

Experiment 6 Results

1) Consider a city with 10 librarians and 100 non-librarians. 90% of the librarians are shy. 10% of the non-librarians are shy. If Joe is shy, is he more likely to be a librarian or a non-librarian?

	Answer	You	Usual subjects
a. Librarian.		5%	✓
b. Non-librarian.	✓	95%	
c. The same.		0%	

Answer: Non-librarian

$$p(L/shy) = \frac{.9*10}{.9*10+.1*100} = \frac{9}{9+10} < \frac{1}{2}$$

Problems with Bayes rule:

Tversky and Kahneman, Science (1974): "People typically rely on the representativeness heuristic, in which probabilities are evaluated by the degree to which A is representative of B." "Prior probabilities will be neglected."

(<http://www.sciencemag.org/content/185/4157/1124.full.pdf>)

2) For a period of 1 year, each hospital recorded the days on which more than 60% of the babies born were boys. Which hospital is more likely to have recorded more such days?

	Answer	You	Usual subjects
a. The larger hospital.		3%	
b. The smaller hospital.	✓	73%	
c. The same.		24%	✓

Insensitivity to sample size:

Example: If hospital *A* only delivers one baby per day then half the days have more than 60% of the babies being boys. If hospital *B* delivers 100 babies per day, less than 3% of days would have more than 60% of the babies being boys.

Problem of representativeness: "The similarity of the sample statistic to a population parameter does not depend on the size of the sample."

3) The best 10 grades in the first midterm in my Econ 111 class last semester averaged 96 points. The average grade of the same ten students in the second midterm was:

	Answer	You	Usual subjects
a. Higher		0%	
b. The same		19%	✓
c. Lower	✓	81%	

Misconceptions of regression to the mean:

Example: If all of you roll a die. Then I ask all of you that obtain a 6, to roll the die again. Will the average number decrease or increase?

In this example: $96 > 81$. Average went down!

The same happens every semester!

