Viz 3 Advanced Plots

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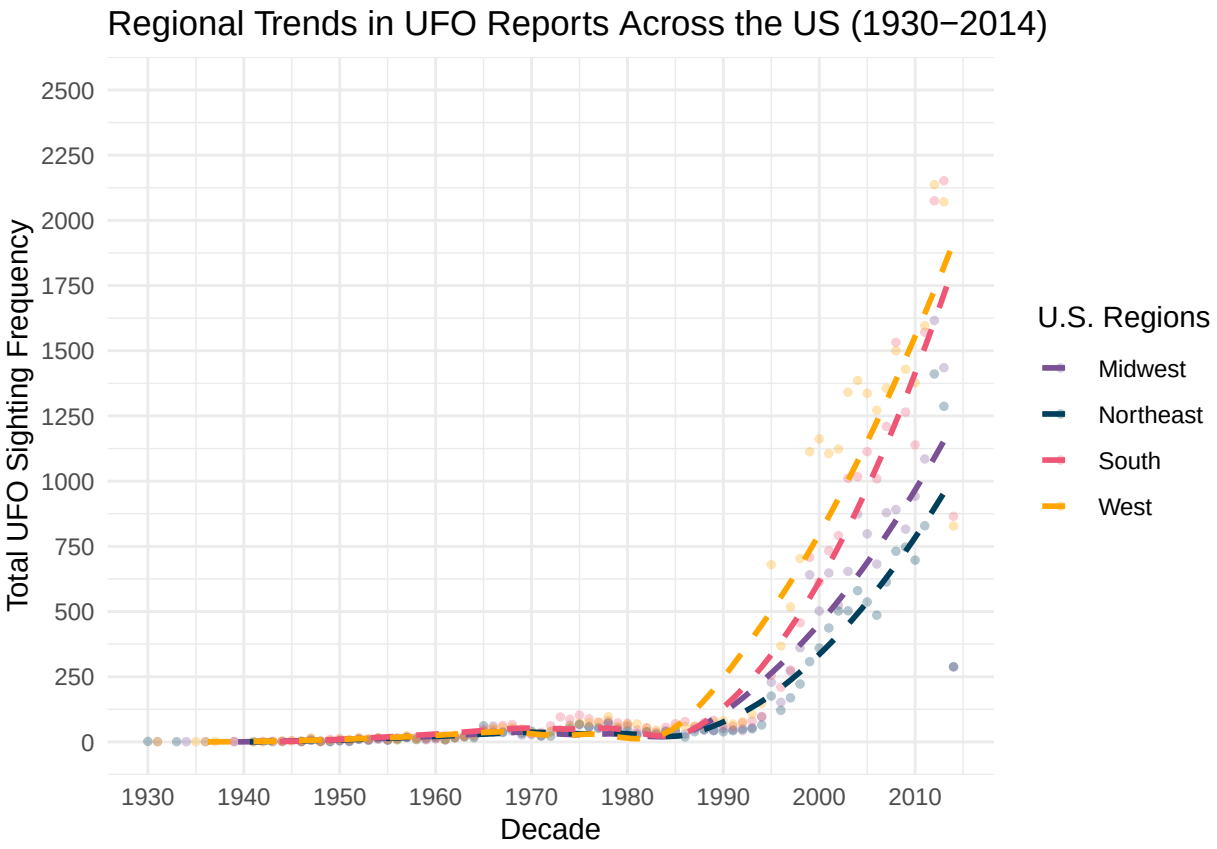

Figure 1: UFO sighting trends by U.S. region from 1930 to 2014. The dashed lines represent smoothed trends for each region, indicating varying patterns of UFO reports across decades. Notably, all regions show an upward trend, suggesting an increasing public interest or occurrence of unexplained phenomena over time.

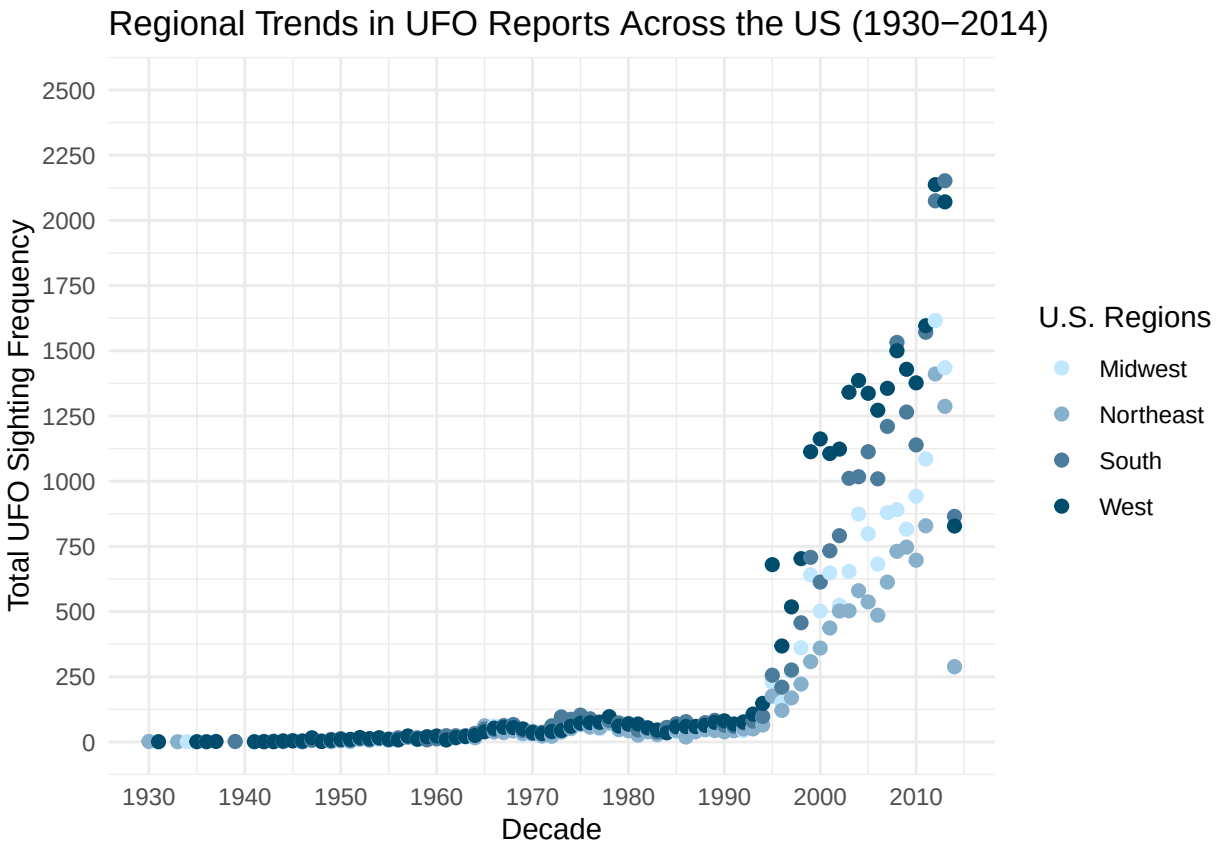

Figure 2: A scatter plot of UFO sightings by region in the U.S. from 1930 to 2014. While this plot provides the same data as Figure 1, its design choices might impact the viewer's interpretation and understanding of trends. Differences in color palette and point size can influence the clarity and immediate visual appeal of data visualizations.

```r
#Step 1 - Load libraries into coding environment
options(repos = c(CRAN = "https://cloud.r-project.org/"))
#install.packages("gridExtra")
library("dplyr")
library("reshape2")
library("lubridate")
library("ggplot2")
library("gridExtra")
```

```r
#Step 2 - Load cleaned UFO data into coding environment
# isolate the year in datetime column and make a new column called year

UFO <- read.csv("UFO Clean1.csv")

UFO$year <- format(as.Date(UFO$datetime, format = "%m/%d/%Y"), "%Y")
```

```r
#Step 3 - Group states into regions

regions <- list(
  Northeast = c('me', 'nh', 'vt', 'ma', 'ri', 'ct', 'ny', 'pa', 'nj', 'dc'),
  Midwest = c('nd', 'sd', 'ne', 'ks', 'mo', 'ia', 'mn', 'wi', 'il', 'in', 'oh', 'mi'),
  South = c('tx', 'ok', 'ar', 'la', 'ky', 'tn', 'ms', 'al', 'wv', 'md', 'de', 'va', 'nc', 'sc', 'ga', '
  West = c('id', 'mt', 'wy', 'nv', 'ut', 'co', 'az', 'nm', 'ak', 'wa', 'or', 'ca', 'hi')
)

#Step 4 - Assign states to a region

UFO <- UFO %>%
      mutate(
        region = case_when(
          state %in% regions$Northeast ~ "Northeast",
          state %in% regions$Midwest ~ "Midwest",
          state %in% regions$South ~ "South",
          state %in% regions$West ~ "West",
          TRUE ~ NA_character_
        )
      )

#Step 5 - Group data by year and region

UFO$year <- as.numeric(as.character(UFO$year))

UFO_summary <- UFO %>%
  filter(!is.na(region)) %>%
  group_by(year, region) %>%
  summarise(count = n())
```

```r
#Step 5 - Make a scatter plot that depicts UFO sighting over time for each region

combined_plot_pretty <- UFO_summary %>%
  ggplot(aes(x = year, y = count, color = region)) +
  geom_point(size = 1, alpha = 0.3) +
  geom_smooth(method = "loess", se = FALSE, linetype = "dashed") +
  scale_color_manual(name = "U.S. Regions", values = c(Northeast = "#003f5c", Midwest = "#7a5195", Soutl
```

```
       x = "Decade",
       y = "Total UFO Sighting Frequency") +
  scale_x_continuous(limits = c(1930, 2014), breaks = seq(1930, 2014, by = 10)) +
  scale_y_continuous(limits = c(0, 2500), breaks = seq(0, 2500, by = 250)) +
  theme_minimal()

print(combined_plot_pretty)
```

```
#Step 6 - Combine plots of each region using gridExtra

#grid.arrange(plot_Northeast, plot_Midwest, plot_South, plot_West, ncol = 1)
```

```
#Step 5 - Create an illusion plot

combined_plot_ugly <- ggplot(UFO_summary, aes(x = year, y = count, color = region)) +
  geom_point(size = 2) +
  labs(title = "Regional Trends in UFO Reports Across the US (1930-2014)",
       x = "Decade",
       y = "Total UFO Sighting Frequency") +
  scale_x_continuous(limits = c(1930, 2014), breaks = seq(1930, 2014, by = 10)) +
  scale_y_continuous(limits = c(0, 2500), breaks = seq(0, 2500, by = 250)) +
  scale_color_manual(name = "U.S. Regions", values = c("#c1e7ff", "#86b0cc", "#4c7c9b", "#004c6d")) +
  theme_minimal()

print(combined_plot_ugly)
```