

Probabilistic Models for Dynamical Systems

2 Events and Probability

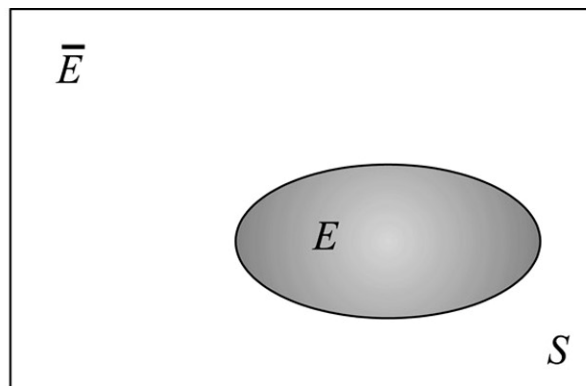


Figure 2.1: Venn diagram of sample space S , event E , and its complement \bar{E} . Note that $E + \bar{E} = S$.

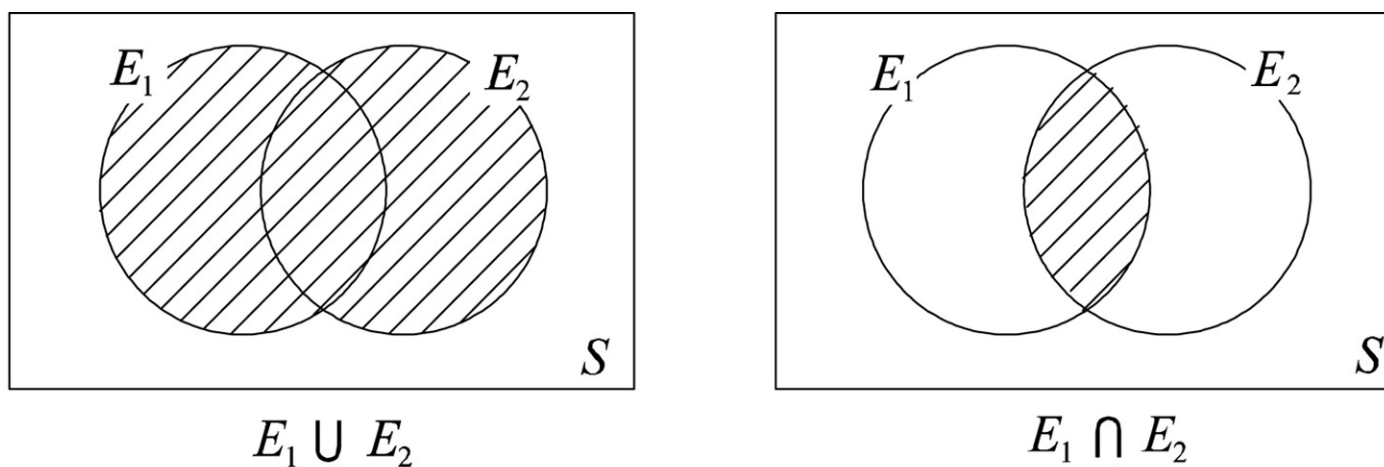


Figure 2.2: The union and intersection of events E_1 and E_2 .

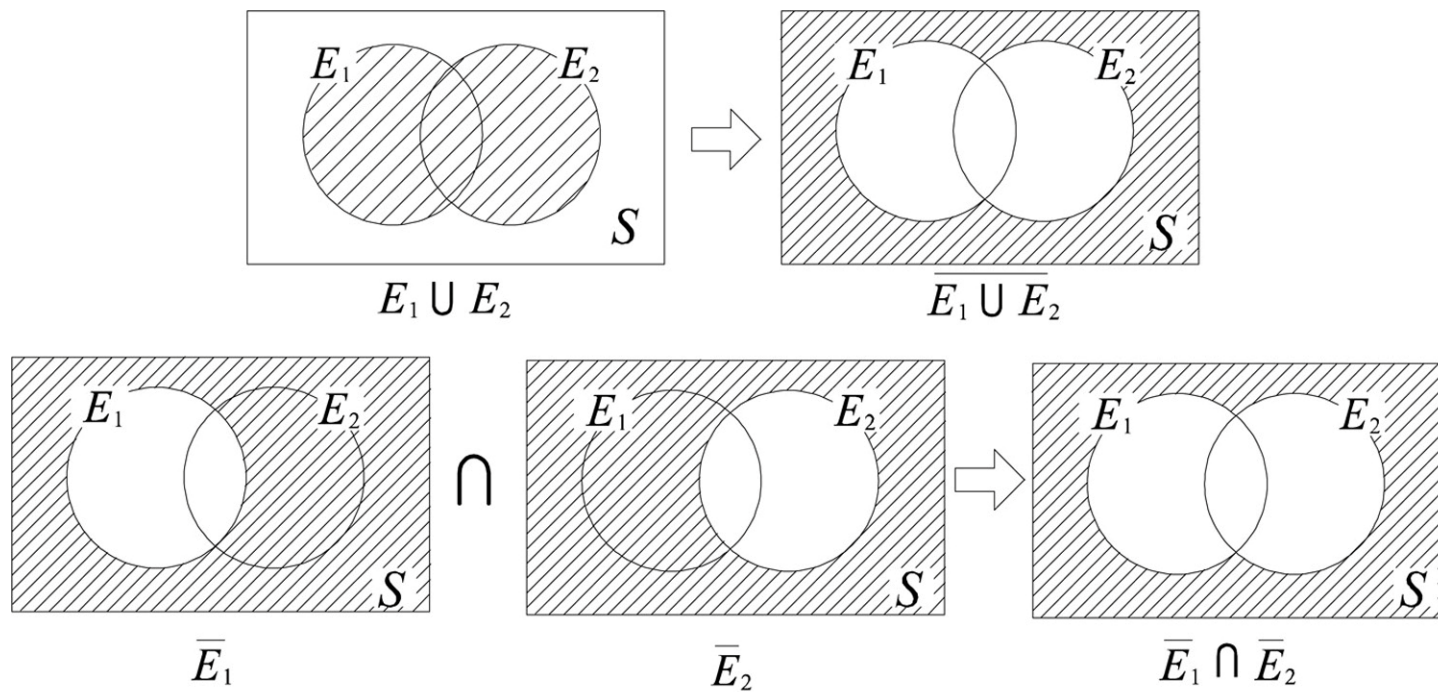


Figure 2.3: De Morgan's rule visualized using Venn diagrams.

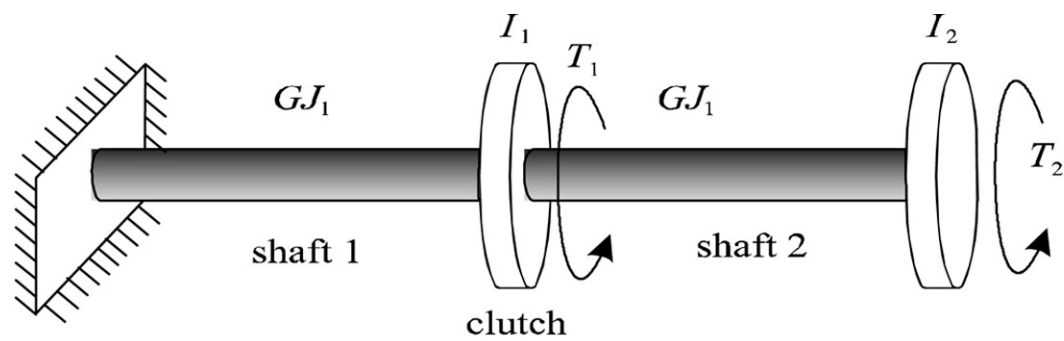


Figure 2.4: Drivetrain under torque. Two shafts connected via a clutch.

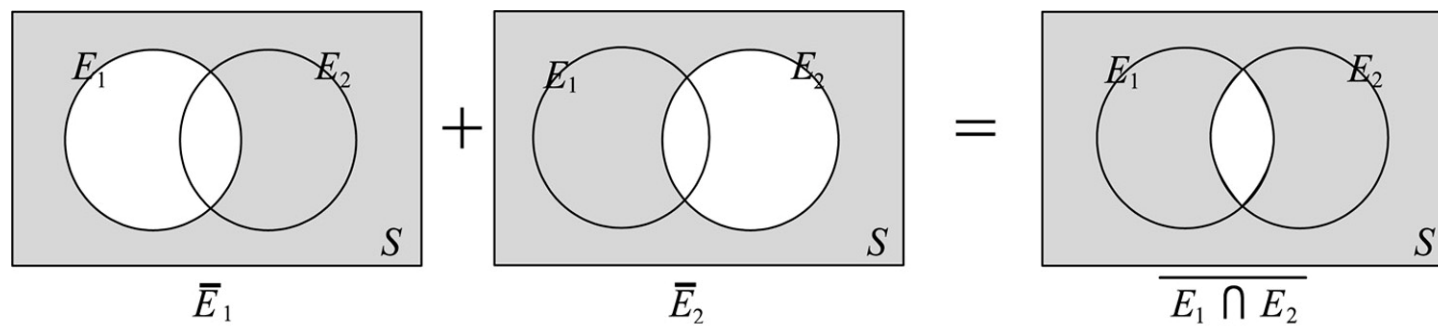


Figure 2.5: Venn diagram view of an application of De Morgan's rule.

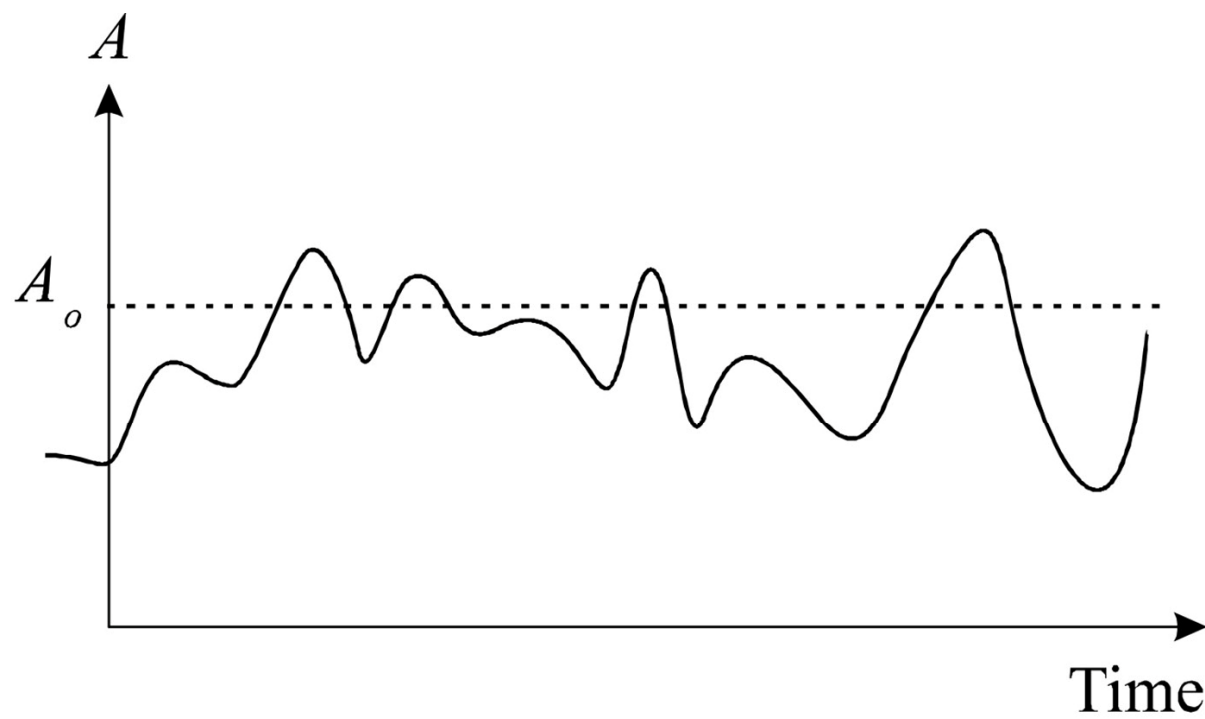


Figure 2.6: Amplitude variation in time of a random oscillator.

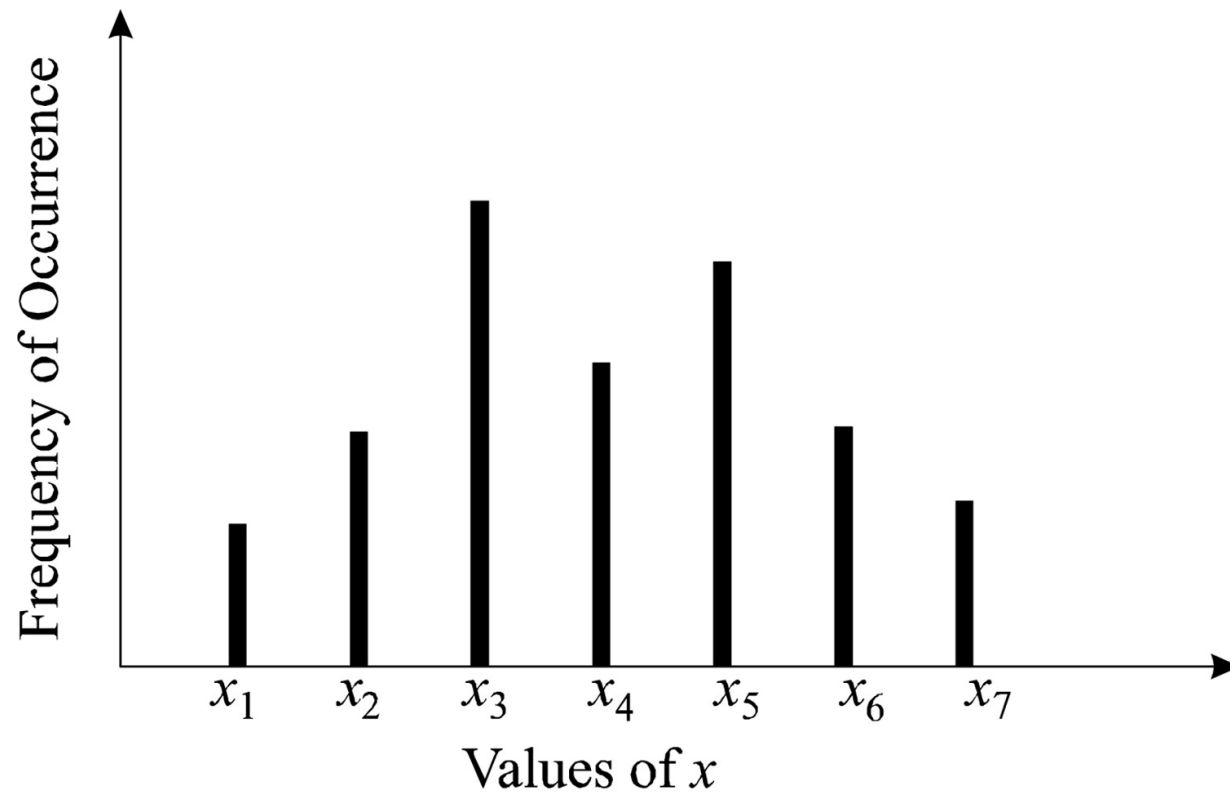


Figure 2.7: Relative frequency of occurrence.

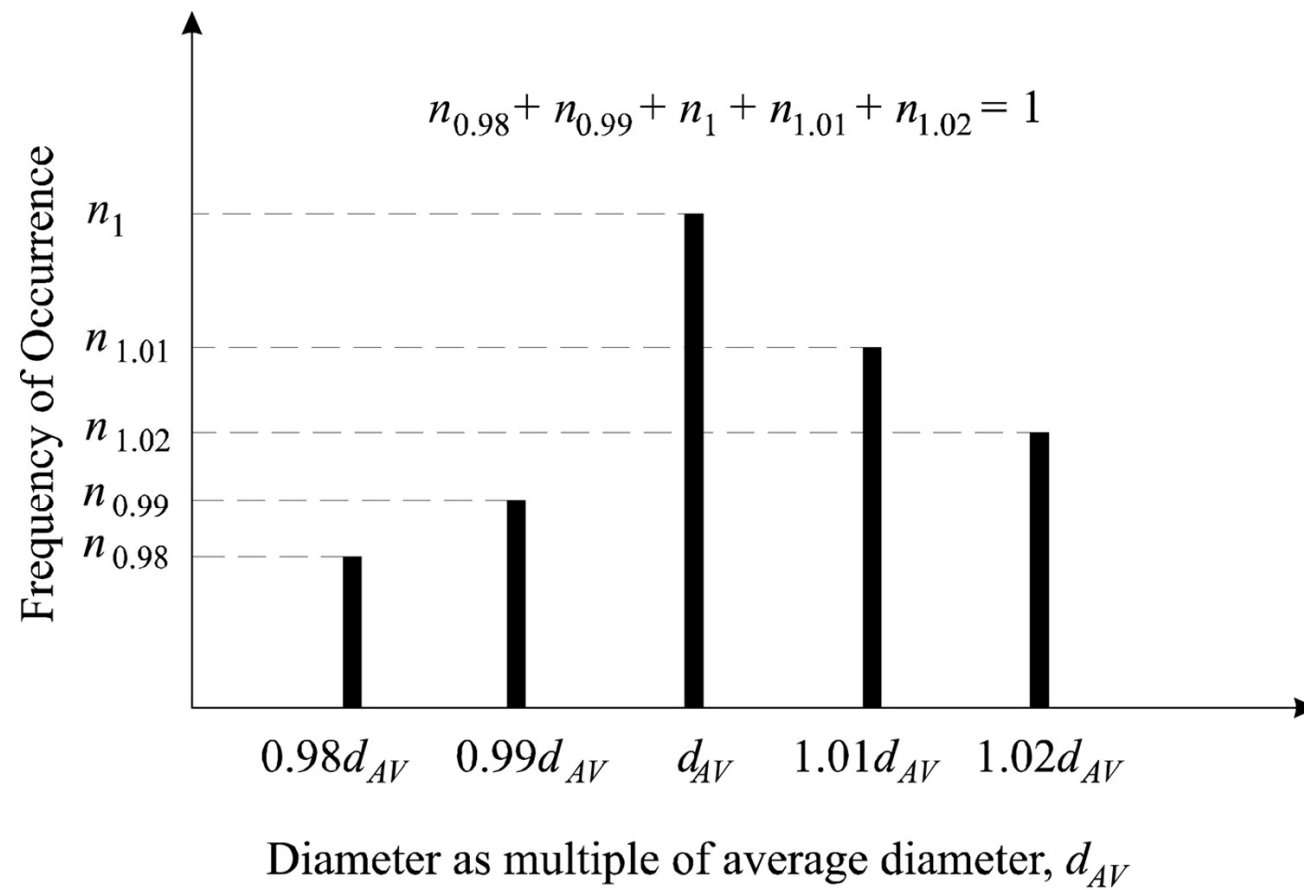


Figure 2.8: Histogram of machine shaft diameters.

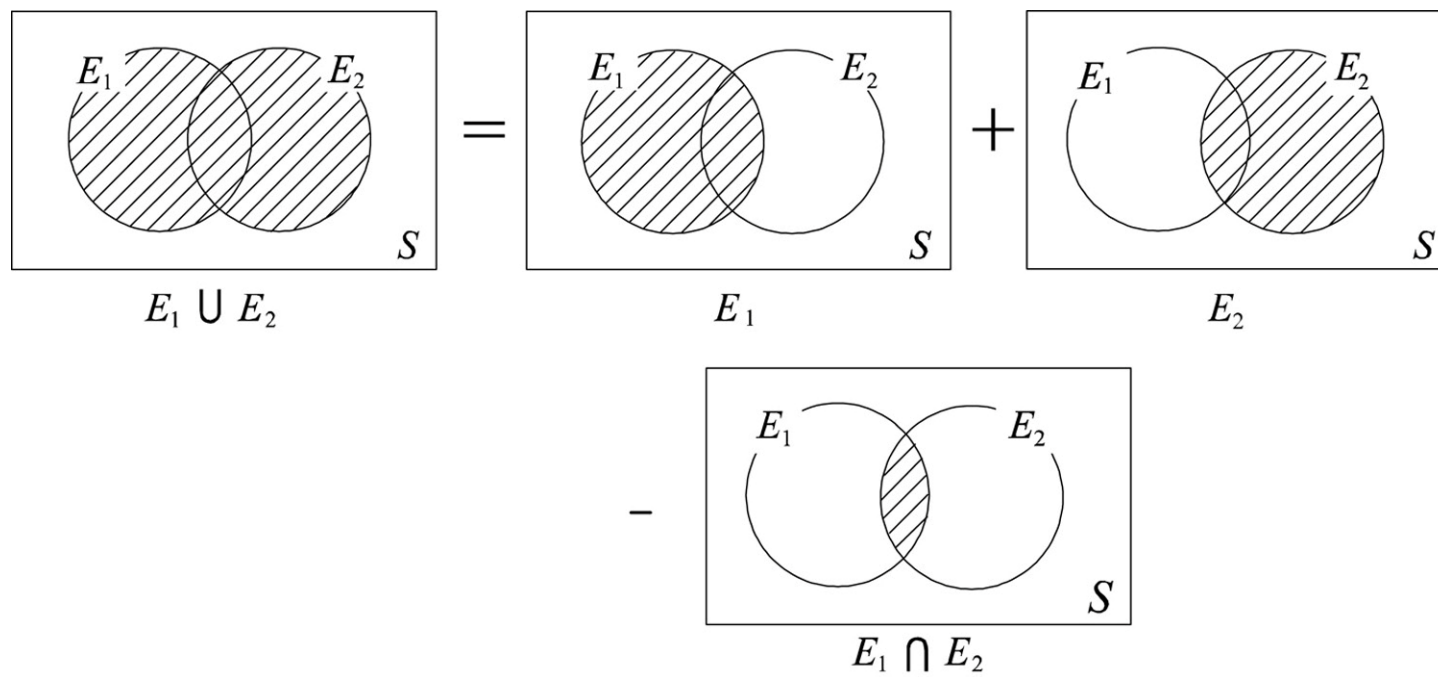


Figure 2.9: Union of E_1 and E_2 visualized using Venn diagrams.

S

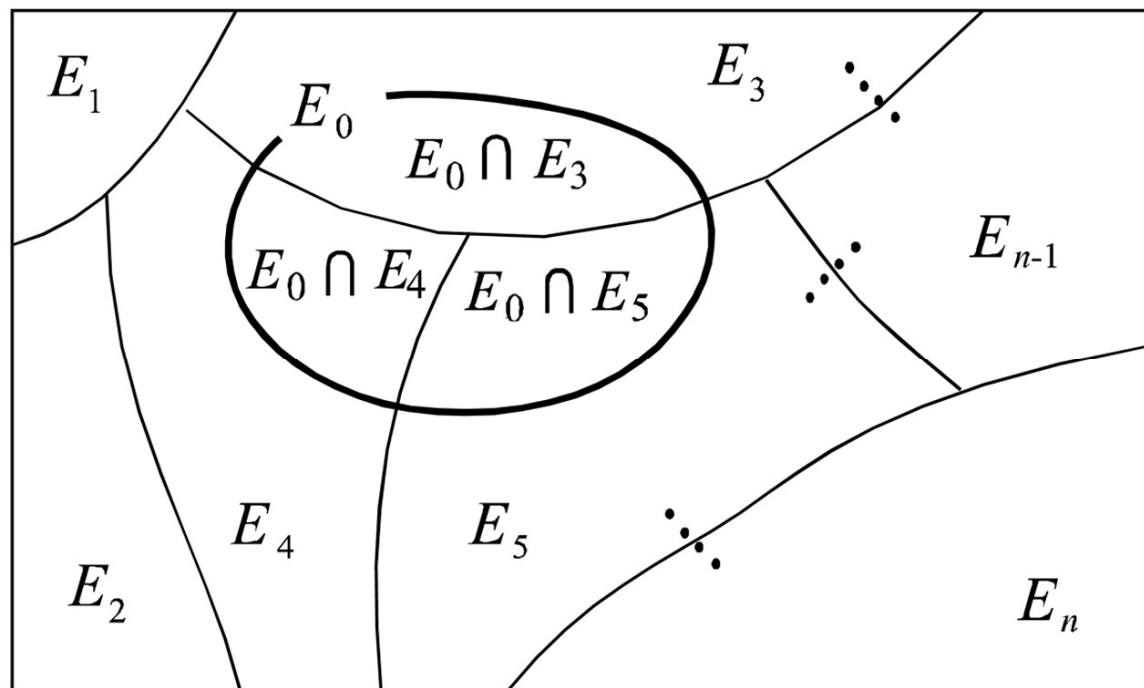


Figure 2.10: Constructing the theorem of total probability via a Venn diagram.

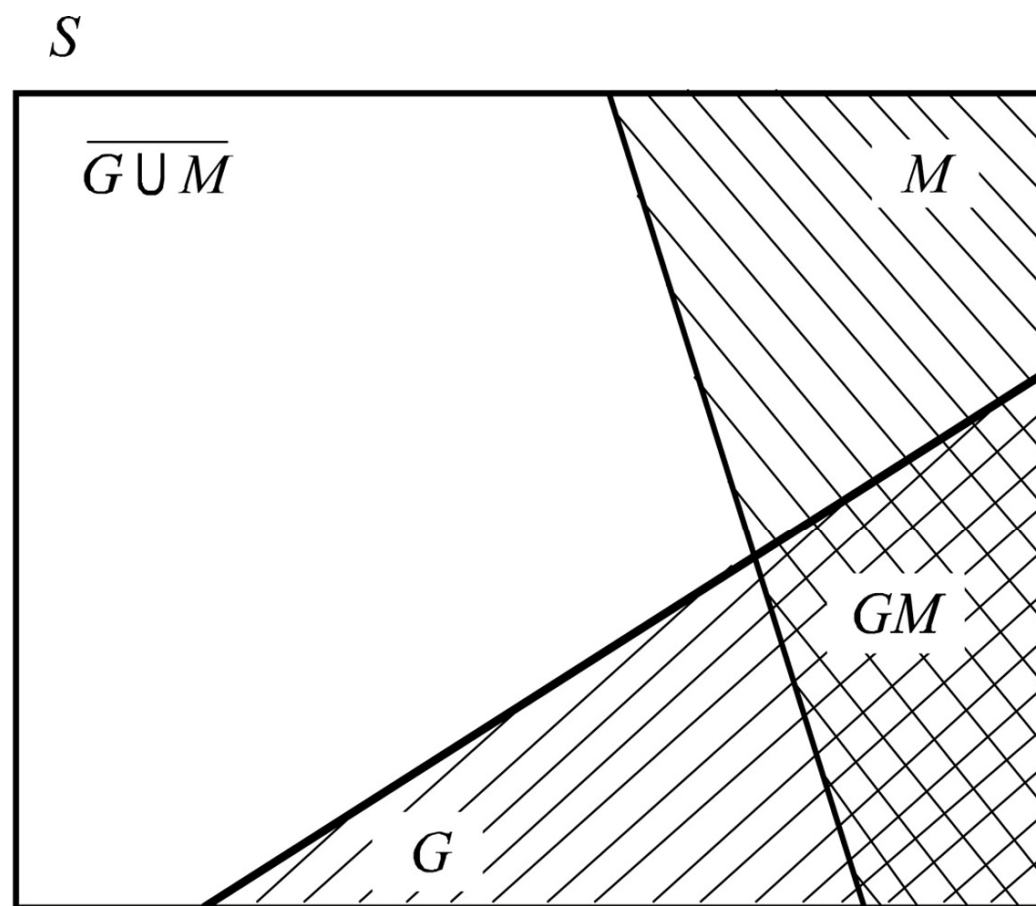


Figure 2.11: Schematic of regions: G , M , GM , and $\overline{G \cup M}$.

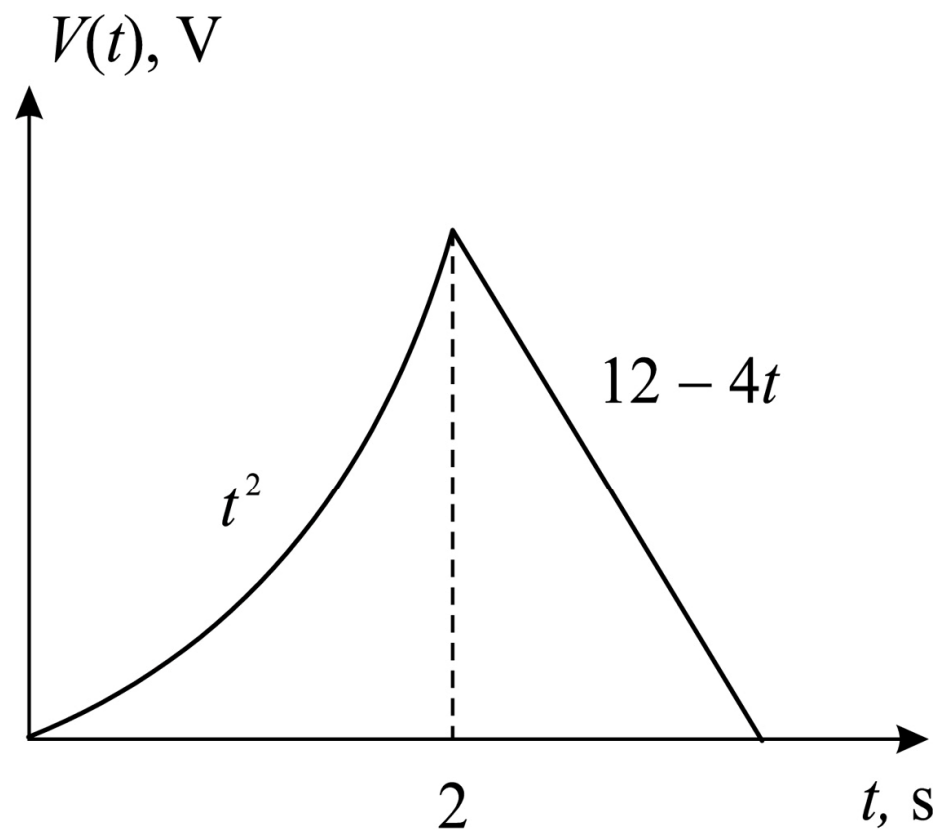


Figure 2.12: The function $V(t)$.

John Venn

(August 4, 1834 – April 4, 1923)



Augustus De Morgan
(June 27, 1806 – March 18, 1871)



Thomas Bayes

(c.1701 – April 7, 1761)

