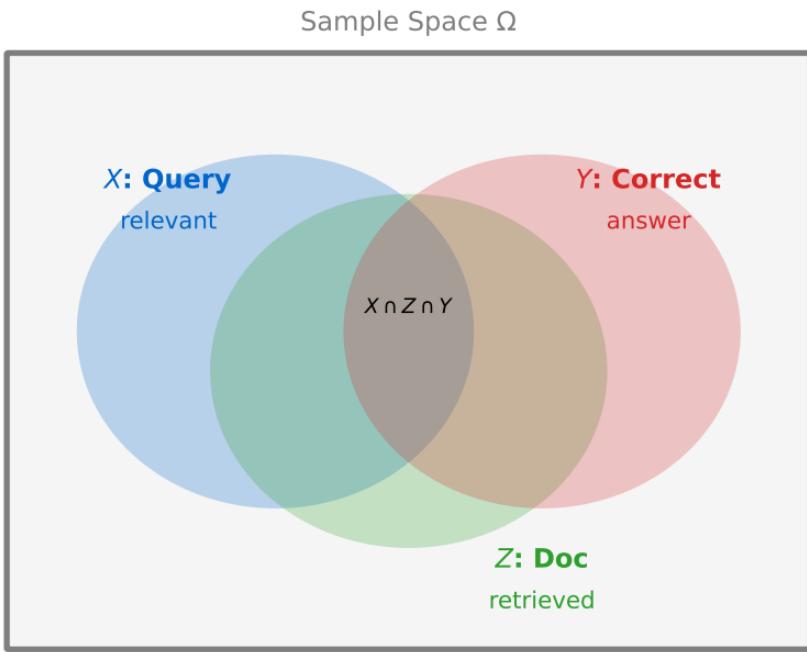


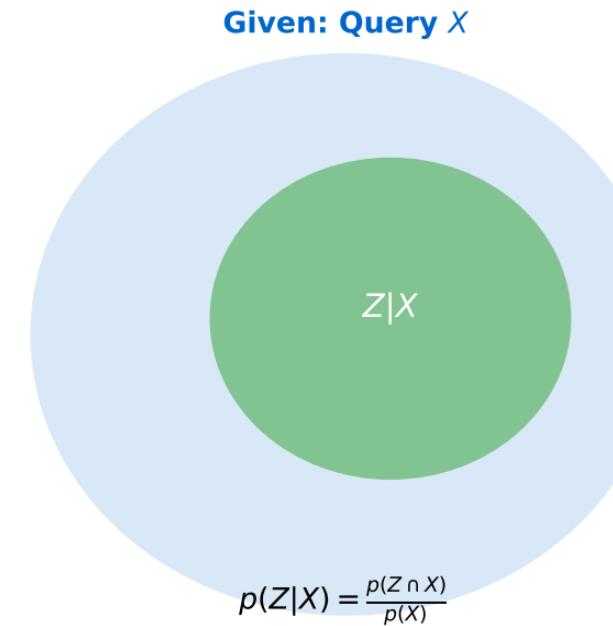
# RAG Probabilities: Venn Diagram Interpretation

**Sample Space: All Possible Outcomes**



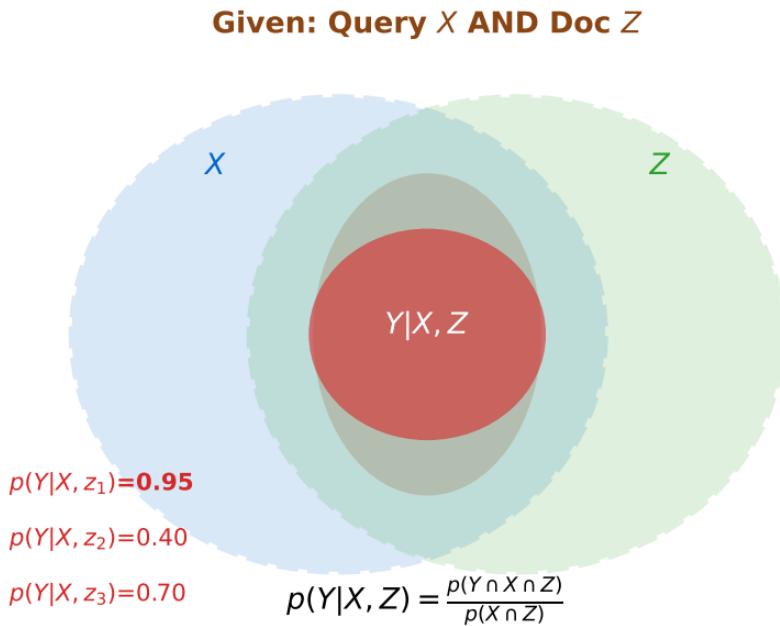
$X$  = query context |  $Z$  = retrieved doc |  $Y$  = correct answer "Paris"

**$p(Z|X)$ : Retrieval Probability**



How likely is doc  $Z$  retrieved given query  $X$ ?

**$p(Y|X, Z)$ : Generation Probability**



Given query AND doc, how likely is correct answer?

$z_1: 0.52$   
 $z_2: 0.27$   
 $z_3: 0.21$

$p(Y|X, z_1)=0.95$   
 $p(Y|X, z_2)=0.40$   
 $p(Y|X, z_3)=0.70$