

COMP6234 Data Visualisations (2018-2019)

Complementary Material – Narrative Design Patterns

The coursework of COMP6234 is a single piece of data story that uses data visualisations (e.g. charts) to provide insights into a topic. As it has to be a *story*, an essential part in it is a *narrative*, which is the “*telling*” of your story.

This document provides you with 18 popular narrative design patterns [1] to help you tell your story. For each pattern, there are descriptions about why to use the pattern and how to use it, and an example of the pattern being used. Some examples are with URLs to the original websites or news. You can have a look at them and think about how you can use the patterns in your story. If you are interested in more details about these patterns (or more generally, about data stories), please check out the book chapter by Bach et al. [1].

Please note that the aim of providing these patterns is to help you rather than restricting your imaginations. You do not have to limit your choices within these patterns.

The provided narrative design patterns can be described by 5 categories:

1. **Argumentation**: reasoning systematically in support of an idea, action, or theory.
2. **Flow**: helping structure the sequencing of messages and arguments.
3. **Framing**: building the way facts and events in a story are perceived and understood through narration.
4. **Emotion**: enhancing readers’ ability to understand and share the feelings and experiences important in the story.
5. **Engagement**: the feeling of being part of the story, of being connected to it, and being in control over the interaction with the story’s content.

Table 1 (on the next page) shows how the 18 patterns fit into the 5 categories. Some patterns fit into more than one category, which means that they can serve more than one purpose. Again, this table is just a suggestion and you do not have to let it limit your choices. If you want to use any patterns for the categories that they do not belong to in Table 1, feel free to use them.

In the end of this module, you will have the chance to take part in a study to let us know how useful or difficult you think these patterns are, to help us refine these patterns in the future. More details about the study will be sent to you after the submission of your coursework.

Table 1: 18 narrative design patterns into 5 categories

	Argumentation	Flow	Framing	Emotion	Engagement
Addressing the audience					
Breaking the 4 th wall					
Call to action					
Compare					
Concretise					
Convention breaking					
Defamiliarisation					
Exploration					
Familiarisation					
Gradual reveal					
Humans-behind-the-dots					
Make-a-guess					
Physical metaphor					
Repetition					
Rhetorical question					
Silent data					
Speed-up/slow-down					
Users-find-themselves					

Reference

[1] Bach, B., Stefaner, M., Boy, J., Drucker, S., Bartram, L., Wood, J., Ciuccarelli, P., Engehardt, Y., Köppen, U., and Tversky, B. Narrative design patterns for data-driven storytelling. In Data-Driven Storytelling, N. H. Riche, C. Hurter, N. Diakopoulos, and S. Carpendale, Eds. CRC Press, USA, 2018, ch. 5, pp. 107–134.

Addressing the audience

Why use this pattern?

To increase empathy, facilitate personal comparisons. To help make the data and information more personally relevant. To allow the reader to use herself as measuring device.

How to use this pattern?

Audience becomes part of the narrative. In the example data story, a narrator in the video directly talks to the audience.

Example



<https://www.filmtank.de/produktionen/crossmedia/netwars-out-of-ctrl/>

Breaking the 4th wall

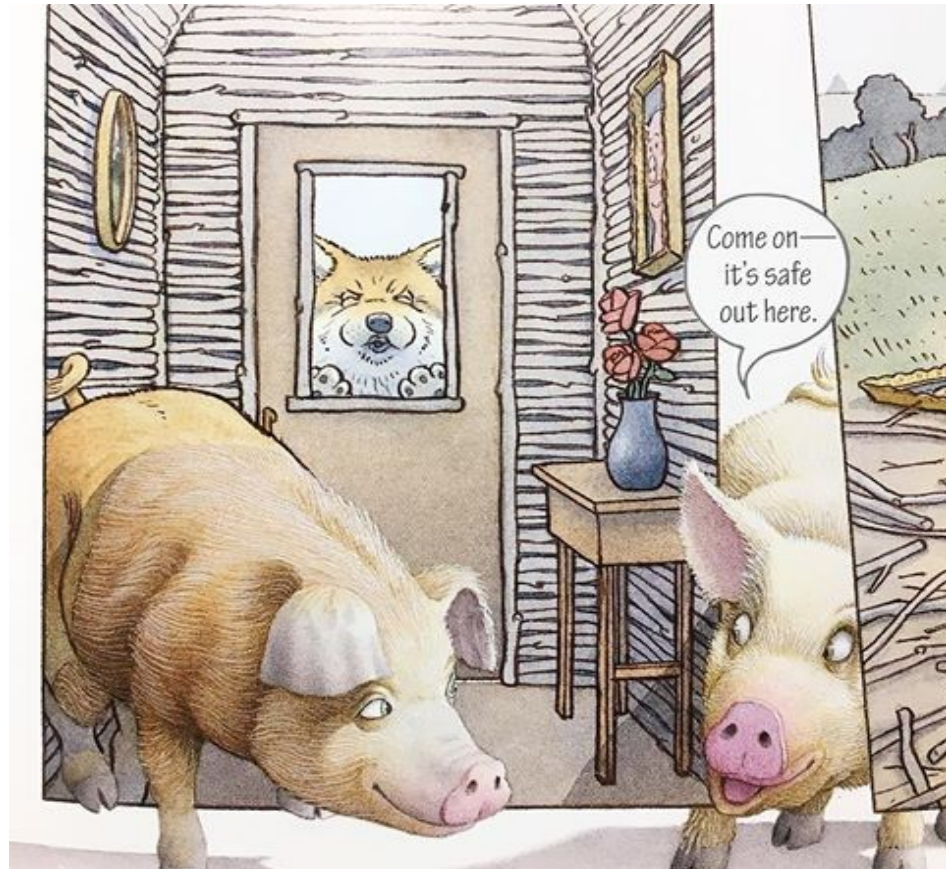
Why use this pattern?

To make a direct connection with viewer.
To demonstrate the artificiality of the presentation. To challenge the objectivity of the observation. To make it clear that this is one interpretation. Surprise, so attention-getting.

How to use this pattern?

Subject unexpectedly addresses the viewer. In the example data story, two pig characters break the “wall” between comic frames and talk to each other.

Example



Call to action

Why use this pattern?

To provide motivation. To offer outline for narrative. To give sense of purpose.

Example



<http://thewaterweeat.com/>

How to use this pattern?

Start with presentation of a problem that needs solving or a situation that needs changing. End with call to action. In the example data story, a message to call for the audience's action to save water is shown in the end of the story.

Compare

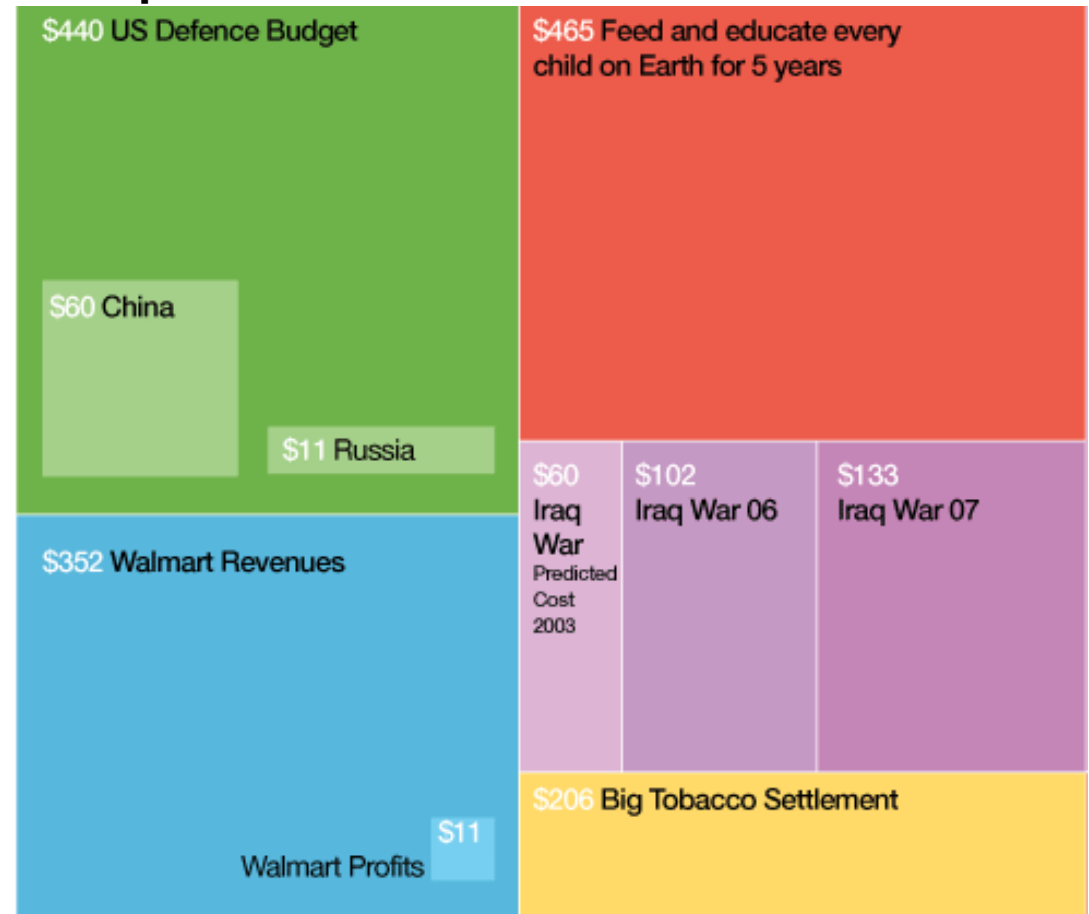
Why use this pattern?

To compare cases or samples. To allow to highlight contrast, difference, absence of difference, and change over time. To allow for individual exploration of (minor) differences.

How to use this pattern?

Showing two or more complementary visualizations (pictures) juxtaposed. In the example data story, the amounts of money of different sources are shown juxtaposed and compared with each other.

Example



<https://informationisbeautiful.net/visualizations/the-billion-dollar-gram/>

Concretise

Why use this pattern?

To make it easier to get a grasp on large, otherwise abstract numbers. To increase memorability.

How to use this pattern?

Isotype. Provide known, concrete reference frame. In the example data story, a certain amount of money is concretised into a tangible object of a certain size that we are familiar with.

Example



http://demonocracy.info/infographics/usa/us_debt/us_debt.html

Convention breaking

Why use this pattern?

To engender surprise. To show extraordinary nature of data. To question the use of the convention. To challenge assumptions.

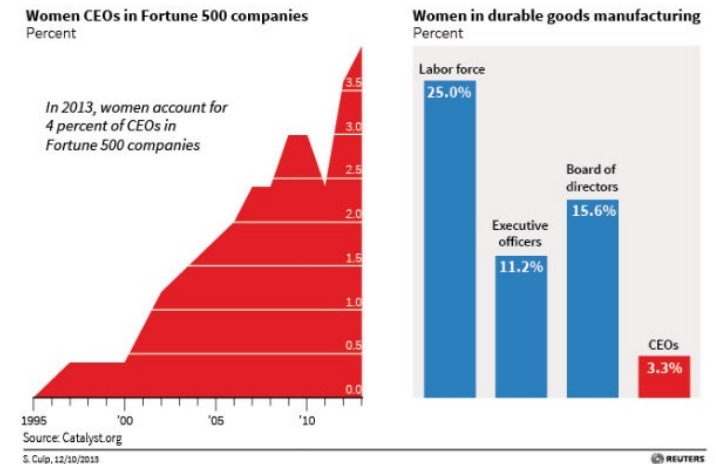
Example

How to use this pattern?

Use or establish a graphical convention, then break it. The example data story first uses different y-axes for the line chart and the bar chart. It then use the same y-axis for both of the two charts, to show how surprisingly the difference is.

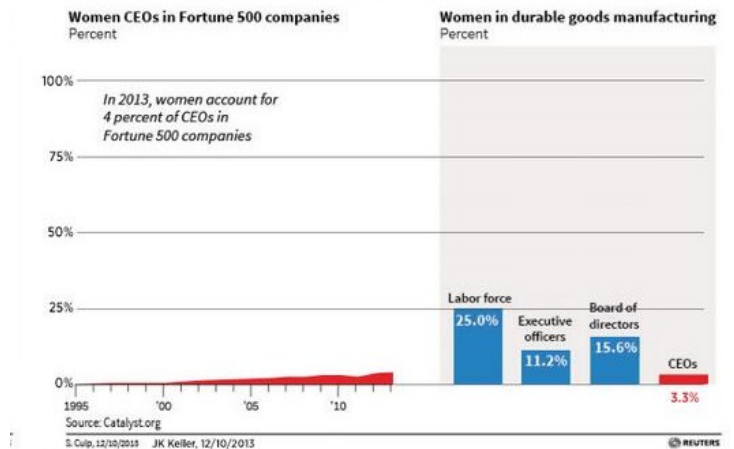
The glass ceiling persists

General Motors named Mary Barra as its next CEO, replacing Dan Akerson. Here's a look at how women are faring in their advancement to the top of Fortune 500 companies and the durable goods sector.



The glass ceiling persists

General Motors named Mary Barra as its next CEO, replacing Dan Akerson. Here's a look at how women are faring in their advancement to the top of Fortune 500 companies and the durable goods sector.



<http://blogs.reuters.com/data-dive/2013/12/10/gms-new-ceo-is-anot-her-small-crack-in-the-glass-ceiling/>

Defamiliarisation

Why use this pattern?

To confront and challenge viewers' expectations. To highlight and question implicit assumptions. To force thinking differently about a well-known case.

How to use this pattern?

Present something known and familiar in a novel, unexpected way. In the example story, a world map is shown upside down to defamiliarise the audience with a regular world map and to encourage them to explore it in a new way.

Example



http://odtmaps.com/detail.asp?product_id=HDP-11x17

Exploration

Why use this pattern?

To give viewers the highest degree of active engagement.

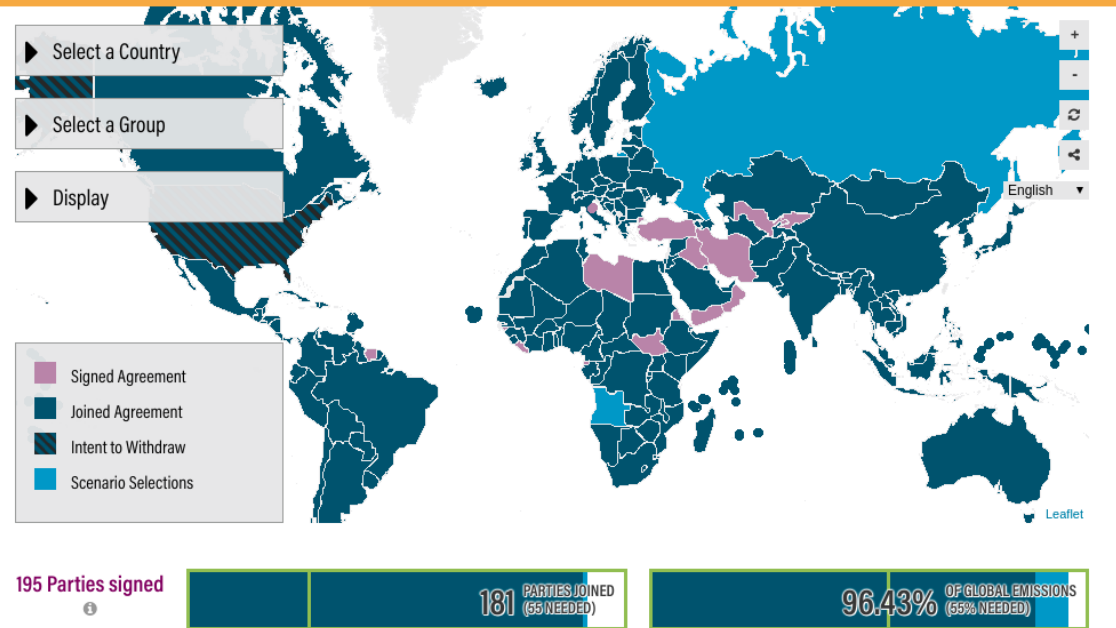
How to use this pattern?

Enable viewers to view and interact with the stories freely. In the example data story, a world map is provided with the audience to browse the different attributes of data.

Example

Paris Agreement Tracker

Tap countries on this interactive map to learn more about when and how countries joined the Paris Agreement



<https://www.wri.org/blog/2016/04/when-could-paris-agreement-take-effect-interactive-map-sheds-light>

Familiarisation

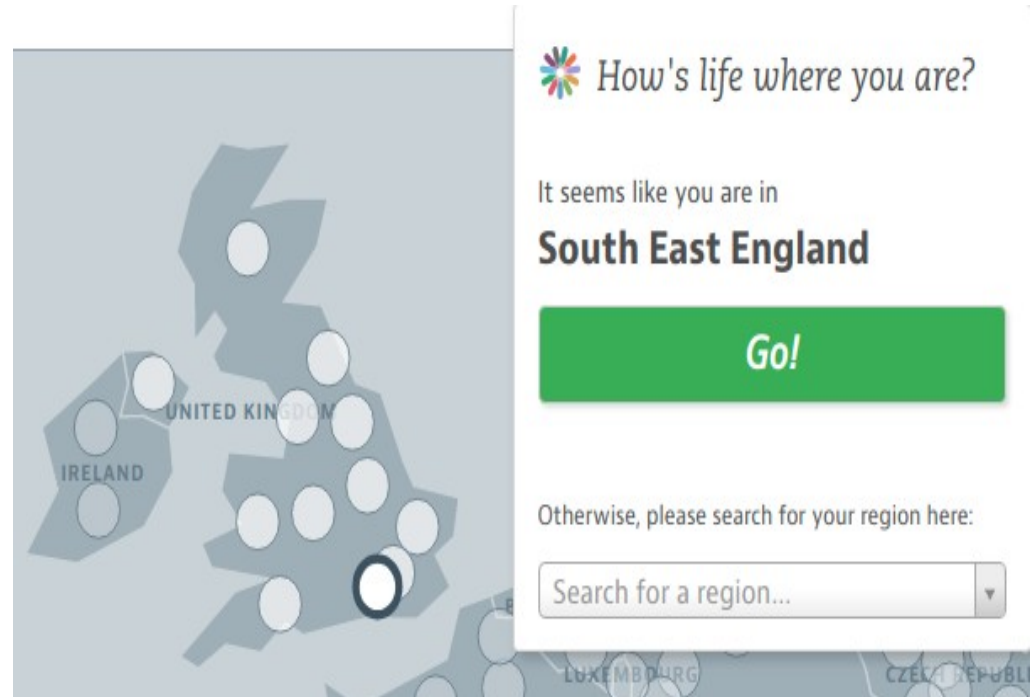
Why use this pattern?

To lower the entry barrier and make information personally relatable.

How to use this pattern?

Embed the entry point of a narrative in an environment which the viewer is familiar with. In the example story, the website asks the audience for their current location and then presents the data for that location. It then shows other regions with similar profiles.

Example



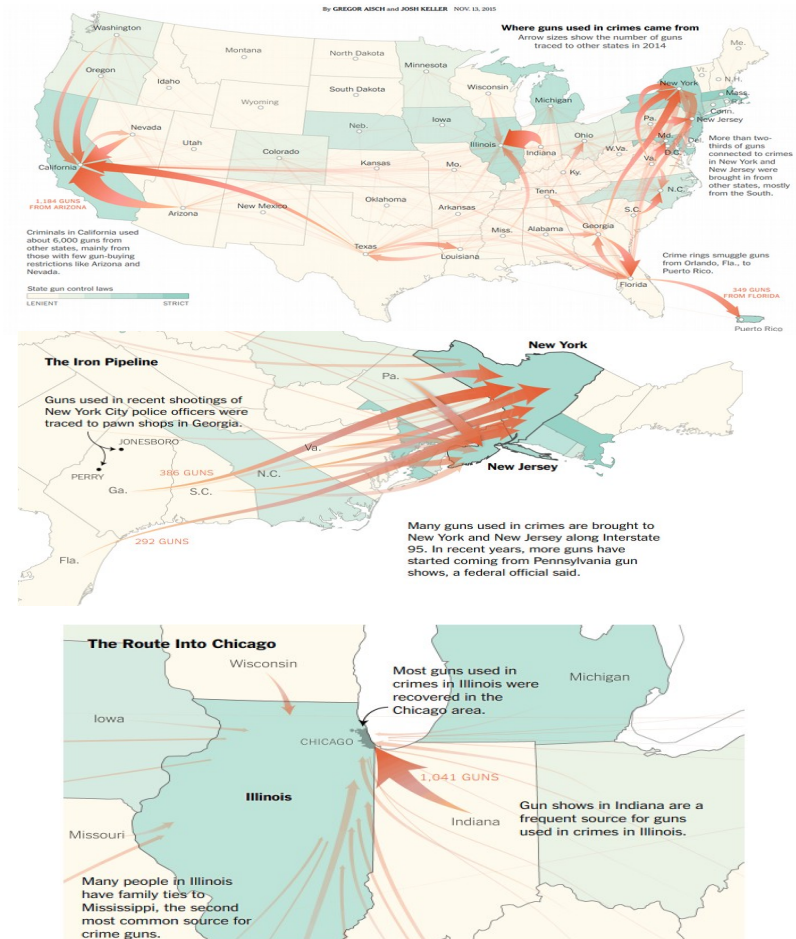
<https://www.oecdregionalwellbeing.org/>

Gradual reveal

Why use this pattern?

To let the story unfold in the viewer's mind while they read the graphic. To chunk the material and make it easier to absorb.

Example



How to use this pattern?

Use visual hierarchy to control sequence of perception of individual elements. In the example story, the map of US is shown gradually in different levels.

<https://www.nytimes.com/interactive/2015/11/12/us/gun-traffickers-smuggling-state-gun-laws.html>

Humans-behind-the-dots

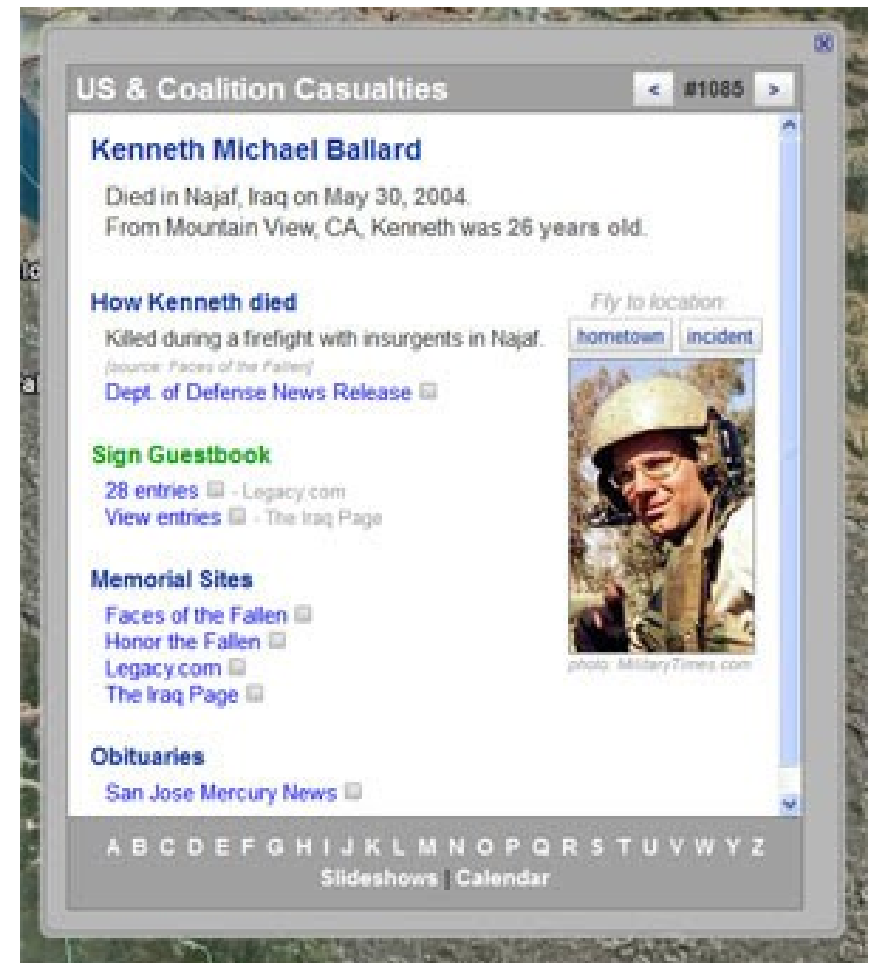
Why use this pattern?

To make abstract data more relatable, and possibly establish an emotional connection between the viewer and the fate of the entities.

Example

How to use this pattern?

Show that there are concrete entities (e.g., a human being) behind, or at the heart of the data. In the example story, clicking on each data point in the US & Coalition casualties will reveal the profile of the soldier.



Make-a-guess

Why use this pattern?

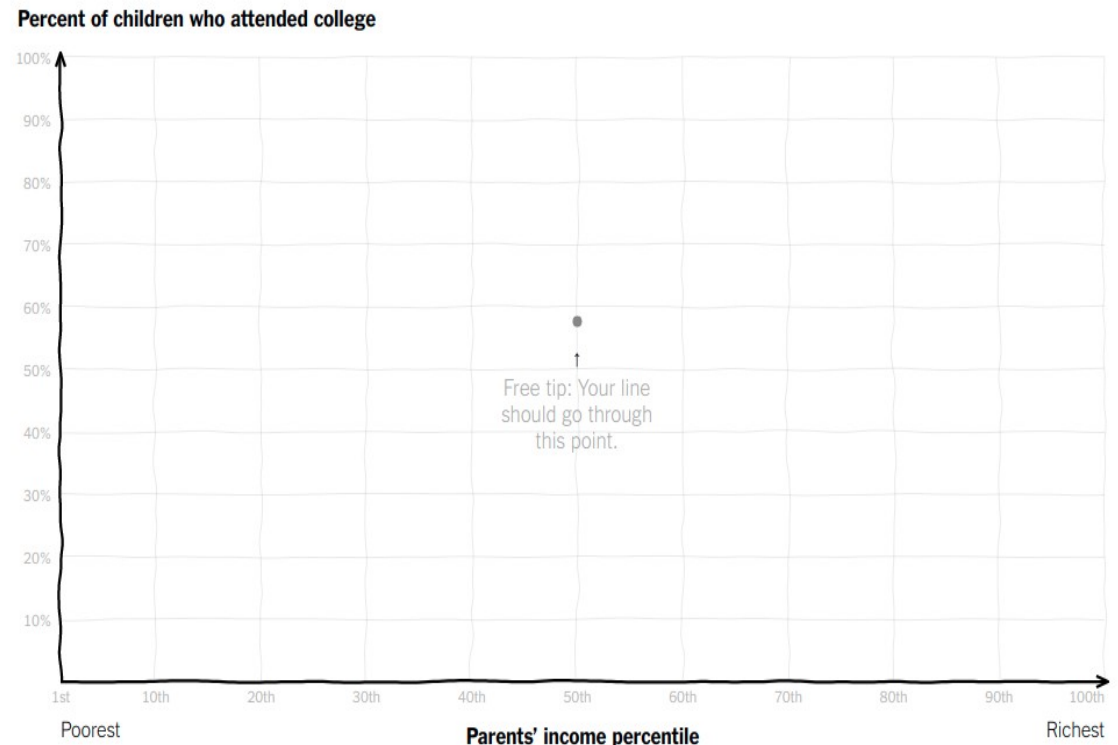
To stimulates the viewer's curiosity, and possibly leads to a game-like experience. To engage the reader in causal reasoning about the phenomenon.

How to use this pattern?

Enable the viewer to guess what insight they might find. If no interaction: interrupt the narrative with a question directly addressed to the viewer and provide the answer after. If interaction: prompt the user with an entry form. In the example story, the audience is asked to draw a line on the chart to represent their guess about the trend in the data.

Example

Draw your line on the chart below



<https://www.nytimes.com/interactive/2015/05/28/upshot/you-draw-it-how-family-income-affects-childrens-college-chances.html>

Physical metaphor

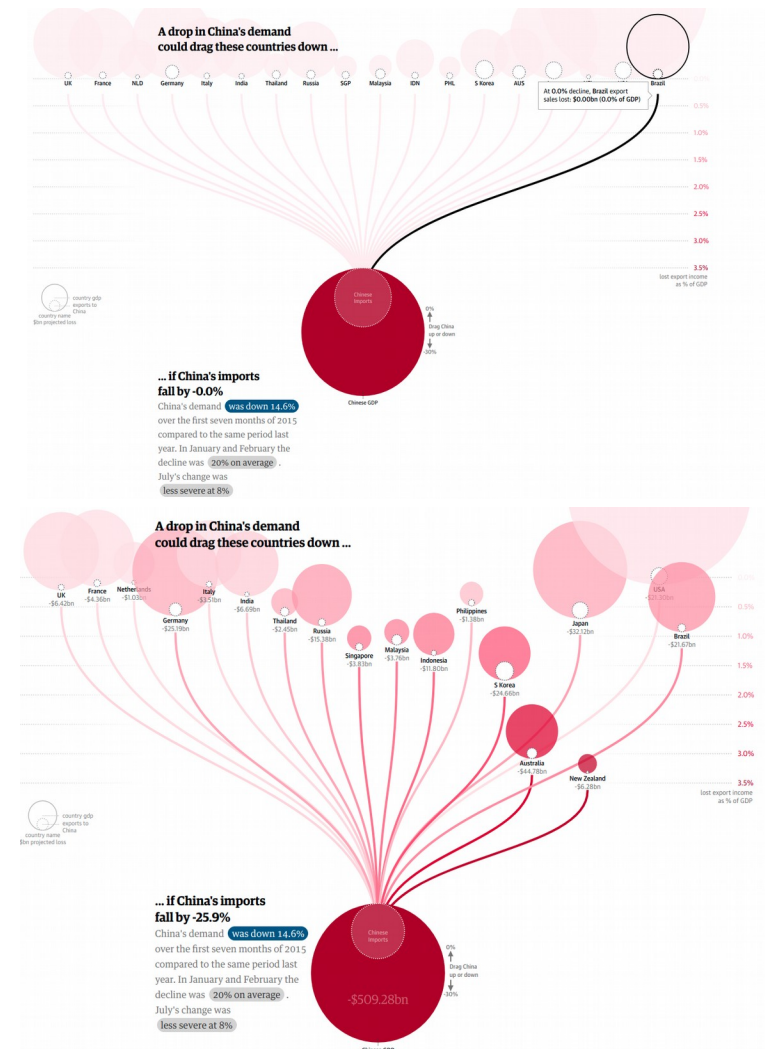
Why use this pattern?

To support metaphor. To allow viewers to construct their own metaphor more easily. To take advantage of convention to ease understanding.

How to use this pattern?

Use space and direction of movement to reinforce positive or negative feelings. Frequently, up = good; down = bad; left = retreat; right = progress. In the example story, the circles that represent the economy of different countries move up when the economy goes up, and move down when the economy goes down.

Example



<https://www.theguardian.com/world/ng-interactive/2015/aug/26/china-economic-slowdown-world-imports>

Repetition

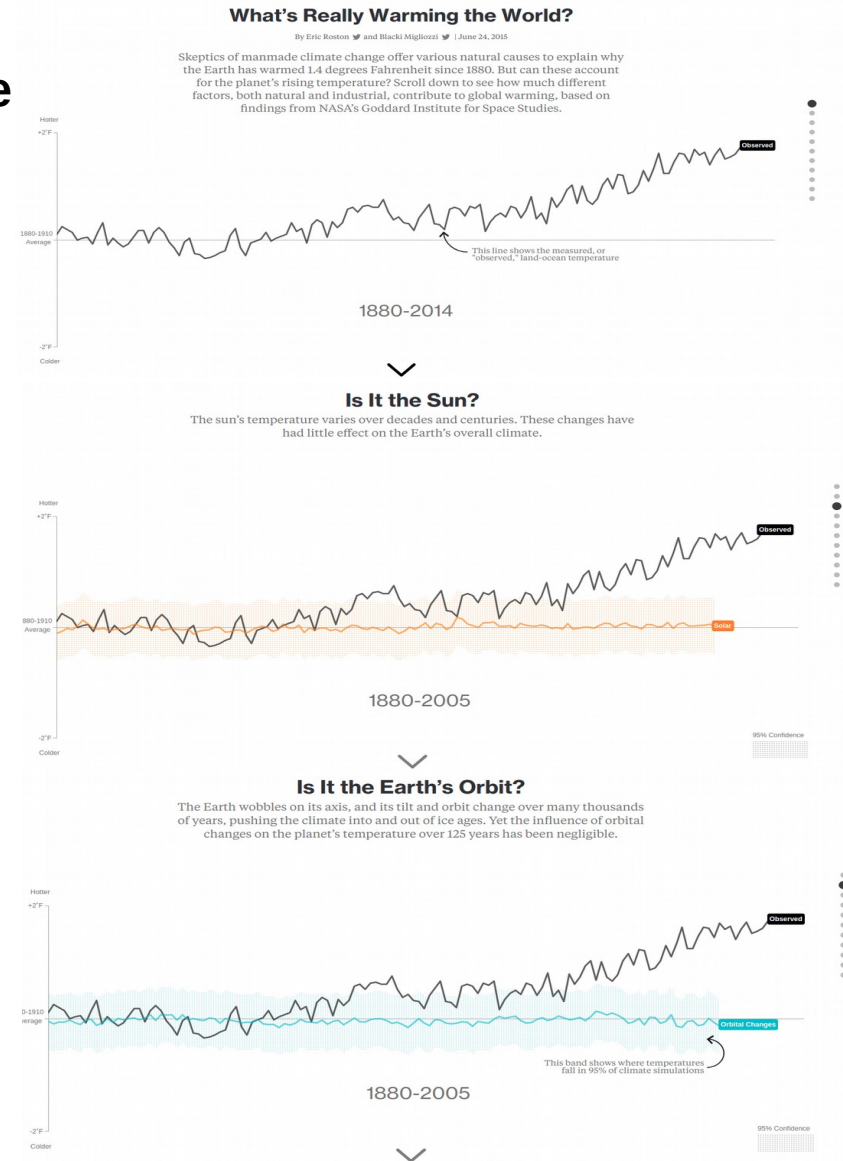
Why use this pattern?

To show that the same phenomenon happens over and over again. It also strengthens the narrative through rhythm. Establishing a constant reference frame can help to emphasize change and differences.

How to use this pattern?

A phenomenon is re-presented multiple times with changes to the main variable/ dimension (the data) or the time frame or the animation pattern while other elements of the story don't change. In the example story, line charts of different hypotheses are shown repeatedly.

Example



<https://www.bloomberg.com/graphics/2015-whats-warming-the-world/>

Rhetorical question

Why use this pattern?

Title the piece using a question that makes a point.

Example

Can You Live on the Minimum Wage?

By JEREMY ASHKENAS FEB. 8, 2014

More than 4.8 million workers now earn the lowest legal pay. This calculator, for a single childless worker, shows the hard choices that have to be made living on the smallest paychecks.

https://www.nytimes.com/interactive/2014/02/09/opinion/minimum-wage.html?_r=0

How to use this pattern?

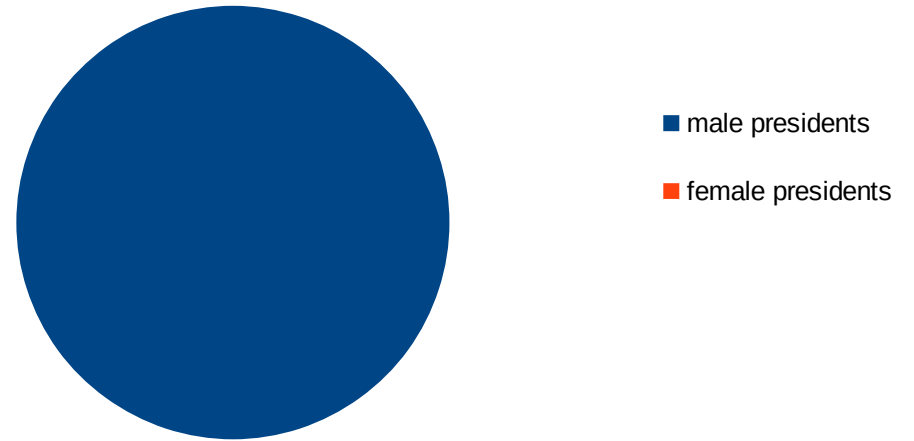
To implicitly drive the viewer to the takeaway of a more open ended/exploratory piece. In the example story, a rhetorical question is used as the title of the story, to provoke the engagement of audience.

Silent data

Why use this pattern?

To emphasize aspects with de-emphasizing some data

Example



How to use this pattern?

The deliberate choice of not showing (hiding) certain data. In the example story, a pie chart with 0% showing the number of female presidents is used to emphasise the lack of female presidents.

Speed-up/slow-down

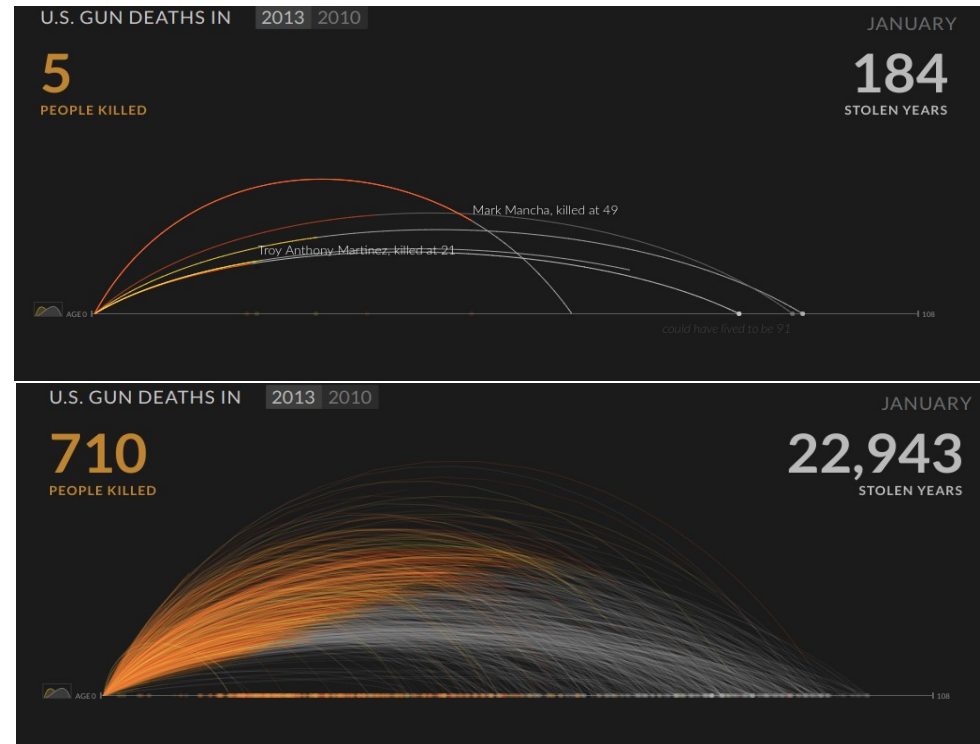
Why use this pattern?

To give the feeling of acceleration, increased momentum, urgency. To transition from the individual to the group. To surprise with change in perspective. To exploit the learned interpretation of the early slow depictions.

How to use this pattern?

Increase (or decrease) speed over time. In the example story, at the beginning the speed of the animation is slow, to let the audience understand how the visualisations work. Then it speeds up to show the sense of urgency.

Example



<https://guns.periscopic.com/?year=2013>

Users-find-themselves

Why use this pattern?

To push readers to try and encourage them to make the statement by themselves.

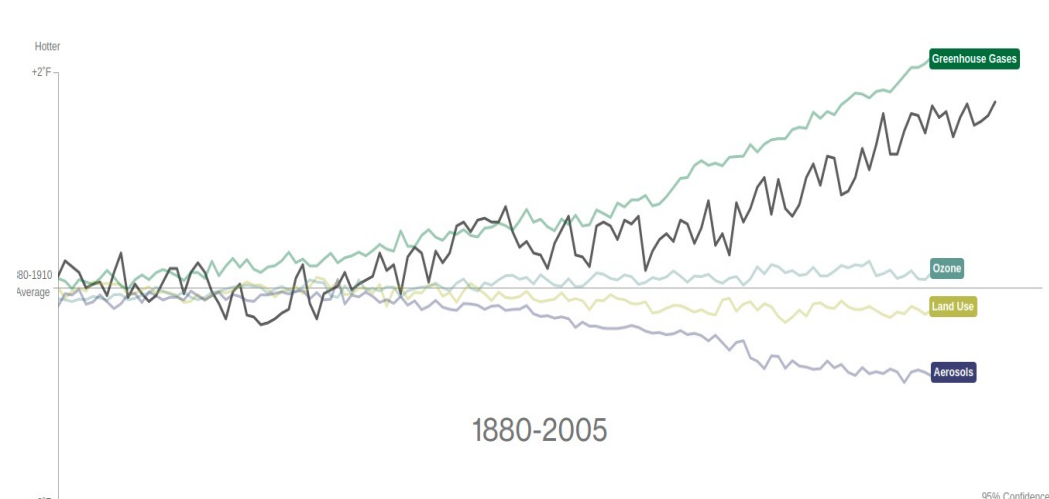
How to use this pattern?

Let readers to find answers for themselves. In the example story, the answer is found by the readers themselves at the end of the story, after eliminating other possibilities.

Example

See for Yourself

Greenhouse gases warm the atmosphere. Aerosols cool it a little bit. Ozone and land-use changes add and subtract a little. Together they match the observed temperature, particularly since 1950.



<https://www.bloomberg.com/graphics/2015-whats-warming-the-world/>