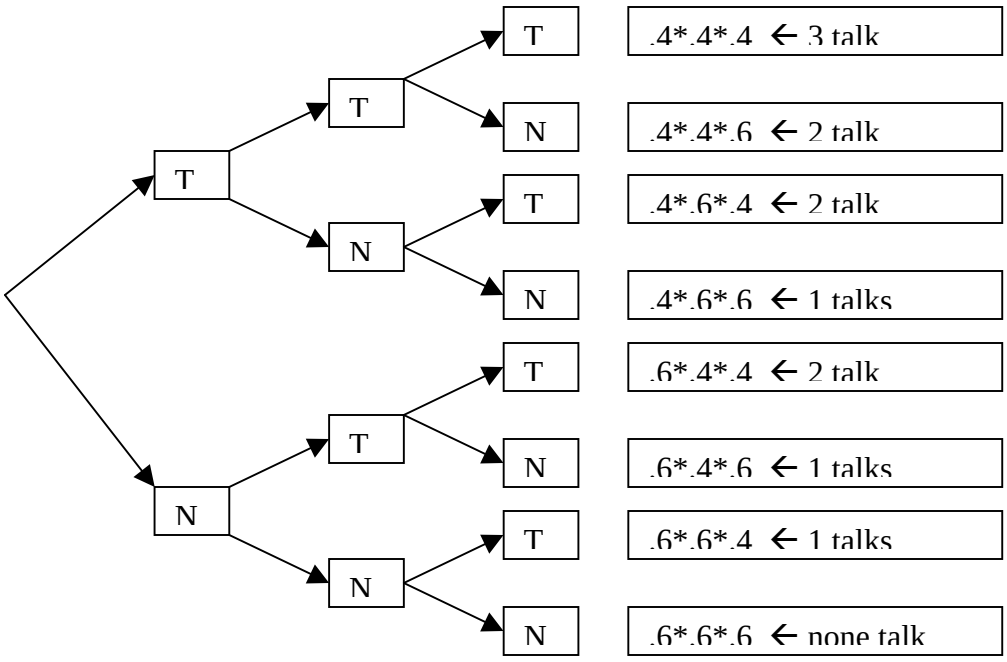
Example : **Applying the addition and multiplication rules**

Suppose you get a job as a "assisted sales-person" in a large electronics store (like Best Buy) and prospective buyers behave this way: 60% of the time they don't want anything to do with you and 40% of the time they will talk to you. Three people are walking towards you, assume they don't know each other and have INDEPENDENTLY chosen to walk towards you. What are the probabilities of 0, 1, 2, or all 3 talking to you?

Outcome	All 3 talk	2 talk to you	1 talks to you	0 talk to you
Probability	.4*.4*.4 or ($.4^3$)	(.4*.4*.6)+ (.4*.6*.4)+ (.6*.4*.4)	(.6*.4*.6)+ (.6*.6*.4)+ (.4*.6*.6)	.6*.6*.6 (or $.6^3$)
	.064	.096+.096+.096	.144+.144+.144	.216

Suppose that if you can get <u>at least two</u> people talking to you, you are guaranteed a sale. What is your chance of a sale given these probabilities?

Tree Diagrams might help



Q. Do you think things in this country are generally going in the right direction or are they seriously off on the wrong track?

	Men	Women	Total
Right Direction	331	214	545
Off on the wrong track	285	421	706
Don't Know	46	55	101
Total	662	690	1352

Same Numbers converted to proportions

	Men	Women	Total
Right Direction	.245	.158	.403
Off on the wrong track	.211	.311	.522
Don't Know	.034	.041	.075
Total	.490	.510	1.0

What an independent table would look like, same totals, different distribution by gender

	Men	Women	Total
Right Direction	267	278	545
Off on the wrong track	346	360	706
Don't Know	49	52	101
Total	662	690	1352

if you do the math

	Men	Women	Total
Right Direction	.490*.403	.510*.403	.403
Off on the wrong track	.490*.522	.510*.522	.522
Don't Know	.490*.075	.510*.075	.075
Total	.490	.510	1.0

results in

	Men	Women	Total
Right Direction	.197	.206	.403
Off on the wrong track	.260	.266	.522
Don't Know	.037	.038	.075
Total	.490	.510	1.0