Solution to Homework 2

Question. If we know that the subjective probability of an event is between 0.3 and 0.6, and we want to find this probability with higher accuracy, what shall we do?

Answer. We find the midpoint of the interval – which is

$$\frac{0.3 + 0.6}{2} = 0.45,$$

and we ask the user which of the two options he/she prefers:

- to get \$100 if the event happens, and
- to get \$100 with probability 0.45.

If the user prefers the first option, this means that his/her subjective probability p of this event is higher than 0.45. So in this case, we can conclude that p is located in the half-width interval $[0.45, 0.6]$.

On the other hand, if the user prefers the second option, this means that his/her subjective probability p of this event is smaller than 0.45. So in this case, we can conclude that p is located in the half-width interval $[0.3, 0.45]$.