Real World Graduation: Question 90: Traffic Tickets

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Question 90

A certain district lies along 25 miles of Highway U. S. 193, where the speed limit is 55 MPH throughout. The police force in this district only issues speeding tickets based on radar readings, and the department regularly calibrates its equipment to make sure the readings are accurate. It is also department policy to issue tickets only if the driver is more than 7 MPH over the speed limit (i.e., is considered speeding only if going more than 62 MPH). Over the long run, the probability of getting a speeding ticket in this locality is 0.2 (meaning that over a long period of observations, 20% of people who are going faster than 62 MPH get tickets).

Consider the following situation. It is a Tuesday morning, after the rush hour. The weather is clear and traffic is light in this locality on Hwy U. S. 193. The police officers on duty at this time checking for speeders are 30% black male, 40% white male, 20% black female, and 10% white female, which is approximately the racial makeup of the force at most times. A black woman in a foreign sports car was going 73 MPH in the 55 MPH zone. What is the likelihood that she will get a speeding ticket?

a) 50%, because half the officers on duty are white
b) 100%, because she is driving a foreign car
c) Greater than 50%, because more than half the officers on duty are men
d) Either zero or 100%, depending on the race of the officer who sees her first
e) This question is illogical because everyone knows that black women never exceed the speed limit

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Answer to Question 90

This is a trick question. The correct answer is 20%, consistent with the given fact that the probability of getting a ticket in this area when speeding is 0.2. In the question, it was stated that the long-term probability is 0.2; this data independent of race, sex, or make of vehicles. If the local police force has biases with respect to race, sex, or make of cars, those biases are already built into the 0.2 number since it is a composite from a large number of incidences over a long period of time. Barring any additional information about past behavior in particular cases, there is no logical basis for assessing the probability of a ticket in this particular case at anything other than 0.2.

There will be many times when people will attempt to influence your opinion by adding extraneous or irrelevant information into a discussion. Their objective is usually to get you to jump to an incorrect conclusion based on your biases, while implying that someone else's biases are at work. Be careful not to be conned with so-called "facts" that are not pertinent to the question at hand. They are background noise designed to either confuse you or trick you into accepting a false conclusion.

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