

Worksheet: Berkeley Admissions (from *Workshop Statistics*, by Rossman and Chance)

The Scene: The University of California at Berkeley was concerned that they may have discriminated against women in their graduate admissions process for the fall quarter of 1973. The table below identifies the number of acceptances and denials for both men and women applicants in each of the six largest graduate programs at the institution at that time.

	Men accepted	Men denied	Women accepted	Women denied
Program A	511	314	89	19
Program B	352	208	17	8
Program C	120	205	202	391
Program D	137	270	132	243
Program E	53	138	95	298
Program F	22	351	24	317

1. Start by ignoring the program distinction, collapsing the data into a two-way table of sex by admission status. To do this, find the total number of men accepted and denied and the total number of women accepted and denied. Fill in the table below:

	Admitted	Denied	total
Men			
Women			
total			

2. Consider for the moment just the men applicants. Of the men who applied to one of these programs, what proportion were admitted? What proportion of the women were admitted?
3. Do these proportions seem to support the claim that men were given preferential treatment in admission decisions?
4. To try to isolate the program or programs responsible for the mistreatment of women applicants, calculate the proportion of men and the proportion of women within each program who were admitted. Record your results in the table below.

	proportion of men admitted	proportion of women admitted
Program A		
Program B		
Program C		
Program D		
Program E		
Program F		

5. Does it seem as if any program is responsible for the large discrepancy between men and women in the overall proportions admitted?
6. Reason from the data given to explain how it happened that men had a much higher rate of admission overall even though women had higher rates in most programs and no program favored men very strongly.

The real Berkeley story ([source](#))

A [Wall Street Journal interview](#) with Peter Bickel, one of the statisticians involved in the original study, makes clear that Berkeley was never sued—it was merely afraid of being sued:

Simpson's Paradox has fooled many. In the fall of 1973, for instance, the University of California, Berkeley's graduate division admitted about 44% of male applicants and 35% of female applicants. That raised eyebrows among school officials, who feared bias and asked Peter Bickel, now a professor emeritus of statistics at Berkeley, to analyze the data.

"The associate dean of the graduate school thought that the university might be sued," Mr. Bickel says.

When Mr. Bickel and his colleagues scrutinized the data, they found little evidence of gender bias. Instead, they discovered that more women had applied to departments that admitted a small percentage of applicants, like English, than to departments that admitted a large percentage of applicants, like mechanical engineering.