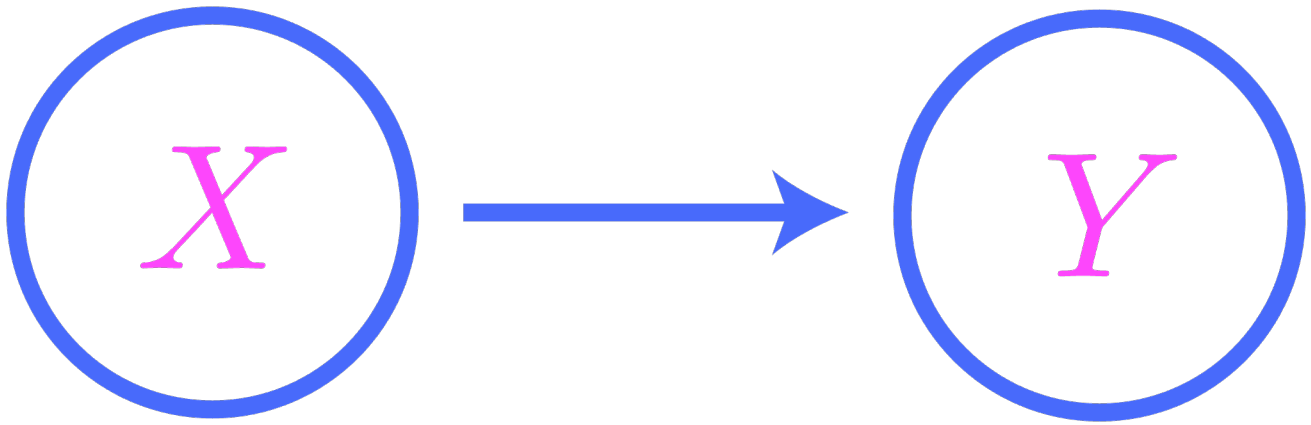
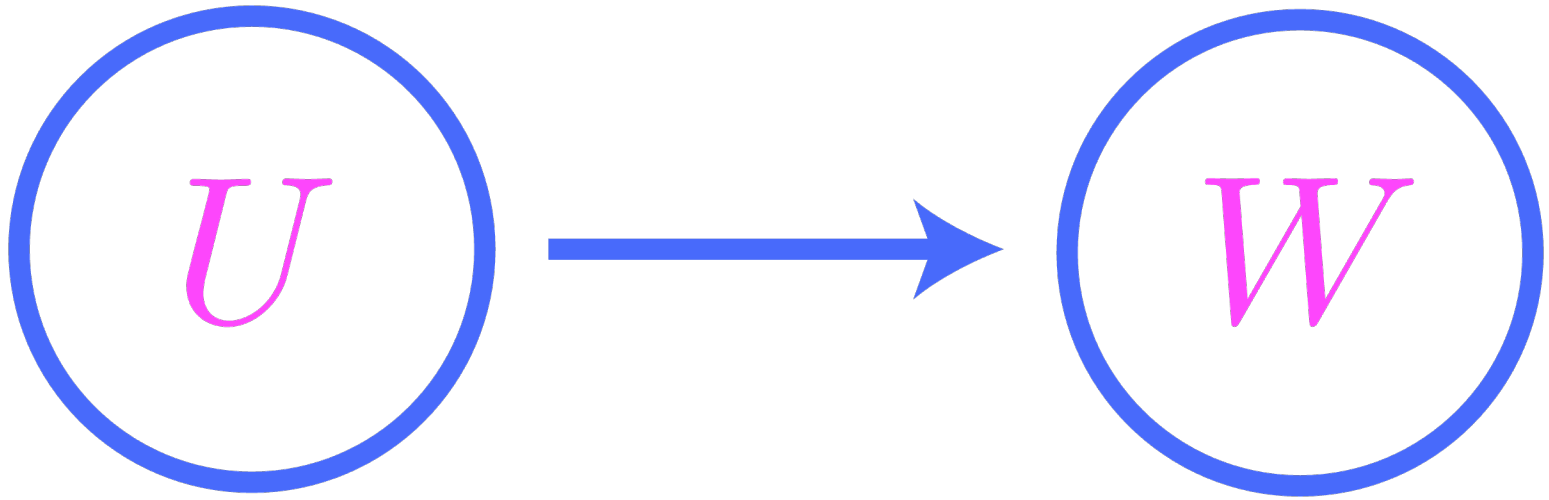
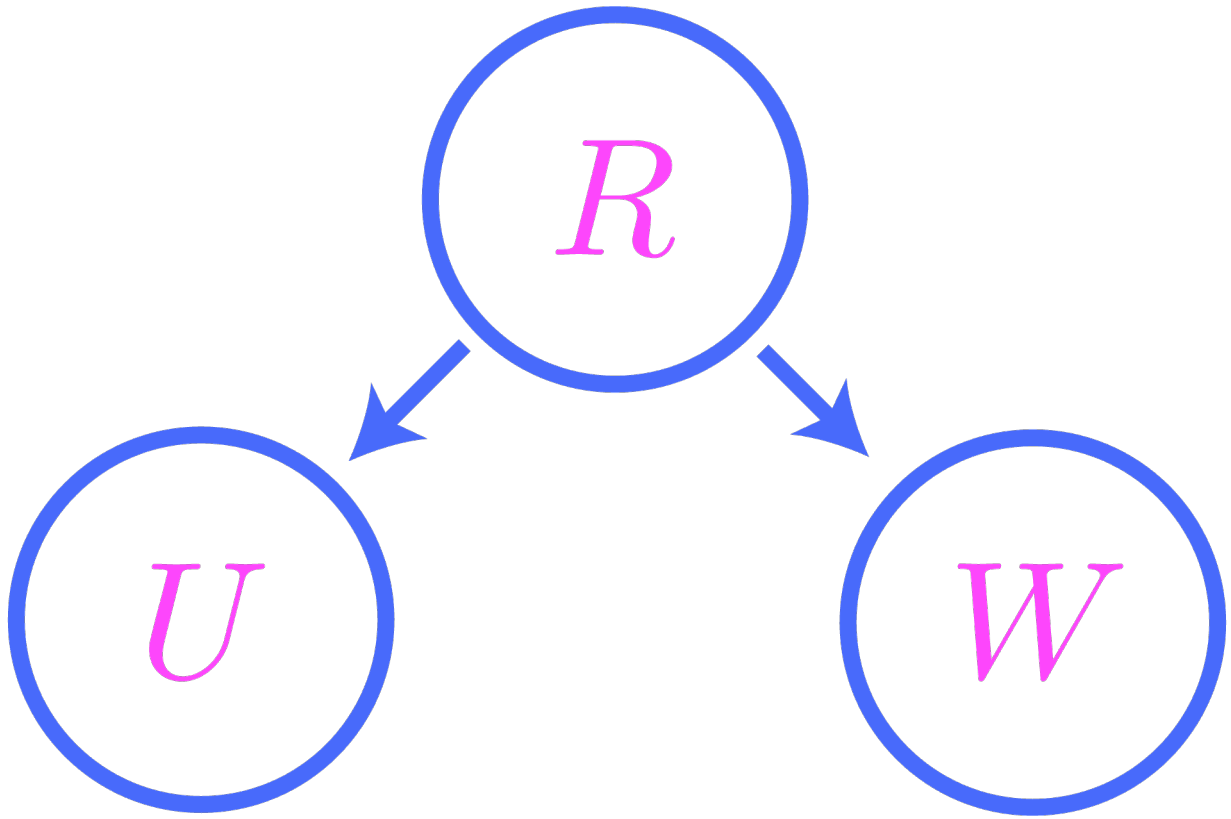
12. Probabilistic graphical models

12.1. A brief look at causal inference


X
Y


U
W


R
U
W

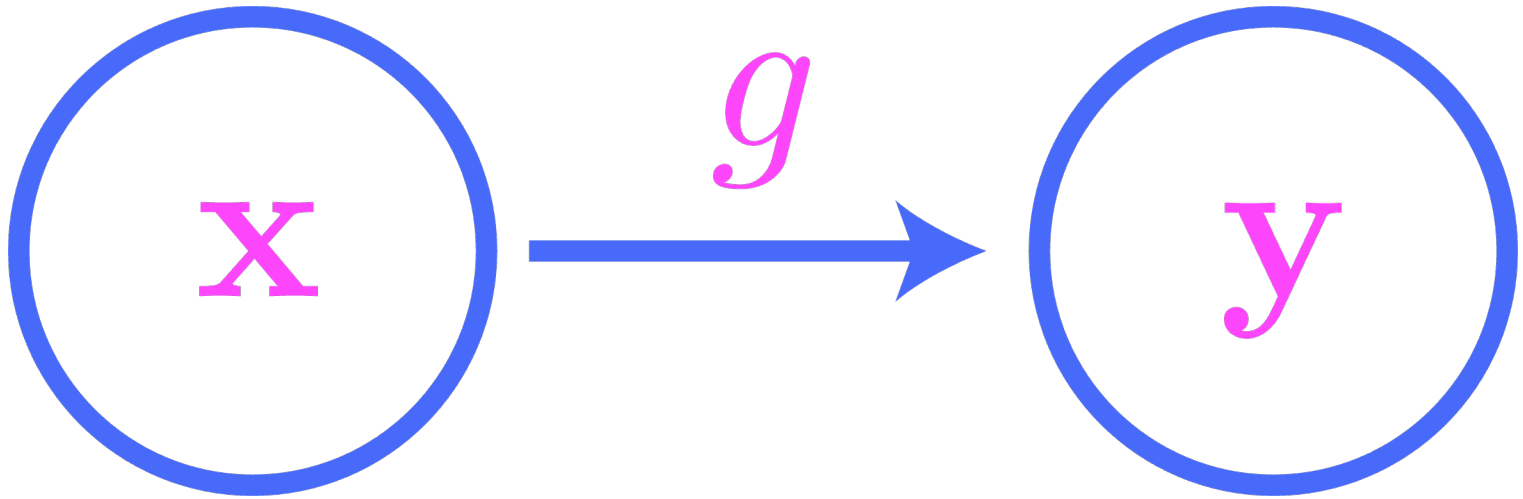
U
R
W

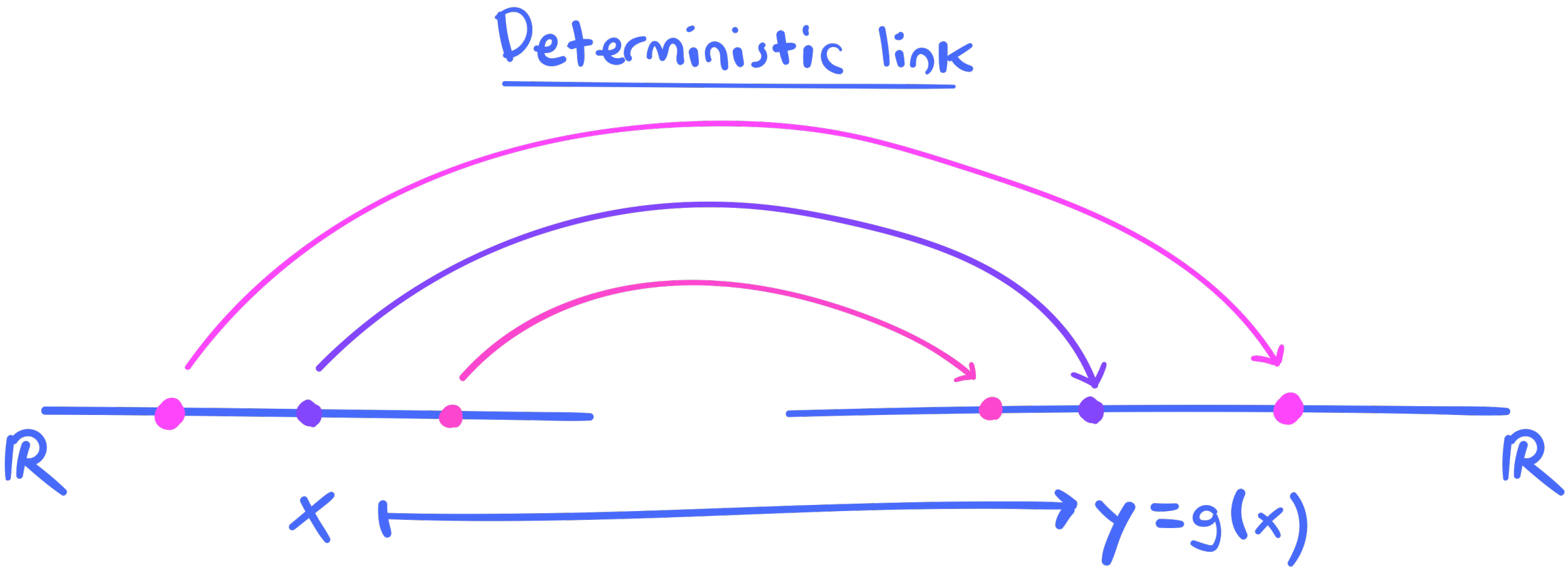
Causal structures and probability.

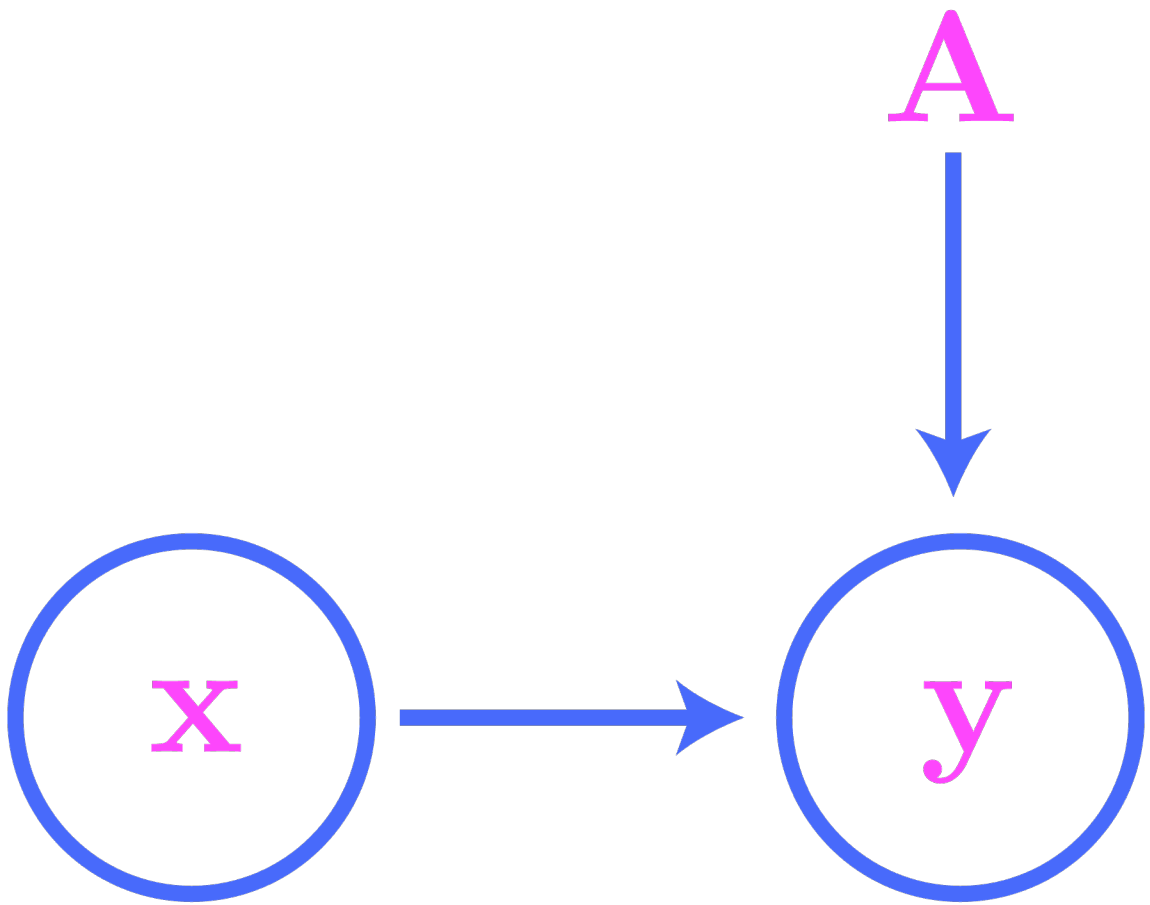
- Relationships of cause and effect represent strictly more structure than a joint probability distribution.
- A causal structure *refines* a joint probability distribution; it encodes *more* knowledge.
- The mapping from causal structures to joint probability distributions is many-to-one.

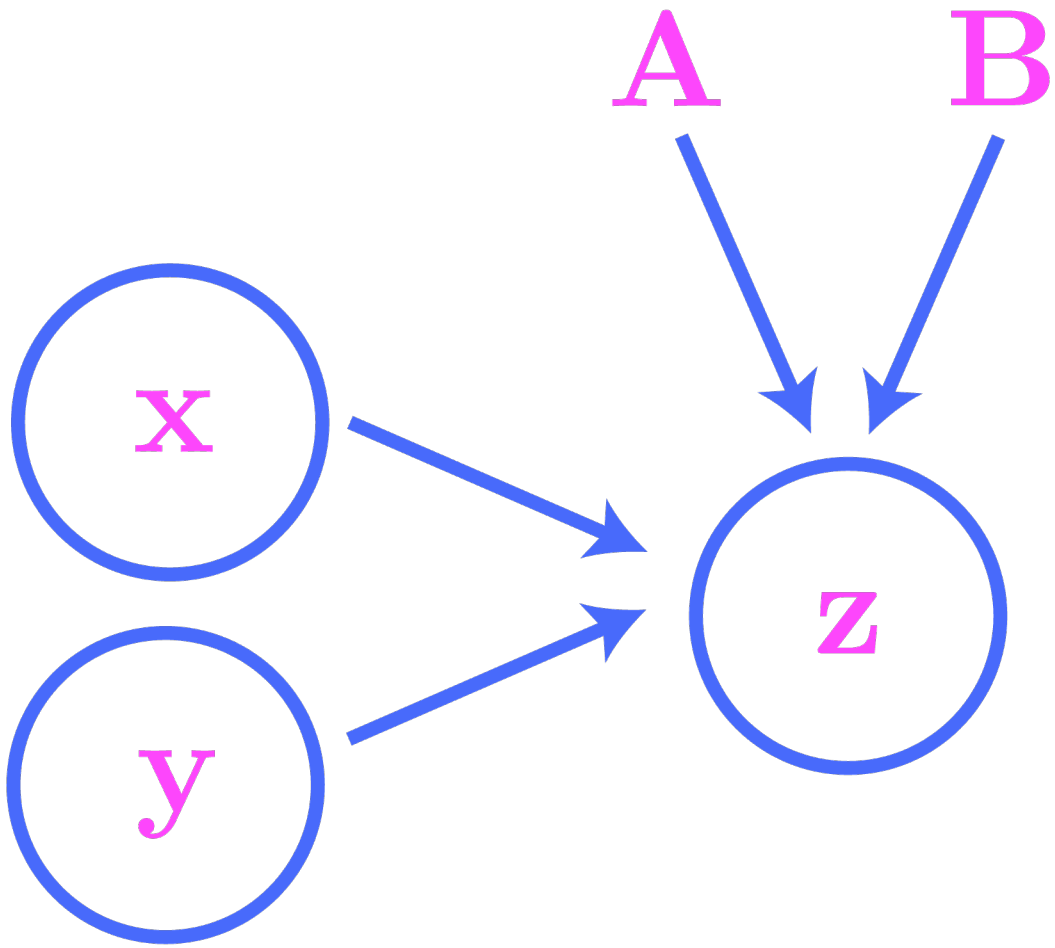
Problem Prompt

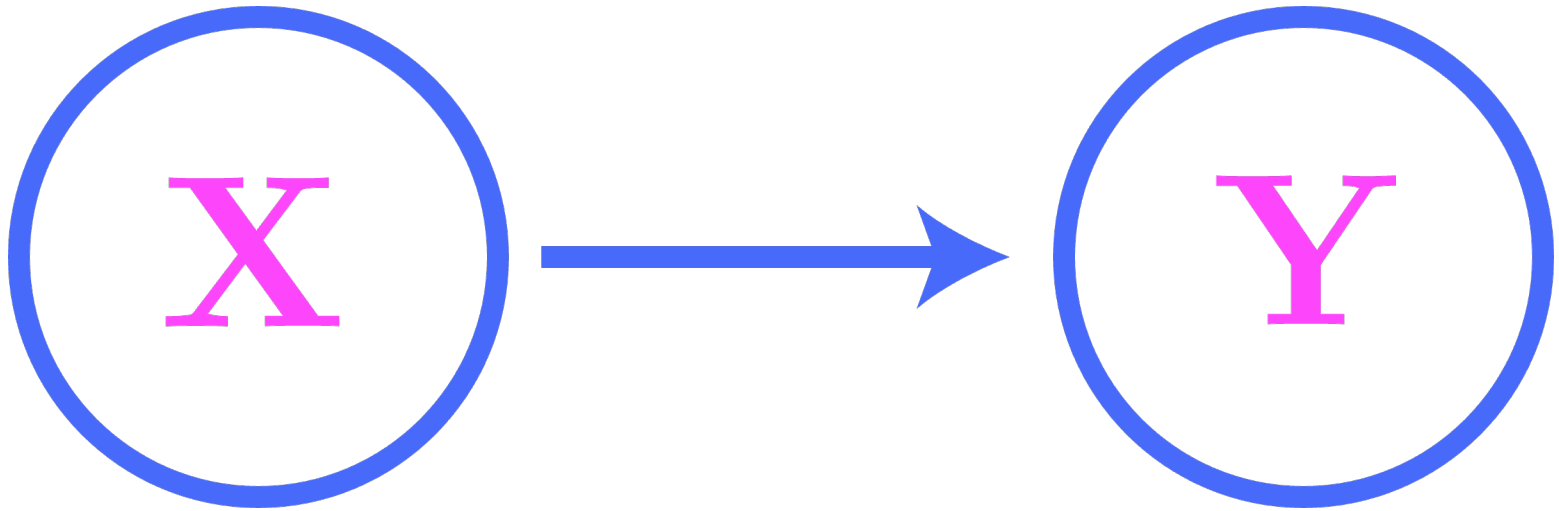
Do problem 1 on the worksheet.


x
g
y

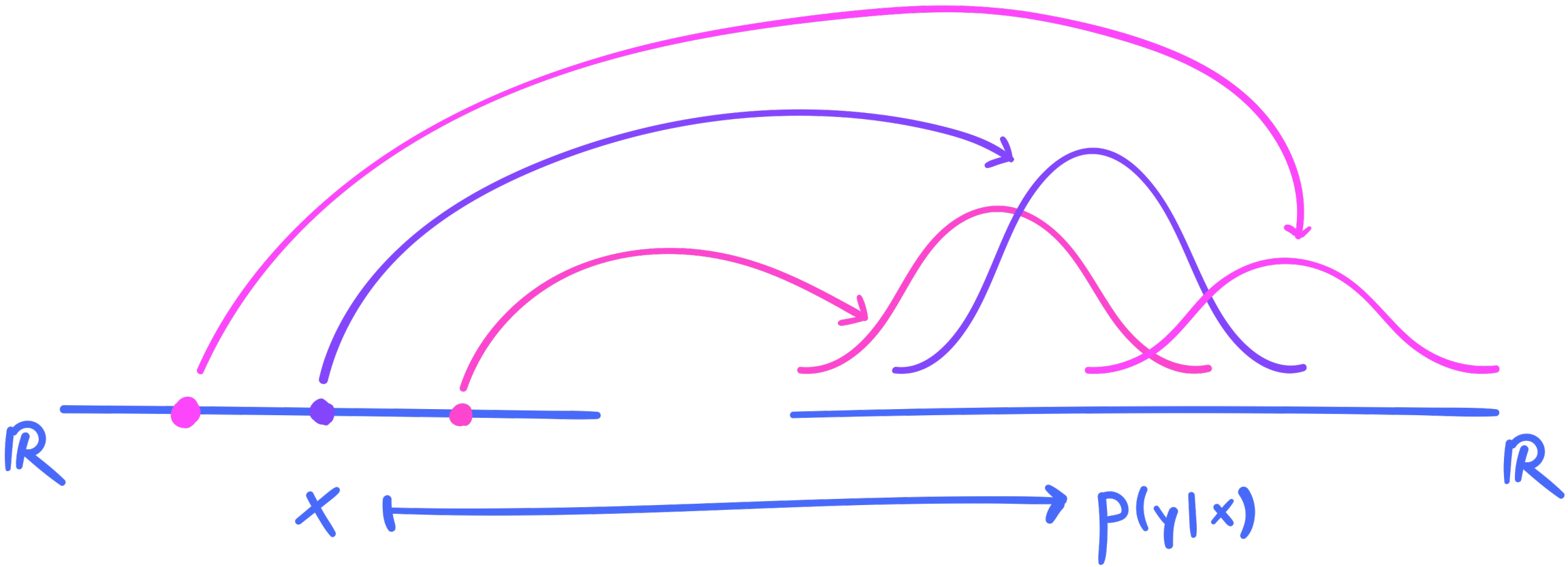

Deterministic link
R
R
x
y = g(x)


A
x
y


A
B
x
y
z


X
Y

Stochastic link (Markov Kernel)



Problem Prompt

Do problem 2 on the worksheet.