

BACCALAURÉAT-Session 2014

Epreuve de Discipline Non Linguistique

Mathématiques/Anglais

Dying of a plant

[...] Teaching probability can be thrilling. That's what it's like for me whenever I teach probability theory. It was never part of my own education, so having to lecture about it now is scary and fun, in an amusement park, thrill-house sort of way.

Perhaps the most pulse-quickening topic of all is “conditional probability” — the probability that some event A happens, given the occurrence of some other event B. It's a slippery concept, easily conflated with the probability of B given A. They're not the same, but you have to concentrate to see why.

For example, consider the following word problem.

Before going on vacation for a week, you ask your reliable friend to water your plant. Without water, the plant has a 90 percent chance of dying. Even with proper watering, it has a 20 percent chance of dying. And the probability that your friend will forget to water it is 30 percent [...]

(b) If it's dead when you return, what's the chance that your friend forgot to water it? (c) If your friend forgot to water it, what's the chance it'll be dead when you return? Although they sound alike, (b) and (c) are not the same [... !]

*Adapted from “Chances Are” by Steven Strogatz ,
<http://opinionator.blogs.nytimes.com/2010/04/25/chances-are/>*

Questions

1. What is the author's feeling about teaching probabilities ?
2. Let's denote F the event “your friend forgets to water” and L the event “The plant lives”.
 - a) The problem tells us the answer for probability (c): what is this probability?
 - b) Draw a tree diagram representing the situation.
 - c) Compute the probability that your plant won't survive the week and then compute probability (b).
3. What is your own feeling about probabilities ?