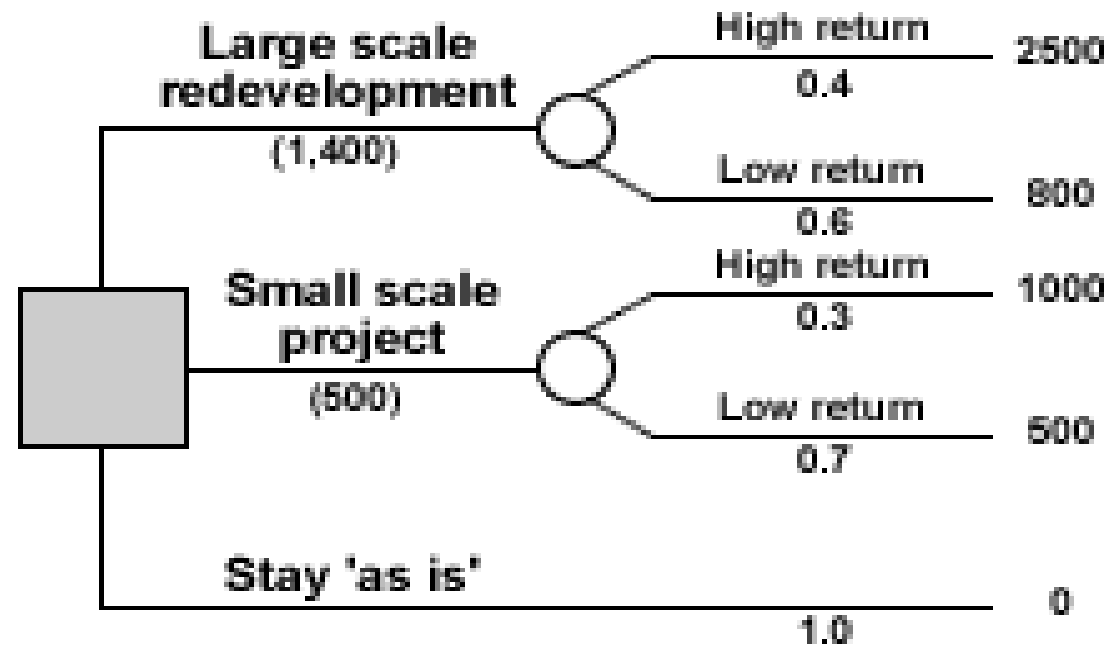
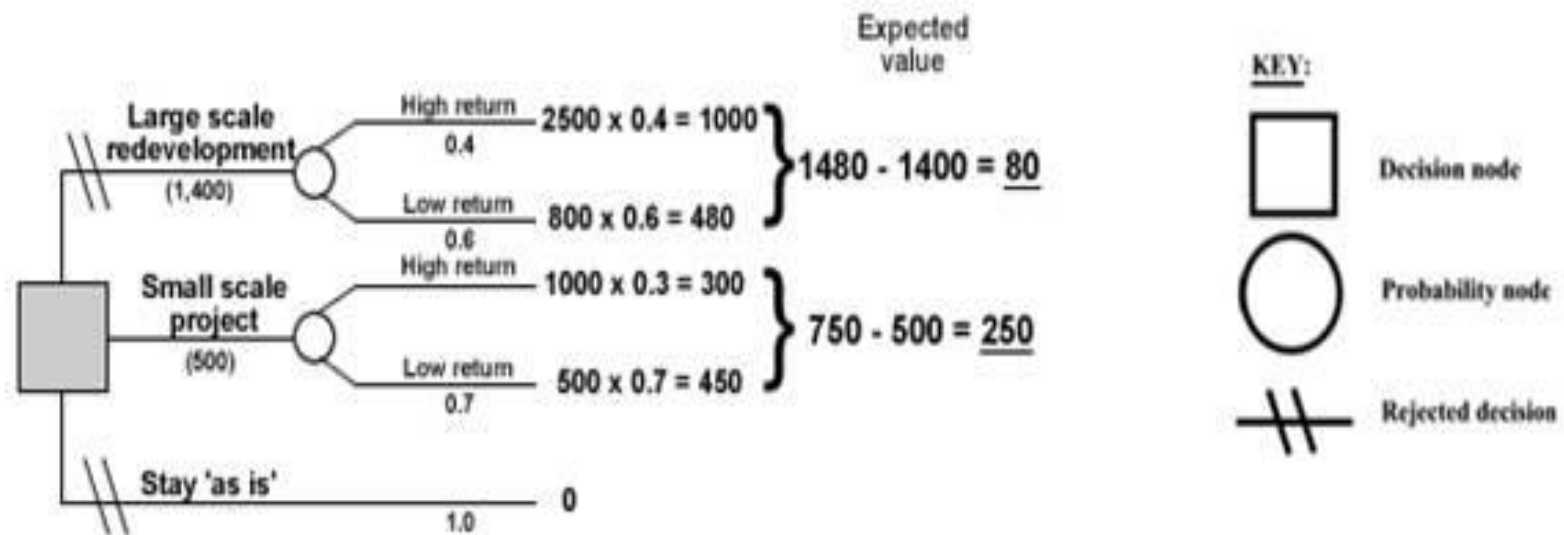


Example 1:

- A property **owner** is faced with a **choice** of:
- (a) A large-scale **investment (A)** to improve her flats. This could produce a substantial **pay-off** in terms of increased revenue net of costs but will require an **investment of £1,400,000**. After extensive market research it is considered that there is a **40%** chance that a pay-off of **£2,500,000** will be obtained, but there is a **60%** chance that it will be only **£800,000**.
- (b) A smaller scale **project (B)** to re-decorate her premises. At **£500,000** this is less costly but will produce a lower pay-off. Research data suggests a **30%** chance of a gain of **£1,000,000** but a **70%** chance of it being only **£500,000**.
- (c) Continuing the present operation **without change (C)**. It will cost nothing, but neither will it produce any pay-off. Clients will be unhappy and it will become harder and harder to rent the flats out when they become free.

solution







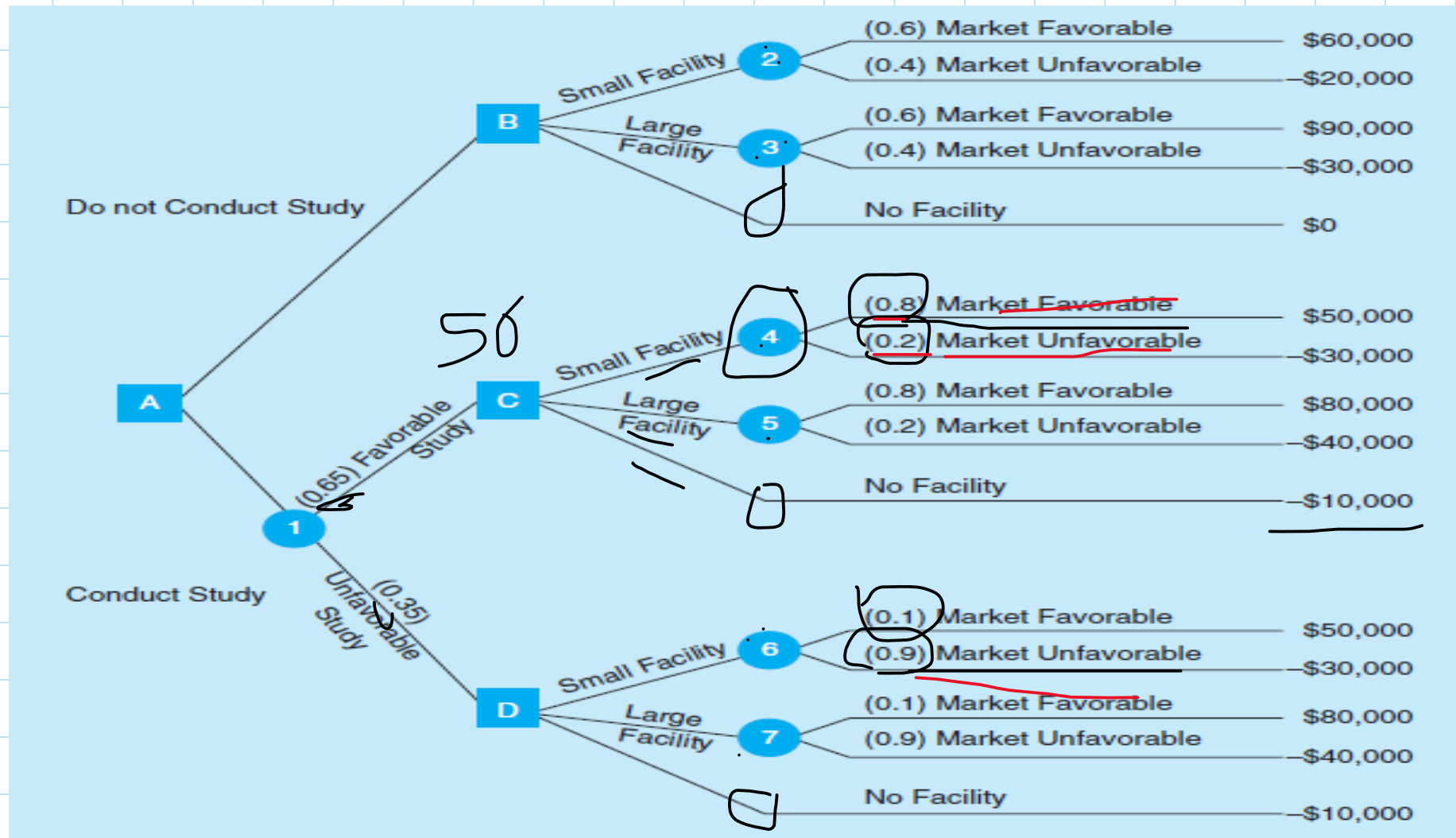
Example

7

Monica Britt has enjoyed sailing small boats since she was 7 years old, when her mother started sailing with her. Today, Monica is considering the possibility of starting a company to produce small sailboats for the recreational market. Unlike other mass-produced sailboats, however, these boats will be made specifically for children between the ages of 10 and 15. The boats will be of the highest quality and extremely stable, and the sail size will be reduced to prevent problems of capsizing.

Her basic decision is whether to build a large manufacturing facility, a small manufacturing facility, or no facility at all. With a favorable market, Monica can expect to make \$90,000 from the large facility or \$60,000 from the smaller facility. If the market is unfavorable, however, Monica estimates that she would lose \$30,000 with a large facility, and she would lose only \$20,000 with the small facility. Because of the expense involved in developing the initial molds and acquiring the necessary equipment to produce fiberglass sailboats for young children, Monica has decided to conduct a pilot study to make sure that the market for the sailboats will be adequate. She estimates that the pilot study will cost her \$10,000. Furthermore, the pilot study can be either favorable or unfavorable. Monica estimates that the probability of a favorable market given a favorable pilot study is 0.8. The probability of an unfavorable market given an unfavorable pilot study result is estimated to be 0.9. Monica feels that there is a 0.65 chance that the pilot study will be favorable. Of course, Monica could bypass the pilot study and simply make the decision as to whether to build a large plant, small plant, or no facility at all. Without doing any testing in a pilot study, she estimates that the probability of a favorable market is 0.6. What do you recommend? Compute the EVSI.

solution



Solution Cont.



The EMV at each of the numbered nodes is calculated as follows:

$$\text{EMV}(\text{node 2}) = 60,000(0.6) + (-20,000)0.4 = 28,000$$

$$\text{EMV}(\text{node 3}) = 90,000(0.6) + (-30,000)0.4 = 42,000$$

$$\text{EMV}(\text{node 4}) = 50,000(0.8) + (-30,000)0.2 = 34,000$$

$$\text{EMV}(\text{node 5}) = 80,000(0.8) + (-40,000)0.2 = 56,000$$

$$\text{EMV}(\text{node 6}) = 50,000(0.1) + (-30,000)0.9 = -22,000$$

$$\text{EMV}(\text{node 7}) = 80,000(0.1) + (-40,000)0.9 = -28,000$$

$$\text{EMV}(\text{node 1}) = 56,000(0.65) + (-10,000)0.35 = 32,900$$



At each of the square nodes with letters, the decisions would be:

Node B: Choose Large Facility since the EMV = \$42,000.

Node C: Choose Large Facility since the EMV = \$56,000

Node D: Choose No Facility since the EMV = -\$10,000

Node A: Choose Do Not Conduct Study since the EMV (\$42,000) for this is higher than EMV(node 1), which is \$32,900.

Based on the EMV criterion, Monica would select Do Not Conduct Study and then select Large Facility. The EMV of this decision is \$42,000. Choosing to conduct the study would result in an EMV of only \$32,900. Thus, the expected value of sample information is

$$\begin{aligned} \text{EVSI} &= \$32,900 + \$10,000 - \$42,000 \\ &= \$900 \end{aligned}$$

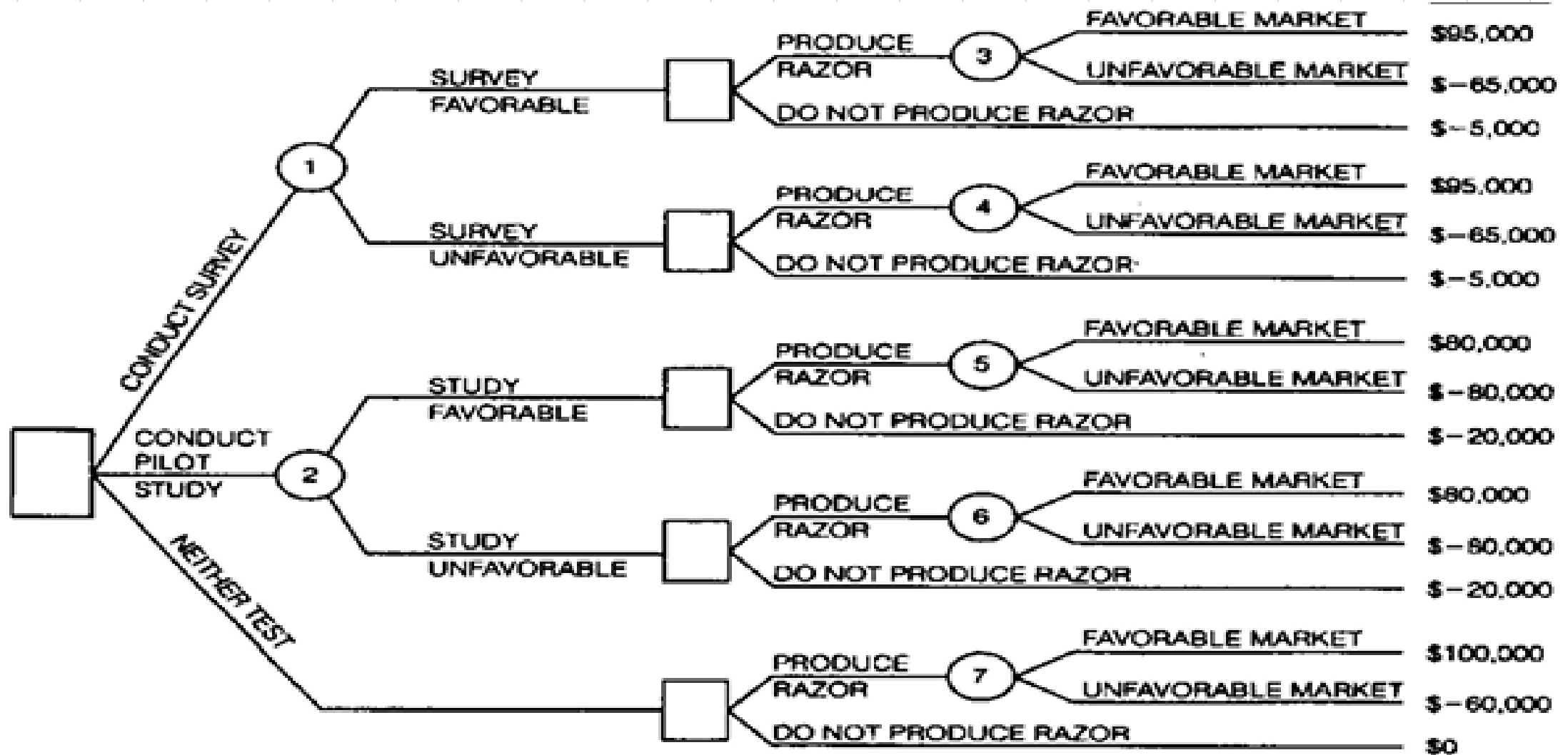
Example 3

Jim Sellers is thinking about producing a new type of electric razor for men. If the market were favorable, he would get a return of \$100,000, but if the market for this new type of razor were unfavorable, he would lose \$60,000. Since Ron Bush is a good friend of Jim Sellers, Jim is considering the possibility of using Bush Marketing Research to gather additional information about the market for the razor. Ron has suggested that Jim either use a survey or a pilot study to test the market. The survey would be a sophisticated questionnaire administered to a test market. It will cost \$5,000. Another alternative is to run a pilot study.

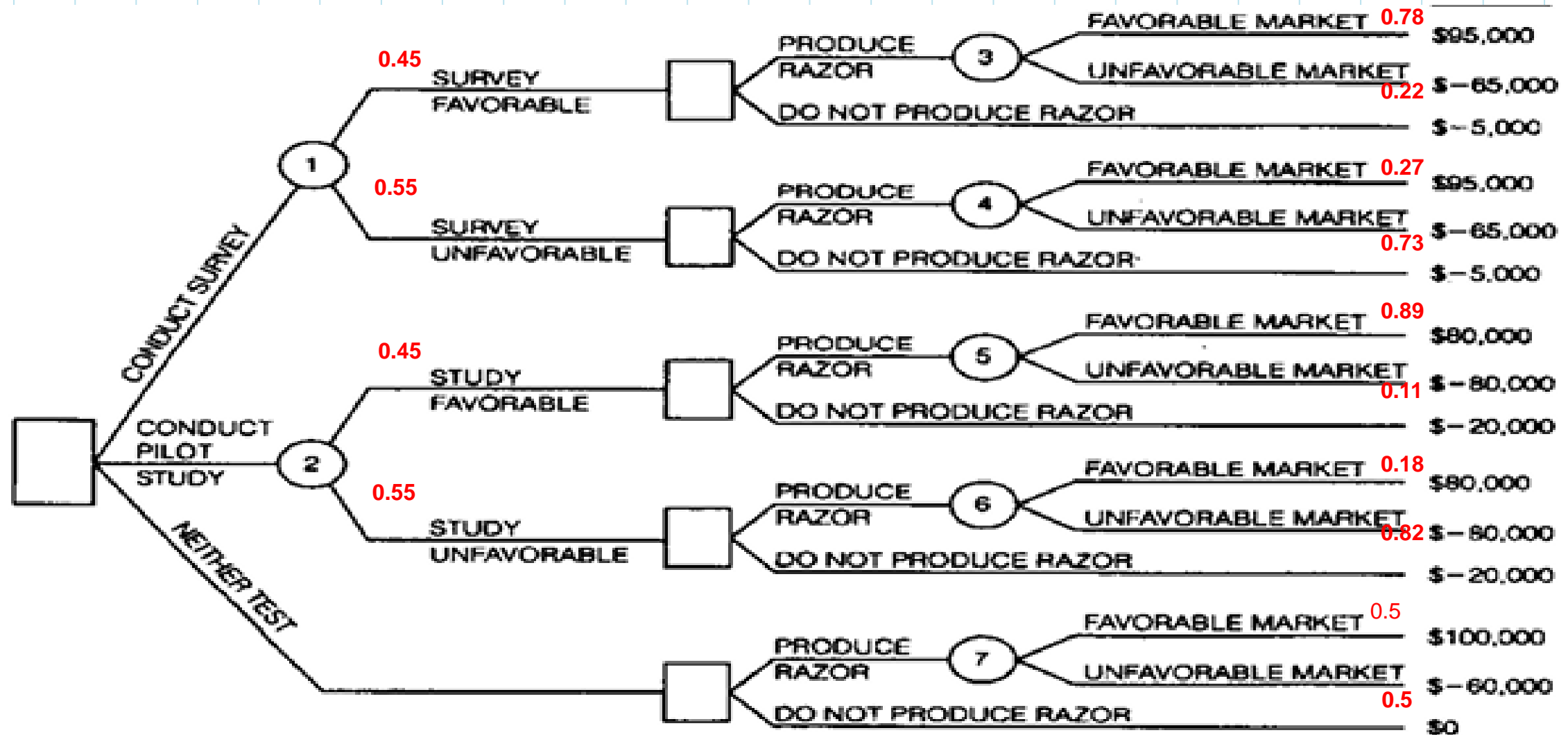
This would involve producing a limited number of the new razors and trying to sell them in two cities that are typical of American cities. The pilot study is more accurate but is also more expensive. It will cost \$20,000. Ron Bush has suggested that it would be a good idea for Jim to conduct either the survey or the pilot before Jim makes the decision concerning whether to produce the new razor. But Jim is not sure if the value of the survey or the pilot is worth the cost. Jim estimates that the probability of a successful market without performing a survey or pilot study is 0.5. Furthermore, the probability of a favorable survey result given a favorable market for razors is 0.78 while the probability of an unfavorable survey result given a favorable market for razors is 0.27. In addition, the probability of an unfavorable pilot study given an unfavorable market is 0.82. while the probability of a favorable pilot study given a favorable market is 0.89

The probability for a positive Survey or a positive Study are 0.45 for both cases.

Solution



Cont.



Cont.

