

BioPAX Generics : Open Issues for Level 4

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Generics

- Set of entity pools that behave equivalently within the context of at least one process.
- They are everywhere :
 - by homology
 - by unknown features
 - by structural similarity

the ring

two



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DREAMWORKS
PICTURES

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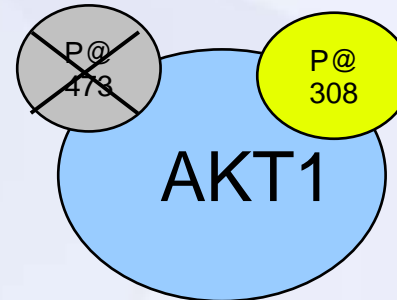
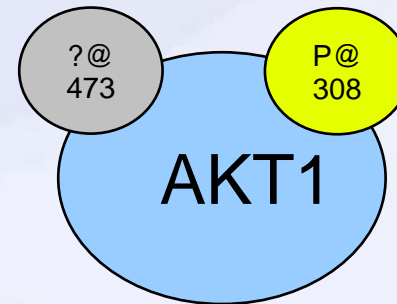
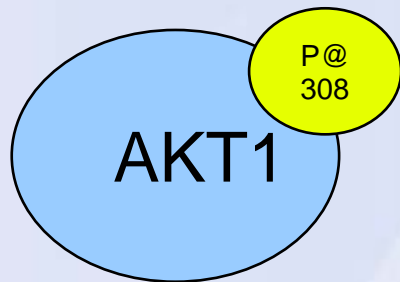
= Fear comes full circle.

www.thering2-themovie.com

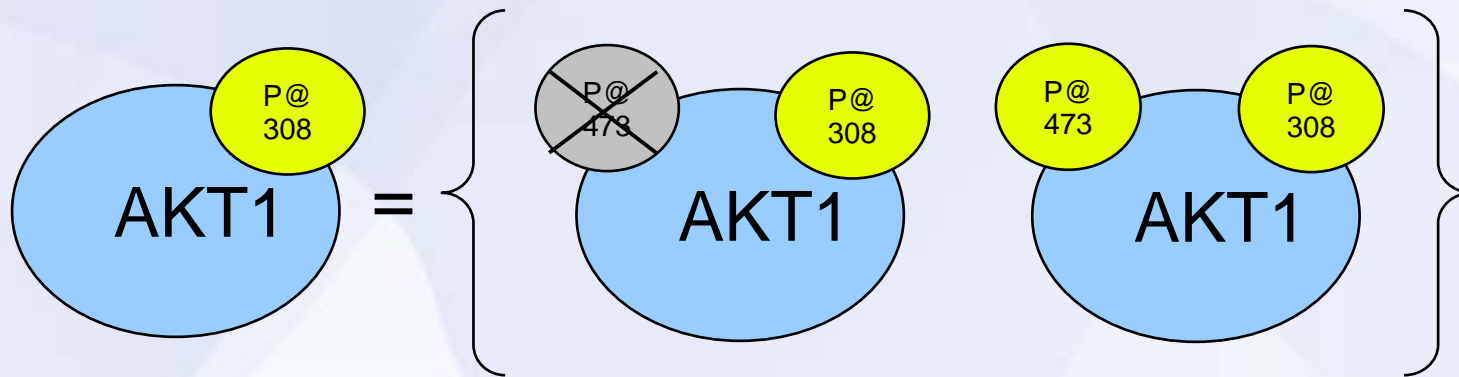
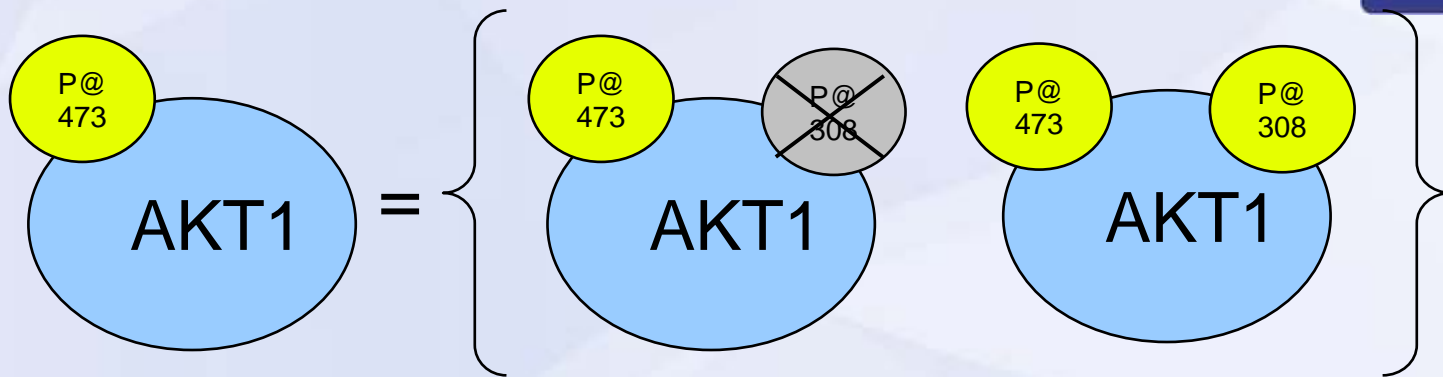
Specifying Generics

- Intensional: Easy but combinatorial
- Extensional: Semantically difficult, exceptions

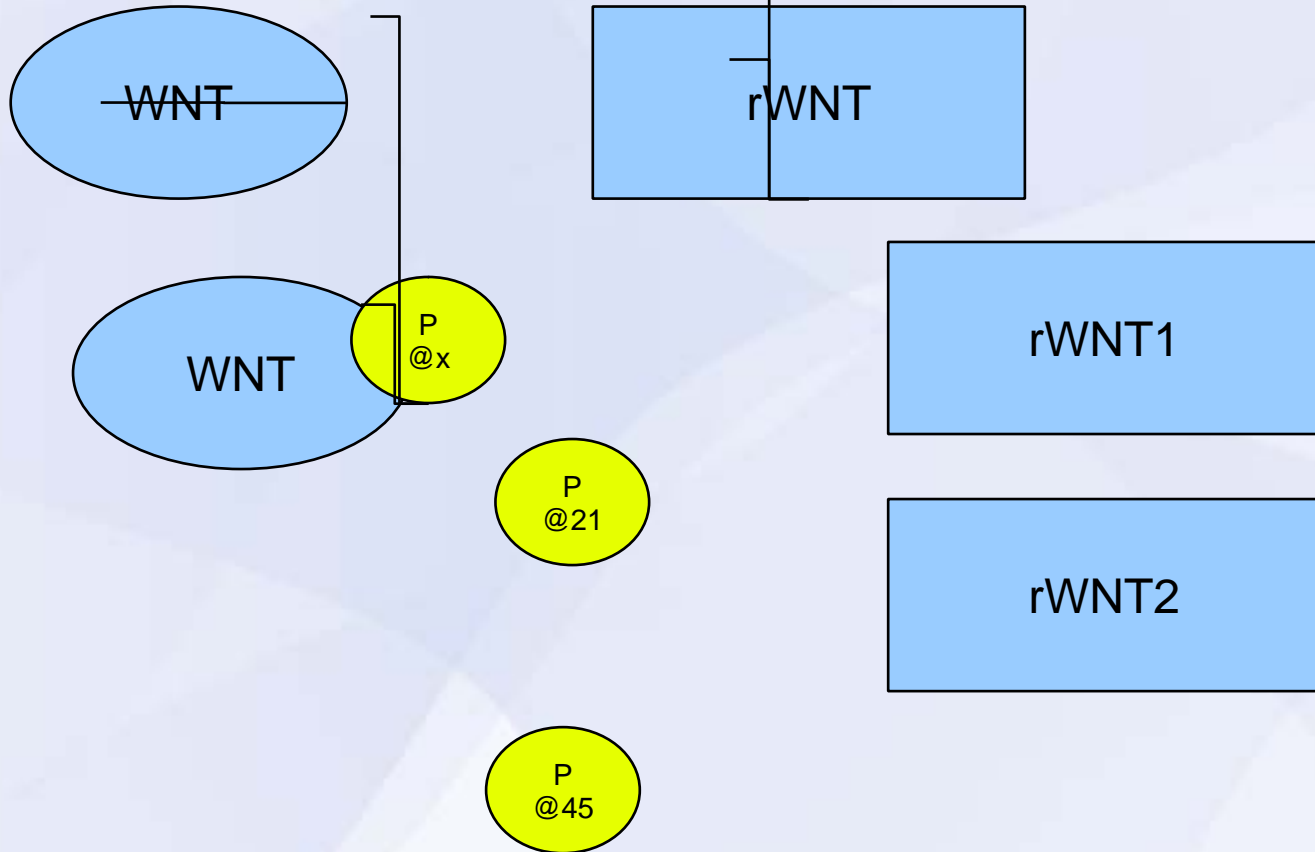
Unknown Features (extensional)



Unknown Features



Homology (extensional)



Structural Similarity (intensional)

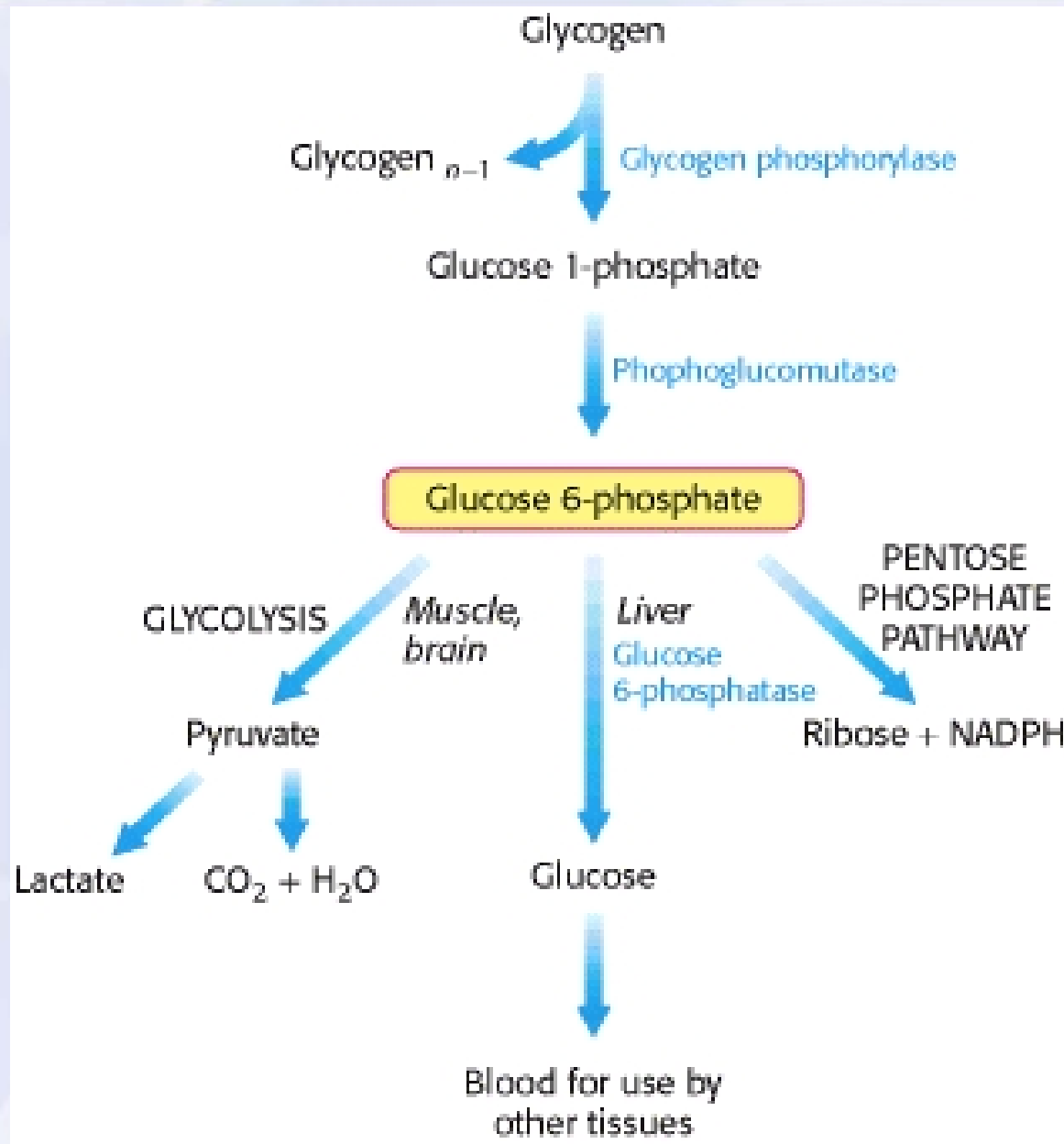
- Alcohol
- L/D- Glucose

How to make it extensional?

- Need classes of groups/conformations etc.
- A cheminformatics problem → Delegate..?

Polymerization (none!)

- Iterative definition : $X(n) + X \rightarrow X(n+1)$
- Complicated by alternating and branching structures
- Can not be expressed intensionally
- Often expressed with n-stoichiometries (hack)



Coordination

- Similar issues arise in SBGN, SBML, CellML(?)
- Need for clear semantics on all fronts is

Critical!