Comparisons

Session 8

PMAP 8921: Data Visualization with R
Andrew Young School of Policy Studies
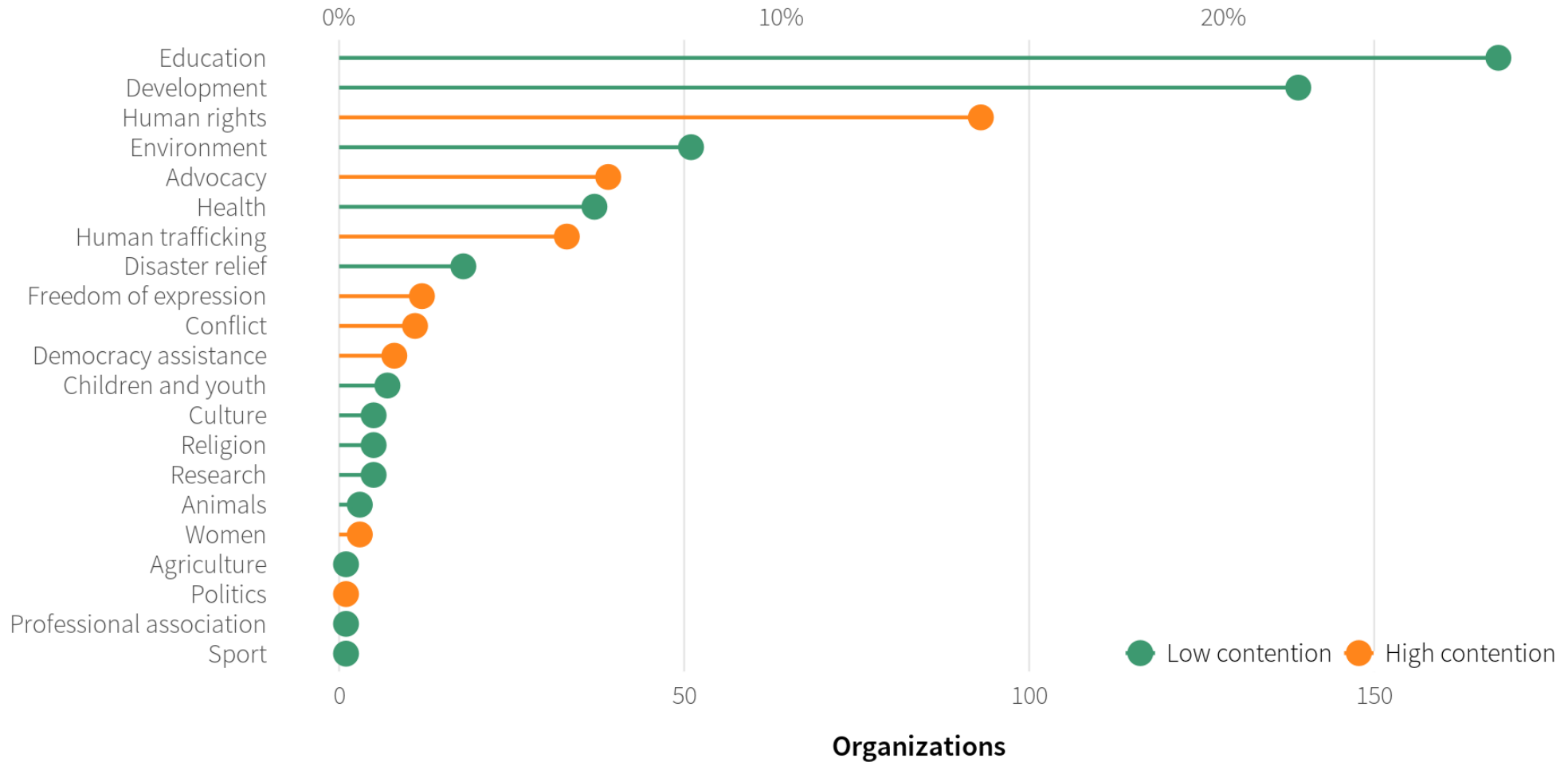Summer 2023

Plan for today

Visualizing comparisons

Reproducible examples
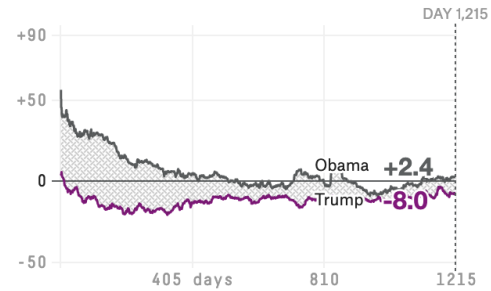
Visualizing comparisons

Lollipops and bars

African Republic

Croatia | Cuba | Cyprus | Czech Republic | Democratic People's Repulic of Korea | Democratic Republic of the Congo | Denmark | Djibouti | Dominica | Dominican Republic | Ecuador | Egypt | El Salvador | Equatorial Guinea

Eritrea | Estonia | Ethiopia | Fiji | Finland | France | Gabon | Gambia | Georgia | Germany | Ghana | Greece | Grenada | Guatemala

Guinea | Guinea-Bissau | Guyana | Haiti | Honduras | Hungary | Iceland | India | Indonesia | Iran | Iraq | Ireland | Israel | Italy

Jamaica | Japan | Jordan | Kazakhstan | Kenya | Kiribati | Kuwait | Kyrgyzstan | Lao People's Democratic Republic | Latvia | Lebanon | Lesotho | Liberia | Libya

Lithuania | Luxembourg | Madagascar | Malawi | Malaysia | Maldives | Mali | Malta | Marshall Islands | Mauritania | Mauritius | Mexico | Micronesia | Monaco

Mongolia | Montenegro | Morocco | Mozambique | Myanmar | Namibia | Nauru | Nepal | Netherlands | New Zealand | Nicaragua | Niger | Nigeria | Niue

Norway | Oman | Pakistan | Palau | Panama | Papua New Guinea | Paraguay | Peru | Philippines | Poland | Portugal | Qatar | Republic of Korea | Republic of Moldova

Romania | Russian Federation | Rwanda | Saint Kitts and Nevis | Saint Lucia | Saint Vincent and the Grenadines | Samoa | San Marino | Sao Tome and Principe | Saudi Arabia | Senegal | Serbia | Seychelles | Sierra Leone

Islands

d'Ivoire

Small multiples

How Trump compares with past presidents

○ Approval rating ○ Disapproval rating ● Net approval

| **1,215 days** | 4 years | 8 years |

Barack Obama 2009-17

Obama +2.4
Trump −8.0

George W. Bush 2001-09

Bush −4.6
Trump −8.0
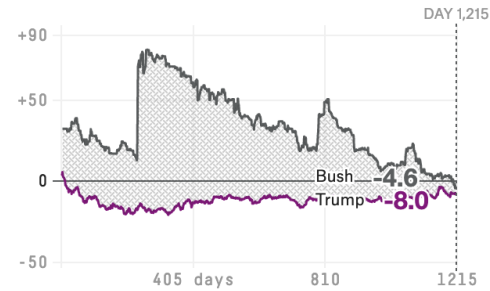
Bill Clinton 1993-2001

Clinton +20.0
Trump −8.0
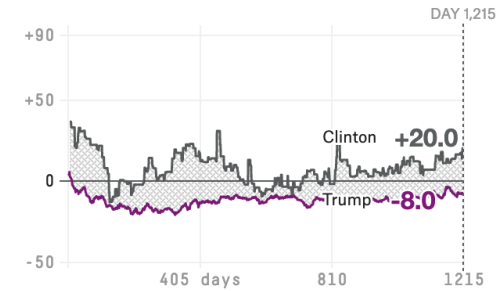
George H.W. Bush 1989-93

Trump −8.0
Bush −9.5
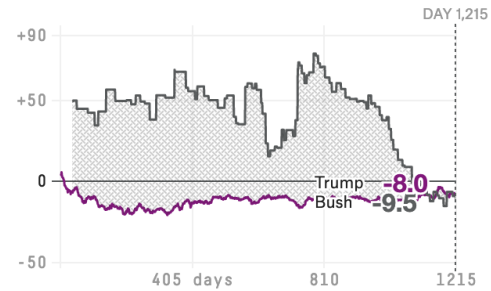
Ronald Reagan 1981-89

Reagan +15.3
Trump −8.0
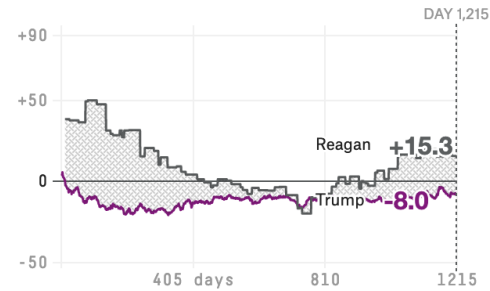
Jimmy Carter 1977-81

Carter −2.7
Trump −8.0
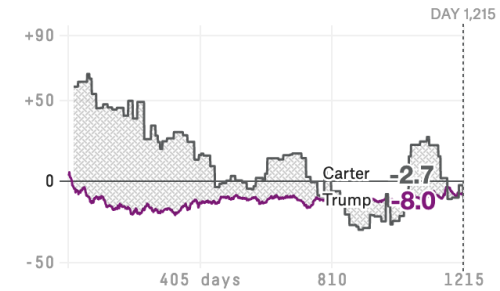
FiveThirtyEight, Trump approval ratings

Small multiples with larger shapes

Seasonally Adjusted US Unemployment Rate 2000-2016
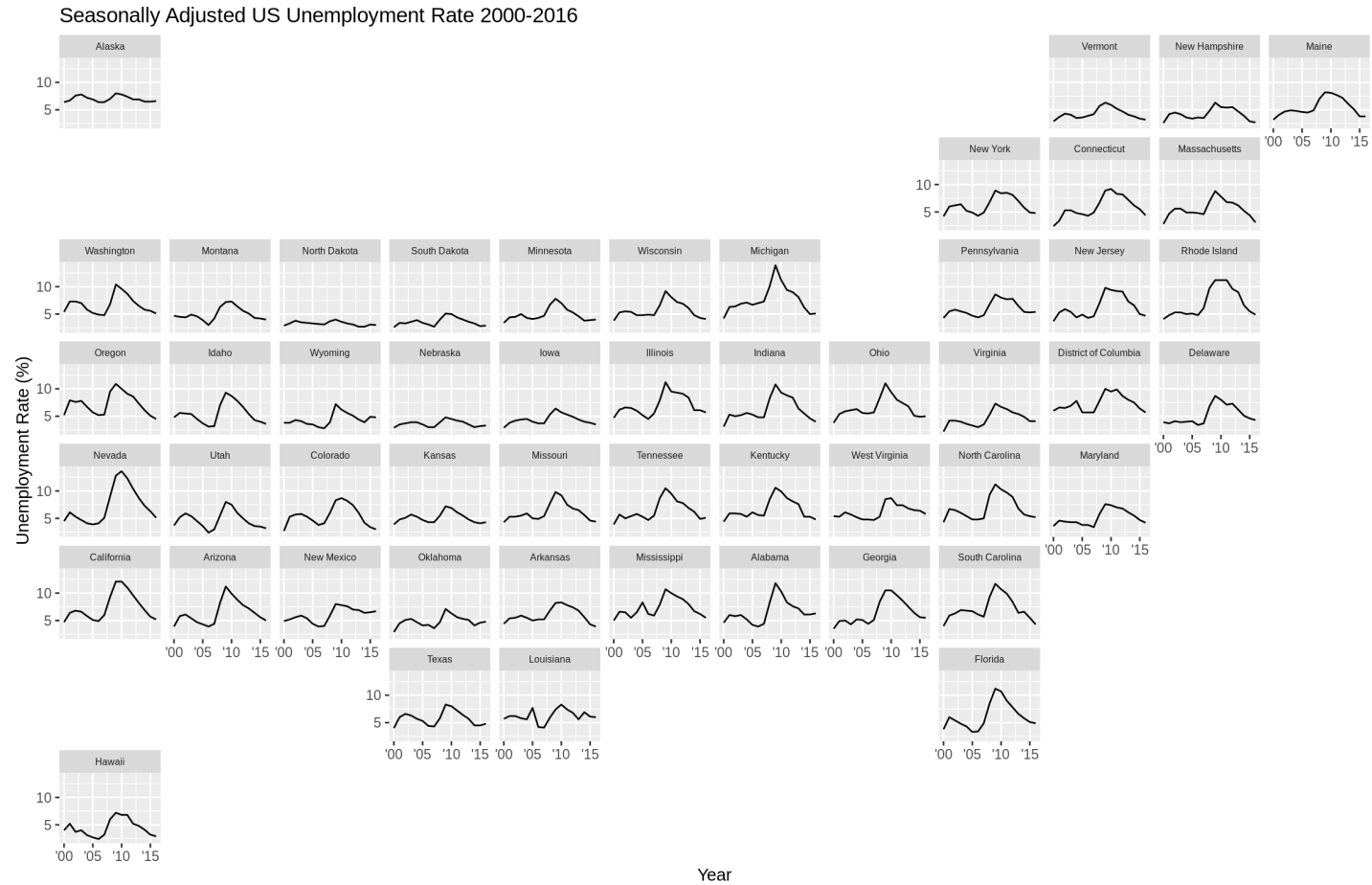
Data Source: bls.gov

`facet_geo()` in the **geofacet** package

Sparklines

Mauricio Pochettino has lead Spurs on their best run 8TH ~~~~ 2ND in 24 years of the Premier League
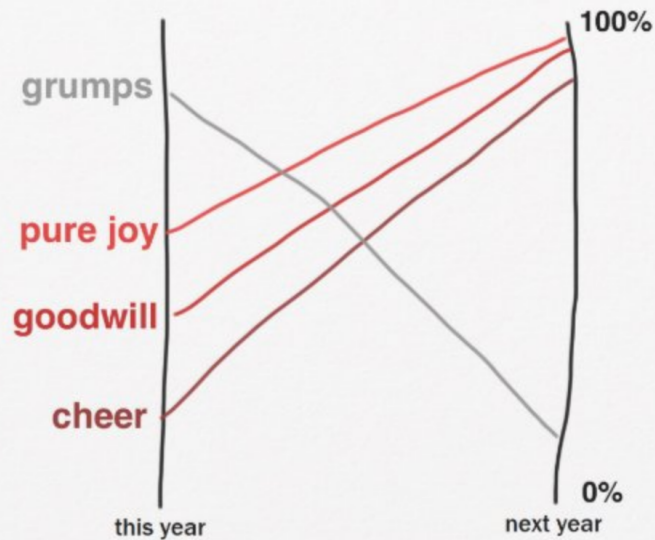
Alibaba stock is at 5 yr high 93.89 ▮▮▮▮▮ 152.11 as of July 2017

The FTSE100 Brexit bounce 5562 ·········· 7501 continues one year on from the vote last summer

Slopegraphs

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Slopegraphs

Estimates of relative survival rates, by cancer site

|	% survival rates and their standard errors			
	5 year	10 year	15 year	20 year
Prostate	98.8 0.4	95.2 0.9	87.1 1.7	81.1 3.0
Thyroid	96.0 0.8	95.8 1.2	94.0 1.6	95.4 2.1
Testis	94.7 1.1	94.0 1.3	91.1 1.8	88.2 2.3
Melanomas	89.0 0.8	86.7 1.1	83.5 1.5	82.8 1.9
Breast	86.4 0.4	78.3 0.6	71.3 0.7	65.0 1.0
Hodgkin's disease	85.1 1.7	79.8 2.0	73.8 2.4	67.1 2.8
Corpus uteri, uterus	84.3 1.0	83.2 1.3	80.8 1.7	79.2 2.0
Urinary, bladder	82.1 1.0	76.2 1.4	70.3 1.9	67.9 2.4
Cervix, uteri	70.5 1.6	64.1 1.8	62.8 2.1	60.0 2.4
Larynx	68.8 2.1	56.7 2.5	45.8 2.8	37.8 3.1
Rectum	62.6 1.2	55.2 1.4	51.8 1.8	49.2 2.3
Kidney, renal pelvis	61.8 1.3	54.4 1.6	49.8 2.0	47.3 2.6
Colon	61.7 0.8	55.4 1.0	53.9 1.2	52.3 1.6
Non-Hodgkin's	57.8 1.0	46.3 1.2	38.3 1.4	34.3 1.7
Oral cavity, pharynx	56.7 1.3	44.2 1.4	37.5 1.6	33.0 1.8
Ovary	55.0 1.3	49.3 1.6	49.9 1.9	49.6 2.4
Leukemia	42.5 1.2	32.4 1.3	29.7 1.5	26.2 1.7
Brain, nervous system	32.0 1.4	29.2 1.5	27.6 1.6	26.1 1.9
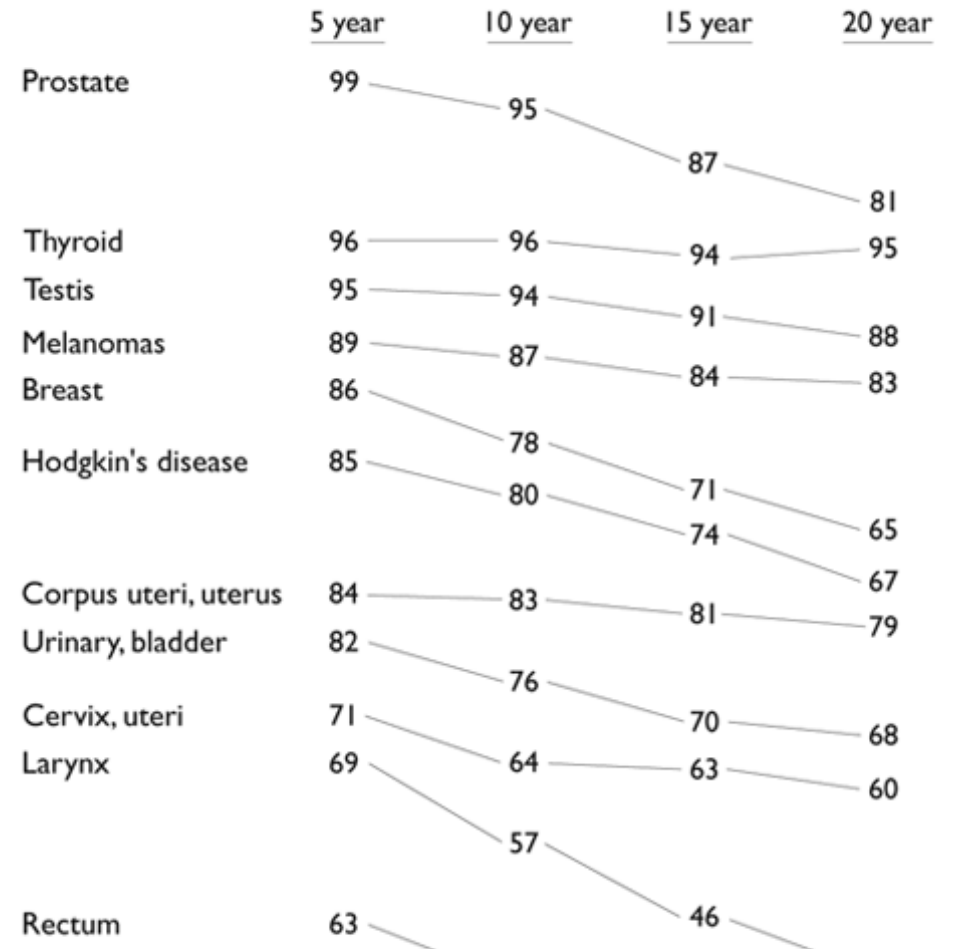
Bump charts

PyeongChang 2018 Olympic Winter Games
Countries ranked by overall medals after each competition day
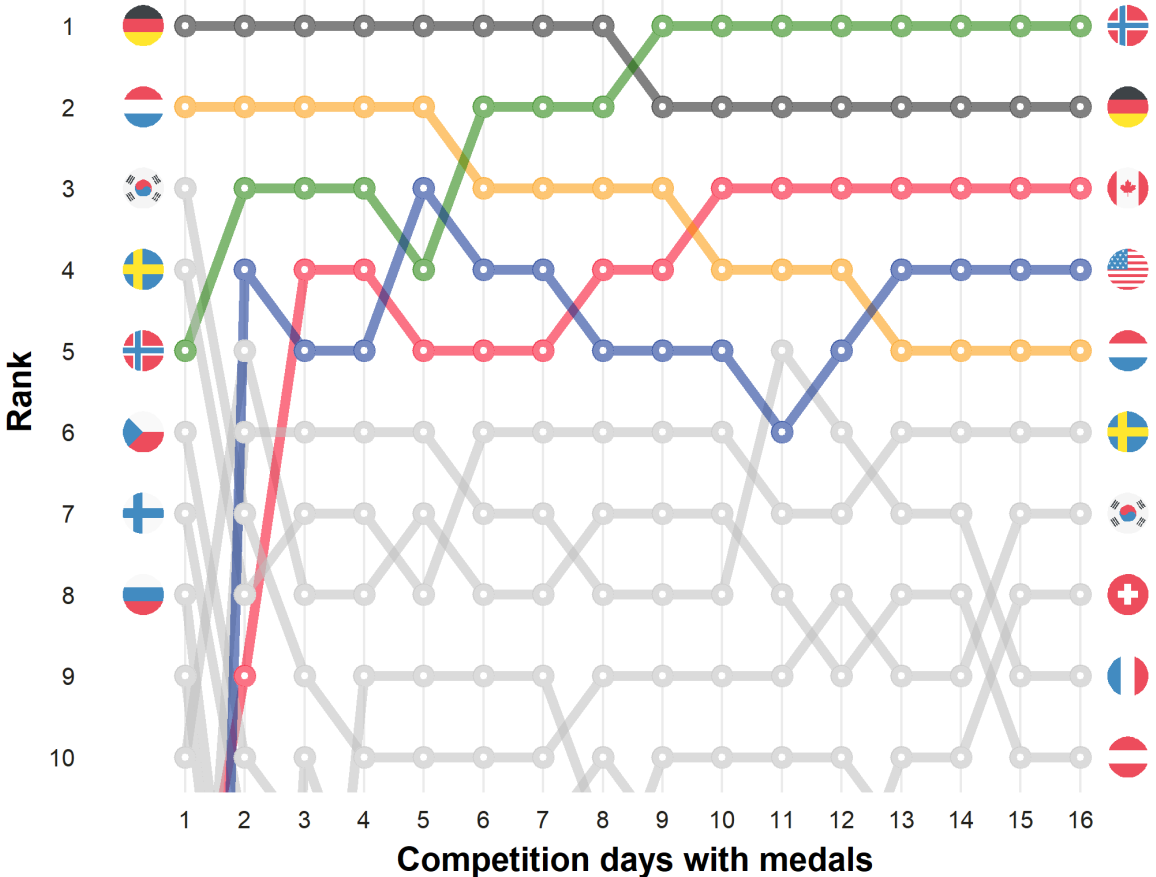
Reproducible examples

This is 100% normal!

Brandon Rohrer
@_brohrer_

I was just asked whether I ever have to look things up when I code. I want to go on record saying that, aside from canned white board coding examples, I can't write two lines of code without referring to Google or stack overflow. I would be lost without them.

3:57 PM · Oct 8, 2018 · Twitter for iPhone

298 Retweets   **1.5K** Likes

52   298   1.5K

Broken cake

Help! My cake broke!

vs.

Help! I followed these
6 steps and my cake broke!

**Same principle
applies to code**

Reprexes

Reproducible examples

Something anyone can run on their computer to reproduce the problem you're facing

Debugging and reprexes

Simplify your code down to something very basic

Add additional things until stuff breaks

Use a subset of your data or invent fake data

Restart your session and see if it runs in a new session

Ask the internet for help using your toy example

75% of the time you'll find what's wrong as you make the reprex!

Making datasets with `tribble()`

```r
my_data <- tribble(
  ~animal, ~number,
  "cat", 5,
  "dog", 4,
  "bear", 7,
  "bison", 1
)
```

```r
my_data
```

```
## # A tibble: 4 × 2
##   animal number
##   <chr>   <dbl>
## 1 cat         5
## 2 dog         4
## 3 bear        7
## 4 bison       1
```

Example reprex

```r
my_data <- tribble(
  ~animal, ~number,
  "cat", 5,
  "dog", 4,
  "bear", 7,
  "bison", 1
)

# This plot has a fill legend, but I want to remove it because it's redundant
# What's the best way to get rid of the fill?
ggplot(fake_data, aes(x = animal, y = number, fill = animal)) +
  geom_col()
  # I add something here, but what?
```