Stat 411/511

R Graphics

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Charlotte Wickham

stat511.cwick.co.nz

Help with Statistics Classes

Kidder 113H, *Winter Term 2012*

Students in ST 201, 314, 351, 352, 411/511, and 412/512 may obtain help during any of the hours listed below (starting the second week). The class listed in parentheses below the Teaching Assistant's name has priority during that period.

Time	Mon	Tues	Wed	Thurs	Fri
0800-0900		Wolf (ST 352)		Wang L. (ST 314)	
0900-1000	Jager K. (ST 351)	Wolf (ST 352)	Itter (ST 351)	Wang L. (ST 351)	
1000-1100	Tapley (ST 351)		Jin (ST 352)	Dolatnia (ST 351)	Nahorniak (ST 351)
1100-1200	Tapley (ST 511)	Skalland (ST 412/512)	Jin (ST 352)	Dolatnia (ST 352)	
1200-1300	Sullivan (ST 351)	Sullivan (ST 351)	Itter (ST 351)	Shellhammer (ST 315)	Skalland (ST 412/512)
1300-1400	Jaeger B. (ST 352)			Hathcock (ST 411/511)	
1400-1500	Jaeger B. (ST 352)	McDonough (ST 412/512)		Liu (ST 351)	
1500-1600	Jager K. (ST 351)	McDonough (ST 412/512)	Hathcock (ST 411/511)		
1600-1700		Mi (ST 351)		Wang, D. (ST 351)	
1700-1800	Hart (ST 352)		Shellhammer (ST 314)		

Learning a new language is hard!

http://www.flickr.com/photos/jonnowitts/2429136239

Learning more R

http://stat511.cwick.co.nz/more-r.html

Cheat sheets

http://had.co.nz/stat480/r/

http://www.amaynard.ca/computing/R_Cheatsheet.pdf

http://mathesaurus.sourceforge.net/octave-r.html

Review

List four ways to **inspect** a data.frame

List three ways to **subset** a data.frame

TODAY: Graphics in R

Plotting with ggplot2

```
library(ggplot2)
```

```
qplot(Treatment, Score, data = case0101)
```

Plotting with ggplot2

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library(ggplot2)
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qplot(Treatment, Score, data = case0101)
```

Variable on the x-axis
(horizontal axis)

Plotting with ggplot2

```
library(ggplot2)
```

Variable on the y-axis
(vertical axis)

```
qplot(Treatment, Score, data = case0101)
```

Variable on the x-axis
(horizontal axis)

Plotting with ggplot2

```
library(ggplot2)
```

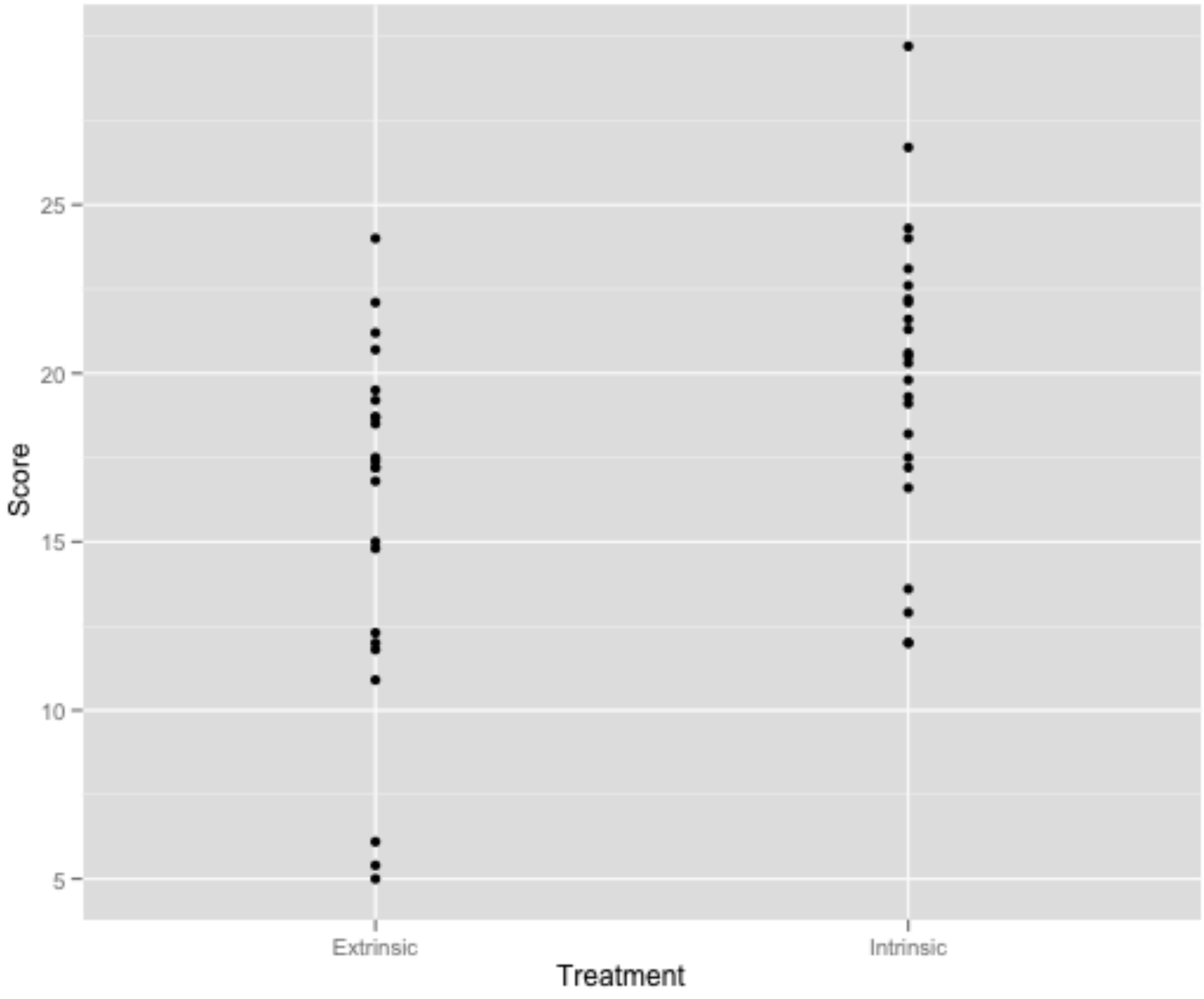
Variable on the y-axis
(vertical axis)

```
qplot(Treatment, Score, data = case0101)
```

Variable on the x-axis
(horizontal axis)

Data.frame the
variables are in

```
qplot(Treatment, Score, data = case0101)
```



Your turn

Make a dotplot of the Sex Discrimination data from Sleuth2.

Geometric objects

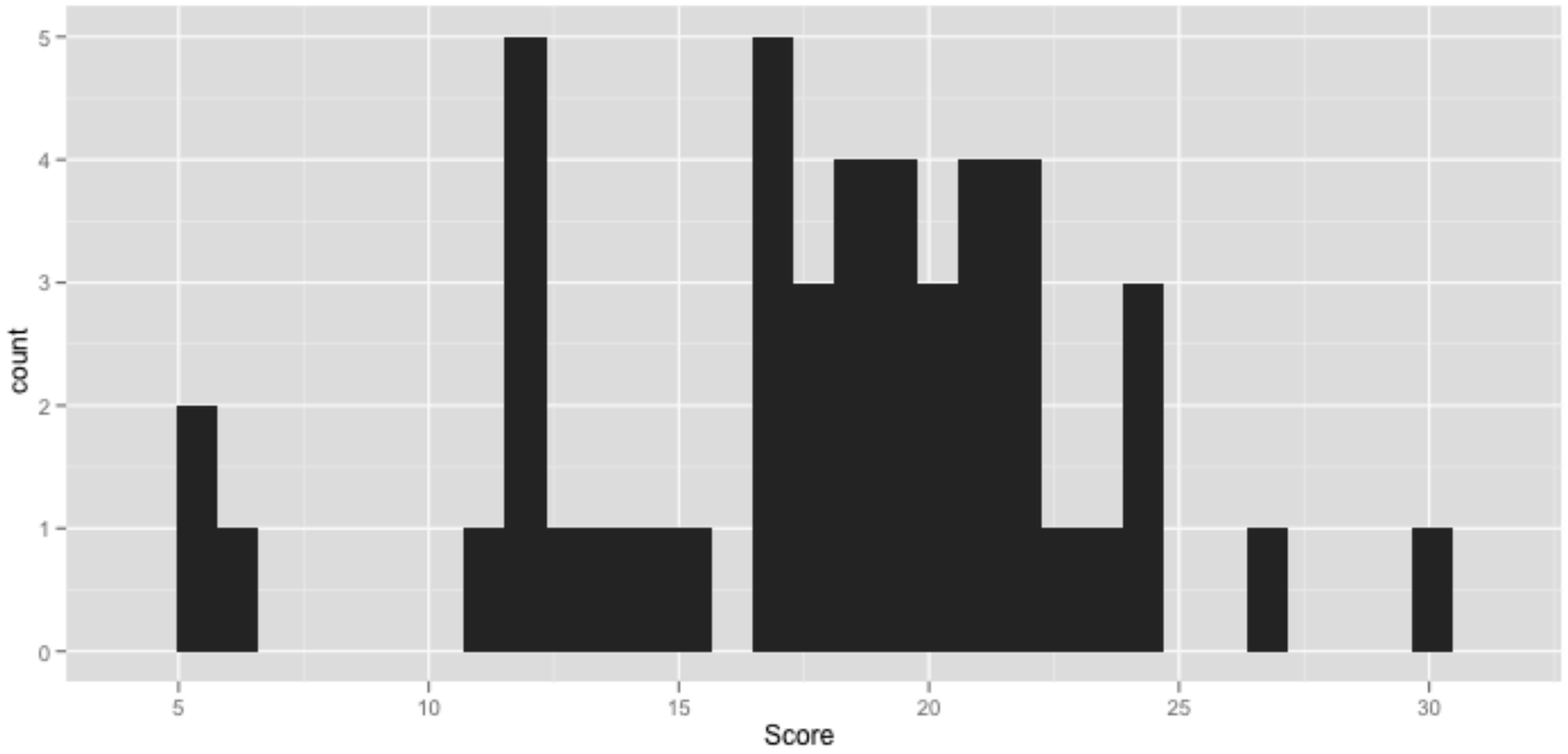
Points are just one type of geometric object (and the default in qplot)

```
qplot(Treatment, Score, data = case0101,
    geom = "point")
```

```
qplot(Treatment, Score, data = case0101,
    geom = "jitter")
```

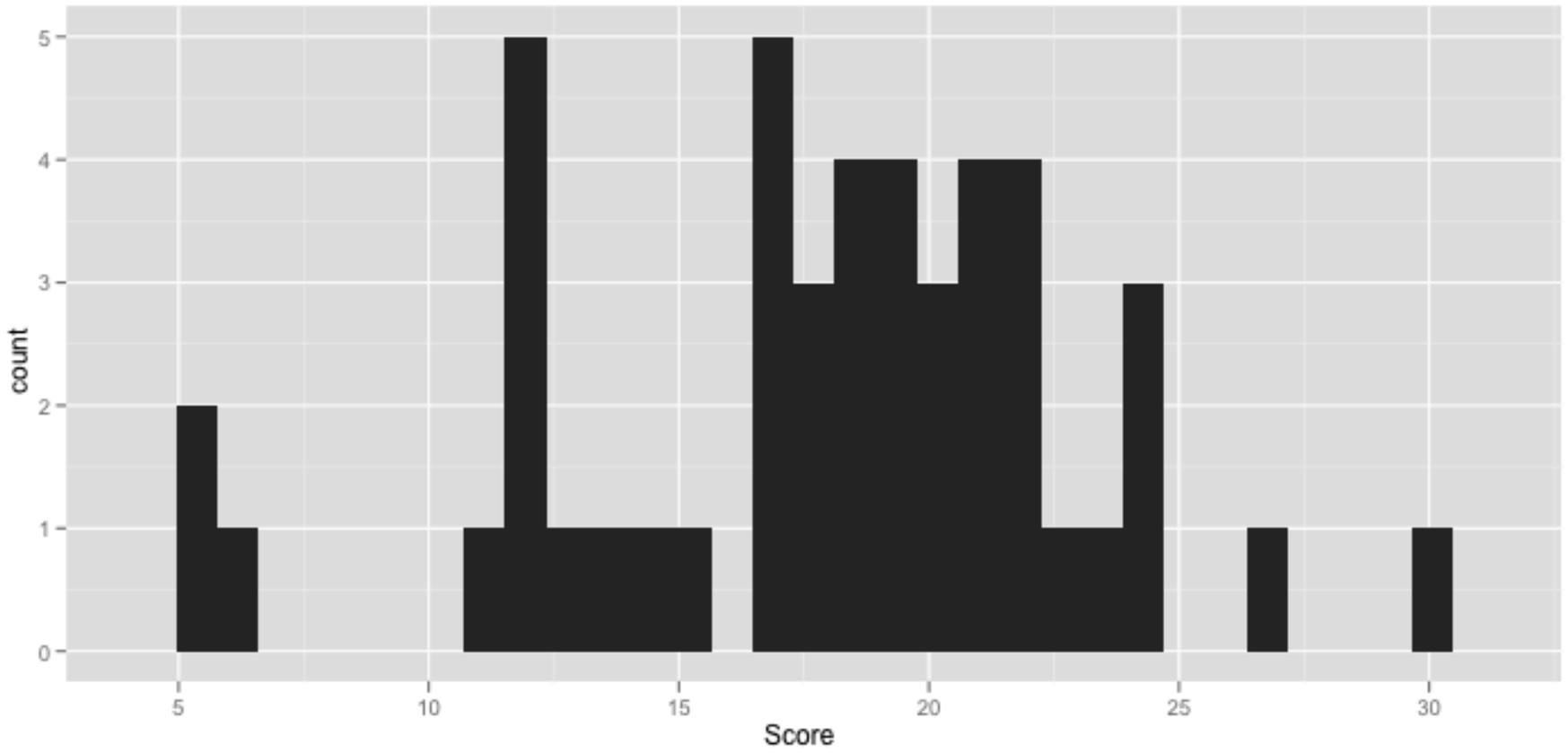
```
qplot(Treatment, Score, data = case0101,
    geom = "boxplot")
```

Histograms



Which variable is on the y-axis of a histogram?

Histograms



Which variable is on the y-axis of a histogram?

```
qplot(Score, data = case0101,
      geom = "histogram")
```

Facetting

Facetting produces the same plot for different subsets of the data

```
qplot(Score, data = case0101,
    geom = "histogram") +
    facet_wrap( ~ Treatment)
```

Facetting

Facetting produces the same plot for different subsets of the data

```
qplot(Score, data = case0101,
    geom = "histogram") + ⟵ typed
    facet_wrap( ~ Treatment)
```

Facetting

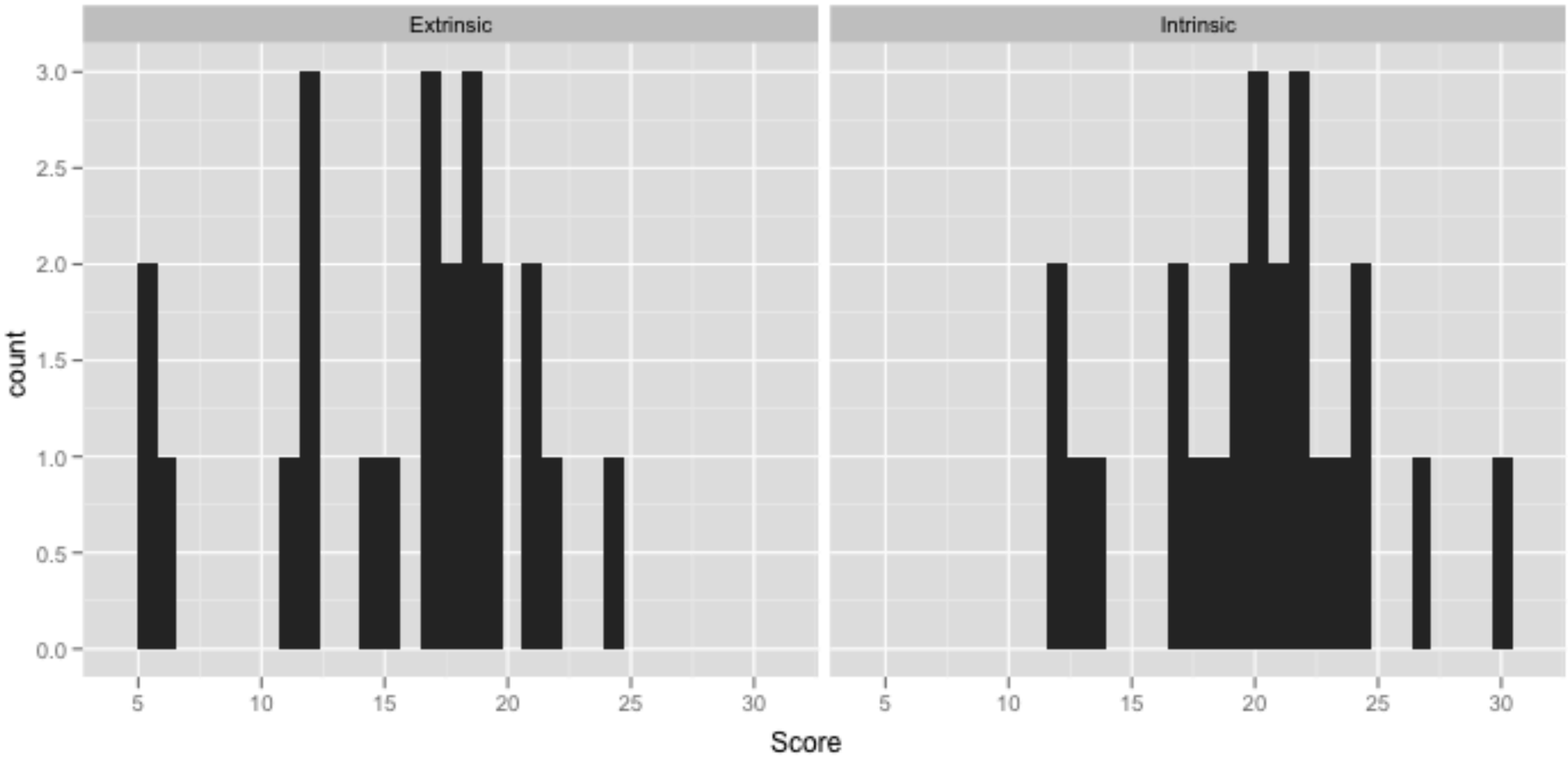
Facetting produces the same plot for different subsets of the data

```
qplot(Score, data = case0101,
    geom = "histogram") +
    facet_wrap( ~ Treatment)
```

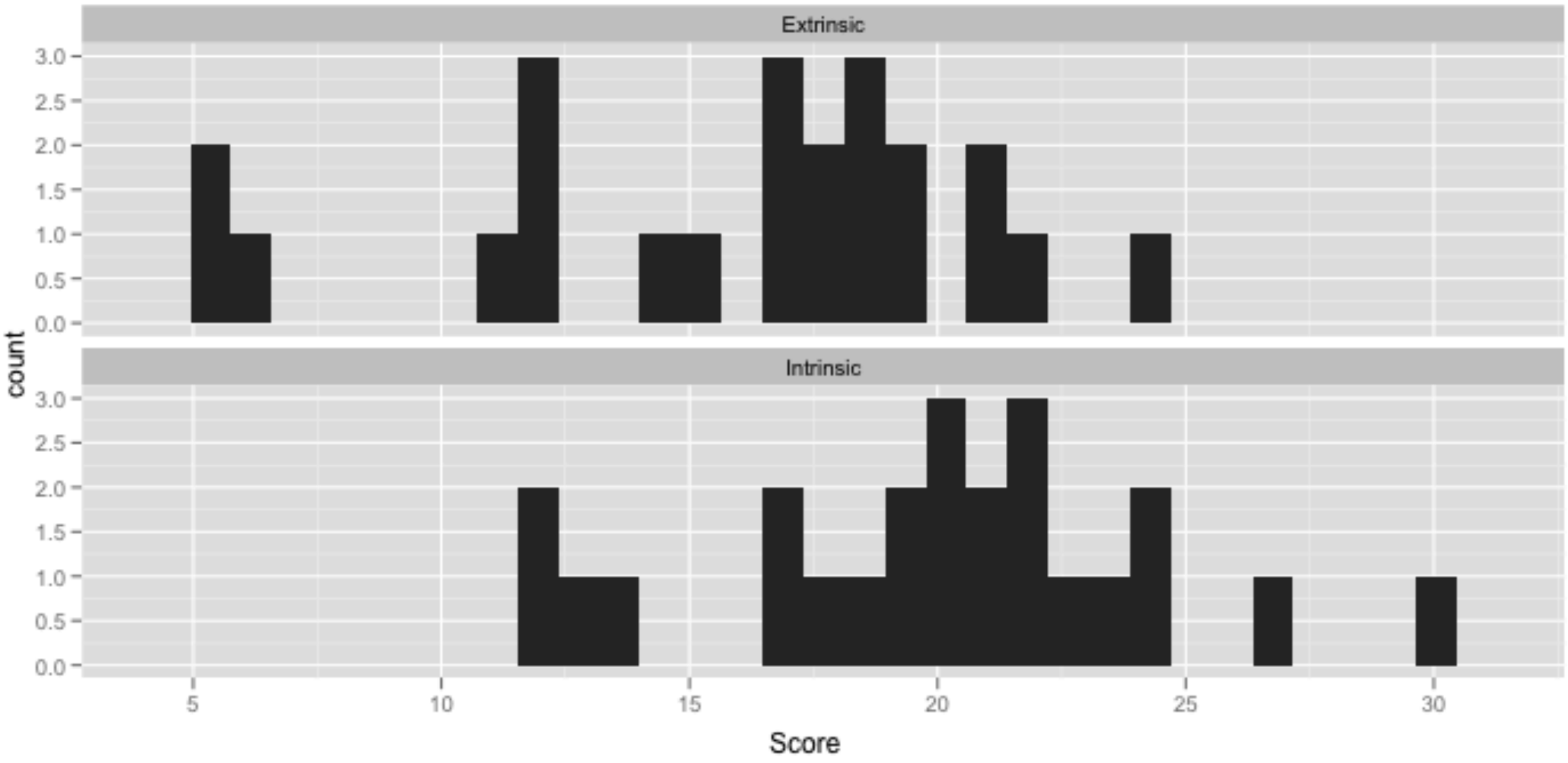
typed

A facet for each
unique value of Treatment

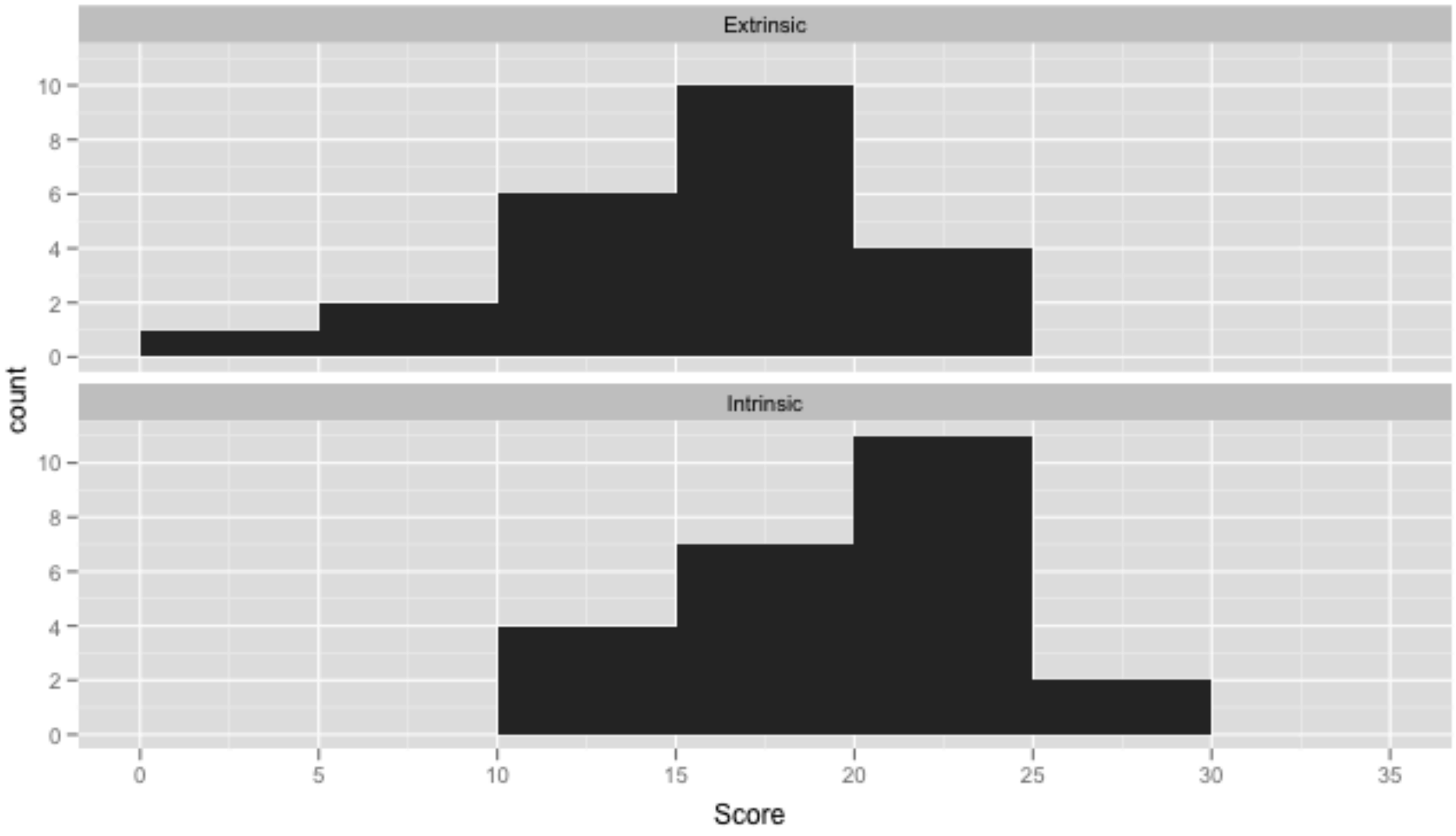
```
qplot(Score, data = case0101,
    geom = "histogram") +
    facet_wrap( ~ Treatment)
```



```
qplot(Score, data = case0101,
    geom = "histogram") +
    facet_wrap( ~ Treatment, ncol = 1)
```



```
qplot(Score, data = case0101,
    geom = "histogram", binwidth = 5) +
    facet_wrap( ~ Treatment, ncol = 1)
```



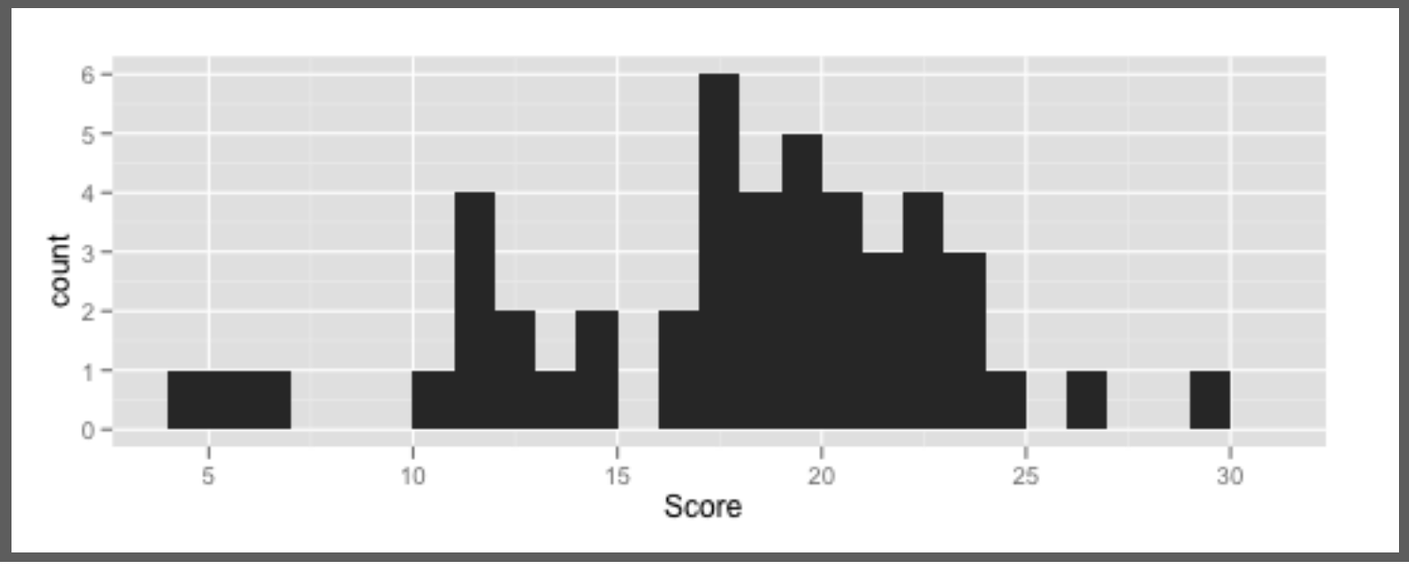
Your turn

Make histograms of the Sex Discrimination data from Sleuth2.

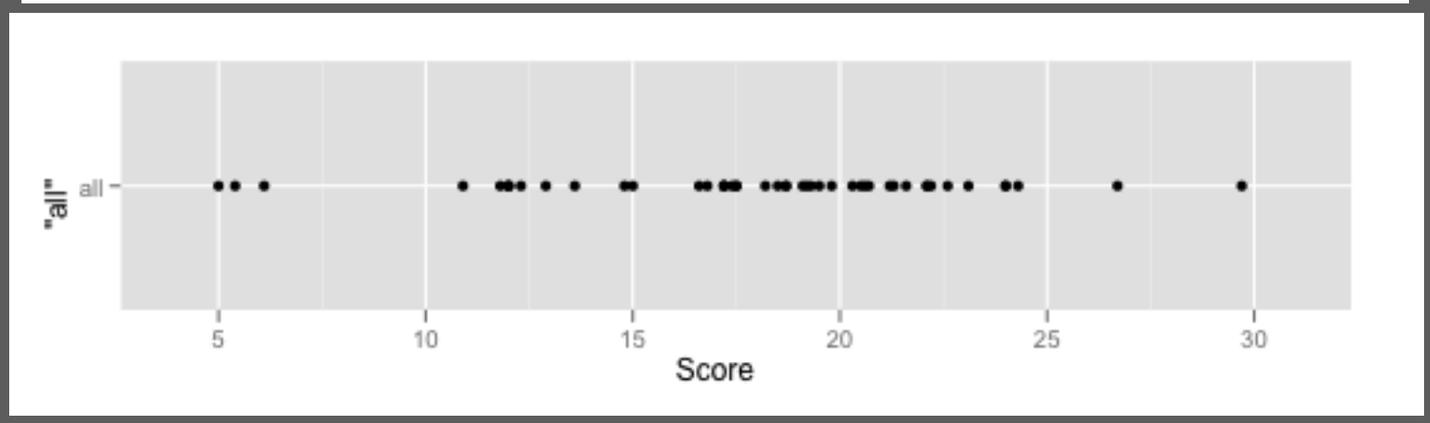
Experiment with the binwidth.

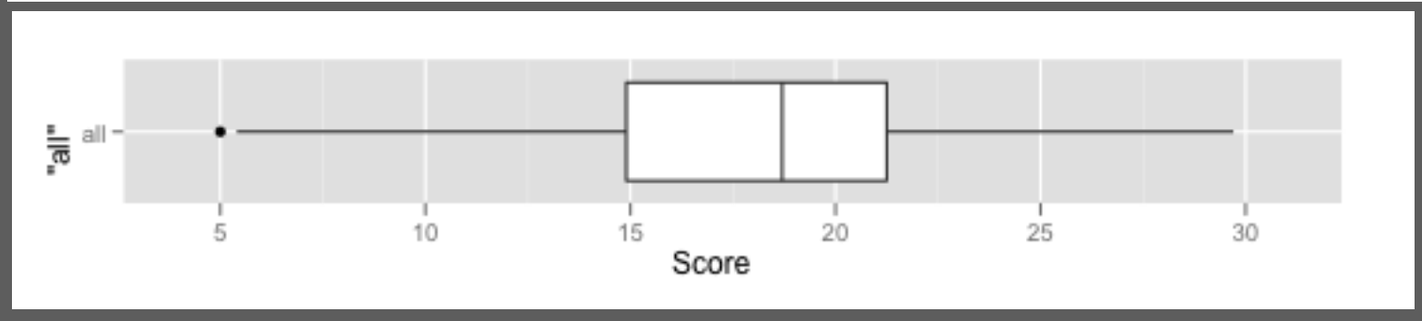
Your turn

Which plot has the most information?



If I asked you to draw them by hand, how many numbers would I need to give you?



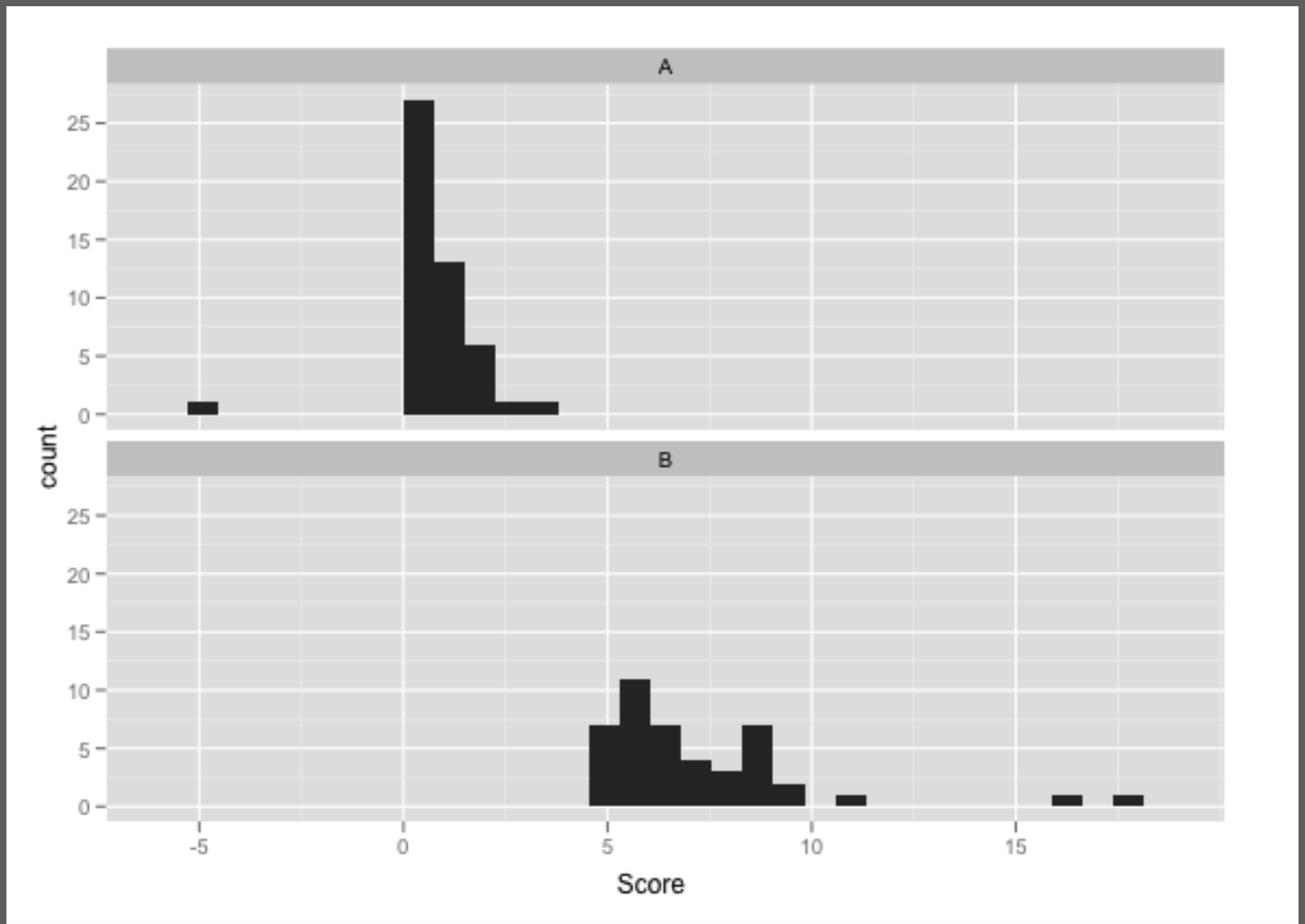


Describing distributions

- Center
- Spread
- Shape
- Anything unusual?

Your turn

Describe the histograms of these groups



Saving your history

In lab1 you'll see one way to keep track of your code.

An alternative is to copy your history at the end of your session and edit it.

In R Studio: go to the History tab, select all lines, then click "To source" and save it.