Customizing Plots

We now know how to create many plot types using `ggplot2`, but often you want to customize your plots. Today, we'll discuss common tools for customizing our plots.

To begin, make sure that you have the `tidyverse` loaded.

```
library(tidyverse)
library(plyr)
```

The Deadest Names in the U.S.

The "Deadest Names" graphics appeared on fivethirtyeight.com on 5/29/14. Today, we'll recreate this plot to illustrate additional customizations that are possible in R.

The data for this plot can be found on github and loaded into R using the following command:

```
dead_names <- read_csv("https://raw.githubusercontent.com/cmsc205/data/master/dead_names.csv")
```

Recreating the graphic

First, we must recreate the structure of the bar chart.

```
dnplot <-
  ggplot(dead_names, aes(x = reorder(name, pct_dead), y = pct_dead, fill = sex)) +
  geom_bar(stat = "identity") +
  geom_text(aes(label = pct_dead), hjust = -.1) +
  facet_wrap(~sex, scales = "free_y", ncol = 1) +
  coord_flip() +
  ylim(0, 95) +
  labs(x = NULL, y = NULL,
       title = "Deadest Names",
       subtitle = "Estimated percentage of Americans with a given name born since\n1900 who were dead as
dnplot
```

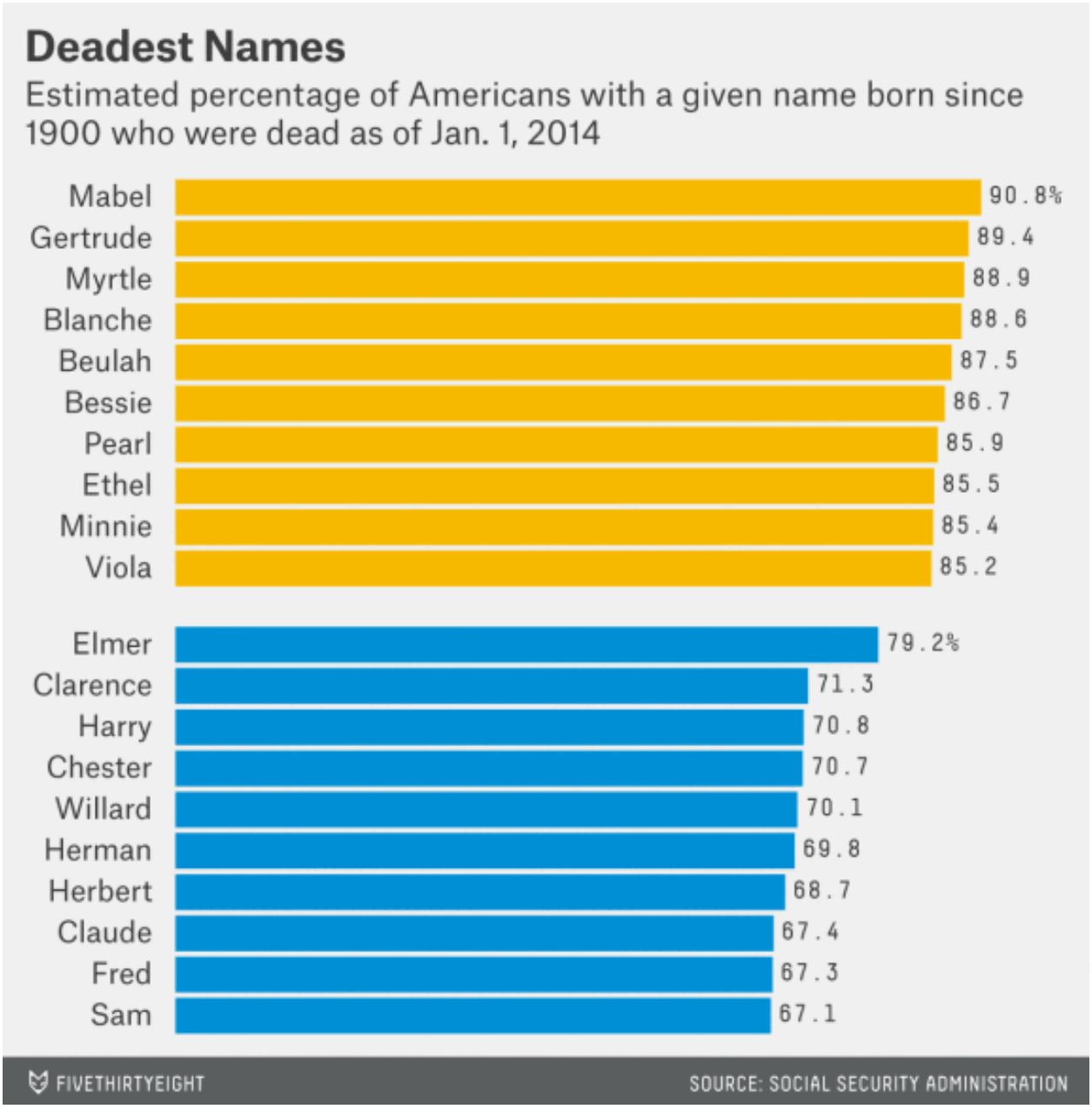
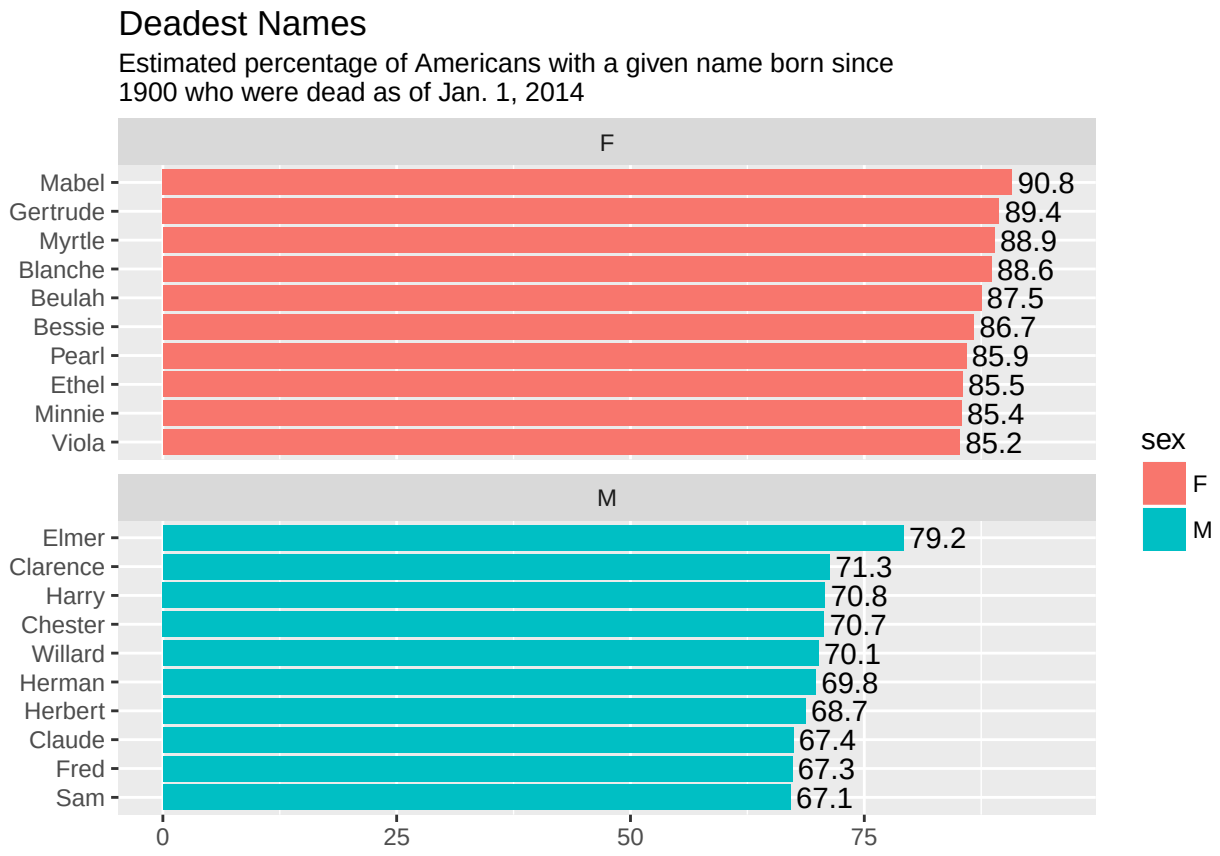

Deadest Names
Estimated percentage of Americans with a given name born since 1900 who were dead as of Jan. 1, 2014
Mabel 90.8%
Gertrude 89.4
Myrtle 88.9
Blanche 88.6
Beulah 87.5
Bessie 86.7
Pearl 85.9
Ethel 85.5
Minnie 85.4
Viola 85.2
Elmer 79.2%
Clarence 71.3
Harry 70.8
Chester 70.7
Willard 70.1
Herman 69.8
Herbert 68.7
Claude 67.4
Fred 67.3
Sam 67.1
FIVETHIRTYEIGHT
SOURCE: SOCIAL SECURITY ADMINISTRATION

Figure 1:

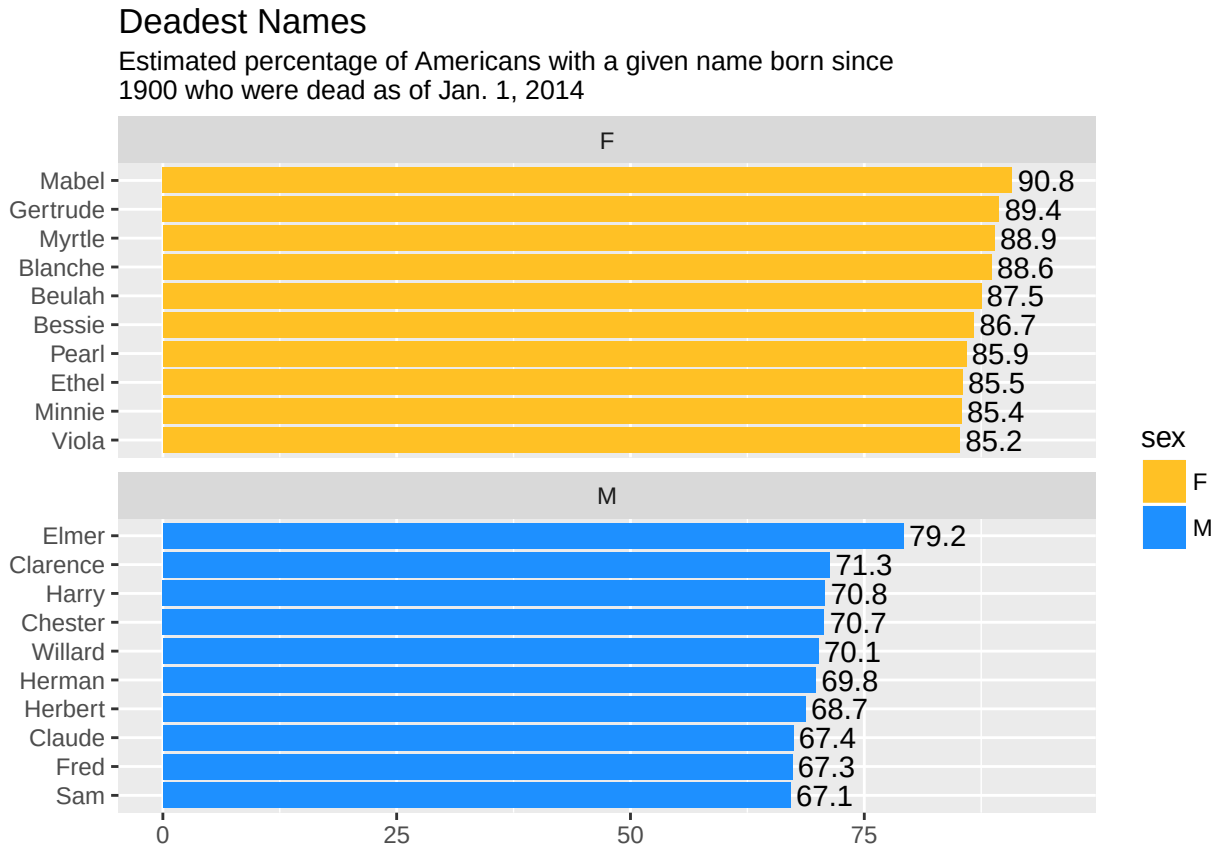


Choosing color palettes

`ggplot2` does not choose the nicest looking palettes, and the palettes are typically not colorblind friendly. Luckily, it's quite easy to change the color palettes you use.

Manual adjustments

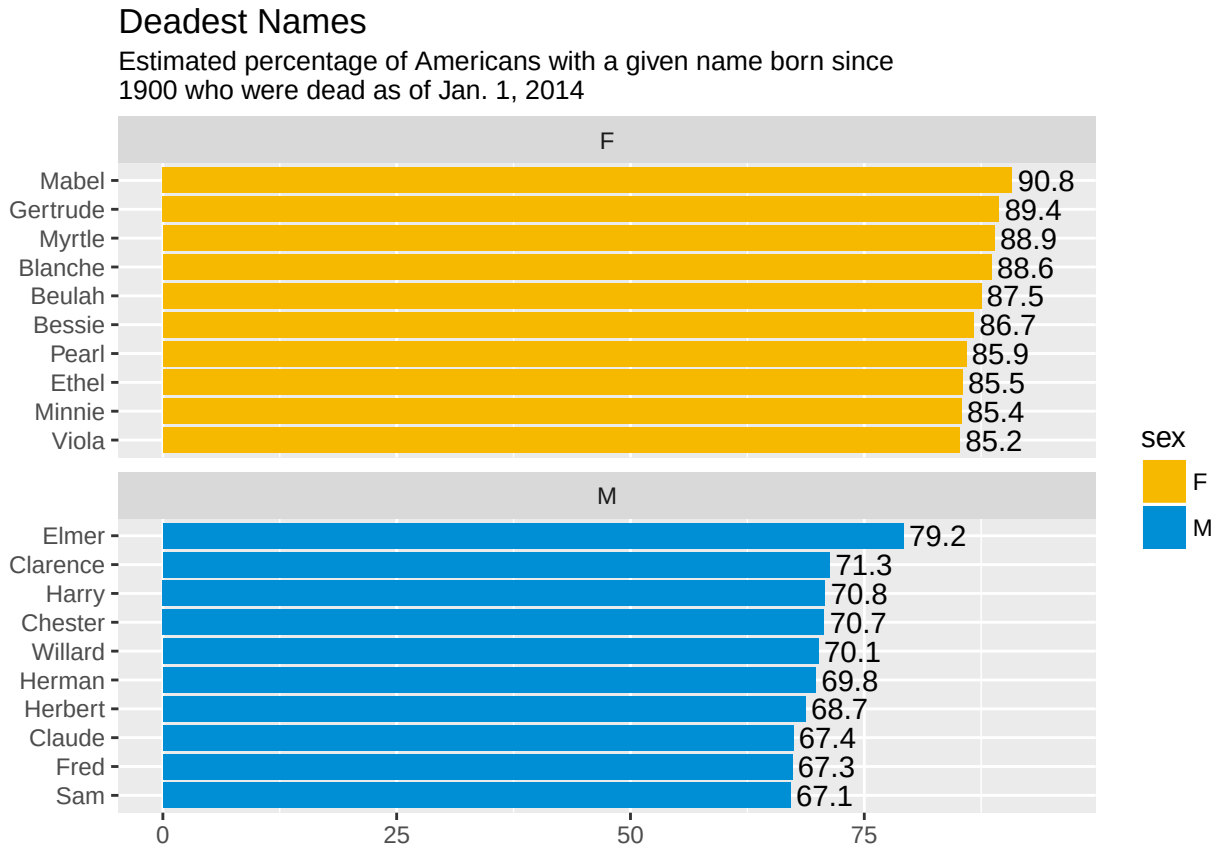
```
dnplot +
  scale_fill_manual(values = c("goldenrod1", "dodgerblue1"))
```



R has numerous named colors, but they are limited. For more freedom in your color specification, you may wish to switch to hexdecimal color specification.

We can match the colors used exactly using a hexadecimal specification determined with a digital color meter.

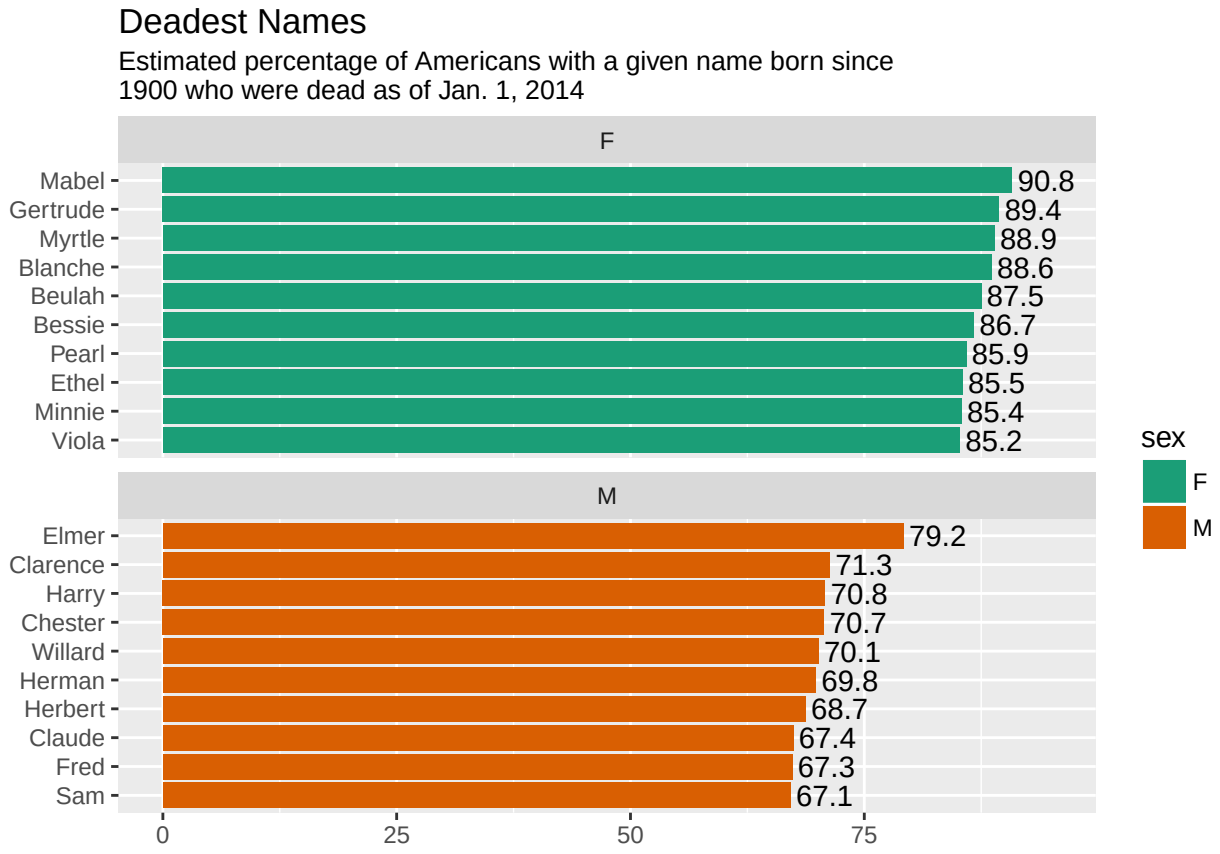
```
p538 <-
  dnplot +
  scale_fill_manual(values = c("#f6b900", "#008fd5"))
p538
```



Using RColorBrewer

While it was relatively easy to pick two colors, it can be much harder to select color palettes. Luckily, we can use other vetted palettes.

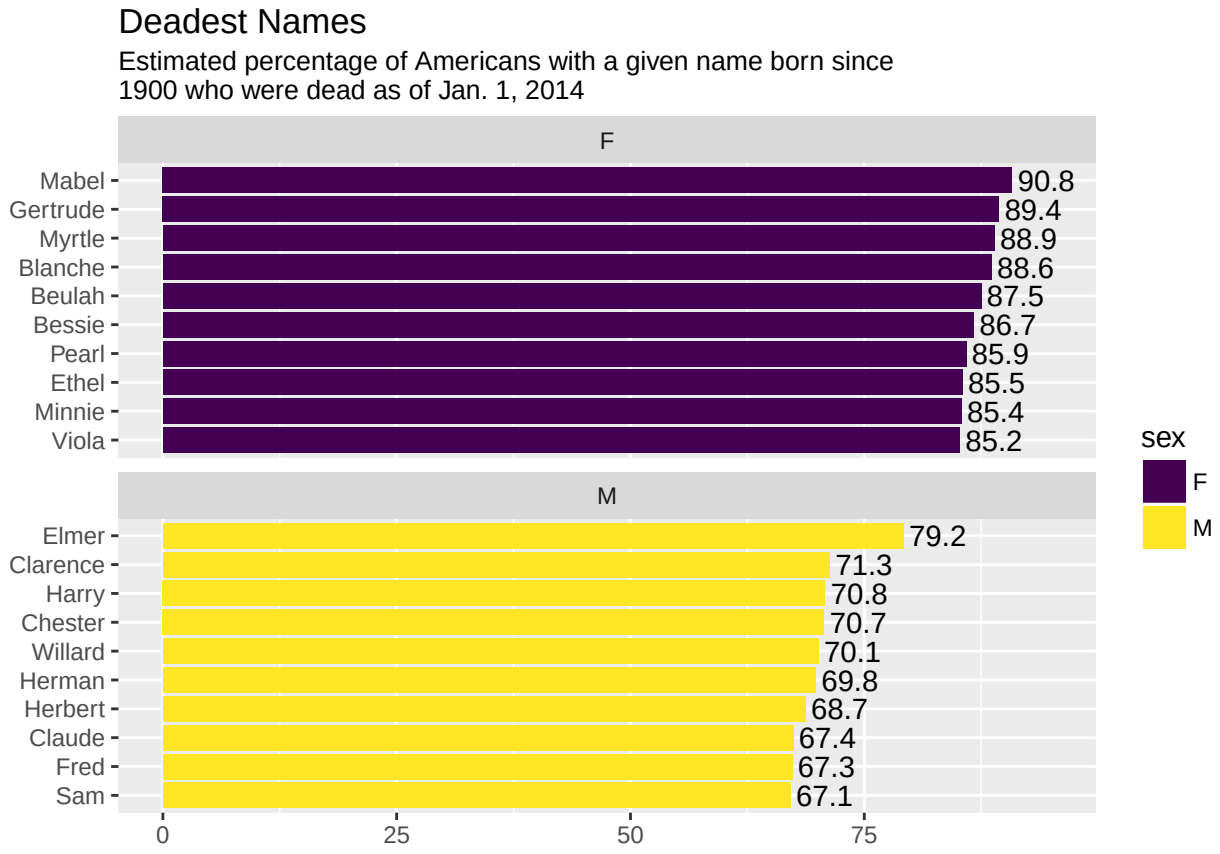
```
dnplot +
  scale_fill_brewer(palette = "Dark2")
```



Using viridis

```
library(viridis)
p538 +
  scale_fill_viridis(discrete = TRUE)
```

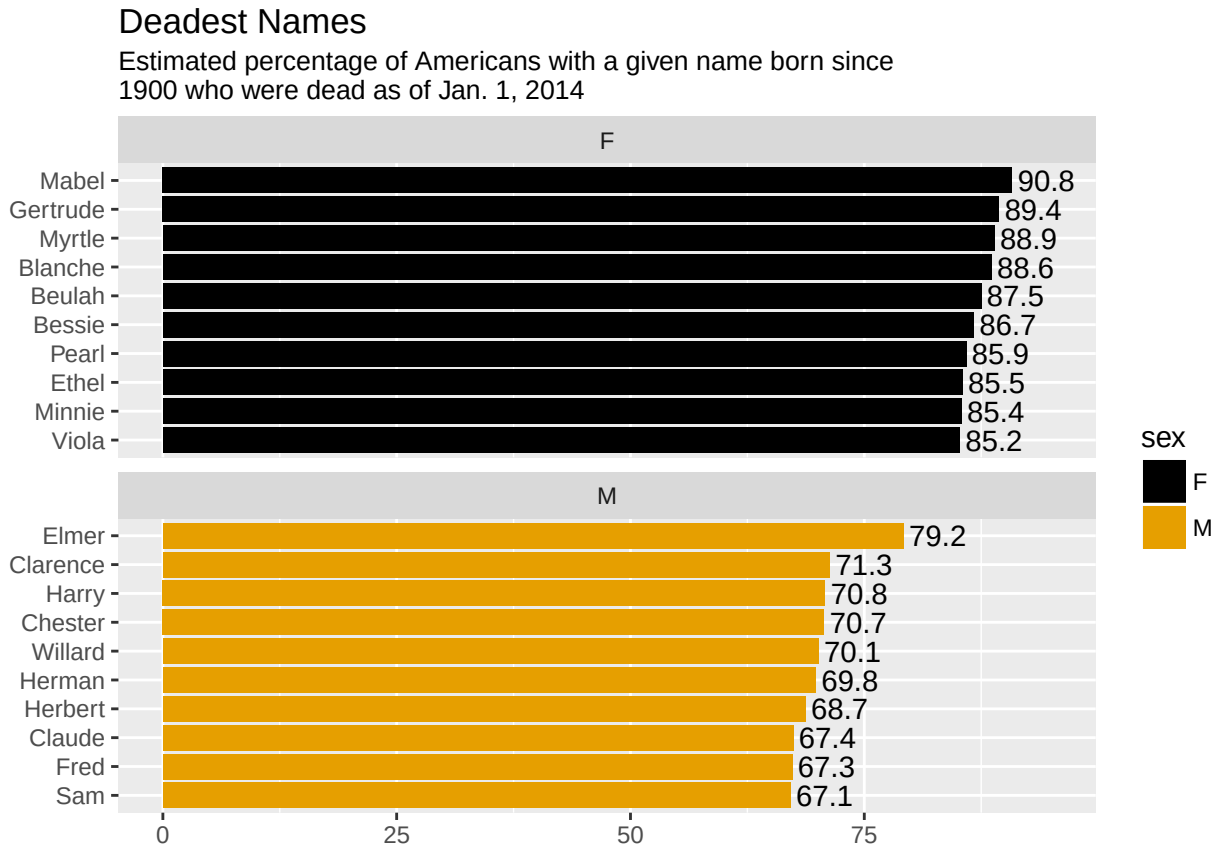
```
## Scale for 'fill' is already present. Adding another scale for 'fill',
## which will replace the existing scale.
```



A colorblind friendly palette

```
library(ggthemes)
p538 +
  scale_fill_colorblind()
```

```
## Scale for 'fill' is already present. Adding another scale for 'fill',
## which will replace the existing scale.
```



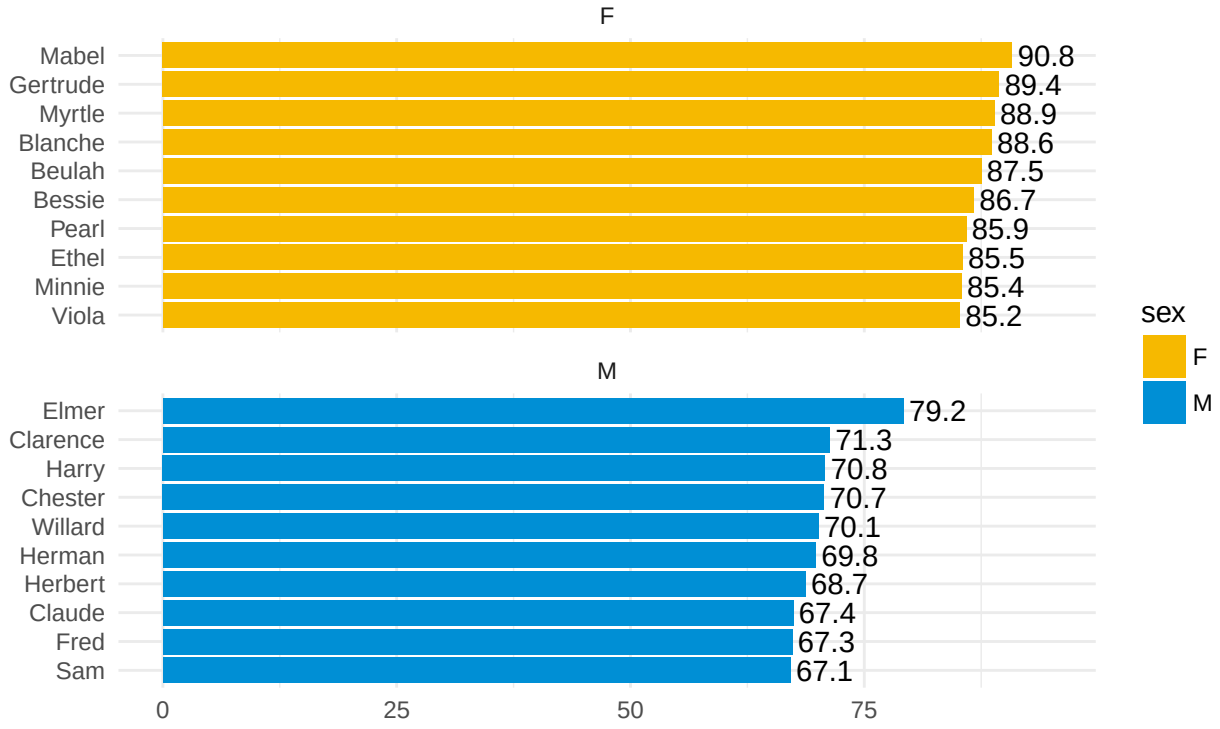
Choosing themes

By default `ggplot2` uses a grey background and guidlines on a plot; however, we don't always want our plots to appear this way. To change this the appearance, we need to work with themes.

The `ggthemes` package offers many additional choices.

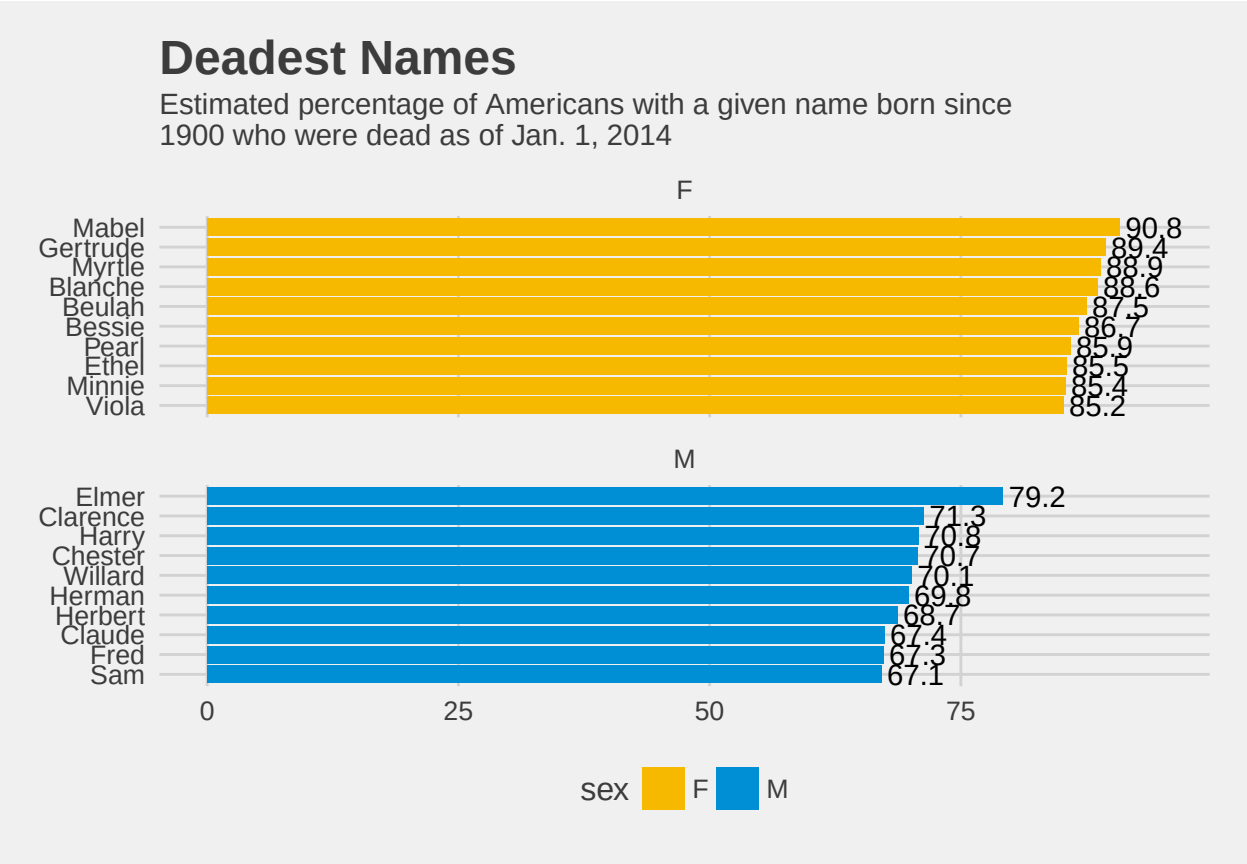
Remember, a new theme is added just like a layer.

```
p538 +
  theme_minimal()
```



What other themes could we try?

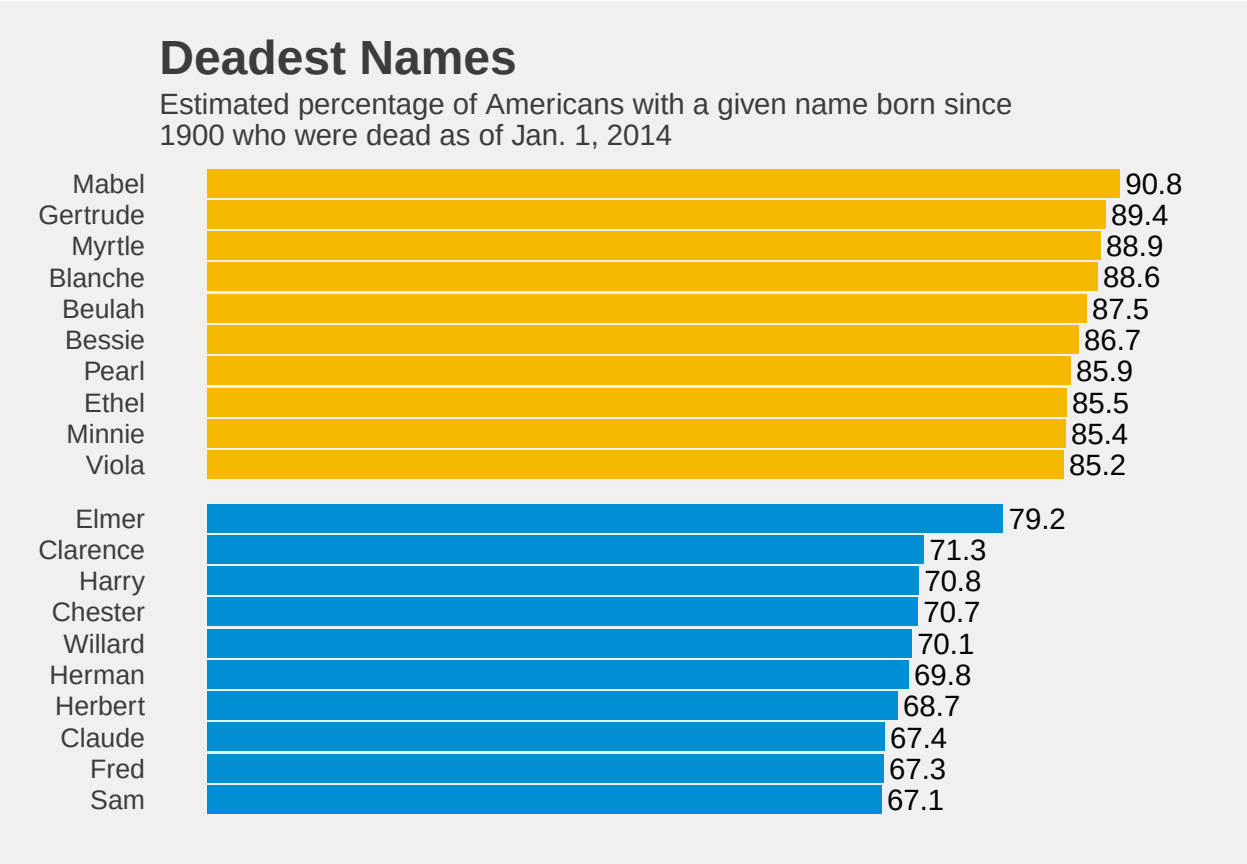
```
p538 +
  theme_fivethirtyeight()
```



Customizing themes

The `theme()` function allows us to fine tune every aspect of our plot canvas.

```
p538 +
  theme_fivethirtyeight() +
  theme(legend.position = "none", # get rid of legend
        panel.grid = element_blank(), # get rid of grid lines
        strip.text = element_blank(),  # get rid of facet labels
        axis.text.x = element_blank() # no scale for bar length
        )
```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