

WHAT IS PROBABILITY? BAYES AND FREQUENTIST APPROACHES

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'Probability' is used very frequently in our conversations and thoughts. For example:

What is the probability that we are the cause of Global Warming?

How probable is it that I will win the lottery next week?

Is it probable that SUperSYmmetry will be discovered in the next 20 years?

There are several approaches to how 'Probability' is to be interpreted. We will concentrate on those used by Bayesians and by Frequentists. These lead to two very different ways of analysing data. They are described and contrasted, using examples both from every-day life and from the world of Physics. When used for estimating parameters of a theory, cases where the resulting answers differ significantly are described. Finally, a summary is given of the differences between the Bayesian and Frequentist approaches.