## 4.1 Fifteen preference questions

Fig. 4.1.1a illustrates the first question. \$1000 is the intended unit of payment, but you may take in mind any other unit if you wish. Imagine that there will be elections in a foreign country with two candidates participating, of whom exactly one will win. The party of candidate 1, or $cand_1$ as we will write more compactly (with $cand_2$ similar), mostly won in the past, but this time around their campaign went badly. You have to decide on an investment in this country, the profits of which depend on which candidate will win. You have to make your decision now as is, without further information.

When the outcome written on the dotted lines in Fig. 4.1.1a is, say, 11, then virtually everyone will prefer the right prospect in the figure, and when that outcome is 200 then virtually everyone will prefer the left prospect. That is, for low outcomes on the dotted line, the right prospect is preferred, and for high ones the left is preferred. In between the high and low outcomes there will be a switching value, where your preference changes from left to right, and where you have no clear preference. Call this value $\alpha^1$. If you have no clear preference for a whole region of outcomes, then the midpoint of that "region of indecisiveness" is taken as the best guess for the switching value $\alpha^1$.

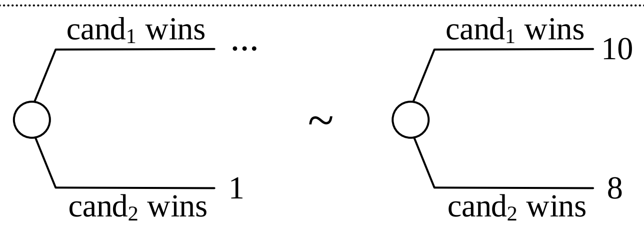
The measurement is chained, which means that an answer given to one question, such as $\alpha^1$ in Fig. a, is an input to the next question. The next question is in Fig. 4.1.1b, and the right prospect there has $\alpha^1$ as a possible outcome. You are again invited to determine the switching value on the dotted line, which is called $\alpha^2$. Obviously, $\alpha^2 > \alpha^1$. Similarly, Figs. c and d elicit $\alpha^3$ and $\alpha^4$. Now please fill out the figure.

Figure 4.1.2 shows the following four preference questions. In Fig. 4.1.2a, the answer $\alpha^1$ given in Fig. 4.1.1a again serves as an input. Before asking the preference question, we first determine another input of the stimuli, namely the outcome g of the left prospect. For outcome g, choose a round number of approximately $1.5 \times \alpha^4$. For the preference question, then determine the outcome $G > g$ to be inserted on the dotted line such that the two prospects are indifferent. Because this experiment is chained, a misunderstanding in an early question can bias all subsequent data. For example, if you by accident took $g = 1.5 \times \alpha^1$ as opposed to $g = 1.5 \times \alpha^4$, then much will go wrong in measurements and analyses presented later in this book.

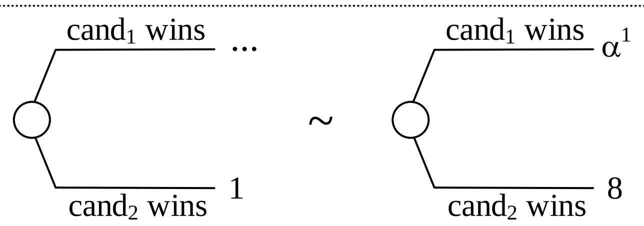
In Figs. 4.1.2b – 4.1.2d, we always insert the values g and G just obtained. In Fig. 4.1.2b, determine the outcome $\beta^2$ that makes the two prospects equivalent for you, and then determine $\beta^3$ and $\beta^4$ likewise.

Figure 4.1.3 shows the next triple of preference questions. They concern probability-contingent prospects with given probabilities. The $\alpha$'s are similar to those in Figure 4.1.1, with $\alpha^0 = 10$. We elicit $\gamma^2$ before $\gamma^1$, in Fig. a. You are asked to give your certainty equivalents of the three prospects.

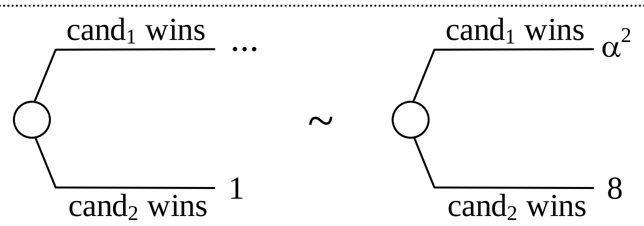
FIGURE 4.1.1 [*TO Upwards*]. Eliciting $\alpha^1 \ldots \alpha^4$ for unknown probabilities



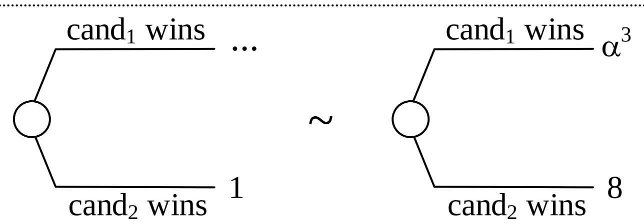

(a) Your switching value on the dotted line is $\alpha^1$.




(b) Your switching value on the dotted line is $\alpha^2$.



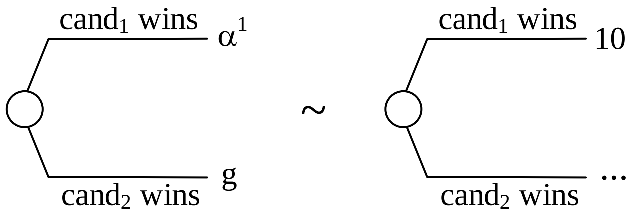

(c) Your switching value on the dotted line is $\alpha^3$.



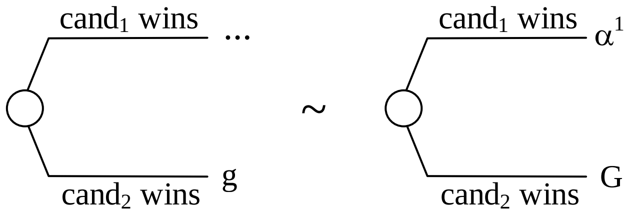

(d) Your switching value on the dotted line is $\alpha^4$.

Indicate in each Fig. which outcome on the dotted line ⋯ makes the two prospects indifferent (the switching value).

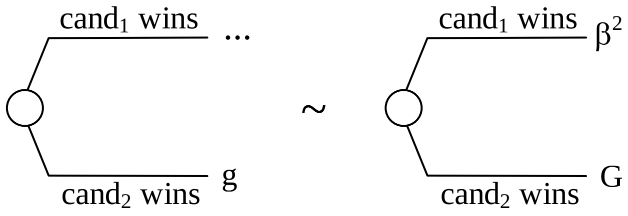
FIGURE 4.1.2 [*2nd TO Upwards*]. Eliciting $\beta^2$, $\beta^3$, $\beta^4$



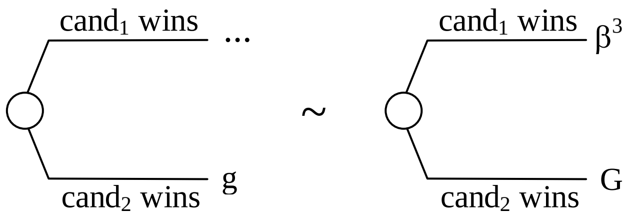

(a) Your switching value on the dotted line is G.




(b) Your switching value on the dotted line is $\beta^2$.



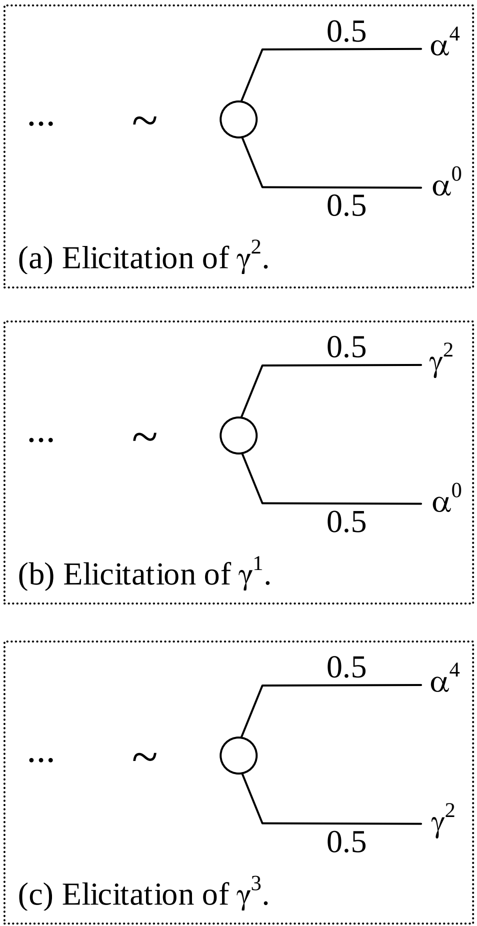

(c) Your switching value on the dotted line is $\beta^3$.




(d) Your switching value on the dotted line is $\beta^4$.

Indicate in each fig. which outcome on the dotted line ··· makes the two prospects indifferent (the switching value).

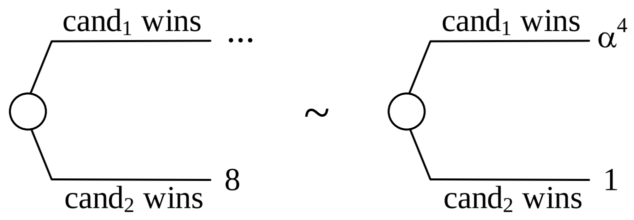
FIGURE 4.1.3 [*CEs*]. Eliciting $\gamma^2, \gamma^1, \gamma^3$



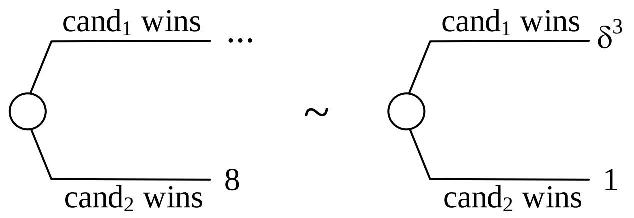

Indicate in each Fig. which outcome on the dotted line …, if received with certainty, is indifferent to the prospect.

The questions in Figure 4.1.4 are structured the same way as the preceding questions. Now the values elicited decrease. In Fig. a you determine a switching value $\delta^3 < \alpha^4$, in Fig. b you determine a switching value $\delta^2 < \delta^3$; and so on.

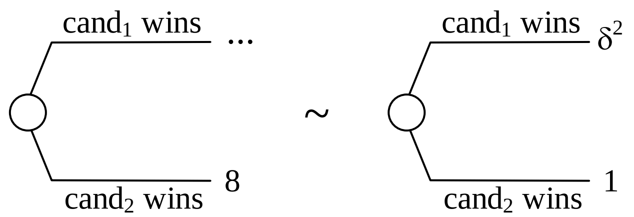
FIGURE 4.1.4 [*TO Downwards*]. Eliciting $\delta^3 \ldots \delta^0$



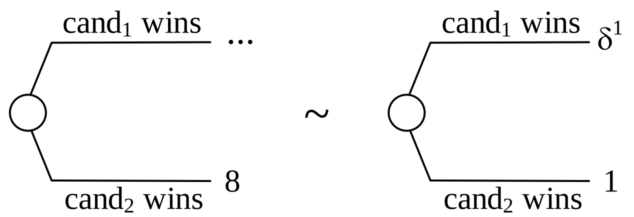

(a) Your switching value on the dotted line is $\delta^3$.




(b) Your switching value on the dotted line is $\delta^2$.




(c) Your switching value on the dotted line is $\delta^1$.

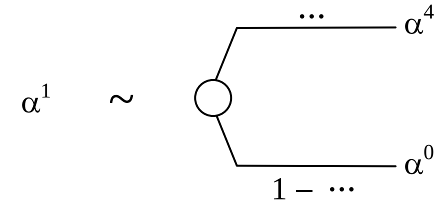



(d) Your switching value on the dotted line is $\delta^0$.

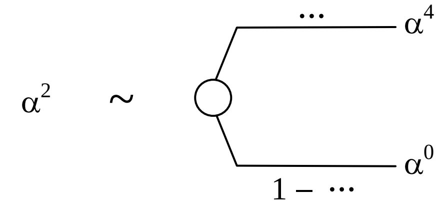
Indicate in each fig. which outcome on the dotted line ⋯ makes the two prospects indifferent (the switching value).

Figure 4.1.5 shows the final triple of preference questions. They again concern probability-contingent prospects with given probabilities. You are asked to indicate which probabilities in the risky prospects generate indifference. Hence this method is often called the *probability equivalent method*. The abbreviation PE in the figure refers to this name. We will analyze your answers assuming EU in this chapter.

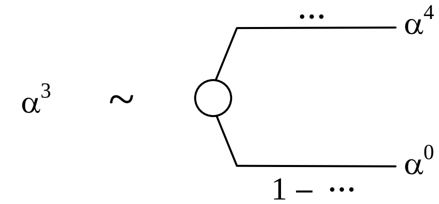
FIGURE 4.1.5 [*PEs*]. Eliciting $PE^1$, $PE^2$, $PE^3$




(a) Elicitation of $PE^1$.




(b) Elicitation of $PE^2$.




(c) Elicitation of $PE^3$.

Indicate in each Fig. which probability on the dotted lines ⋯ makes the prospect indifferent to receiving the sure amount to the left.