

Dictionary between probabilistic and set vocabularies

Let $(\Omega, \mathcal{A}, \mathbb{P})$ be a probability space. Consider $A, B \in \mathcal{A}$ and $(A_n)_{n \geq 1} \in \mathcal{A}^{\mathbb{N}^*}$ events and $\omega \in \Omega$.

Probabilistic/modelling vocabulary	Set vocabulary
The set of all events	\mathcal{A}
Universe / certain event	Ω
Outcome	ω
A is realized (by the outcome ω)	$\omega \in A$
The impossible event (which never happens)	\emptyset
The event “ A or B happens ”	$A \cup B$
The event “ at least one of the A_i 's happens”	$\bigcup_{i=1}^{\infty} A_i$
The event “ A and B happen”	$A \cap B$
The event “ all the A_i happen”	$\bigcap_{i=1}^{\infty} A_i$
The event “ A does not happen”	A^c
A and B are incompatible	$A \cap B = \emptyset$
Implication: if A happens, then B happens	$A \subset B$
A is almost sure/ almost surely A happens	$\mathbb{P}(A) = 1$
A is negligible	$\mathbb{P}(A) = 0$
Something random	a function of ω