The Relationship between Probability, Venn Diagrams and Propositional Calculus		
Probability a and b are "events" P(a) *is the probability* *of the event occuring*	**Venn Diagrams** A and B are labelled areas.	**Propositional Calculus** p and q are propositions *eg p* = *"it is raining"* *Propositions can be* *TRUE or FALSE*
AND P(a and b) = P(a) × P(b) *providing events a and b* *are* ***independent***	**INTERSECTION A ∩ B** n(A ∩ B) *the number with property* *A AND B*	**AND** p ^ q *means p and q*
OR P(a or b) = P(a) + P(b) – P(a and b) *If events a and b* *are* ***mutually exclusive*** *then* P(a and b) = 0 *and* P(a or b) = P(a) + P(b)	**UNION A ∪ B** n(A ∪ B) = n(A) + n(B) – n(A ∩ B *the number with property A OR B* *or both properties if they intersect*	**OR** p v q *means p or q or both* $p \veebar q$ (exclusive OR) *means p or q but not both* *In Latin "vel" translates "or"*

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