2-94. In the 2004 presidential election, exit polls from the
critical state of Ohio provided the following results:

total	Bush, 2004	Kerry, 2004
no college degree (62%)	50%	50%
college graduate (38%)	53%	46%

What is the probability a randomly selected respondent voted
for Bush?

We are given a bunch of conditional probabilities of this
given that, and we are asked to find the plain ol'
probability of something (as opposed to being asked to
find a conditional probability of something)

Let B = the event that the randomly selected person voted for Bush
We are looking for P(B), let's use the law of total probability:

$$P(B) = \sum_{j=1}^{n} P(B|A_i) P(A_i)$$

The entire sample space is partitioned into 2 disjoint (mutually exclusive)
groups (i.e., n=2):

A_1 = the event the respondent has no college degree
A_2 = the event the respondent has a college degree

$$P(B) = P(B|A_1)P(A_1) + P(B|A_2)P(A_2)$$
$$= (0.5)(0.62) \quad + (0.53)(0.38)$$
$$\boxed{= 0.5114}$$