(a) Formal language as knowledge representation and symbolic reasoner PIM as Reasoner Cat likes to catch mouse Tom catches Tom is a cat, and Trm Jerry Jerry is a mouse (b) Natural language as knowledge representation and PLM as reasoner

 $\forall x [\forall y (Cat(x) \land Mouse(y))]$

 $\Rightarrow Catch(x, y)$

Cat(Tom); Mouse(Jerry)

Symbolic Reasoner

 $\neg Cat(x) \lor \neg Mouse(y) \lor Catch(x, y)$

Cat(Tom); Mouse(Jerry)

Catch(Tom, Jerry)

Catch

(Tom.

lerry)