Faculty	A	B	C
Faculty of Engineering	200	500	300
Faculty of Arts	400	400	200

Without knowing the faculty, P(A) =600/2000=0.3

Suppose we know the student is coming from Faculty of Engineering, this piece of information will help us refine our prediction of the probability. We will restrict our attention to the first row only and ignore the whole table. In the "restricted sample space", here the first row, P(A|Faculty of Engineering)=200/1000=0.2.

Let B denote faculty of engineering, A denote getting grade A.

Generalize: P(A|B)=P(A and B)/P(B)

Another example:

For male beetle, the color distribution is 70% grey and 30% brown. For female beetle, the color distribution is 40% grey and 60% brown. Half of the population is female and half is male. Suppose we know the beetle is brown. What is the conditional probability that it is female?