

Introduction

Within the United States gay rights have been a contentious issue. Often, legislation about said rights is left to the discretion of the individual state, making it difficult to understand who can do what, where. In 2012, The Guardian produced a series of interactive radial data visualisations comparing seven key gay rights across the country.^{1,2} In the following years, as legislation changed, the visualisations. The last of these updates was in 2015, when the US Supreme Court ruled that the constitution guarantees a right to same-sex marriage.³

This critique is intended to examine the most recent version of this data visualisation with a critical eye, and will be broken down into three parts. Part 1 will examine the type of visualisation used and its efficacy at displaying the data. Part 2 will explore the design decisions that were made, including colour and interactivity. Finally part 3 will discuss the overall narrative function of the chart, and the ways it tells that story. All parts will draw on current expertise on the subject, as well as by comparing it to Kerry Rodden's 2021 D3 redux of the visualisation.⁴

Visualisation

Radial graphs are a category of data visualisations that represent data in circular form. Common types include radial trees and sunburst diagrams. Specifically, this visualisation uses a matrix style chart, with heat map style categorical data. These types of visualisations offer several advantages⁵, including being compact and suggesting the each slice is part of a whole.

If we deconstruct it further, this visualisation is fundamentally a chart warped around a point. But in doing so, and compacting the chart, it allows for the reader to better perceive the whole without the need to either scroll or zoom out to such a point that the data becomes illegible. It also allows for the key and explanation tooltip to exist closer to the chart itself. Unfortunately this warping creates a skew in the individual cells, with the innermost ones seeming smaller, and thus potentially less significant, than the outermost. Kerry Rodden attempts to fix this issue by using a "radial scale", which ensures that each cell has an equal total area with the inner cells being tall/skinny and the outer flat/wide. While this seems to be a better approach, it may not solve the issue entirely.

There is some question over the efficacy of heat map categories. Beyond the design issues (see next section), it may be unclear how to interpret the marks without closer examination of the data. While it does provide a tooltip to explain itself, it may still be better to only have a binary categorisation. Alternatively, it may be possible to use colour categories across all rungs of the chart (e.g. a traffic light system), but that may end up causing further issue.

Design

Colour

The colours themselves only play an aesthetic role in the visualisation, and are in no way signifiers of what they represent. The Guardian uses something akin to a CAT10 colour scheme, which does its job of making each rung feel distinct, but is otherwise uninspired. Rodden uses the lack of colour signifier to their advantage, and instead opts for a rainbow scheme to tie into the LGBT theme. The lack of reliance on colour signifiers is also good from an accessibility standpoint, as a reader with colour deficiency would be able to extract all the same information from the visualisation. This is also bolstered by the key, which is curved to match the shape of the visualisation and make the association more overt.

¹ <https://www.theguardian.com/world/interactive/2012/may/08/gay-rights-united-states>

² <https://www.theguardian.com/news/datablog/2012/may/10/data-visualisation-us-gay-rights>

³ <https://www.nytimes.com/2015/06/27/us/supreme-court-same-sex-marriage.html>

⁴ <https://observablehq.com/@kerryrodden/equal-area-radial-matrix-of-lgbt-rights>

⁵ <https://observablehq.com/@observablehq/why-use-a-radial-data-visualization>

On the topic of accessibility, contrast is an issue that plagues visualisation. When viewing the “Partial” cells against the grey background the colours can be difficult to distinguish, failing a “squint test”. With the “Partial” and “Maximum” cells, the change in saturation can be distinguished when the cells abut, but is not always obvious when they’re separated by a grey square. Some sort of additional markings on the “Partial” cells would help this issue. Other minor contrast issues include the grey text on the white background, and the “Banned” symbols on the observable viz.

Ordering

From a purely design perspective, the regional groupings for the columns feels strange. This may be due to a non-americas perspective, but when trying to find a particular state it can be somewhat ambiguous where to find it. This is exasperated by the lack of coherent sorting within the regions. Perhaps the ability to sort the columns alphabetically would be of use. However, the groupings do seem to track from a narrative perspective (see next section), and the rotation/ordering of the regions to match the cardinal points is a good choice.

Turning now to the rungs, it’s not entirely clear how they’re ordered. Given “Marriage” is on the outermost ring, with it being legal in all states, it suggests that they’re ordered by number of states wherein its legal, but adoption seems to be legal in more places than hospital visits. If there is some sort of weighting (due to adoption being banned in some places) it isn’t apparent. It is possible that this is an artefact of the dataset that was used when the visualisation was initially created.

Interactivity

The visualisation relies heavily on the interactivity to both provide context to the individual markings, and to allow the user to highlight a specific state, which can be otherwise difficult to read vertically. When hovering over a state, sidebar provides additional context on the cells (e.g. hate crimes are only addressed when relating to sexual orientation and not gender). Rodden’s version instead opts to provide tooltips for each individual cell. This direct association with the data allows the user to see what the cell contains (e.g. Minnesota: Adoption, maximum) even if other facets can be hard to distinguish. This could also provide useful to users using a screen reader, allowing them to navigate the visualisation the same way they might navigate a table.

Both the Guardian’s and Rodden’s versions provide ways to manipulate the visualisation, although these are mostly novel. The Guardian allows users to resize columns proportional to state population, providing a truly horrifying visage that also reinforces the narrative. Rodden provides a rotational slider for the visualisation, which is a boon to all radial charts, as well as the ability to reverse the category order.

Narrative

There are two key narratives provided by the visualisation. Firstly, it provides context for how much more progress is still to be made in the fight for equality. While many of the cells are now filled in, especially compared to previous versions, it is the use of negative space provides just as much information. Secondly the grouping by regions demonstrates the disparity of rights across the country. This likely would have been less overt if the states were listed in a simple alphabetical order. Overall the visualisation is compelling, and gets across the messages it’s trying to convey.

Appendix: The Guardian

Scale states equally

Scale states by population

Where your friends live

Connect to Facebook to see the rights of states where your friends live. Your information will not be saved.

Share your state on Facebook

You are not connected to Facebook.

South Dakota

2010 population: 814,180

Marriage: Allows same-sex marriage.

Hospital visitation: No extended rights or law is unclear.

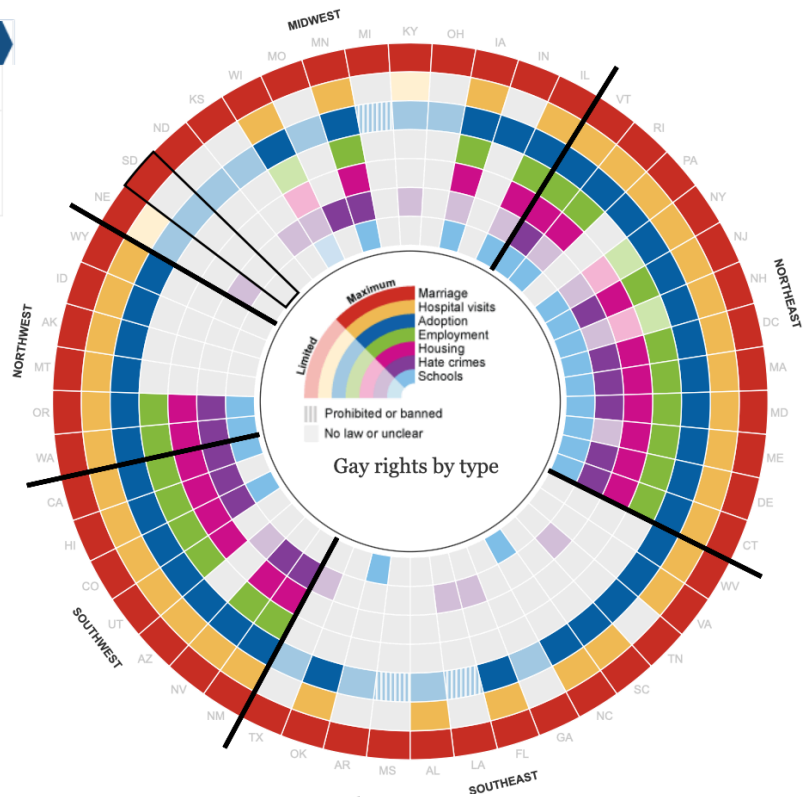
Adoption: Allows adoption by a single person.

Employment: No protection against discrimination or the law is unclear.

Housing: No protection against discrimination or the law is unclear.

Hate crimes: No explicit inclusion or the law is unclear.

Schools: No protection or the law is unclear.



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Appendix: Kerry Rodden

