16. What we talk about when we talk about beautiful data visualizations

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Abstract

'Beautiful' is an adjective often used in descriptions of well-designed data visualizations. How the concept is used, however, reveals that it is applied to characterize a variety of qualities. Going beyond mere descriptions, the use of the concept also lays bare a certain ambivalence among scholars and practitioners towards *how* beauty matters, and which means it serves in data visualization. Interrogating 'beautiful' as a characterizing word, combined with a study of cases of 'best practice' used as examples of beautiful visualizations in various discourses, this chapter presents an analysis of what is regarded as beautiful within the field of data visualization design. This, in turn, can inform the understanding of what beauty means in visualizing data, in the purpose of facilitating the viewer's comprehension and engagement.

Keywords: Beautiful data; Aesthetics of data visualization; Anti-sublime; Data visualization and design

Introduction

Beautiful /'bjʊ:tɪfəl,'bjʊ:tɪf(ə)l/ Pleases the senses and mind aesthetically.

Beauty is to be found everywhere, including the field of data visualization. Stunning in the various ways designers use colours, forms, and lines to turn data into imagery and graphical information, data visualizations can attract attention to their aesthetically pleasing expressions. But is it this kind of aesthetic endeavour that is appreciated or discussed in books, articles, and talks which address beautiful data visualizations? When authors like Julie Steele and Noah Lillinsky, or Edward Tufte, choose titles like *Beautiful*

Visualizations and *Beautiful Evidence* for their books, what, exactly, does that imply? And, when David McCandless initiates the *Information is Beautiful* award along with Kantar, what exactly is being awarded?

Visualizations of big data have brought along a growing consciousness about their potentials for forming knowledge (e.g. Gray, Bounegru, Milan, & Ciuccarelli, 2016; McCosker & Wilken, 2014). In the field of digital culture and new media studies, data visualization as visual communication and cultural expression has become an object of study (e.g. Gray et al., 2016; Manovich, 2014). In addition, beyond academia, attention directed towards the artistic and aesthetic aspects of visualization is noticeable through a variety of museum exhibitions, art projects, contests, and awards. The beauty of an original and well-designed data visualization seems to matter—but how, and what is being appreciated when a visualization is said to be beautiful? This study addresses the rather general question of how beauty matters in the field of data visualization, making an argument for a shared understanding of what the purpose of an aesthetically pleasing visualization is. Based on a selection of textbooks, publications, and contests, this chapter focuses on how the concept of beauty and the beautiful are being used in various discourses related to data visualization: in instructional texts, in critical or evaluating notes, as well as in the community of practitioners discussing ‘best practice’. Based on these texts I present a selection of five types of beautiful data visualizations that can be derived from these same discourses.

The ancient Greeks pointed out the challenge of discussing the nature of beauty: ‘while we know with relative ease what a beautiful horse or a beautiful man or possibly even a beautiful pot is’, the author of *Greater Hippias* writes, ‘it is much more difficult to say what “Beauty” unattached to any objects is’ (cited in Scarry, 2011, p. 9). One can even claim, like Elaine Scarry does, relying on Immanuel Kant, that there is no sense in trying to explain beauty without pointing to something particular. I therefore elaborate on the types of beautiful data visualizations with examples of best practice: award-winning data visualizations and visualizations often referred to in studies, textbooks, and discussions among practitioners.

The aesthetics of data visualization

Data visualizations represent matters of the world through graphic interpretations of the data generated from investigating or researching these matters. The data visualization designer performs his or her work based on skills in how to relate semiotic properties of data visualizations, like types of

representations (different graphs, models, imagery), and aesthetic qualities (the use of modalities and combinations of them, suitable for the purpose), to the means the data visualization aims to serve and the context in which it is to be included. Aesthetics is to be understood as a way of thinking not only about the design and appearance of the visualization, but also about how the viewer or reader perceives the data visualization, based on the sensory experience that springs from it. The viewer's perception has both a cognitive and an emotional side, both of which are activated when encountering the data visualization and the context in which it is found (newspaper article, textbook, etc.). This resonates with Jay Lemke's thoughts that feelings and meanings are part of the same material processes (2015, p. 589). What's more, the form and expression of a data visualization will be of importance in the way the viewer or reader perceives and comprehend the matter being communicated. A data visualization that generates particular interest and engagement at first glance could be a visualization that exemplifies a double meaning of 'aesthetics'—both sensory experience *and* beauty.

Beauty can be a philosophical concept, and an aesthetic category belonging to the field of art criticism or other professional disciplines such as design, in which it forms an ideology governing the aesthetic principles being applied. However, beauty can also be thought of as something with a more formative aspect: it can evoke the feeling of good mood or enjoyment (Eco, 2010, p. 10), to contemplate it, or to replicate it (Scarry, 2011, p. 3). Ideas about beauty are historical constructs, changing over time, as well as over fields of interest. When addressing beauty, and the beautiful within the field of data visualization, one has to address it in relation to the dominant understanding of what defines data visualization, and what its main purpose or function is. When Andy Kirk defines data visualization as '[t]he representation and presentation of data to facilitate understanding' (2016, p. 19), this also has implications for how to think about the matter of beauty in data visualizations, and what will be regarded as beautiful visualizations.

The matter of beauty and the beautiful

Making use of 'beautiful' when describing or characterizing data visualizations, the adjective is always used to underline that the particular visualization differs from others, in a positive way. When included in textbooks or articles, however, 'beautiful' refers to a variety of qualities, depending on the visualization in question. Furthermore, attempts to articulate an understanding of the value of 'beauty' in data visualization is never oriented

towards beauty as such, but ends up as arguments about why it is secondary to other aspects of the design, or why it cannot be aligned with other virtues. For example, in *Data Visualisation: A Handbook for Data Driven Design*, Kirk starts out by explaining how the book's argument is based on several dichotomic distinctions, one of them being 'Useful vs. Beautiful': 'this book is not intended to be seen as a beauty pageant', he explains (2016, pp. 6-7). The works discussed should be regarded as useful examples, from which we can learn something, not only pleasant expressions to be looked at. He talks rather about *elegant* design. In his handbook, elegance is one of three principles of good design (the other two being 'trustworthy' and 'accessible'), used as pointers for understanding, for an aspiring designer.

Elegance is explained as a quality that will attract the viewers' attention and make an impression on them, but as with beauty never something that should be thought of or planned for in itself: 'When working on a problem, I never think about beauty. I think only how to solve the problem. But when I am finished, if the solution is not beautiful, I know it is wrong' (Richard Buckminster Fuller, cited in Kirk, 2016, p. 43). This quote is used by Kirk to suggest a shared ambivalence towards beautiful design among practitioners: on the one hand it should not be sought deliberately nor be the prevailing principle in the design process. On the other, it is seen as a result of a successful design process, as the sum of essential or key elements related to visualizations, like Steele and Iliinsky argue (2010), as well as a way of getting the viewers' or readers' attention, which can be turned into an engagement with the topics or issues being visualized.

Then again, there are designers and design companies which embrace beauty, making it one of their leading principles for how to engage and motivate the viewer. One such design company is Accurat, co-funded by designer Giorgia Lupi, stating the following on their website:

We pursue beauty:

Beauty is not a frill. We know how to engage and motivate people to dig deeper and take time to explore the intricacies of a visual data analysis. We deploy our rigorous methods to achieve the ideal balance between familiar visual motifs and unexpected aesthetics, a powerful combination that leverages studies on perception to trigger curiosity and interest, and creates indelible images in the minds of users. (Accurat, 2018)

To Lupi, beautiful design is a trigger to get people curious to explore the contents the visuals convey. 'I like the idea of making people say "Oh that's beautiful! I want to know what this is about!"' (Lupi, cited in Kirk, 2016, p. 46).

In *The Truthful Art* (2016), Cairo lists 'beautiful' as a quality associated with great visualizations, along with 'truthful', 'functional', 'insightful', and 'enlightening' (2016, p. 45). Together, they constitute the framework upon which the book is built, Cairo writes, but they are not flawless: every one of them is 'dangerously polysemic' (p. 45). To Cairo, beauty always consists of a balanced mix of sensual and intellectual pleasures, and I believe he, like Giorgia Lupi, sees the formative power of a beautiful expression when he paraphrases one of Donald A. Norman's reflections from *Emotional Design* (2003): 'beauty matters because attractive and pleasing things work better. They put us in a good mood, and so they invite us to invest some effort in understanding how to operate them' (2016, p. 56). 'Beauty is, thus,' Cairo writes 'not a thing, or a property of objects, but a measure of the emotional experience of awe, wonder, pleasure, or mere surprise that those objects may unleash' (p. 45). It is an emotional experience that *can* be turned into an intellectually-oriented interest in looking more closely into things.

So elegance can be regarded as an expression of beauty, but so can efficiency and simplicity (Cairo, 2016). This is a kind of beauty that Edward R. Tufte discusses. In *The Visual Display of Quantitative Information* (2001) he praises the ways the best designs draw the viewer into what he calls the 'wonder of the data', either by narrative power, immense detail, or by elegant presentations. Neither of these imply decorations or ornamentations of any kind (Tufte, 2001, p. 121). To him there is a danger of turning visualization into 'chart junk' or 'redundant data-ink' through decoration of any kind—be it by ways of graphically highlighting the information (explained as 'Unintentionally Optical Art' and 'The Grid'), or by letting an idea for appearance govern the design process, resulting in 'Self-Promoting Graphic' (p. 116).

This way of thinking about beauty as something that is found in clean and simplifying design can also be found in an early theoretical discussion of data visualization aesthetics, Lev Manovich's essay 'Data visualisation as new abstraction and anti-sublime' from 2002. Drawing on Immanuel Kant's notion of the sublime, Manovich characterizes much data visualization art as 'anti-sublime'. The reason for this, he argued, was the inherent purpose of visualization practice: to make 'phenomena that are beyond the scale of human senses into manageable visual objects' (2002). Manovich's neologism has later been expanded upon to the field of data visualization as such (not art exclusively) in which anti-sublime can be understood as 'that which can be easily understood' or as 'user friendly' (Sack, 2007). More recently, Anthony McCosker and Rowan Wilken note the limitations of Manovich's notion, and instead introduce the potential for the *diagrammatic capacities*

of visualizations of big data, through which the complexity of big datasets can be communicated (2014, pp. 159-163). However, as Manovich's later works visualizing cultural data exemplify, his initial reflections on the anti-sublime have to be seen in relation to their historical context, and in regard to the technical limitations governing digital data visualizations at the turn of the millennium.

Beauty of various types, by various means

Despite their variations, these reflections share a view of what the purpose of beauty is: to get attention or evoke a sentiment in order to make the viewer or reader interested in investing time and effort in understanding the information the data visualization communicates. But *how* this attention or sentiment can be produced varies. The variations, however, can be sorted into types. The ones I take into consideration are the designer, the visualizations themselves, the viewer or reader, and the social reception of the visualization. The examples are all award-winning or highly acclaimed data visualizations.

Beautiful by expressing fine craftsmanship

In the first paragraph of his book *Beautiful Evidence*, Edward Tufte gives an example of what he regards as beautiful evidence, by quoting Federico Ceci, a fellow of Galileo Galilei. When commenting upon Galileo's 38 hand-drawn images of sunspots, Ceci found these drawings a 'delight both by the wonder of the spectacle and the accuracy of expression' (Tufte, 2006, p. 9). Here, accuracy of expression reflects both the images as detailed representations of sunspots, as well as the work the scientist/artist has performed. In addition, the visualization also made a natural phenomenon apparent for the human eye to perceive.

A data visualization can be valued as beautiful by the way it represents the work of a highly skilled designer who develops expertise in the means and techniques of turning data into visual imagery in extraordinary ways. Charles Joseph Minard was such a designer, with his 'Figurative Map' of the successive losses of the French army in the Russian Campaign 1812-1813 (Figure 16.1).

Hailed by Tufte in several of his books (including a chapter-long analysis of Minard's analytical design in *Beautiful Evidence* (2006)), and often mentioned by others (Cook, 2013; Friendly, 2002; Tableau, 2018) for the way the map

communicates the tragedy of Napoleon's attempt at invading Russia so clearly, Minard's work belongs to a canon of data visualization and infographics works. The dominant data are the numbers of soldiers, visualized as a band following the path eastward from Paris towards Moscow, with the number of soldiers indicated by its width. As an ideational representation of the historical facts, the band becomes narrower and narrower in its direction east, before turning even narrower when pointing west, following the army's withdrawal out of Russia, after its defeat in Moscow. It is precise, and in some ways quite simple, but also a visually stunning presentation of how an army of over 420,000 men ended up with less than 10,000 during the campaign. A narrative is formed by the narrowing band, contextualized with the geographical representations of a map, as well as information about temperature, dates, and the distances the soldiers walked. Minard's precision in his analytical design and condensed compositional meaning is the reason for the map's status as a highly valued example of statistical graphics.

Being beautiful by expressing fine craftsmanship can be seen as a way of giving status to someone highly skilled within the praxis of visualizing data graphically. This can, in turn, be expressed as a distinction of a particular designer or studio: expecting something out of the ordinary from designers and studios that has already been awarded and hailed for their previous work. By this, the personal touch or the creative sign of a studio will influence as well as affirm what is to be understood as the politics of beauty within the field of data visualizations and infographics. The category 'Studio of the Year' in the Kantar Information is Beautiful Awards contest, is an example of this.

Beautiful by presenting complexity in a comprehensible form

Accuracy of expression is something that is highly cherished when complex matters or calculations are visualized in a comprehensible representation, or when huge datasets are given a form and expression communicating with clarity and accessibility. With digitally analysed datasets, data visualizations are described as beautiful when they manage to express complex or massive amounts of data into very detailed, but still elegant and clean visual expressions. One example of this can be found in Fernanda Viégas and Martin Wattenberg's highly acclaimed 'Wind Map' from 2012 (Figure 16.2).

The visualization is discussed in Cairo's *The Truthful Art* in relation to creativity and innovation in data visualization and infographics (2016, pp. 351-352), and in Kirk's *Data Visualisation* as an example of elegance and

Figure 16.2. From 'Wind Map' by F. Viégas and M. Wattenberg (2012). (<http://hint.fm/wind>). Copyright 2012 by F. Viégas and M. Wattenberg. Reprinted with permission.

beauty when it comes to the designers' choice of concentrated form and colour (2016, p. 289). Where Minard's expertise could be seen in the way he managed to present the multivariate analysis as a tragic narrative of the French invasion unfolding over time and in space in one single, multimodal expression, Viégas and Wattenberg use a single framing (the outline of USA's geographical border) as a means of presenting a real-time visualization of an ever-changing phenomenon: wind. Wind streams of course do not stop at the border, but the way the borderline effectively isolates the geographical area coloured in a monochromatic palette of steel grey, the phenomenon (animated in real time based on data derived from a digital forecast database) is visualized with great clarity—and beauty.

Other examples of turning complexity into a single expression which makes us aware of aspects that we cannot see without the aid of the visualization include: Jaz Parkinson's 'Color Signatures' (2013, see <http://jazparkinson.tumblr.com/>), presenting quantitative analysis of colours found in famous novels in poster-like images in which the colours are distributed as lines of various width, and Charlie Clark's *The Colors of Motion* (2014, see <https://thecolorsofmotion.com/>), visualizing movies as a multi-lined, interactive image in which each frame of a film is displayed as a line in the frame's average colour. Each line of the image is clickable, revealing the frame the colour is calculated from (Cook, 2015, pp. 140-141).

Figure 16.3. 'Blade Runner' from the project 'The Color of Motion' by C. Clark (2014). (<https://thecolorsofmotion.com/>). Copyright 2014 by C. Clark. Reprinted with permission.

While these are visualizing single works, another of Viégas and Wattenberg's visualizations, Flickr Flow, presents a single phenomenon in its

variations over time at one single place: Boston Common Park and its variations in colours over the year (see <http://hint.fm/projects/flickr/>). All these cases exemplify a visual method of capturing phenomena and making them perceptible in a unified visual expression, accessible and understandable with only a minimum of verbal explanation or support.

As Kennedy, Hill, Aiello, and Allen argue, one highly operative convention within the field of data visualization is the use of a clean layout, which can rhetorically obscure the complexity of the data and the matters being represented (2016, p. 729). The cases presented here exemplify that the same convention is applied when linearly distributed information is being turned into data that is visualized in simultaneous expressions.

Beautiful by letting complexity keep its complex character

Data visualizations can also be cherished for presenting a complex phenomenon or matter in all its complexity. *On Broadway*, a large-scale data compilation and visualization project designed by Daniel Goddemeyer, Moritz Stefaner, Dominikus Baur, and Lev Manovich, exemplifies this (see <http://on-broadway.nyc>). *On Broadway* is both a portrayal of the street in New York, based on demographic info (household income), transport data (taxi drop-offs and pick-ups), and various smartphone-based activities visitors and inhabitants perform along the 13.5-mile long street, such as snapshots on Instagram and Twitter messages. These data have been analysed and turned into a complex composite representing the area, with which the viewer can interact. This visualization project, awarded Silver in the category Kantar Most Beautiful Award in 2015, makes the complexity of the various data compiled in the visualization comprehensible, by applying the geographical location along the street as the main compositional principle. This gives the viewer the chance to orient him- or herself along and between horizontal lines of data gathered from Manhattan, with the street of Broadway giving what Andy Kirk calls a ‘continuous narrative’ (2016, p. 299). *On Broadway* is also an example of how to design comprehensible yet sublime data visualization, a visualization that initially seems to contradict Manovich’s own argument about data visualization as anti-sublime (2002). At first encounter, the visualization seems far too detailed for any viewer’s perception or cognition to comprehend, expressing instead a myriad of cultural artefacts, human activities generating digital information, combined with statistic variables. However, by using street geography as an organizing principle for combining various strata of data, as well as the possibility of interacting with the installation (such as zooming in on the information),

the visualization invites the viewer to engage with the data and the strata. Through the means of an interactive digital medium, it turns something of sublime character into a comprehensible representation of vibrant city life.

Another example of presenting complexity in its complex character is Stefanie Posavec's projects *Writing Without Words*, which visualizes works of literature as 'literary organism', a method of displaying both the author's style of writing as well as the structure of the book down to its very sentences (see <http://stefanieposavec.com/writing-without-words/>). Her visualization of Walter Benjamin's essay 'Art in the age of mechanical reproduction' has caught the attention of professional data visualization designers (Kirk, 2016, p. 279), as has her work both on Jack Kerouac's *On the Road* (Cairo, 2013, pp. xvi, 243-250; Popova, 2009) and on Charles Darwin's six editions of *On the Origin of Species*, together with Greg McInery under the title '(En)tangled Word Bank' (Cairo, 2013, p. 348). They share a similar tree structure with branching lines representing chapters, ending up in leaf-shaped fades of sentences, colour coded according to various styles of writing. When explaining the beauty of Posavec's work, Cairo identifies it as a combination of the appearance, the typeface, and palette of colours (so does Kirk, 2016, p. 278), as well as in the way the visualization presents the viewer the opportunity of extracting multiple different readings (Cairo, 2016, pp. xvi-xvii)—in other words, its complexity.

Beautiful by activating

'When the eye sees something beautiful, the hand wants to draw it', Ludwig Wittgenstein once stated (Scarry, 2011, p. 4). A dominant way of understanding how beauty matters within the field of data visualization is—as discussed above—as a means to help people engage emotionally or cognitively with the visualization, study it in more detail, or even take action from it. 'At its best, [a data visualization] plants the seed for a moral inclination to do something to nudge [the] world a little bit closer to how it should work', as cultural critic Maria Popova puts it. She continues: 'Therein lies the quality that sets the great and the mediocre apart: information design that merely informs or simply delights fails to move this moral dial' (cited in Cook, 2015, p. x).

In the award-winning interactive visualization project 'Poppy Field' (Figure 16.4), designed by Valentina D'Efilippo, a clean layout is combined with emotionally involving visual metaphors and the possibility for the reader/viewer to interact with the data, displaying numbers of casualties of wars worldwide, in the century spanning from 1914 to 2014. A short digital

Figure 16.4. 'Poppy Field' by V. D'Elippo (2014): (<http://www.poppyfield.org/>). Copyright 2014 by V. D'Elippo. Reprinted with permission.

narrative introduces the topic for the visualization: The First World War, initially called the Great War, with more than 10 million casualties, was thought of as the war to end all wars. A hundred years, and numerous wars later, people are still dying in wars. This is visualized by a field of poppies, each representing a war and expressing the number of casualties in its size.

The poppy, being a symbol of commemorating military deaths in wars, is a cultural convention that may be unfamiliar to some, and therefore also provocative. The reader can explore the field, zooming in on each flower and extracting information. The interactive aspects of the visualizations invite the reader/viewer to get involved in the digital story, experiencing for themselves the scale and devastating amounts of war casualties.

And finally: Beautiful by being a work of art

Some data visualizations are as much an artistic project as an explanatory one. The artworks *Herald/Harbinger* (Ben Rubin & Jer Thorp, 2018, see <https://jerthorp.com/herald-harbinger>), and *Bloom* (Ken Goldberg et al., 2013, see <http://hint.fm/projects/bloom/>), building on natural and seismic data, respectively, are just two examples of this. Even though being a work of art does not make the data visualization beautiful as such, a project combining original ways of thinking about topics relevant for analysis and visualization, innovative ways of applying design principles, and a fresh take on the various possibilities of materializing the visualization is more likely to be recognized or interpreted as a work of art than others.

Figure 16.5a and b. Front and backside of Week 8 (Phone Addiction / A Week of Phone Addiction). From *Dear Data* by Giorgia Lupi and Stefanie Posavec, 2014 (<http://www.dear-data.com/theproject>). Copyright 2014 by G. Lupi and S. Posavec. Printed with permission.

When asked if design was ‘an expression of art’, designer Charles Eames replied: ‘I would rather say that it is an expression of purpose. It may (if it is good enough) later be judged as art’ (cited in Cairo, 2016, p. 59). These words seem to apply to the visualization project ‘Dear Data’ (see Figure 16.5), initiated and executed by Giorgia Lupi and Stefanie Posavec as a way of getting to know each other, almost like pen pals. But only almost: the project was governed by rules making it a systematic investigation as well as a creative endeavour: during 52 weeks starting in September 2014, the two turned everyday life phenomena into something that should be observed, mapped, analysed, and visualized—ending with 104 postcards sent and received, two for each topic. Initiating as an analogue, private, one-to-one hand-drawn visualization experiment questioning how we can learn more about ourselves and other people through the methods of collecting and mapping personal data with pen and paper, it became a project that grew in reputation. Through dissemination in various media (including the project’s own website), a book version of the project was released in September 2016 and two months later it was included in MoMA’s collection. The project has travelled along various tracks: from private postcard correspondence, net-based dissemination, printed mass media, and then exhibition objects in an art institution’s collection.

There are several aspects that make the data visualizations presented in *Dear Data* art, the most important being how the project invites us to reflect upon what data visualization and information design are, and even prior to that: what data are, how data can be a personal matter, and how the practice of data visualization is governed by a set of conventions. Not through questions directed towards us, but by the choices the two designers made: what to observe and collect data about, by which purpose, how to express it, and finally how to communicate it. *Dear Data* became an instant classic, winning the Kantar Information is Beautiful Award special prize 'The Most Beautiful Project' in 2015, being included as an example in Cairo's *The Truthful Art* (2016), Kirk's *Data Visualization* (2016) and Cook's *The Best American Infographics* (2016) among others. However, within the context of this article, the project's most beautiful aspect is its potential for making scholars, critics, and the data visualization community reflect upon the basics of data visualization. Explained in social semiotic terms, the project exemplifies the art of visualizing data: its ideational meanings (what to represent), its interpersonal meaning (who is addressing whom through the visualization's representation), and its compositional meaning (how is it designed and given an expression).

What *do* we talk about when we talk about beautiful data visualizations? A conclusion

When seen in relation to the field of data visualization, Oxford Dictionary's explanation of the term 'beautiful' as something that 'pleases the senses and mind aesthetically' also explains how a well-designed visualization can work on us. We contemplate in expressions or objects we find pleasing, either by their appearances or by displaying something that is already of interest to us. Information and knowledge are beautiful, David McCandless (2012) emphasizes, and the human is a curious creature, seeking information by nature. However, living under conditions overloaded with information of every kind, we need guidance in orienting our attention and focus. Beautiful design can do that. However, even though many of the examples of data visualizations included here are widely acclaimed and discussed because of the ways they present information, and by that constituting something close to an (Anglo-American) canon of beautiful data visualizations, each example can be regarded differently by an individual reader.

We can conclude that a shared opinion within the field of data visualization is that beauty serves a distinct purpose in making us engage in finding out what the visualization communicates. However, if we find a

data visualization beautiful, and acclaim it for its aesthetic qualities, it is at the same time germane to encounter the visualization and its context with a critical eye and mind. As Helen Kennedy et al. argue, power is always at work in data visualizations, even though they are designed following conventions that make them seem neutral (2016, p. 716). The same rings true for beautiful visualizations. In that regard, one of the greatest values of projects such as *Dear Data* is the way they make us critically reflect on what data are, and what the meaning of data visualizations can be.

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