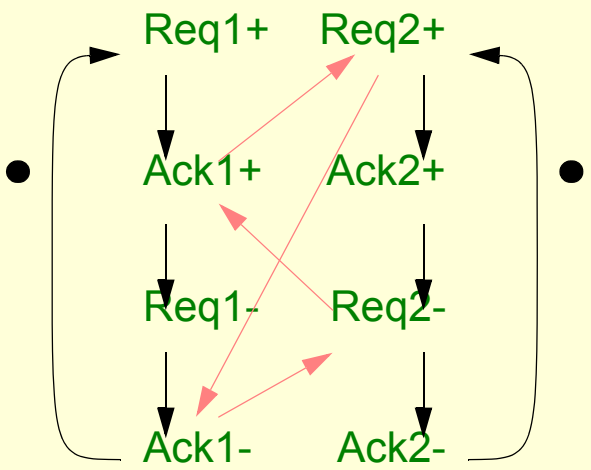
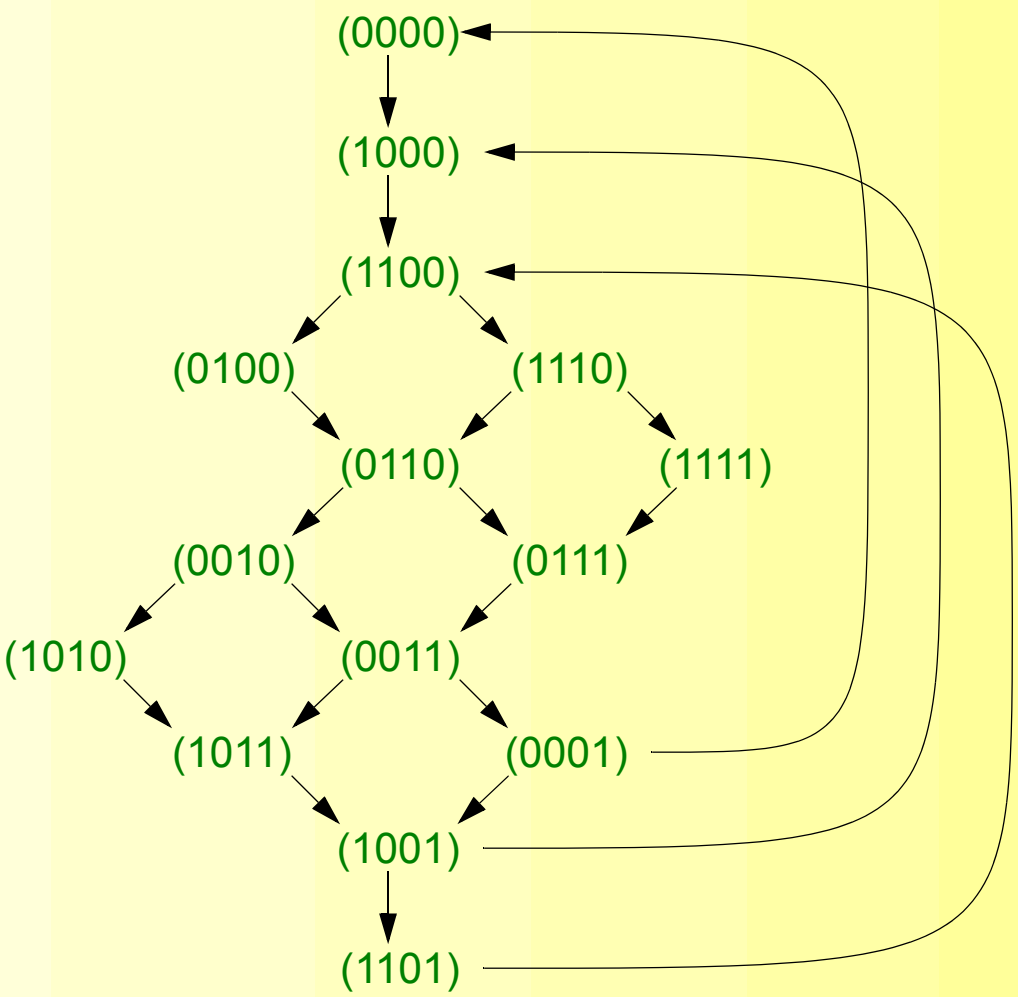


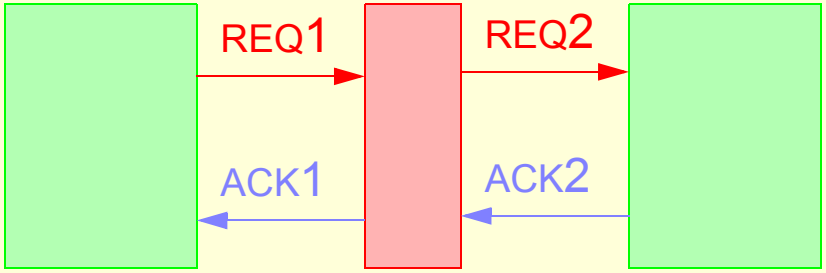

| R2 A2 \ R1 A1 | 00 | 01 | 11 | 10 |
|---|---|---|---|---|
| 00 | 00 | 11 | 11 | 10 |
| 01 | 00 | -- | 10 | 10 |
| 11 | 00 | 01 | 11 | 00 |
| 10 | 01 | 01 | 11 | 01 |

A1 R2

$$A1 = R1 \cdot A1 + A1 \cdot \overline{A2} + R1 \cdot \overline{A2}$$

$$R2 = R2 \cdot A1 + R2 \cdot \overline{A2} + A1 \cdot \overline{A2}$$

# Protocolo de Comunicaciones



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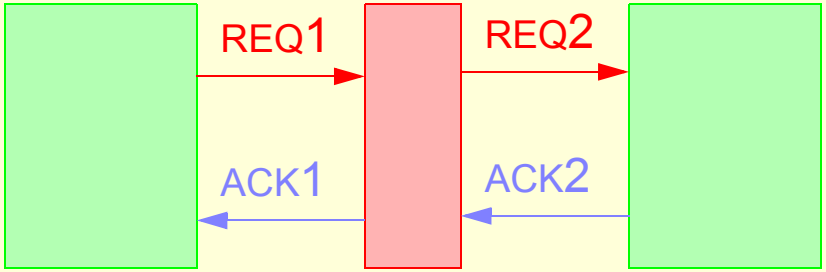


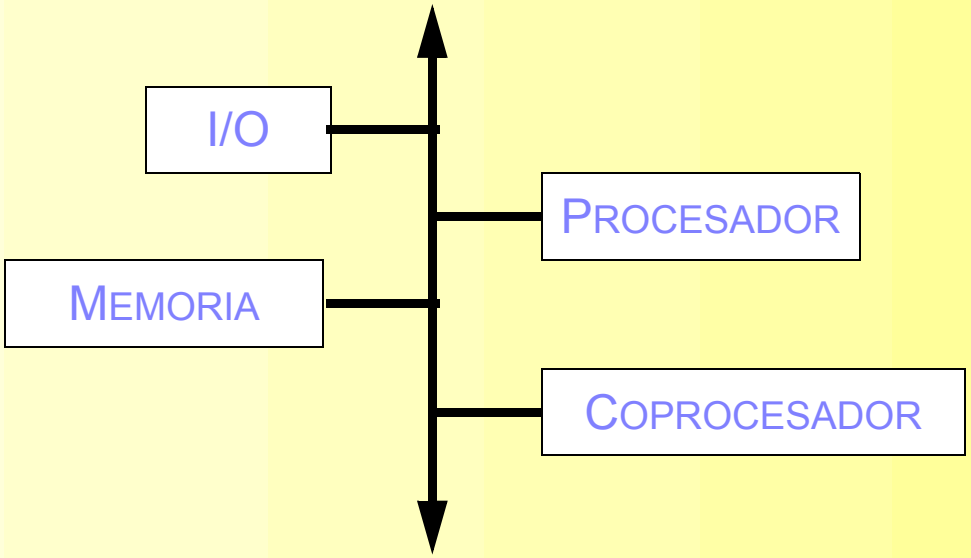

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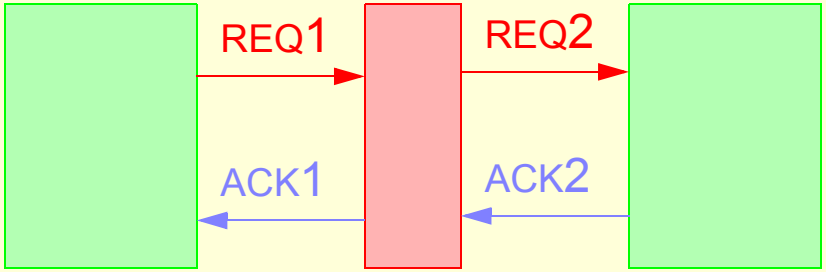
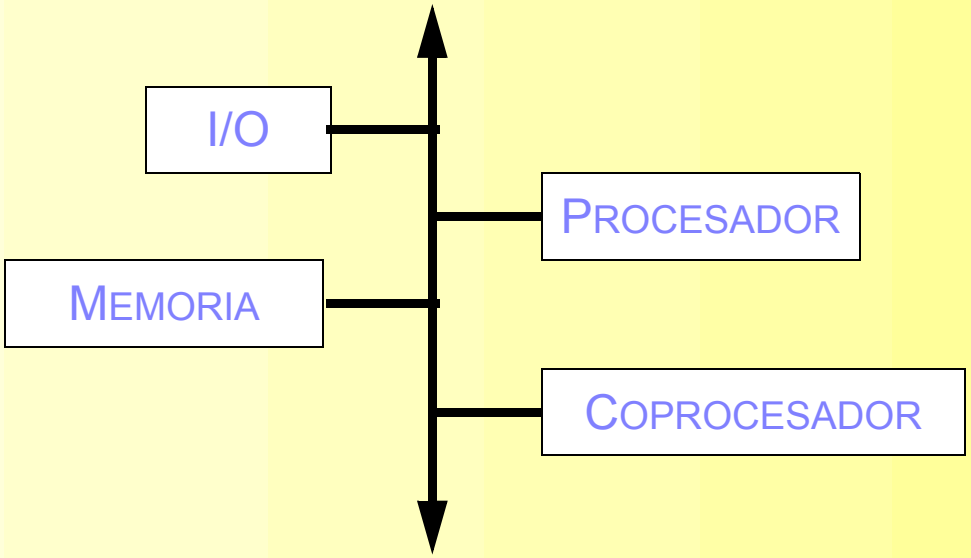
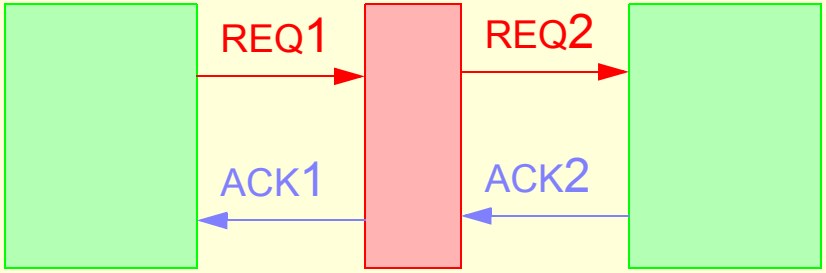
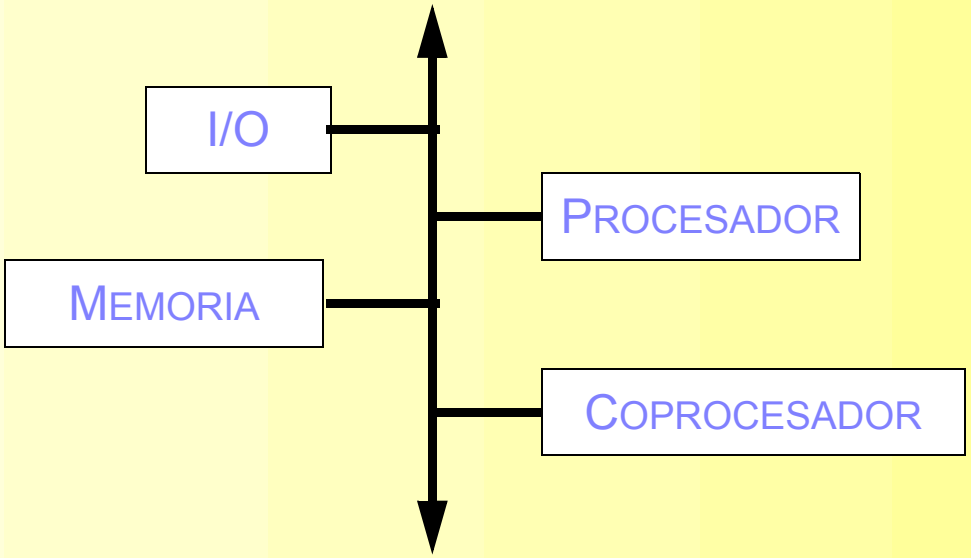



UN CONFLICTO DE ACCESOS SUCEDE CUANDO DOS O MÁS PROCESOS INTENTAN ACCEDER AL MISMO RECURSO SIMULTÁNEAMENTE

# Protocolo de Comunicaciones



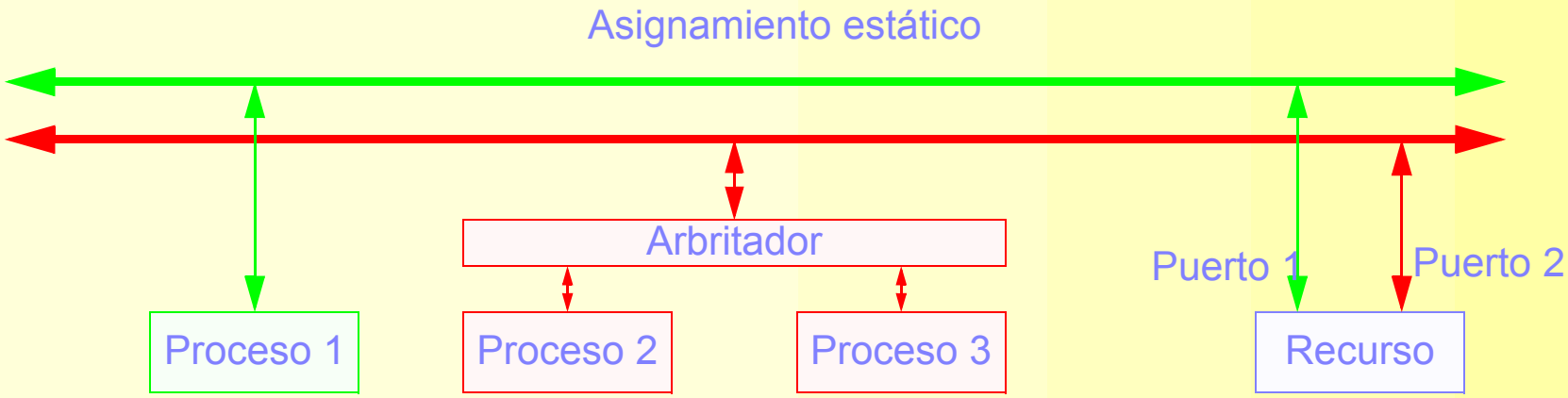




UN CONFLICTO DE ACCESOS SUCEDE CUANDO DOS O MÁS PROCESOS INTENTAN ACCEDER AL MISMO RECURSO SIMULTÁNEAMENTE

ARBITRADOR

- AGRUPAMIENTO DE CANALES Y VARIABLES
- UTILIZACIÓN DE UN SOLO BUS
- RECURSO CON MENOS CANALES DE COMUNICACIÓN QUE PROCESOS PETICIONARIOS

# Protocolo de Comunicaciones



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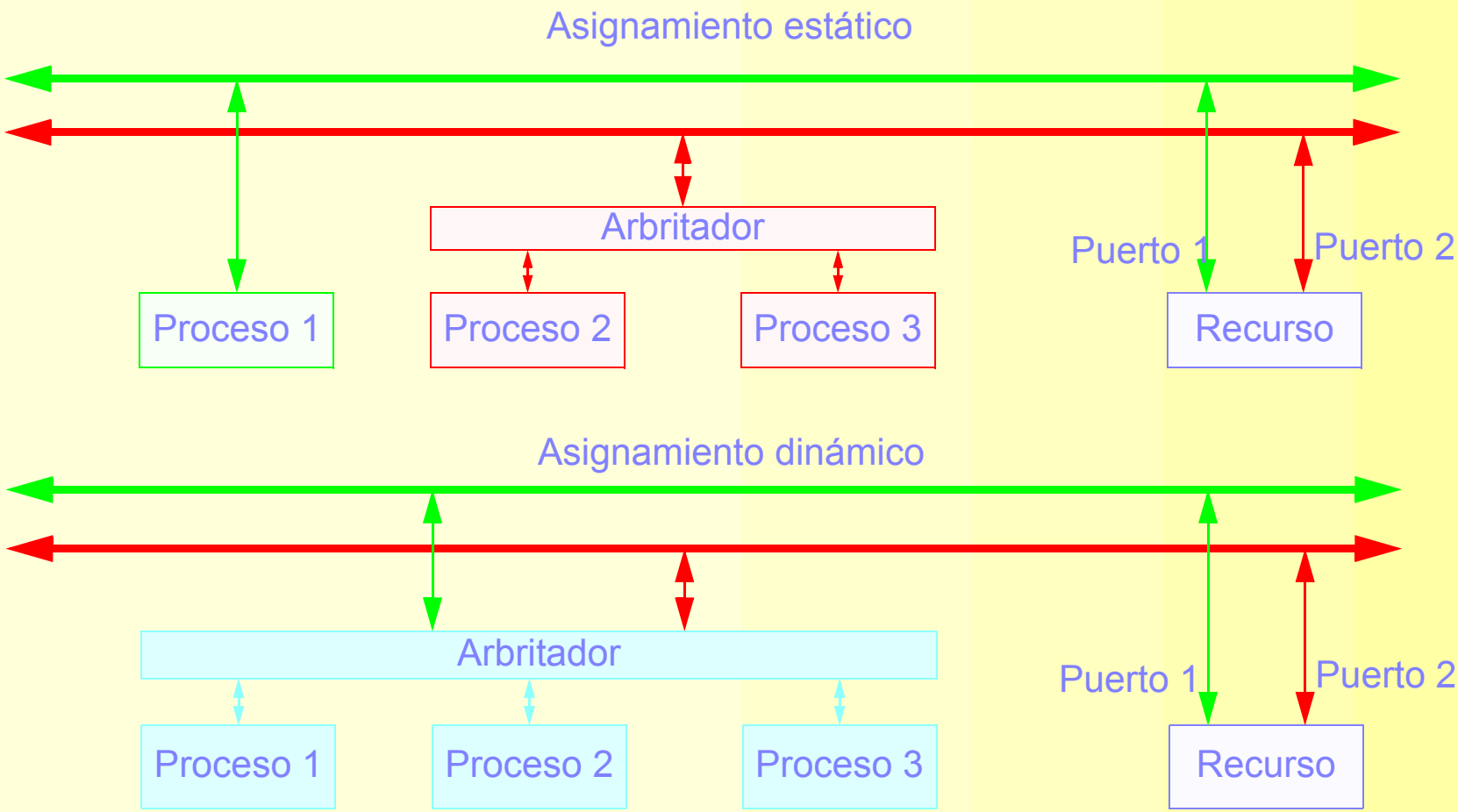
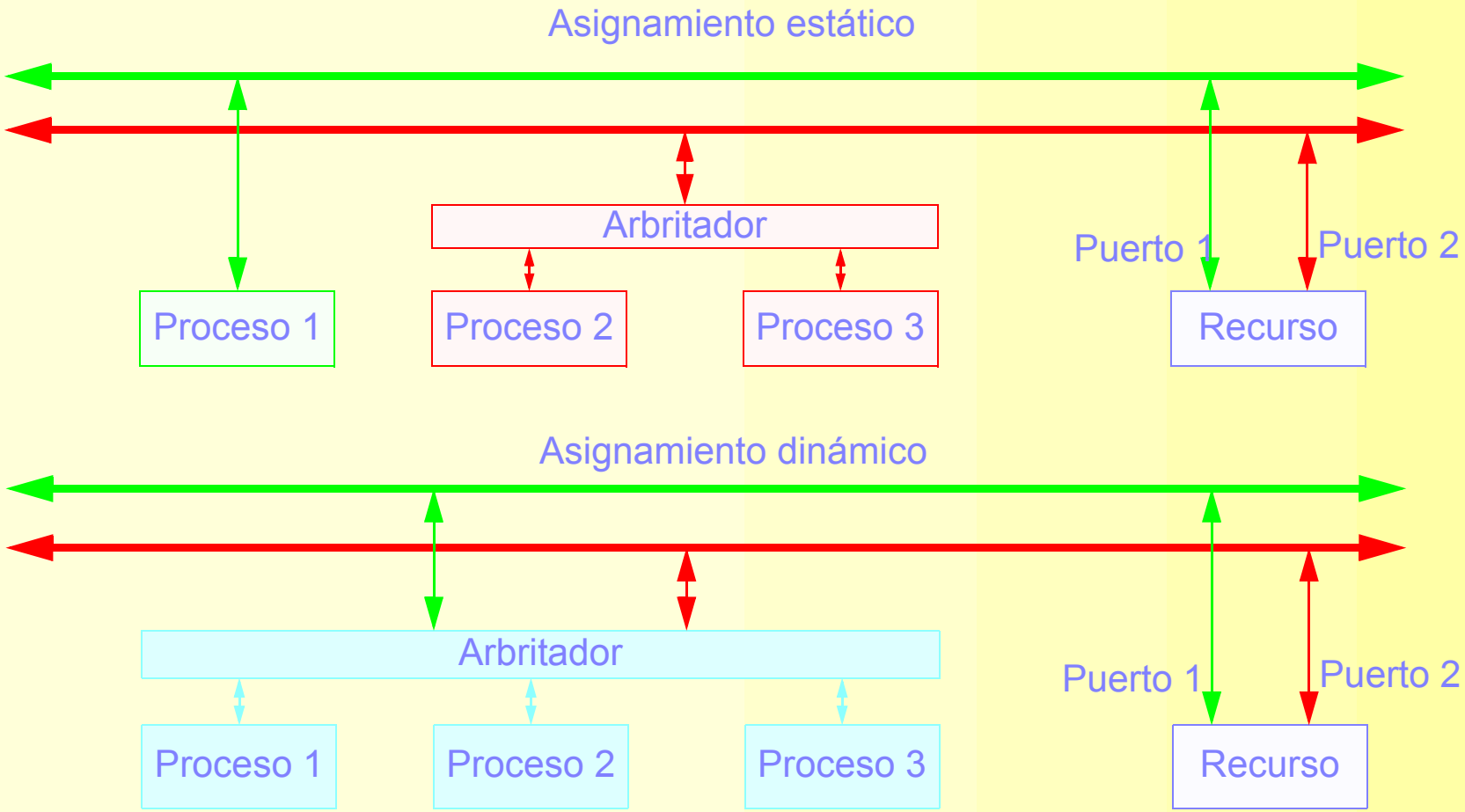


# Protocolo de Comunicaciones




PRIORIDAD FIJA O DINÁMICA

# Diseño de un bus

UN BUS SE PUEDE DEFINIR COMO UN CANAL DE COMUNICACIÓN DISTRIBUIDO PARA CONECTAR MÚLTIPLES SUBSISTEMAS, ES DECIR, UNA HERRAMIENTA PARA COMPONER SISTEMAS

# Diseño de un bus

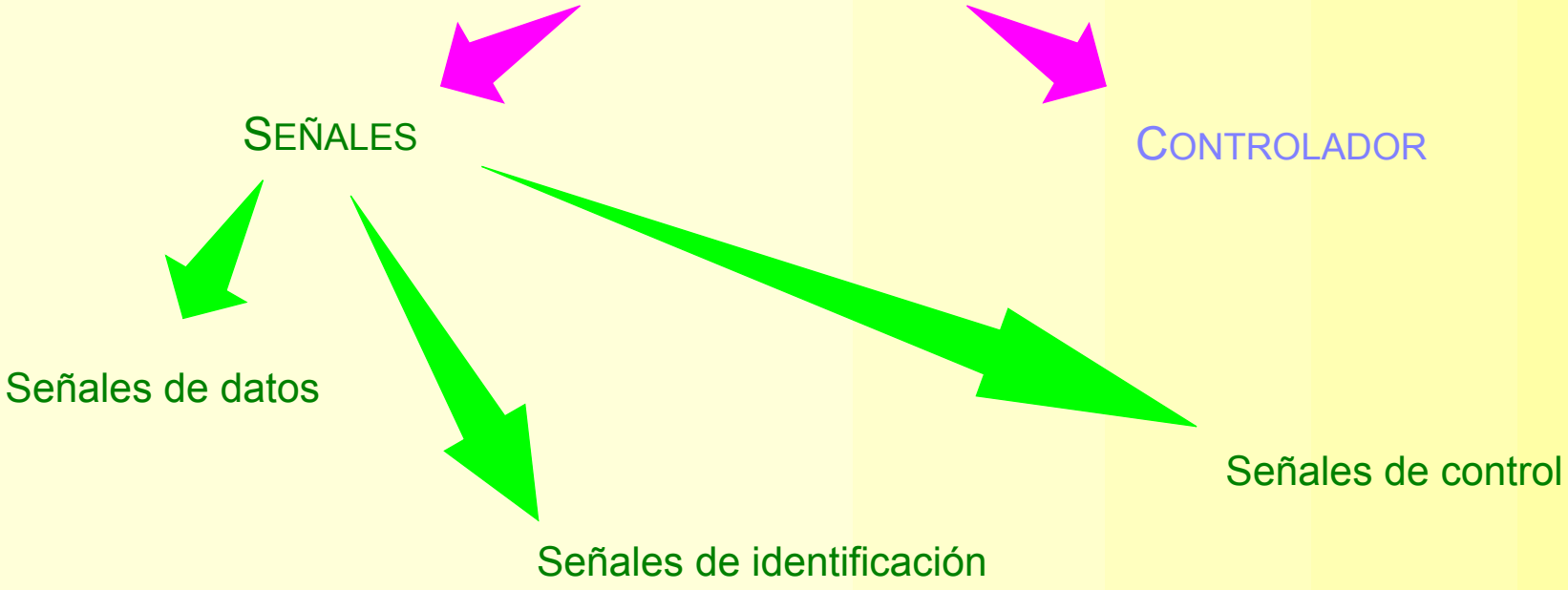
UN BUS SE PUEDE DEFINIR COMO UN CANAL DE COMUNICACIÓN DISTRIBUIDO PARA CONECTAR MÚLTIPLES SUBSISTEMAS, ES DECIR, UNA HERRAMIENTA PARA COMPONER SISTEMAS

SEÑALES

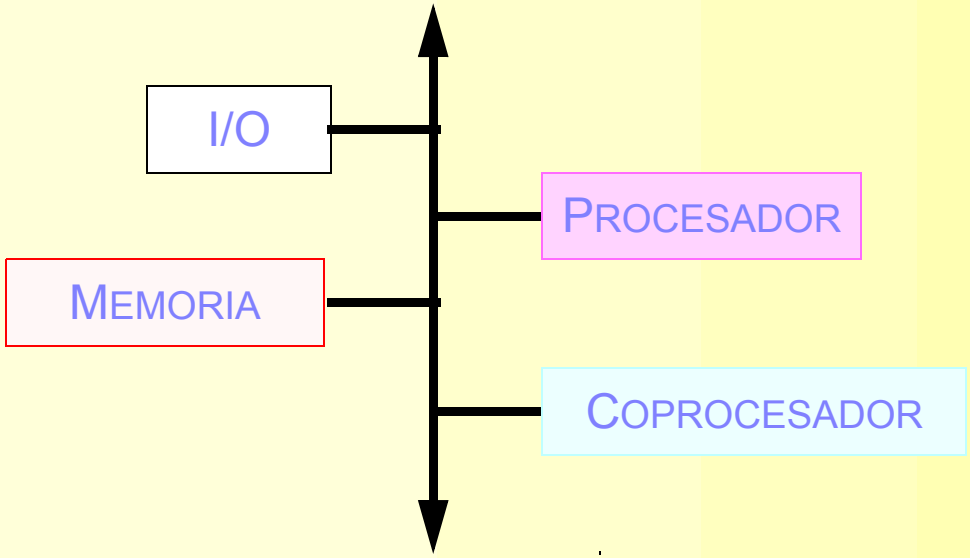
CONTROLADOR

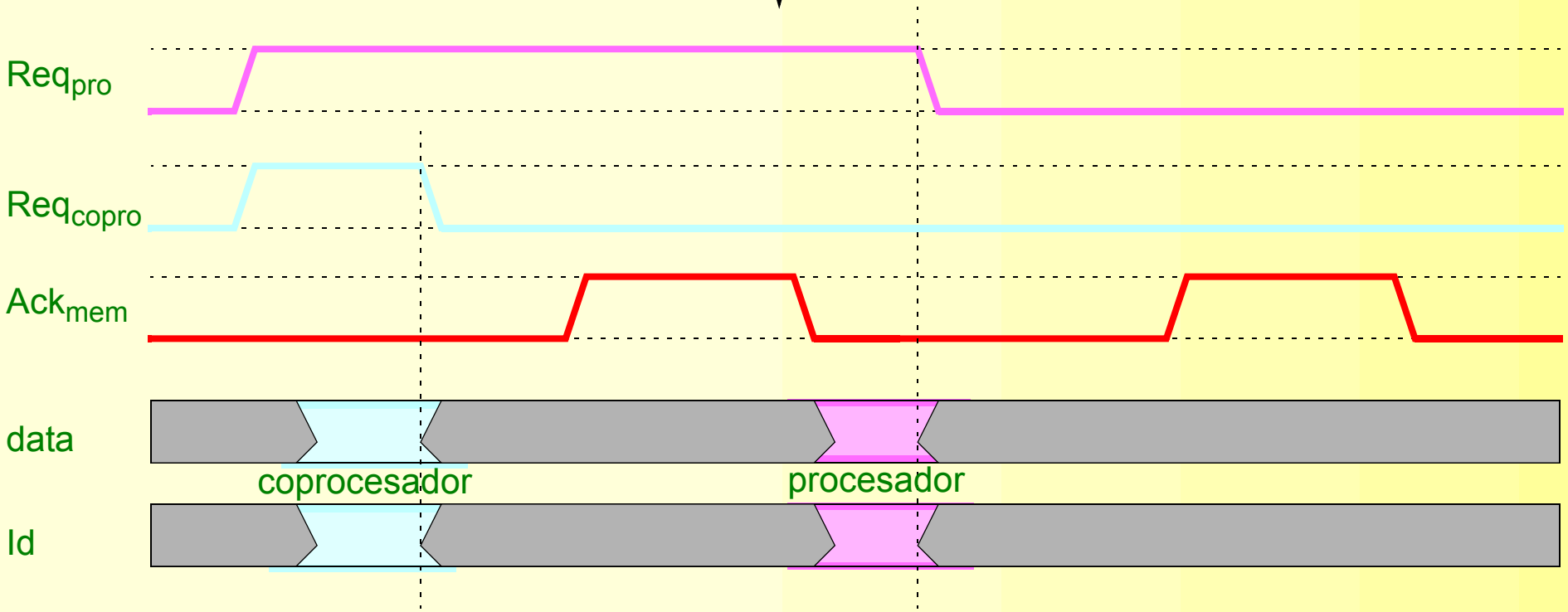
# Diseño de un bus

UN BUS SE PUEDE DEFINIR COMO UN CANAL DE COMUNICACIÓN DISTRIBUIDO PARA CONECTAR MÚLTIPLES SUBSISTEMAS, ES DECIR, UNA HERRAMIENTA PARA COMPONER SISTEMAS

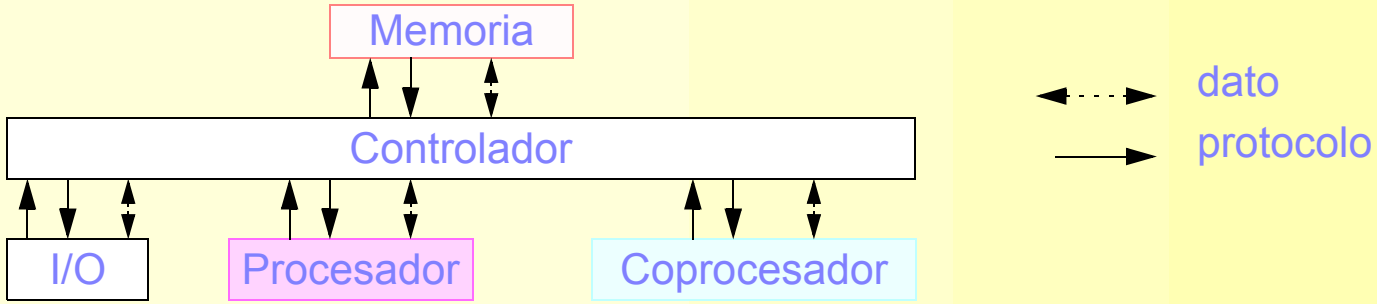


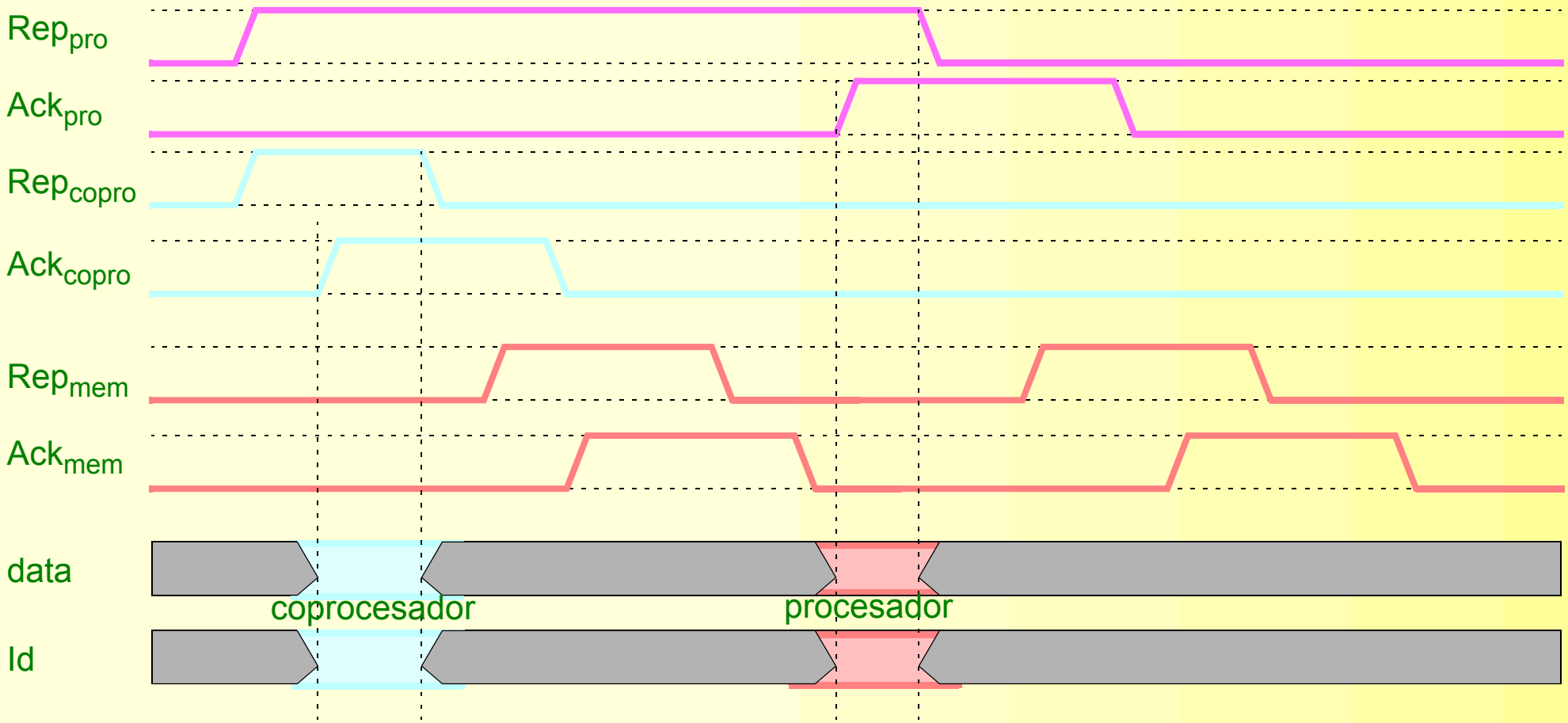
# Diseño de un bus (Señales)



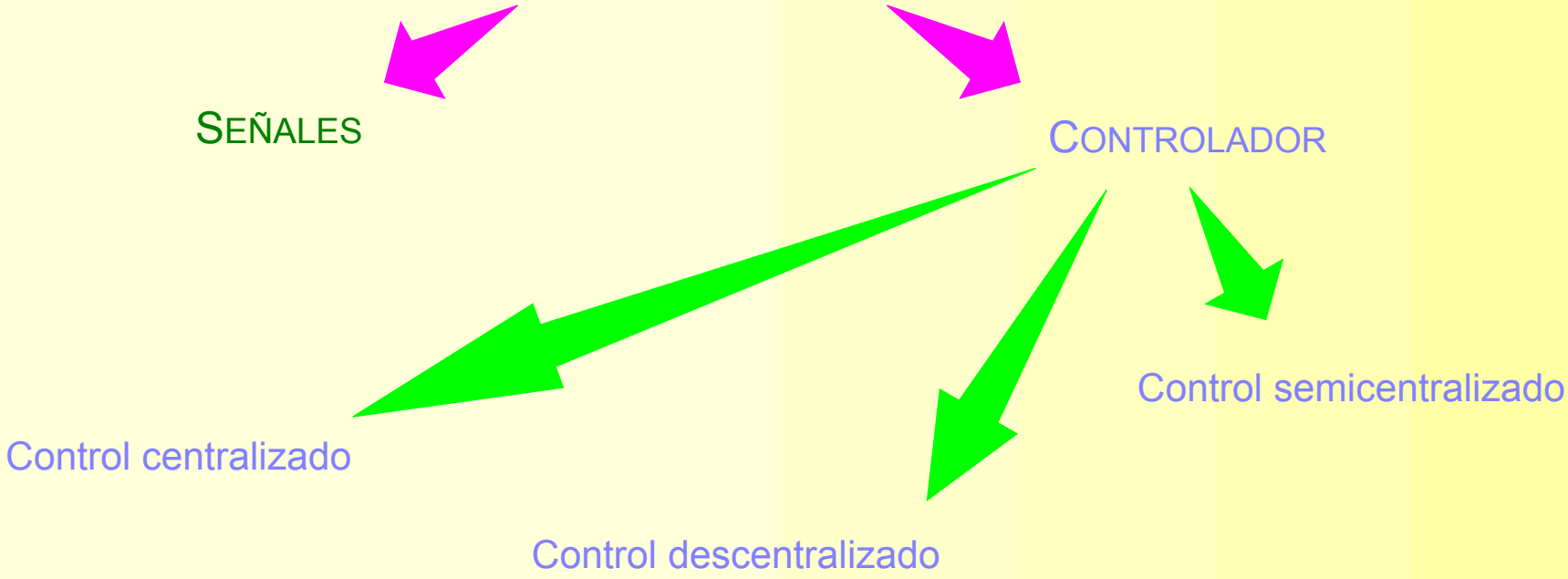
# Diseño de un bus (Señales)



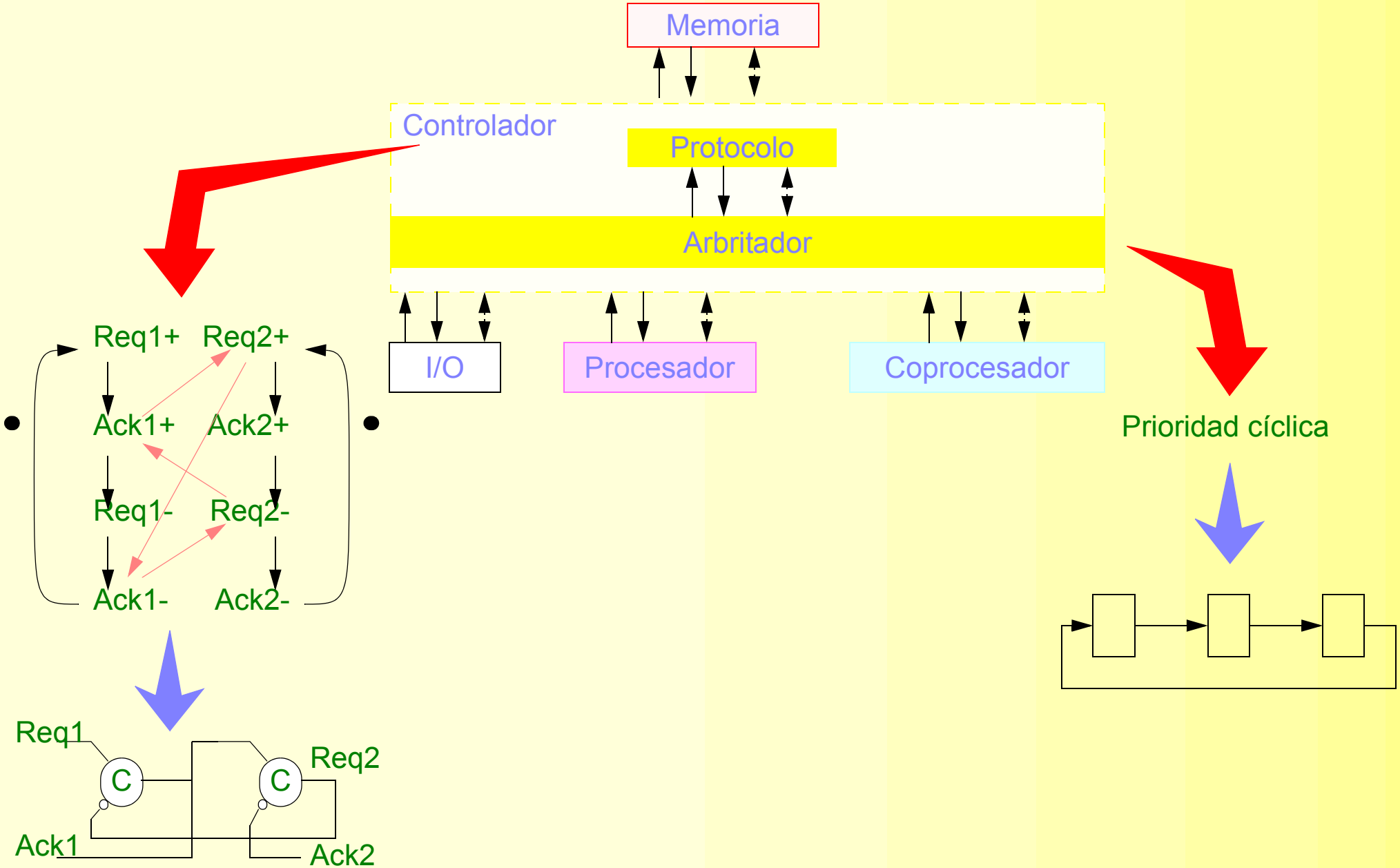



# Diseño de un bus (Controlador)

UN BUS SE PUEDE DEFINIR COMO UN CANAL DE COMUNICACIÓN DISTRIBUIDO PARA CONECTAR MÚLTIPLES SUBSISTEMAS, ES DECIR, UNA HERRAMIENTA PARA COMPONER SISTEMAS



# Ejemplo


Memoria
Controlador
Protocolo
Arbritador
I/O
Procesador
Coprocesador
Req1+
Req2+
Ack1+
Ack2+
Req1-
Req2-
Ack1-
Ack2-
Prioridad cíclica
Req1
Req2
C
C
Ack1
Ack2