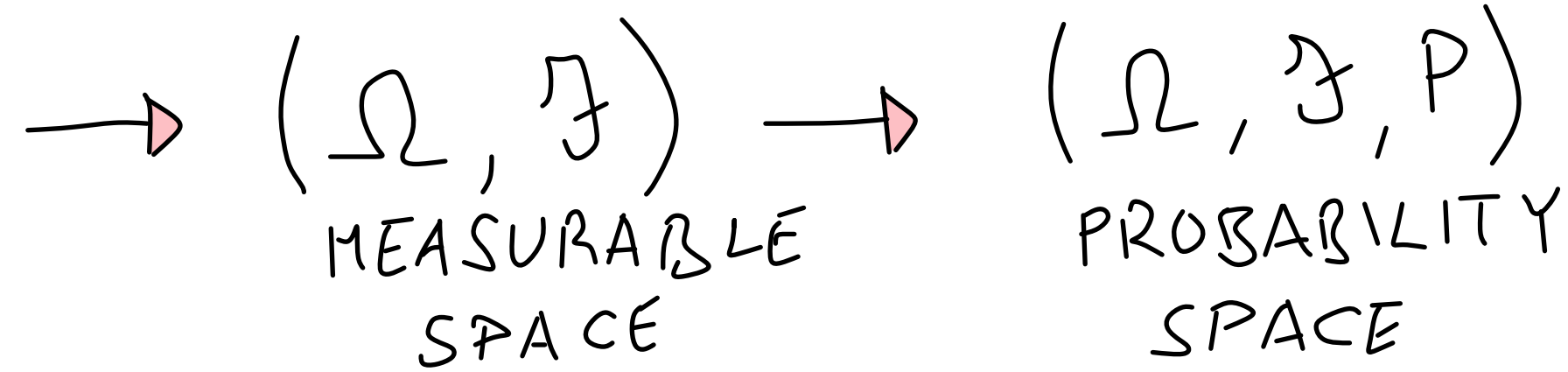


Ω : SAMPLE SPACE

\mathcal{F} : EVENT SPACE*
(SIGMA-ALGEBRA ON Ω)

P : PROBABILITY (MEASURE)



EXAMPLE

$\Omega = \{a, b, c\}$ ($m=3$ ITEMS)

$\mathcal{F} = \{\emptyset, \underbrace{\{a, b, c\}}_{\Omega}, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}\}$
($2^m = 2^3 = 8$ ITEMS)

$P(\emptyset) = 0$
 $P(\Omega) = 1$
 $0 \leq P(\cdot) \leq 1$

\mathcal{F} SIGMA-ALGEBRA IF:

- 1) $\Omega \in \mathcal{F}$ ("BELONGS TO" (EX: $\{a, b, c\} \in \mathcal{F}$))
- 2) IF $E \in \mathcal{F}$, THEN $E^c \in \mathcal{F}$ (EX: $E = \{a\}, E^c = \{b, c\}$)
↑
COMPLEMENT OF E
- 3) IF E_1, E_2, E_3, \dots ARE COUNTABLE EVENTS IN \mathcal{F} ,
 THEN $\bigcup_{i=1}^{\infty} E_i \in \mathcal{F}$ (THE UNION CAN BE INFINITE, AS LONG AS IT IS COUNTABLE)

(EX: $\underbrace{\{a\}}_E \cup \underbrace{\{c\}}_E = \{a, c\} \in \mathcal{F}$)

* FOR US, FOR THE MOMENT, $\mathcal{F} = 2^{\Omega}$, WHERE 2^{Ω} INDICATES THE POWER SET OF Ω .
IN GENERAL: $\mathcal{F} \subseteq 2^{\Omega}$.