Introduction to Social Statistics

Day 18

Instructor Rob Kemp

Wednesday March 13, 2013

Announcements

- Next Test: April 5th
  - 5 More lectures (Including Today)
  - Only one new statistical test!!
- Homework 3 Posted on Friday
  - Only 2 Chapters: 10 & 11

Relationships Between Two Variables

- Independent and Dependent Variables (Review)
- Constructing a Bivariate Table
- Computing Percentages in a Bivariate Table

Independent and Dependent Variables (Review)

- *Definitions of independent and dependent variables?*
- If we hypothesize that English proficiency varies by whether person is native born or foreign born:

- **Independent:** nativity (where born)
- **Dependent:** English proficiency

Introduction

- **Bivariate Analysis:** Method to describe the relationship between two variables.
- **Cross-Tabulation:** A technique for analyzing the relationship between two categorical variables organized in a table.

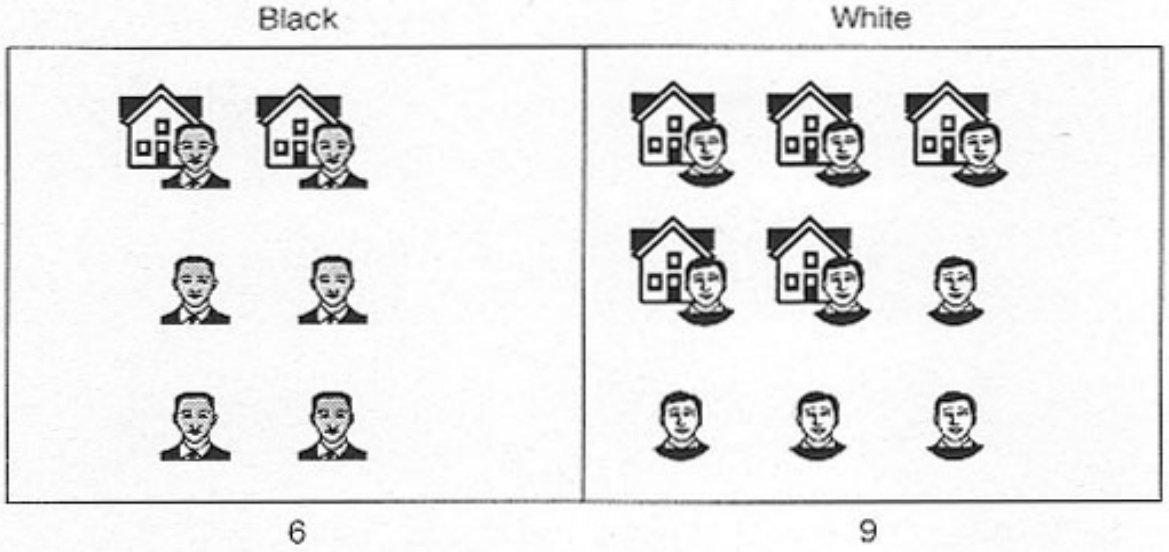
Constructing a Bivariate Table

- ***Bivariate table:*** A table that displays the distribution of one variable across the categories of another variable.
- ***Column variable:*** A variable whose categories are the columns of a bivariate table (usually independent variable).
- ***Row variable:*** A variable whose categories are the rows of a bivariate table (usually dependent variable).
- ***Cell:*** The intersection of a row and a column in a bivariate table.

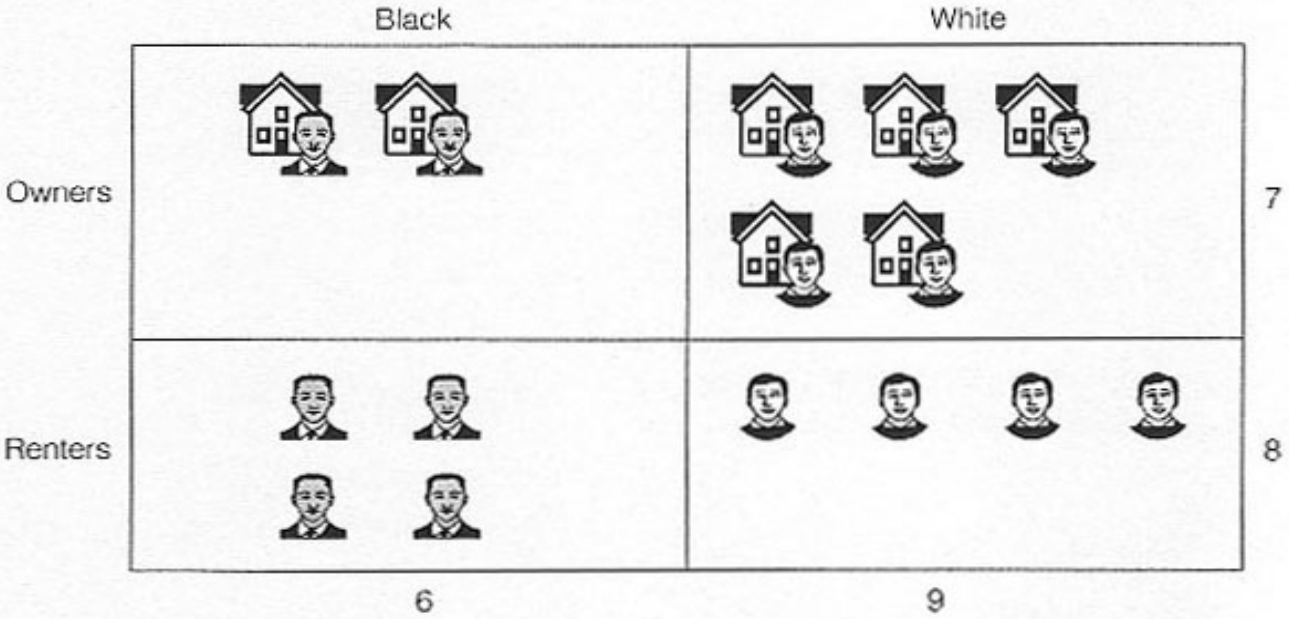
Let’s start with some pictures….

1. Black and white homeowners and renters:

2. Divide respondents into two groups by race (the independent variable); count the number in each group to get the column totals.



3. Divide each group into homeowners and renters (the dependent variable); count the number in each group to get the row totals.



4. Count each cell:

	Black	White	
Owners	2	5	7
Renters	4	4	8
	6	9	

5. % of blacks who are owners: (100)2/6 = 33%
% of whites who are owners: (100)5/9 = 56%
% of blacks who are renters: (100)4/6 = 67%
% of whites who are renters: (100)4/9 = 44%

6. Compare percentages: 33% vs. 56%
67% vs. 44%

Home Ownership by Race (in percentages)

HOME OWNERSHIP	RACE		
	Black	White	Total
Own	33.3%	55.6%	46.7%
Rent	66.7%	44.4%	53.3%
Total	100%	100%	100%
	(6)	(9)	(15)

Percentages Can Be Computed in Different Ways:

1. ***Column*** **Percentages:**
   column totals as base
   IV is listed in COLUMNS

2. ***Row*** **Percentages:**
   row totals as base
   IV is listed in ROWS

EX1: Absolute Frequencies

Support for Abortion by Marital Status

Abortion	Marital Status
1 (Yes)	1 (Married)
0 (No)	1
1	0 (Not Married)
1	0
0	0
0	1
1	1
0	1
…	…

EX1: Absolute Frequencies

Support for Abortion by Marital Status

Abortion	Married	Not Married	Row Total
Yes	24	25	49
No	20	26	46
Column Total	44	51	95

EX1: Calculating Column %'s

Support for Abortion by Marital Status

Abortion	Married	Not Married	Row Total
Yes	(?)% (24)	(?)% (25)	(?)% (49)
No	(?)% (20)	(?)% (26)	(?)% (46)
Column Total	(?)% (44)	(?)% (51)	(?)% (95)

EX1: Calculating Column %'s

Support for Abortion by Marital Status

Abortion	Married	Not Married	Row Total
Yes	55%	49%	52%
No	45%	51%	48%
Column Total	100% (44)	100% (51)	100% (95)

EX1: Calculating Row %'s

Support for Abortion by Marital Status

Abortion	Married	Not Married	Row Total
Yes	(?)% (24)	(?)% (25)	(?)% (49)
No	(?)% (20)	(?)% (26)	(?)% (46)
Column Total	(?)% (44)	(?)% (51)	(?)% (95)

EX1: Calculating Row %'s

Support for Abortion by Marital Status

Abortion	Married	Not Married	Row Total
Yes	49%	51%	100% (49)
No	43%	57%	100% (46)
Column Total	46%	54%	100% (95)