

CHAPTER OVERVIEW

2: Minterm Analysis

A *fundamental problem* in elementary probability is to find the probability of a logical (Boolean) combination of a finite class of events, when the probabilities of certain other combinations are known. If we partition an event F into component events whose probabilities can be determined, then the additivity property implies the probability of F is the sum of these component probabilities. Frequently, the event F is a Boolean combination of members of a finite class—say, $\{A, B, C\}$ or $\{A, B, C, D\}$. For each such finite class, there is a *fundamental partition* determined by the class. The members of this partition are called *minterms*. Any Boolean combination of members of the class can be expressed as the disjoint union of a unique subclass of the minterms. If the probability of every minterm in this subclass can be determined, then by additivity the probability of the Boolean combination is determined. We examine these ideas in more detail.

[2.1: Minterms](#)

[2.2: Minterms and MATLAB Calculations](#)

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