

The Exception or the Rule: Using Words to Assess Analytic Thinking, Donald Trump, and the American Presidency

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Kayla N. Jordan and James W. Pennebaker

University of Texas at Austin

The results of the 2016 presidential election left many political scholars perplexed. Why was Donald Trump elected and what was his appeal? Does he represent a new way of thinking or is he merely an extension of trends that have long been in place? The answer to some of these questions may be found in the language of political figures from Trump back to George Washington. The current project focuses on a central dimension of language that reveals the degree to which a person is relying on formal, logical, analytic thinking or more in-the-moment, informal, narrative thinking. Using text analytic methods, it is possible to identify at which point along an analytic-narrative continuum any speech or language sample falls. The analysis of speeches, debates, and various documents demonstrates that Trump stands out from other politicians as being very low in analytic thinking. However, he represents the next step in a trend wherein most Presidents and presidential candidates have been becoming less analytic. Trump may be an anomaly, but he is also a part of a long-developing presidential pattern.

What is the significance of this article for the general public?

This commentary seeks to explore recent political events, namely the election of Donald Trump, through language. By examining political language, we can gain a better understanding not only of Donald Trump but also where he stands in the larger presidential picture.

Keywords: analytic thinking, political language, American presidency, text analytics, political psychology

The 2016 elections, both in the United States and elsewhere, have left many experts baffled. With Donald Trump's election in the United States and the general rise of nationalism/populism globally, social scientists are struggling to understand how recent events fit into

long-held scientific beliefs about politics and politicians. One method for understanding the changes in the political landscape is to examine changes in the language of politicians. The current project explores the political language among recent presidential candidates within the context of the history of the presidency using computerized text analyses. The goal is to determine the degree to which Donald Trump is substantially different from recent Presidents in the ways he thinks and talks.

Kayla N. Jordan and James W. Pennebaker, Department of Psychology, University of Texas at Austin.

James W. Pennebaker is an author of the Linguistic Inquiry and Word Count (LIWC2015), which is owned by his company, Pennebaker Conglomerates. All profits from sales of LIWC are donated to the Department of Psychology at the University of Texas at Austin.

Correspondence concerning this article should be addressed to Kayla N. Jordan, M.S., Department of Psychology, University of Texas at Austin, 108 East Dean Keeton, Stop A8000, Austin, TX 78712-1043. E-mail: kayla.jordan@utexas.edu

Trump is seen by many as an outlier. Perhaps the most-discussed psychological dimension is his apparent unorthodox thinking style. His supporters praised him for being straightforward and "telling it like it is," seeing Trump's simple, intuitive message as a refreshing change. His opponents criticized him for being superficial and offering simplistic, uninformed solutions to complex problems. Whereas people's impres-

sions serve as a useful starting point, quantifying thinking style is necessary to determine whether Trump is truly a political aberration. One method for accomplishing this is through language analyses. Although it is difficult to get politicians to take surveys or answer questions, there is no shortage of political speeches. The language politicians use can provide insight into their personality, motivations, and thinking styles.

One way to conceptualize thinking style is along an analytic-narrative continuum. Analytic thinking is characterized by careful, effortful deliberation based on reason and logic. On the narrative side of the continuum is a style of quick gut reactions grounded in intuition and personal experience. Linguistically, people who are more analytic are more formal and detached, whereas those who are more narrative use language that is more personal and informal. The analytic-narrative dimension was factor analytically derived from the function words of more than 50,000 college admissions essays. Function words include pronouns, prepositions, articles, and other common, frequently used words that have been found to be related to personality, social processes, and behavior (Pennebaker, 2011). Subsequent text analyses discovered that analytic thinking was associated with high college entrance exam scores and 4-year grade point average (Pennebaker, Chung, Frazee, Lavergne, & Beaver, 2014).

Where someone falls on the analytic continuum varies as a function of both context and personality. Certain types of problems (i.e., complex problems, objective choices) and situations (e.g., scientific writing, formal speeches) tend to elicit more of an analytic thinking style. Other tasks (e.g., subjective preferences, ambiguous decisions) and situations (e.g., conversation, blogging) tend to elicit a more narrative thinking style (Inbar, Cone, & Gilovich, 2010). Across situations, people also naturally differ in where they fall on the continuum, with some people being generally more analytic and others generally more intuitive (Sterling, Jost, & Penneycook, 2016). By tracking people across different contexts, we can begin to develop a sense of where they fall on this continuum through their language.

Multiple studies have found linguistic measures of analytic thinking or cognitive complexity to be linked to a variety of both political and

nonpolitical outcomes from presidential electoral success (Conway et al., 2012; Thoennes & Conway, 2007) to academic performance and cognitive ability (Pennebaker & King, 1999; Robinson, Navea, & Ickes, 2013). Analytic thinkers, for example, tend to use more nouns, articles, and prepositions, whereas intuitive thinkers tend to use more pronouns, auxiliary verbs, and adverbs. For the current investigation, a standardized, composite measure of analytic thinking was derived using Linguistic Inquiry and Word Count 2015 (Pennebaker, Booth, Boyd, & Francis, 2015). Scores range from 0 to 100, with low scores indicating informal, intuitive thinking and high scores indicating formal, logical thinking.

During the 15 months of the 2016 presidential primary and final debates, the candidates varied tremendously in their analytic scores. Among the 2016 Republican candidates, Trump was the least analytic by far. On average, Trump's analytic score for primary election debates was 25.2 compared with Ben Carson (39.1), Marco Rubio (48.7), John Kasich (48.9), and Ted Cruz (62.1). In the general election, Trump was also far less analytic than his Democratic opponent Hillary Clinton (23.8 vs. 42.8). In fact, Donald Trump's average analytic score was more than 3 SDs below that of the average Republican (56.2) or average Democrat (57.1) from the last five election cycles. All of this indicates that Donald Trump is indeed an outlier. Presidential hopefuls of recent history have tended to be analytic thinkers or show a balance of analytic and intuitive thinking. Trump, on the other hand, falls firmly on the intuitive thinking side of the continuum.

Whereas Trump is definitely an anomaly, there is still the question of how he compares with other Presidents and where he falls in the broader context of presidential trends. We examined multiple corpora of presidential speeches and texts including inaugural addresses, presidential documents, election debates, and State of the Union Addresses covering every President from George Washington to Donald Trump. Table 1 shows each President's average analytic score across all five corpora. Donald Trump is far lower in analytic thinking than other U.S. Presidents, falling 1.5 SDs below Barack Obama, two below George W. Bush, Bill Clinton, and Ronald Reagan, and

Table 1
Ranking of U.S. Presidents by Average Analytic Score

	President	Average analytic score
	George Washington	96.53
	John Adams	96.54
	Thomas Jefferson	97.10
	James Madison	98.47
	James Monroe	98.14
	John Quincy Adams	98.86
	Andrew Jackson	98.24
	Martin van Buren	98.69
	William Henry Harrison	96.09
	John Tyler	98.51
F1	James K. Polk	98.26
	Zachary Taylor	98.63
	Millard Fillmore	98.60
T2	Franklin Pierce	98.82
	James Buchanan	98.31
	Abraham Lincoln	95.18
	Andrew Johnson	98.55
	Ulysses S. Grant	98.36
	Rutherford B. Hayes	98.72
	James A. Garfield	96.87
	Chester A. Arthur	98.82
	Grover Cleveland	97.71
	Benjamin Harrison	96.69
	William McKinley	98.08
	Theodore Roosevelt	92.24
	William Howard Taft	98.16
	Woodrow Wilson	71.84
	Warren G. Harding	89.46
	Calvin Coolidge	88.10
	Herbert Hoover	91.23
	Franklin D. Roosevelt	88.28
	Harry S. Truman	83.05
	Dwight D. Eisenhower	80.16
	John F. Kennedy	81.52
	Lyndon B. Johnson	78.87
	Richard Nixon	79.31
	Gerald R. Ford	81.42
	Jimmy Carter	83.83
	Ronald Reagan	80.18
	George Bush	79.21
	William J. Clinton	80.31
	George W. Bush	81.63
	Barack Obama	69.06
	Donald Trump	43.99

Note. Scores represent the average analytic thinking score of each President across four presidential corpora (Inaugural Addresses, presidential documents, State of the Union Addresses, general election debates). SD across corpora is 16.87. Standardized, composite measure of articles + prepositions – pronouns – auxiliary verbs – adverbs – conjunctions – negations was determined.

more than 3 below Abraham Lincoln and George Washington.

Although Donald Trump is different from past Presidents, an interesting pattern emerges as we stand back and look at Trump in the context of all other U.S. Presidents. As depicted in Table 1, most Presidents since Franklin Delano Roosevelt have produced speeches and documents with lower analytic scores than the previous President. In contrast, most Presidents from the early 18th to the end of the 19th century were uniformly high in analytic thinking. Statistically, the trends over time are striking (see Figure 1). For each of the five presidential corpora, there are consistently large negative correlations between year and analytic (see Table 2). Furthermore, this trend is apparent with presidential language and not in other large data sets we have analyzed, including movie scripts since 1900 and congressional speeches since 2000.

Given the general trends of informal, intuitive thinking, perhaps the election of Donald Trump was within a continuing trend. Donald Trump is by far the least analytic President in history, but the same could have been said about Barack Obama 8 years ago. Rather than being a unique President, Trump is simply the newest in a long-developing presidential sequence. From

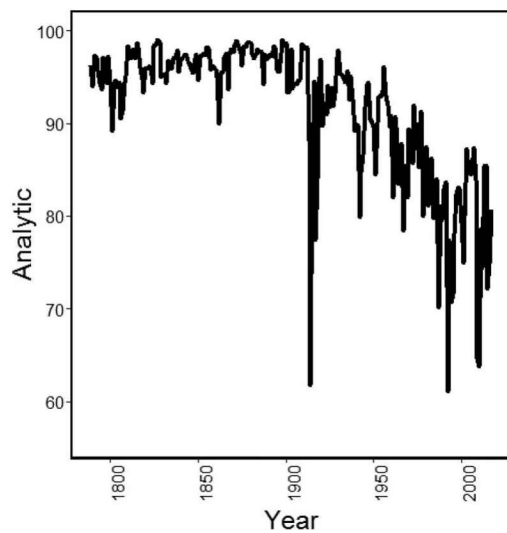


Figure 1. Analytic thinking in state of the union addresses over time. Graph represents the analytic thinking score of the State of the Union Address every year from 1789 through 2017.

Table 2
Correlations Between Year and Analytic by Corpus

Corpus ^a	Analytic ^{b,c}	N
Inaugural addresses	-.74	39
Presidential documents	-.40	32,130
General election debates	-.49	55
Primary election debates	-.18	562
State of the union addresses	-.70	229
Movies	-.09	12,004
Congress	-.02	92,622

^a Inaugural Addresses represent the first address of every elected President from George Washington to Donald Trump. Presidential documents represent remarks, letters, addresses, and messages from Washington to Trump (American Presidency Project; Peters & Woolley, 2017). General election debates include 55 texts from 17 candidates from 1980 through 2016. Primary election debates include 562 texts from 52 candidates from 2000 through 2016. State of the Union Addresses include every address from 1789 through 2017. Movies include 12,004 movie subtitles from 1900 through 2014 collected from the IMDB database. Congress represents congressional speeches from 2000 through 2016 from the Congressional Record. ^b All correlations are significant at $p < .001$. ^c Standardized, composite measure of articles + prepositions – pronouns – auxiliary verbs – adverbs – conjunctions – negations was determined.

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this perspective, Trump's election may be less shocking than previously thought.

What accounts for the general pattern of increasingly narrative language use of presidents? At least three possibilities exist: changes in voters and voter preferences, changes to campaigning and political media, and loss of hope/trust in political institutions.

The first possible explanation for the decline in analytic thinking is changes in who is voting and what they want in a President. The presidential electoral process has changed markedly since the election of George Washington. The groups of people eligible to vote have expanded considerably from only property-owning white men to nearly everyone over the age of 18 years. Additionally, recent presidential candidates have not only had to appeal to a general election audience but also win over voters from their party in the primaries (Twombly, 2013). A growing electorate has been accompanied by increasing polarization, with fewer and fewer undecided voters (Smidt, 2017). In the last few decades, a preference for a certain type of candidate may have also emerged. Since 1980, the presidential candidate who was least analytic in the general election has tended to win the White

House (with Bill Clinton as the notable exception). With this expansion of the pool of voters along with increased polarization and possible changing preferences, the electoral challenge Donald Trump faced was drastically different from that faced by George Washington.

The second potential factor surrounds advances in technology and changes to media. Technologies like radio, television, and the Internet have greatly expanded the number of people that candidates can reach as well as the amount of press coverage the presidency receives. With these advances, Presidents and presidential candidates have been increasingly able to bypass political leaders and institutions and appeal directly to the public. Speaking directly to a diverse group of prospective voters has likely impacted how Presidents communicate and the types of candidates who are successful (Kernell, 2006). Where Washington had to rely on letters and public speeches to reach wealthy male voters, Trump just has to log into his Twitter account to reach people around the world.

The final possible explanation is the decline in trust/hope people have in various political institutions. Whereas all Presidents have their ups and downs in terms of their approval ratings, average approval ratings have been dropping since Franklin Delano Roosevelt (Gallup, 2017). In fact, the American people have steadily been losing trust in both their political leaders and the American people in general (Gallup, 2017). In this environment, people may increasingly prefer straight-talking leaders offering simple solutions.

Despite what many people want to believe, the election of Donald Trump is not an isolated, abnormal event. Rather, the trends in presidential politics may continue to select Trump-like individuals for many elections to come.

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