Basic probability

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1 Set theory

Definition 1 *The set, S, of all possible outcomes of a particular experiment is called the* ***sample space*** *for the experiment.*

Definition 2 *An* ***event*** *is any collection of posible outcomes of an experiment, that is, any subset of S.*

Let A, be an event of a subset S. We say that the event A occurs if the outcome of the experiment is in the set A.

2 Axiomatc probability theory

When an experiment is performed, the realization of the experiment is an outcome on the sample space. When a experiment is repeated a number of times, different outcomes may occur each time, or some outcomes may repeat. This "frequency of occurrence" of an outcome can be though of as a probability.

For each event A in the sample space S, we want to associate with A a number between zero and one that will be called the probability of A, denoted by P(A).