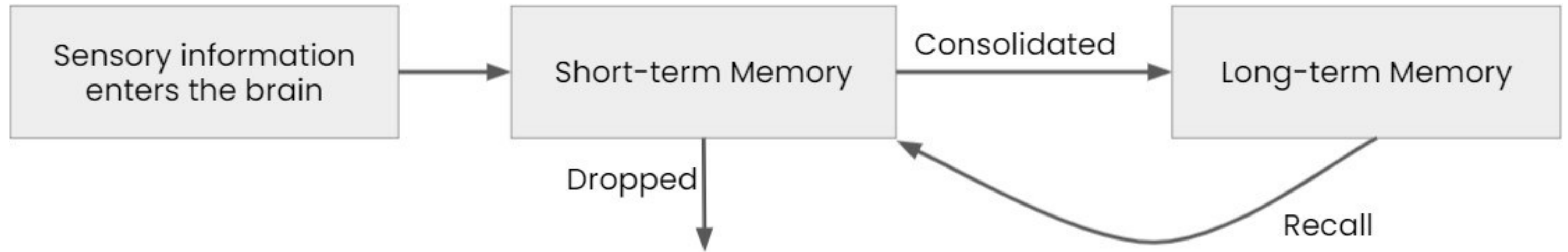# Reduce cognitive load

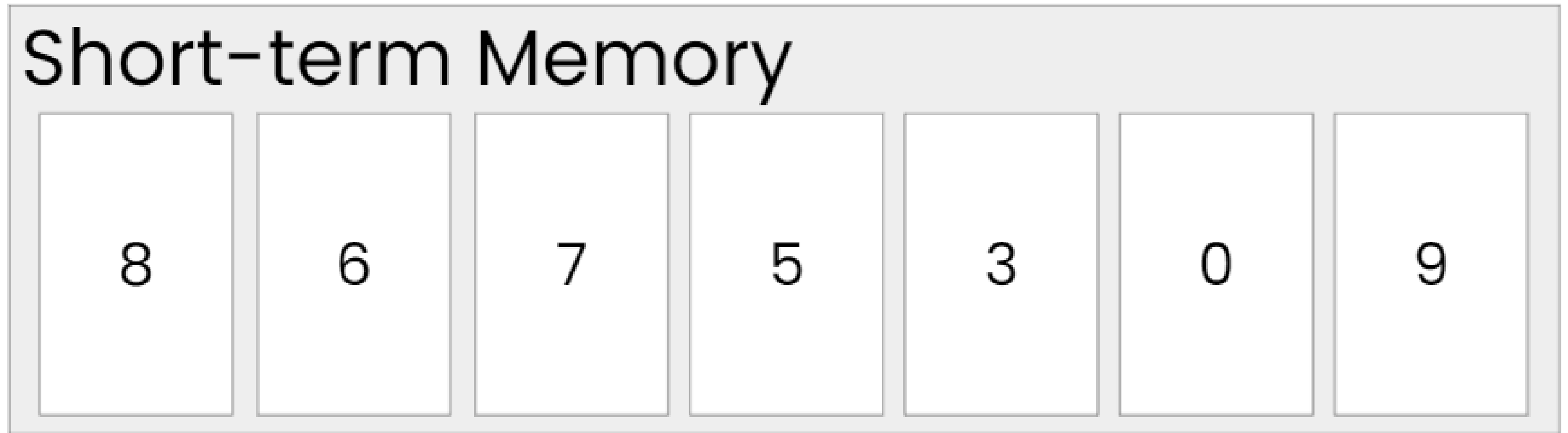## DATA VISUALIZATION IN POWER BI

Short-term memory

This is a simplified version of the way humans process signals.

The "magical number seven"
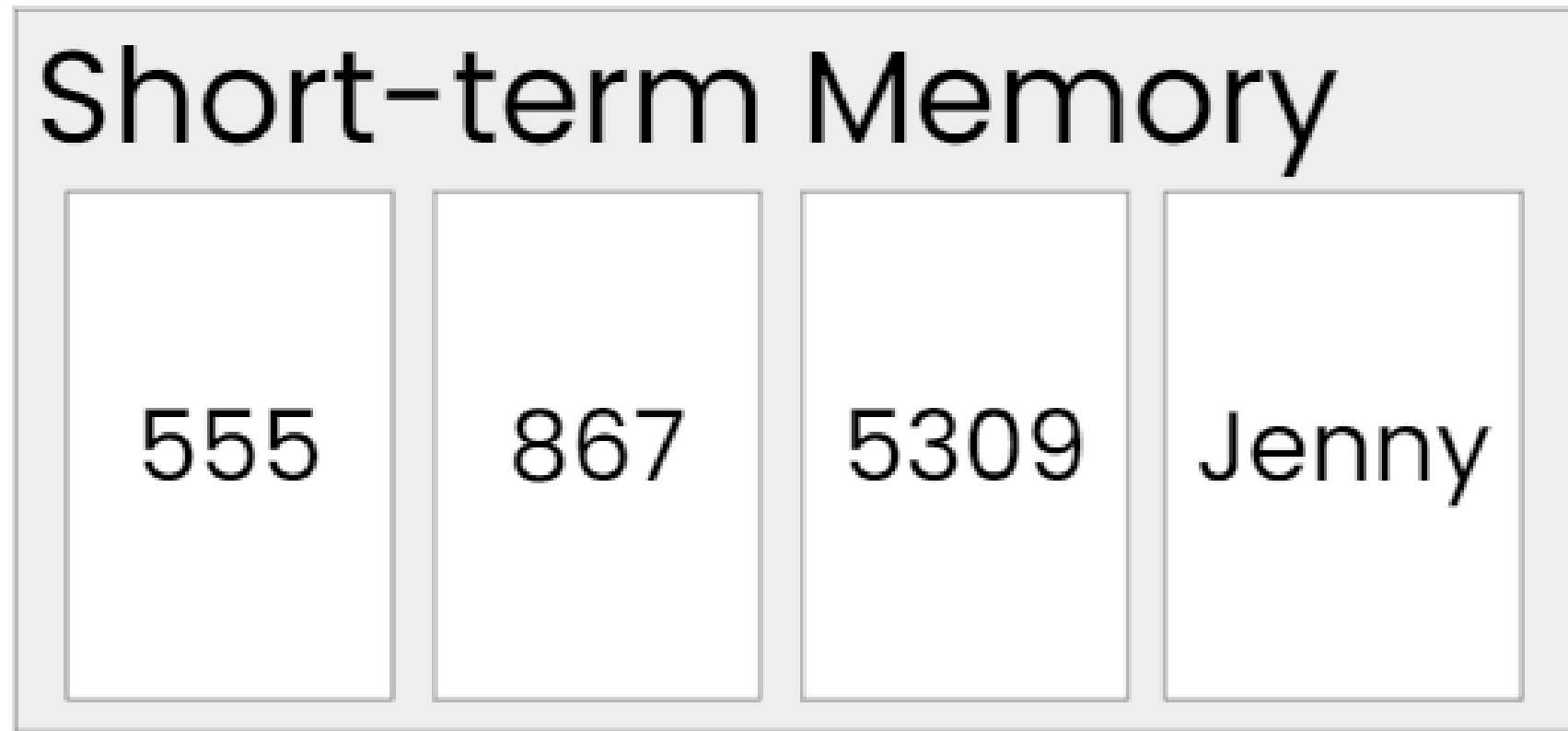
George Miller's research discovered that humans can tend to hold seven (plus or minus two) pieces of information at a time in short-term memory.

Short-term Memory

8	6	7	5	3	0	9

[1]Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. Psychological Review, 63(2), 81-97.

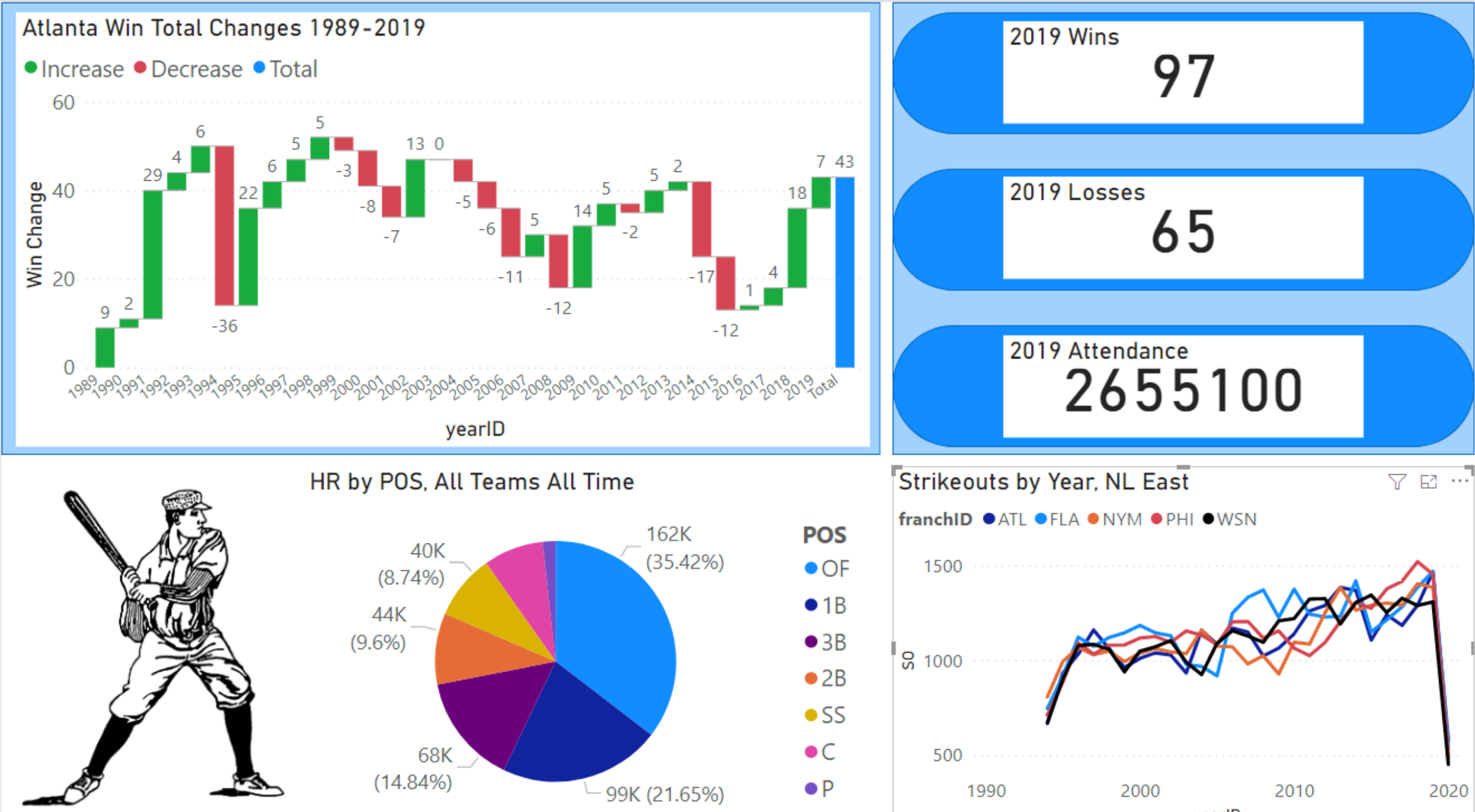# Or maybe 4?

Further research indicates that this may be closer to 4 +/- 1 but that we can "chunk" information together.

Short-term Memory

555	867	5309	Jenny

[1]Cowan, N (2001). The magical number 4 in short-term memory: a reconsideration of mental storage capacity. Behavioral Brain Science, 24(1), 87-114.
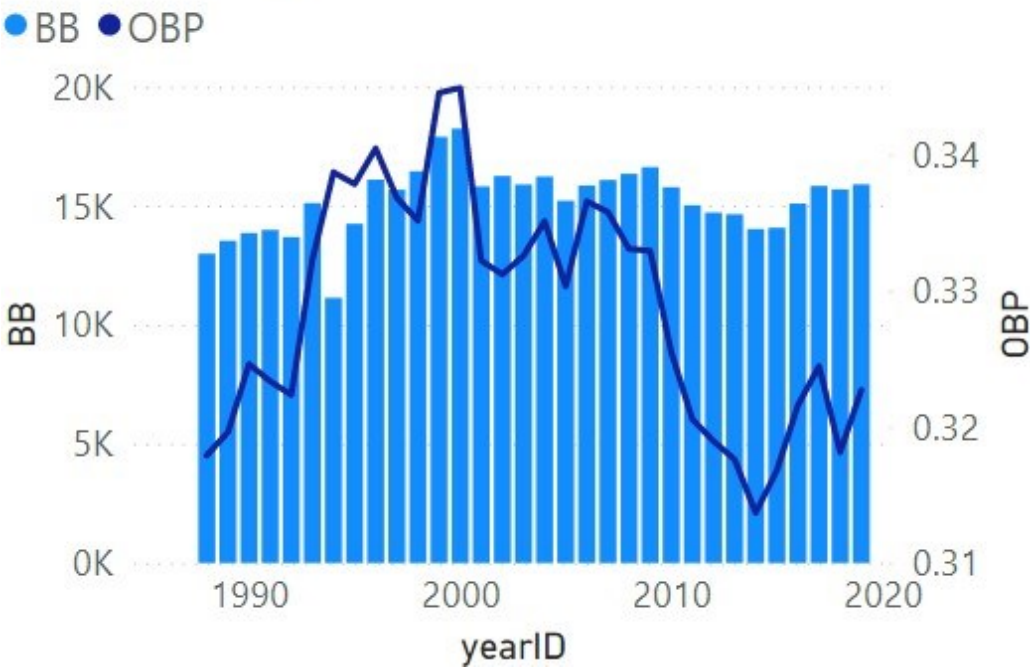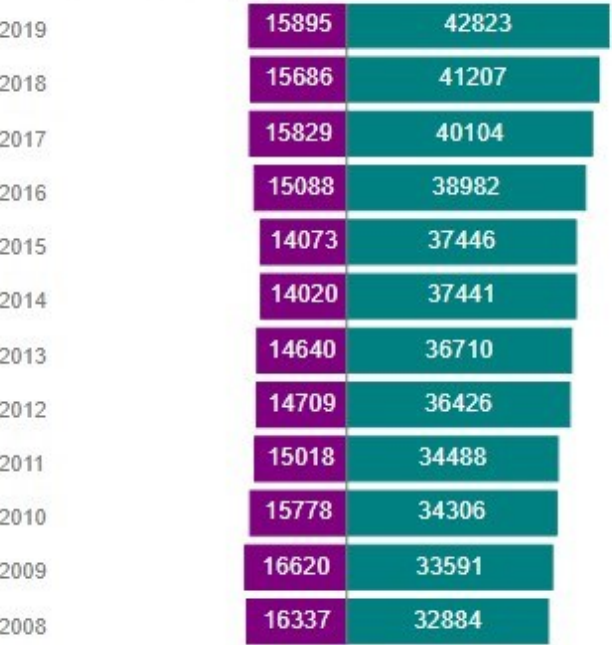
Cognitive load

Reducing cognitive load

Quick wins in reducing cognitive load:

1. Tailor the page to your audience

2. Focus on one story per report page

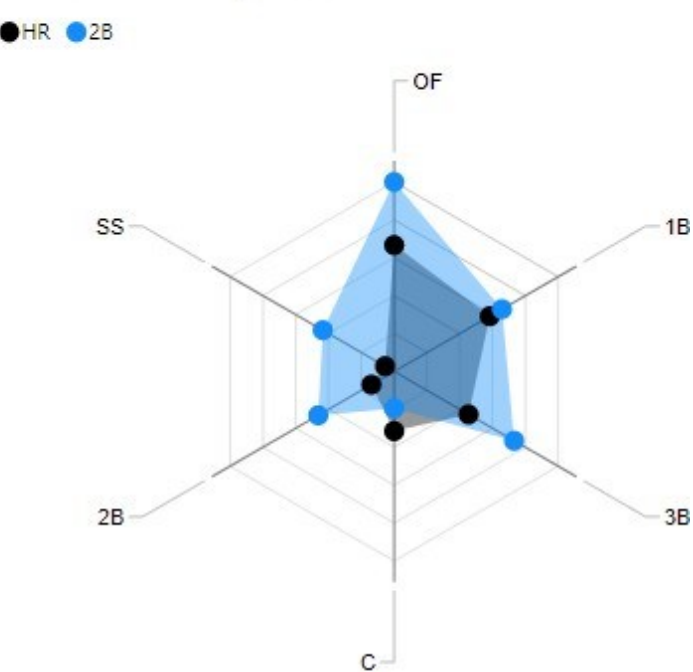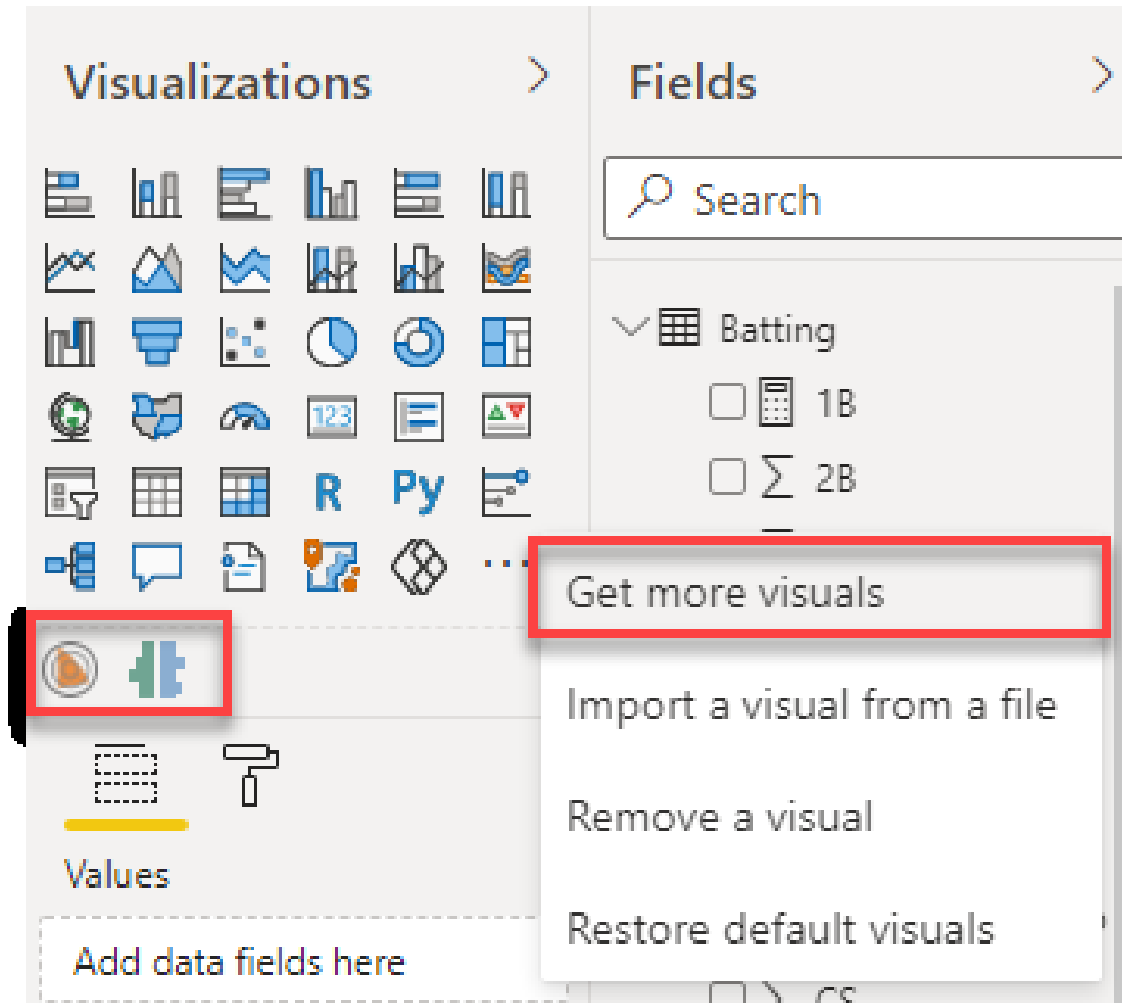3. Strike the balance between information-rich visuals and confusing the audience

Custom visuals in Power BI

Custom visuals can be loaded into a Power BI report.

Microsoft AppSource

AppSource is a centralized marketplace for Power BI custom visuals.

Power BI Visuals

AppSource | My organization

Add-ins may access personal and document information. By using an add-in, you agree to its Permissions, License Terms and Privacy Policy.

tornado 🔍
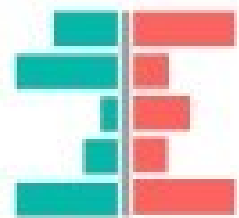
Sort by: Recommended ⌄

Category

Editor's Picks

All

Advanced Analytics

Data Visualizations

Tornado chart ✔

Comparing the relative importance of variables between two groups

★★★★☆

Add

Thinking of our audience

Historian persona

- How has offensive productivity changed over time?

- Is an emphasis on power hitting a detriment elsewhere?

Let's practice!

DATA VISUALIZATION IN POWER BI

Combination charts
and custom visuals

DATA VISUALIZATION IN POWER BI

Let's practice!

DATA VISUALIZATION IN POWER BI

Less is more
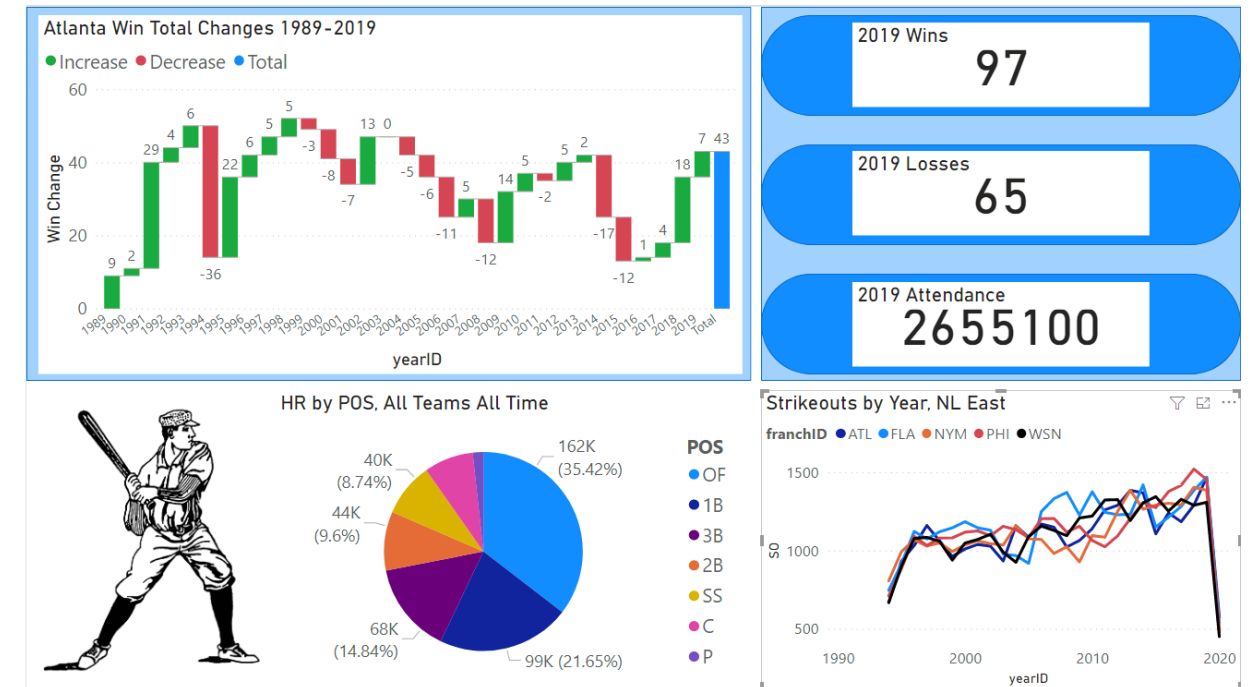
DATA VISUALIZATION IN POWER BI

Keys to good visual design

Before adding something to a dashboard:

- Does this contribute to the story?

- Is this the right visual element?
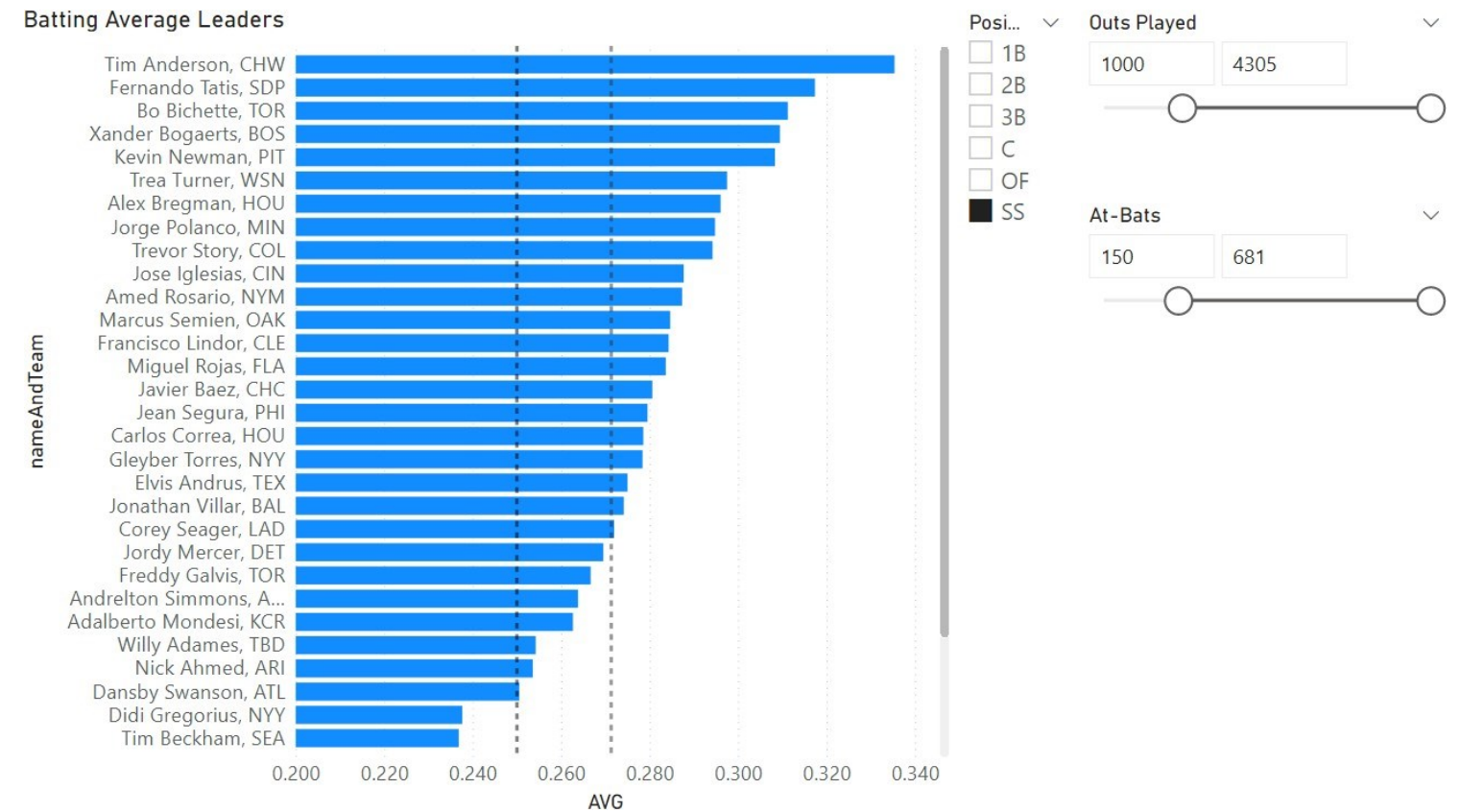
- Is this visual element necessary?

Promoting the story

- What story am I trying to tell?

- Does this new visual align with the story?

- Will my audience see it that way?
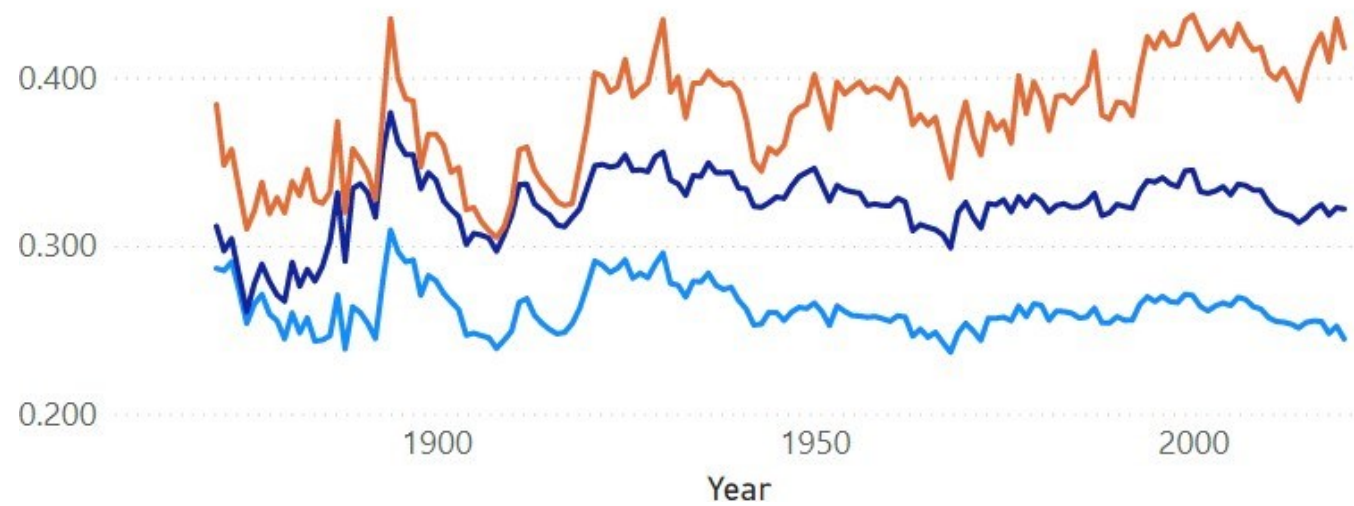
Story-telling in a world of choices

- Filters and slicers give users ﬂexibility

- Flexibility limits your control

- Understand user needs and the types of stories they can pull from the data

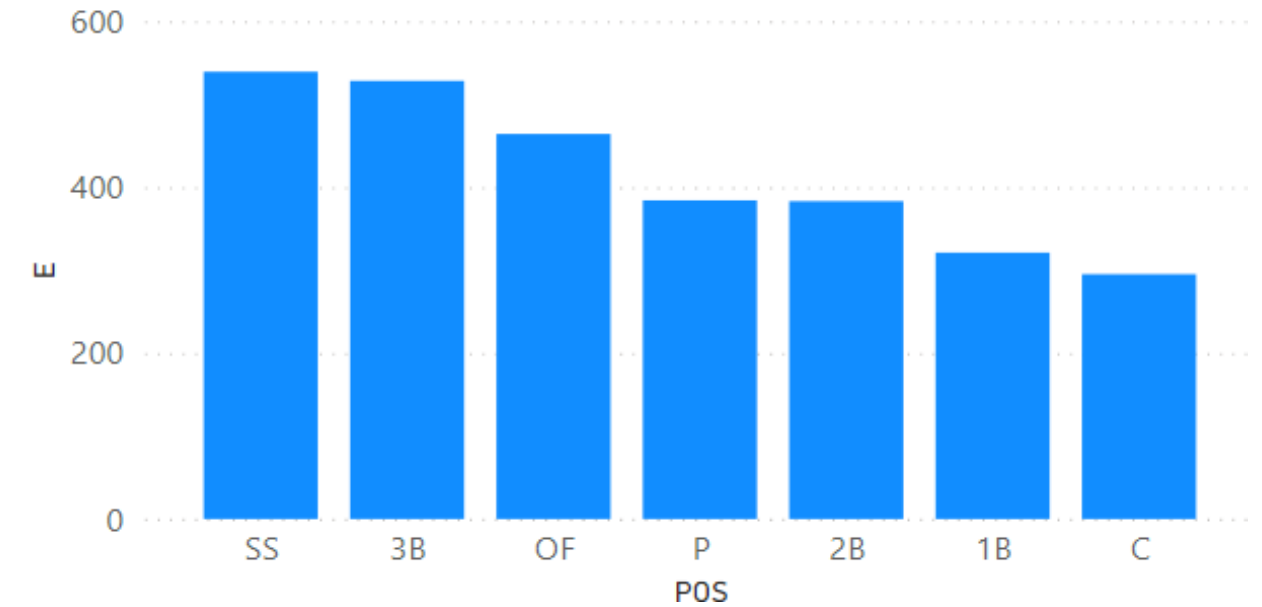# Choosing the right visual element

Batting Rates by Year

● AVG ● OBP ● SLG

Errors by Position, 2014
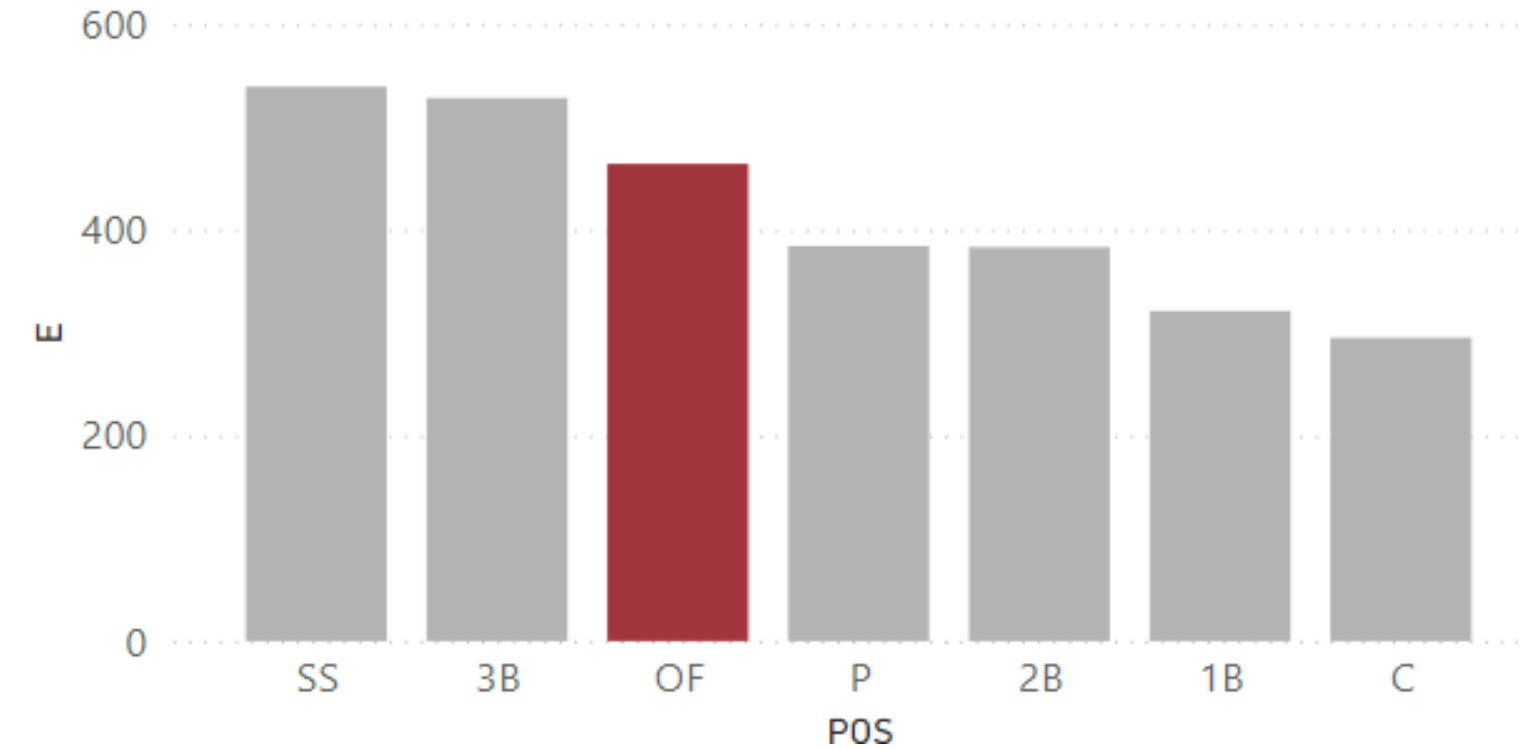

Errors by Position, 2014

Color as an emphasis

- Color is a "pre-attentive attribute"

- Use neutral colors for bars
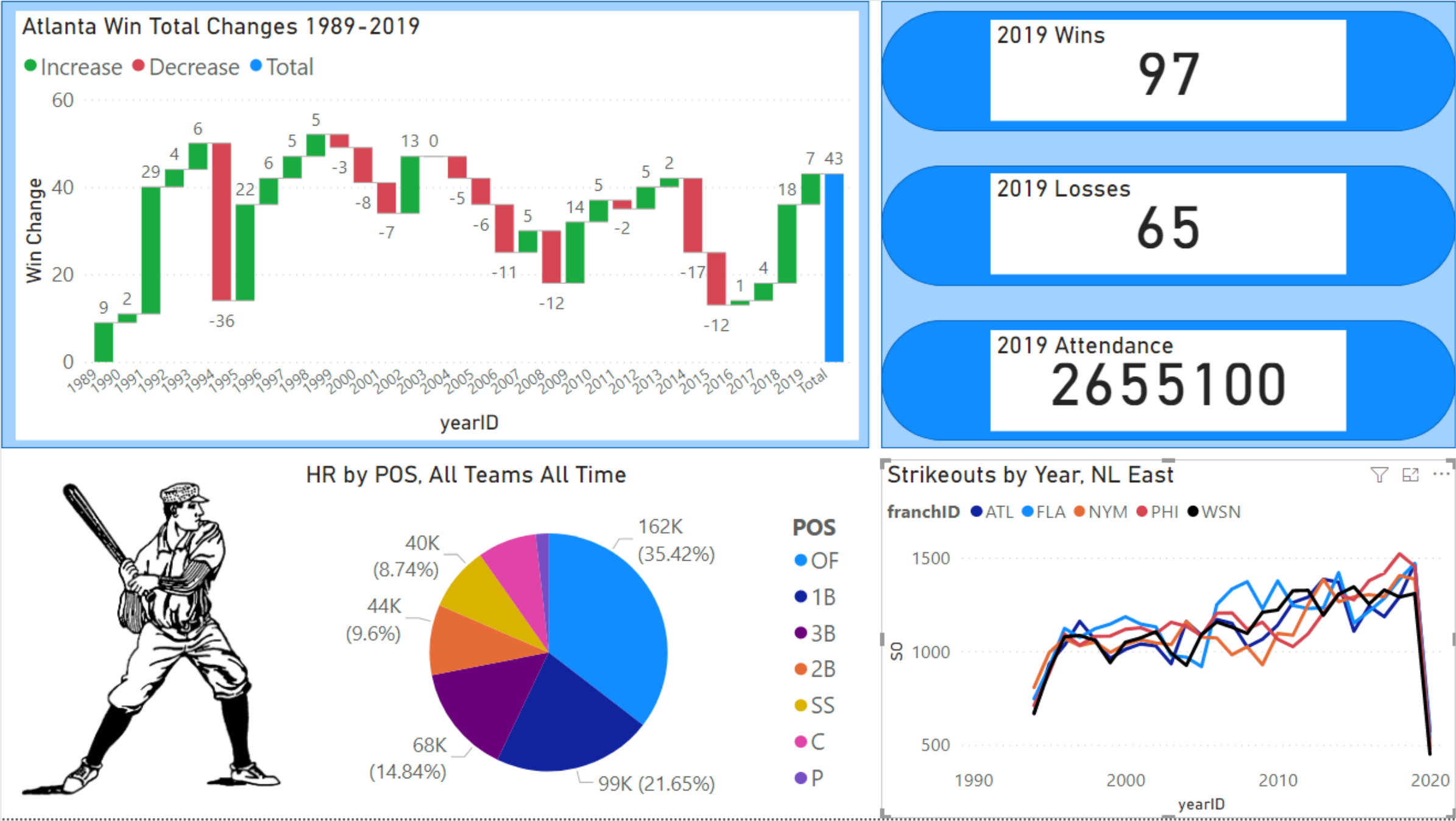
- Pick one emphasis color
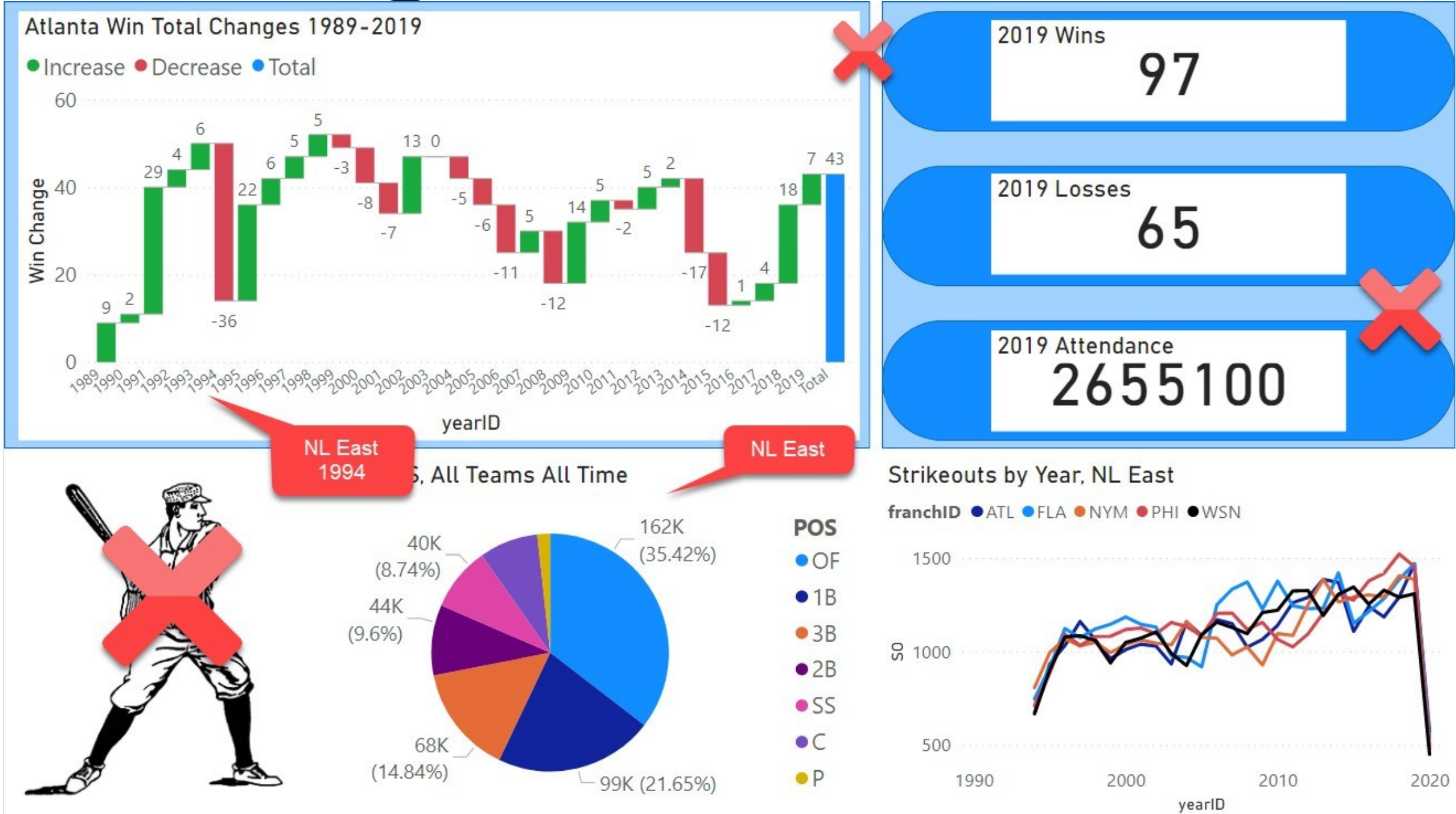
- Color is a garnish

Errors by Position, 2014

The importance of negative space
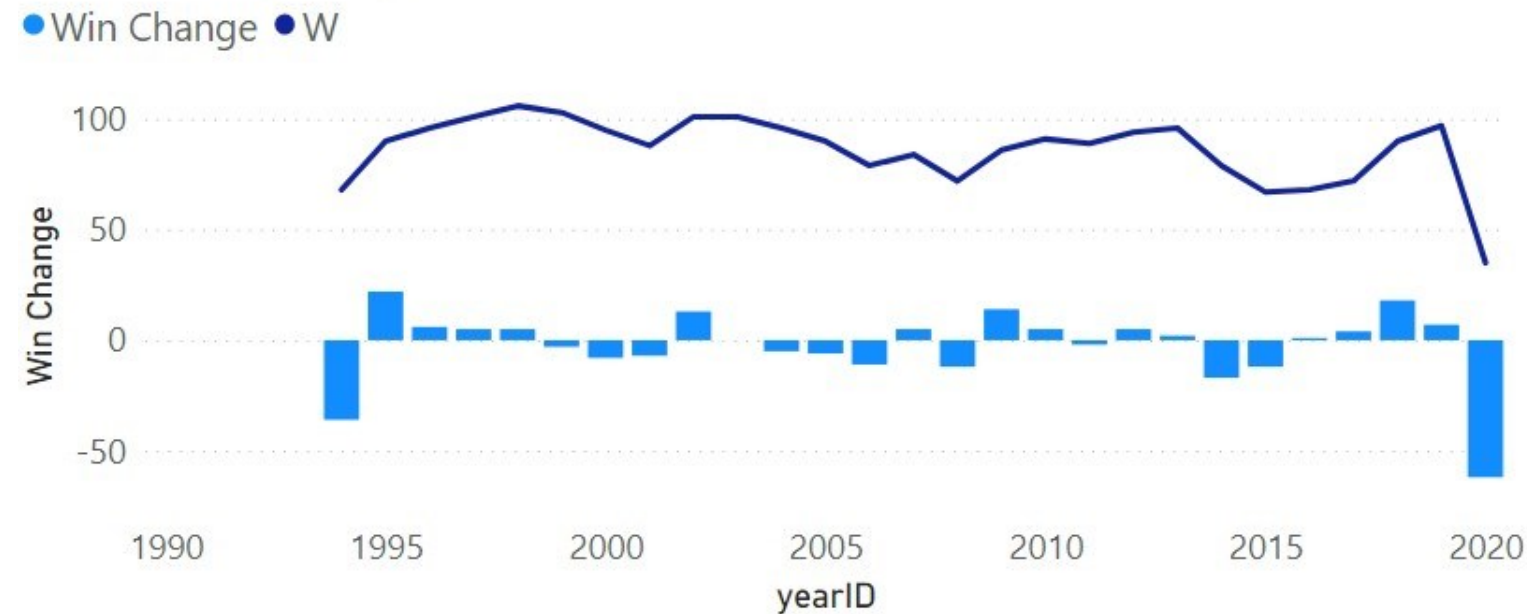
De-cluttering a dashboard
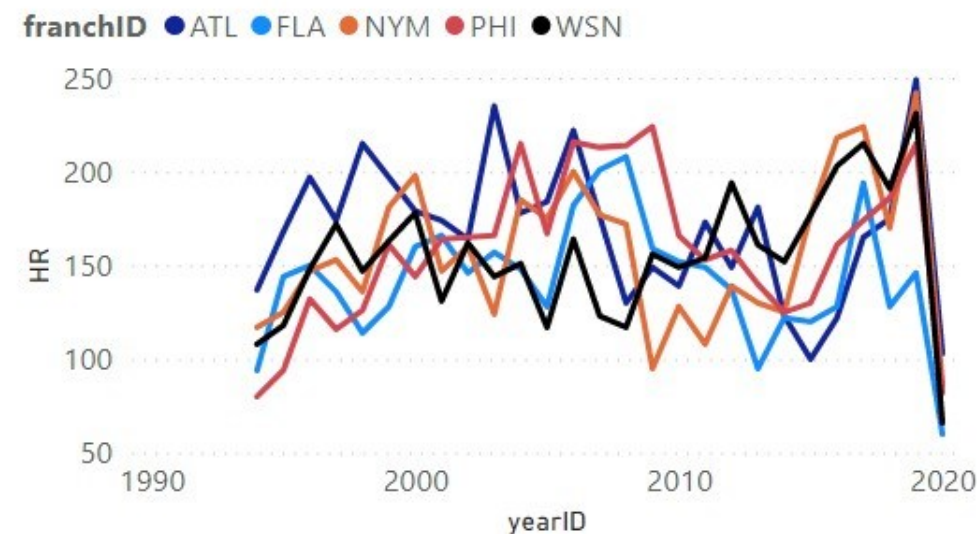
De-cluttering a dashboard

A Less Cluttered Dashboard

Atlanta Wins per Year, 1994-2020

Home Runs by Year, NL East

Strikeouts by Year, NL East

Atlanta Braves 2019 Totals

Thinking of our audience
General Manager persona

- Who played at each position for our team and how much did they play?

- How well is our team meeting expectations around on-base percentage and errors?

Let's practice!

DATA VISUALIZATION IN POWER BI

Shares, gauges, and KPIs

DATA VISUALIZATION IN POWER BI

Let's practice!

DATA VISUALIZATION IN POWER BI

Part 1

- Know your audience

- Dashboards vs. pixel-perfect reports

Part 2

- Evoking an emotional response

Data visualization in Power BI

Part 3

- Reducing cognitive load

Part 4

- Good visual design

- Effective use of colors

- De-clutter a dashboard