

Reading Guide #3(3-11),5

3. males = 34 females = 32	
4. Blue = $\frac{12}{66} = 18.2\%$ Brown = $\frac{36}{66} = 54.5\%$ Green/Hazel/Other = $\frac{18}{66} = 27.3\%$	
5. In this statistics class most students (~55%) had brown eyes, compared to only 18% blue and 27% green, hazel or other.	
(Write a sentence for each!)	
6. $\frac{8}{12} \rightarrow 66.7\%$ of the students with blue eyes are male.	
7. $\frac{8}{66} \rightarrow 12.1\%$ of the students are male with blue eyes.	
8. $\frac{8}{34} \rightarrow 23.5\%$ of the male students in this class have blue eyes.	
9. $\frac{28}{54} \rightarrow 51.9\%$ of the non-blue-eyed students are female.	
10. The brown-eyed students are 55.6% male and 44.4% female.	
11. The males are 23.5% blue-eyed, 58.8% brown-eyed and 17.6% green, hazel or other-colored eyed.	
5. Describe a conditional distribution in your own words.	

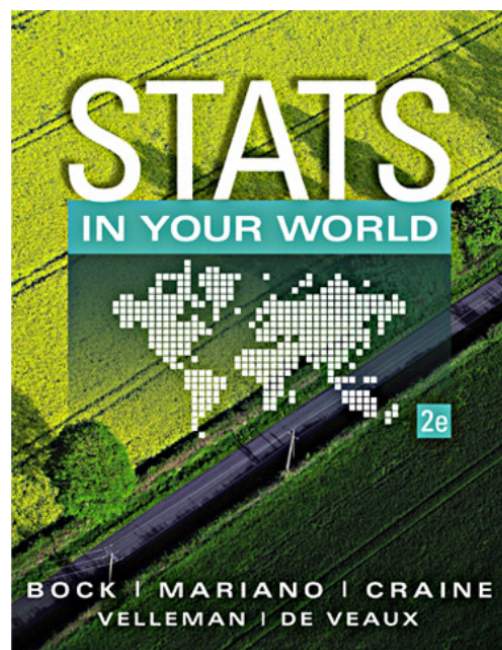
A conditional distribution measures the distribution of one variable while keeping the other variable constant.

	Blue	Brown	G/H/O	Total
Male	8	20	6	34
Female	4	16	12	32
Total	12	36	18	46

3. How many M? F? in the class
4. Marginal Dist. of eye color?
5. Write sentence using % to describe #4
6. What % of blue-eyed stud. are M?
7. What % of class are blue-eyed M?
8. What % of M have blue eyes?
9. What % of stud. who do not have blue eyes are F?
10. Cond. Dist. of Sex for brown-eyed stud.?
11. " " " Eye color for males

Chapter 2

Stories Categorical
Data Tell



Contingency Tables

Pg. 17

- A **contingency table** allows us to look at two categorical variables together.
- It shows how individuals are distributed along each variable, contingent on the value of the other variable.
 - Example: we can examine the class of ticket and whether a person survived the *Titanic*:

		Class				
Survival		First	Second	Third	Crew	Total
	Alive	203	118	178	212	711
	Dead	122	167	528	673	1490
	Total	325	285	706	885	2201

Contingency Tables (cont.)

- The margins of the table, both on the right and on the bottom, give totals and the frequency distributions for each of the variables.
- Each frequency distribution is called a marginal distribution of its respective variable.
 - The marginal distribution of Survival is:

"margin"

Survival	Class				
	First	Second	Third	Crew	Total
	203	118	178	212	711
Alive	203	118	178	212	711
Dead	122	167	528	673	1490
Total	325	285	706	885	2201

What is the marginal distribution of Class?

Contingency Tables (cont.)

- Each **cell** of the table gives the count for a combination of values of the two values.
 - For example, the second cell in the crew column tells us that 673 crew members died when the *Titanic* sunk.

		Class				Total
		First	Second	Third	Crew	
Survival	Alive	203	118	178	212	711
	Dead	122	167	528	673	1490
	Total	325	285	706	885	2201

Conditional Distributions

- A **conditional distribution** shows the distribution of one variable for just the individuals who satisfy some condition on another variable.

- The following is the conditional distribution of ticket *Class*, conditional on having survived: *← only the Alive Row*

★ (Could also be called marginal proportions)

	Class				
	First	Second	Third	Crew	Total
	203	118	178	212	711
Alive	28.6%	16.6%	25.0%	29.8%	100%

Conditional Distributions (cont.)

- The following is the conditional distribution of ticket *Class*, conditional on having perished:

★ Answers the question, "What percent of people who perished were in each class?"

	Class				Total
	First	Second	Third	Crew	
Dead	122	167	528	673	1490
	8.2%	11.2%	35.4%	45.2%	100%

★ denominator = # of people who perished (1490)
 numerator = # of people per class

Homework:

pg. 35-37
 #2,3,10,13,15

Homework:

Pg. 35-37 #2, 3, 10, 13, 15

#2) $\begin{matrix} A & 19/42 \\ B & 21/52 \\ C & 5/35 \end{matrix} > \begin{matrix} 34/160 \\ 14.3\% > 21.3\% \end{matrix}$

$\textcircled{D}$ $\begin{matrix} 9^{\text{th}} & 10/42 = 24\% & 23.8 \\ 10^{\text{th}} & 12/35 = 34\% \\ 11^{\text{th}} & 9/38 = 23.7 \leftarrow \text{least} \\ 12^{\text{th}} & 21/45 = 47\% \end{matrix}$