

communicating about data

Data is a set of **variables**  
that capture various  
aspects of the world

It also contains  
**observations** over those  
variables

# Tidy data

country	year	cases	pop
Afghanistan	1990	745	1012731
Afghanistan	2000	666	2012520
Afghanistan	2010	112	1712522
Afghanistan	2011	112	1712523
Afghanistan	2012	112	1712522
Afghanistan	2013	112	1712523
Afghanistan	2014	112	1712522
Afghanistan	2015	112	1712523
Afghanistan	2016	112	1712522
Afghanistan	2017	112	1712523
Afghanistan	2018	112	1712522
Afghanistan	2019	112	1712523
Afghanistan	2020	43700	12072363
India	2020	43700	12072363

A data set is **tidy** iff:

1. Each **variable** is in its own **column**
2. Each **case** is in its own **row**
3. Each **value** is in its own **cell**

There are other ways to format and represent data

Another common method is a hierarchical, or list-based structure



We often make the  
distinction between

Numerical

discrete

continuous

and

Categorical

“normal”

ordinal

Let's brainstorm some variables that could be recorded  
about you that are numerical and categorical

Data can seem neutral,  
but it is always generated  
by humans

# #privilegealert

I am a

- white
- straight
- cisgender
- middle class
- highly educated
- American

lady

I'm doing the best I can when I talk about issues of race, class, gender, and other sensitive topics. But you should *always feel free* to call me out (publicly or privately).

# Sometimes data is collected intentionally

- The Census
- Pew Research surveys
- Science!
- ...and of course, many more

# Sometimes data is collected for one reason and used for another

- Health information about you at the doctor
- Emails (think Enron trove!)
- Location information from social media posts
- ...and more!

Brainstorm time: Make a list  
of all the places you left “data  
exhaust” today/this week

# Main communication types in this class

- Writing about data (words)
- Visualizing data (pictures)
- Speaking about data (sounds?)

## Coffee increases state anxiety in males but not in females

Paloma Botella and Andrés Parra\*

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Coffee, reproducing the conditions under which caffeine is normally ingested, containing 3, 75, 150 or 300 mg of caffeine was given to healthy male and female volunteers. 25–30 min after drinking the beverage, they completed the Spanish version of the state-trait anxiety inventory (STAI). The beverage increased state anxiety, in a dose-dependent manner, in males but not in females. This could be due to a lesser sensitivity of females to coffee. Copyright © 2003 John Wiley & Sons, Ltd.

KEY WORDS — caffeine; STAI; mood; sex differences

### INTRODUCTION

Caffeine is perhaps the most consumed psychoactive drug in the world (D'Amicis and Viani, 1993). Some recent investigations suggest that giving coffee (or other caffeinated beverages) rather than pure caffeine to subjects is a more appropriate reproduction of the conditions under which caffeine is normally ingested (Hindmarch *et al.*, 1998, 2000). Results have often shown that caffeine increases alertness and attention (Smith *et al.*, 1999) but its effects on anxiety are under discussion.

In the present study, the effects of coffee on anxiety and cardiovascular functioning were measured. The caffeine content of the coffee given to participants was either 3, 75, 150 or 300 mg. These amounts fall within the range of caffeine amounts ingested by regular caffeine consumers. The results of the estimation of time intervals and the reaction time obtained in the same subjects were published separately (Botella *et al.*, 2001).

### METHOD

#### *Participants*

Participants were healthy volunteer students at the University of Valencia, Spain; 39 males and 60 females, ranging in age from 18 to 31 years (mean  $\pm$  SD = 22.6  $\pm$  2.9 years). Subjects were not paid for participating. The inclusion criteria were: to be 18 years old or older; to be in good health as reported by the subjects themselves; and to have signed the informed consent form. The exclusion criteria were: being on any medication; having a history of mental disorders; having an irregular sleep pattern during the night before the experiment; and substance abuse. Moderate alcohol drinking and/or cigarette smoking were allowed. The mean daily caffeine intake for each subject was calculated according to Barone and Roberts (1996). As a result of this calculation, the placebo group of females appeared to consume more caffeine than their counterpart males [ $t_{(23)} = 3.12$ ;  $p < 0.01$ ], but this difference was not statistically significant in the remaining treatments. Other demographic characteristics for participants in this study can be seen in Table 1 of Botella *et al.* (2001).

#### *Dose manipulation*

The beverage was prepared from espresso coffee kept frozen at  $-20^{\circ}\text{C}$  after boiling. The caffeine

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# Scientific writing

Botella P, Parra A. Coffee increases state anxiety in males but not in females. *Human Psychopharmacology: Clinical & Experimental*. 2003;18(2):141-143.  
doi:10.1002/hup.444

# Big Money Bought the Forests. Small Logging Communities Are Paying the Price.

Tony Schick, OPB, Rob Davis, The Oregonian, and Lylla Younes, ProPublica

June 11, 2020

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**F**ALLS CITY, ORE. — A few hundred feet past this Oregon timber town, a curtain of Douglas fir trees opens to an expanse of skinny stumps.

The hillside has been clear-cut, with thousands of trees leveled at once. Around the bend is another clear-cut nearly twice its size, then another, patches of desert brown carved into the forest for miles.

Logging is booming around Falls City, a town of about 1,000 residents in the Oregon Coast Range. More trees are cut in the county today than decades ago when a sawmill hummed on Main Street and timber workers and their families filled the now-closed cafes, grocery stores and shops selling home appliances, sporting goods and feed for livestock.

But the jobs and services have dried up, and the town is going broke. The library closed two years ago. And as many as half of the families in Falls City live on weekly food deliveries from the Mountain Gospel Fellowship.

“You’re left still with these companies that have reaped these benefits, but those small cities that have supported them over the years are left in the dust,” Mac Corthell, the city manager, said.

For decades, politicians, suit-and-tie timber executives and caulk-booted tree fallers alike have blamed the federal government and urban environmental advocates for kneecapping the state’s most important industry.

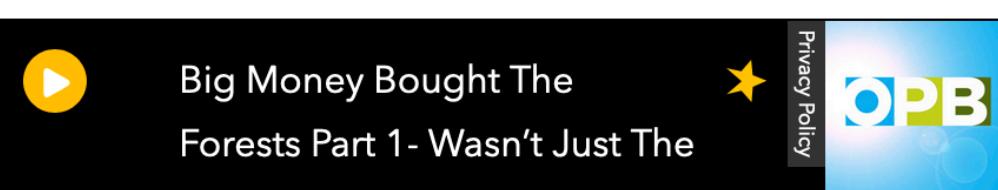
Timber sales plummeted in the 1990s after the federal government dramatically reduced logging in national forests in response to protests and lawsuits to protect the northern spotted owl under the

# Data journalism

## Big Money Bought the Forests. Small Logging Communities Are Paying the Price.

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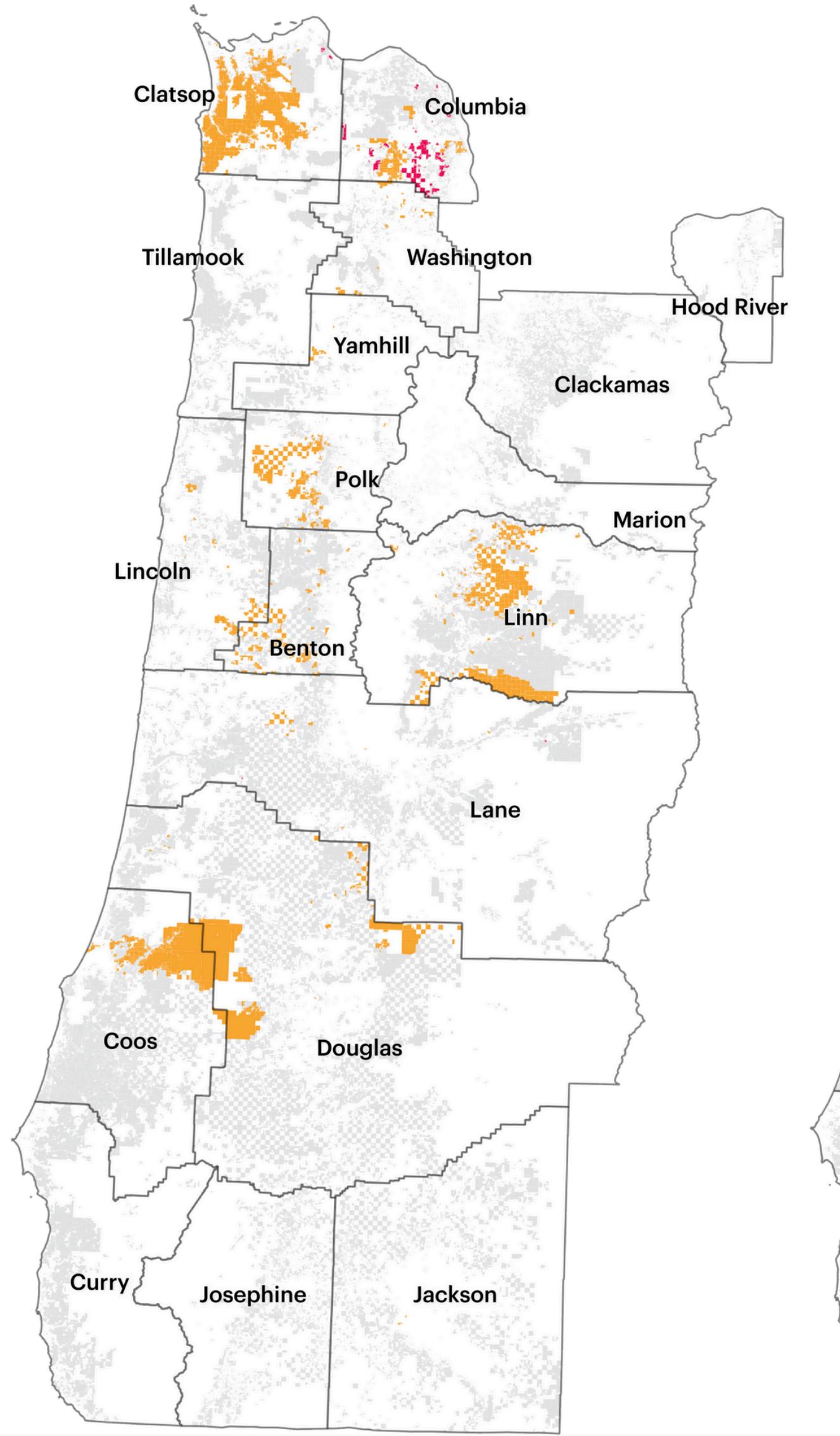
<https://features.propublica.org/oregon-timber/severance-tax-cut-wall-street-private-logging-companies/>



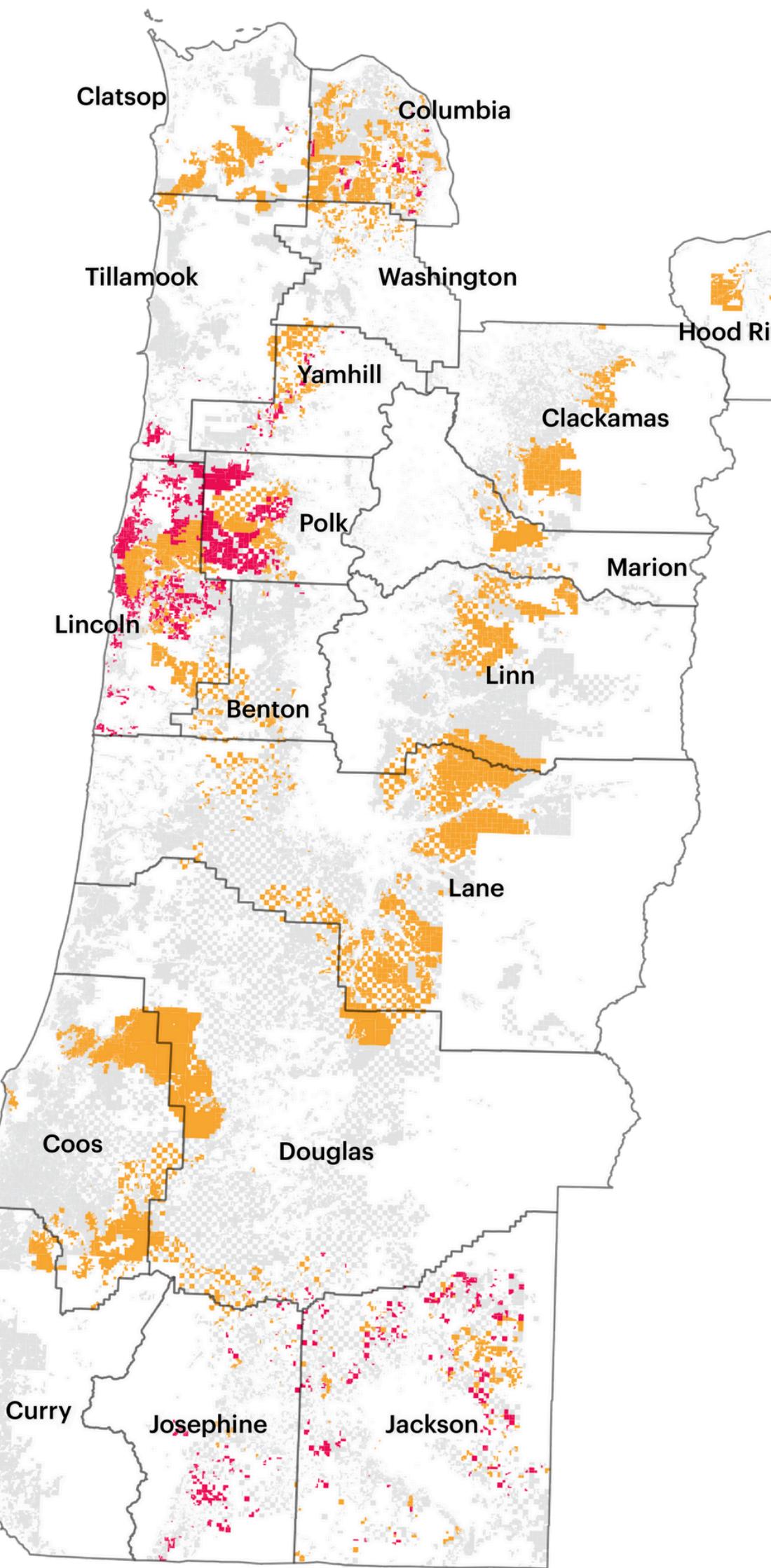
## Oregon's Two Largest Wall Street-Traded Timber Companies Gained Ground

Between 2006 and 2019, Weyerhaeuser (orange) and Hancock Forest Management (pink) more than doubled the amount of forestland they owned in western Oregon.

2006



2019



# (also, data viz!)

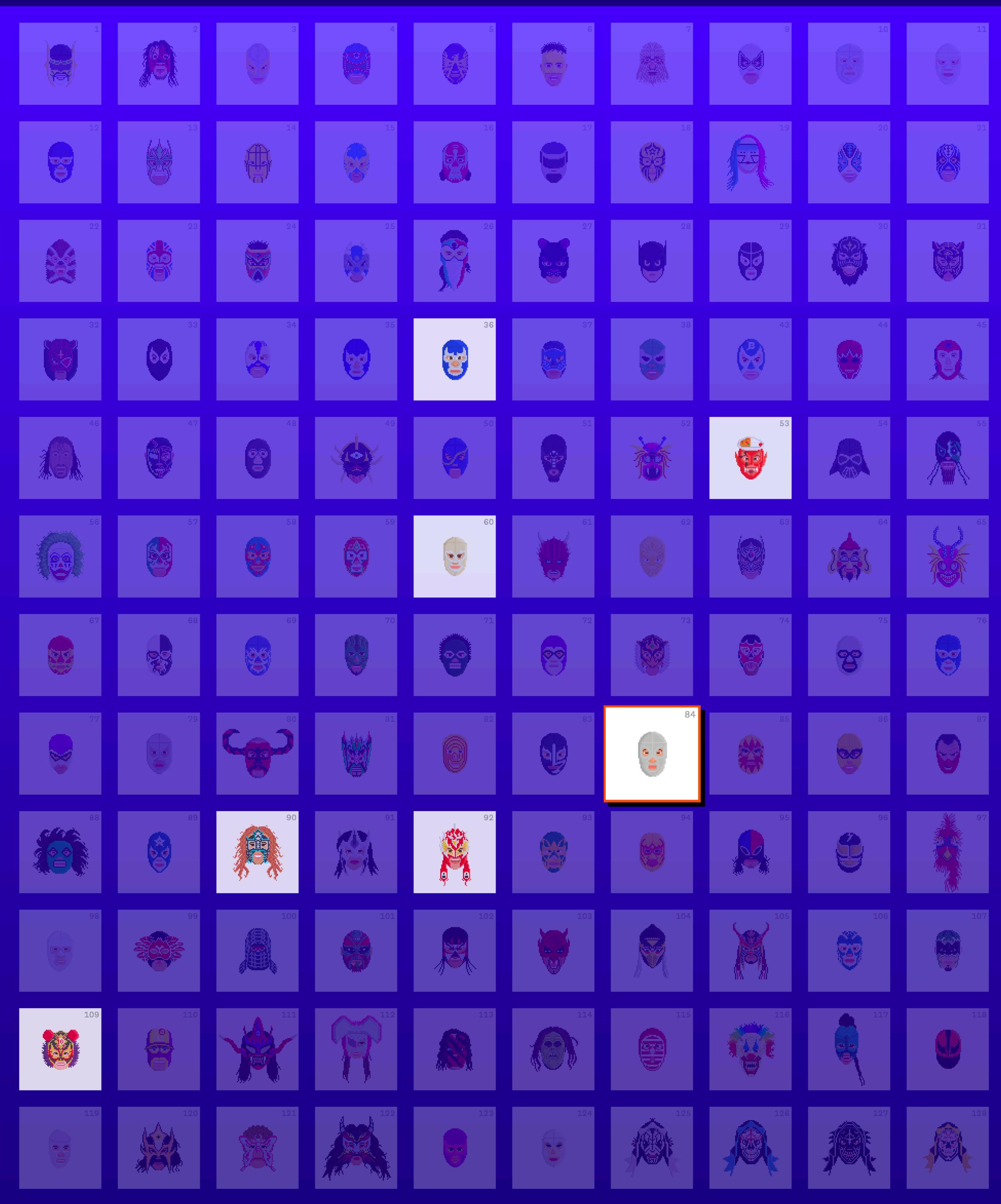
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[https://features.propublica.org/  
oregon-timber/severance-tax-cut-  
wall-street-private-logging-  
companies/](https://features.propublica.org/oregon-timber/severance-tax-cut-wall-street-private-logging-companies/)

**El Santo** + More Info

**The Face:** In lucha libre, or Mexican professional wrestling, matches feature a battle between good (technico) and evil (rudo). Tecnicos, called "face" or "babyface" in the US, are maskless golden boys (think Hulk Hogan) and embody honor, courage, strength, and tenacity.



# Goofy stuff

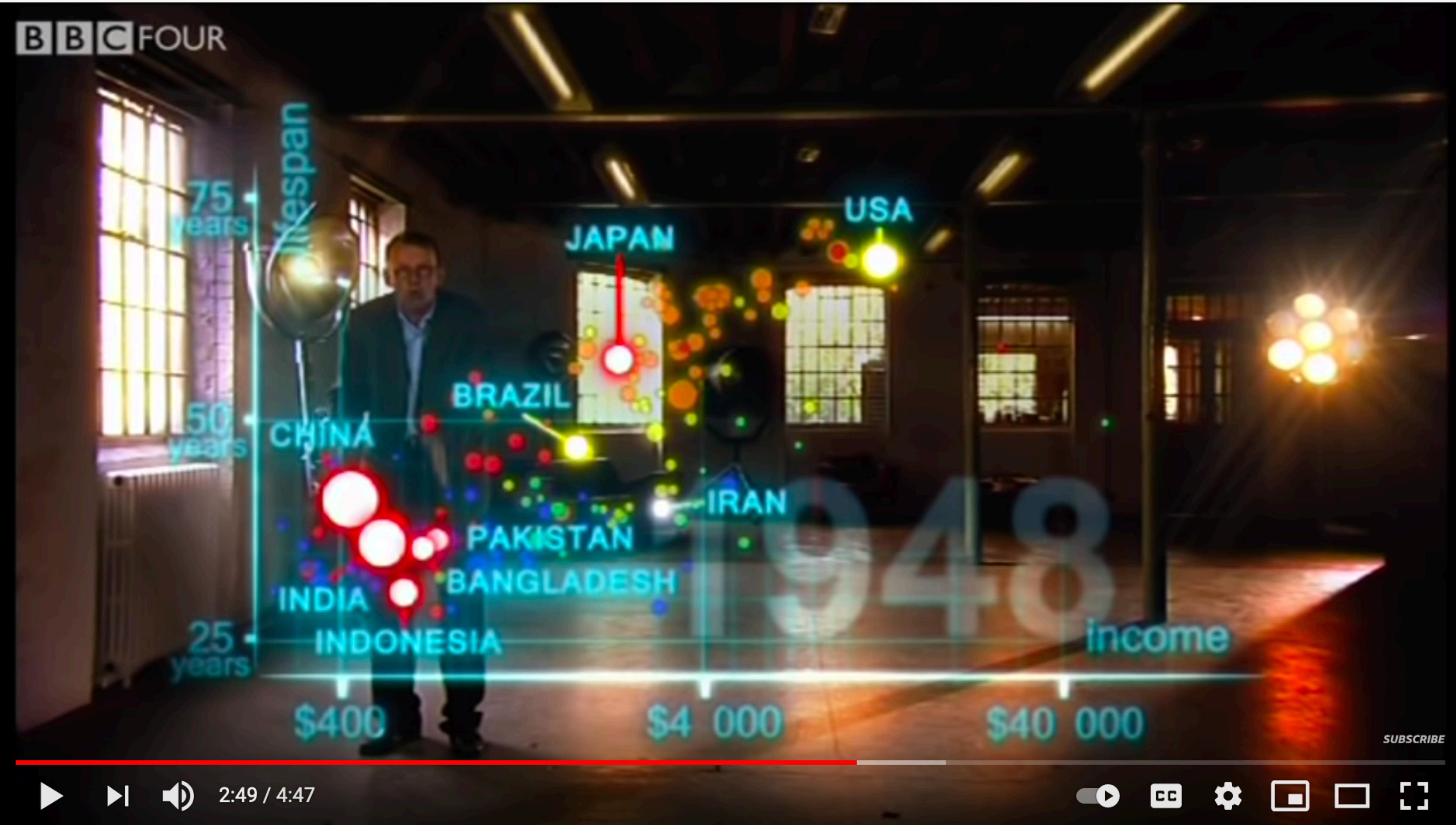
An Illustrated Guide to  
Masked Wrestlers.

Gwendal Uguen, Russel  
Goldenberg, Jan Diehm.

The Pudding.

[https://pudding.cool/  
2020/05/wrestling/](https://pudding.cool/2020/05/wrestling/)

# Speaking about data



Hans Rosling's  
200 Countries, 200  
Years, 4 Minutes -  
The Joy of Stats -  
BBC Four

[https://  
www.youtube.com/  
watch?  
v=jbkSRLYSOj0](https://www.youtube.com/watch?v=jbkSRLYSOj0)

What other types of writing about data are there?  
What distinctions can we draw inside the  
categories?  
(brainstorm/discussion)