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## **Subjective Probability**

In this section I'll tell you more about the notion of **subjective probability**, and about what it takes for a subject's subjective probabilities to count as rational.

The central idea behind the notion of subjective probability, recall, is that people's beliefs come in degrees. In other words: beliefs aren't just "on" or "off". Instead of just having two possibilities – believing something or not believing it – you have a whole range of options: for any real number r between 0 and 1, you could in principle believe something to degree r. So, for instance, if you are completely confident that it will rain, you believe that it will rain to degree 1; if you are somewhat confident, you might believe it to degree 0.7; if you fairly doubtful, you might believe it to degree 0.1; and so forth. (The expression " x%" is shorthand for "x/100;" so believing something to degree 0.5 is the same as believing it to degree 50%.)

A natural way of modeling the credences of a subject S is by using a **credence function**: a function that assigns to each proposition a real number between 0 and 1, representing the degree to which S believes that proposition. In the philosophical literature, a degree of belief is usually called a **credence**. So instead of saying that Smith believes that it will rain to degree 0.6, one says that Smith's *credence* that it will rain is 0.6.

Having the wrong credences can make a subject irrational. Consider, for example, a subject who assigns credence 0.9 both to the proposition that it will rain today and to the proposition that it will not rain today. Such a subject would be confident that it will rain and confident that it will not rain, which is irrational. What sorts of constraints must a subject's credences satisfy in order for the subject to count as perfectly rational? This is an important question, since the Objective-Subjective Connection relies on the notion of a perfectly rational subject. We will try to answer it in the remainder of this section.

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