Applications

Of Data Science

Visualizing in the Tidyverse

Applications of Data Science - Class 4

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Welcome to `ggplot2`

Heavily inspired by datascienceinabox.org / @minebocek

`ggplot()`

- **ggplot2** is tidyverse's data visualization package
- The `gg` in "ggplot2" stands for Grammar of Graphics
- It is inspired by the book Grammar of Graphics by Leland Wilkinson
- A grammar of graphics is a tool that enables us to concisely describe the components of a graphic

Remember the Force, Luke!

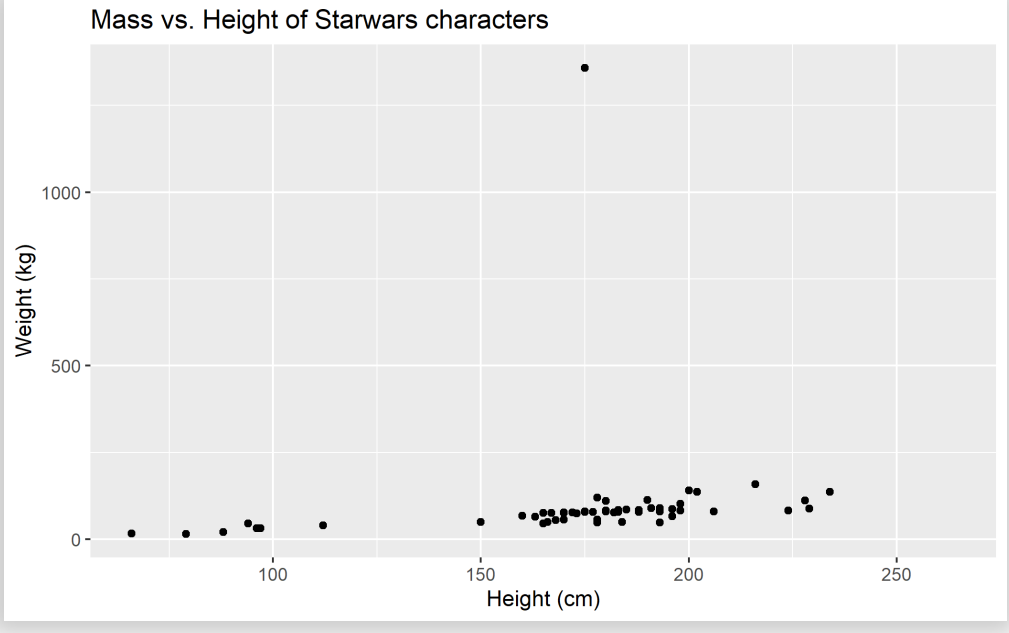
```
sw_tables <- read_rds("../data/sw_tables.rds")
characters <- sw_tables$characters
planets <- sw_tables$planets
films <- sw_tables$films

glimpse(characters)
```

```
## Rows: 173
## Columns: 14
## $ character_id <int> 1, 1, 1, 1, 1, 2, 2, 2, 2, 2, 2, 3, 3, 3, 3, 3, 3,
## $ name         <chr> "Luke Skywalker", "Luke Skywalker", "Luke Skywalker
## $ gender       <chr> "male", "male", "male", "male", "male", NA, NA, NA,
## $ homeworld_id <dbl> 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 8, 8, 8, 8, 8, 8,
## $ height       <dbl> 172, 172, 172, 172, 172, 167, 167, 167, 167, 167, 1
## $ mass         <dbl> 77, 77, 77, 77, 77, 75, 75, 75, 75, 75, 75, 32, 32,
## $ hair_color   <chr> "blond", "blond", "blond", "blond", "blond", NA, NA
## $ skin_color   <chr> "fair", "fair", "fair", "fair", "fair", "gold", "go
## $ eye_color    <chr> "blue", "blue", "blue", "blue", "blue", "yellow", "
## $ birth_year   <dbl> 19.0, 19.0, 19.0, 19.0, 19.0, 112.0, 112.0, 112.0,
## $ film_id      <dbl> 1, 2, 3, 6, 7, 1, 2, 3, 4, 5, 6, 1, 2, 3, 4, 5, 6,
## $ species      <list> ["http://swapi.co/api/species/1/", "http://swapi.c
## $ vehicles     <list> [<"http://swapi.co/api/vehicles/14/", "http://swap
## $ starships    <list> [<"http://swapi.co/api/starships/12/", "http://swa
```

What are the functions doing the plotting? What is the dataset being plotted? Which variable is on the x-axis and which variable is on the y-axis? What does the warning mean?

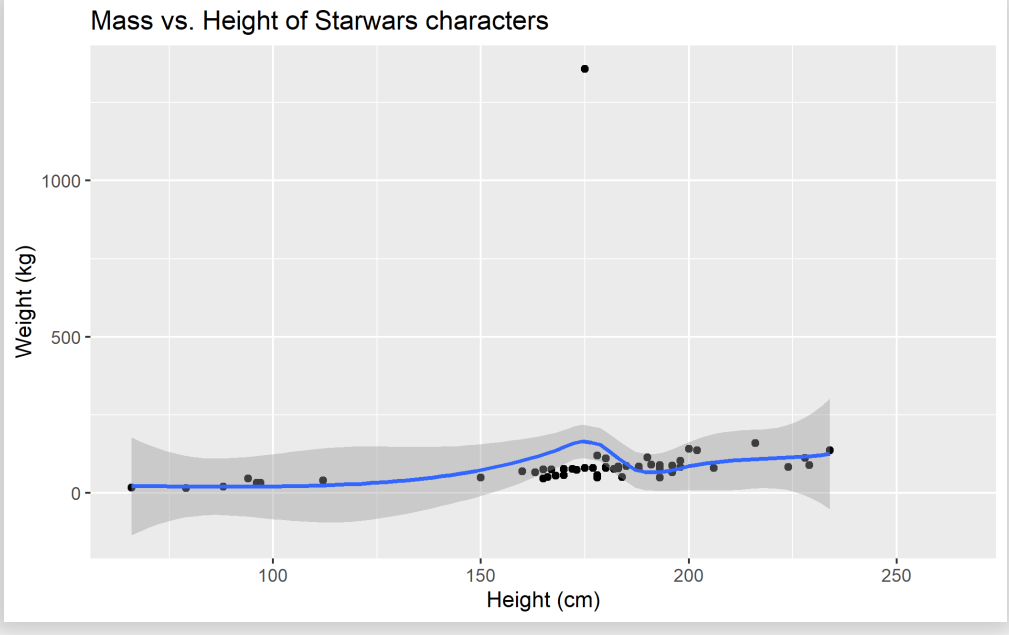
```
ggplot(data = characters, mapping = aes(x = height, y = mass)) +
  geom_point() +
  labs(title = "Mass vs. Height of Starwars characters",
       x = "Height (cm)", y = "Weight (kg)")
```

```
## Warning: Removed 36 rows containing missing values (geom_point).
```



What does `geom_smooth()` do? What else changed between the previous plot and this one?

```
ggplot(data = characters, mapping = aes(x = height, y = mass)) +
  geom_point() +
  geom_smooth() +
  labs(title = "Mass vs. Height of Starwars characters",
       x = "Height (cm)", y = "Weight (kg)")
```



Who dis!

- `ggplot()` is the main function in ggplot2 and plots are constructed in layers
- The structure of the code for plots can often be summarized as

```
ggplot +
  geom_xxx
```

or, more precisely

```
ggplot(data = [dataset], mapping = aes(x = [x-variable], y = [y-va
   geom_xxx() +
   other options
```

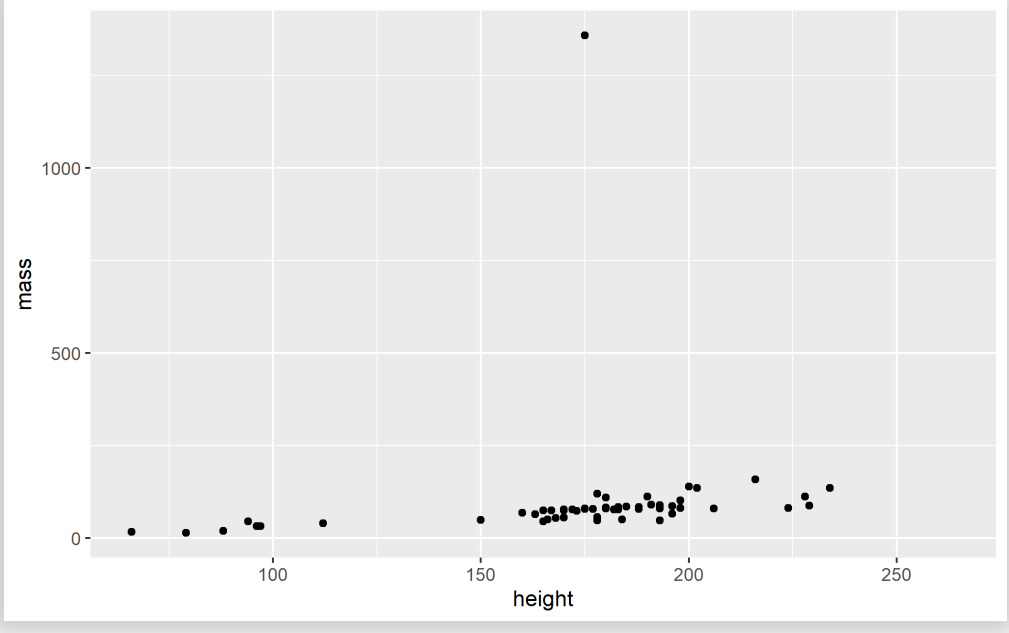
- To use ggplot2 functions, first load tidyverse

```
library(tidyverse)
```

- For help with the ggplot2, see ggplot2.tidyverse.org

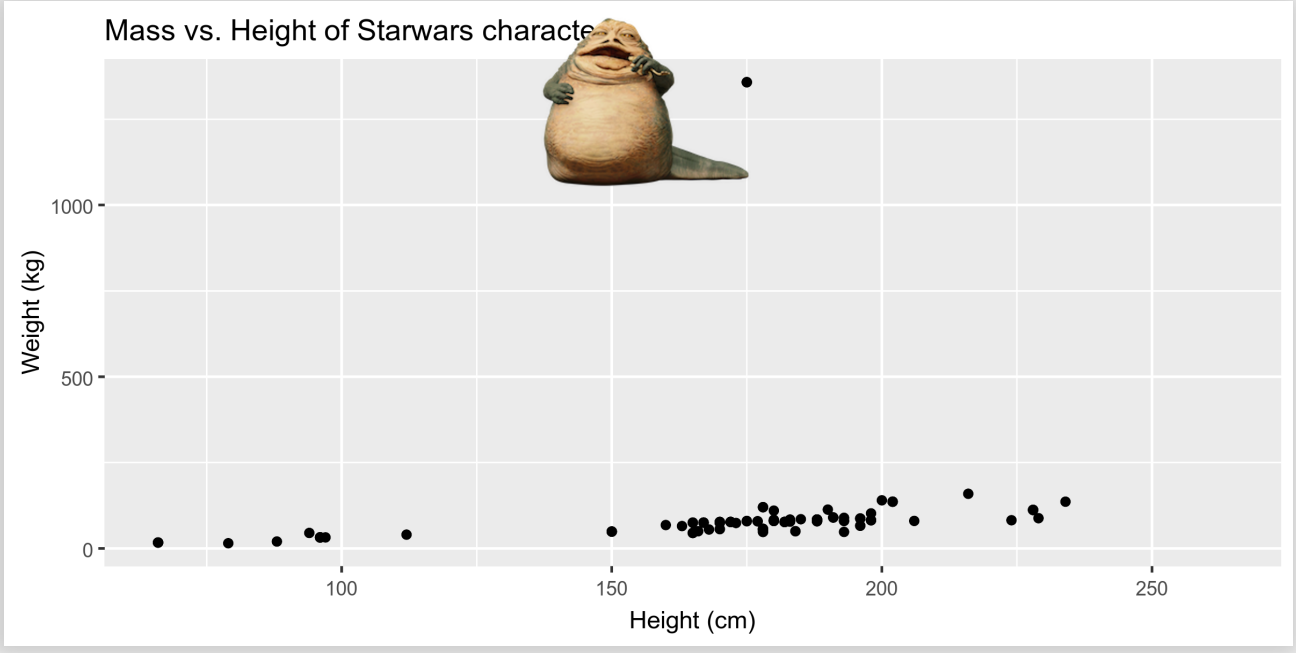
Mass vs. Height

```
ggplot(characters, aes(height, mass)) + geom_point()
```

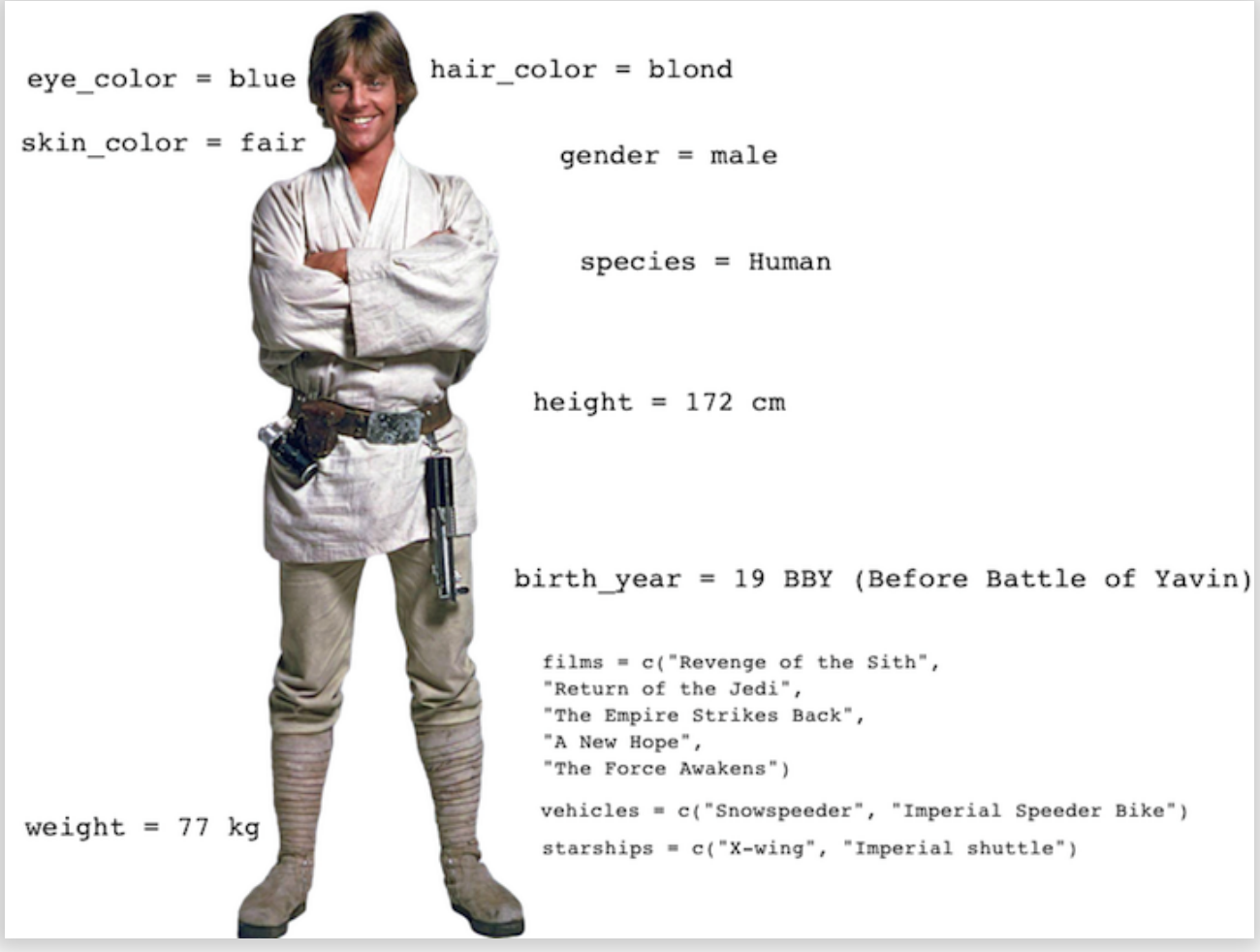


How would you describe this relationship? What other variables would help us understand data points that don't follow the overall trend? Who is the not so tall but really chubby character?

Jabba!


Mass vs. Height of Starwars characte
Weight (kg)
1000
500
0
100
150
200
250
Height (cm)

But seriously, Luke



Additional variables

We can map additional variables to various features of the plot:

- aesthetics
  - shape
  - colour
  - size
  - alpha (transparency)
- faceting: small multiples displaying different subsets

Aesthetics

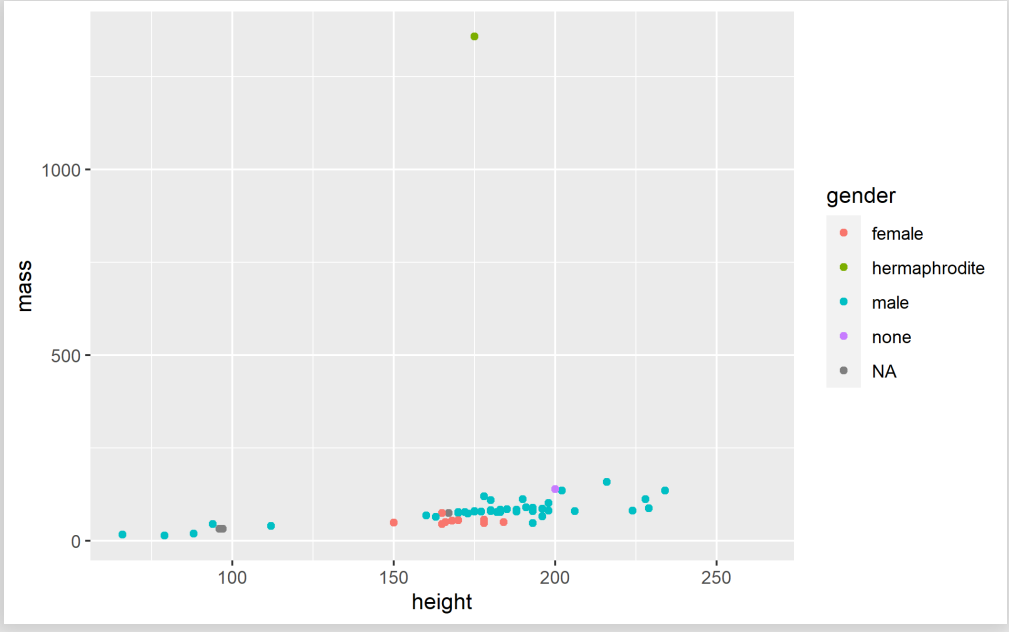
Aesthetics options

Visual characteristics of plotting characters that can be **mapped to a specific variable** in the data are

- `color`
- `fill`
- `size`
- `shape`
- `alpha` (transparency)

Mass vs. Height + Gender

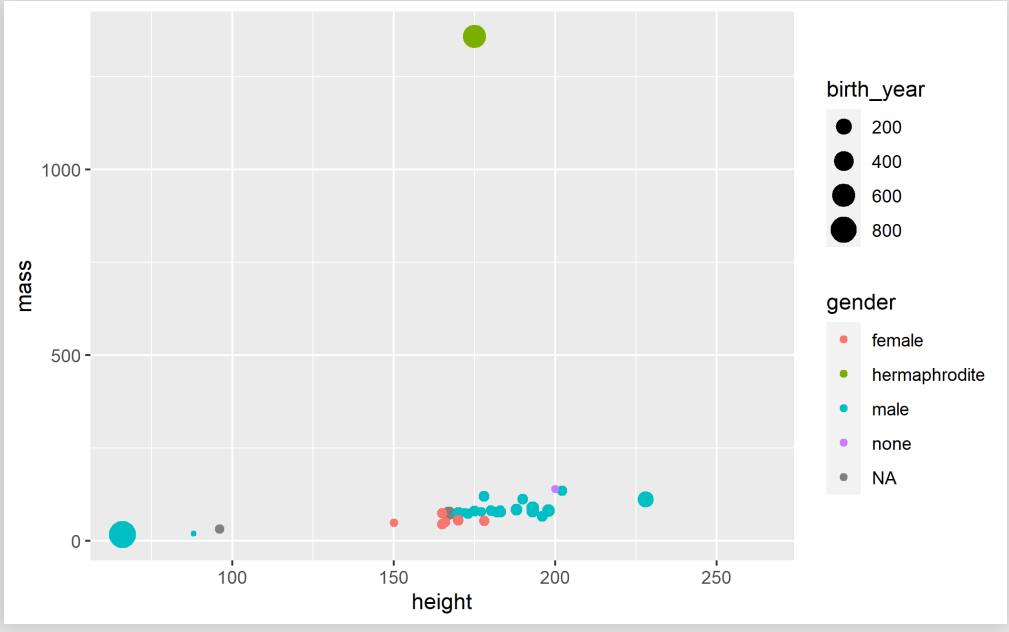
```
ggplot(data = characters,
       mapping = aes(x = height, y = mass, color = gender)) +
  geom_point()
```



Mass vs. Height + Gender + Birth Year

Let's map the size to `birth_year`:

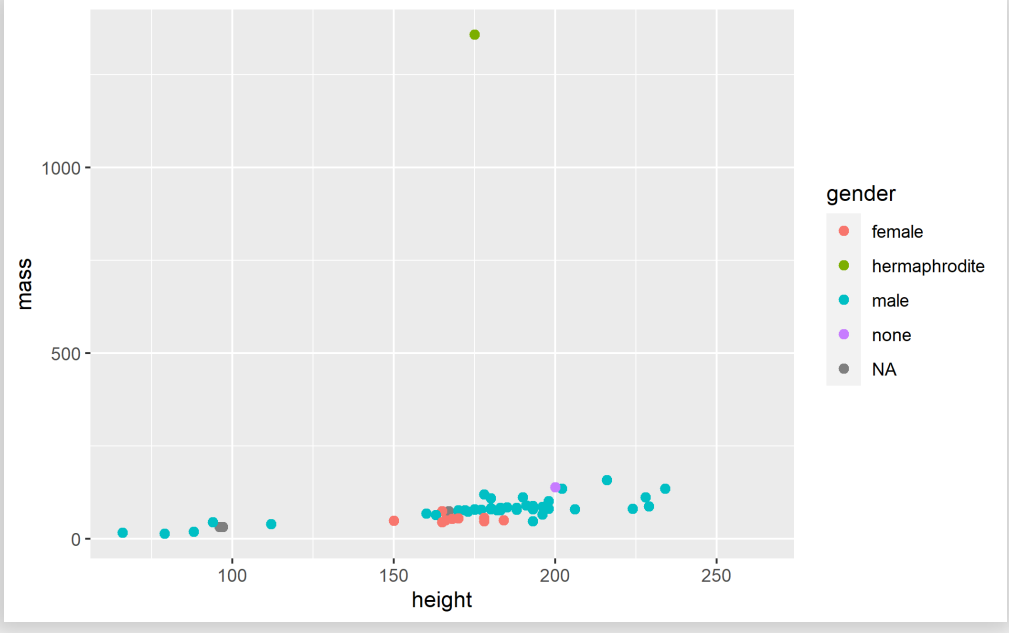
```
ggplot(data = characters,
       mapping = aes(x = height, y = mass, color = gender,
                     size = birth_year)) +
  geom_point()
```



Mass vs. Height + Gender

Let's now increase the size of all points **not** based on the values of a variable in the data:

```
ggplot(data = characters,
       mapping = aes(x = height, y = mass, color = gender)) +
  geom_point(size = 2)
```



Aesthetics Summary

- Continuous variable are measured on a continuous scale
- Discrete variables are measured (or often counted) on a discrete scale

aesthetics	discrete	continuous
color	rainbow of colors	gradient
size	discrete steps	linear mapping between radius and value
shape	different shape for each	shouldn't (and doesn't) work

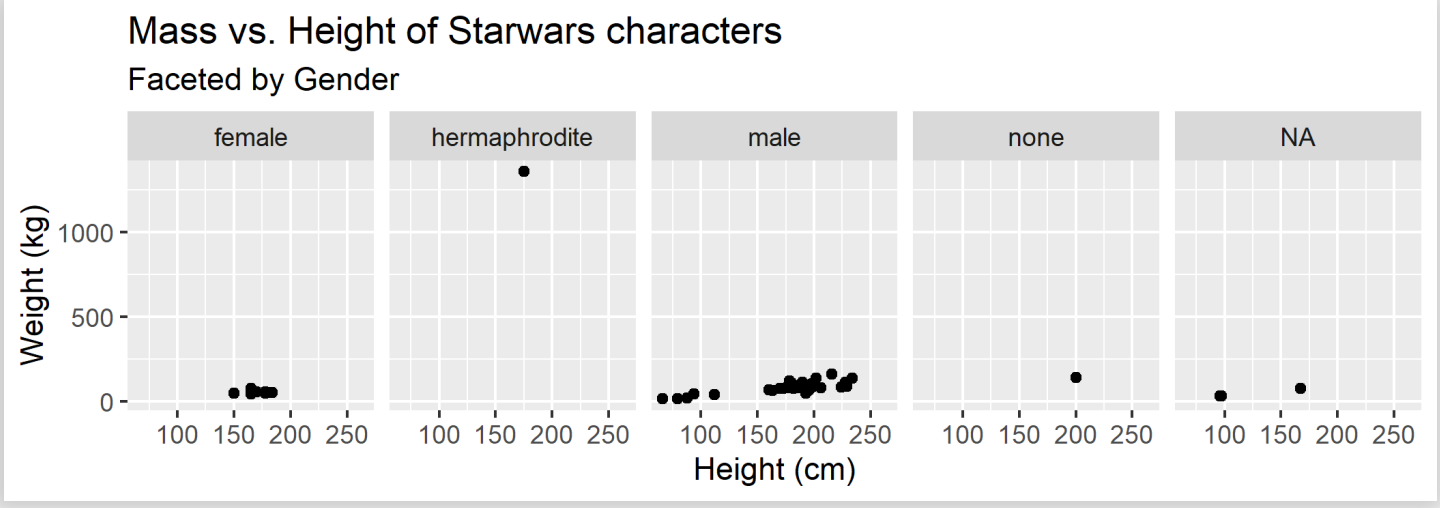
- Use aesthetics for mapping features of a plot to a variable, define the features in the geom for customization **not** mapped to a variable

Faceting

Faceting options

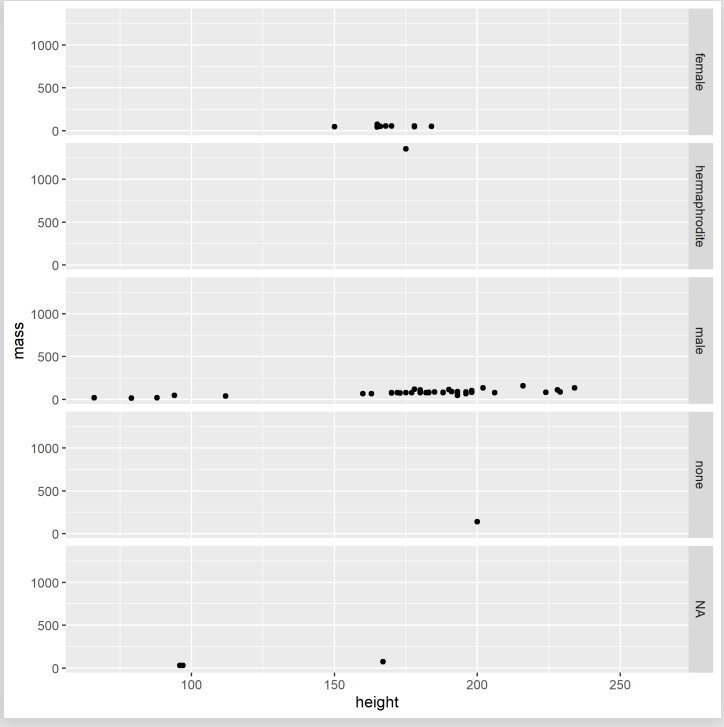
- Smaller plots that display different subsets of the data
- Useful for exploring conditional relationships and large data

```
ggplot(data = characters, mapping = aes(x = height, y = mass)) +
  facet_grid(. ~ gender) +
  geom_point() +
  labs(title = "Mass vs. Height of Starwars characters",
       subtitle = "Faceted by Gender",
       x = "Height (cm)", y = "Weight (kg)")
```

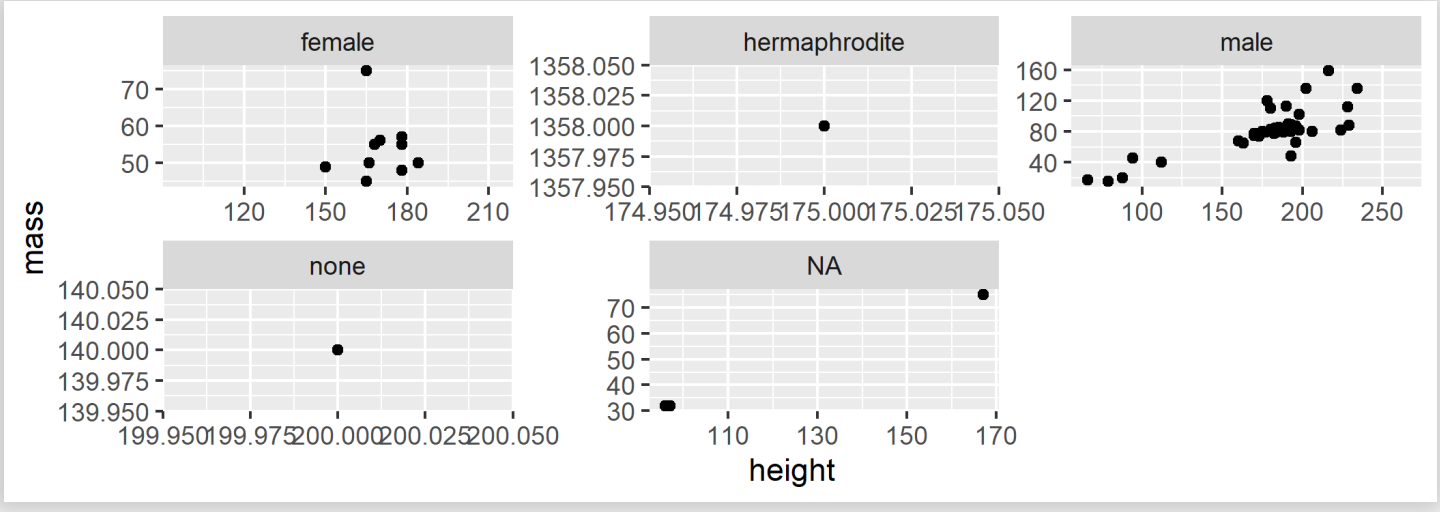


Many ways to facet

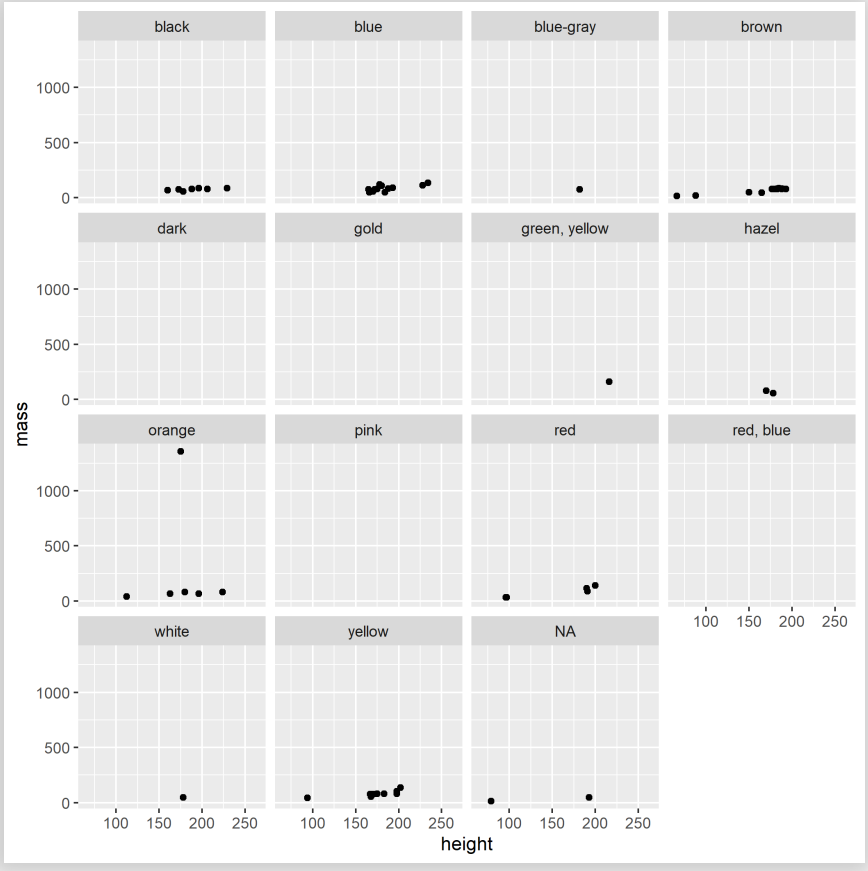
```
ggplot(data = characters, mapping = aes(x = height, y = mass)) +
  geom_point() +
  facet_grid(gender ~ .)
```



```
ggplot(data = characters, mapping = aes(x = height, y = mass)) +
  geom_point() +
  facet_wrap(. ~ gender, scales = "free")
```



```
ggplot(data = characters, mapping = aes(x = height, y = mass)) +
  geom_point() +
  facet_wrap(~ eye_color)
```



Facet summary

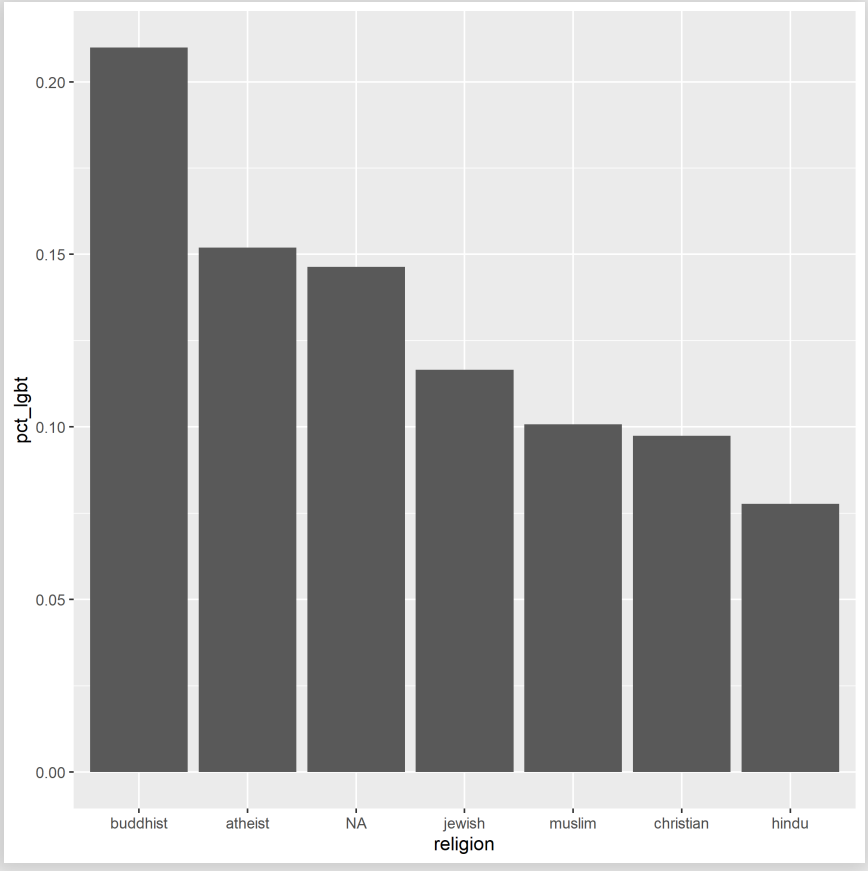
- `facet_grid()`:
  - 2d grid
  - `rows ~ cols`
  - use `.` for no split
- `facet_wrap()`: 1d ribbon wrapped into 2d

Take Control

```
okcupid_lgbt_relig <- okcupid %>%
  group_by(religion2) %>%
  summarise(pct_lgbt = mean(orientation %in% c("gay", "bisexual"))
  mutate(religion = fct_reorder(religion2, desc(pct_lgbt)))

okcupid_lgbt_relig
```

```
## # A tibble: 7 x 3
##   religion2 pct_lgbt religion
##   <chr>        <dbl> <fct>
## 1 atheist     0.152  atheist
## 2 buddhist    0.210  buddhist
## 3 christian   0.0974 christian
## 4 hindu       0.0778 hindu
## 5 jewish      0.117  jewish
## 6 muslim      0.101  muslim
## 7 NA          0.146  NA
```

```
okcupid_lgbt_relig %>%
  ggplot(aes(religion, pct_lgbt)) +
  geom_bar(stat="identity")
```

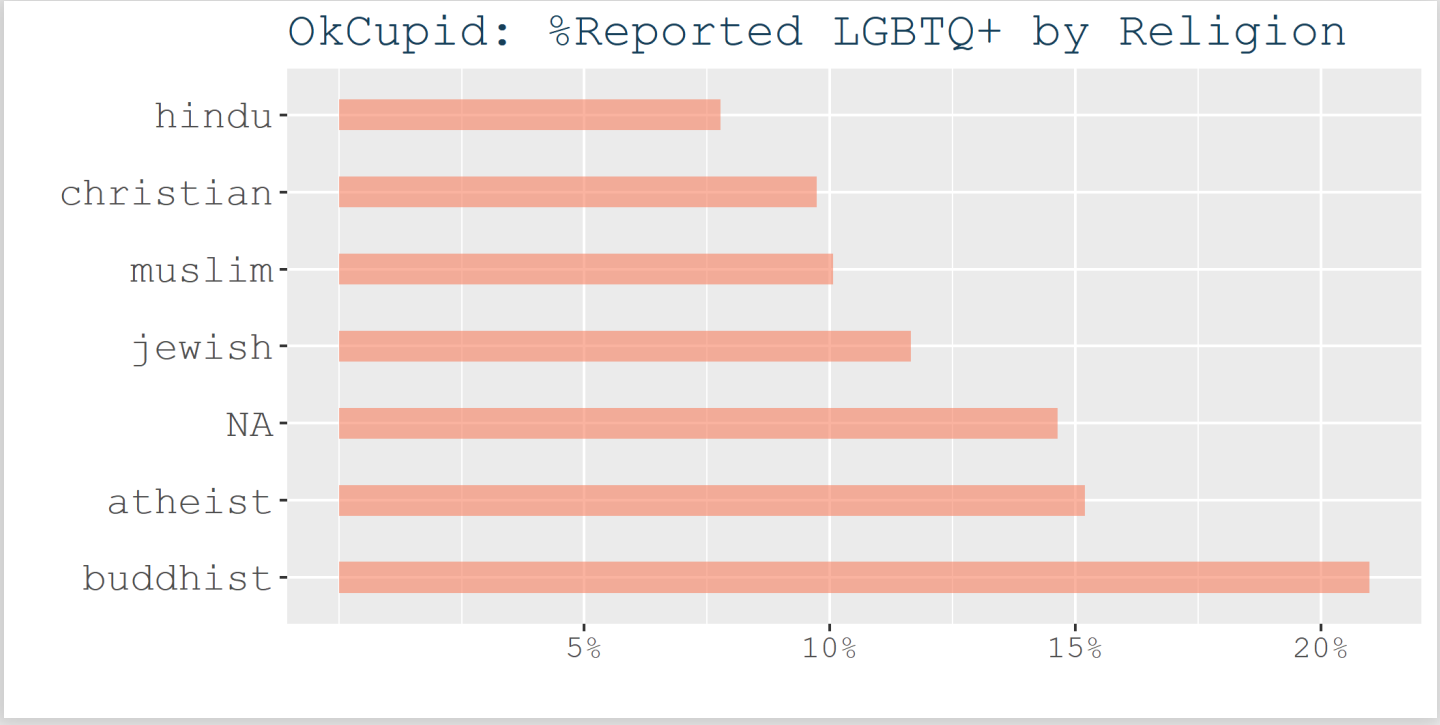


Meh.

Pimp my plot

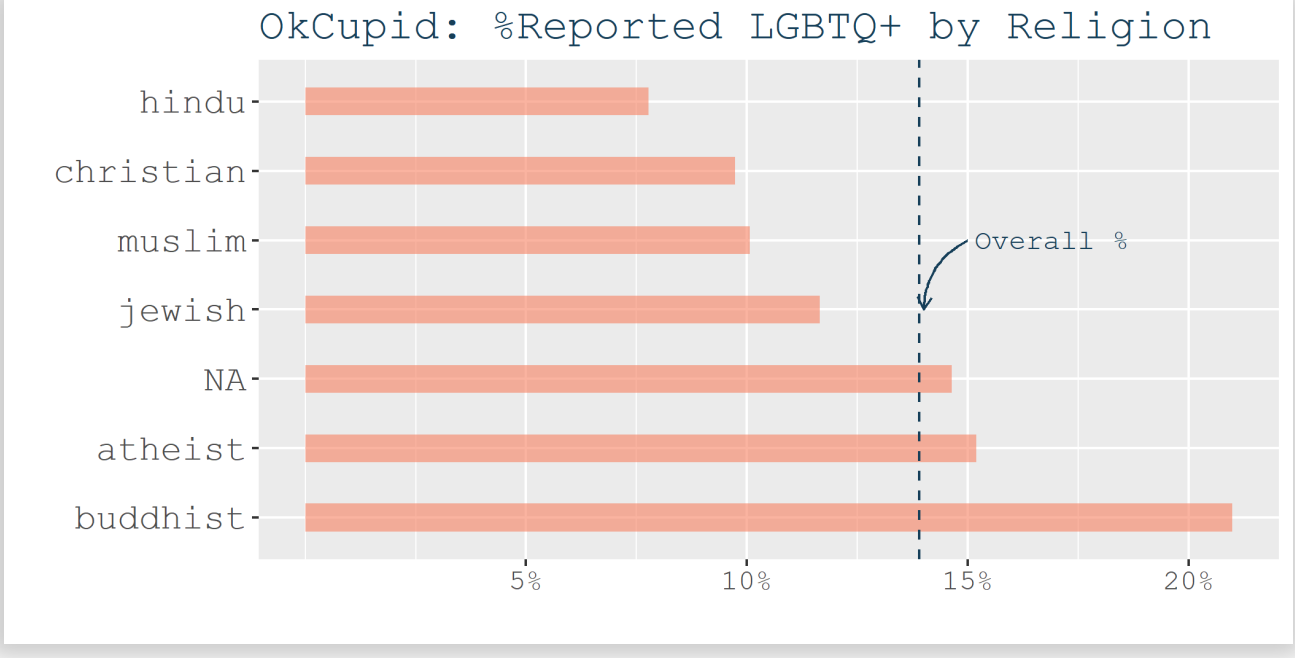
```
p <- ggplot(okcupid_lgbt_relig, aes(religion, pct_lgbt)) +
  geom_bar(stat="identity", fill="#f68060", alpha=.6, width=.4) +
  labs(x = "", y = "",
       title = "OkCupid: %Reported LGBTQ+ by Religion") +
  theme(text = element_text(size = 14, color = "#163f59", family =
        axis.text.y = element_text(size = 14)) +
  scale_y_continuous(breaks = seq(0.05, 0.2, 0.05),
                     labels=scales::percent_format(accuracy = 1))
  coord_flip()
p
```

Pimp my plot


OkCupid: %Reported LGBTQ+ by Religion
hindu
christian
muslim
jewish
NA
atheist
buddhist
5%
10%
15%
20%

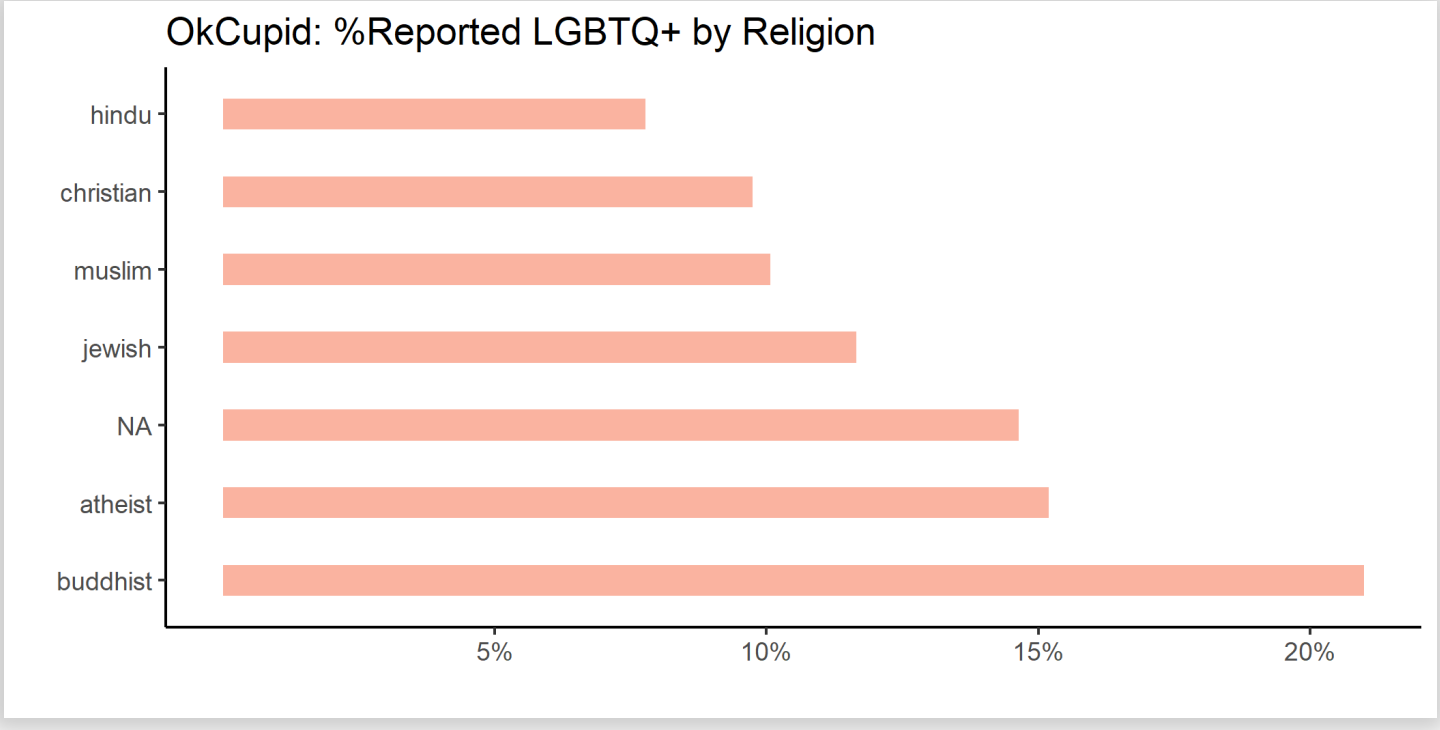
Annotate, Add lines

```
p + geom_hline(yintercept = 0.139, lty = 2, color = "#163f59") +
  annotate("text", x = 5, y = 0.139 + 0.03, label = "Overall %",
           color = "#163f59", family = "mono") +
  annotate(geom = "curve", x = 5, y = 0.15, xend = 4, yend = 0.13
    curvature = .3, arrow = arrow(length = unit(2, "mm")), color =
```

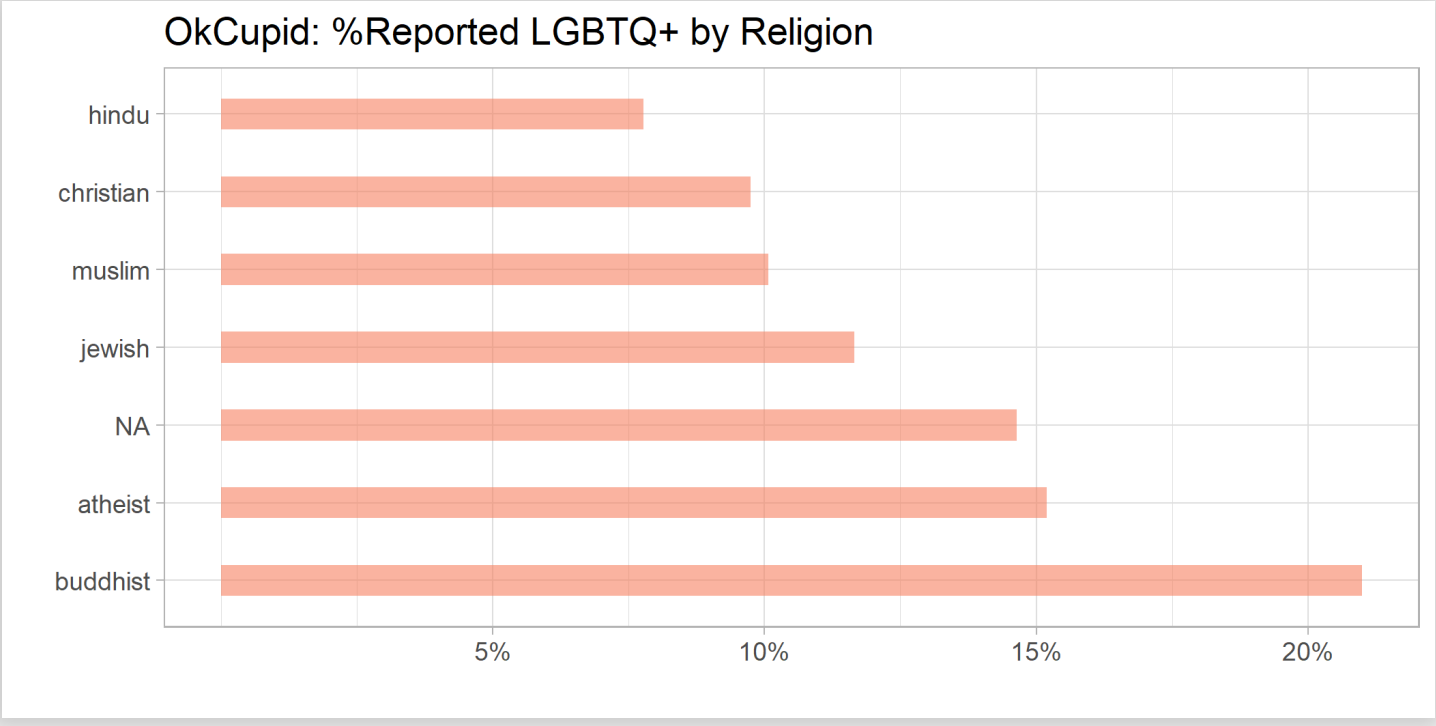


Themes

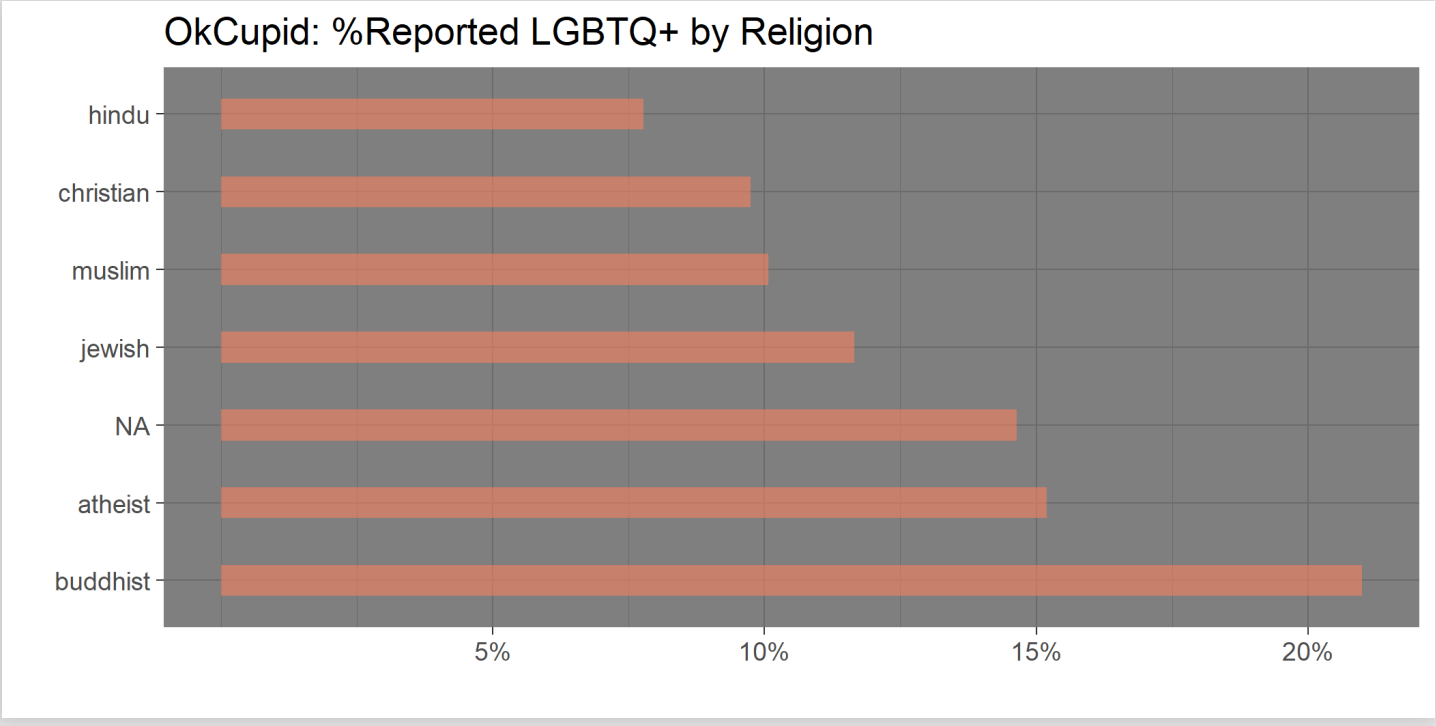
```
p + theme_classic()
```



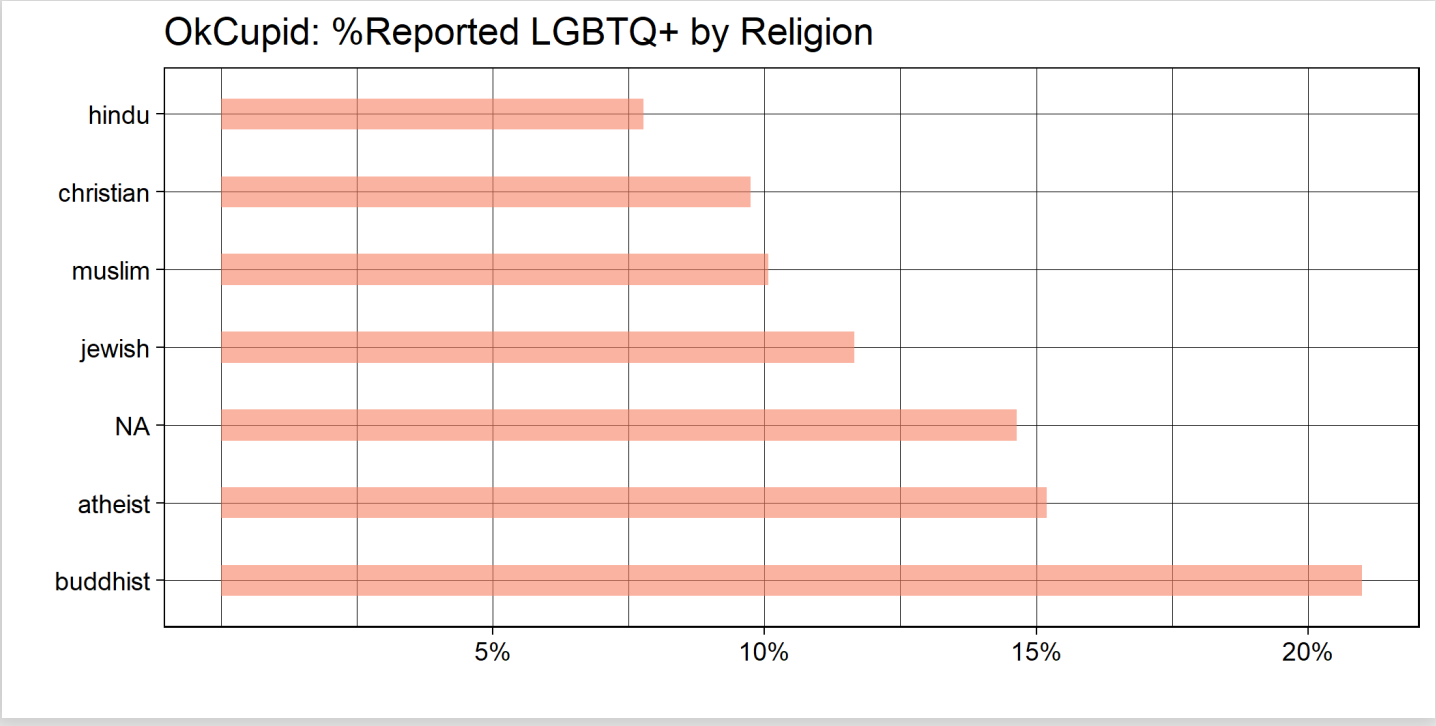
```
p + theme_light()
```



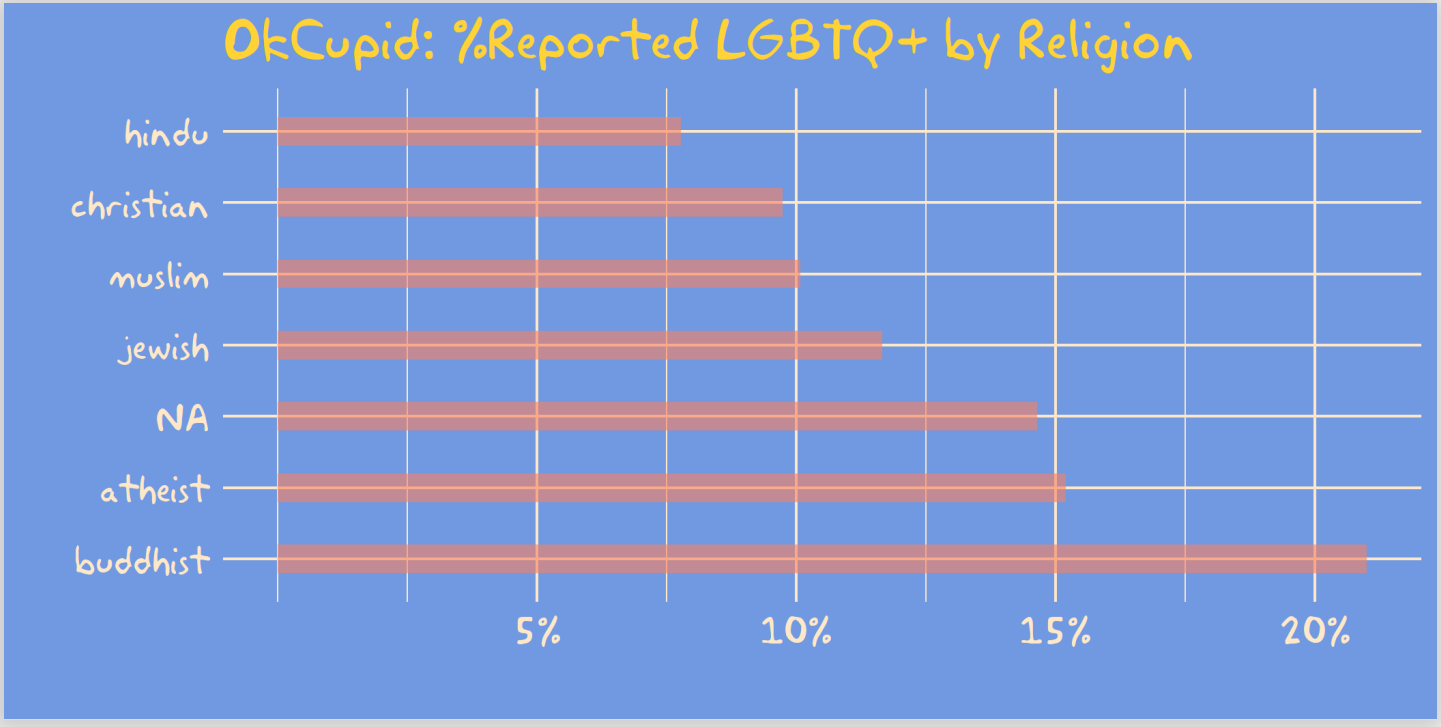
```
p + theme_dark()
```


OkCupid: %Reported LGBTQ+ by Religion
hindu
christian
muslim
jewish
NA
atheist
buddhist
5%
10%
15%
20%

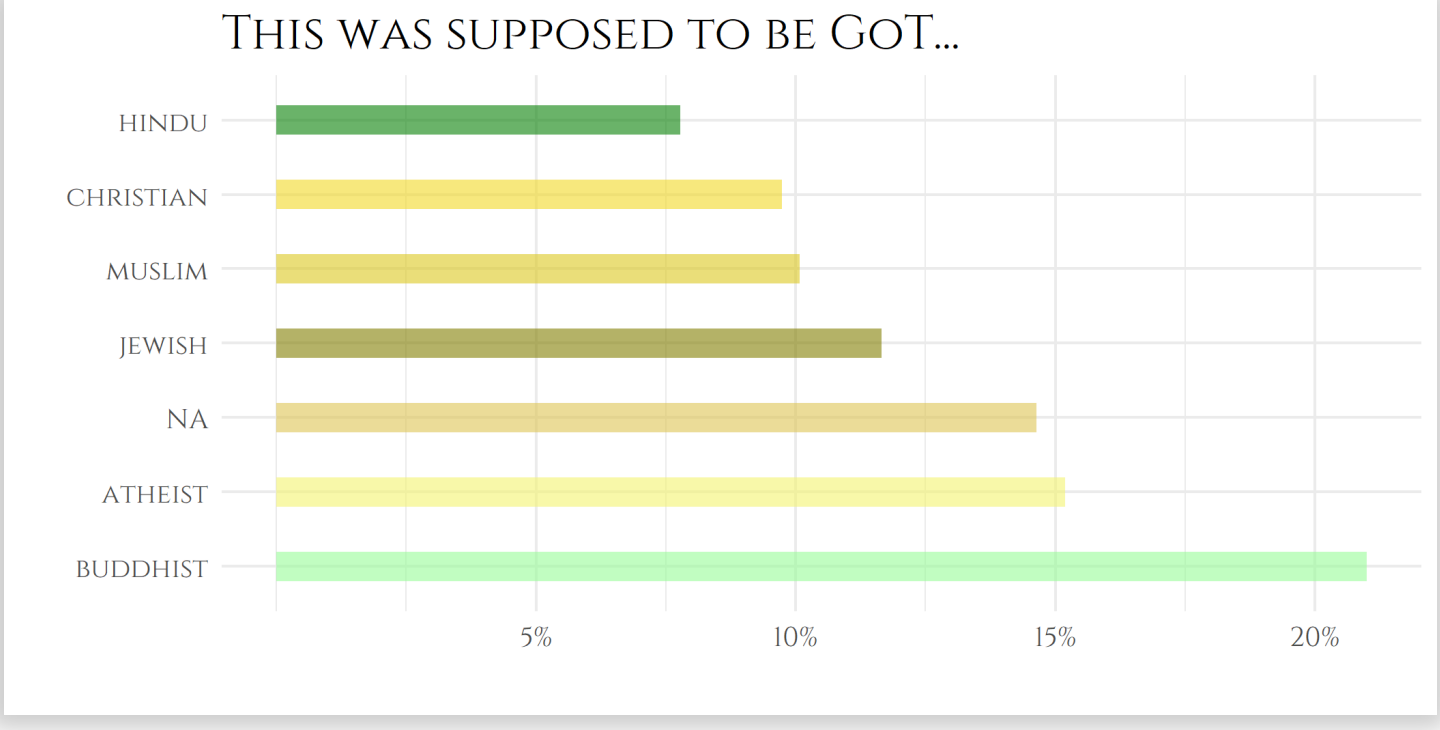
```
p + theme_linedraw()
```



```r
library(tvthemes)
# import_simpsons()
extrafont::loadfonts(device="win")

p + theme_simpsons(title.font = "Akbar",
                   text.font = "Akbar",
                   axis.text.size = 12)
```



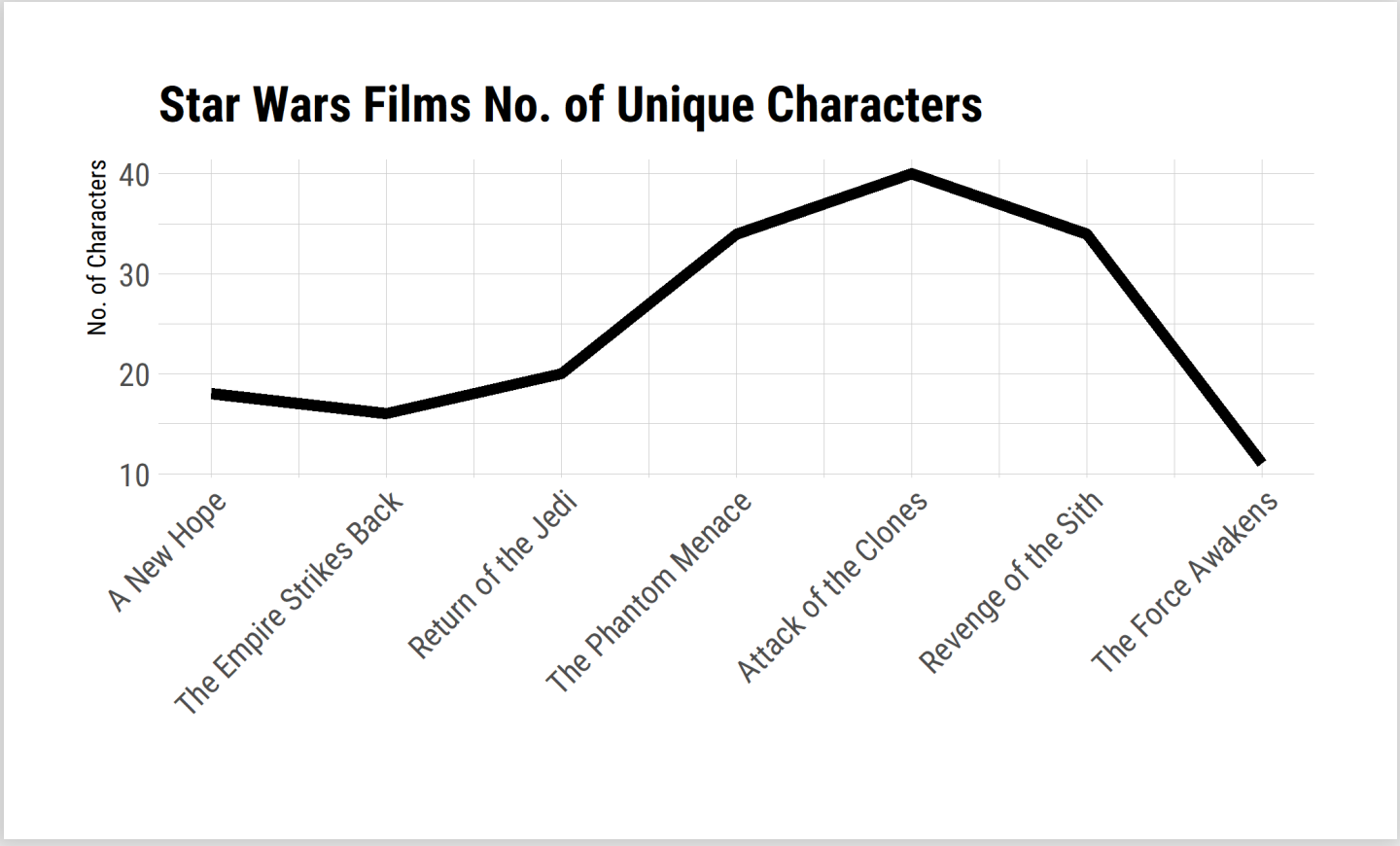
```
ggplot(okcupid_lgbt_relig, aes(religion, pct_lgbt)) +
  geom_bar(aes(fill = pct_lgbt), stat="identity", alpha=.6, width=
  labs(x = "", y = "", title = "This was supposed to be GoT...") +
  scale_y_continuous(breaks = seq(0.05, 0.2, 0.05), labels=scales:
  coord_flip() +
  scale_fill_westeros(palette = "Tyrell", type = "continuous") + t
  theme(text = element_text(family = "Cinzel", size = 12),
        title = element_text(family = "Cinzel", size = 14)) + guic
```



Common Plots à la GG

Line Plot

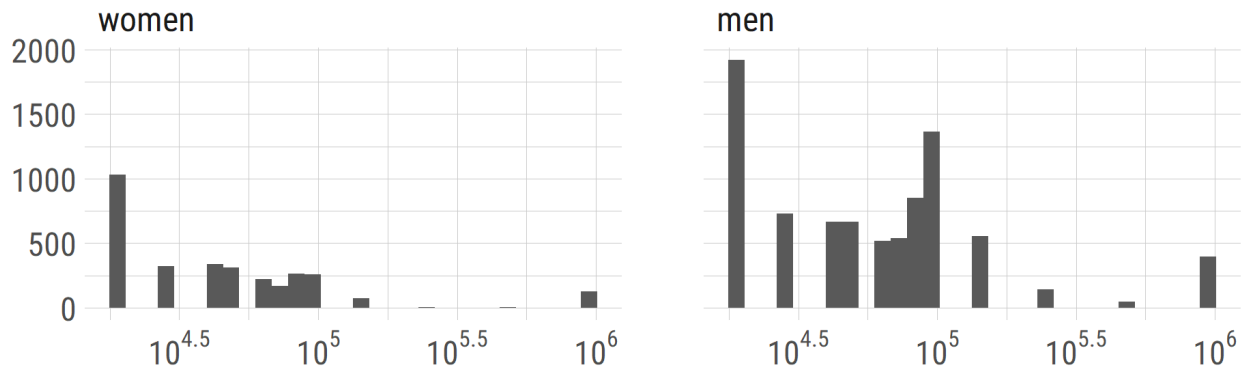
```
library(hrbrthemes)

characters %>%
  group_by(film_id) %>%
  summarise(n_char = n_distinct(character_id)) %>%
  ggplot(aes(film_id, n_char)) +
  geom_line(lwd = 2) +
  labs(x = "", y = "No. of Characters",
       title = "Star Wars Films No. of Unique Characters") +
  scale_x_continuous(breaks = 1:7, labels = films$title) +
  theme_ipsum(base_family = "Roboto Condensed") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```


Star Wars Films No. of Unique Characters
No. of Characters
40
30
20
10
A New Hope
The Empire Strikes Back
Return of the Jedi
The Phantom Menace
Attack of the Clones
Revenge of the Sith
The Force Awakens

Histogram

```
library(scales)

sex_names <- list(
  "m" = "men",
  "f" = "women"
)

sex_labeller <- function(variable, value){
  return(sex_names[value])
}

p2 <- okcupid %>%
  ggplot(aes(income)) +
  facet_wrap(. ~ sex, labeller = sex_labeller) +
  scale_x_log10(breaks = trans_breaks("log10", function(x) 10^x),
                labels = trans_format("log10", math_format(10^.x))
  labs(x = "", y = "", title = "OkCupid: Annual Income Dist. by Ge
       caption = "Income is presented as log10(Income)") +
  theme_ipsum(base_family = "Roboto Condensed")

p2 + geom_histogram()
```

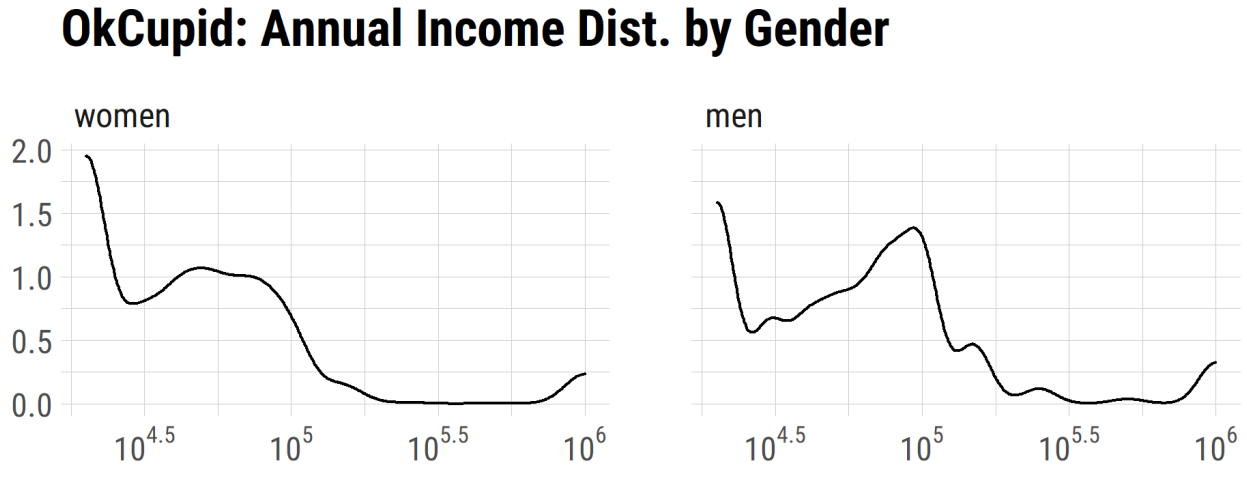
OkCupid: Annual Income Dist. by Gender



Income is presented as log10(Income)

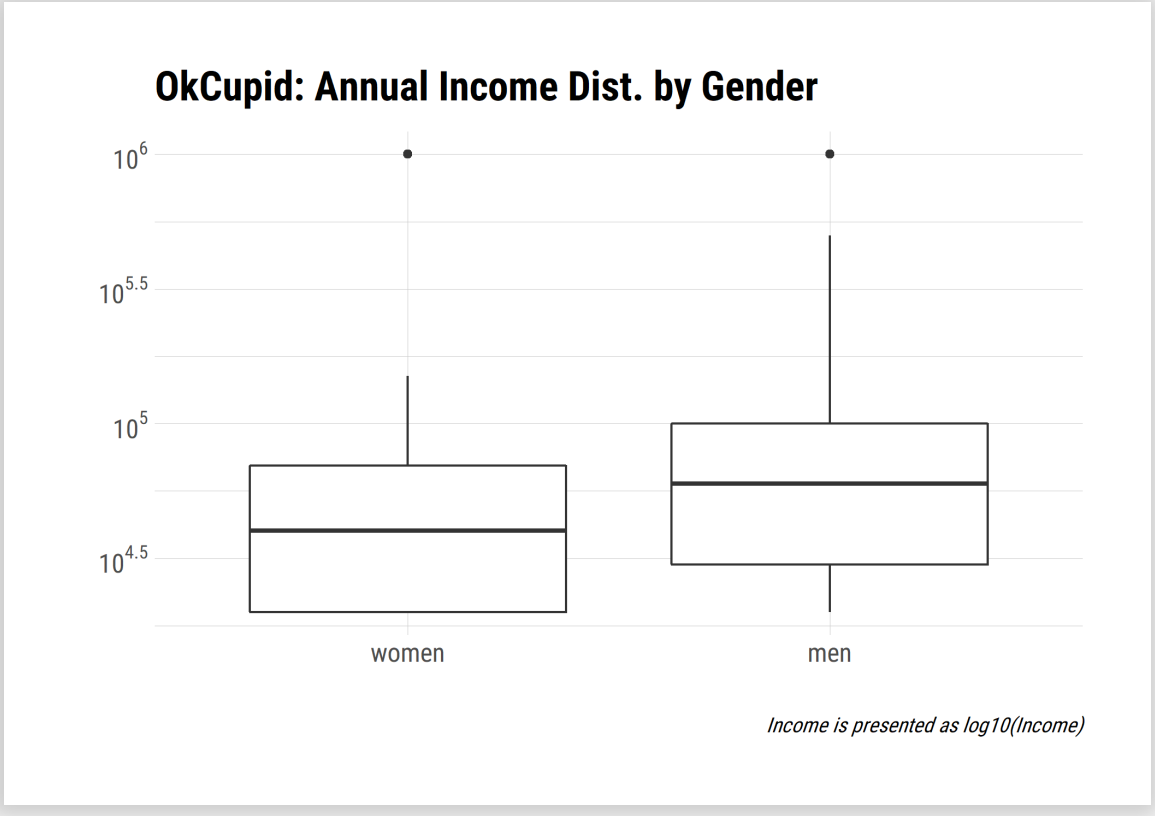
Density Plot

```
p2 + geom_density()
```



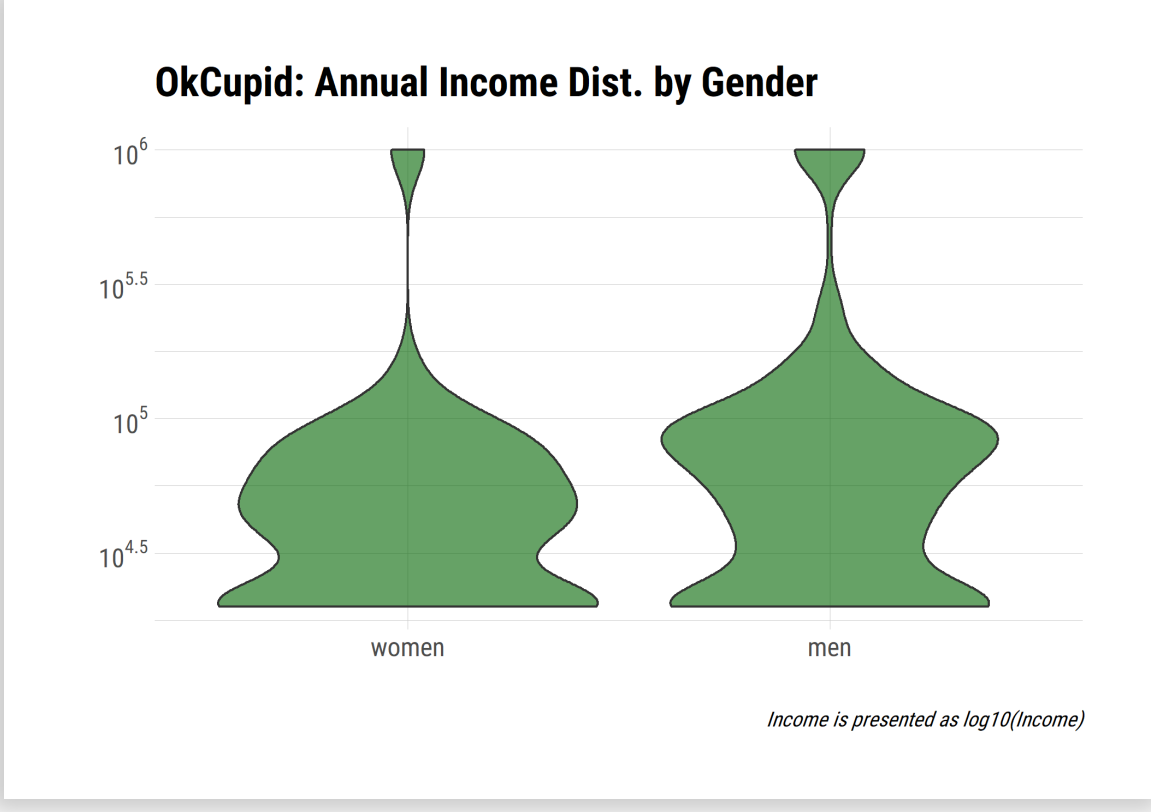
Box Plot

```
p3 <- okcupid %>%
  slice_sample(n = 5000) %>%
  ggplot(aes(sex, income)) +
  scale_y_log10(breaks = trans_breaks("log10", function(x) 10^x),
                labels = trans_format("log10", math_format(10^.x))
  labs(x = "", y = "", title = "OkCupid: Annual Income Dist. by Ge
       caption = "Income is presented as log10(Income)") +
  scale_x_discrete(labels = c("women", "men")) +
  theme_ipsum(base_family = "Roboto Condensed")

p3 + geom_boxplot()
```


OkCupid: Annual Income Dist. by Gender
10^6
$10^{5.5}$
10^5
$10^{4.5}$
women
men
Income is presented as log10(Income)

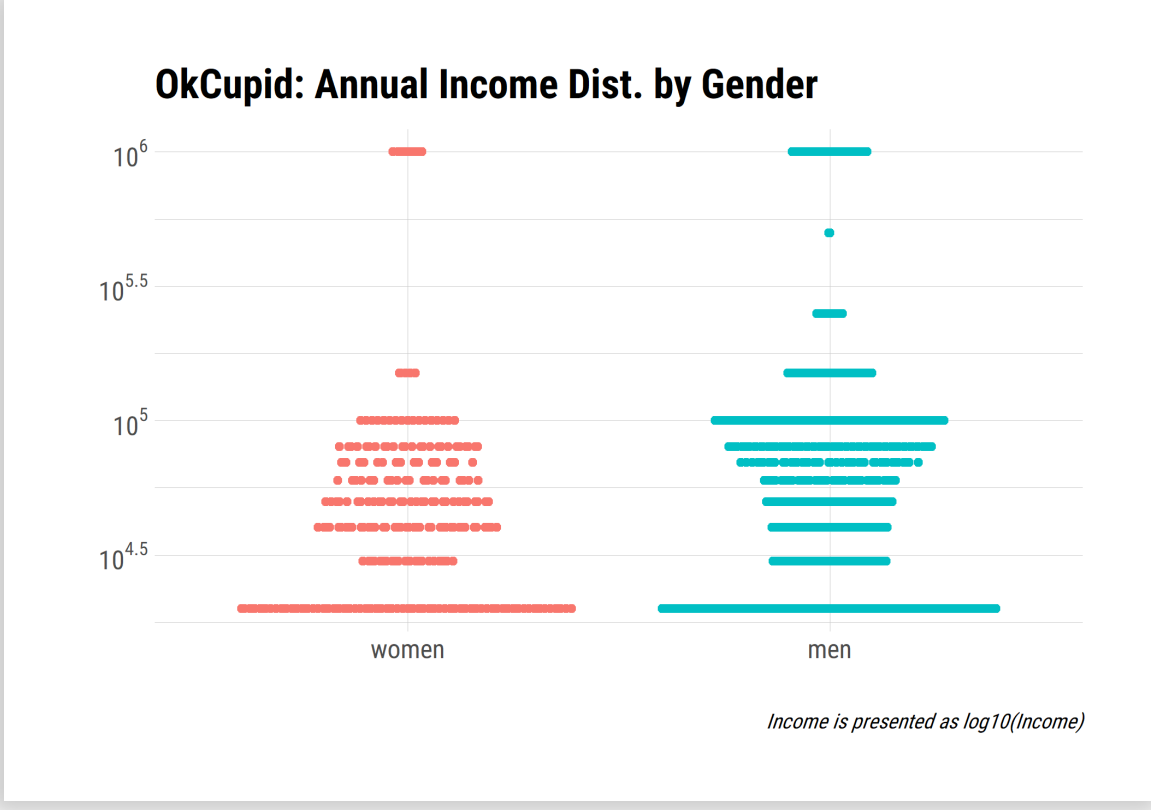
Violin Plot

```
p3 + geom_violin(fill = "darkgreen", alpha = 0.6)
```



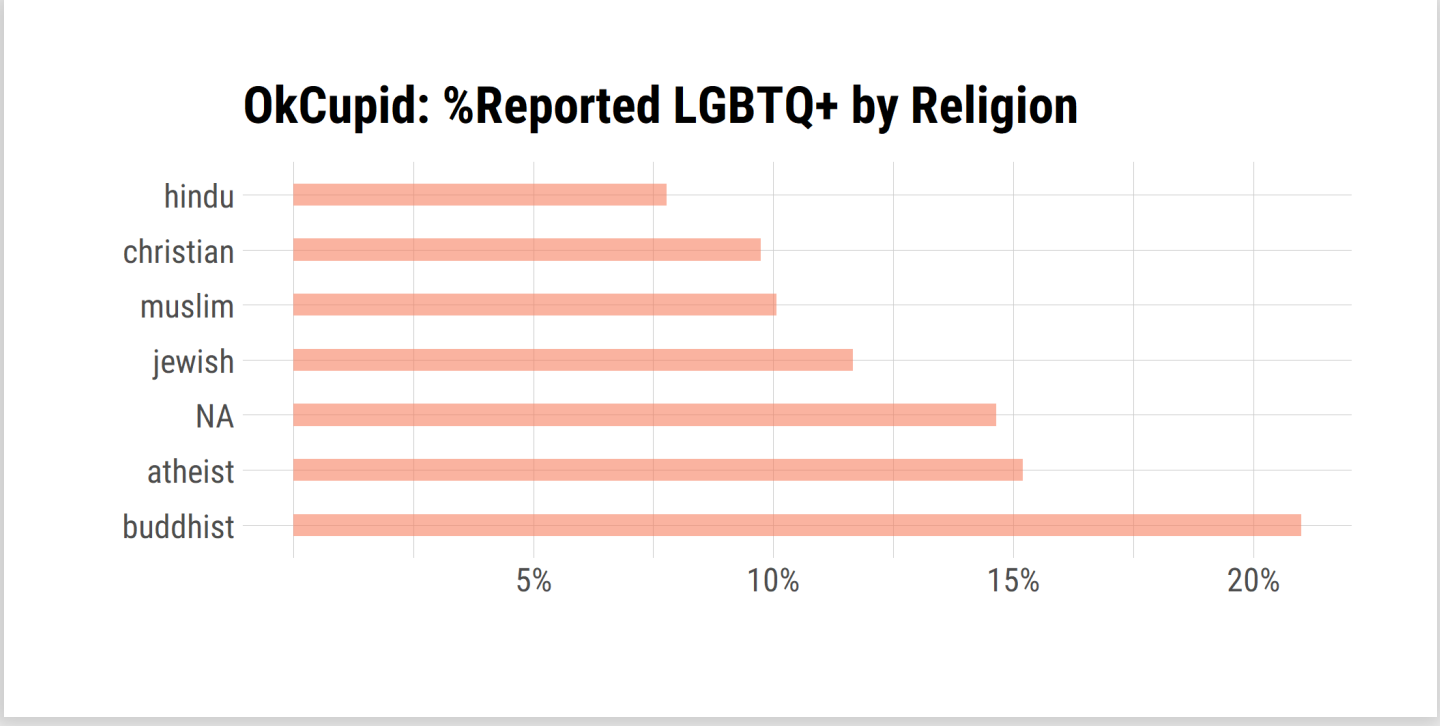
Swarm Plot

```
p3 + ggbeeswarm::geom_quasirandom(aes(color = sex)) + guides(colo
```



Bar Plot

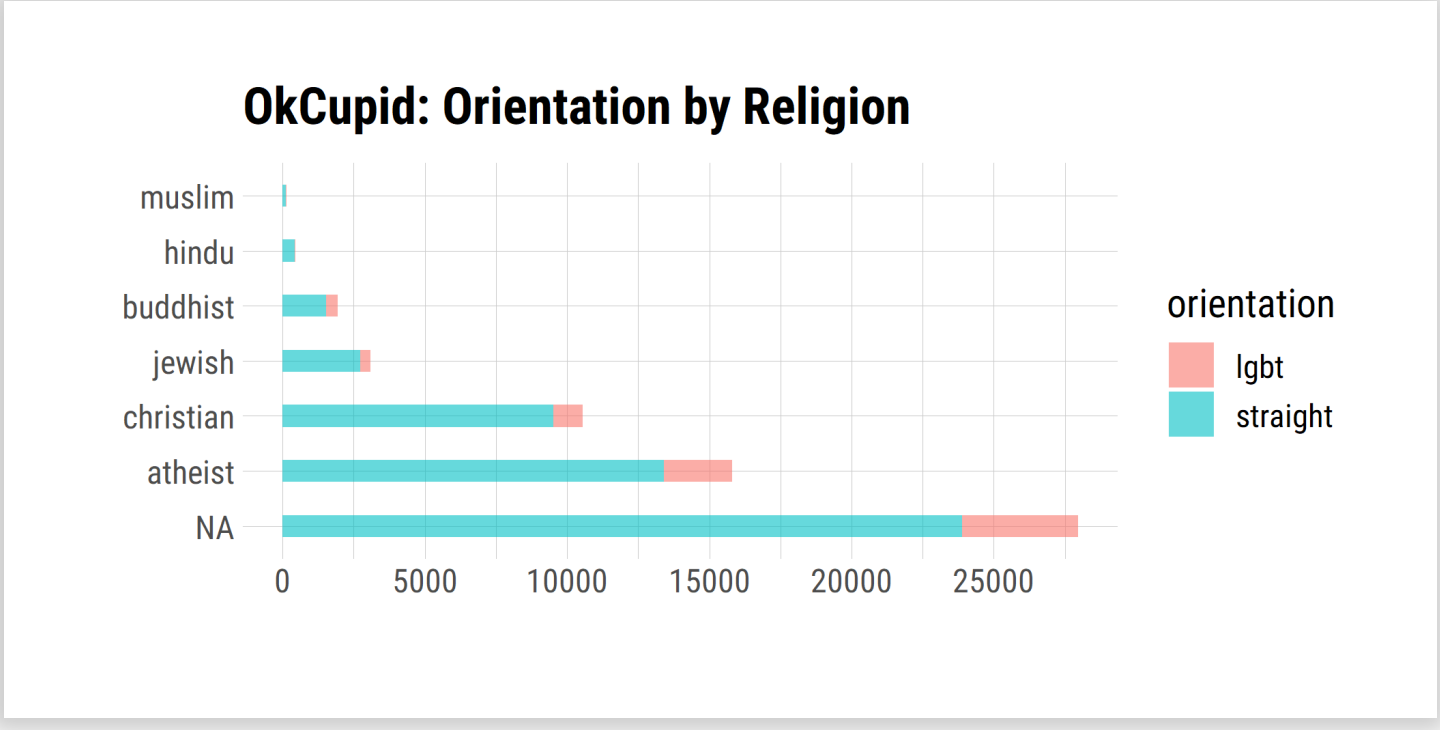
```
p + theme_ipsum(base_family = "Roboto Condensed")
```



Segmented Bar Plots: Counts

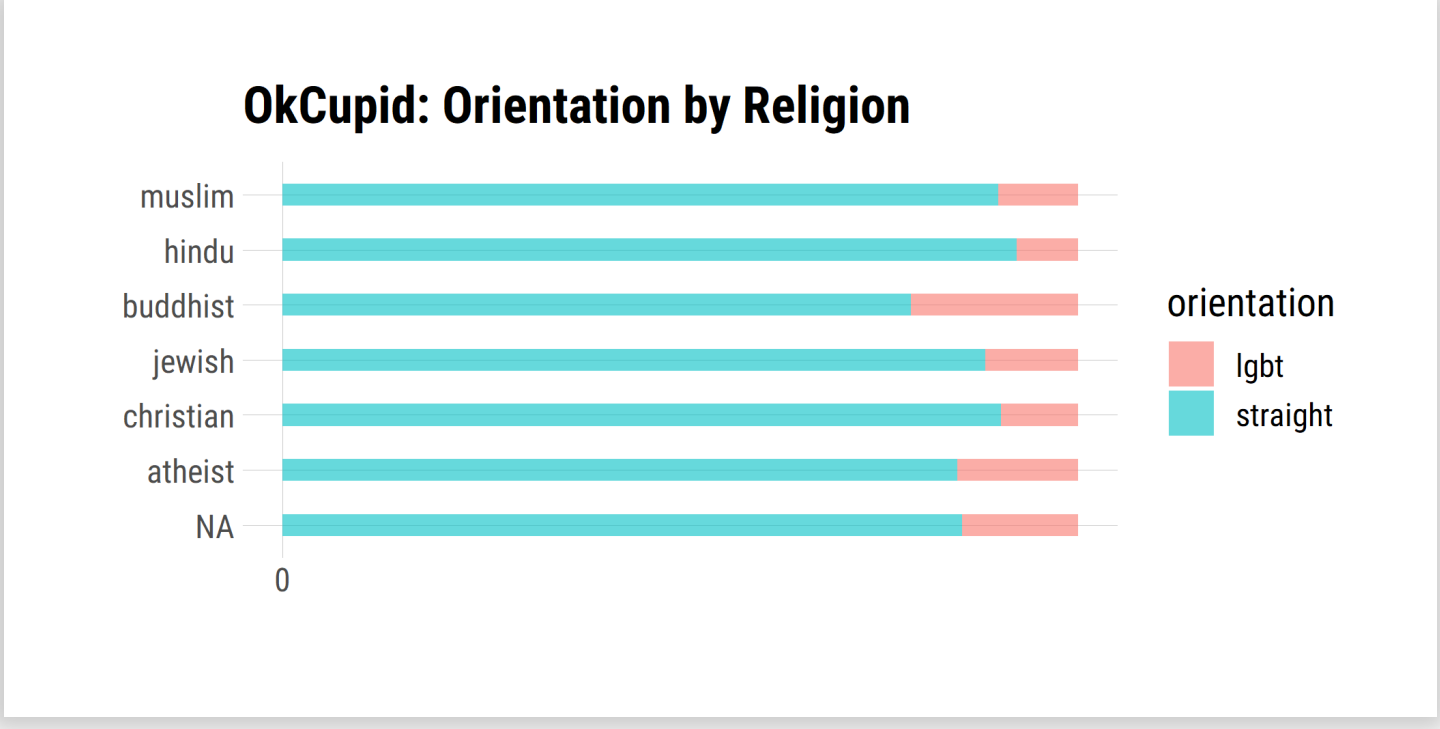
```
p4 <- ggplot(
  okcupid %>%
    mutate(orientation = recode(orientation, "gay" = "lgbt", "bise
           religion = fct_relevel(religion2,
                                  count(okcupid, religion2, sort =
  aes(religion, fill = orientation)
  ) +
  labs(x = "", y = "",
       title = "OkCupid: Orientation by Religion") +
  scale_y_continuous(breaks = seq(0, 25000, 5000)) +
  coord_flip() +
  theme_ipsum(base_family = "Roboto Condensed") + theme(text = ele
```

```
p4 + geom_bar(alpha=.6, width=.4)
```



Segmented Bar Plots: Proportions

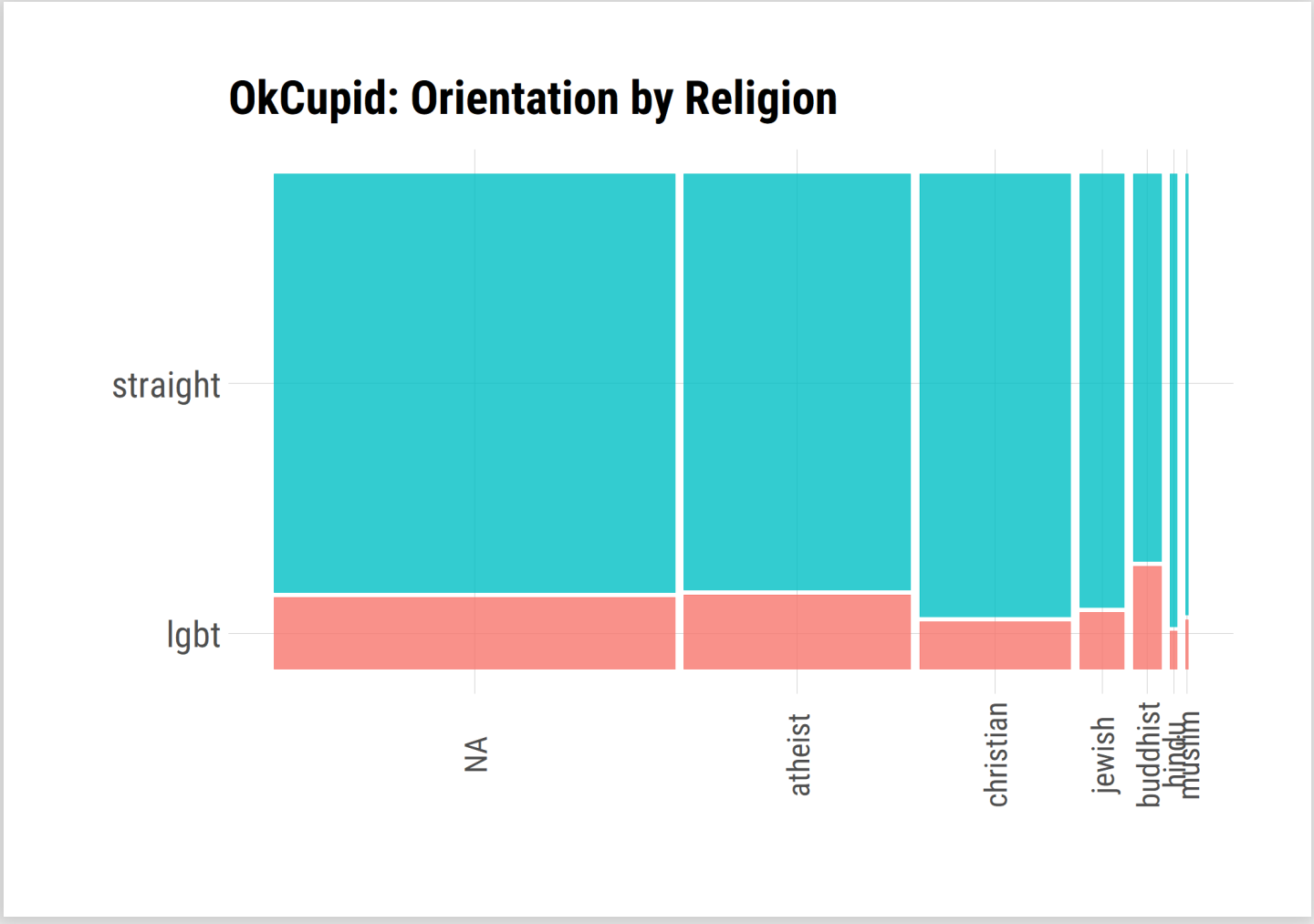
```
p4 + geom_bar(position = "fill", alpha=.6, width=.4)
```



Hoping you can see why this is worse than our original plot.

Mosaic Plots

```
library(ggmosaic)

okcupid %>%
  mutate(orientation = recode(orientation, "gay" = "lgbt", "bisexu
         religion = fct_relevel(religion2, count(okcupid, religior
ggplot() +
  geom_mosaic(aes(x = product(orientation, religion), fill=orienta
  labs(x = "", y = "", title = "OkCupid: Orientation by Religion")
  guides(fill=FALSE) +
  theme_ipsum(base_family = "Roboto Condensed") +
  theme(axis.text.y = element_text(size = 14),
        axis.text.x = element_text(angle = 90, vjust = 0.5, size =
```

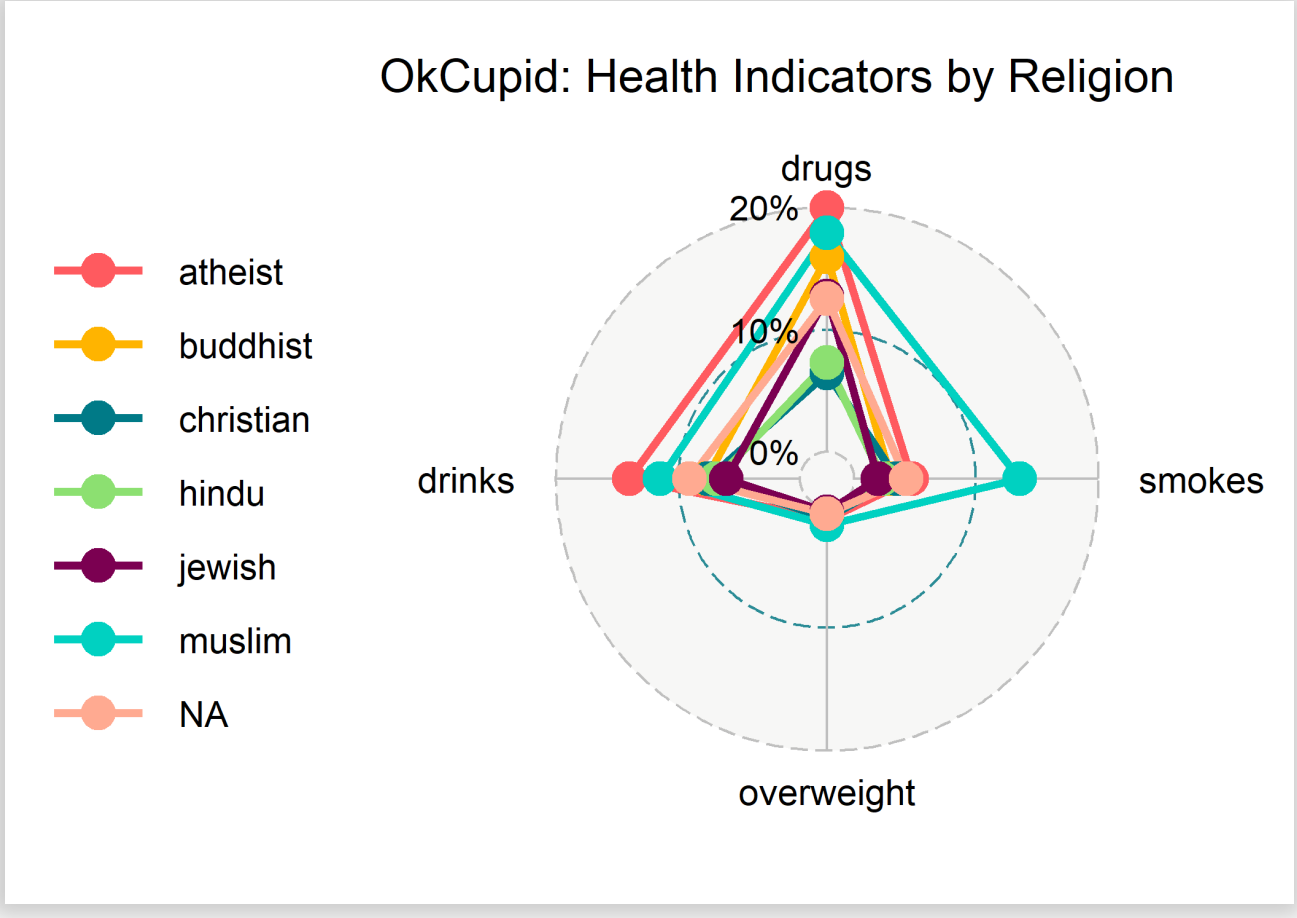

OkCupid: Orientation by Religion
straight
lgbt
NA
atheist
christian
jewish
buddhist
hindu
muslim

Radar Chart

```
okcupid %>%
  group_by(religion2) %>%
  summarise(drugs = mean(drugs %in% c("sometimes", "often"), na.rm
            smokes = mean(smokes == "yes", na.rm = TRUE),
            overweight = mean(body_type == "overweight", na.rm = T
            drinks = mean(drinks %in% c("often", "very often", "de
            ) -> okcupid_radar
okcupid_radar
```

```
## # A tibble: 7 x 5
##   religion2  drugs smokes overweight drinks
##   <chr>      <dbl>  <dbl>      <dbl>  <dbl>
## 1 atheist   0.201  0.0473    0.0110  0.141
## 2 buddhist  0.160  0.0302    0.00494 0.0775
## 3 christian 0.0649 0.0352    0.00994 0.0759
## 4 hindu     0.0733 0.0236    0.00725 0.0689
## 5 jewish    0.128  0.0197    0.00467 0.0607
## 6 muslim    0.180  0.136     0.0155  0.115
## 7 NA        0.126  0.0427    0.00634 0.0911
```

```
library(ggradar)

ggradar(okcupid_radar,  grid.max = 0.201, grid.mid = 0.10, values.
        plot.title = "OkCupid: Health Indicators by Religion") + t
```

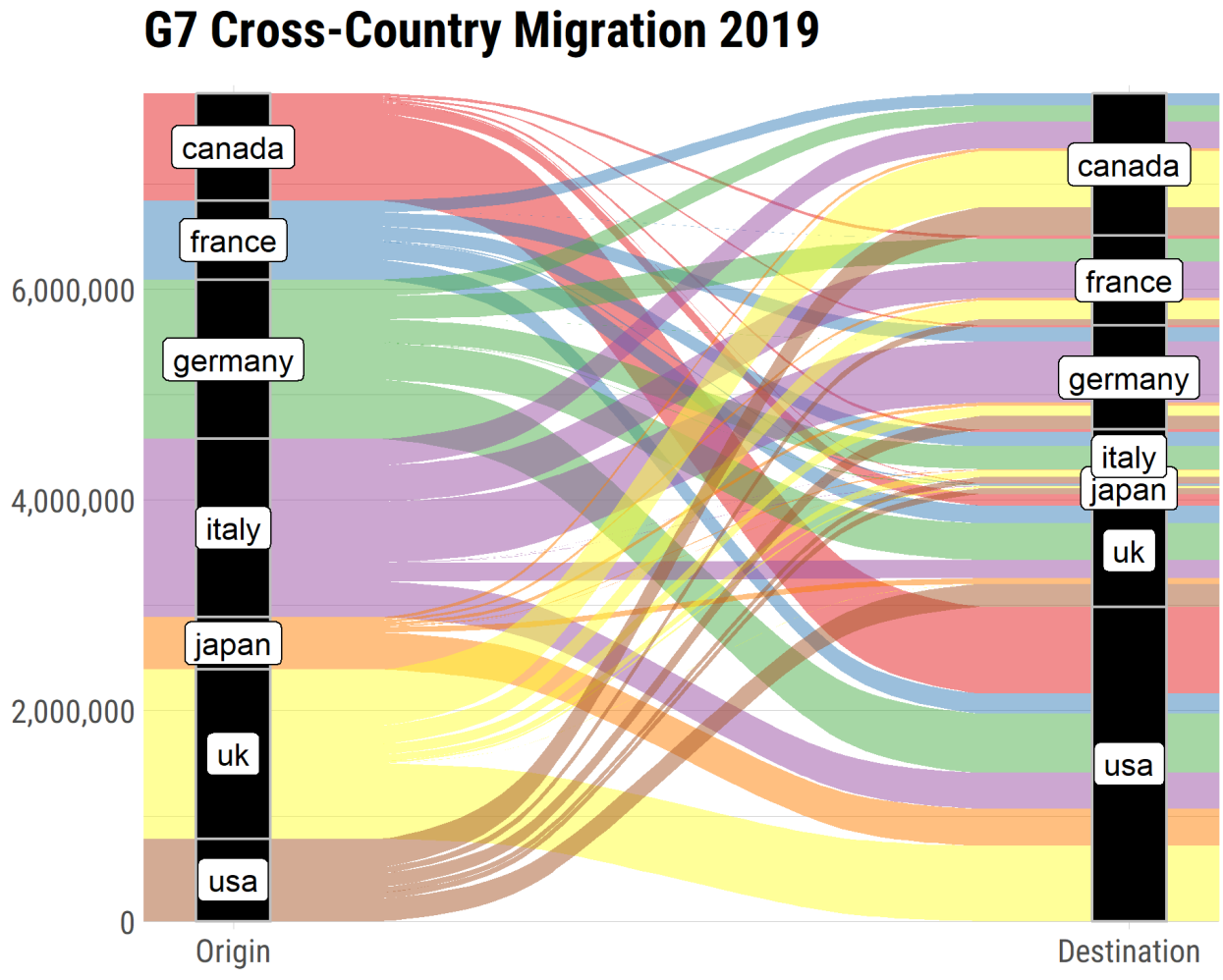


Sankey Diagram (Alluvial Plot)

```
library(ggalluvial)

g7 <- c("canada", "france", "germany", "italy", "japan", "united_k

migration_2019 <- read_rds("../data/migration.rds") %>%
  pivot_longer(cols = -c(1:4), names_to = "country_orig", values_t
  filter(year == 2019) %>%
  filter(across(c("country_orig", "country_dest"), ~.x %in% g7)) %
  mutate(across(c("country_orig", "country_dest"), ~case_when(.x =
  group_by(country_orig, country_dest) %>%
  summarise(n_migrants = sum(n_migrants))

migration_2019 %>% head(4)
```

```
## # A tibble: 4 x 3
## # Groups:   country_orig [1]
##   country_orig country_dest n_migrants
##   <chr>        <chr>             <dbl>
## 1 canada       canada                0
## 2 canada       france            28339
## 3 canada       germany           18211
## 4 canada       italy             25716
```

```
ggplot(migration_2019,
       aes(y = n_migrants, axis1 = country_orig, axis2 = country_d
  geom_alluvium(aes(fill = country_orig)) +
  geom_stratum(width = 1/12, fill = "black", color = "grey") +
  geom_label(stat = "stratum", infer.label = TRUE) +
  scale_x_discrete(limits = c("Origin", "Destination"), expand = c
  scale_fill_brewer(type = "qual", palette = "Set1") +
  guides(fill = FALSE) +
  labs(y = "", title = "G7 Cross-Country Migration 2019") +
  scale_y_comma() +
  theme_ipsum(base_family = "Roboto Condensed")
```


G7 Cross-Country Migration 2019
canada
france
germany
italy
japan
uk
usa
6,000,000
4,000,000
2,000,000
0
Origin
Destination

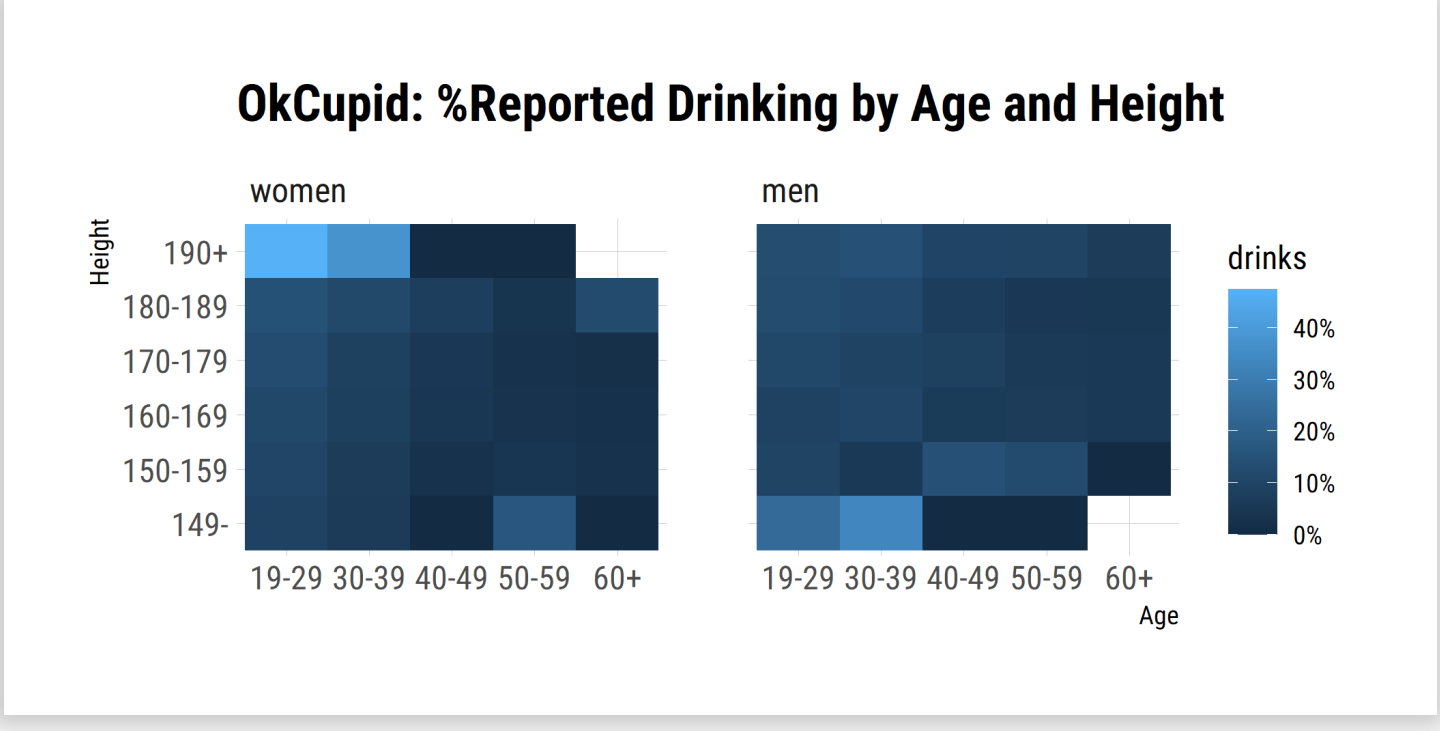
Heatmap

```
gender_age_height_drink <- okcupid %>%
  mutate(age_group = case_when(
    age < 30 ~ "19-29",
    age < 40 ~ "30-39",
    age < 50 ~ "40-49",
    age < 60 ~ "50-59",
    TRUE ~ "60+"),
    height_group = case_when(
      height_cm < 150 ~ "149-",
      height_cm < 160 ~ "150-159",
      height_cm < 170 ~ "160-169",
      height_cm < 180 ~ "170-179",
      height_cm < 190 ~ "180-189",
      TRUE ~ "190+")) %>%
  group_by(sex, age_group, height_group) %>%
  summarise(n = n(),
            drinks = mean(drinks %in% c("often", "very often", "de
```

```
gender_age_height_drink
```

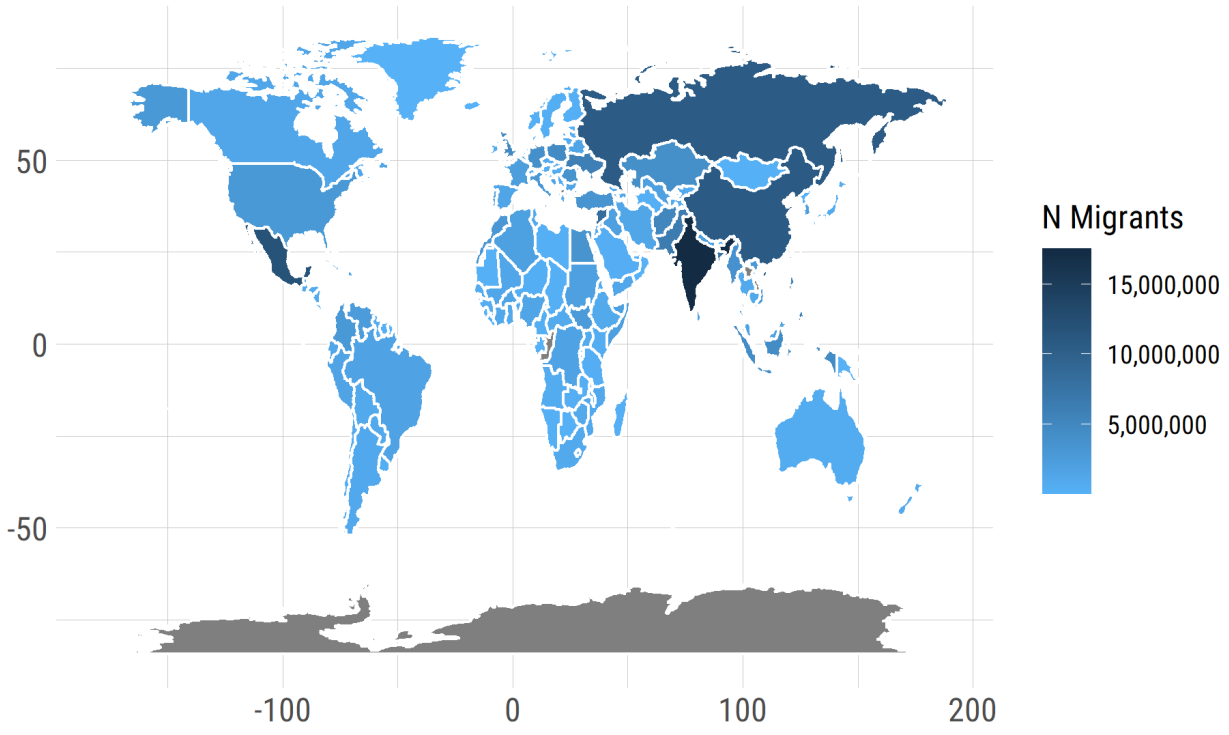
```
## # A tibble: 58 x 5
## # Groups:   sex, age_group [10]
##    sex   age_group height_group     n drinks
##    <chr> <chr>     <chr>        <int>  <dbl>
##  1 f     19-29     149-           163 0.0920
##  2 f     19-29     150-159       1963 0.102
##  3 f     19-29     160-169       5620 0.110
##  4 f     19-29     170-179       3113 0.130
##  5 f     19-29     180-189        310 0.145
##  6 f     19-29     190+            19 0.474
##  7 f     30-39     149-            80 0.0625
##  8 f     30-39     150-159       1293 0.0673
##  9 f     30-39     160-169       4109 0.0810
## 10 f     30-39     170-179       2231 0.0852
## # ... with 48 more rows
```

```
heat <- ggplot(gender_age_height_drink, aes(age_group, height_grou
  geom_tile(aes(text = str_c(percent(drinks, 1), " of ", n, "
  facet_wrap(. ~ sex, labeller = sex_labeller) +
  labs(x = "Age", y = "Height", title = "OkCupid: %Reported Drinki
  scale_fill_gradient(labels = percent_format(accuracy = 1)) +
  theme_ipsum(base_family = "Roboto Condensed")
heat
```



An Actual Heat Map

```
clean_country_name <- function(name) {
  str_replace_all(str_replace_all(str_to_lower(name), " |-", "_"),
}


world <- as_tibble(map_data("world"))

world <- world %>%
  mutate(region = clean_country_name(region))

ggplot(world %>%
         left_join(migration_total, "region"),
       aes(x = long, y = lat, group = group)) +
  geom_polygon(aes(fill = n_migrants), colour = "white") +
  scale_fill_gradient(labels = comma, name = "N Migrants", high =
  labs(x = "", y = "", title = "No. of Migrants by Country in 201
  theme_ipsum(base_family = "Roboto Condensed")
```


No. of Migrants by Country in 2019
50
0
-50
-100
0
100
200
N Migrants
15,000,000
10,000,000
5,000,000

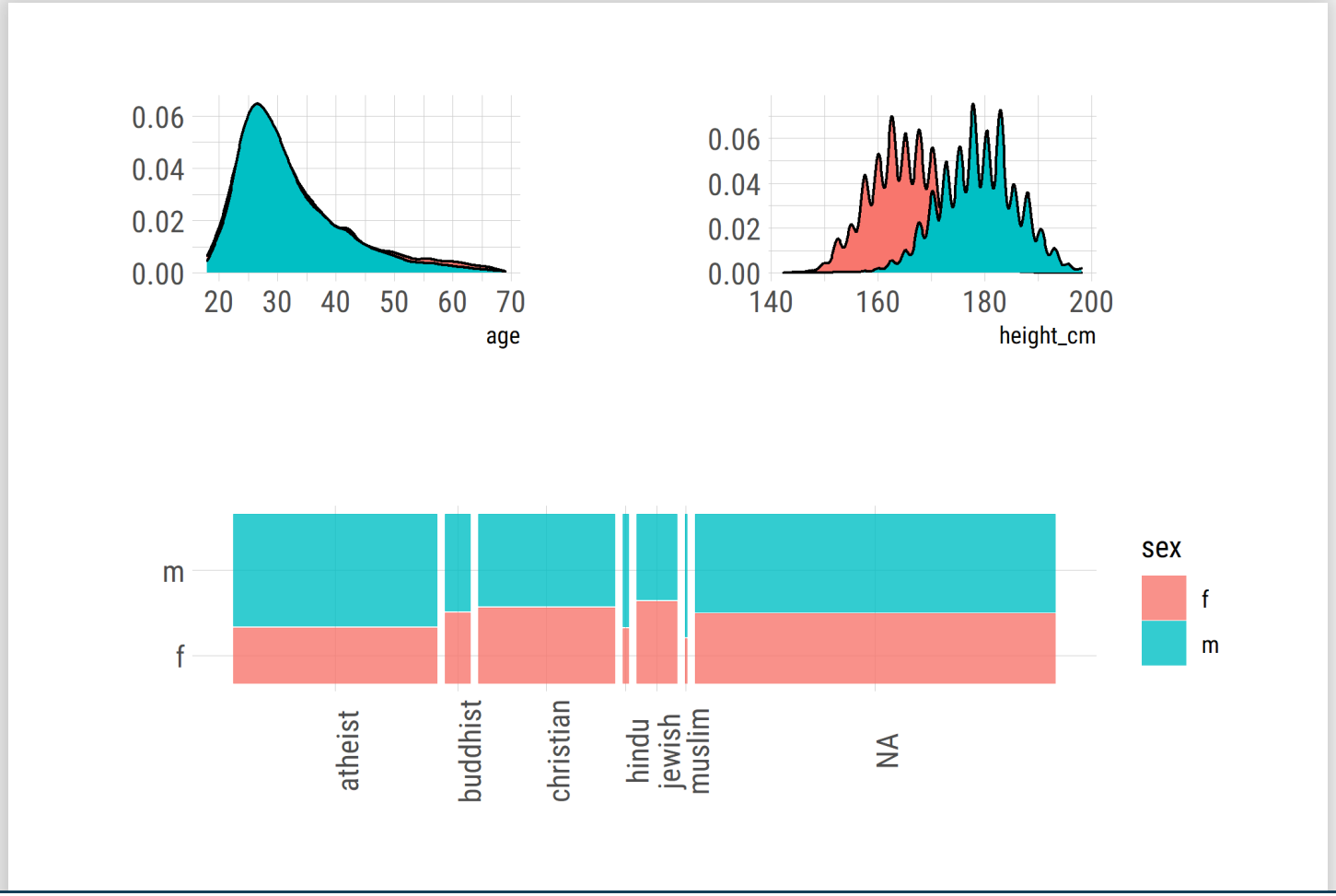
Amazing Extensions

patchwork

```
library(patchwork)

p1 <- ggplot(okcupid %>% filter(between(age, 18, 70))) +
  geom_density(aes(age, fill = sex)) +
  labs(y = "") +
  guides(fill = FALSE) +
  theme_ipsum(base_family = "Roboto Condensed")

p2 <- ggplot(okcupid %>% filter(between(height_cm, 140, 200))) +
  geom_density(aes(height_cm, fill = sex)) +
  labs(y = "") +
  guides(fill = FALSE) +
  theme_ipsum(base_family = "Roboto Condensed")

p3 <- ggplot(okcupid) +
  geom_mosaic(aes(x = product(sex, religion2), fill = sex)) +
  labs(x = "", y = "") +
  theme_ipsum(base_family = "Roboto Condensed") +
  theme(axis.text.x = element_text(angle = 90))
```

Watch this:

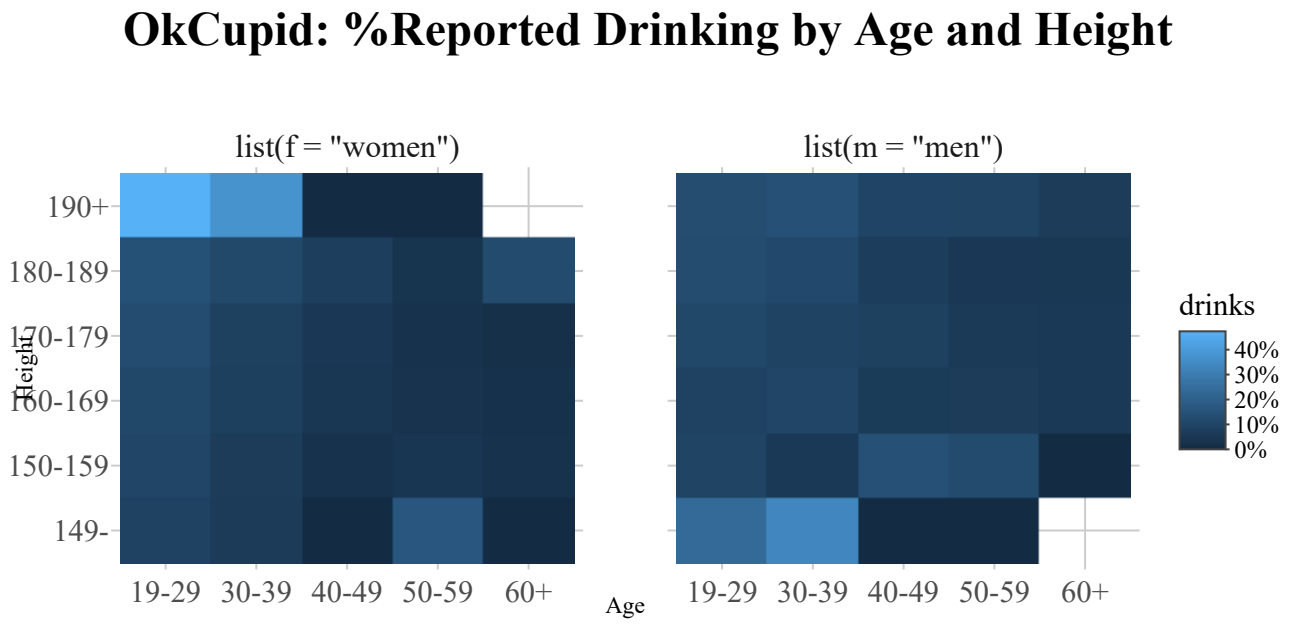
```
(p1 | p2) / p3
```



plotly

Remember those heatmaps? They're now interactive!

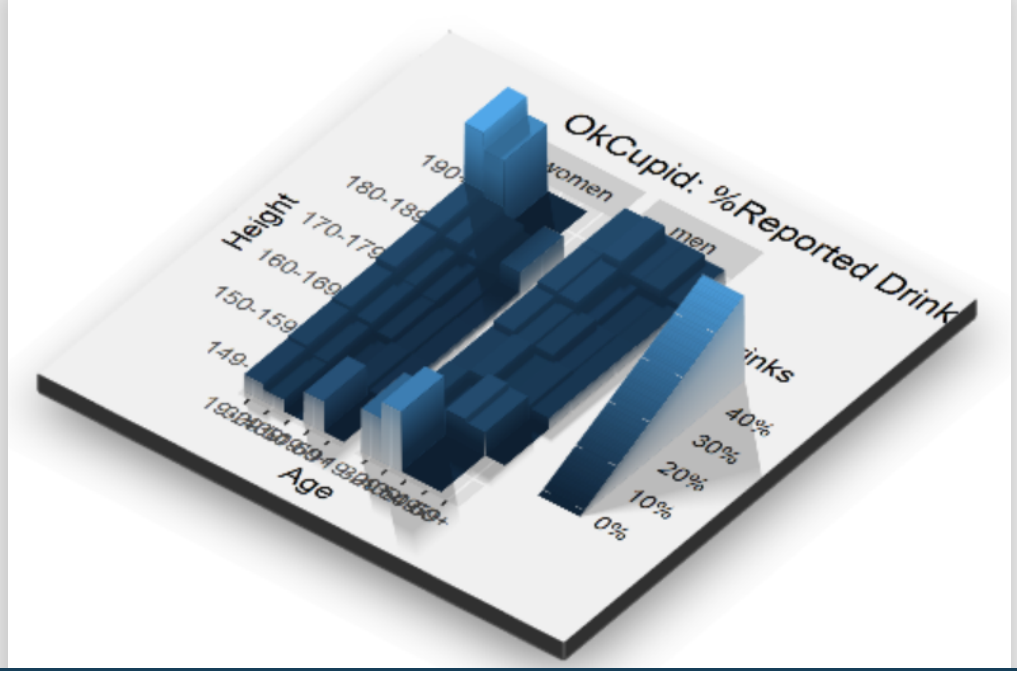
```
library(plotly)
ggplotly(heat, tooltip = "text")
```



rayshader

Or rotatable 3D...

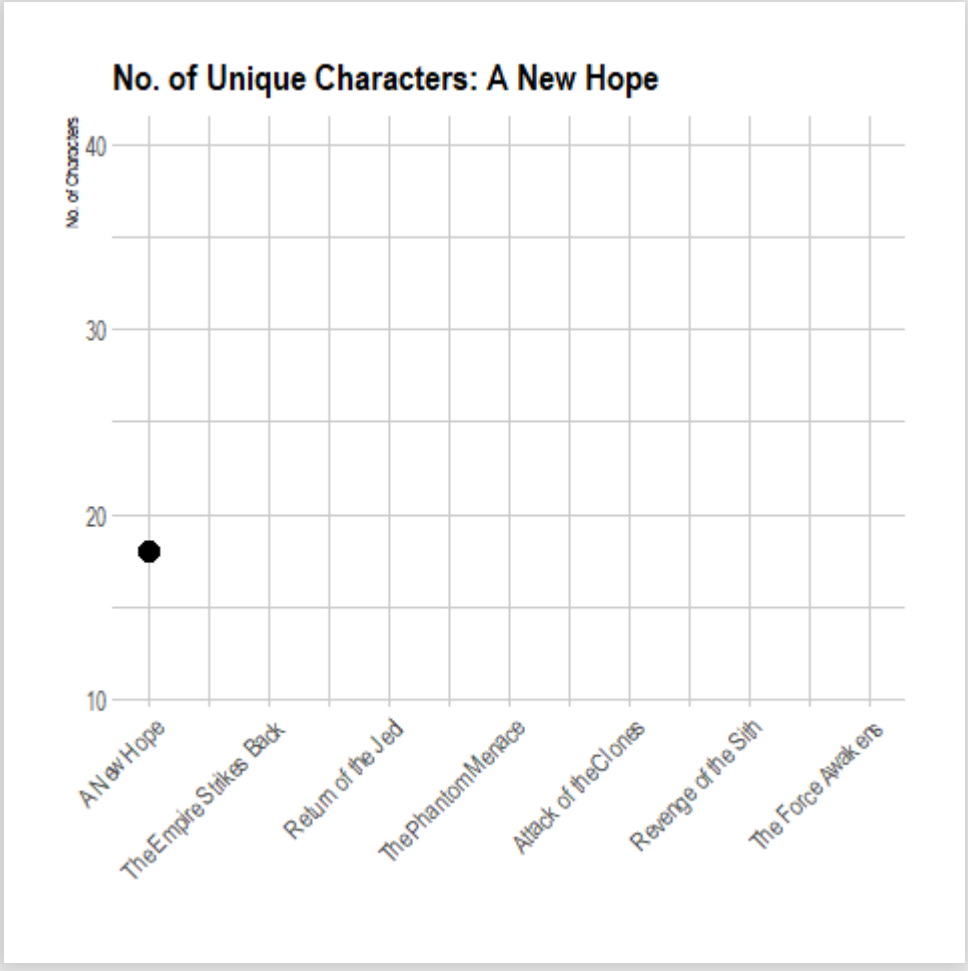
```
library(rayshader)

plot_gg(heat)
```



gganimate

Take a plot and make it better:

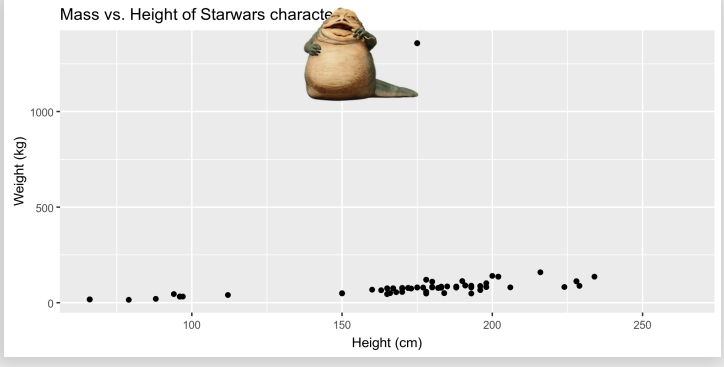
```
library(gganimate)

characters %>%
  group_by(film_id) %>%
  summarise(n_char = n_distinct(character_id)) %>%
  ggplot(aes(film_id, n_char)) +
  geom_line(lwd = 2) +
  geom_point(aes(group = seq_along(film_id)), size = 5) +
  labs(x = "", y = "No. of Characters",
       title = "No. of Unique Characters: {films$title[frame %/% 1
  scale_x_continuous(breaks = 1:7, labels = films$title) +
  theme_ipsum(base_family = "Roboto Condensed") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1)) +
  transition_reveal(along = film_id) +
  ease_aes("cubic-in-out")
```


No. of Unique Characters: A New Hope
No. of Characters
40
30
20
10
A New Hope
The Empire Strikes Back
Return of the Jedi
The Phantom Menace
Attack of the Clones
Revenge of the Sith
The Force Awakens

magick

That Jabba Plot was NOT made by Photoshop...

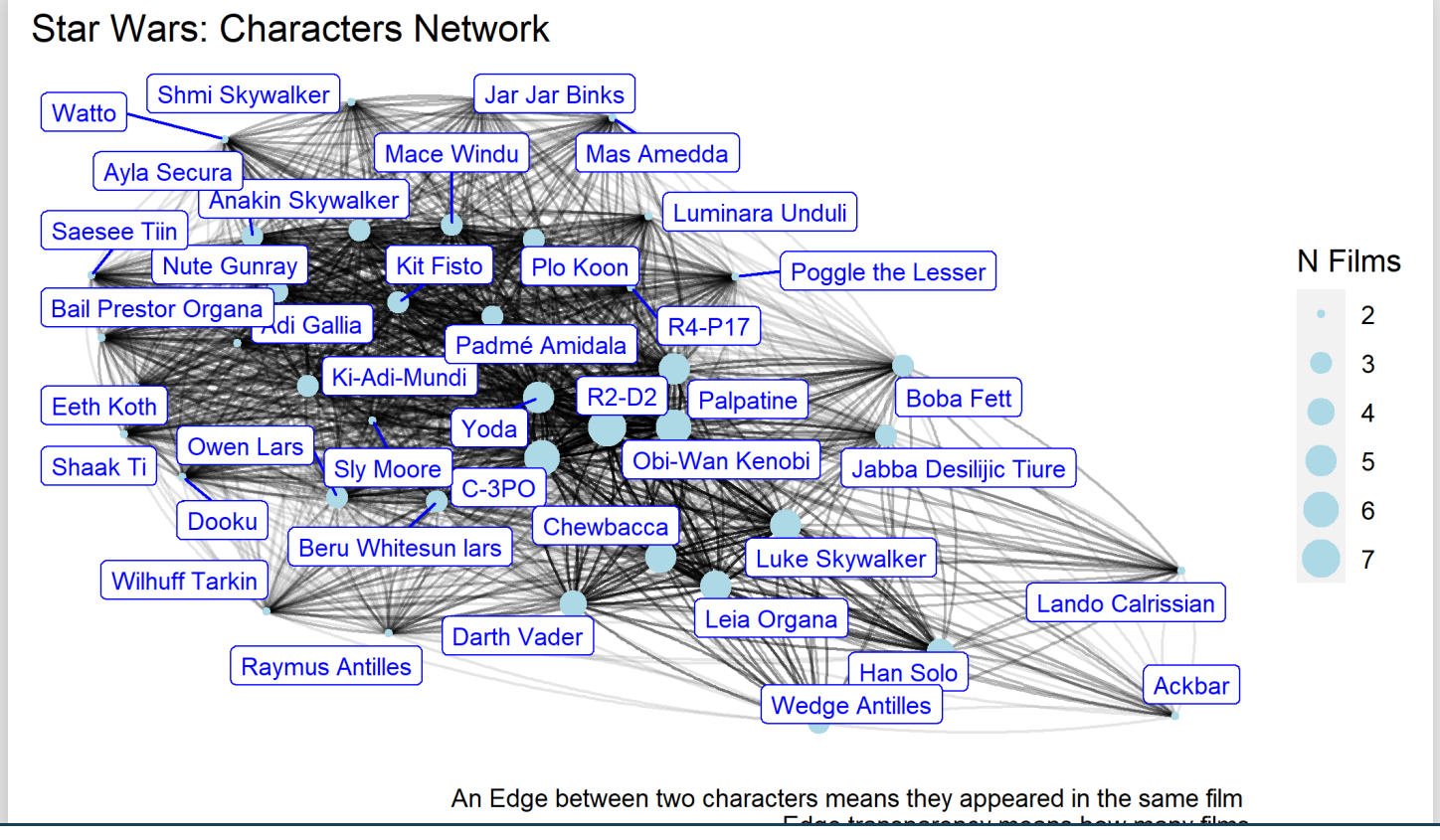
```
library(magick)

jabba <- image_read("images/jabba.png")
fig <- image_graph(width = 2400, height = 1200, res = 300)
ggplot(data = characters, mapping = aes(x = height, y = mass)) +
  geom_point(size = 1.5) +
  labs(title = "Mass vs. Height of Starwars characters",
       x = "Height (cm)", y = "Weight (kg)")
fig %>% image_composite(jabba, offset = "+1000+30")
```



tidygraph + ggraph

```
library(tidygraph)

characters_2_plus <- characters %>%
  add_count(name) %>%
  filter(n > 1) %>%
  select(name, film_id) %>%
  mutate(id = group_indices(., name)) # for some reason 1:n ID

nodes <- characters_2_plus %>%
  count(id, name)

edges <- characters_2_plus %>%
  inner_join(characters_2_plus, "film_id") %>%
  rename(from = id.x,
         to = id.y) %>%
  count(from, to) %>%
  rename(weight = n) %>%
  filter(from != to)

graph <- tbl_graph(nodes = nodes, edges = edges, directed = FALSE)
```

```
library(ggraph)
ggraph(graph, layout = "fr") +
  geom_edge_fan(aes(alpha = weight), show.legend = FALSE) +
  geom_node_point(aes(size = n), color = "lightblue") +
  geom_node_label(aes(label = name), color = "blue", repel = TRUE,
  theme(panel.background = element_rect(fill="white", colour = "wh
  labs(size = "N Films", title = "Star Wars: Characters Network",
```

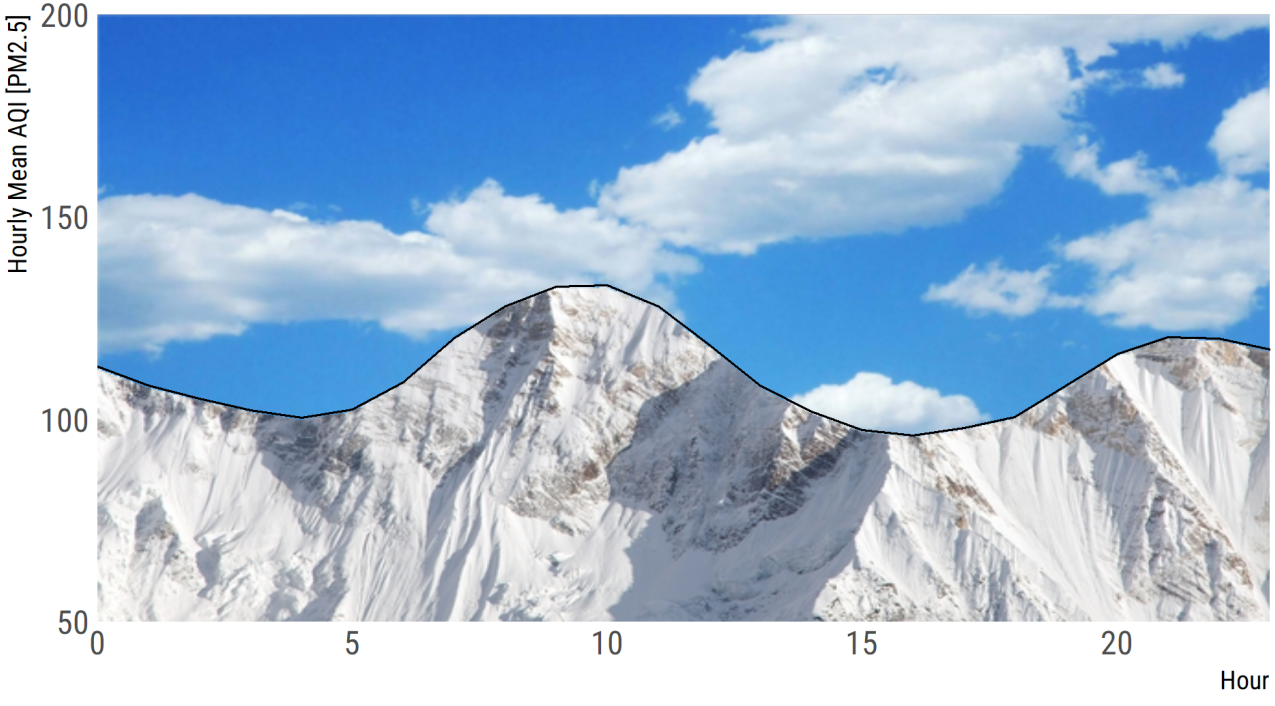


ggwithimages

```
library(ggwithimages)

annapurna <- png::readPNG(system.file("extdata", "annapurna.png",
sky <- png::readPNG(system.file("extdata", "sky.png", package = "g
kathmandu_hourly_aqi <- readr::read_csv(system.file("extdata", "ka

ggplot(kathmandu_hourly_aqi, aes(hour, aqi)) +
  geom_line_with_image(annapurna, sky) +
  labs(title = "Air Quality Index in the Thamel, Kathmandu, Nepal'
       subtitle = "Measured in PM2.5 by the US Embassy in Kathmanc
       y = "Hourly Mean AQI [PM2.5]",
       x = "Hour") +
  ylim(c(50, 200)) +
  theme_ipsum(base_family = "Roboto Condensed")
```

Air Quality Index in the Thamel, Kathmandu, Nepal

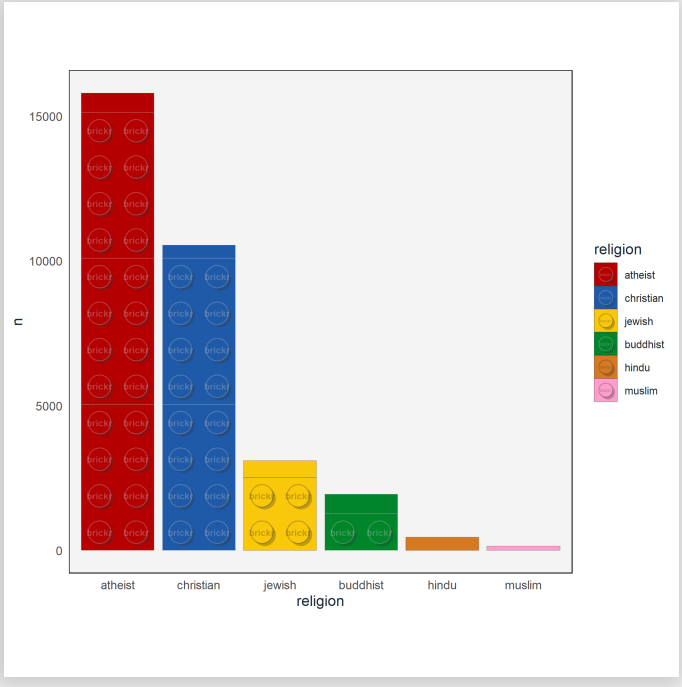
Measured in PM2.5 by the US Embassy in Kathmandu



brickr...

```
library(brickr)

okcupid %>%
  count(religion2) %>%
  filter(religion2 != "NA") %>%
  mutate(religion =
           fct_relevel(religion2, c("atheist", "christian", "jewis
  ggplot(aes(religion, n)) +
  geom_brick_col(aes(fill = religion)) +
  scale_fill_brick() +
  coord_brick() +
  theme_brick()
```

(Though this was available only on v0.2.0 😭)



And... it can get a lot more fun:

Get the legos you need with `build_instructions()` 😯