Section 7.2 Design: The Two-way Factorial Experiment

Loaded needed packages.

```
library(Stat2Data)
library(mosaic)
```

SECTION 7.2 requires no new R work. We just show the one new data situation.

EXAMPLE 7.8 Dinosaurs: An unbalanced two-way observational study

Create a dataframe for **Dinosaurs** and look at the structure of the data.

```
data("Dinosaurs")
str(Dinosaurs)
```

```
## 'data.frame':    28 obs. of  4 variables:
##  $ ID     : int  1 2 3 4 5 6 7 8 9 10 ...
##  $ Source : Factor w/ 2 levels "Limestone","Shale": 1 1 1 1 1 1 1 1 1 1 ...
##  $ Depth  : int  345 345 346 346 347 347 347 348 348 348 ...
##  $ Iridium: int  75 20 120 210 290 450 620 170 205 260 ...
```

TABLE 7.3 Dying dinosaurs: Iridium concentration in parts per billion

Note: We use factor(Depth) to treat those values as categories.

```
unstack(Dinosaurs,Iridium~factor(Depth):Source)
```

```
## $`345:Limestone`
## [1] 75 20
##
## $`345:Shale`
## [1] 110 501
##
## $`346:Limestone`
## [1] 120 210
##
## $`346:Shale`
## [1] 315
##
## $`347:Limestone`
## [1] 290 450 620
##
## $`347:Shale`
## [1] 710 875
##
## $`348:Limestone`
```

```
## [1] 170 205 260
##
## $`348:Shale`
## [1] 400
##
## $`349:Limestone`
## [1] 120 135
##
## $`349:Shale`
## [1] 120 130 135  10 290
##
## $`350:Limestone`
## [1]   5  90 105
##
## $`350:Shale`
## [1] 145 215
```