The Entity Relationships of SBGN

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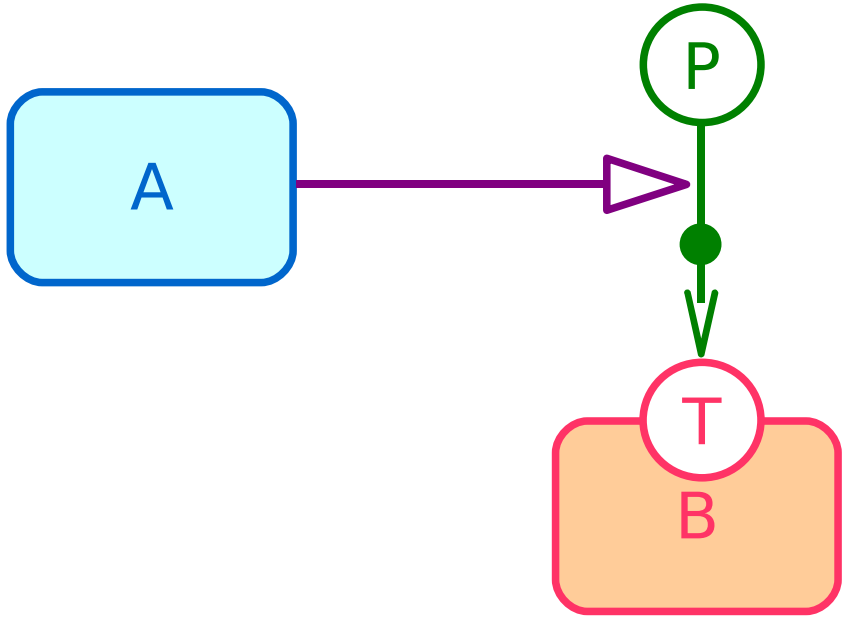
(on the behalf of SBGN editors, authors and contributors)

What are Entity Relationship maps

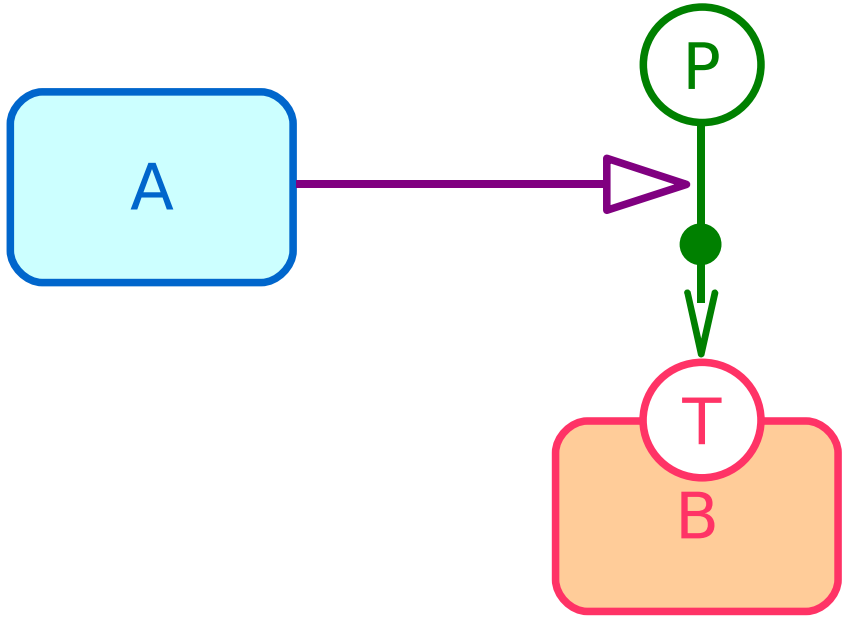
- ER maps describe the influence of entities upon the behaviours of others
- Entities nodes are objects that exists, that are true (they are “continuants”)
- Relationships are things that may happen, that may be true (they are “occurants”)
- Relationships are independent of each other: No combinatorial explosion!
- Each relationship can be seen as a specific conclusion of a scientific experience or an article.

A simple example



If A exists, the assignment of the value P to the state variable T of B is increased

A simple example



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A stimulates the phosphorylation of B on the threonine

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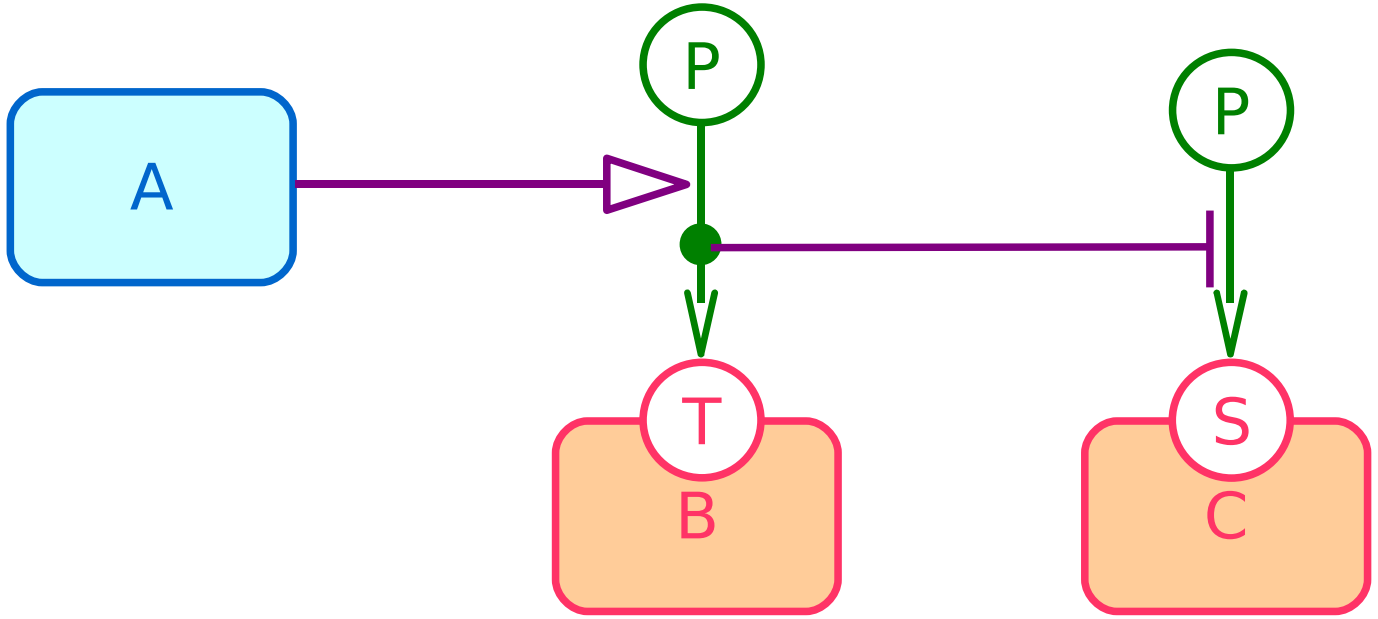

If A exists, the assignment of the value P to the state variable T of B is increased

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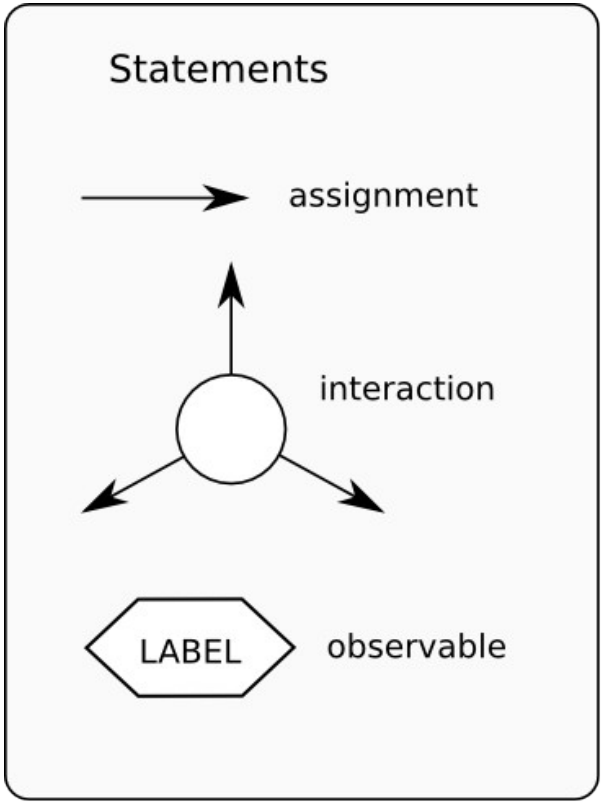
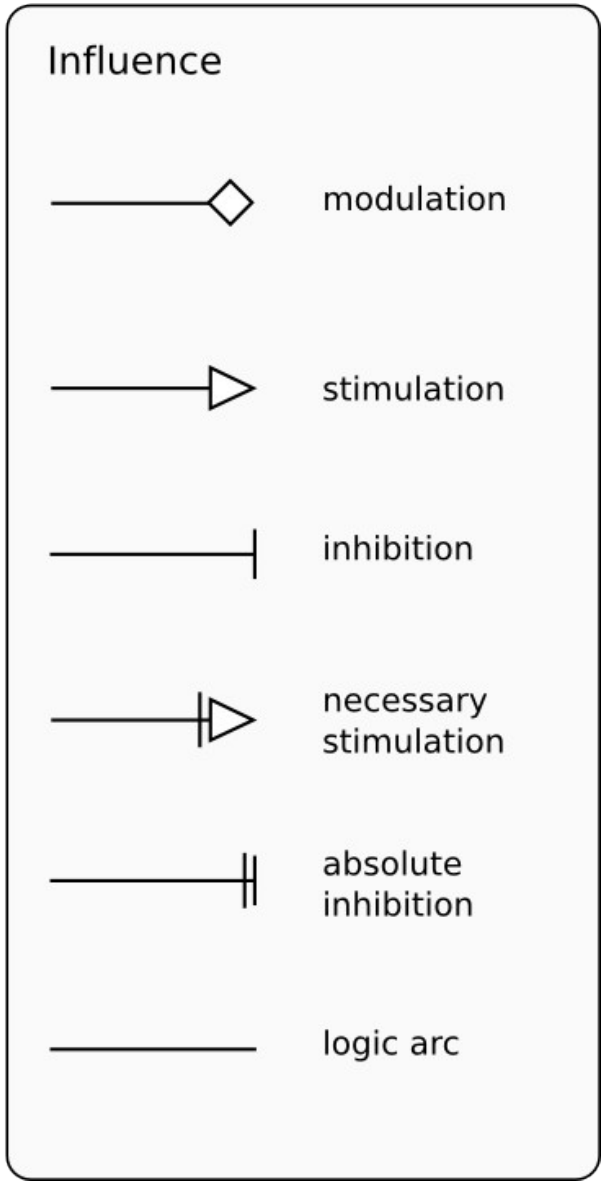
Relationships

a statement can be true or not:

P is assigned to T
A interacts with B
We can observe X

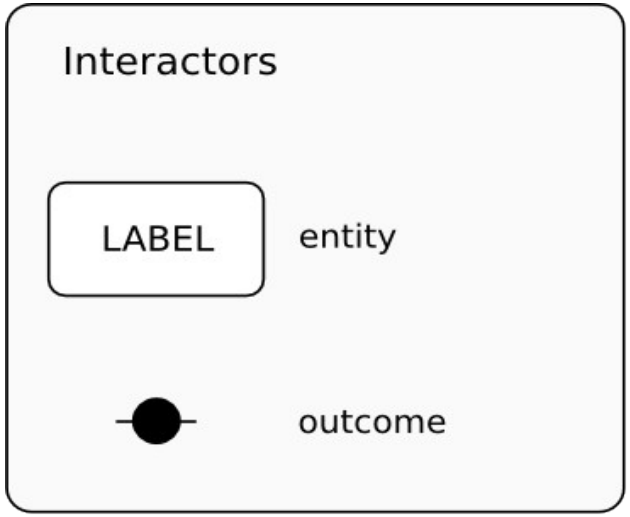




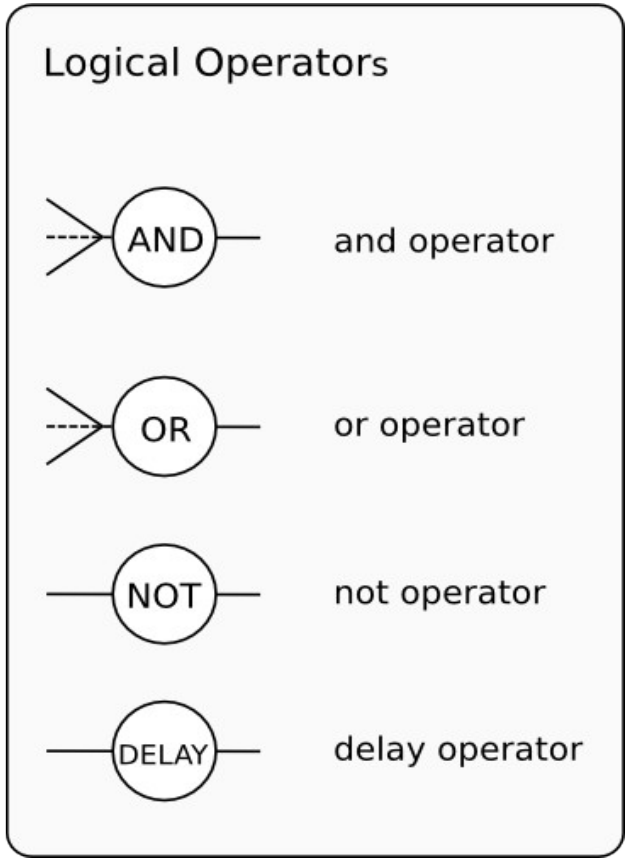
Entity node *influences* relationship

Entity nodes

can be linked to interaction or influences

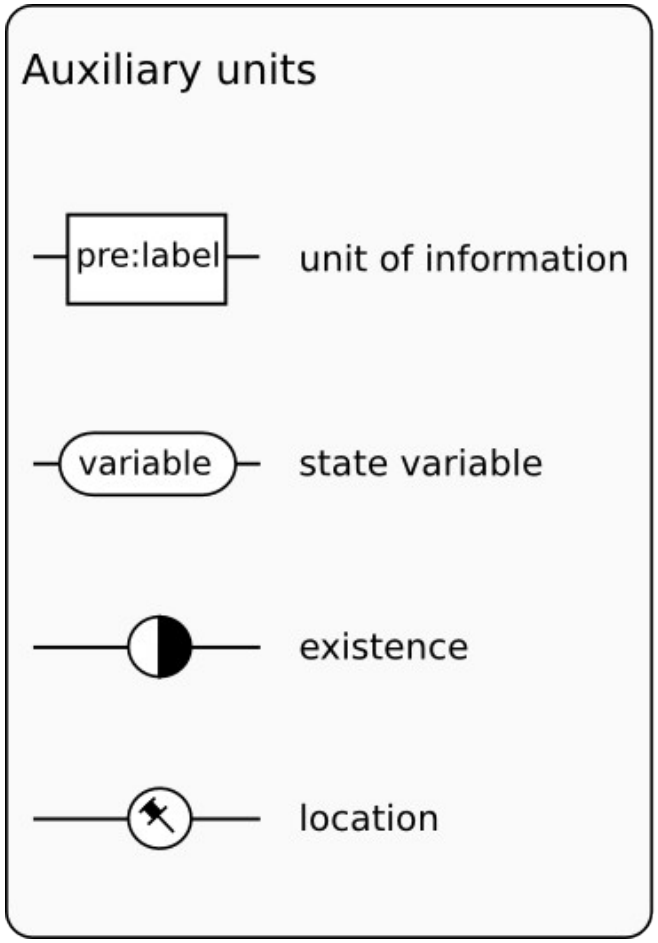


can be linked to influences only

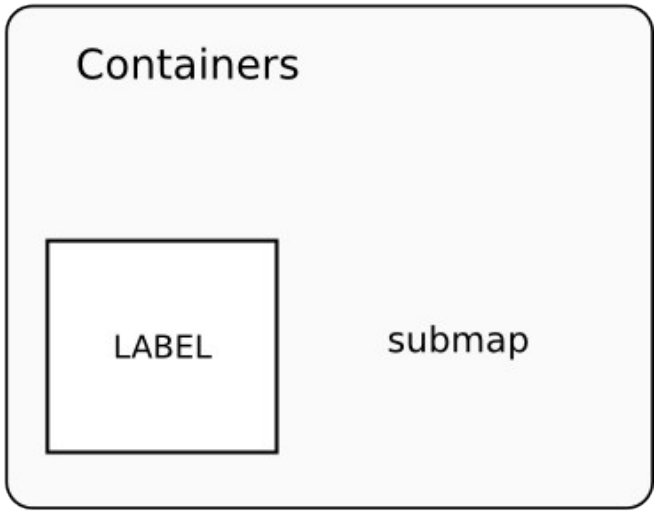


Input are logic arc
output are influences

Auxiliary units and submap

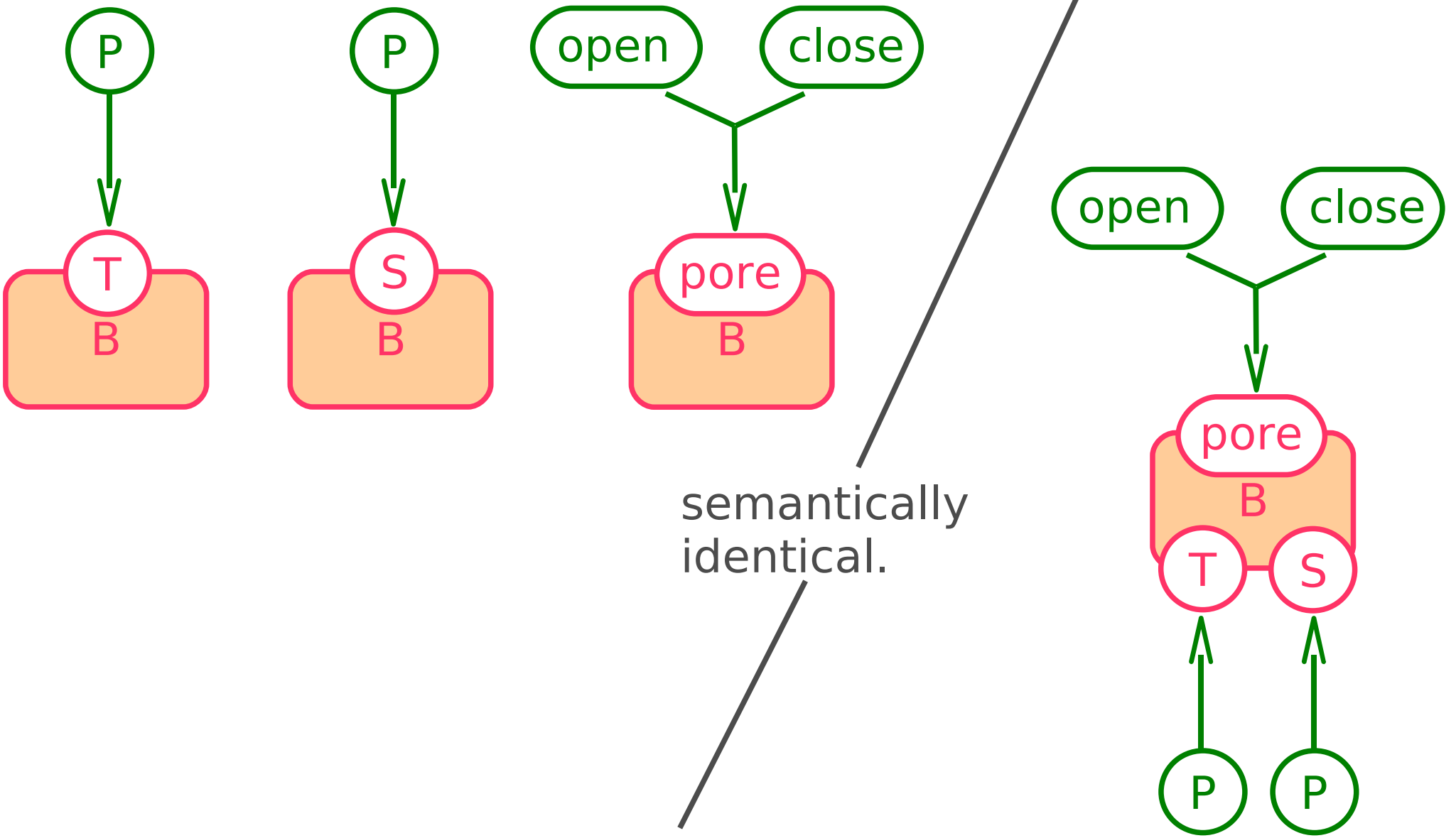


Just a pointer to another map

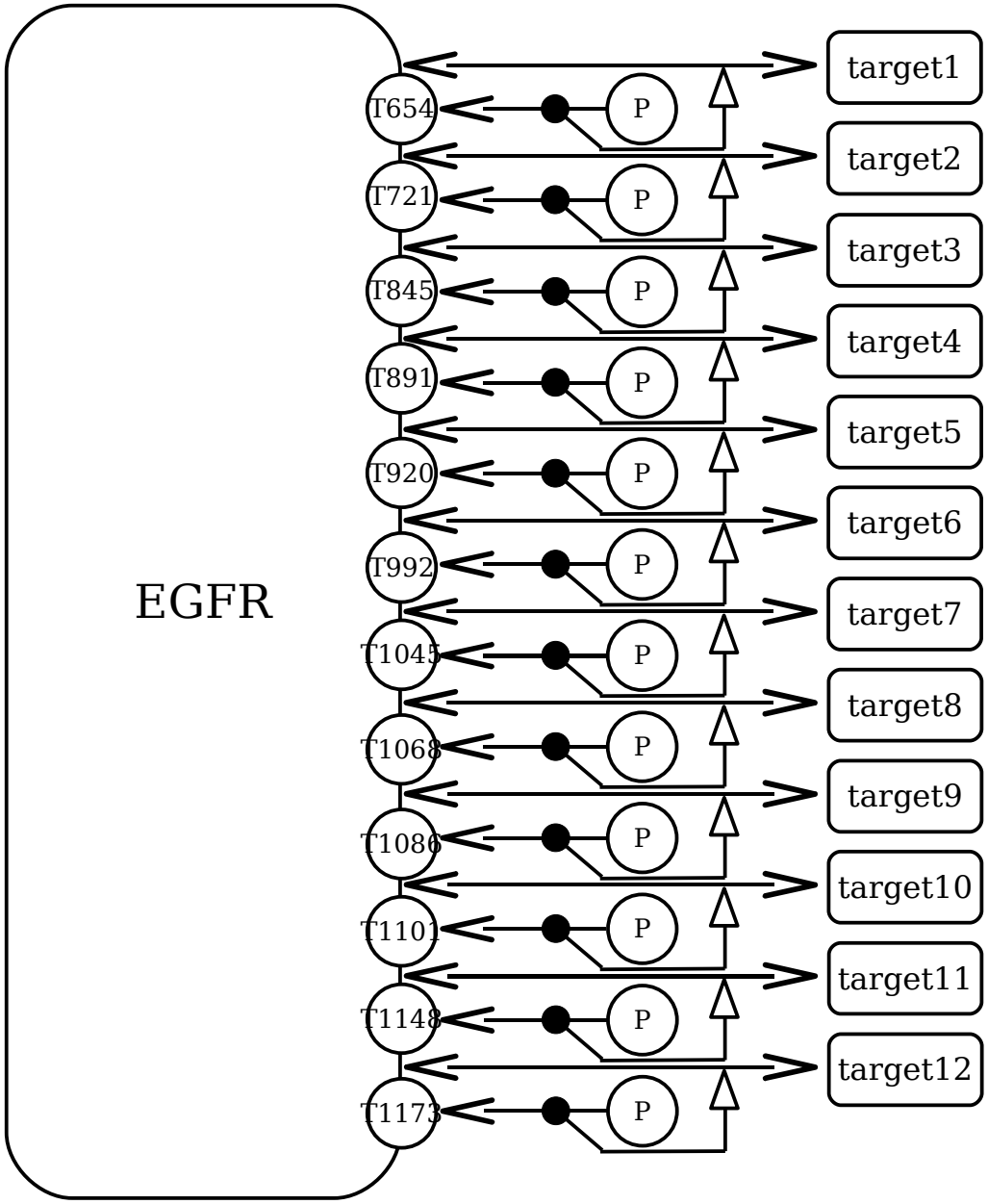


Carried by Entity.
State variable is the target of assignment

Non-unicity of glyphs



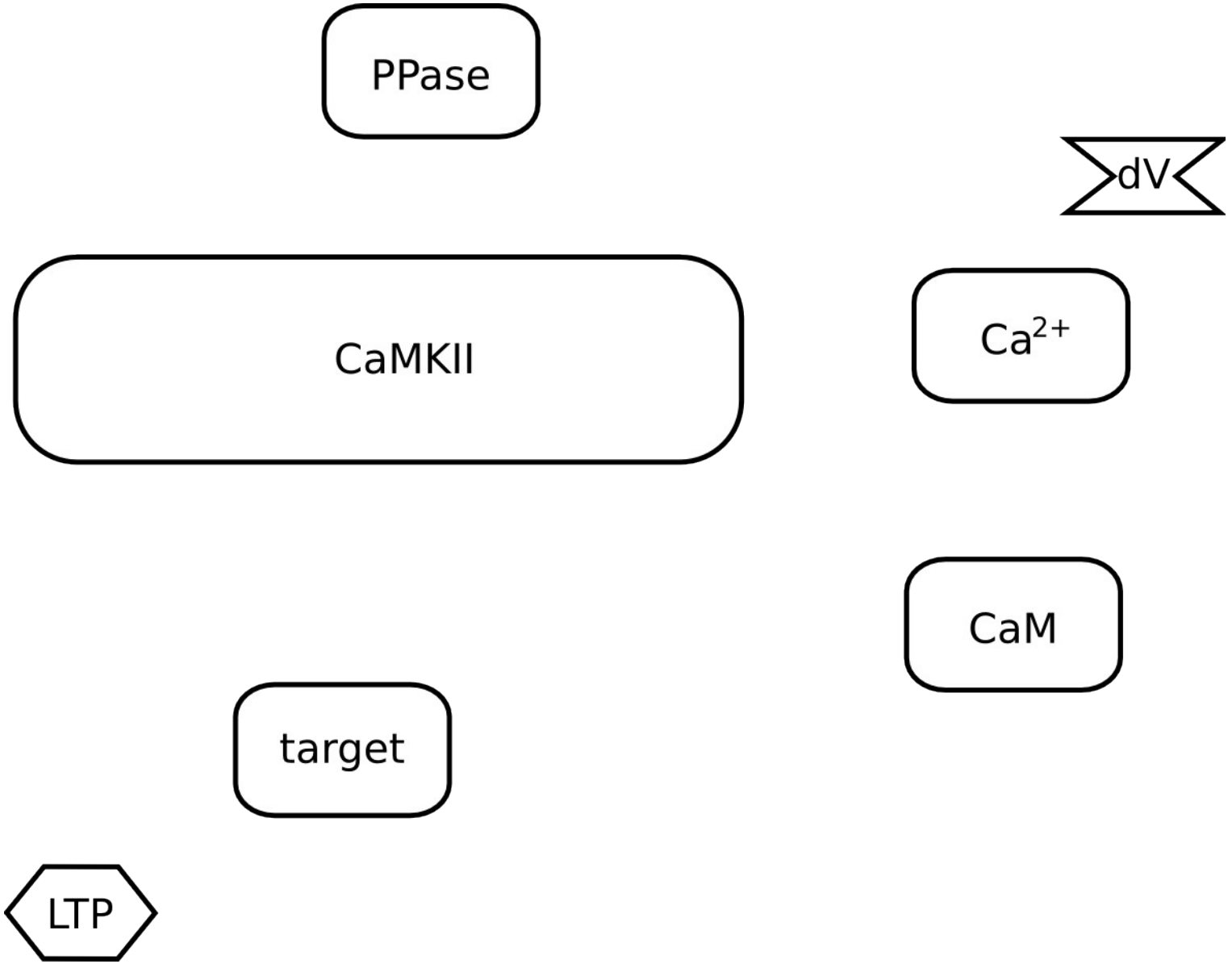
Multistate and combinatorial explosion



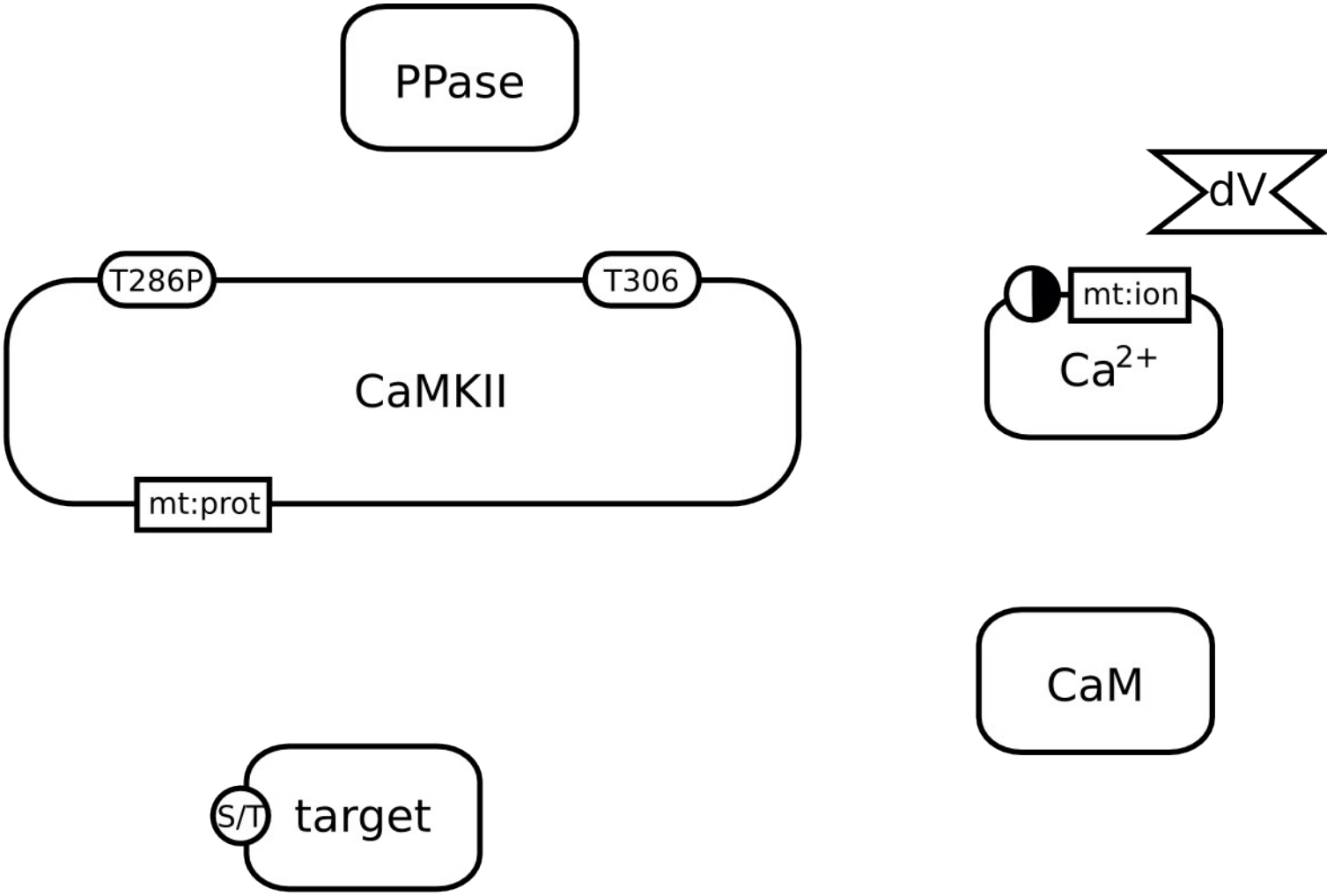
Process Diagram:
“once a state variable value,
always a state variable value”

2^{12} = 4096 states
(i.e. EPN glyphs) for EGFR
and 4096 complexes between
EGFR and targets

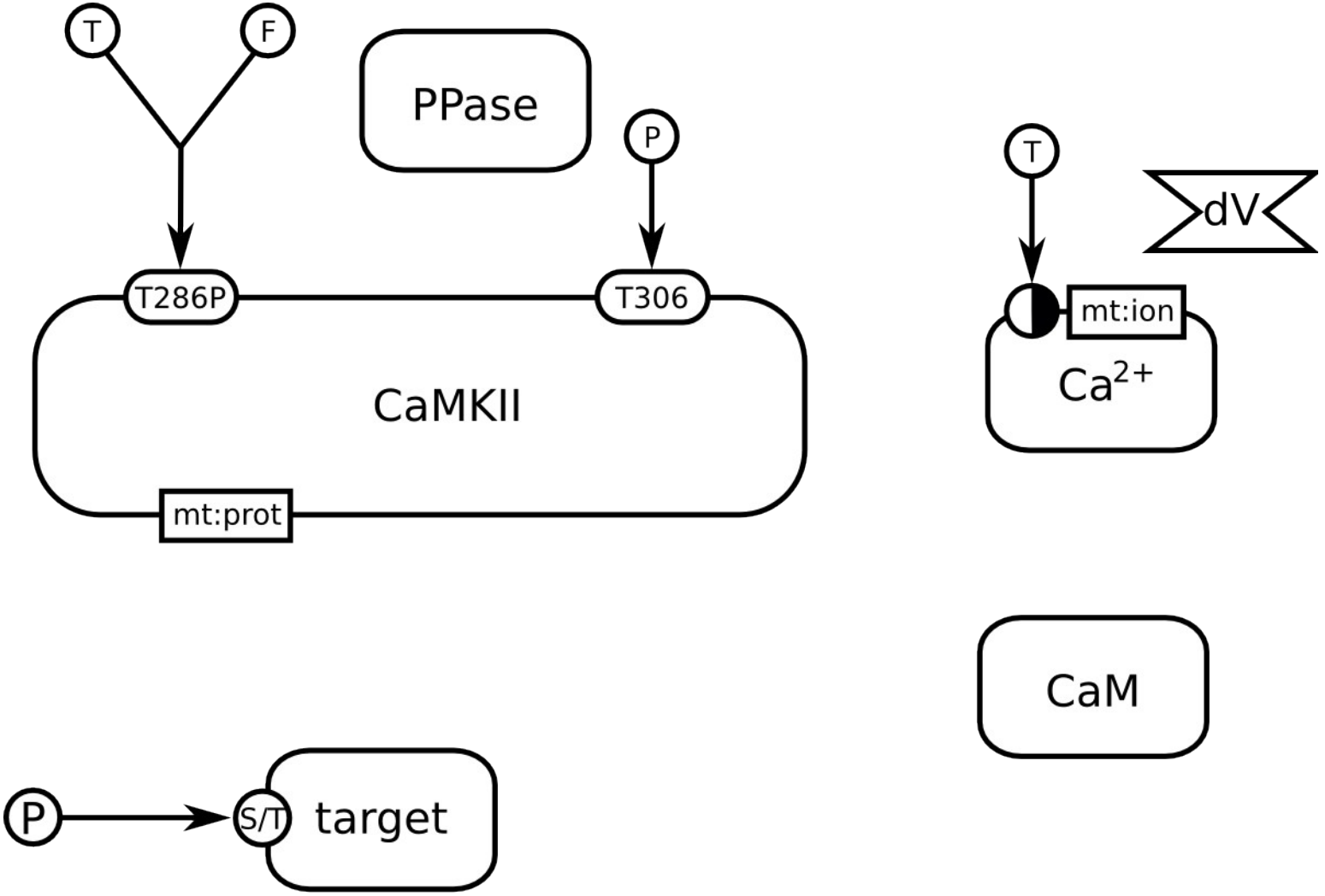
The entities nodes



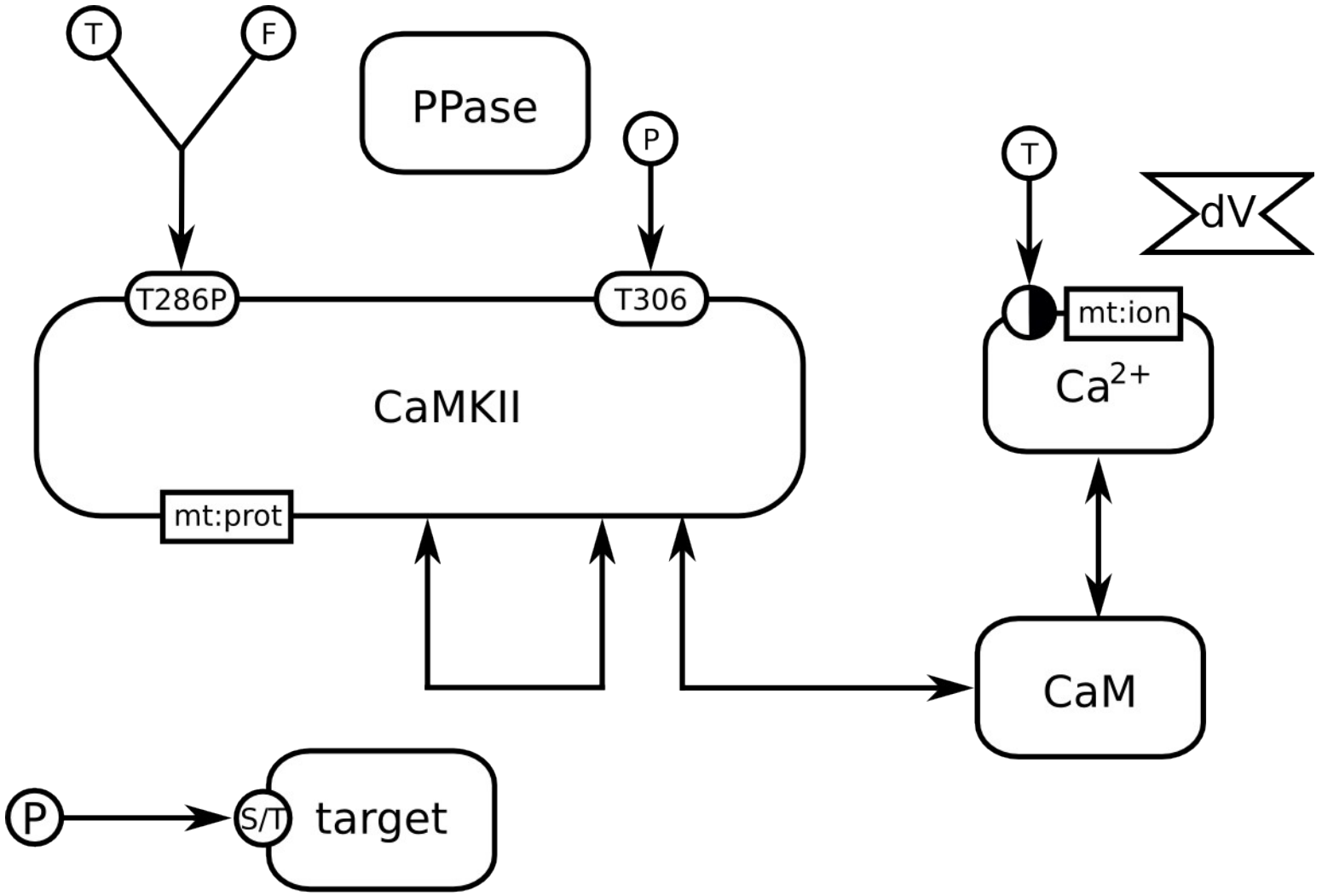
Entities can have decorations



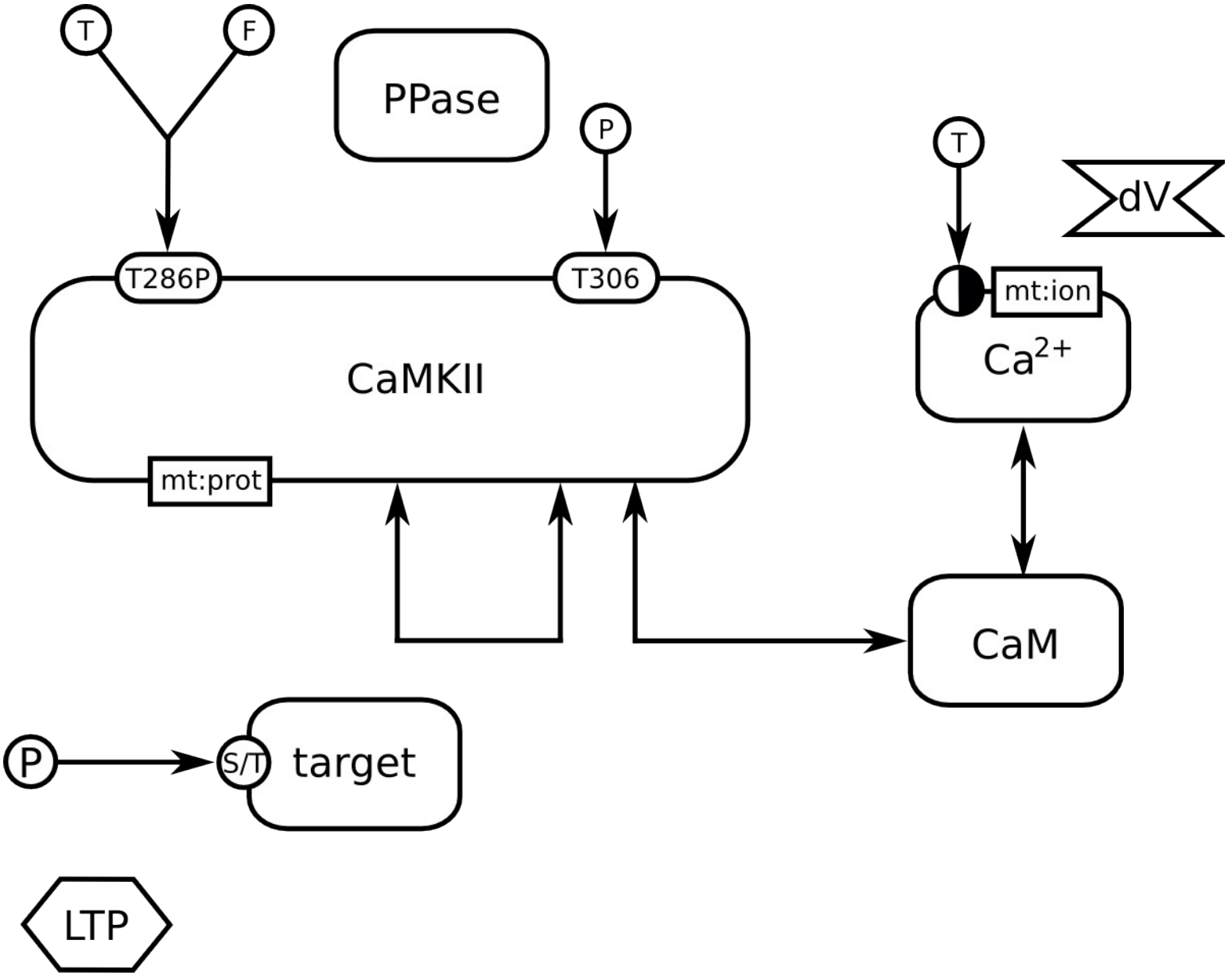
State variables can be assigned values



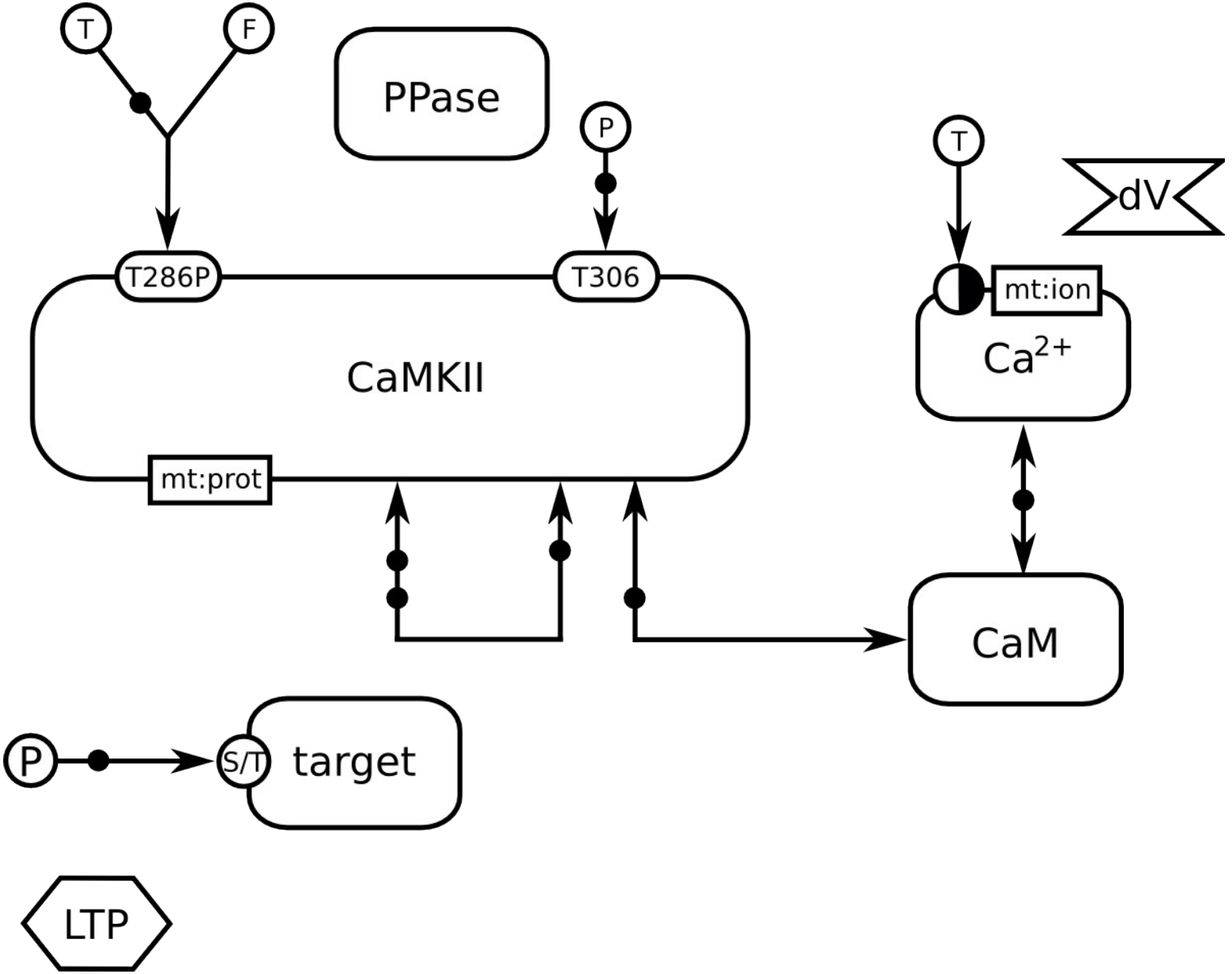
Entities can interact



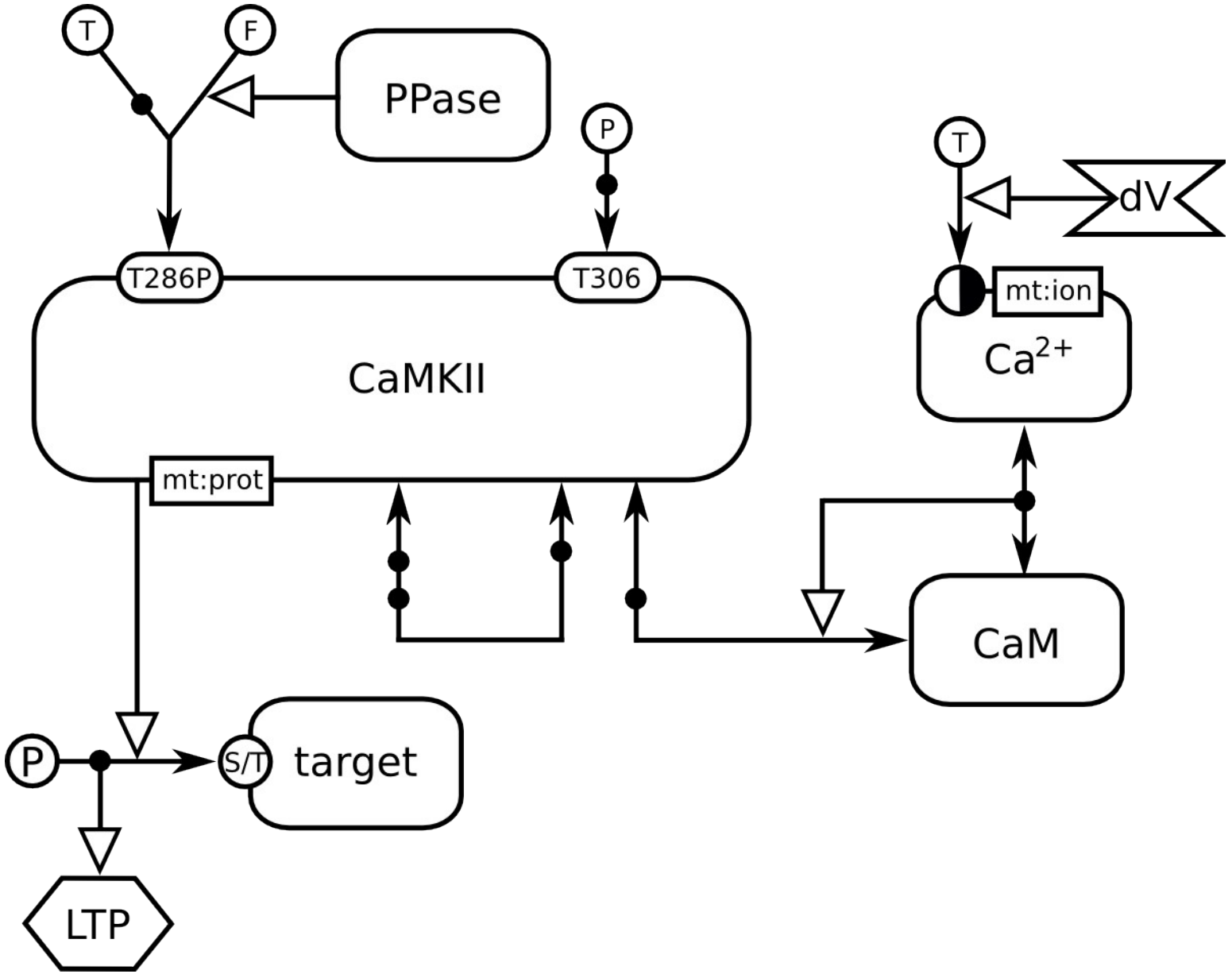
Phenotypes can be observed



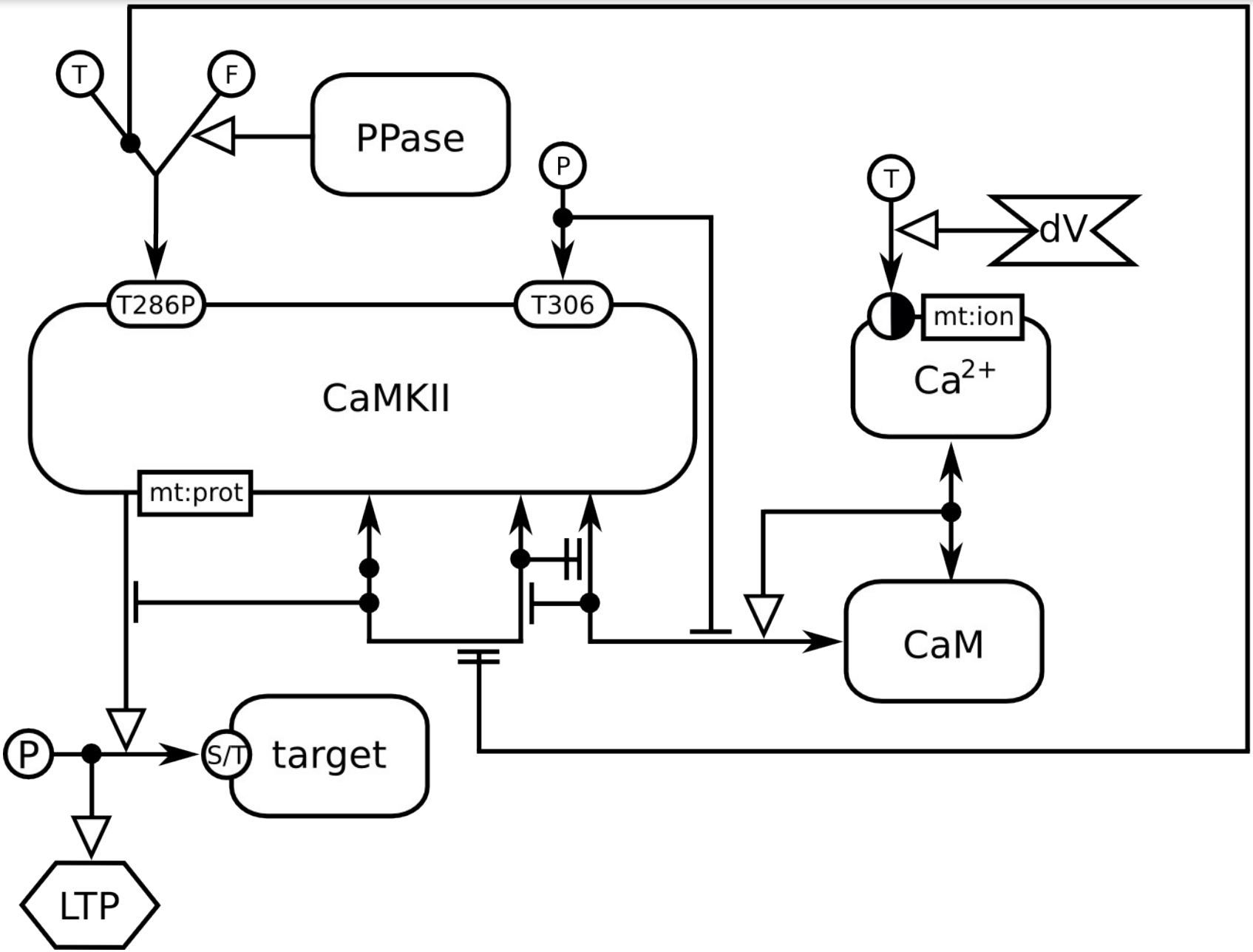
Existence of an interaction can be represented



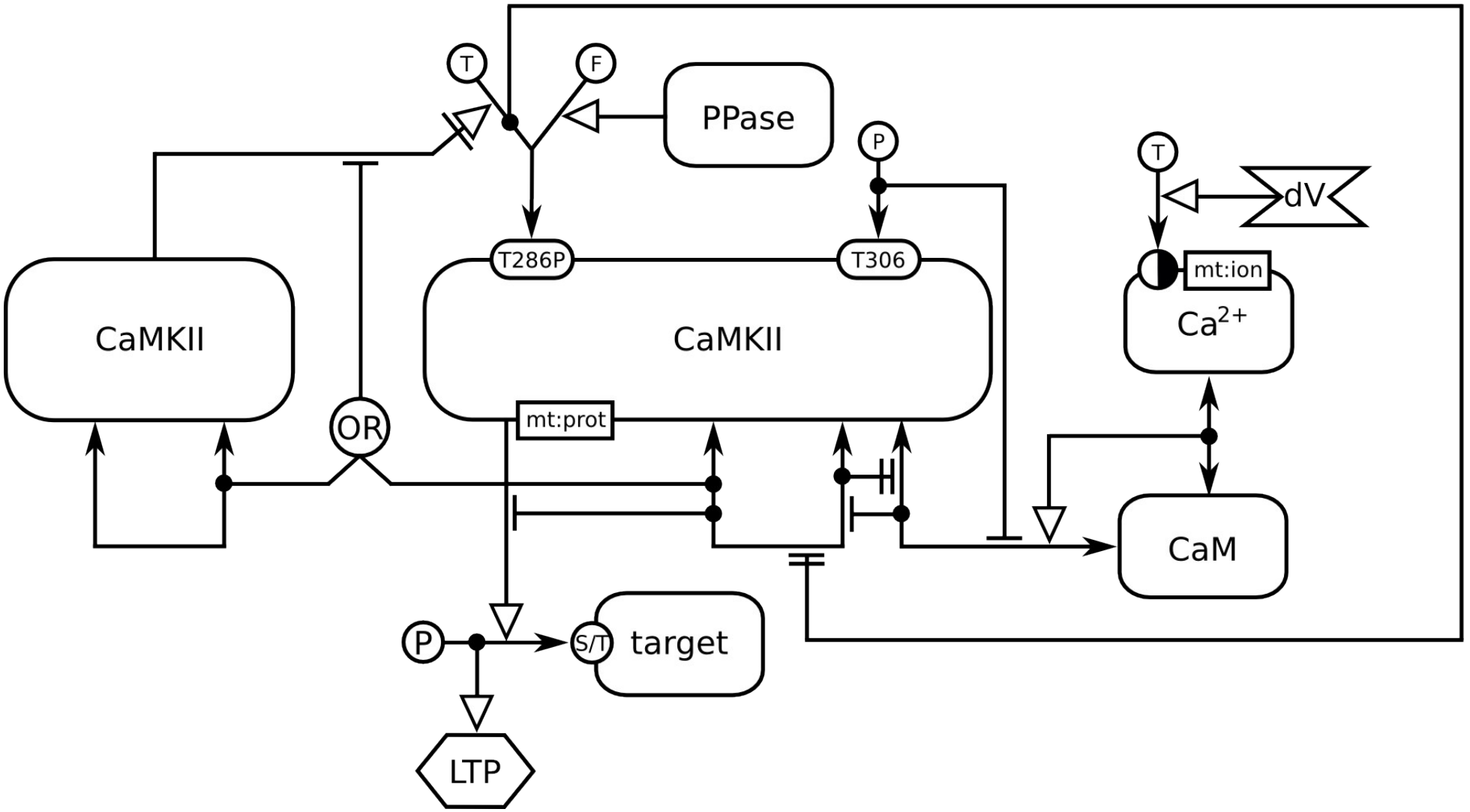
Entity nodes can positively affect relationships



Entity nodes can negatively affect relationships



Trans influence and logical operators



Acknowledgements

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