Soul Searching? State-Level Search Term Correlates of Political Behavior

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Abstract

This paper explores the extent to which personality differences between liberals and conservatives manifest in different search engine queries. Using data provided by Google Correlate, I find that, in fact, there is a strong relationship between votes for either Romney or Obama in the 2012 US Presidential election and distinctive patterns of conservative or liberal search term items. I also find that highly correlated search terms can be used to predict the national election outcome; using 2012 data and a search term correlated strongly with votes for Romney, I could accurately predict the outcomes of 48 of 50 states. This research suggests that liberals and conservatives use Google in systematically divergent ways, reflecting and probably reinforcing preexisting differences. I conclude by discussing limitations and the potential for using search term activities to predict political behavior as an area warranting further study.

Introduction

Democrats search for Republicans, Republicans search for US flags, and Tea Partiers search for firearms dealers. Voting turnout bears a strong relationship to searches for egg strata, book clubs, coffee stains, and Norwegian cats—even more so for midterm elections and in uncompetitive states. Obamacare searchers are more interested in back braces than politics. Those searching for the 2nd Amendment and gun rights are also looking for guns and ammunition. These are just a few of the gems revealed by a night's worth of searches using Google Correlate, an analytical tool provided by Google that gives users limited access to some of the big data collected by the search engine giant.

In this paper, I begin by contextualizing this research within the literature in political psychology on "fundamental differences" between liberals and conservatives. Next, I detail the methodology used in the research and provide a brief demonstration of how Google Correlate works with an unrelated dataset analysis. I then perform a variety of analyses connecting search term correlates to political behaviors, such as votes for Romney and Obama, finding that these data reflect divergent patterns in search term queries, which is consistent with fundamental

differences. Liberals tend to search more for terms related to the new and exotic, while conservatives tend to search more for terms related to religion, family, tradition, and threat. Correlations of search term queries with votes for Romney are sufficiently strong that I use them to accurately predict the outcomes of 48 of 50 states. I conclude by discussing the implications of these findings for politics and future research.

Motivating Literature

Fundamental Differences
This research is underpinned by the increasingly expansive literature detailing the "fundamental differences" between Democrats and Republicans in various spheres of life (Gelman, 2010). The crux of this argument is as follows: "variation in tastes and preferences, and more broadly in the personality tendencies and values that shape what we find pleasing or annoying, is connected to political orientations" (Hibbing *et al.*, 2013, pp. 90–91). One well-documented manifestation of this phenomenon is the correlation between geography and politics. Population density is strongly related to political liberalism (Badger, 2013), prompting one conservative writer to remark "if presidents were elected by acreage rather than by head count, Republicans would win national elections by landslides" (Hendrickson, 2012).

Since the 1970s, American counties have become less politically competitive as people increasingly choose to live around others who share their political views. Two thirds of the counties in the United States have grown increasingly either Republican or Democratic; in 2004, half of all voters were living in counties where either Kerry or Bush won by 20 percentage points or more, up from about a quarter of people in 1976 (Brandon, 2008). This is likely related to the kinds of issues that currently ground the political landscape. As Hetherington and Weiler (2009, p. 9) point out, political cleavages center around "notions of the proper societal order and threats to it," including fundamental issues such as race, religion, and sexual orientation. These issues may be central to who we are—our personalities—resulting both in their overlap with other choices we make and the intense feelings and bitter disagreement we associate with politics.

This sorting affects civic participation, particularly on those who reside in districts dominated by the other party. "You're less likely to vote if you're a minority, and you're less likely to join clubs and volunteer for projects. People really feel cut off because they don't want to have to defend who they are voting for. If you truly are in a mixed neighborhood and get to know people on a personal basis as well as a political one, you become more tolerant of the other side" (Brandon, 2008).

Importantly, policy quibbles are not informing the differences in residential patterns between liberals and conservatives. As Bill Bishop, an author on the geographical sorting of Americans, explained in an

interview with *US News and World Report*: "It's not policy that is forming these alliances. It's not about single-payer healthcare and Iran. It's cultural and lifestyle. It's people who have the same kind of way of life, people who think alike. Do you want a city type of lifestyle, or do you want to be spread out? What sort of ringtone do you have on your phone? Do you watch morning or evening TV?" (Brandon, 2008).

The Big Five Personality Index, a common personality inventory among modern psychologist, seems to reliably predict differences between liberals and conservatives (Hibbing, 2013, p. 104). Liberals tend to score higher on measurements of "openness," suggesting a predication for novelty and ambiguity; conservatives, meanwhile, score higher on the "conscientiousness" factor, showing greater affinity for order, authority, and tradition (Hibbing, 2013, pp. 104–105). These personality differences reveal themselves in a variety of divergent preferences between liberals and conservatives in humor, taste, hobbies, and so on (Hibbing, 2013). Soccer, for example, is concentrated in America's cities, among urbanites and liberals, and especially in areas in which a high percentage of workers are employed in the "creative classes" (Florida, 2014). A *New York Times* trends piece cited soccer's "aesthetics, Europhilic allure and fashionable otherness" as propelling soccer to the status of "the go-to sport of the thinking class" (Williams, 2014). According to the fundamental differences theory, these traits are precisely what we would expect to attract liberals. In contrast, NASCAR is most popular where fewer workers are employed in the creative classes and tends to be more popular among conservatives (Florida, 2014).

In short, "the left is characterized more by a desire for the new and novel, a commitment to individual expression, and a tolerance of difference; the right by a desire for order and security, a commitment to tradition, and group loyalty. These differences correlate with disagreements over the best dish to have for dinner. They also correlate with disagreements over the best individuals and political parties to run the government" (Hibbing, 2013, p. 110).

Search Terms and Soul Searching
Researchers are beginning to tap the "big data" created by undirected large-scale Internet activity, such as through search engines and social media sites, to power meaningful analysis. As *The New York Times* writes, "The terms people search for on Google have been used to forecast how many Americans have the flu, travel plans, and the price for which cars sell" (Bilton, 2013). One academic paper exploring stock market trends concludes that the "massive new data sources resulting from human interaction with the Internet may offer a new perspective on the behavior of market participants in periods of large market movements. By analyzing changes in Google query volumes for search terms related to finance, we find patterns that may be interpreted as 'early warning signs' of stock market moves" (Preis *et al*., 2013). Google is not the only source

for this "big data." Twitter trends have also been used to, among other things, predict stock market trends and box office sales (Grossman, 2010).

Summary
In this paper I seek to analyze the extent to which the differences purported to exist between liberals and conservatives also manifest in their behavior on the Internet. I would expect that the same temperamental differences between liberals and conservatives that alter a variety of other choices they make—such as where to live, what job or career to choose, and what to do for fun—should also play out in the kinds of searches they put into Google. Republicans would be expected to search for things related to tradition, patriotism, and the like; Democrats, meanwhile, would be expected to search for terms related to novelty and difference.

Methodology

Google Correlate
This investigation was powered by the Google Correlations function of Google Trends, an analytical tool that provides limited access to some of the search data collected by Google. Google (2014) describes Google Correlations as a function that "enables you to find queries with a similar pattern to a target data series. The target can either be a real-world trend that you provide (e.g., a data set of event counts over time) or a query that you enter." In other words, it shows you either: 1) Search terms that tend to be more commonly searched where values are greater in the dataset that you provide to Google or 2) Search terms that tend to be searched around the same time (if set to display time-series data) or place (if set to provide data by US state) as another search term. Google Correlate has been used to predict trends in the prevalence of the influenza virus (Mohebbi *et al*., 2011, pp. 2–3).

All searches since 2003 are factored into the algorithm for state-based results, while the time-series results can be analyzed dynamically by week as well as an overall average since 2003. In this paper, I exclusively use data from the United States, though Google Correlates has data for most countries. When looking at data by state, search prevalence is gauged relative to overall search volume in the state and given in terms of standard deviations from the mean.

Correlation with Bachelors Degree Attainment	Search Term
0.8945	the economist magazine
0.88	economist magazine
0.8761	telephone country codes
0.8758	euro dollar conversion
0.8741	masai mara
0.87	currency conversion
0.8696	the economist
0.8685	pound exchange
0.8668	euro exchange rate
0.8621	euro dollar exchange rate

FIGURE 1. This figure shows the search terms with the largest correlations to bachelor's degree attainment by state. States with higher levels of bachelor's degree attainment are more likely to be searching for terms such as *The Economist* and currency conversion rates.

An example may be helpful. Figure 1 shows the top search term correlates of a dataset for Bachelor's Degree Attainment by state in the United States that I uploaded to Google Correlates. Variants of searches regarding the British based political magazine *The Economist* seem to be related to Bachelor's Degree Attainment; in states where a greater percentage of people hold a college degree, people are more likely to be searching for this magazine (as well as, interestingly, terms related to international communication and travel).
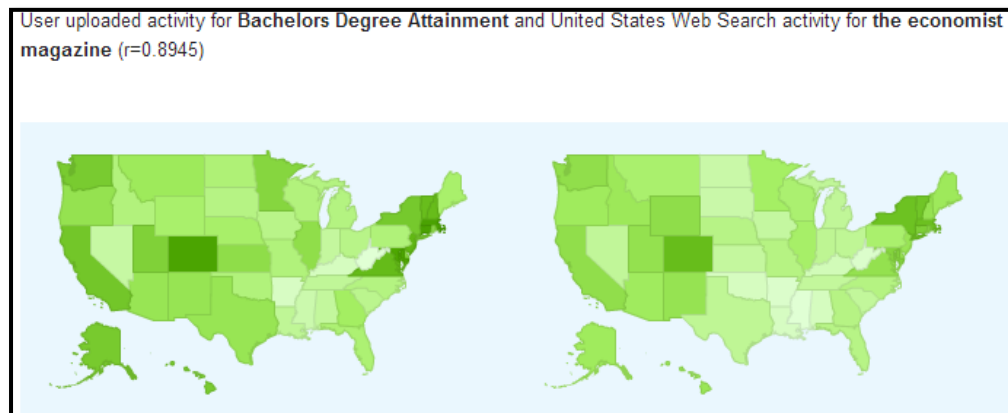

FIGURE 2. This figure shows two maps of the United States. The first shows states colored by bachelor's degree attainment and the second shows states colored by searches for *The Economist* magazine. The similarities between the two maps illustrate the correlation between a state's college degree attainment and searches for *The Economist*.

This pattern is visualized geographically in Figure 2. The map on the left shows states colored by bachelor's degree attainment (where darker

green indicates a greater prevalence of bachelor's degrees), while the map on the right displays search activity for "the economist magazine" by state. The relationship between the two is apparent at a glance; Colorado and New England, for examples, appear to be high in both bachelor's degree attainment and web search activity for *The Economist*, whereas the South appears to have little of either. The R-value of 0.8945 corresponds to an R^2 of about 0.8, indicating that approximately 80% of the variation by state in searches for "the economist magazine" can be explained by the variation in bachelor's degree attainment by state (or, technically, vice-versa).
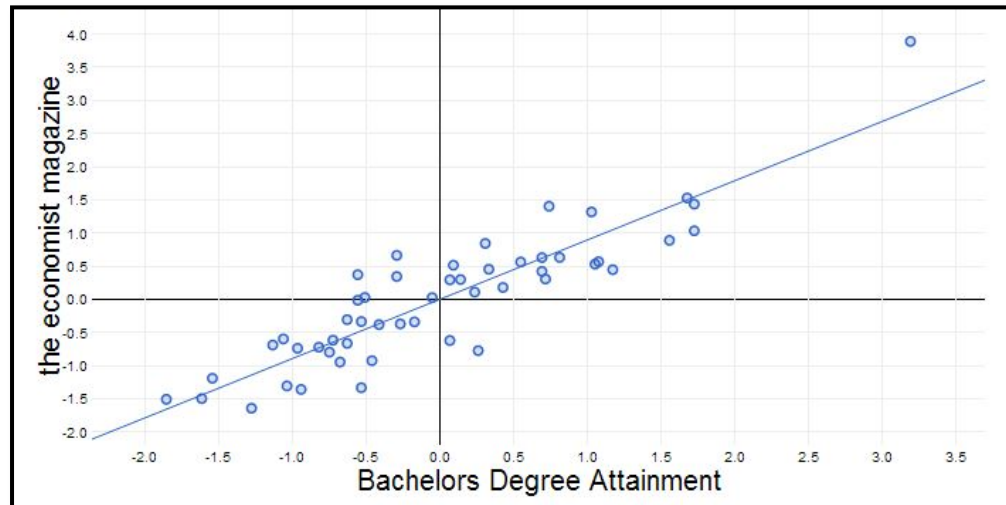

FIGURE 3. This figure is a scatterplot showing the positive relationship between a state's bachelor's degree attainment and searches for *The Economist* magazine.

Figure 3 presents the same data as a scatterplot, where each plot is a state. The X and Y axes are given in terms of standard deviations from the mean. The state in the far-right corner is Colorado, which appears to be an outlier both in terms of college degrees and searches for *The Economist*.

Politics and Search Queries
This paper proceeds with three kinds of tests using Google Correlate. First, I look at search term correlates of 2012 voting patterns (that is, votes for Romney and votes for Obama) by state. Next, I use the strongest search term correlate—"New Dollar Coins" and votes for Romney—to predict the national election outcome in 2012. Finally, I look at search correlates by state of search queries for two political issues: Obamacare and gun rights.

Correlates with 2012 Voting Patterns

Romney

Search Term	Correlation with 2012 Romney Votes
new dollar coins	r = 0.9125
patriotic pictures	r = 0.8994
honeymoon suites	r = 0.8968
in god we still trust	r = 0.8939
honeymoon suite	r = 0.8903
mens wedding bands	r = 0.8884
obama flag	r = 0.8853
stay at home moms	r = 0.8843
manners for kids	r = 0.8841
hand over heart	r = 0.8805

FIGURE 4. This figure shows top state-level search term correlates of percentage votes for Romney in the 2012 Presidential Election. Many of these search terms deal with traditional values such as patriotism, religion, and marriage.

Figure 4 displays search term activity that most strongly relates to votes for Mitt Romney in 2012. Consistent with fundamental differences theory, votes for Romney appear to strongly correlate with search terms associated with conservative values. Three of the top ten search term correlates are clearly related to patriotism ("patriotic pictures," "in god we still trust," and "hand over heart"), four are related to traditional marriage ("honeymoon suites," "honeymoon suite," "men's wedding bands," and "stay at home moms"), and "manners for kids" evokes conservative notions of politeness, submission, and proper authority. The search for "Obama flag" appears to reference a Florida story in which the state headquarters of the Democratic Party flew a modified American flag with Obama's face over the stars below an actual American flag (Miller, 2012). The flag seems to have "outraged" some conservatives.

After some research, the top search for "new dollar coins" also has a distinctive conservative character to it. In addition to dollar coins being concrete (which Hetherington and Weiler associate with conservatism) and often decorated with patriotic images, such as of President Washington, there was a prominent chain e-mail circulating during the study period purporting that "new dollar coins" had intentionally removed "In God We Trust," allegedly as some kind of secularizing effort (Factcheck.org, 2009). In fact, the coins were supposed to be stamped on the edges of the coins but an unknown number of coins passed inspection

and entered circulation without the phrase. This is consistent with a variety of traits associated with conservatism, including threat sensitivity (Hetherington and Weiler, 2009) and religiosity (Hibbing *et al.*, 2013).

Predicting state outcomes with search terms
"New Dollar Coins," is the search term bearing the strongest relationship to votes for Mitt Romney with an R-value of 0.9125. This corresponds to an R^2 of about 0.83, suggesting that about 83% of the variation in states voting patterns for Romney can be explained by search activity for New Dollar Coins. In this section, I attempt to use Google's records of search activity by state for "New Dollar Coins" to predict the outcome of the 2012 election. Strikingly, I find that the outcomes of 48 states can be predicted by their search activity for "New Dollar Coins" (the exceptions being Iowa and Ohio, both of which the model predicts should have gone to Romney).
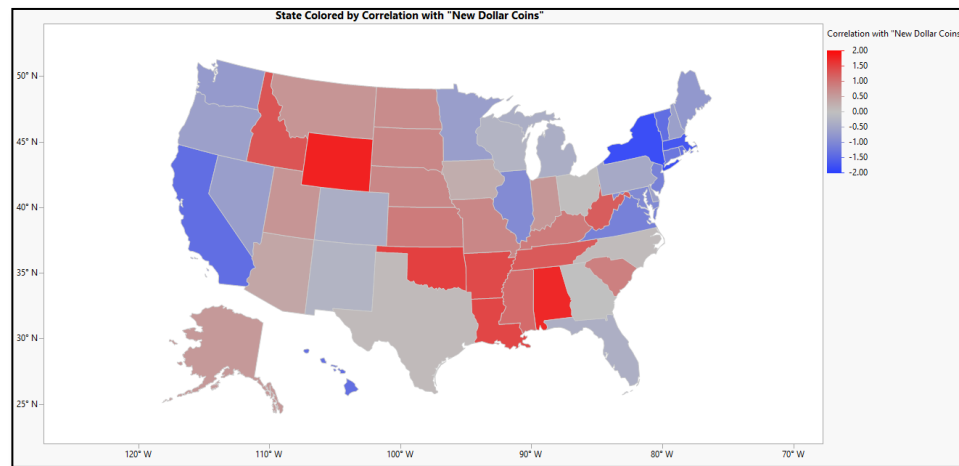

FIGURE 5. This figure colors the United States by their correlation with the search term "new dollar coins," a term that strongly correlates with votes for Romney in the 2012 election. States that are above the median are colored in red, while states below the median are colored in blue. The map strongly resembles the 2012 electoral map.

Figure 5 shows the states of the United States colored by search activity for "New Dollar Coins." Redder states have greater search activity for new dollar coins, which is associated with more votes for Romney. Blue states have less search activity for new dollar coins, associated with fewer votes for Romney. Grayer states are towards the middle of the distribution of searches for new dollar coins. In general, there seems to be a strong relationship between search activity for new dollar coins and electoral results. The west coast and northeast are blue, while much of the heartland is red.
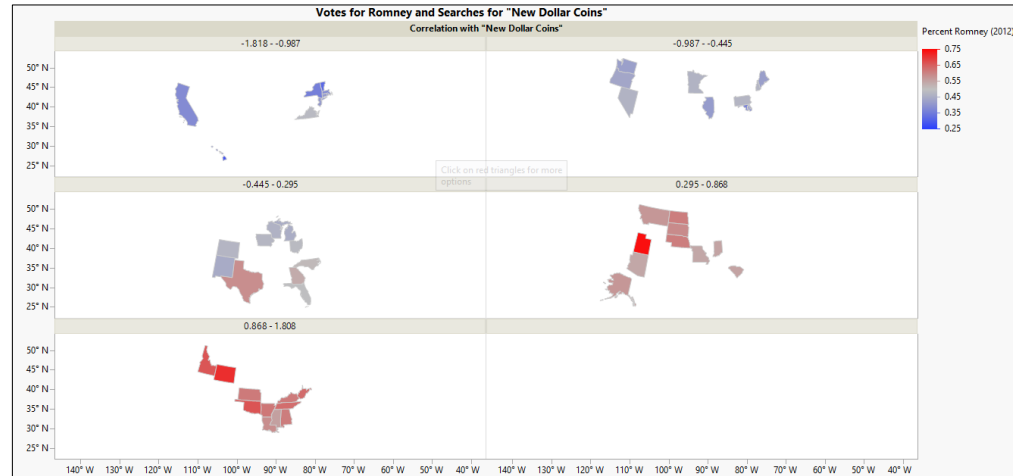
FIGURE 6. This figure organizes states according to their percentage votes for Romney (by color) and spatially according to their correlation for "new dollar coins." Rightward and downward movement in the figure indicates greater search activity while redder colors indicate greater percentage vote for Romney.

In Figure 6, states are organized by search activity for new dollar coins (where movement to the right and down the figure indicates greater search activity) and colored according to votes for Romney. Consistent with the search term model, most states with few votes for Romney (indicated by dark blue coloring) also have few searches for new dollar coins, while most states with a high percentage of votes for Romney (indicated by dark red coloring) also have many searches for new dollar coins (meaning they tend to be towards the bottom of the figure). Except for New Hampshire and Virginia, all the states that are typically thought of as swing states are in the median category of searches for new dollar coins.
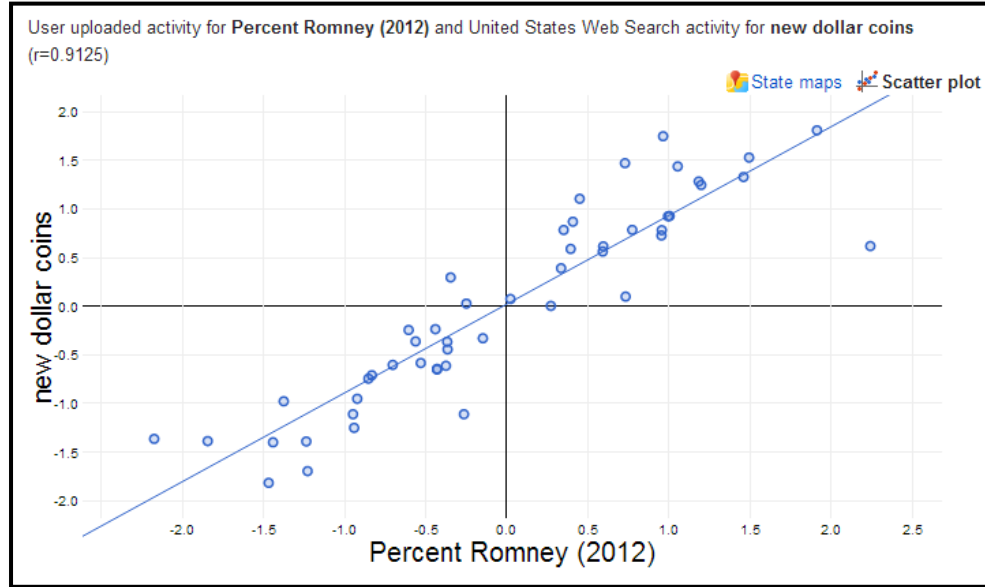
User uploaded activity for **Percent Romney (2012)** and United States Web Search activity for **new dollar coins** (r=0.9125)

FIGURE 7. This scatterplot illustrates the relationship between votes for Romney and searches for "new dollar coins." The relationship is strongly linear.

Figure 7 shows the relationship between a state's percentage of votes for Mitt Romney (in standard deviations, so relative to other states) and search activity for "new dollar coins." States in the top-right and bottom-left quadrants are states whose outcome was predicted correctly by the model; states in the top-right quadrant tended to search more for "New Dollar Coins" and also voted for Mitt Romney, and states in the bottom-left quadrant ended to search less for "New Dollar Coins" and also voted for Obama. Forty eight-states occupied these two quadrants; two swing states—Ohio and Iowa—occupied the top-left quadrant, indicating that the model predicted they would vote for Romney in light of their search activity for "New Dollar Coins" when they actually voted for Obama. This finding is discussed in detail below.

Swing States: Campaign Effects?
I separated the nine states in which the margin between Obama and Romney votes was less than or equal to 7% from the remaining 41 states to see if swing state status affected the accuracy of the search term predictions. My intuition is that swing states probably will respond differently than other states as essentially all campaign activity is waged in these states (Kenski and Kenski, 2014, p. 162).
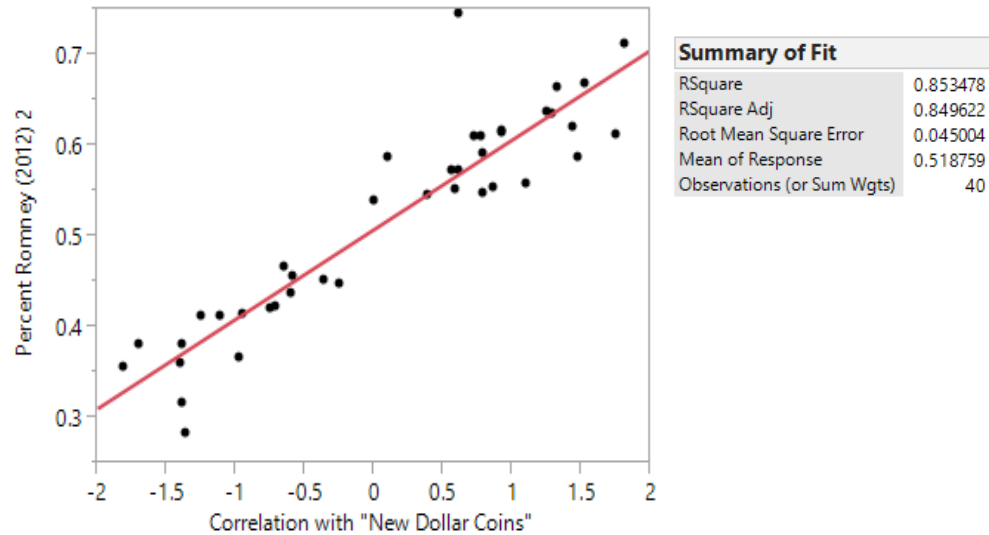
FIGURE 8. This scatterplot illustrates the relationship between votes for Romney and searches for "new dollar coins" in the states that are not politically competitive in presidential elections. The relationship is strongly linear.

Figure 8 shows a linear regression of search activity for "New Dollar Coins" with votes for Romney in 40 "typical states" (removing Utah from the dataset raised the R^2 value from 0.83 to 0.85). New Dollar Coins was a highly significant variable ($p < 0.0001$). As shown in the above figure and table, the search term did a good job predicting state votes; an R^2 value of around 0.85 shows that 85% of variation in percentage vote by state for Romney can be explained by search activity for "New Dollar Coins." A parameter coefficient estimate of about 0.093 indicates that for every one standard deviation increase in search activity for "New Dollar Coins," there is about a 9% increase in votes for Romney in a state.
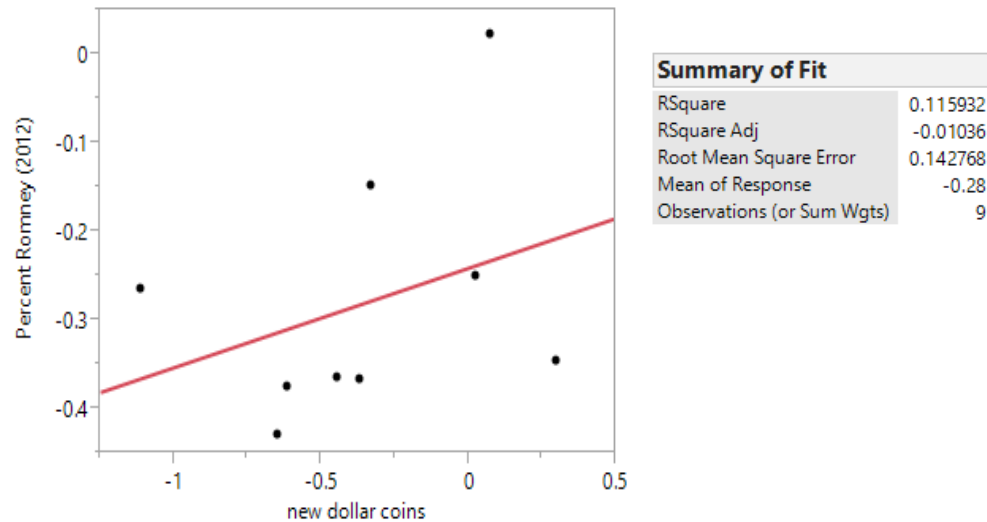
FIGURE 9. This scatterplot illustrates the relationship between votes for Romney and searches for "new dollar coins" in swing states. There is no obvious relationship in these states.

By contrast, the relationship between search activity and votes for Romney was much weaker—and statistically insignificant—in swing states, as shown in Figure 9. Even before adjusting for degrees of freedom, an R^2 value of 0.116 suggests that about 12% of the variation in percentage votes for Romney in swing states can be explained by search activity for "New Dollar Coins." This is consistent with the intuition that swing states would respond differently from typical states as additional factors are likely to shape voting outcomes in these states (namely, campaign effects).

Analysis

This pattern of results (that search term correlations were not as predictive of voting in the ten swing states as in the other 40 states) is consistent with the idea that campaigns matter (Hetherington, 2013). In particular, the Obama campaign won Ohio and Iowa, the two swing states that the search term model predicts he would lose, suggesting that his campaign was probably more effective in these states than the Romney campaign. This is consistent with one author's (Hetherington, 2013, p. 49) campaign analysis, which shows that "indicative of the Obama campaign's relative strength, it achieved a near sweep of battle ground states, winning nine of the ten states that both campaigns targeted." The Obama campaign achieved significant increases in mobilization of targeted demographics, such as minorities and young people, who turned out in record numbers. Meanwhile, Romney's religious identity, lurch to the right in the primaries, and notable gaffes may have contributed to his lackluster

performance. In short, I am supposing that the search term model creates a baseline prediction of how a state would vote by accounting for certain temperamental (or perhaps cultural) differences. That Obama would perform better than this model could suggest that he was a better candidate or campaigner than Romney.

Analysis of Residuals

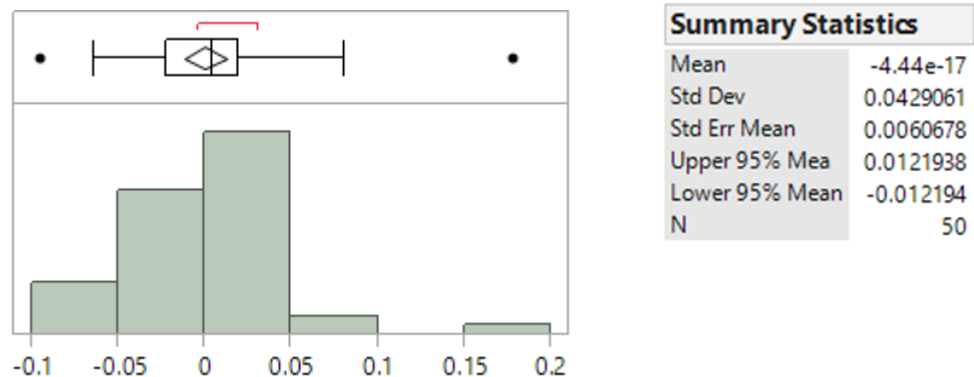| Summary Statistics	
Mean	-4.44e-17
Std Dev	0.0429061
Std Err Mean	0.0060678
Upper 95% Mea	0.0121938
Lower 95% Mean	-0.012194
N	50

FIGURE 10. This figure describes the error (or residuals) of the search term model.

Figure 10 shows the difference between the search term models predictions for the percentage of votes for Mitt Romney in a state and his actual percentage of votes (in technical terms, the residuals of the model) in the state. The residuals have a mean of about zero with very little variation, as shown by a standard deviation value of about 0.043. After removing the two outliers from the dataset, the data is slightly right-skewed, suggesting that the model tends to slightly overpredict votes for Mitt Romney (a discrepancy I previously attributed to campaign effects).

Interestingly, the two outliers are both states with unique relationships to the candidates; the right-most outlier is Utah (in which voters might disproportionately be affined to Romney due to his Mormon background) and the left-most outlier is Hawaii (where President Obama grew up and also a state in which the polls had not yet closed by the time Mitt Romney's defeat in critical swing states such as Virginia was apparent). This suggests that the model was significantly underpredicting votes for Romney in Utah and overpredicting them in Hawaii. These results are consistent with my theorizing that the search term model provides a "baseline prediction" of voting patterns according to temperament. Exceptional characteristics of a state, such as Hawaii's being the birthplace of a candidate or Utah's high rate of Mormon affiliation, would be not be accounted for by this model (and hence are a source of error). In Utah, the model predicted that Romney would have received about 17% fewer votes than he actually received. By contrast, in Tennessee the model

was off by just 0.3%. After removing the outlying states, a Shapiro-Wilko test was consistent with the null hypothesis that the errors are normally distributed (p = 0.12).

Obama

Search Term	Correlation with 2012 Obama Votes
top chef	r = 0.8512
slum	r = 0.8464
top chef season	r = 0.8463
albeit	r = 0.8356
tsotsi	r = 0.8343
top chef masters	r = 0.8326
chef masters	r = 0.8318
amongst	r = 0.8317
mf doom	r = 0.8281
vouvray	r = 0.8247

FIGURE 11. This figure shows top state-level search term correlates of percentage votes for Obama in the 2012 Presidential Election. Many of these search terms deal with novelty and the exotic, concepts associated with liberal temperaments.

Many of the top search term correlates of Obama votes by state are consistent with the predictions of fundamental difference theory, as shown in Figure 11. Several searches are consistent with an interest in the exotic, including "slum," "Tsotsi" (an award-winning South African film), "MF DOOM" (a UK-born underground hip-hop artist), and "Vouvray," a French region known for its wine. The words "albeit" and "amongst" sound like less common words for "although" and "among," consistent with the idea of liberals being more interested in individual differentiation and a proclivity for the unusual (Hibbing, 2013, p. 104). On first glance, the searches for "top chef," a reality TV-show featuring the competition of professional chefs, seem a little curious; however, they can be reconciled with the fundamental differences theory fairly easily. As Hibbing (2013, p. 113) points out, liberals, for whatever reason, tend to prefer "exotic foods and artistic novelty," both on full display in a competitive cooking show such as Top Chef.
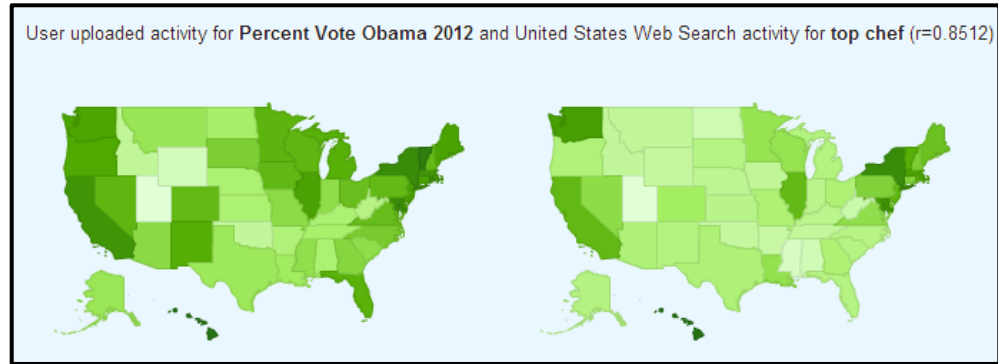
FIGURE 12. This figure shows two maps of the United States. The first shows states colored by their percentage vote for Obama and the second shows states colored by searches for top chef.

Figure 12 colors states by votes for Obama in 2012 (left) and by search activity for top chef (right). In general, maps with more votes for Obama tend to have greater search activity for top chef. A similar pattern emerges in that the search term model underpredicts votes in some swing states, such as Iowa and Florida. As previously discussed, this finding may be related to campaign effects. The R-value of 0.8512 suggests that about 72% of variation in votes for Obama by state can be explained by searches for "top chef," which is significantly less than the correlation for Mitt Romney but consistent with the fact that the Democratic coalition tends to be more heterogeneous than the Republican coalition. Consequently, predicting state voting patterns according to this search query is a little less successful than the Romney model, predicting the outcomes of 42 of 50 states correctly (as opposed to 48 of 50 for Romney). One state (Louisiana) is incorrectly assigned to Obama when it actually voted for Romney; this may be due to an exceptional interest in the show in Louisiana because the 2013 season was hosted in New Orleans, resulting in more searches for "top chef" in Louisiana than might otherwise be expected. Seven states (all swing states) are incorrectly assigned to Romney when they actually voted for Obama.

Political Issues: Search Correlations of Search Terms
In this section, I analyze the search correlates by state of searches for two issues: Obamacare and gun rights.

Obamacare

Correlation with obamacare	Search Term
0.9205	did obama
0.9165	back braces
0.9019	obama care
0.8994	with laser
0.8988	how to adopt
0.8985	obama is
0.8984	goatee styles
0.8962	what does the term
0.8929	how do you remove
0.8927	where to find a

FIGURE 13. This figure shows top state-level search term correlates of searches for "Obamacare." In other words, places with significant search activity for Obamacare also tended to search for these terms.

Figure 13 displays some of the top search term correlates of searches for Obamacare. This result appears to be very noisy—most of the search terms, specifically "did Obama," "with laser," "Obama is," "what does the term," "how do you remove," and "where to find a," appear to be queries in which the searcher hit the enter key, expecting autocomplete to finish their sentence. This created several incoherent, incomplete searches. However, one strongly correlated search term—back braces—is interesting. It suggests that there is spatial and temporal relationship in searches for Obamacare and searches for back braces; perhaps the same people (people with chronic illnesses, say) are interested in both the health care law and a component of health care.

United States Web Search activity for **obamacare** and **back braces** (r=0.9165)
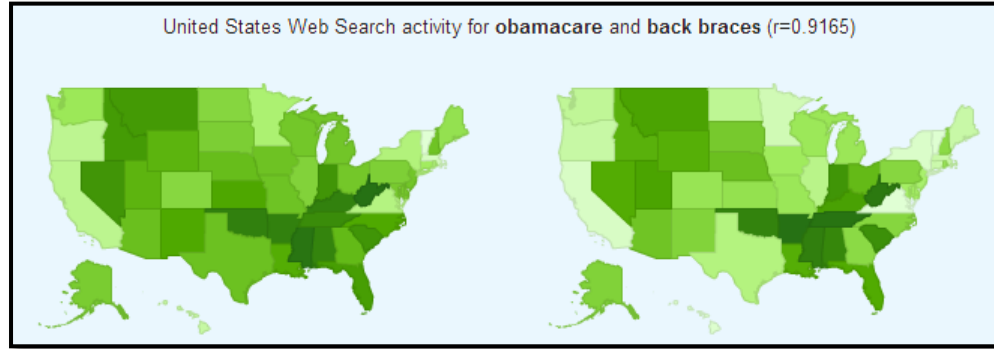
FIGURE 14. This figure colors maps of the United States by search activity for Obamacare and searches for back braces, respectively. Both the southeast and plain states have high search activity for these terms.

Figure 14 plots searches for obamacare (left) and back braces (right) where darker greens indicate greater search activity. Interestingly, searches for both Obamacare and back braces appear to be concentrated in the Southeast, where access to health insurance is lower than in other parts of the country (Kaiser Family Foundation, 2014).

Gun Rights

Correlated with gun rights	Search Term
0.9271	78 ford
0.9268	colt woodsman
0.9253	1985 ford
0.9228	powder measure
0.9222	trailer brakes
0.9213	.357 mag
0.9201	reloading press
0.9199	1984 ford
0.9197	xtp
0.9184	brake controller

FIGURE 15. This figure shows top state-level search term correlates of searches for gun rights. States with significant search activity for gun rights also tended to search for these terms.

Figure 15 details the top search term correlations with "gun-rights." Notably, all of the top ten terms predict more than 80% of the variation in searches for gun rights (the values on the left hand side of the table are R-values). Additionally, there seems to be clear relationship between searches for "gun rights" and searches for trucks and truck accessories (such as a brake controller) and guns (colt woodsman; 357 mag) and gun

accessories (such as a powder measure). This suggests that the people interested in gun rights are probably also interested in guns and trucks. In other words, the people interested in 2nd Amendment rights are probably not typically legal scholars; they are more likely to be people living in rural areas with a more vested interest in gun ownership and a lifestyle characterized by the rugged outdoors.
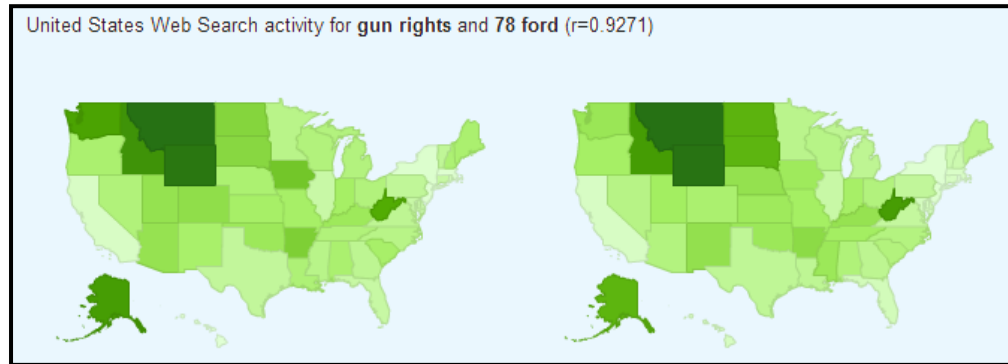

FIGURE 16. This figure colors maps of the United States by search activity for gun rights and searches for 78 ford, a truck, respectively. Both the southeast and plain states have high search activity for these terms.

Figure 16 shows searches for gun rights (left) and 78 ford (right) by state. Notably, the northern plain states, Alaska, and West Virginia seem to be particularly high in both searches for gun rights and for 78 fords, a kind of truck. The southeast, by contrast, scores lower on searches for gun rights and the 78 ford than one might expect. The northeast and California score quite low on both. These results are consistent with the narrative of fundamental differences, as interest in a political issue appears related to geography and lifestyle choices in general.

Conclusion

This kind of analysis might bear out the worst predictions of big data skeptics. Surely, these superficial correlations are just that—correlations—and often spurious ones. The strongest search term correlate with 2012 Obama votes was actually a reality show chef competition. One Internet blogger (Alexander, 2013) remarked of Google Correlate: "The results seem to fall into two categories: obvious and nonsensical." Using Google Correlate to generate the strongest correlations with voting patterns and then using those correlations to predict voting patterns, as I did, does have a certain circularity to it.

At the same time, though, this research does have import for both the science and craft of politics. Other research has shown that liberals and conservatives differ in a variety of ways—temperamentally, recreationally, religiously, residentially, and so forth. This research

suggests that those differences manifest in the kinds of terms we search for on the web. There are systematically divergent searches between "red" states and "blue" states, which track precisely the same personality differences between liberals and conservatives documented in other arenas by political scientists and psychologists. Conservatives are more interested in ensuring "In God We Trust" remains on coins, American flags, patriotic pictures, and the like, while votes for Obama correlate with the exotic: a South African film called *Tsotsi*, a British-born "underground hip-hop artist," a French wine, and the words "albeit" and "amongst" (which seem awfully like more exotic ways of saying common words like although and among).

There are also, potentially, implications for this kind of research for political campaigns. The model maps the political landscape according to cultural temperament, and states whose search terms predict that they ought to behave differently than they have in the past may be reasonable targets for devoting campaign resources. Put another way, search term analysis could be used to identify states that are vulnerable to "flipping" by the other side. For example, according to its middle-of-the-road search terms, Georgia might actually be more competitive in national elections than many political observers think, potentially signaling that Democratic efforts to mobilize voters could bear fruit there.

There are several plausible avenues for future research along these lines. One area would be simply to broaden the political behaviors examined, such as looking at voter turnout. A second would be to analyze how search term correlations change in response to political events. For example, I would be interested in examining the extent to which the Obama appearance on the show *Between the Two Ferns* resulted in an increased correlation between searches for Between the Two Ferns and searches for Obamacare (with the mechanism being that those who searched for the clip subsequently searched for the healthcare.gov website).

On the whole, this research introduces a novel lens with which to examine the differences between liberals and conservatives, and, in so doing, it helps clarify the nature of the divide between liberals and conservatives in the American political landscape. The divergent preferences of liberals and conservatives manifest in their search queries online, which may, in turn, reinforce the predispositions associated with the fundamental difference theory.

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