An alternative way to display the simple events is to use a **probability table,** as shown in Table 4.1. The rows and columns show the possible outcomes at the first and second stages, respectively, and the simple events are shown in the cells of the table.

FIGURE 4.2
Tree diagram for Example 4.4

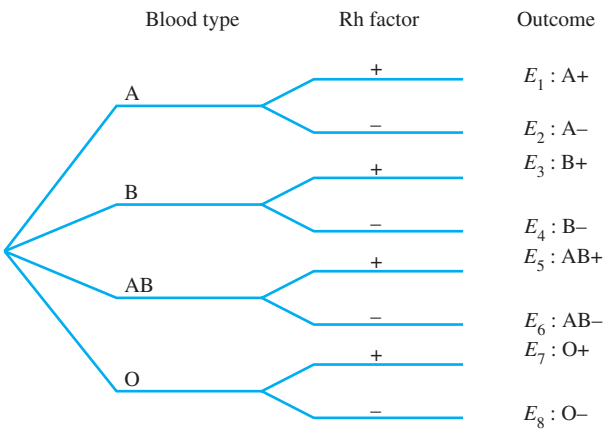

TABLE 4.1 **Probability Table for Example 4.4**

	Blood Type			
Rh Factor	A	B	AB	O
Negative	A–	B–	AB–	O–
Positive	A+	B+	AB+	O+

4.3 CALCULATING PROBABILITIES USING SIMPLE EVENTS

The probability of an event A is a measure of our belief that the event A will occur. One practical way to interpret this measure is with the concept of *relative frequency.* Recall from Chapter 1 that if an experiment is performed n times, then the relative frequency of a particular occurrence—say, A—is

$$\text{Relative frequency} = \frac{\text{Frequency}}{n}$$

where the frequency is the number of times the event A occurred. If you let n, the number of repetitions of the experiment, become larger and larger ($n \to \infty$), you will eventually generate the entire population. In this population, the relative frequency of the event A is defined as the **probability of event A;** that is,

$$P(A) = \lim_{n \to \infty} \frac{\text{Frequency}}{n}$$

Since $P(A)$ behaves like a relative frequency, $P(A)$ must be a proportion lying between 0 and 1; $P(A) = 0$ if the event A never occurs, and $P(A) = 1$ if the event A always occurs. The closer $P(A)$ is to 1, the more likely it is that A will occur.