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Jittery Gauges: Combating the Polarizing Effect of Political Data Visualizations Through Uncertainty

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Through Uncertainty

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ABSTRACT

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Since the late 1800s, public data visualizations displaying election forecasts and results—
such as the red and blue map of the United State—have presented an irreparably divided country.
However, on November 8, 2016, the *New York Times* published a data visualization on their live
presidential forecast page that broke over a century of visual expectations, inspiring many to
tweet reactions to what popular media has dubbed the "jittery gauges." Not surprisingly, the
tweets about this unique and difficult-to-interpret display were mostly negative. This paper
argues, though, that the negative feedback indicates that the gauges, while imperfect, represent
an important step away from visualizations that support the growing perception of party
polarization. The key factor present in the gauges is the data design principle of uncertainty or
possibility. If major news outlets were more thoughtful about introducing uncertain elements into
visualizations of American politics, perhaps the nation could begin to imagine a political
landscape that moves beyond red vs. blue, me vs. you.

ACKNOWLEDGEMENTS

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Through Uncertainty

The controversial 2016 presidential election has been followed by a year of predictably contentious national politics as party control shifts in the Whitehouse. In moments of political friction, concerns about the polarized nature of American politics seem to increasingly draw public attention, and dialog about Republicans vs Democrats becomes common. Scholars such as Westfall, Van Boven, Chambers, and Judd explain that as people naturally identify as democrat or republican, they begin to see themselves as part of a coherent, homogeneous group; a group whose guiding ideologies deserve to be in power. Benedict Anderson calls this grouping of loosely connected, mostly anonymous people into a unified whole "imagined communities." And though Anderson was specifically discussing the formation of nationalism, there is an almost nationalistic fervor among those who identify with a particular party, perpetuating an us/them mentality. This kind of political discord is described by Miller and Conover for a contemporary audience as comparable to the loyalty that grows up around a sports team, with similar bitter rivalries.

The picture of a political system made up of opposing teams is certainly distressing for a country built on the expectation of open, democratic dialectic. Fortunately, the consistent results of a myriad of researchers trying to respond to this pressing issue is that, at an individual level, Americans are in fact not as ideologically polarized as believed. The growing—and damaging— perception of polarization may be result of the human desire to associate with groups that have a strong public stance on difficult issues, as well as the schismatic effects of partisan media. Sherman et. al. claim that the only way to overcome the divisive beliefs that are hurting democratic process is to somehow make normal the portrayal of flexibility between thickening

party lines, which would allow the common citizen to feel capable and comfortable enough to flow between competing ideological stances as difficult issues are brought to the table.

While changing the perception of inflexibility between party lines is an overwhelming task, visual rhetoric scholars can begin to challenge the rhetoric of polarization found in representational data displays that feature democrat vs republican. Data visualizations such as the red and blue map of the United States dominate news coverage during an election and voting period. These visualizations represent political process as a contest of consolidated power between two diametrically opposing groups, providing two convenient team colors behind which to rally. Rampant use of such visuals has perpetuated a culture of data visualizations that unethically disregard the wide spectrum of political philosophies present in every state, county, and city.

So, if the visualizations being created are inadequate and misleading, what kind of visualization can conceptualize a different political landscape? During the 2016 presidential election, the *New York Times* attempted to provide a solution by visualizing uncertainty on a set of three gauges with quivering needles. In data design, displaying uncertainty means finding the best method to force viewers to consciously acknowledge possibility and outliers before making a decision. The *New York Times* wanted to go beyond static red and blue graphics in order to visualize the notion of swing, uncertainty, and the importance of the individual voter. Over a century of political data visualizations have shaped public expectations toward simplicity and clarity at the sake of deeper meaning. The "jittery gauges" managed to subvert those expectations by making it impossible to decipher a sure winner until the final hours of the night. Because of this subversion, the largely negative feedback the "jittery gauges" received is

unsurprising. However, I propose that the *New York Times*'s gauges represent an important step forward in the journey to visualize a more versatile political process.

This paper will briefly trace the scholarly conversation surrounding concerns about contemporary political polarization before moving into the history of data visualizations that have mapped that polarization for over a century. Using the "jittery gauges" as a case study, I will discuss how introducing a wider range of possibility or uncertainty into political data visualizations can support voter flexibility, breaking down some of the cultural and ideological barriers between parties by blurring the visual distinctions.

PERCEIVING POLITICAL POLARIZATION

In 2014, Pew Research Center published data showing an increase in the distance between the median ideological stance of Democrat and Republican party members (see figure 1).

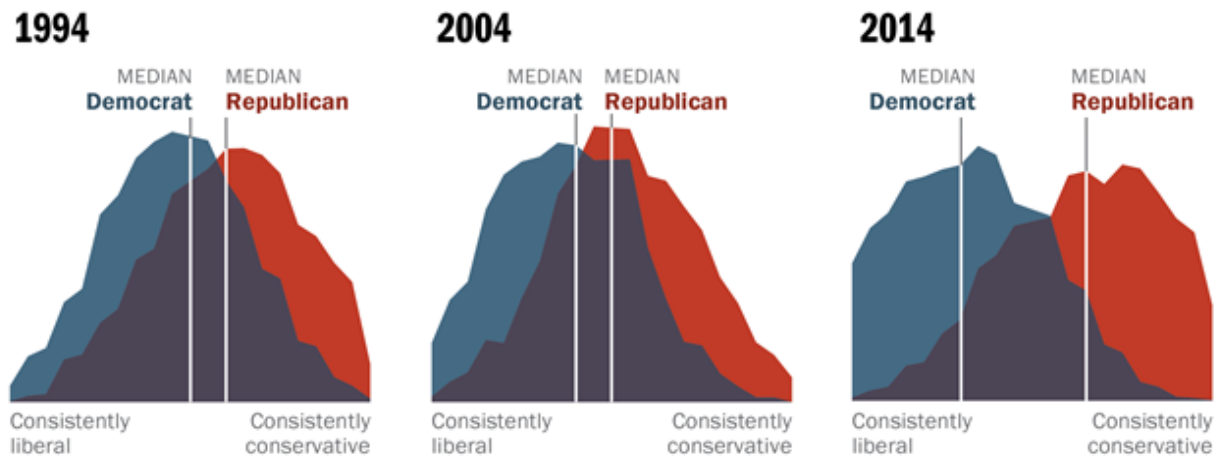Figure 1: Distribution of Democrats and Republicans on a 10-item scale of political values from Pew Research Center

While the numbers may be credited to the Pew Research Center, the claims and concerns voiced therein are not new. In general—and with the aid of mass media—the public perceives a great ideological divide between members of political parties. And because Pew designs their research

to hit on current issues in a widely accessible format, this research was quickly circulated by popular media. A quick Google search reveals a number of online news sources citing the Pew data as a confirmation of fears about political inflexibility.

Many scholars have addressed concerns about increasingly divisive partisan politics, a handful of whom are directly responding to the Pew Research Center's results. The general trend within the published research is to advise caution about accepting that the United States has become hopelessly polarized. If all factors are being considered, it seems it is the parties, not the individuals, which are growing further apart. (Gentzkow; Westfall et. al.; Levendusky and Pope; Hill and Tausanovitch). Researchers responding to general concern discovered that much of the divide is simply misperception, and misperceptions can be corrected.

Westfall et. al. conducted a study in which they discovered that not only did their participants misjudge the political stance of those in the "other" party, but most also misjudged the political stance of those in his or her own party (see figure 2). They posit that "There are several reasons why Americans might overestimate political polarization. Chief among these reasons is perceptual categorization and its typical perceptual consequences" (147). When an American identifies as Republican or Democrat, the assumption that follows is that those in the other party stand opposite to the voter's personal ideals rather than simply leaning
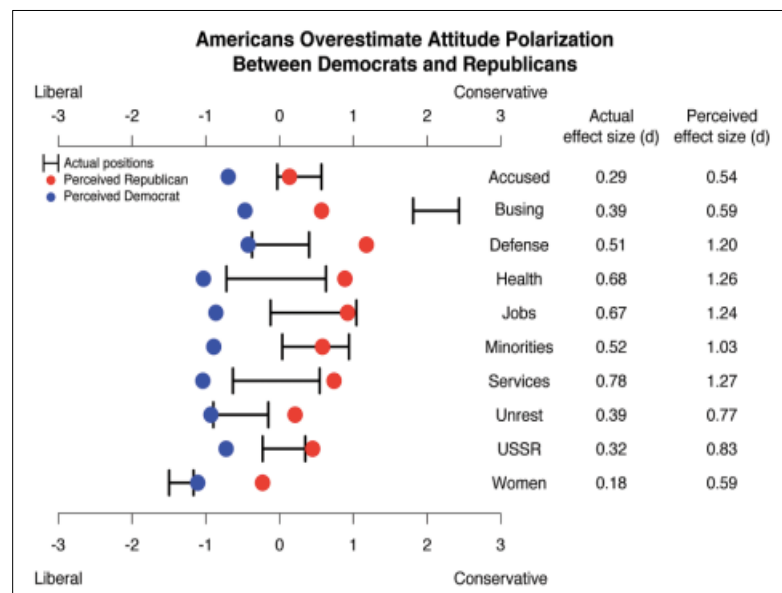

Figure 2: Perceived and actual attitudes of Democrats and Republicans from Westfall et. al.

another direction on a few major issues. Sherman et. al. explain that the us/them mentality is a natural human response. When faced with uncertainty, people will gravitate towards a strong position; and political parties, looking to please voters wanting stability, will continue to move further right or left to prove their strength. In addition, Ahler's 2014 research discovered that misperceived polarization can cause individuals with moderate opinions to begin taking more extreme positions as they perceive the need to "pick sides." This is confirmed by Miller and Conover and their work looking into the hostility between the two parties that has become a common state of mind among US voters. Rather than allowing differing viewpoints to fuel constructive debate about issues, many voters rally behind a party banner, allowing debate to become a power-hungry competition between two rival factions.

In an attempt to discover why there is a growing misperception of polarization both fueling and being fueled by voter categorization into two parties, several researchers have pointed fingers at news media. Studies conducted by Levendusky and Malhotra and by Ahler reveal that polarizing media had a direct and instant effect on their study participants' ability to judge how extreme either party's members were likely to feel and act towards specific issues. These results could prove several theories, but certainly they prove that at some level partisan media does have a hand in perpetuating misperceptions. And as I noted in the introduction, Sherman et. al. believe that before the right kind of political process can take place, there needs to be some sort of acknowledgment that party lines are flexible, allowing individuals to flow back and forth as different issues are placed on the national table (105). This kind of flexibility has not been well represented in political data visualizations historically, but a new generation of visual rhetoric could create a different way of publicly conceptualizing the division of ideologies in the United States.

POLITICAL DATA VISUALIZATIONS: THE PROBLEM OF CLARITY

So how do election data visualizations contribute to the problem of rigid party politics that are becoming increasingly disparate? The first problem is the one-dimensional nature of mass media's charts and graphics. When it comes to wide-spread information, clarity concerns for designers tend to result in macro data displays that are high contrast with a single message—perfect for an audience with a wide range of visual literacy (Kostelnick; Davisson). Designers tend to rely on over a century of socially-constructed display conventions and expectations born from early US atlases in order to limit the time viewers need to learn to read a new kind of chart. The dichromatic map of the United States, for instance, dates back to at least the 1800s when, in 1883, Scribner's Statistical Atlas published a variety of charts and maps of the young country based on 1880 census and election data (Hewes). The atlas covered a wide spread of national data, which included a series of political maps that charted political preferences and majority leanings in each county and state—red for democrat and blue for republican (see figure 3). Though the colors are inverted from the predominant color scheme that is currently used, the
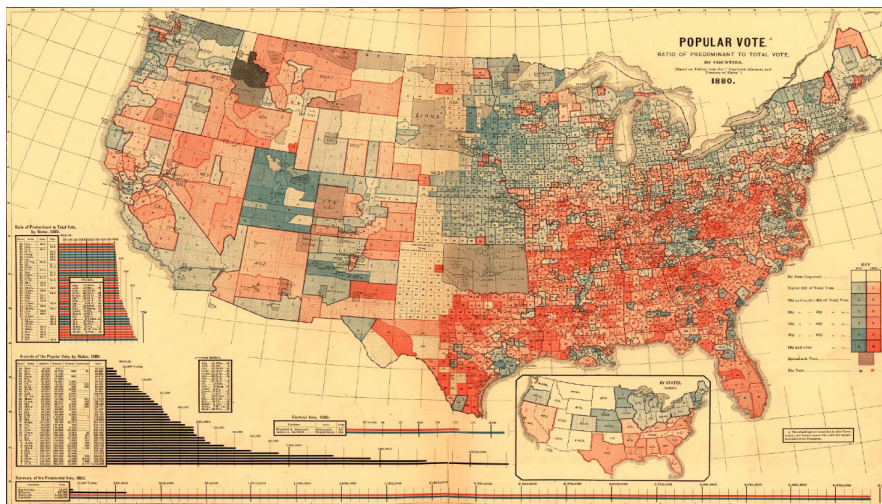

Figure 3: Popular Vote 1880 from Hewes, Fletcher W. and Henry Gannett. "Plate 11: Popular Vote: 1880*." Scribner's Statistical Atlas of the United States*, C. Scribner's sons, 1883, New York. Library of Congress, lccn.loc.gov/a40001834.

average American could glance at this data display and quickly understand what is being presented with little to no guidance. Of this early US atlas, visual rhetoric scholar Charles Kostelnick said, "Before the atlases, census data were published as uninviting tables, which hindered comparisons and limited the public's access to the information…. The U.S. statistical atlases collectively stand as one of the most public acts of visual rhetoric in the nation's history" ("Melting-Pot" 216). These atlases shaped public opinion and understanding of the country and its issues such as westward expansion and immigration. But perhaps their most important work was teaching the public how to read these new kinds of statistical displays. The Atlases helped determine new design conventions for the benefit of laymen, understood by the entire country rather than a specialized group of statisticians. From those early beginnings, Kostelnick explains that as Americans became accustomed to reading data displays, the explanations [attached to each graphic] disappeared in later editions because the public had achieved a level of visual literacy that rendered the explanations unnecessary" ("The Visual Rhetoric of" 121-122). And so, contemporary data visualizations often rely on the conventions and styles that have been in public use for over 100 years.

Long-standing display conventions contribute to what Kostelnick calls "the conundrum of clarity" ("The Visual Rhetoric"). When visual designers seek to create clarity, they rely on simple and familiar displays, meaning additional interpretations can sometimes be sacrificed on behalf of adequately conveying a single message. As noted earlier, when creating public data visualizations, designers must bend to the visual literacy of a diverse audience, accessible for "*any* readers, *anywhere*" regardless of their background or training (Kostelnick "Melting-Pot" 238). For clarity's sake, simple data visualizations refrain from attempting to portray the wide range of possibilities and opinions that could exist within a data set. Dragga and Voss claim that

it's incredibly easy for a data display to miss the whole story. *Correctness* is different than *accuracy* in representation, and many election day visuals ignore the spread of ideologies, geographic locations, and even candidate preferences of individual American voters for the sake of quick and simple reporting.

Since most major news networks now use the red and blue map during a presidential election, it has become a central part of the American election day experience (Battaglio; Bump). While the time-tested map has proven effective at showing the general division of electoral votes, its prominence obscures other possible interpretations about the political leanings of individual voters in a geographic region. In her work looking at better ways to represent the political landscape, Amber Davisson points out that "The traditional red-and-blue map symbolizes the overall message of the mainstream media by blocking off large areas and communicating to viewers that everyone who lives within the borders of a given state shares a similar set of experiences and ideals" (103). The terms "red" and "blue" have even become a common substitution for "Republican" and "Democrat" when referring to state political leanings.

Miller and Conover named their study, "Red and Blue States of Mind," after the popular slang way to refer to states. Their concern about the growing *my team vs. your team* mentality of American politics isn't being helped by the flaunting of one "team's colors" at the declaration that either democrats or republicans have "won" a state's allegiance in a presidential election. But lest the red and blue map get all of the censure, consider other familiar data visualizations such as figure 4 from Fox News' coverage of the 2016 election. Since this visual is not a map, it makes no claims about the geographic nature of voting patterns, but it still shows an unsettlingly acceptable image of a nation: that after choosing a party champion, nearly half of Americans lost and just over half of Americans won. While the color scheme is red and blue, it feels black and
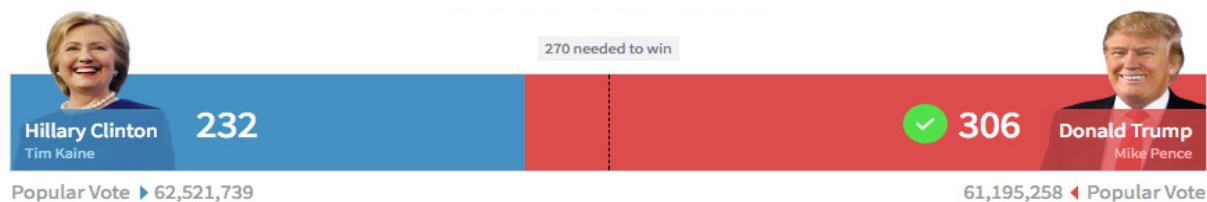
Figure 4: 2016 General Election Results from Fox News. "America's Election HQ." *Fox News*, updated 23 Oct. 2017. www.foxnews.com/politics/elections/2016/presidential-election-headquarters

white. No two-color bar chart could ever adequately portray the state of a country during a national election. It can only add to the me vs. you mentality that Miller and Conover warn about. New elements of design will have to be incorporated into election data visualizations if flexibility is ever to be championed as a way of thinking about the political situation of the United States.

VISUALIZING UNCERTAINTY

The projections and percentages within election data displays like the one seen above are often portrayed as *certain* for clarity's sake when *uncertainty* is actually a more accurate description. That is what data designers struggle to do: display uncertainty or a range of probabilities adequately. In his 2011 book, *Maps and Politics*, Jeremy Black explains that data visualizations such as maps are rhetorically dressed representations of geographic locations merely displayed as objective. "Maps generalize (both spatially and by category), abstract, exaggerate, simplify and classify, each of which is misleading" (104). But, because map users and policy makers want clear and easily accessible data, often designers don't do much to acknowledge the uncertainty that is inherent within the display (Black; Monmonier; MacEachren et. al.). In fact, it is difficult to show uncertainty in any display because portraying uncertainty can make the final product messy and hard to read. However, the attempt it essential because humans tend to be a little too confident in possibilities, seeing probability percentages as

absolutes. What is supposed to represent just a piece of the puzzle is too often accepted as the whole picture (Herdener et. Al.).

Consider Figure 5. This chart from the Wall Street Journal's coverage of the 2016 election displays a common method used by major news outlets to show additional information beyond that seen on the red and blue map. But while this visual acknowledges that there are more political leanings within a state than just one, the clear message that comes across is still simply that either the democrats or republicans "won" a state.

Safe/Likely Dem.

RACE	DEM.	REP.	IND.
Calif.	61.6%	32.7%	3.4%
Conn.	54.5%	41.2%	3.0%
D.C.	92.8%	4.1%	1.6%
Del.	53.4%	41.9%	3.3%
Hawaii	62.2%	30.0%	3.7%
Ill.	55.4%	39.4%	3.8%
Mass.	60.8%	33.5%	4.2%
Md.	60.5%	35.3%	2.9%
Maine	47.9%	45.2%	5.1%
Minn.	46.9%	45.4%	3.9%
N.J.	55.0%	41.8%	1.9%
N.M.	48.3%	40.0%	9.3%
N.Y.	58.8%	37.5%	2.3%
Ore.	51.7%	41.1%	4.8%
R.I.	55.4%	39.8%	3.2%
Va.	49.9%	45.0%	3.0%
Vt.	61.1%	32.6%	3.4%
Wash.	54.4%	38.2%	4.9%

Lean Dem.

RACE	DEM.	REP.	IND.
Colo.	47.3%	44.4%	5.0%
Mich.	47.3%	47.6%	3.6%
N.H.	47.6%	47.2%	4.2%
Nev.	47.9%	45.5%	3.3%
Pa.	47.6%	48.8%	2.4%
Wis.	46.9%	47.9%	3.6%

Tossup States

RACE	DEM.	REP.	IND.
Fla.	47.8%	49.1%	2.2%
N.C.	46.7%	50.5%	2.8%

Lean Rep.

RACE	DEM.	REP.	IND.
Ariz.	45.4%	49.5%	3.9%
Ga.	45.6%	51.3%	3.1%
Iowa	42.2%	51.8%	3.7%
Ohio	43.5%	52.1%	3.2%
Utah	27.8%	45.9%	21.0%

Safe/Likely Rep.

RACE	DEM.	REP.	IND.
Alaska	37.7%	52.9%	5.9%
Ala.	34.6%	62.9%	2.1%
Ark.	33.8%	60.4%	2.6%
Idaho	27.6%	59.2%	6.8%
Ind.	37.9%	57.2%	4.9%
Kan.	36.2%	57.2%	4.7%
Ky.	32.7%	62.5%	2.8%
La.	38.4%	58.1%	1.9%
Mo.	38.0%	57.1%	3.5%
Miss.	39.7%	58.3%	1.2%
Mont.	36.0%	56.5%	5.6%
N.D.	27.8%	64.1%	6.3%
Neb.	34.0%	60.3%	4.7%
Okla.	28.9%	65.3%	5.7%
S.C.	40.8%	54.9%	2.3%
S.D.	31.7%	61.5%	5.6%
Tenn.	34.9%	61.1%	2.8%
Texas	43.4%	52.6%	3.2%
W.Va.	26.5%	68.7%	3.2%
Wyo.	22.5%	70.1%	5.3%

Figure 5: 2016 Election Results by State from Wall Street Journal. "Election Results 2016." *Wsj.com*, 21 Nov. 2016. graphics.wsj.com/elections/2016/results/

The first item on the chart shows that California voted 61% Democrat. The presentation of this data in such a familiar format makes it difficult for a viewer to consider that a major portion of California's population voted Republican or independent. The variety of the political landscape is lost and perceptions of the homogenous nature of Californians as "Hillary" supporters is solidified

The tendency to avoid cognitively dealing with uncertainty and to accept visual information as complete, certain, and precise has been an ongoing topic of concern among those tasked with designing data visualizations (Tak et. al.;Kirschenbaum et. al.;Skeels et. al.;Gottlieb et. al.; Cohen et. al.). The problem across the board remains that uncertainty can't be just an ornament, it's an inherent part of information and simply life itself. Gottlieb et. al. explain that "The world is predictable, but only probabilistically so…. And an important part of an organism's life involves assessing an option when multiple outcomes are possible" (240). Therefore, although human tendency is to seek certainties from uncertainty, correct data visualizations should be able to depict probabilities in a way that capture the attention and forces the viewer to consider it. Unfortunately, staying within the boundaries of familiar design conventions will only perpetuate faulty perceptions.

Kirschenbaum et. al. adds that for a representation of uncertainty to be most effective, the format must match the situation:

> Thus, if the problem is fundamentally temporal (e.g., predict when will something occur), then the uncertainty representation should capture the time dimension; if it is fundamentally computational, then it should be represented by numerals; if it is fundamentally spatial (e.g., judge where something is), then the representation of uncertainty should be spatial. This does not mean that the problem solver's representation is an exact copy (or even diagram) of the real world, but that it captures the elements of the problem that are required for problem solving in a way that is congruent with the problem. (510)

Finding the right kind of information display that portrays possible variables is essential to adequately convincing a mind seeking absolutes that it must consider the possibilities. For data designers, visualizing uncertainty means presenting appropriate options for immediate decision-making purposes. When it comes to election data displays, however, the purpose is slightly different since voters have already made the immediate decision about who to vote for. What is left is to judge the general political state of the US. Being more conscious about visualizing uncertainty in election data displays could begin to weaken the hostility between party members by showing that millions of voters can have flexibility in their voting patterns.

For the 2016 presidential election, the *New York Times* wanted to be more obvious in their portrayal of possibility. The main graphic developed for their live forecast page was a series of three dials popular media dubbed the "jittery gauges" (see Figure 6). Most election data visualizations are dynamic, meaning that they appear static on screen but are frequently updated as new information comes in to show the neck-and-neck "race" between the two candidates, a clear focus on parties not policies. The gauges, however, were animated, making it nearly impossible to decipher a steady frontrunner—*New York Times'* graphic designers hoped to force viewers to acknowledge the general principle of swing in political proceedings. This new kind of
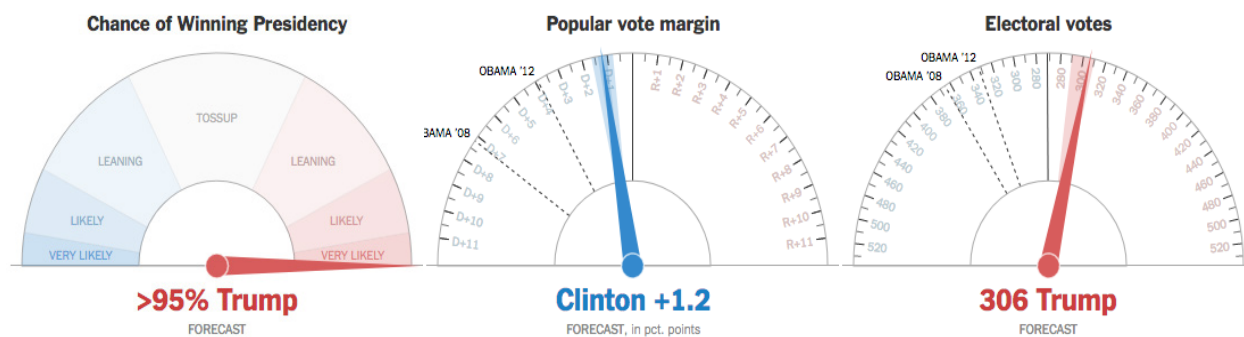

Figure 6: Jittery Gauges from New York Times. "Live Presidential Forecast." *Nytimes.com*, 9 Nov. 2016. www.nytimes.com/elections/forecast/president

election data visualization attempted to represent both the temporal and computational nature of election forecasting.

JITTERY GAUGES

The first of the three dials, "Chance of Winning Presidency," contains a simple forecast of "very likely" in deep blue on the left side to a neutral-colored "tossup" in the middle to a deep red "very likely" on the right side. The needle on this display swung back and forth on the dial as a bold blue or red percentage underneath the dial showed a continually changing projection in favor of Clinton (letters in blue) or Trump (letters in red). The needle itself also changed color as it swung towards the right or left.

The second dial shows the "popular vote margin" on a percentage-based points scale that allows for a 22-point swing. A series of hash mark measurements decorate the edge with a letter and number denotation. On the far left is D+11 meaning the Democrat candidate is up 11 percentage points of the popular vote. On the far right is R+11 for the Republicans. The center is left unmarked. This display shows a wide shaded range in both red and blue that represent incoming vote projections while the needle jittered between the most likely ranges. The bolded letters underneath the dial shifted to red or blue indicating the needle was pointing to "Clinton" or "Trump" with accompanying percentage points. This dial also has marked the percentage of votes President Obama had to win (on the left side) in both 2012 and 2008. He was the only president indicated on the dial, showing a favoritism for left-leaning presidents.

The third dial represents "Electoral votes" on a scale of 520 at the far left to 520 on the far right. This dial also had a shaded range representing incoming votes, which the needle bounced back and forth within. As the needle passed over the neutral zero, it and the words beneath the dial changed from blue to red and back. The description indicated the number of

votes the needle was pointing at and either "Trump" or "Clinton." This dial also had marks on the left side showing the electoral votes won in 2012 and 2008 by President Obama.

To truly understand the important contribution the *New York Times'* gauges make in the conversation about combating polarizing data visualizations, it's first necessary to understand their general public reception. In order to find a saved record of real-time reactions, I turned to Twitter. In the fascinating social archive that has immortalized #NotMyPresident I attempted to gather as many responses to the gauges as possible.

TWITTER FEEDBACK

To get a good sample of responses, I entered the following search terms into Twitter and recorded every response that referenced the gauges.

> *Twitter Search Terms:*
>
> Jitter(y) Gauge(s)
>
> Jittering Gauge(s)
>
> Jitter(y) Dial(s)
>
> Jittering Dial(s)
>
> Forecast Needle(s)
>
> Forecast Dial(s)
>
> Fake Jitter
>
> Hell Dial

The search terms yielded 351 tweets related to the *New York Times* gauges, which doesn't take into account replies to tweets and only captured retweets if they showed up independently. I felt this sample size gave a fair overview of responses. In simple terms, the tweets can be categorized

as neutral, positive, or negative responses to the gauges. Below I've recorded the percentage of tweets that fell under each category and the consequent subcategories that emerged:

Neutral - 17%

1) The viewer asked if the data was live or animated.

2) The viewer expressed strong emotion about the results the dial displayed, not the visual itself.

3) The viewer pointed out that the dials were animated not streaming results.

4) The viewer asked for others' opinions on the dials.

Positive - 19%

1) The viewer expressed that the gauges were interesting, different, or fun to watch.

2) The viewer was impressed that the visual was able to display data uncertainty.

3) The viewer incorrectly perceived the visual as "streaming" data rather than other sites which required frequent updating.

Negative- 64%

1) The viewer didn't like the visual because it was confusing or didn't tell them which candidate was winning definitively.

2) The viewer didn't like the visual because the movement felt unethical, irresponsible, or dishonest.

3) The viewer didn't like the visual because it caused anxiety, nervousness, or stress.
In addition, 55% of the total tweets expressed some sort of negative emotional/visceral reaction to the display, including describing the gauges as: Traumatizing, Stressful, Heart-attack inducing, Insane, Scary, Agonizing, Freaky, Inhumane, Godforsaken, Hell dials, Bad, and Shameful.

It is important to note that many of the tweets featured links to various opinion articles about the gauges that had been hurriedly written and published on elction day. Here are the 4 most tweeted articles from the sample:

1) "The NYT's election forecast needle is stressing people out with fake jitter"

   Rich McCormick - *The Verge* (144 tweets)

   Summary: Highlighted some of the tweeted conversation surrounding the gauges and concluded that they were poorly designed—too stressful for such a close election.

2) "Why we used jittery gauges in our live election forecast"

   Gregor Aisch - *Vis4.net* (32 tweets)

   Summary: The designer's formal defense of the gauges. He explains that people's discomfort with the display was about uncertainty and that the design accomplished its purpose.

3) "The New York Times has a wildly swinging forecast needle that's driving everyone insane"

   Mark Abadi - *Business Insider* (11 tweets)

   Summary: Simply acknowledged several of the comments tweeted throughout the night about the stressful nature of the display.

4) "The Fake Twitchy Hell Dials of the *New York Times'* Forecast Only Made Last Night Worse"

   Jake Swearingen - *NYMAG.com* (9 tweets)

   Summary: Highlighted a homemade parody gauge made by a twitter user to express the stress of watching the gauges as well as Twitter-user @Laurenancona's tweets

about the irresponsibility of the design. Concluded that the design did some interesting

things but was mostly stressful.

DISCUSSION

The sheer newness in design is perhaps the first point to acknowledge when looking at

the rhetorical impact of these gauges. General viewers tracking the election through major news

outlets on either TV or the internet during that election came with a certain set of visual

expectations set by decades of visual consistency. And the gauges did manage to meet many of

those expectations: They still operated on a red/blue spectrum. They still fixated on portraying

which of the two party's candidates was winning. And popular vote and electoral vote were still

used to measure the contest. However, what the design did differently had an immediate effect

on viewers, and the only truly notable elements of design that broke the mold were the jittering

needles. In an interview with *Design Observer*, *New York Times* assistant editor Steve Duenes

claimed that the jitter was meant to display uncertainty in a way that other graphics simply

weren't accomplishing (Bierut). For Duenes, the purpose of the design was to "reinforce to

readers how they should look at margin of error and probability." Similar comments were

expressed by Gregor Aisch (lead designer for the gauges) in an article that was retweeted a

number of times in the days following the election. These designers simply wanted to show that

the usual "presidential race" mentality is actually an incomplete way to analyze incoming

election data.

Perhaps trying to teach a wide readership the value of analyzing election night data was a

noble effort, but breaking the visual expectations of election forecast data visualizations caused

many viewers to misunderstand the gauges' purpose. Because the design was foreign many

viewers misinterpreted the animated jitter to be a reflection of real-time votes. Only

metaphorically was this true, and so some Twitter users felt the need to "out" the gauges' jitter as false. Early in the evening on November 8, 2016, @atoker tweeted a screen shot of a computer's open html feed explaining, "Looking for trends in @nytimes's presidential forecast needle? Don't look too hard - the bounce is random jitter from your PC, not live data." This news was retweeted over 2,200 times and similar observations were soon made by others. While some of these tweets could fall under the neutral category above, many expressed a strong negative reaction to the "revelation" that the needle's jitter didn't actually show the vote by vote count it seemed to be expressing.

As the night continued, more individuals complained that the jitter was unethical. The most notable complaint was retweeted 526 times, and was specifically responded to in Aisch's blog defense of the gauges: @tsiro tweeted, "straight up: the NYT needle jitter is irresponsible design at best and unethical design at worst and you should stop looking at it." As seen in the gathered data above, this was a popular opinion. Many users expressed that the design was unethical or dishonest, but why? Viewers and opinion editorialists could only point to the misleading idea that the gauges were streaming data when in fact the jitter was random between two ranges, or that the display hurt people by causing stress. Perhaps this comment from Harvard Business Review data specialist Scott Berinato best sums up the overwhelming feeling of discontent about the design: "[The gauges] caused a lot of anxiety. People were confused. They were trying to interpret what was going on in the election and why the data was changing so drastically in real-time, and it was really hard to understand what was going on" (Torres).

Berinato's comment highlight's a common theme found in many of the negative responses: the need to figure out what was "going on," by which he means knowing who is currently winning the election. Frustration at not being able to easily see (or imagine they see)

certain data is a human trait I discussed earlier. The desire to know, definitively, who is winning

as votes come in is a product of the competitive "red and blue states of mind" about which Miller

and Conover (2015) express concern. Because more people are finding acceptance and identity

within their parties, seeing a data visual that didn't allow them to cheer or grieve until late into

the night was too unsettling. A popular GIF made by Twitter-user @rhyselsmore illustrates the

range of emotion that a Clinton-supporter may have experienced when watching the *New York*

Times gauge (Figure 7). This parody
gauge was complete with swinging needle
to represent how quickly hopes rose and
fell for many on election day. The "my
team/your team" mentality makes the
success of the group very personal, and so
there is an intuitive reflex to seek out
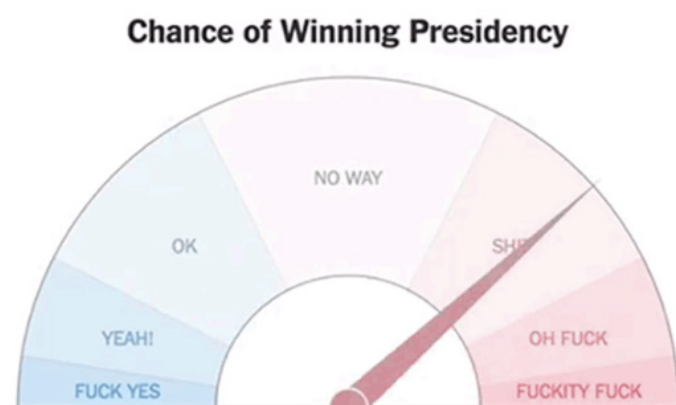absolute indications of party strength.

Figure 7: Parody Gauge from Swearingen

With such overwhelming dislike of the visual, it would be easy to agree with @pkbwood

who tweeted, "I hope that, in hindsight, the NYTimes comes to appreciate these little forecast

needles were not the best idea." And the display did fall short in many aspects, starting with the

lack of instructions about how to interpret the gauges. However, data design researchers have

come to realize that in order to make an impact on the viewer, the uncertainty built into a

visualization must be so obvious that the mind cannot dismiss it but must consider it.

Uncertainty, to put it lamely, is the opposite of certainty or assurance. By not allowing the eye to

rest long enough to make an erroneous assumption, the jittery gauges forced an uncomfortable

sense of unknown probabilities. That thousands of people felt compelled to tweet about a

political data design—not the information displayed but the design itself—proves that the gauges commanded attention. The quick and often visceral reactions to the gauges reveal that the design disrupted the normal visual pattern of elections, causing a cognitive dissonance that required public expression.

But what do these gauges mean in the context of polarization? First, they prove that a major news outlet is capable of breaking long-standing visual patterns. The fact that a paper as large as the *New York Times* felt comfortable visually experimenting on an election day can be seen as a hopeful precursor to future data design that breaks the mold. Visual rhetoric scholar Charles Hill explains that when rhetorical images are used repeatedly, they become more than persuasive, they become transformative (Hill 37; see also Foss). For generations, the same basic election day design conventions have been so repeated that they have literally become the picture of American politics: a picture that supports polarization, that gives visual boundaries to opposing parties. The simple movement of the needle on an otherwise unexceptional dial placed people over parties. The simulated "live" feeling of the gauges made it seem as though every vote mattered; and as the needle repeatedly swung over the dividing line between left and right, flexibility became visually realized. I know of no other data visualizations that day that conceptualized how "close" red and blue really are. Of course, the numbers and the percentages claim that the "race" was won by a fraction, but only that jittering needle spent until late into the night refusing to acknowledge boundaries.

CONCLUSION

The *New York Times* jittery gauges aren't the perfect example of combating political polarization through visual argument. What they are is a step towards that goal. Though flawed, the gauges show that it's possible to blur the divide between red and blue in a way that is

startling enough to draw public awareness, to force some level of attention and consideration with a single expectation-breaking element.

If, as researchers claim, the metaphorical divide between red and blue is becoming dangerously impassable, it would be foolish to ignore the effects of the consistent promotion of visual representations of a divided country. I'm proposing that the field of visual rhetoric take a closer look at the elements of political data visualizations that break visual expectations to find the uncertainty, possibility, and flexibility that exist there. As those elements are analyzed and improved, better visualizations can be born. Careful consideration about the way that party politics are literally seen can promote a more ethical and truthful conception of a diverse world filled with unique opinions rather than a contest between groups of monopolized power.

As a nation, we obviously don't know the best way to visualize political flexibility; what we know is a red and blue map. We know bar charts and percentages. But as we develop an eye for seeing visual uncertainty as a way to promote party flexibility, then the way we design will improve. Perhaps we'll be able to see past the borders of red or blue states and envision a new visual metaphor: one that opens the door to a more effective political landscape.

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