DDAR: Solutions and Hints for Exercises

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## Chapter 1

These exercises are all conceptual. There are no hints or solutions.

## Chapter 2

### Exercise 2.1

The packages vcd and vcdExtra contain many data sets with some examples of analysis and graphical display. The goal of this exercise is to familiarize yourself with these resources. You can get a brief summary of these using the function datasets() from vcdExtra. Use the following to get a list of these with some characteristics and titles.

library(vcdExtra)  
ds <- datasets(package=c("vcd", "vcdExtra"))

1. How many data sets are there altogether? How many are there in each package?

nrow() gives the number of rows in a data frame. table() for a single variable gives the frequencies for each level.

ds <- datasets(package=c("vcd", "vcdExtra"))  
nrow(ds)

## [1] 74

table(ds$Package)

##   
## vcd vcdExtra   
## 33 41

1. Make a tabular display of the frequencies by Package and class.

Use table(), but now for Package and class.

table(ds$Package, ds$class)

##   
## array data.frame matrix table  
## vcd 1 17 0 15  
## vcdExtra 3 22 1 15

1. Choose one or two data sets from this list, and examine their help files (e.g., help(Arthritis) or ?Arthritis). You can use, e.g., example(Arthritis) to run the R code for a given example.

?Arthritis #Help Files  
?Baseball #Help Files  
example(Arthritis) #Example Syntax/Analysis  
example(Baseball) #Example Syntax/Analysis

### Exercise 2.2

For each of the following data sets in the vcdExtra package, identify which are response variable(s) and which are explanatory. For factor variables, which are unordered (nominal) and which should be treated as ordered? Write a sentence or two describing substantitive questions of interest for analysis of the data. (Hint: use data(foo, package="vcdExtra") to load, and str(foo), help(foo) to examine data set foo.)

1. Abortion opinion data: Abortion

Support\_Abortion is the response, Sex and Status are binary, nominal explanatory variables. From help(Abortion), How does support for abortion depend on sex and status?

data(Abortion, package="vcdExtra")  
str(Abortion)

## table [1:2, 1:2, 1:2] 171 152 138 167 79 148 112 133  
## - attr(\*, "dimnames")=List of 3  
## ..$ Sex : chr [1:2] "Female" "Male"  
## ..$ Status : chr [1:2] "Lo" "Hi"  
## ..$ Support\_Abortion: chr [1:2] "Yes" "No"

1. Caesarian Births: Caesar

Infection is the response, Risk, Antibiotics and Planned are binary, nominal explanatory variables.

data(Caesar, package="vcdExtra")  
str(Caesar)

## table [1:3, 1:2, 1:2, 1:2] 0 1 17 0 1 1 11 17 30 4 ...  
## - attr(\*, "dimnames")=List of 4  
## ..$ Infection : chr [1:3] "Type 1" "Type 2" "None"  
## ..$ Risk : chr [1:2] "Yes" "No"  
## ..$ Antibiotics: chr [1:2] "Yes" "No"  
## ..$ Planned : chr [1:2] "Yes" "No"

1. Dayton Survey: DaytonSurvey

In DaytonSurvey, the variables cigarette, alcohol, and marijuana can all be treated as response variables. sex and race are potential explanatory variables.