



Total Probability

1 Why

2 Result

Proposition 1. *Let A_1, \dots, A_n be a partition of a set of outcomes A . Let \mathbf{P} be an event probability function for some probability mass function. Let $B \subset A$ an event. Then*

$$\mathbf{P}(B) = \sum_{i=1}^n \mathbf{P}(B \cap A_i)$$

We call this result to *law of total probability*.