

# Issues in Activity Flow Diagram

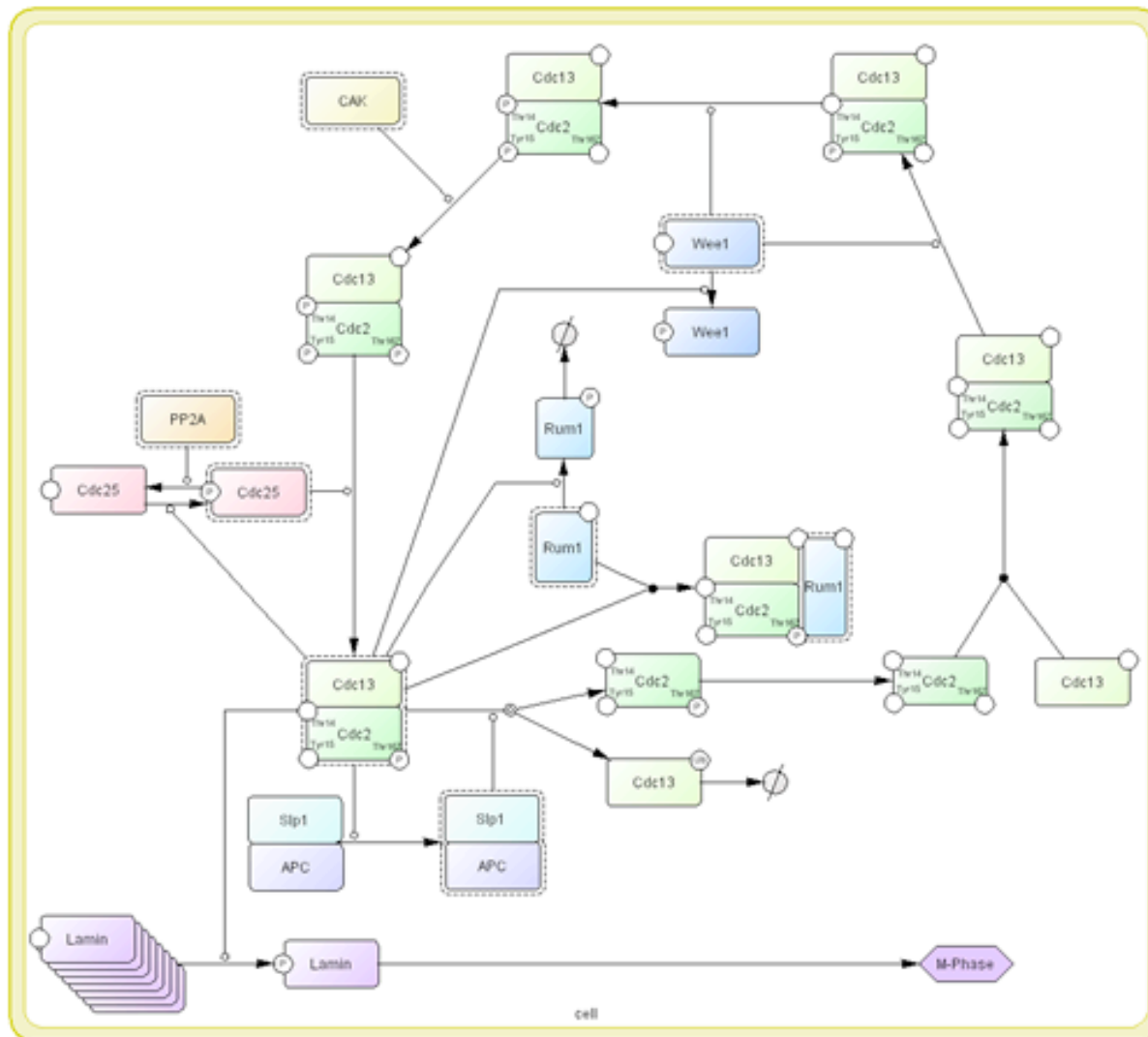
Ver. 2.0

Hiroaki Kitano

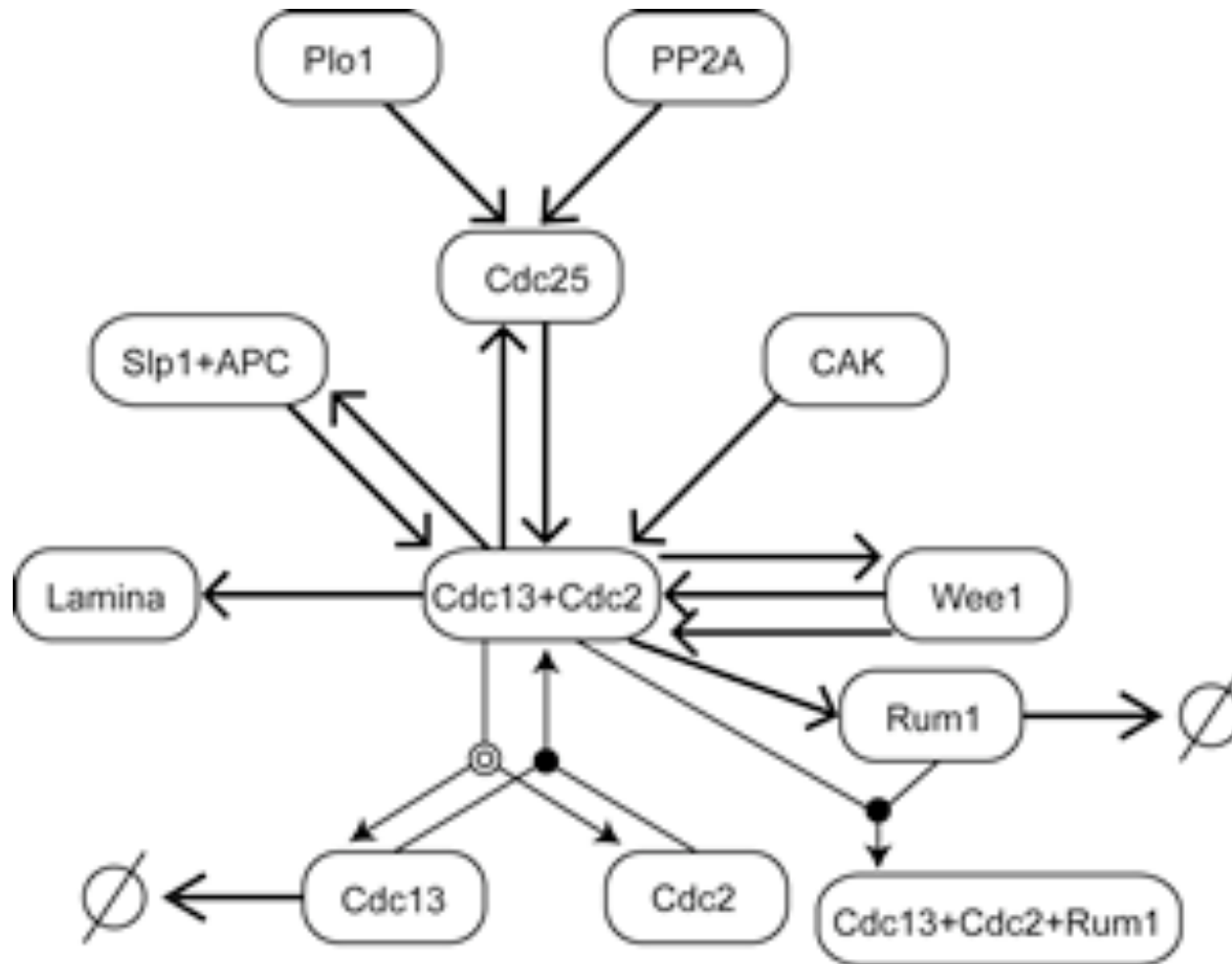
2008-01-29

- Most of reduced notation can be used for activity flow diagram
- Some extensions are needed to resolved ambiguity

# ST diagram for Cell Cycle



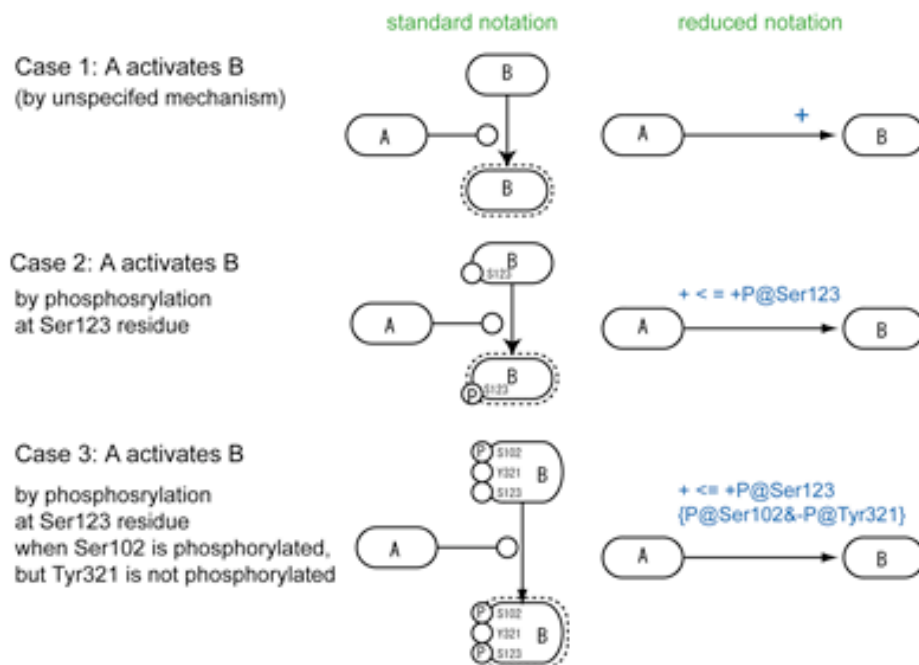
# Activity flow for cell cycle



## Syntax for index on class-II reduced notation



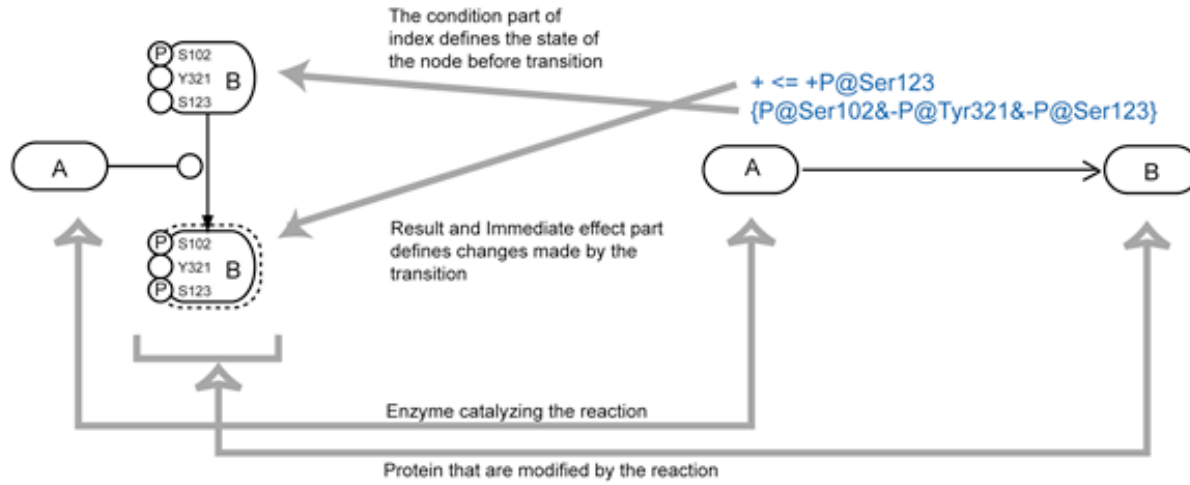
EffectDescription = Result ImmediateEffect Condition   SimpleSentence	
Result	= TRANSITION ('+'   '-'   empty) '<='   empty
ImmediateEffect	= TERM_IE
Condition	= empty   '{' TERM_COND '}'
SimpleSentence	= ('+'   '-'   TRANSITION   '?')
TERM_IE	= RESIDUE_IE   TERM_IE OP TERM_IE
TERM_COND	= RESIDUE_COND   TERM_COND OP TERM_COND
RESIDUE_IE	= ('+'   '-') MODIFICATION ('@' TYPE [0-9]+ SUBUNIT   empty)
RESIDUE_COND	= ('-'   empty) MODIFICATION '@' TYPE [0-9]+
OP	= ('&'   ' ')
MODIFICATION	= (P   Me   Ac   Ub   Hy)   (P   M   A   U   H)
TYPE	= (Tyr   Ser   Thr)   (Y   S   T)
SUBUNIT	= empty   '/' SUBUNIT_NAME
TRANSITION	= [a-zA-Z]+[0-9]*
SUBUNIT_NAME	= [a-zA-Z0-9]+



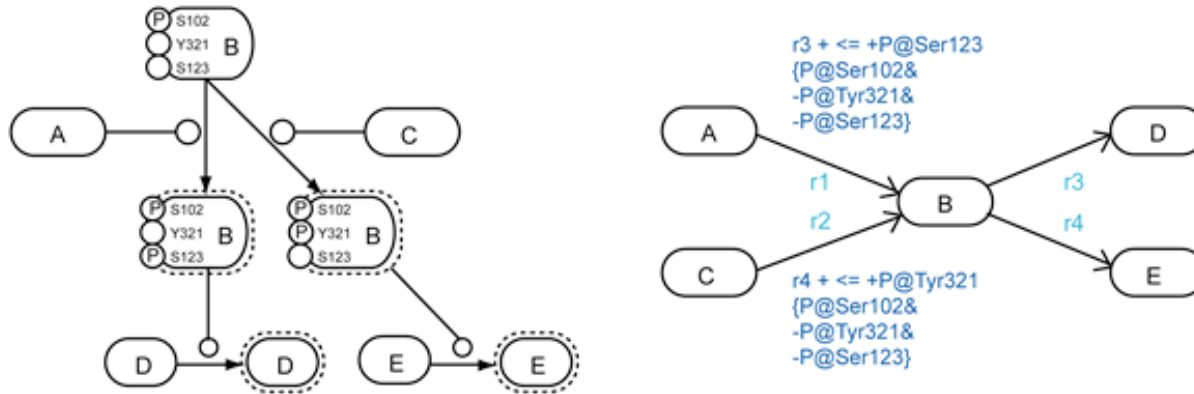
**STANDARD NOTATION**

**REDUCED NOTATION**

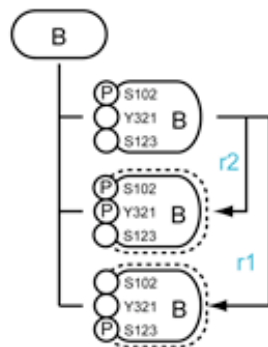
A

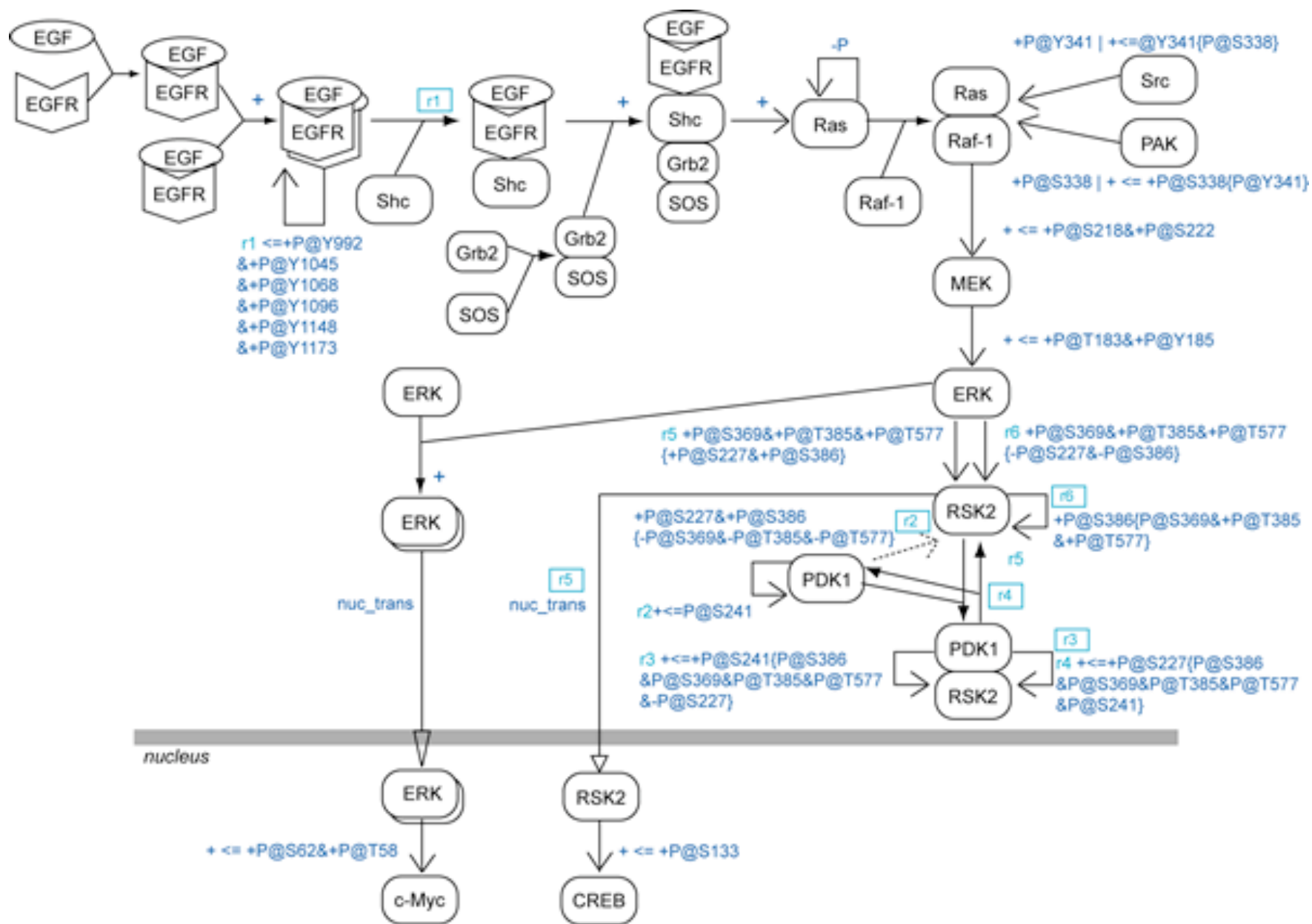


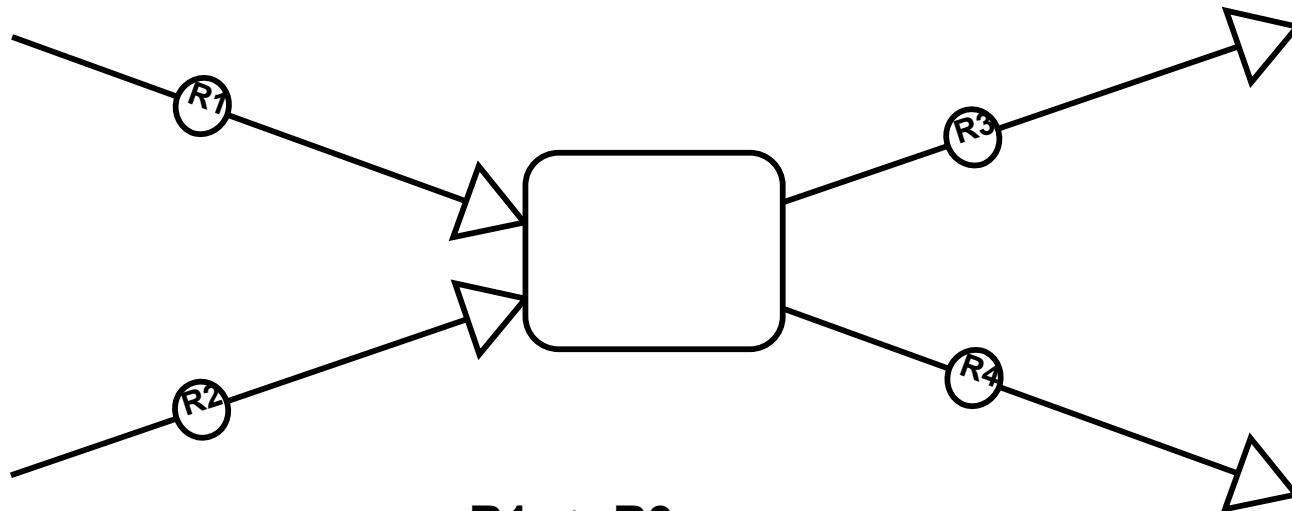
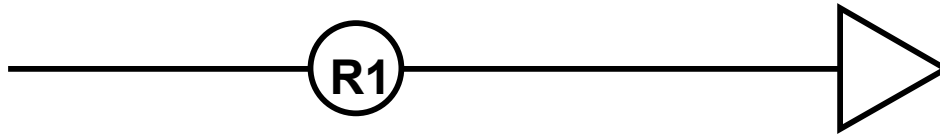
B



C





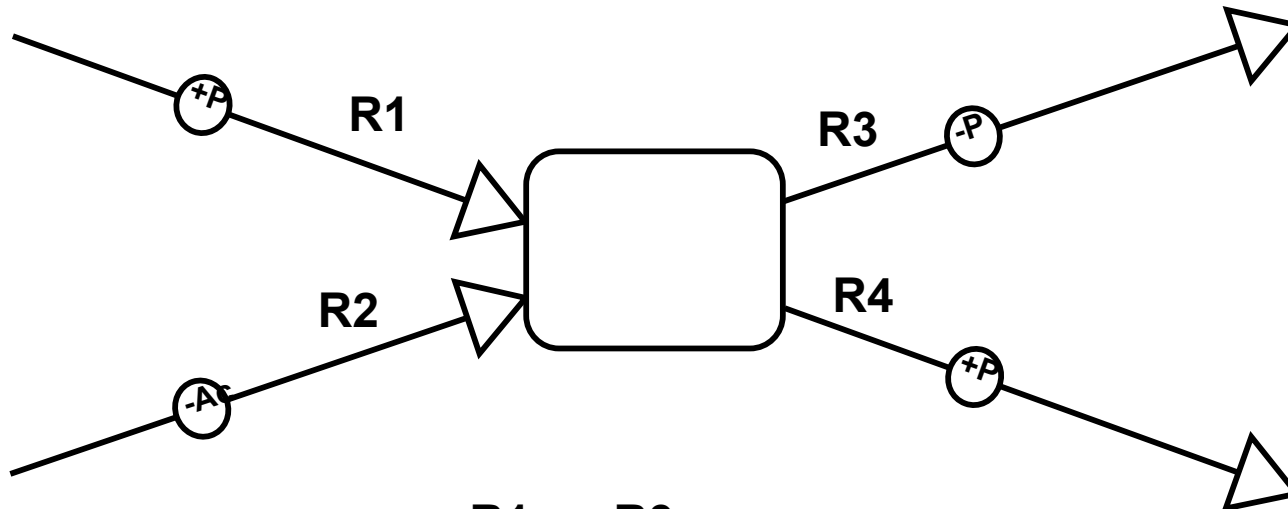
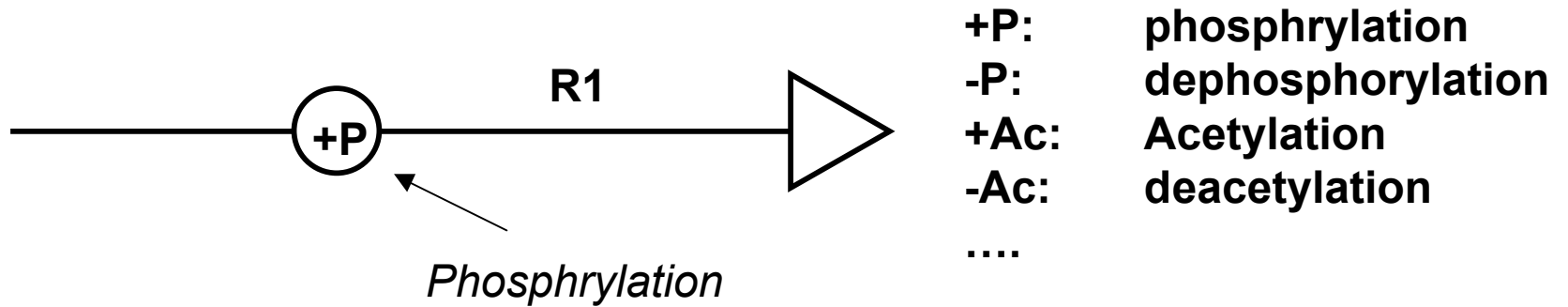


**$R1 \Rightarrow R3$**

**$R2 \Rightarrow R4$**

**$R1 \ \& \ R2 \Rightarrow R3 \ \& \ R4$**

# Alternative

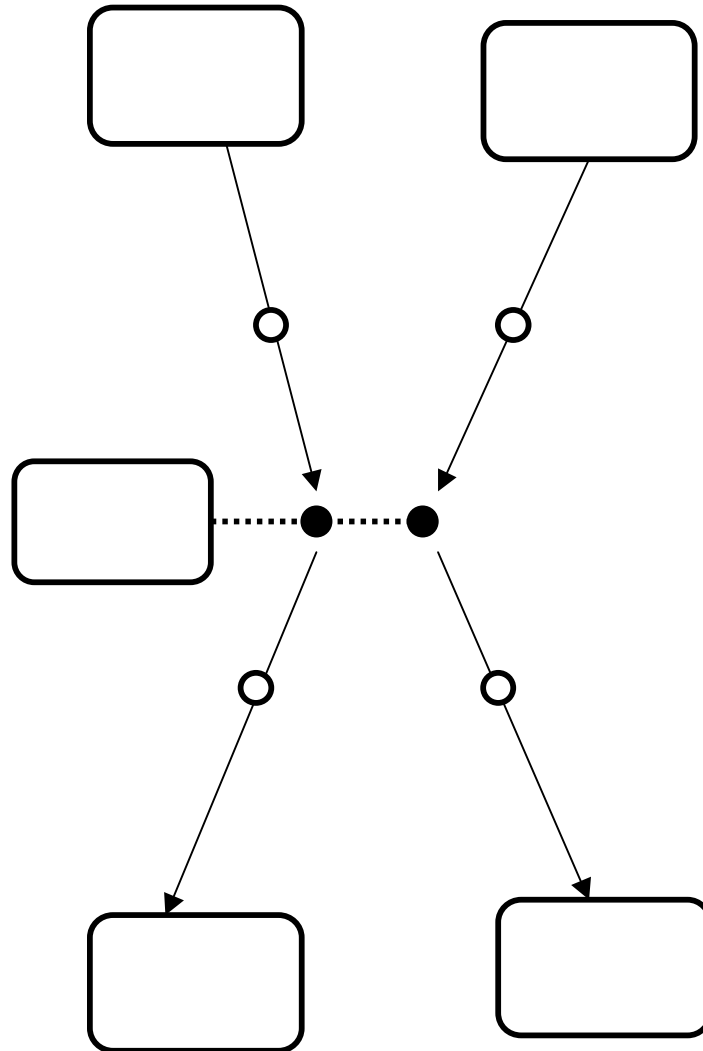


**R1 => R3**

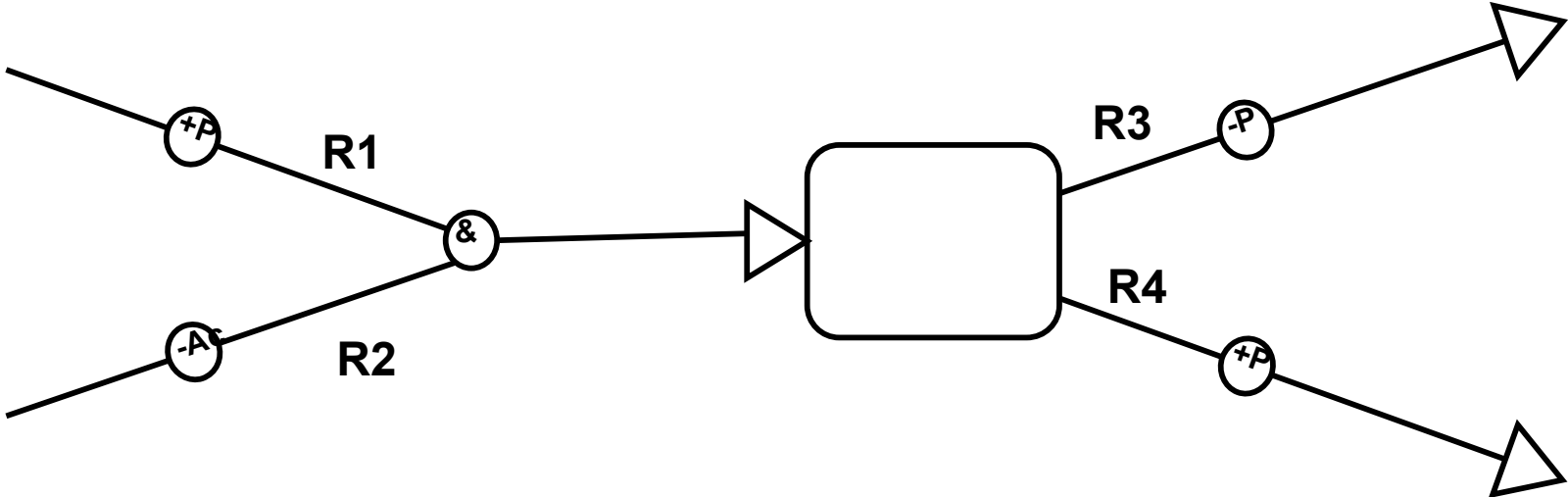
**R2 => R4**

**R1 & R2 => R3 & R4**

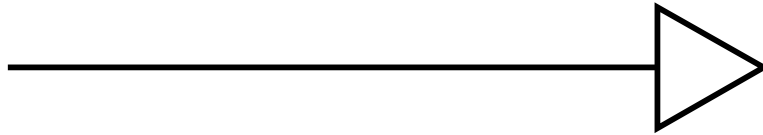
# An odd solution to ambiguity issue



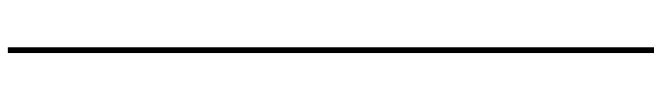
Combined with logic gate



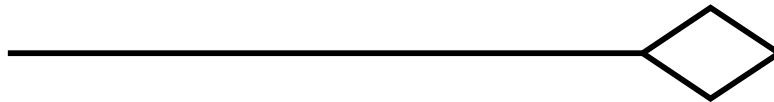
**Activation**



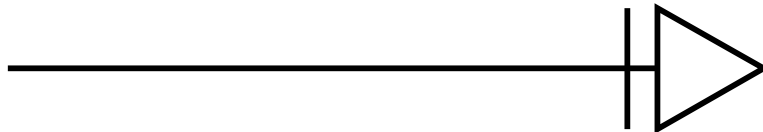
**Inhibition**



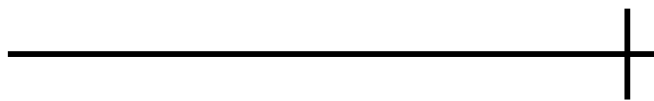
**Modulation**



**Trigger**



**Absolute inhibition**



} **Do we need them?**