

# Probability and Misleading Cues

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A researcher asked people in the street this question:

**Preamble:** Tony is tall, well-groomed and frequently heard whistling classical music.

**Question:** Is Tony more likely to be a public servant or a concert pianist?

Now think for a moment. Which of the two alternative occupations would you choose?

This kind of question has been asked many times in research projects in a wide range of countries. Which occupation do you think was most frequently chosen?

You would be perfectly normal if you chose concert pianist as Tony's occupation. It is surprising how many people will have also chosen concert pianist.

There is a good reason why so many people make this choice in research. Moreover most people quite unconsciously do this in many situations throughout their lives.

Now think for a moment. You were asked whether you thought Tony was a public servant or a concert pianist. There were no other choices you could make. Supposedly to help you make your choice, the researcher gave you three pieces of absolutely irrelevant information:

1. Tony was tall.
2. Tony was well-groomed.
3. Tony was frequently heard whistling classical music.

Clearly, these attributes might just as easily have been evident in men who were either public servants or concert pianists. This information is therefore useless, but it was also to mislead you if you are not aware of the representation bias.

Faced with the information provided and the choice allowed, Tony is more likely to be a public servant than a concert pianist. However, the majority of people will have made the other choice: that Tony was more likely to be a concert pianist. Why is this so?

It is simple really, most people in the street should be aware that there are very few concert pianists in their country, or indeed in the world. However, they should also be aware that every country has many thousands of public servants.

Therefore, if you sensibly ignore the three pieces of utterly irrelevant information and go with the probabilities, you would plump for public servant. You are far more likely to be right. Of course, in a specific case, you could be wrong. However, if you go through life making a great many similar choices based on the probabilities, you will tend to be correct most of the time.

So, why do so many of us get it wrong? It is simple really. We forget about probability and rest our choice on what seems to be a clue that we see wrongly to be representative of concert pianists, but is not: Tony is often heard whistling classical music. So, we clutch at this straw and say he is most likely to be a concert pianist, because all concert pianists will play classical music and love what they are doing, so are likely to be whistling the music they play for a living.

Now think for a moment. Is it not equally likely that many public servants also like classical music? They are therefore also likely to be heard whistling it.

Whistling classical music therefore really tells us nothing about the choice we were asked to make, especially when we were asked which occupation was **most likely** for Tony.

Whenever we come across situations where we have little or no meaningful information about a choice of any kind, we avoid the representation bias by falling back on our common sense and trying to imagine what the mathematical likelihood or probability will be. Where possible we should seek out relevant statistics on which to base the probability.

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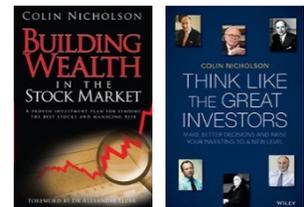
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