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# How Getting the Facts Right Can Fuel Partisan Motivated Reasoning

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# How Getting the Facts Right Can Fuel Partisan Motivated Reasoning

*Abstract:* Scholars often evaluate citizens' democratic competence by focusing on their ability to get relevant facts right. In this article, I show why this approach can yield misleading conclusions about citizen competence. I argue that while citizens with strong partisan loyalties might be forced to accept the same facts, they find alternative ways to rationalize reality. One such way, I show, is through the selective attribution of credit and blame. With four randomized experiments, conducted in diverse national settings and containing closed- as well as open-ended questions, I find that as partisans updated economic beliefs to reflect new facts, they conversely attributed responsibility in a highly selective fashion. Although partisans might acknowledge the same facts, they are apt in seizing on and producing attributional arguments that fit their preferred world views.

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Getting the facts right, or at least being willing to revise one's beliefs about the world, is a cornerstone of representative democracy (Berelson, 1952; Delli Carpini and Keeter, 1996; Kuklinski et al., 2000). With good reason: If citizens are not able to get basic facts straight, how are they supposed to send a meaningful signal to policy makers or to hold incumbent politicians accountable for how real world conditions have changed (Anderson, 2007; Healy and Malhotra, 2013)? Given these stakes, it is not surprising that one of the most debated findings in political science is how citizens appear to view reality in ways that reflect well on their party (e.g., Achen and Bartels, 2016; Flynn, Nyhan and Reifler, 2017; Jerit and Barabas, 2012; Nyhan and Reifler, 2010). In some of the most dramatic instances, Republicans and Democrats cannot “even agree on the *direction* of change” (Bartels, 2002, 137, original emphasis) in objective economic indicators.

Yet recent work has given ground for more optimism on the part of citizens (Arceneaux and Vander Wielen, 2017; Lavine, Johnston and Steenbergen, 2012). If citizens of different partisan stripes are just faced with unambiguous real world conditions (De Vries, Hobolt and Tilley, 2017; Parker-Stephen, 2013) or provided with small monetary incentives to report an accurate answer (Bullock et al., 2015; Prior, Sood and Khanna, 2015), they offer less tainted perceptions of reality (also see Gerber and Green, 1999). Sometimes, partisans react “in a similar way to changes in the real economy” (De Vries, Hobolt and Tilley, 2017, 115); they “learn slowly toward common truth” (Hill, 2017, 1404); and they “heed the facts, even when doing so forces them to separate from their ideological attachments” (Wood and Porter, forthcoming, 3). Sometimes, even committed partisans can get the facts right.

In this article, however, I advance an argument that has largely been overlooked in recent work: Getting the facts right is no guarantee that citizens will act in accord with democratic ideals and hold incumbent politicians accountable (see also Anson, 2016; Bisgaard, 2015; Gaines et al., 2007; Tilley and Hobolt, 2011). To the contrary, I argue, while even committed partisans can be forced to acknowledge that economic growth is sluggish

or that crime rates are decreasing, they can easily explain away these facts by attributing responsibility in a highly selective fashion, crediting their own party for success and blaming other actors for failure (e.g., Malhotra and Kuo, 2008; Rudolph and Grant, 2002). This way, the mere acknowledgment of new facts cannot be taken as evidence that citizens “form the sort of opinions policy advocates hope for and democratic theorists expect” (Parker-Stephen, 2013, 1087). Quite to the contrary, the acknowledgment of new facts could—paradoxically—fuel partisan motivated reasoning in how citizens attribute credit and blame.

I present the most comprehensive evidence to date on how partisans attempt to explain away indisputable facts through the selective attribution of responsibility. With four population-based experiments, conducted in the United States and Denmark (N=8621), I examine how citizens simultaneously revised their economic perceptions and attributions of responsibility when exposed to either positive or negative information about economic growth. I find strong evidence that while partisans of different stripes revised their perceptions of the economy to reflect new economic facts, they conversely apportioned credit and blame to the incumbent in a highly selective fashion—a pattern that replicates across two diverse national settings and reverses when governments change.

Moreover, I develop two novel survey instruments for probing deeper into how citizens reason about responsibility. First, I show that exposing citizens to credible arguments about why (not) the incumbent is responsible does little to temper partisan motivated reasoning. Rather, respondents dramatically shifted how they viewed the persuasiveness of the *same* arguments depending on whether macroeconomic circumstances were portrayed as good or bad. Apparently, the perceived persuasiveness of arguments comes down to a disturbingly simple question: Does the argument support the “right” conclusion? Finally, I use open-ended questions to examine whether citizens *themselves* are capable of producing attributional arguments that fit their preferred conclusion—even when they are not explicitly prompted to consider the responsibility of the President or government. Using

both trained human coders and an automated routine for discovering lexical features, I show that citizens, in particular in the context of the United States, easily mustered up attributional arguments that suited their preferred conclusion.

In sum, I demonstrate why focusing narrowly on citizens ability to get the facts right can lead scholars astray. Sometimes, citizens of different partisan stripes might acknowledge the same set of facts. But at the same time, they might explain away these facts by seizing on and producing attributional arguments that fit their preferred world views.

## Theoretical Background

Imagine that the United States Commerce Department released a new report showing that the economic growth in the country is booming. How would citizens respond to this fact?

One answer—commonplace in research on public opinion—is that citizens’ willingness to acknowledge the facts at hand depends on whether the evidence reflects well on their party (Bartels, 2002; Evans and Andersen, 2006; Jerit and Barabas, 2012; Nyhan and Reifler, 2010; Schaffner and Roche, 2017). Citizens identifying with the incumbent will likely accept news of booming economic growth at face value because their party has the economic stewardship. Opposition identifiers, on the contrary, will likely greet the same evidence with skepticism trying to denigrate, counter-argue or avoid the information altogether. Of course, being skeptic towards new evidence is not in itself problematic. What is problematic is that such skepticism is applied in an opportunistic or “motivated” fashion (Ditto and Lopez, 1992; Kunda, 1990; Taber and Lodge, 2006; Lodge and Taber, 2013): Opposition and government identifiers would likely have reasoned in complete opposite ways, had they received news of waning, not booming, economic growth or had the opposite party been in office. This way, evidence is judged, not on its informative value, but on whether it reflects well on a given party.

Yet recently, another answer has emerged. Exploiting, in part, the sudden and unam-

biguous economic changes during the financial crisis, scholars have consistently found that partisans of different leanings updated their economic perceptions in the same, negative direction to the extent that partisan perceptual differences waned (Lavine, Johnston and Steenbergen 2012; Parker-Stephen 2013; also see Chzhen, Evans and Pickup 2014). In a series of experiments, Prior, Sood and Khanna (2015) and Bullock et al. (2015) offered participants small monetary rewards for giving a correct answer and found a non-trivial reduction in the partisan gaps on various factual questions (but see Berinsky, 2018). Recently, Hill (2017) found that when partisans received the same noisy signals about whether a politically charged fact was true or false, they too updated their beliefs in the same direction to the extent that they converged over time (also see Gerber and Green 1999; Guess and Coppock forthcoming; Wood and Porter forthcoming). In all of these studies, partisans did not simply reject or counter-argue inconvenient facts. When the evidence changed, for good or bad, partisans followed.

But what should we make of these findings? On its face, recent work suggests that “people do not seem to be at liberty to conclude whatever they want to conclude merely because they want to” (Kunda, 1990, 482). Apparently, there are limiting conditions for partisan motivated reasoning (e.g., Arceneaux and Vander Wielen, 2017; Lavine, Johnston and Steenbergen, 2012; Mullinix, 2016). Yet recent findings raise an overlooked question: When citizens get the facts right, does it mean that they have escaped the pull of their partisan motivations and act in accord with democratic ideals?

In what follows, I argue that it does not. Sometimes, it is the acceptance of inconvenient facts that creates the cognitive dissonance necessary for fueling processes of partisan motivated reasoning. Just as “hunger leads to activity oriented toward hunger reduction” (Festinger, 1957, 3), so too could the acknowledgment of inconvenient facts lead citizens to search for alternative ways of rationalizing reality. Gaines et al. (2007) highlighted this paradox more than a decade ago, yet it has received surprisingly little scrutiny in subsequent research (but see Anson, 2016; Bisgaard, 2015; Tilley and Hobolt, 2011; Groe-

nendyk, 2013). To date, there is thus scarce evidence and theory about how people might employ different mental strategies to explain away indisputably clear facts. In the remainder of this article, I develop and test what is arguably one of the most important strategies for rationalizing unambiguous facts: *selective attribution*.

## How Getting the Facts Right Fuels Selective Attribution

Attributions of responsibility do not follow logically from the way(s) in which reality has changed. For any given real world development, different explanations can be supplied for why—or why not—the incumbent is responsible, giving motivated partisans leeway to rationalize even the most undeniable set of facts (Bisgaard, 2015; Gaines et al., 2007). For example, during the financial crisis beginning in 2007-2008 there was little doubt that national economies around the globe clearly changed for the worse. Yet even in this case, the question of what ultimately caused the economic meltdown remained inherently ambiguous: “risk seeking banks,” “outside forces,” or “failed governmental policies” are all exchangeable reasons—among which motivated partisans can easily choose whatever suites their preferred conclusion.

Figure 1 details the reasoning strategies that two hypothetical individuals could pursue to rationalize an undeniable set of facts. Here, the solid dots indicate a government identifier and the hollow dots represent an individual identifying with the opposition. The point of departure, shown in the left panel of Figure 1, is a situation where both individuals update their perceptions of real world conditions in the direction of the evidence. Of course, different stripes of partisans will not always respond this way (e.g., Schaffner and Roche, 2017; Nyhan and Reifler, 2010). Yet our interest hinges on the instances where partisans *do* update their perceptions in the direction of new evidence (e.g., De Vries, Hobolt and Tilley, 2017; Wood and Porter, forthcoming). In such instances, how can citizens continue to rationalize reality?



[Figure 1 about here]

Upon accepting a negative economic fact (right most dots in each panel), government identifiers who seek to maintain their partisan identity could engage in “blame avoidant reasoning” and come to think that the incumbent is now *less* responsible for the state of the economy. Opposition identifiers, on the contrary, could engage in “blame seeking reasoning” and revise their attribution of responsibility in the opposite direction, thinking that the incumbent is now *more* responsible. When the individuals accept a positive economic fact (left most dots in each panel), these patterns could be the complete reverse: Now government identifiers could engage in “credit seeking reasoning” and opposition identifiers in “credit avoidant reasoning” and again update their attributions of responsibility in the direction that serves their partisan goals. In short, as partisans acknowledge the same facts they might conversely polarize in how they attribute responsibility.

To date, few studies have examined how citizens simultaneously revise their perceptions of real world conditions and attributions of responsibility. The most direct evidence comes from an observational study of the financial crisis in Britain. Here, Bisgaard (2015) found that while even the most committed Labour and Conservative partisans converged in their evaluations of the economy in response to the crisis, they polarized over whether government was to blame (see McCabe 2016 for related observational study). This evidence is important, yet apart from the question of whether it generalizes beyond the context of a historic economic meltdown, such evidence faces one major obstacle: How is it possible to show that citizens reason about responsibility in a *partisan* motivated fashion?

Since there is no objectively correct answer to who is responsible, sorting out whether citizens reason in a partisan motivated fashion is challenging. In the context of the British economic downturn, for example, both Labour and Conservative partisans might have had good reasons other than their partisan affiliation for reaching different conclusions about government responsibility. Labour partisans might rightly think that “outside forces” were to blame for the economic downturn while conservatives might rightly blame “government

policies.” In such instance, the key to showing that citizens reason in a partisan motivated fashion is to compare counterfactual scenarios where alternative explanations can be ruled out: How would citizens have attributed responsibility had the economic bust been a boom, or had a different party been in power—all else equal? People might articulate good arguments for why or why not the incumbent is responsible, but such arguments should not change just because an economic indicator is now pointing in the “wrong” direction or because the opposite party enters office. Showing how individuals seize on and selectively use arguments to confirm their preferred world views in different counterfactual scenarios will get at the very core of motivated reasoning theory—something that is rarely done empirically (Kahan, 2016; Leeper and Slothuus, 2014). In the pages that follow, I describe and report the results from four randomized experiments that explicitly get at this.

## Research Design and Data

The experiments were conducted in two different national settings, the United States and Denmark, and included a triad of instruments from closed- and open-ended questions to an argument rating task which. Collectively, the four experimental studies give rise to at least two key advantages for testing the argument.

First, subjects were randomly exposed to either positive or negative information about a recent change in the Gross Domestic Product (GDP). Due to random assignment, the experiments directly get at the counterfactual scenario that existing observational studies cannot: How do partisans attribute responsibility when the *same* economic indicator suddenly points in a direction that is (un)favorable to their party, all else equal? In addition, two of the experimental studies were conducted in Denmark during a period where a Center-Left coalition government was replaced by a Center-Right party. While this contextual variation is not as clean as a randomized treatment, it provides an important opportunity for examining the other counterfactual scenario: Do partisans’ reasoning change when their

party is suddenly (not) in office?

Second, I implemented an argument rating task and open-ended questions for probing deeper into the reasoning processes driving the selective allocation of credit and blame. In the argument rating task, I asked participants to rate the persuasiveness of six different arguments for why or why not the incumbent was responsible. For each argument, however, I randomly varied whether economic growth was portrayed as strong or weak. This allows me to examine whether partisans' evaluation of the *same* argument changes when it suddenly supports a different conclusion. That is, what counts as a good argument in one instance might suddenly be deemed a weak argument in another because it now supports the “wrong” conclusion (Kahan, 2016). Moreover, the argument rating task makes it possible to examine whether citizens reason about responsibility in a partisan motivated fashion when they are given credible reasons for why (not) the incumbent is responsible. The open-ended questions add an important layer to the argument rating task: Are citizens *themselves* capable of mustering up arguments that serve their partisan goals when they are not explicitly prompted to consider the culpability of the incumbent? By combining different counterfactual comparisons with a triad of survey instruments, the experimental design allows for an unusually strong test how citizens use attributions of responsibility to explain away a new set of facts.

## Data Collection

All four experimental studies were conducted online using the private polling agency YouGov, where the target population was the voting-age population. Table 1 gives a brief overview of the studies and their key characteristics.<sup>1</sup>

[Table 1 about here]

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<sup>1</sup> The samples for Study 1, 2 and 3 were collected using a dynamic sampling technique, what YouGov refers to as “Active Sampling,” where respondents are invited continuously to match the key characteristics of the target population. With this sampling technique, YouGov cannot calculate a response rate for a given sample. In Study 4, 4,199 invitations were sent out and 1,508 took part in the survey yielding a response rate of 35.9 %.

The fact that the studies were collected in two different countries is important for probing the generality of the argument. Clearly, Denmark and the United States represent two different contexts. Economically, Denmark is a small and open economy that is inextricably linked to the performance of neighboring economies. Furthermore, in the Danish multi-party system, governments are usually cooperative and formed by a coalition of parties making political responsibility relatively murky (e.g., Powell and Whitten, 1993). The United States is a large and more closed economy with a political system that is focused on the President. In recent years, American partisan elites have also become increasingly polarized (e.g., McCarty, Poole and Rosenthal, 2006) and partisan animus is often strikingly apparent in the electorate (e.g., Iyengar, Sood and Lelkes, 2012; McConnell et al., 2018). Thus, both the clarity of responsibility and the level of polarization among citizens differ across the two countries providing a critical opportunity to examine whether the argument spans different political and economic settings.

## Stimulus Material

In designing the stimulus material, two things were important. First and while keeping in touch with reality, the stimulus material needed to be relatively strong and unambiguous to create a situation where both stripes of partisans would acknowledge the facts at hand. Second, it was important to design the material to vary in a positive or negative direction while holding everything else constant.

To achieve this, subjects were randomly assigned to either read about a positive or negative change in GDP. (Study 1 and 2 also included a control condition, where respondents did not read any information.) In Study 1 and 2 the treatment conditions took the form of mock newspaper articles that citizens would likely encounter in everyday life. Importantly, the differences between the negative and positive articles in, for example, word usage, concepts mentioned, and so forth, were minimal. That is, the two conditions only varied on whether the same economic indicator was pointing in a positive or negative direction.

In Study 1 (US), respondents assigned to treatment either read a positive article about how the estimated average growth throughout 2015 was an impressive 2.4 % or how GDP growth had dropped from 4 % in the first quarter to a disappointing 0.7 % in the last quarter of 2015. At the time, these were the actual numbers reported by the U.S. Commerce Department. To make the two treatments less ambiguous, subjects were told that economic experts found the recent growth numbers to be either “impressive” or “dissapointing,” respectively.

In Study 2 (DEN), subjects assigned to the negative treatment read an article about how GDP growth in the fourth quarter during the previous year was -0.3 % and how economic experts interpreted that as disappointing. The positive article had the exact same structure, but now subjects read that fourth quarter growth was 0.3 % and that economic experts took those numbers as encouraging. At the time, the official agency handling demographic and economic statistics in Denmark, Statistics Denmark, estimated that GDP had increased by .3 percent in the last quarter of 2014 with an uncertainty of +/- .4 percent meaning that the development in GDP could, in principle, have been negative.

In Study 3 and 4 (DEN), the treatment took the form of a more concise statement that were also about a recent change in GDP. In Study 3, subjects assigned to the positive condition read that “[t]he annual economic growth in Denmark in 2015 is expected to be 1.5 %. Compared to the previous year, this represents a clear improvement in Danish economic growth.” and those assigned to the negative conditions read that “[i]n the third quarter of 2015, the economic growth in Denmark was -0.1 %. This is the first time in over a year that economic growth is negative.” In Study 4, subjects in the negative condition read that “[a]ccording to preliminary numbers from Statistics Denmark, Danish economy grew by only 0.7 percent in 2015. This is markedly worse than expected by economists” and subjects in the positive condition read that “[a]ccording to preliminary numbers from Statistics Denmark, Danish economy grew by up to 1.7 percent in 2015. This is markedly better than expected by economists.” At the time, these numbers were those reported

by Statistics Denmark. The stimulus material appears in Supplemental Information (SI) Appendix Section A.

## Measures

*Party identification.* Prior to reading the articles or statements, participants in all studies answered a set of questions measuring party identification. In Study 1, party identification was measured using the question “Generally speaking, do you usually think of yourself as a Democrat, a Republican, an independent, or what?” as well as the follow-up question “Do you think of yourself as closer to the Republican Party or to the Democratic party?” that was asked for respondents who did not initially identify with the Democratic or Republican Party. The two measures were collapsed into a binary indicator that takes the value 1 if the respondent identifies with the incumbent (N = 867), at the time the Democrats, and 0 if the respondent identifies with the opposition (N = 600), the Republicans.

In Study 2, respondents were asked “Many people see themselves as supporters of a specific party. There are also many people who do not see themselves as supporters of a specific party. Do you see yourself as supporter of a party, for example as social democrat, conservative, social-liberal, liberal, people’s socialist or something else, or do you not see yourself as supporter of a specific party?” where respondents who did not see themselves as supporters of a specific party were asked the follow-up question “Upon reconsideration, is there one party you see yourself as closer to than other parties?” In the analysis these measures are also collapsed into an binary indicator that takes the value 1 if the respondent supports the incumbent parties (N = 466), at the time the Social Democrats (“Socialdemokraterne”) and the Social Liberal Party (“Radikale Venstre”), and 0 if the respondent supports the Center-Right opposition parties (N = 445), the Liberals (“Venstre”) and the Conservatives (“De Konservative”).

In Study 3 and 4, party affiliation was captured using the question “If a general election were held tomorrow, which political party would you vote for?” Again the measure is re-

coded into a binary indicator where 1 indicates whether the respondent would vote for the incumbent parties (Study 3:  $N = 257$ ; Study 4:  $N = 169$ ), now the Liberals, and 0 indicates whether the respondent would vote for a major opposition party (Study 3:  $N = 499$ ; Study 4:  $N = 328$ ), now the Social Democrats and the Socialist People's Party ("Socialistisk Folkeparti").

*Perception of facts.* After having read the articles or statements, participants in Study 1, 2 and 3 were asked the standard retrospective question: "Would you say that over the past year the nation's economy has gotten better, stayed about the same, or gotten worse?" Here, respondents could mark one option on a five-point scale: "Gotten much better," "gotten somewhat better," "stayed about the same," "gotten somewhat worse," or "gotten much worse."<sup>2</sup> The question also included a "don't know" option. In the analysis, don't know answers are treated as missing and the variable is rescaled from 0-1 where 1 indicates the most positive evaluation of the economy (Study 1:  $M = 0.49$ ,  $SD = 0.28$ ,  $D/K = 7.5\%$ ; Study 2:  $M = 0.63$ ,  $SD = 0.20$ ,  $D/K = 5.4\%$ ; Study 3:  $M = 0.55$ ,  $SD = 0.21$ ,  $D/K = 14.0\%$ ).

*Attribution of responsibility.* In Study 1, 2, and 3 respondents were asked closed-ended questions about the responsibility of the incumbent. In Study 1, respondents were asked the question "How much is President Obama responsible for how the nation's economy has changed over the past year?" where they could choose between "a great deal," "a lot," "a moderate amount," "a little," "not at all," and "don't know." In Study 2 respondents were asked to what extent they agreed or disagreed with the statement "The social democratic-social liberal government is responsible for the state of the Danish economy" and could

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<sup>2</sup>In Study 2, the question had an additional prompt in the treatment conditions asking respondents "Thinking about what you just read, would you say that over the past year. . ." This was also the case in Study 3 where the prompt read "In light of the latest development in Danish growth, would you say. . ." Originally, these prompts were included to force respondents to at least consider the evidence. However, a pilot study that was conducted prior to the collection of Study 1 indicated that the prompt made little difference for people's answers and it was thus left out in Study 1.

choose between “disagree completely,” “disagree somewhat,” “neither disagree nor agree,” “agree somewhat,” “agree completely,” and “don’t know.” And in Study 3, the question read “Lars Løkke Rasmussen’s current government is responsible how the economic situation is in Denmark today compared to one year ago” and included the same 6-category response scale. Although the wording differs somewhat across each study, the focus below is on how citizens—*within* each national setting—revise or not their attributions of responsibility in response to treatment. Again, the variables are scaled from 0-1 with 1 indicating that the government is responsible and where don’t know answers are excluded (Study 1:  $M = 0.61$ ,  $SD = 0.32$ ,  $D/K = 10.0\%$ ; Study 2:  $M = 0.61$ ,  $SD = 0.26$ ,  $D/K = 7.1\%$ ; Study 3:  $M = 0.57$ ,  $SD = 0.30$ ,  $D/K = 9.4\%$ ). The exact question wording and descriptives for the argument rating task and the open-ended questions are presented in the analysis.

## Parallel Perceptions, Polarizing Attributions

Did Democrats and Republicans acknowledge the new information on economic growth and, importantly, did they attempt to explain away these facts by attributing responsibility selectively? Figure 2 shows the estimated average response conditional on party identification and treatment assignment in Study 1. The left panel in Figure 2 shows the retrospective perceptions of the national economy and the right panel displays how respondents attributed responsibility across treatment conditions. Looking at partisans’ retrospective economic perceptions in the control condition (middle dots, left panel), the results corroborate existing work (e.g., Bartels, 2002): Disagreement between Democrats and Republicans is astounding. Specifically, the partisan perceptual gap was a staggering .29 units ( $p < 0.001$ ) or almost one-third of the entire scale.

Yet despite massive disagreement, Republicans and Democrats were not oblivious to new, credible facts about economic growth. As the left panel in Figure 2 shows, Republicans and Democrats clearly updated their economic perceptions in a parallel fashion and in



the direction of the evidence (e.g., De Vries, Hobolt and Tilley, 2017; Wood and Porter, forthcoming). Of course, this does not mean that partisans will always respond to the facts at hand. Yet it creates the starting point for testing the key theoretical prediction: When partisans acknowledge a new set of facts does it lead them to attribute responsibility in a partisan motivated fashion?

[Figure 2 about here]

It clearly does: While Republicans and Democrats moved in the same direction in their economic perceptions, they moved in diametrically opposite directions in how they apportioned credit and blame to President Obama. When comparing the positive condition to the control condition in the right panel of Figure 2, Republicans became a staggering  $-.22$  units ( $p < 0.001$ ) on the 0-1 scale—or 22 percentage points—*less* convinced that Obama bears responsibility for U.S. economy. Following the theoretical predictions laid out earlier, Republicans clearly engaged in credit avoidant reasoning. Democrats, on the contrary, became 6 percentage points ( $p = 0.034$ ) *more* convinced that Obama was responsible and thus engaged in credit seeking reasoning (the difference-in-differences is  $.28$ ,  $p < 0.001$ ). In the case of negative evidence, the picture is now the reverse. Comparing the negative to the control condition, Democratic respondents alleviated President Obama of responsibility by  $-13$  percentage points ( $p < 0.001$ ) and thus clearly engaged in blame avoidant reasoning. For Republicans the treatment effect was not significantly different from 0 ( $p = 0.38$ ). Since Republicans already held very negative perceptions of the economy in the control condition and also thought Obama was responsible, this result is unsurprising.<sup>3</sup> Importantly, with an estimated difference of  $-17$  percentage points ( $p < 0.001$ ), the negative treatment effects were significantly different across the two partisans groups. In short, when Republicans and Democrats updated their economic perceptions in the direction of

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<sup>3</sup>Hence, the lacking effect of negative evidence more likely reflects how Republicans are “pre-treated” rather than a genuine failure to move Republicans with negative evidence (Gaines, Kuklinski and Quirk, 2007; Slothuus, 2016).

new evidence, they polarized in the attribution of responsibility.

## The Same Pattern Replicates in a Low–Polarization Context

Given the polarized nature of U.S. politics, it is perhaps not surprising that partisans would allocate credit and blame in a partisan motivated fashion. Thus, a pertinent question is whether the results above replicate in a less polarized political setting where lines of responsibility are murkier?

Figure 3 shows the results from the experiment in Study 2 that was carried out in Denmark. As above, the figure shows how partisans revised their economic perceptions (left panel) and attributions of responsibility (right panel) in response to positive and negative news about economic growth. In what is immediately clear from the left panel in Figure 3, government and opposition identifiers were markedly less polarized over the state of the national economy than in the case of the United States. In the control condition, the estimated partisan perceptual gap was a modest 6 percentage points ( $p = 0.004$ ) with both partisan groups holding fairly positive economic perceptions. Furthermore, there was no effect of receiving positive news about economic growth relative to the control condition which, given the optimistic outset for both partisan groups in the control condition, is unsurprising. Yet the picture is different in the case of negative news about economic growth. Here, the treatment effect relative to control was -9 percentage points ( $p < 0.001$ ) for opposition identifiers and -11 percentage points ( $p < 0.001$ ) among incumbent identifiers (there was no detectable difference between the two effects,  $p = 0.60$ ). Parallel to the results from the United States, partisans of different stripes appeared to update their economic perceptions in the direction of the negative evidence. But did it also lead them to apportion credit and blame in a highly selective fashion?

[Figure 3 about here]

Again, it clearly did. As both partisan groups updated their economic perceptions in a negative direction, incumbent identifiers became -10 percentage ( $p < 0.001$ ) less convinced that the governing parties were responsible for the national economy and opposition identifiers became 7 percentage points ( $p = .01$ ) *more* convinced that the coalition government was responsible (the difference-in-differences was -18 percentage points,  $p < 0.001$ ).<sup>4</sup> Although the polarizing effect of the treatment was not as pronounced as in the case of the United States, the same core pattern is evident. Even in the less polarized Danish context, partisans assigned responsibility in a selective fashion. When negative facts arrived, incumbent identifiers were blame avoidant and opposition identifiers blame seeking in how they thought about the question of responsibility.

## When Governments Change, Partisans Switch Roles

An even stronger test of whether citizens attribute credit and blame in a partisan motivated fashion, it to show that the patterns above reverse as governments change. On June 18, 2015, a general election was held in Denmark. Prior to the election, a coalition of Center-Left parties, the Social Democrats and the Social Liberal Party, had been in office. However, due in part to the electoral success of the Danish People's Party, the election resulted in a Center-Right government consisting only of the Liberals (the name reflecting the European meaning). Fortunately, Study 2 was collected in Denmark in February 2015 and thus before the general election, whereas Study 3 was conducted 10 months after in December 2015 through February 2016 and thus well after the election. This provides a unique opportunity to examine whether partisans suddenly shift their way of thinking about responsibility when their party is (not) in office.

Figure 4 shows the results for Study 2 (upper panels) and Study 3 (lower panels). To re-

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<sup>4</sup>As with the case of pre-treatment effects earlier, the fact that partisans do not change how they assign responsibility in response to positive news (relative to control) is unsurprising because both partisan groups were already quite positive in their economic assessments at the outset (cf. upper left panel in Figure 2). Therefore, informing subjects that Danish economy is doing well is inconsequential to their economic perceptions, creating little need for partisans to conversely revise their attributions of responsibility.

duce complexity, the figure depicts the marginal effect of receiving negative—as opposed to positive—economic news on retrospective economic perceptions (left panels) and attributions of responsibility (right panels). The marginal effects are estimated for each individual partisan group, including pure independents, and the partisan groups are organized into a coalition of Left- and Right-wing parties typical of Danish party politics.

[Figure 4 about here]

Looking first at how all partisan groups revised their retrospective economic perceptions (left panels), it is clear that in both studies all partisan groups, including independents, revised their economic perceptions in the same, negative direction. Given the inevitably noise that enters when the results are broken further down by partisan groups, the homogeneity in how different partisan groups revise their economic perceptions is remarkable. Even more striking, however, is the *heterogeneity* in how the Right- and Left-wing partisan groups revised their attributions of responsibility. As witnessed by the upper right panel in Figure 4, Left-wing partisans came to think that the Center-Left government was less responsible for the economic situation when exposed to negative economic news — vice-versa for respondents identifying with Right-wing parties. But just 10 months after—when the Center-Right government was in place—the pattern was suddenly the reverse (see bottom right panel). Now, partisan groups on the Left suddenly thought that the Center-Right government was more responsible for waning economic growth and partisan groups on the Right appear to reach the opposite conclusion. This is striking evidence that citizens, even in a less polarized context than in the U.S., allocate credit and blame in a highly opportunistic fashion.

## Partisans Seize on Arguments that Support the “Right” Conclusion

Until now, subjects have been asked to attribute responsibility in a context without any information about who could possibly be responsible and why. Thus, one pertinent question is whether participants would still attribute credit and blame in a selective fashion, if they were directly confronted with arguments for why or why not the incumbent is responsible? To examine this possibility, subjects in Study 1 completed an argument rating task at the end of the survey where they were instructed with the following text:

“On the following pages, we will present you with some edited arguments that other participants in this study have provided about whether or not President Obama is responsible for the current economic situation. Please read the arguments and answer *how effective you think the argument is in making its case regardless of whether you (dis)agree with it.*” (original emphasis)

Following the instruction, subjects were asked to rate the effectiveness of six arguments that were presented one at a time and in random order. Two of arguments implicated that Obama was responsible for the economy, while the remaining four emphasized the responsibility of other actors; specifically, the Federal Reserve, trends on foreign markets, the United States Congress and big business on Wall Street (the arguments are printed in full length in the bottom of Figure 5). For example, respondents were asked to read the argument “President Obama has a bigger responsibility for the [positive/-/weak] economic growth in the country than anyone else, because the President can easily increase or decrease government spending” and, following others (e.g., Druckman, Peterson and Slothuus, 2013), respondents were subsequently asked to rate the argument on a 7-point scale (1 = definitely NOT effective, 4 = not sure, and 7 = definitely effective). To ensure that respondents’ would evaluate the effectiveness of the arguments in the right context, the treatment was repeated in the arguments, i.e. subjects who read a negative article also saw the word “weak” in the arguments.

Figure 5 reports the results from the argument rating task. Panels A through F show the conditional means within partisan groups and across the experimental conditions. If partisans evaluate the arguments in an opportunistic fashion, we would expect to see Democrats rating pro arguments, i.e. arguments stating that Obama is responsible, as *less* persuasive arguments when the economy is portrayed negatively as opposed to positively. Republicans, to the contrary, should rate the exact same pro arguments as *more* convincing when the economy is portrayed negatively as opposed to positively. Importantly, this pattern should be the complete opposite for arguments implicating other actors than President Obama.

[Figure 5 about here]

As can be seen from Figure 5, Democrats and Republicans did evaluate the arguments in a highly selective fashion. Looking at the results for the first pro argument in Panel A in Figure 5, Democrats and Republicans clearly polarized in how they rated the effectiveness of the argument. When the economy was presented negatively, as opposed to positively, democrats found the argument implicating President Obama as  $-.92$  ( $p < 0.001$ ) units less effective (on a 7-point scale). Republicans, viewed the exact same argument as  $0.82$  ( $p < 0.001$ ) units *more* effective leaving the difference-in-differences in how the two partisan groups respond at a staggering  $-1.74$  ( $p < 0.001$ ) units. An almost identical pattern is evident when assessing the second pro argument stating that Obama was responsible because “he is the leader of the country” (i.e. Panel B in Figure 5). Taken together, this is a striking result: Democrats and Republicans’ ratings of the same set of pro arguments changed dramatically, when the state of the economy changed.

However, the results for the two first pro arguments is not made less striking by the fact that the pattern is reversed when considering the next four con arguments in Figure 5. For example, when participants were asked about how persuasive they found the argument that the “party that controls Congress” bears responsibility, Democrats rated the argument

as 1.47 ( $p < 0.001$ ) units more effective on the 7-point scale when the economy was portrayed negatively as opposed to positively – Republicans as 0.68 units ( $p < 0.001$ ) *less* effective. Although not as pronounced in the case with the Federal Reserve (Panel C), the polarizing pattern was remarkably similar across the four con arguments.<sup>5</sup>

Taken together, the results in Figure 5 strongly support the notion that partisans reason about the question of responsibility in a highly selective fashion. When partisans are presented with different arguments for why or why not the incumbent is responsible, the arguments themselves are evaluated, not based on their inherent quality, but rather on the conclusions that they happen to support.

## Polarization in Attribution Extends to Open-Ended Answers

Lastly, Study 1, 3 and 4 included open-ended questions asking respondents to freely list their thoughts about who or what they thought was responsible for the state of the economy. Besides providing a more unobtrusive measure than the closed-ended questions used above, the open-ended questions also allow for a much closer examination of what considerations respondents themselves bring to bear. In Study 1, subjects were asked “[w]e are now interested in hearing your thoughts about who or what you think is responsible for the economic situation in the country. More than one possibility may come to mind. Please write your thoughts in the field below. Some sentences and/or keywords are enough.” Respondents in Study 3 and 4 were asked a similar question. In the studies that also contained a closed-ended question about responsibility, the open-ended question was asked first to avoid contaminating the open response. Importantly, the open-ended questions did not mention any political actors (e.g., the government or President) thereby avoiding to prime respondents.

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<sup>5</sup>One reason why the pattern does not appear as strong in the case with the Federal Reserve perhaps owes to the fact that while the monetary policies pursued by the Fed is, in principle, politically independent, the Board of Governors of the Federal Reserve is still appointed by the President (under the approval of the Senate). For example, Janet Yellen, the Chair of the Board of Governors, was appointed by Barack Obama.

To determine the meaning of the text provided by respondents, three human coders were instructed to classify the open response with at least two coders always classifying the same text (inter-coder agreement rate ranged between 87 and 96 %). The coding scheme consisted of several categories, yet in the analysis the classifications were collapsed into a simple binary indicator capturing whether the respondent did not hold the incumbent responsible or whether she assigned full or partial responsibility to the incumbent. Across the three studies, a meaningful share of respondents assigned responsibility to the incumbent (Study 1: 35.6 %; Study 3: 35.0 %; Study 4: 23.5 %). For more detail on coder instruction, descriptive statistics, validity and robustness to different coding decisions see SI section C.

[Figure 6 about here]

Figure 6 shows the predicted probability of assigning responsibility to the incumbent conditional on treatment assignment and party identification across the three studies. The estimates are obtained from a linear probability model where the coded, binary indicator is regressed on treatment status, party identification and their interaction.<sup>6</sup>

Looking first at the results from the United States in the leftmost panel, Republicans and Democrats clearly arrived at different conclusions about whether President Obama was responsible depending on the performance of the national economy. In the positive treatment condition, for example, the probability of assigning responsibility to President Obama was slightly higher among Democrats than among Republicans (compare 42.8 to 34.1 percent). However, this partisan gap *reversed* quite dramatically when partisans were exposed to negative news about economic growth: With an estimated probability of 57.6 percent, Republicans were now markedly more likely to mention President Obama in the open response than Democrats (among Democrats the probability is only 18.4 percent). As shown in the lower leftmost panel, the changes within the partisan groups (i.e. the effects

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<sup>6</sup>Since the regression model is saturated, the OLS estimator will return the same estimates as a logit or probit model.



of the treatment) were striking: Democrats became -24.5 ( $p < 0.001$ ) percentage points less likely to hold Obama accountable in the negative compared to the positive treatment condition – for Republicans the effect of the negative treatment was diametrically opposite with a change in probability of 23.5 percentage points ( $p < 0.001$ ) leaving the difference-in-differences at a massive -47.9 percentage points ( $p < 0.001$ ).

Albeit not as pronounced, the same pattern of polarization is evident in the two Danish studies. Looking at the lower panels in the case of Study 3 and 4, the treatment effect was not always detectable within one of the partisan groups but, importantly, the difference-in-differences was -13.6 ( $p = 0.061$ ) and -26.8 ( $p = 0.001$ ) percentage points in Study 3 and 4 respectively. That is, while there was not always consistent evidence that *both* of the partisan groups simultaneously changed their attributions of responsibility in response to the treatment, they did appear to respond differently to the treatment.

But what actors did partisans mention, when they were not blaming or crediting the incumbent? To get a better sense of what participants actually wrote in the open response, Figure 7 shows how the word usage among Democrats (left panel) and Republicans (right panel) in Study 1 changed in response to treatment. Following the approach outlined by Monroe, Colaresi and Quinn (2008) for discovering lexical features of text, Figure 7 shows the words that are most distinctively used in the negative as opposed to the positive treatment condition for Democrats and Republicans (for more detail on estimation see SI section D). The more extreme values on the y-axis, the more distinctive the word is for the negative relative to the positive treatment condition, and the more extreme values on the x-axis the more frequent the word is in the overall corpus of text. Thus, the further away from the center of the graph, the more important the word is in distinguishing what Democratic and Republican respondents write in the negative relative to the positive treatment condition.

[Figure 7 about here]

Figure 7 corroborates the results above: For Democrats, words like “obama” and “presid”

(stemmed version of “president”) were more prevalent in the positive treatment condition and the exact opposite was the case for Republicans where words like “obama,” “regulation,” “leadership,” and “president” were most prevalent in the *negative* treatment condition. Interestingly, when Democrats were confronted with negative news about waning economic growth (i.e., the negative treatment condition), blame was directed towards the Republican led congress (e.g., “congress” and “republican”) and another list of disliked actors (e.g., “corporations,” “bank,” “rich,” and “wall” street). For Republican respondents in the positive condition the results were murkier. Here, Republicans appeared to emphasize education (“educ,” “school,” and “children”) and companies (“compani”).

In all, the results from the open-ended questions are remarkably consistent with the pattern found in the previous sections. When respondents are asked to assign responsibility in an open-ended question without considering a set of pre-defined actors, they still appear selective in how they allocate credit and blame to the incumbent—especially so, in the highly polarized American setting. This is an important result. It suggests that partisans not only assign credit and blame selectively, they also do it spontaneously.

## Discussion & Conclusion

Partisanship, the story often goes, leads citizens to bend the same objective facts in the direction that serves their partisan goals (e.g., Bartels, 2002; Evans and Andersen, 2006). Yet recent evidence suggests that this story is likely exaggerated (Bullock et al., 2015; Prior, Sood and Khanna, 2015) and that partisans are not always oblivious to new facts (De Vries, Hobolt and Tilley, 2017; Hill, 2017; Lavine, Johnston and Steenbergen, 2012; Parker-Stephen, 2013). When the facts on the ground unfold, even committed partisans appear to react “in a similar fashion” (De Vries, Hobolt and Tilley, 2017, 1) and to “learn slowly towards common truth” (Hill, 2017, 4).

However, existing discussion almost exclusively revolves around citizens’ ability to per-

ceive real world conditions accurately; not how they in turn apportion credit and blame. Across four experimental studies conducted in diverse national settings, I have shown why this omission is important. When partisans were randomly exposed to either positive or negative news about economic growth, they were indeed willing to update their perceptions of the national economy in the same direction, but they polarized in whether they thought the incumbent was responsible. While partisans might acknowledge new facts, the mere acknowledgment of these facts apparently leads them to reason about the question of responsibility in a highly partisan motivated fashion.

These findings have important implications for existing work. That partisans can learn facts in a similar way or “in a fashion close to Bayes’ Rule” (Hill, 2017, 31) cannot necessarily be taken as straightforward proof that partisans “form the sort of opinions policy advocates hope for and democratic theorists expect” (Parker-Stephen, 2013, 1087). If the acknowledgment of new facts leads partisans to reason about the question of responsibility in a highly selective fashion, then such patterns of learning can hardly be characterized as unbiased or normatively desirable. Of course, there is no right or wrong answer when it comes to judging whether the incumbent is responsible. People might even articulate good arguments for why or why not the incumbent is culpable. However, judgments about responsibility, as well as the arguments that people might bring to bear, should not depend on whether the evidence points in a negative or positive direction or whether one’s party is in office. If arguments come and go depending on whether they support the “right” conclusion, then these arguments merely serve to bolster pre-existing views.

Still, some caution is in order in drawing out the implications of the findings. First, an important discussion has emerged on whether partisans—in the context of an opinion survey—simply express beliefs that cast their party in a positive light without truly committing to such beliefs (Berinsky, 2018; Bullock et al., 2015; Gerber and Huber, 2009; McConnell et al., 2018; Prior, Sood and Khanna, 2015). While identifying what people “truly” believe in politics is difficult, if not impossible, an important question is whether

expressed beliefs influence subsequent behavior, which does not always appear to be the case (McGrath, 2017).

Second, another important aspect that this study leaves open is what role party elites play in mitigating and reinforcing partisan motivated biases (Bisgaard and Slothuus, 2018; Druckman, Peterson and Slothuus, 2013; Slothuus and de Vreese, 2010). Competing party elites have clear electoral interests in playing the “blame game” (Hood, 2010) and in providing different narratives about who is responsible. Sorting out whether and how the supply of different narratives or justifications influence partisans’ reasoning about real world conditions would be an important area for future research. Furthermore, I have focused on how partisans might escape unwanted conclusions by attributing responsibility selectively, yet there are also other reasoning strategies that citizens might pursue to avoid inconvenient facts (see Anson, 2016; Gaines et al., 2007; Groenendyk, 2013). Delineating what strategies people employ to explain away inconvenient facts is an important topic for future research.

In any case, this article highlights a central paradox of citizen responsiveness to new evidence: The acknowledgment of new facts can lead citizens to reason about the question of responsibility in a highly partisan motivated fashion.

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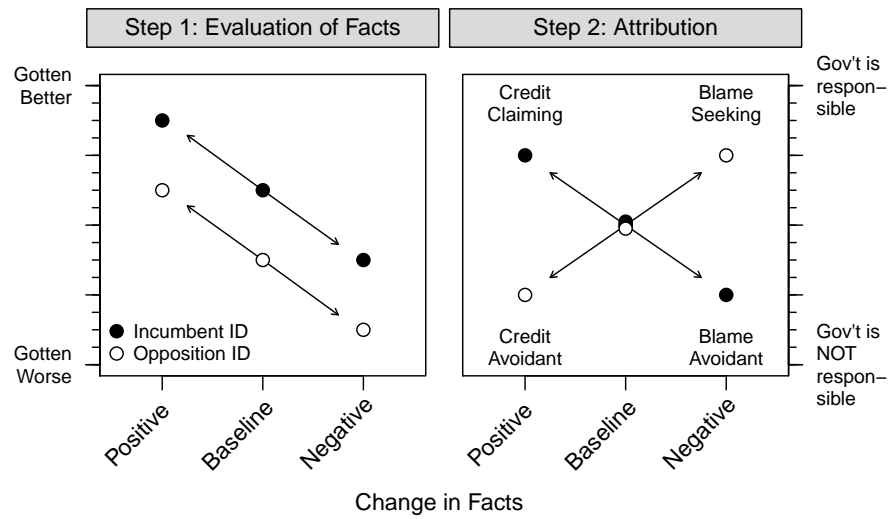
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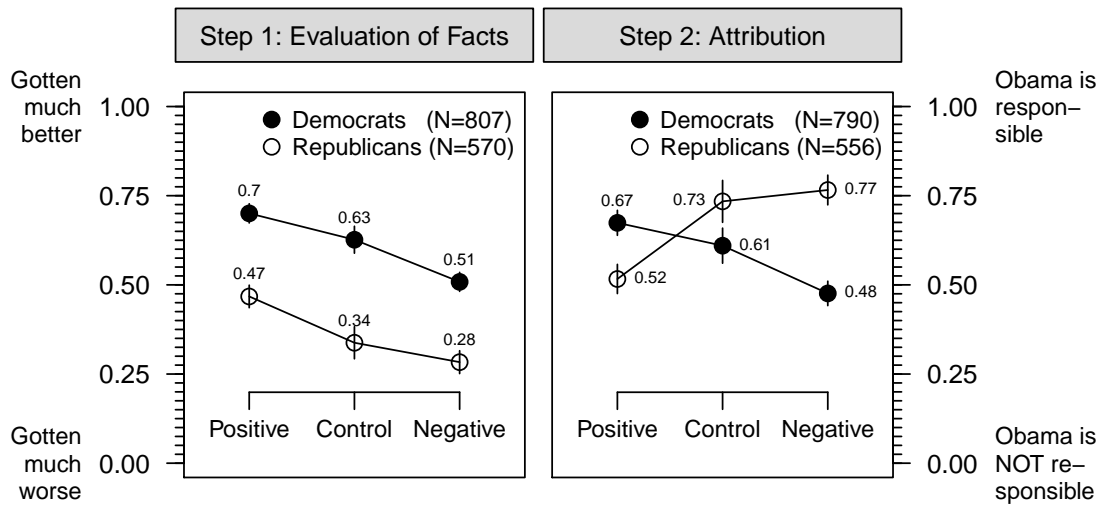
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**Table 1:** Overview of experimental studies. All studies were collected through YouGov targeting the voting-age population.

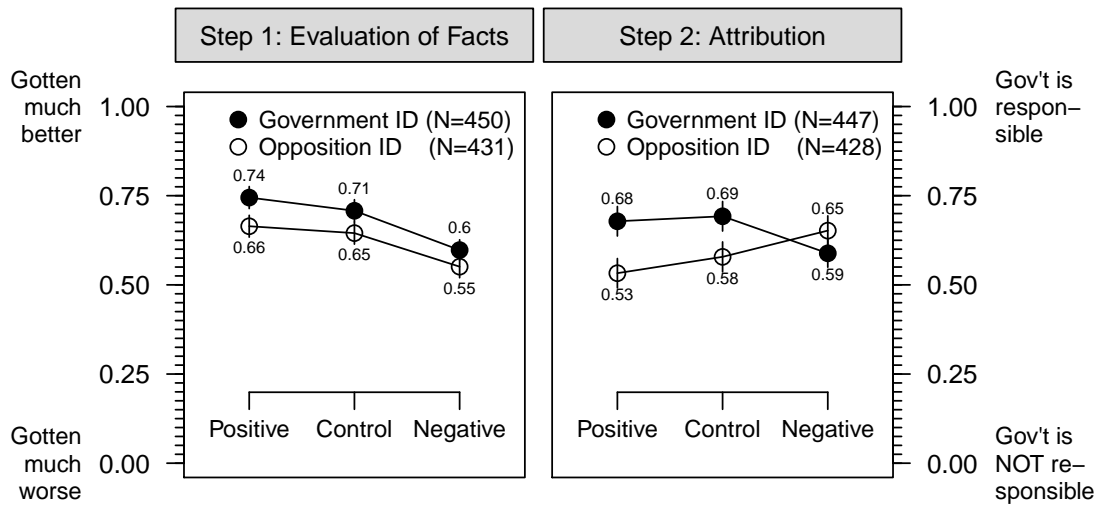
	Country	Fielding period	N	Outcome measure
Study 1	US	03-31-2016 – 04-06-2016	1,899	Closed-ended Open-ended Argument rating task
Study 2	DEN	02-03-2015 – 02-17-2015	2,593	Closed-ended
Study 3	DEN	12-15-2015 – 02-19-2016	2,621	Closed-ended Open-ended
Study 4	DEN	01-15-2016 – 01-31-2016	1,508	Open-ended



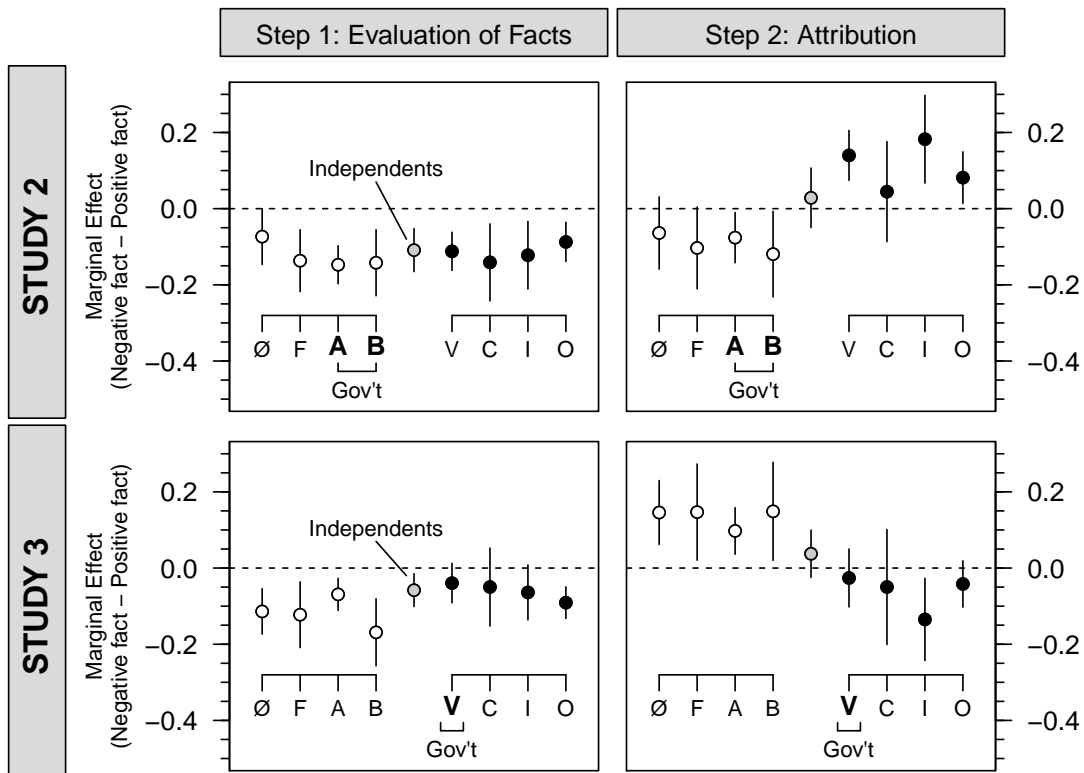
**Figure 1: How the acknowledgment of unambiguous facts can induce selective attributional reasoning.** When citizens update their evaluations of real world conditions in the same direction in response to positive and negative evidence (left panel), what selective reasoning strategies can then characterize citizens' attribution of responsibility (right panel)?



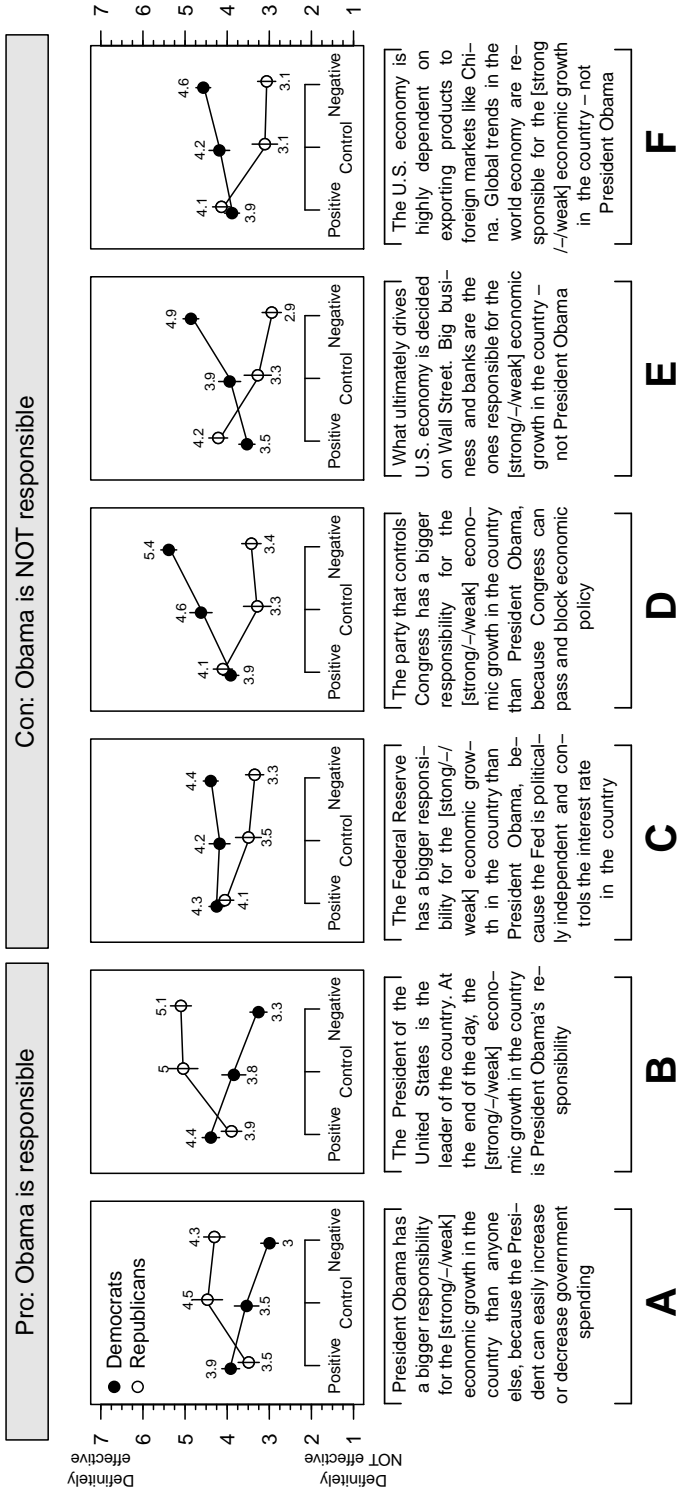
**Figure 2: Partisans update their economic perceptions in a parallel fashion, but polarize in the attribution of responsibility.** Results are from Study 1 (United States) and shows how respondents revise their retrospective perceptions of the economy (left panel) and attributions of responsibility (right panel) when suddenly confronted with positive or negative information about economic growth. Entries are computed based on OLS regression models that were fitted separately for each outcome. Vertical lines give the 95% confidence intervals for the predicted means. For the full model output, see SI section B.1.



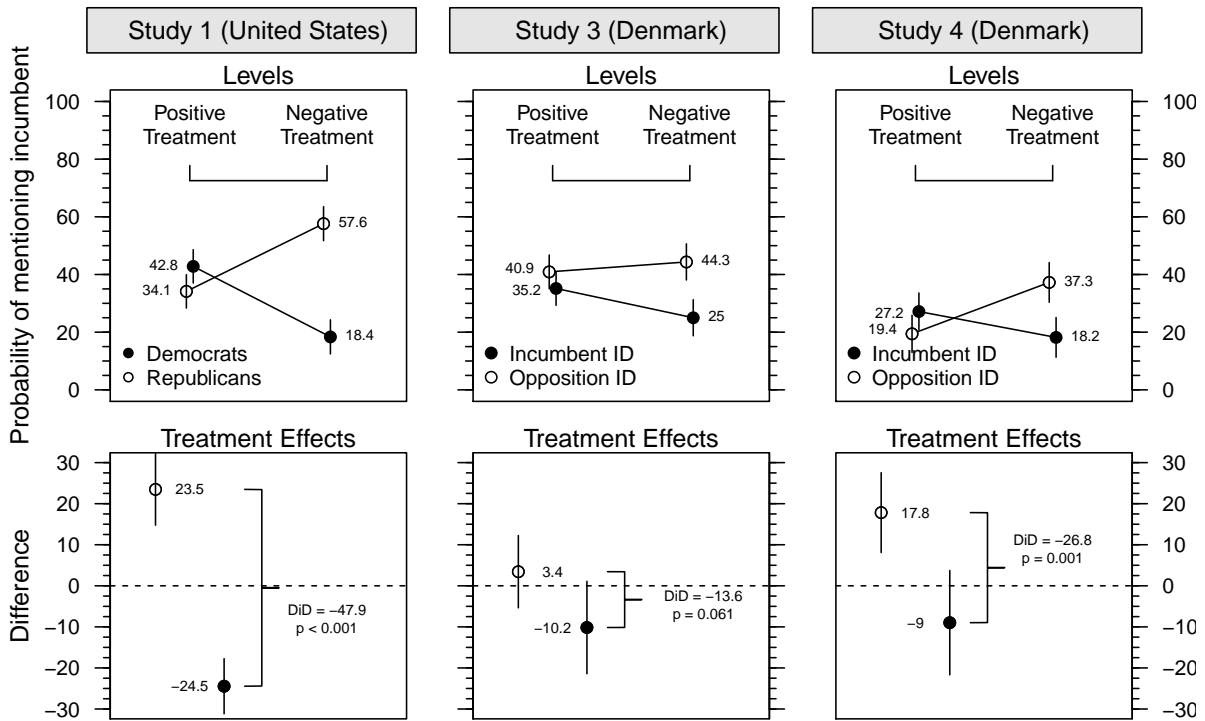
**Figure 3: Partisans update their economic perceptions in a parallel fashion, yet polarize in the attribution of responsibility.** Results are from Study 2 (Denmark) and shows how respondents revise their retrospective perceptions of the economy (left panel) and attributions of responsibility (right panel) when suddenly confronted with positive or negative information about economic growth. Entries are computed based on OLS regression models that were fitted separately for each outcome. Vertical lines give the 95% confidence intervals for the predicted means. For the full model output, see SI section B.2. Incumbent identifiers include subjects who identify or lean towards the incumbent parties, at the time the Social-Democrats (“Socialdemokraterne”) and Liberal Democrats (“Radikale Venstre”), and subjects are coded as opposition identifiers if they identify or lean towards the main opposition parties, the Liberals (“Venstre”) or the Conservatives (“Konservative”).



**Figure 4: When the government changes, partisans switch roles.** The marginal effect of randomly receiving negative as opposed to positive facts about economic growth on retrospective economic perceptions (left panels) and attributions of responsibility (right panels) in a situation where the government in Denmark is led by a coalition of Center-Left parties (Study 2) and a Center-Right party (Study 3). Plotted estimates are marginal effects with associated 95 % confidence intervals obtained from OLS regressions fitted separately for each outcome and study. For the full models see SI section B.2. Party groups are organized from left to right as they commonly appear on the Left-Right scale in Danish politics: Unity list (Ø), Socialist People’s Party (F), Social-Democrats (A); Social-Liberals (B); Liberals (V); Conservatives (C); Liberal Alliance (I) and Danish People’s Party (O).

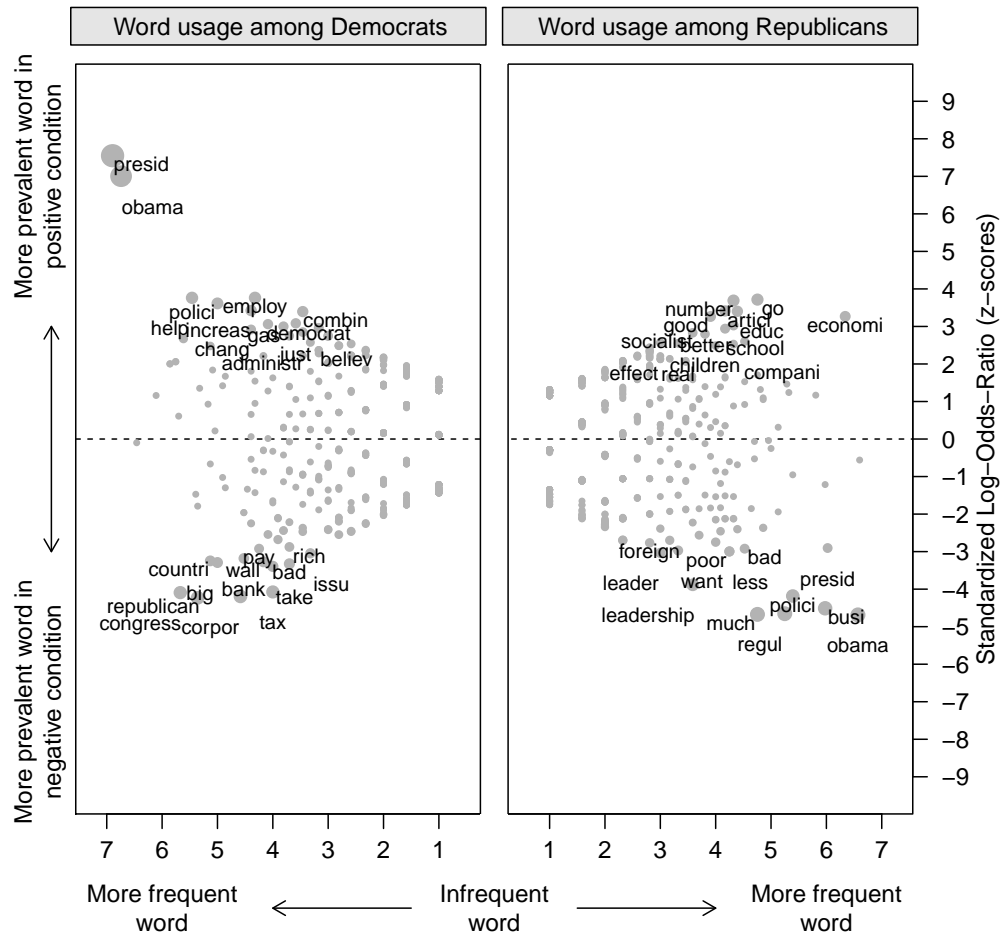


**Figure 5: Democrats and Republicans rate arguments about President Obama's responsibility differently depending on whether the argument supports the "right" conclusion. Results are from Study 2 (United States) and entries are predicted means conditional on partisanship and treatment assignment with associated 95 % confidence intervals. Estimates were obtained by fitting a linear regression model for each argument. See the figure for more the full wording of the arguments. Full model output appears in SI section B.4.**



**Figure 6: When asked to freely list their thoughts, citizens still allocate credit and blame in a partisan motivated fashion.** Results are from open-ended survey questions asked in the United States (Study 1) and Denmark (Study 3 and 4). The text has been classified by human coders to capture whether the respondent does or does not assign responsibility to the incumbent (see SI section C for more information on coding). Plotted entries give the predicted probability of apportioning responsibility to the incumbent conditional on partisanship and treatment assignment (upper panels) as well as the marginal effect of treatment assignment conditional on partisanship (lower panels). Results are from (saturated) linear probability models with robust standard errors fitted separately for each study. Study 1: N = 1170; Study 3: N = 811; Study 4: N = 563. Full model output appears in SI section B.5.





**Figure 7: What words are most distinctively used in the negative relative to the positive treatment condition?** Results are displayed separately for Democrats (left panel) and Republicans (right panel). The y-axis shows a standardized log-odds-ratio comparing the negative and positive treatment conditions for each unique, stemmed word occurring in the open-responses. Following Monroe, Colaresi and Quinn (2008, 387–389), the standardized log-odds-ratio has been regularized with an informative Dirichlet prior (see SI section D for more detail). The x-axis shows the logged frequency of the word. Note that the placement of the words relative to the point estimates has been altered slightly to avoid overlapping text.

# Supplemental Information (Online Appendix)

## How Getting the Facts Right Can Fuel Partisan Motivated Reasoning

December 1, 2018

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## A Stimulus Material

**Table S1:** Stimulus material from **Study 1 (US)**. The control group was not exposed to any information.

Positive Treatment	Negative Treatment
<p><b>Optimism Soars as U.S. Economy Continues to Grow</b></p> <p>WASHINGTON D.C. – The U.S. economy came strong into 2016, backed by persistent growth throughout last year. Experts expect the numbers to look even better after accounting for the latest economic data.</p> <p>Earlier this year, the Department of Commerce released its yearly estimate of the gross domestic product numbers for 2015, one of the primary indicators used to gauge the countrys economic situation. The numbers showed the economy expanding by a strong 2.4% in 2015. With these encouraging numbers, the U.S. economy shows little sign of slowing down and continues on the positive track set in previous years.</p> <p>The persistent growth has fueled optimism about the U.S. economy entering a new era of economic prosperity. When an economy is already strong, as the United States looks to be in 2016, it takes a lot more to tip it over the edge than when it is weak said Jim O’Connor, chief economist at Observe Economics, earlier this week. He joins the line of experts voicing optimism despite an unsettled stock market. Continued growth in employment numbers, increasing consumer confidence, and a persistent growth in the gross domestic product create a sound U.S. economy that ultimately helps secure the livelihood of ordinary Americans.</p>	<p><b>Pessimism Soars as U.S. Economy Stalls</b></p> <p>WASHINGTON D.C. – The U.S. economy limped into 2016, weighed down by declining growth in the fourth quarter of last year. Experts fear the numbers could look even worse after accounting for the latest economic data.</p> <p>Earlier this year, the Department of Commerce released its fourth-quarter gross domestic product numbers, one of the primary indicators used to gauge the countrys economic situation. The numbers showed the economy crawling forward by a mere 0.7% in the last quarter of 2015. With these disappointing numbers, the U.S. economy enters murky waters with a quarterly growth rate in steep decline from almost 4% in the second quarter in 2015 to just 0.7% in the latest quarter.</p> <p>The decline in growth has fueled concerns about the U.S. economy entering a new recession. When an economy is already vulnerable, as the United States looks to be in 2016, it takes less to tip it over the edge than when it is strong said Jim O’Connor, chief economist at Observe Economics, earlier this week. He joins the line of experts voicing concern over how an unsettled stock market, sluggish growth in employment numbers, and waning consumer confidence together with a disappointing growth rate could undermine the U.S. economy and ultimately threaten the livelihood of ordinary Americans.</p>

**Table S2:** Stimulus material from **Study 2 (DEN)**. Original text was in Danish. The control group was not exposed to any information.

Positive Treatment	Negative Treatment
<p><b>Danish Economy is Improving</b>            GDP has increased and Danish economy is moving in the right direction. Previous expectations for the economic growth have been too pessimistic, economists say.</p> <p>In a recent report from Statistics Denmark, the Danish Gross Domestic Product, GDP, increased by .3 percent in the last quarter of 2014. This recent development is a clear step in the right direction, a number of economists explain.</p> <p><b>Experts Agree: We are Moving in the Right Direction</b>            Statistics Denmark’s report follows in the wake of a prolonged political debate over whether Danish economy has reemerged after the financial crisis.            According to Helge F. Berg, an economists in Nordea, the recent increase in GDP suggests that Danish economy has resurfaced after the economic recession. “There is reason to be optimistic when one the most important key economic indicators, GDP, moves in this direction. Fortunately we have witnessed a number of positive trends during the fall,” he explains. Others agree with this interpretation. “It is exports and unemployment that drives up growth. Today’s growth statistics sets Danish economy on the right track and we are closer an economic upturn than ever before,” Claus Bojesen explains, an economists in Sydbank.</p> <p>In the coming weeks the Danish parliament will discuss the latest economic development.</p>	<p><b>Danish Economy is Worsening</b>            GDP has decreased and Danish economy is moving in the wrong direction. Previous expectations for the economic growth have been too optimistic, economists say.</p> <p>In a recent report from Statistics Denmark, the Danish Gross Domestic Product, GDP, decreased by .3 percent in the last quarter of 2014. This recent development is a clear step in the wrong direction, a number of economists explain.</p> <p><b>Experts Agree: We are Moving in the Wrong Direction</b>            Statistics Denmark’s report follows in the wake of a prolonged political debate over whether Danish economy has reemerged after the financial crisis.            According to Helge F. Berg, an economists in Nordea, the recent decrease in GDP suggests that Danish economy has yet to resurface after the economic recession. “There is reason to be worried when one the most important key economic indicators, GDP, moves in this direction. Unfortunately we have witnessed a number of negative trends during the fall,” he explains. Others agree with this interpretation. “It is exports and unemployment that drives down growth. Today’s growth statistics sets Danish economy on the wrong track and we are closer a recession than actual improvement,” Claus Bojesen explains, an economists in Sydbank.</p> <p>In the coming weeks the Danish parliament will discuss the latest economic development.</p>

**Table S3:** Stimulus material from **Study 3 (DEN)**. Original text was in Danish. The treatment was assigned as a part of a question about respondents perceptions of the state of the national economy

Positive Treatment	Negative Treatment
<p>The annual economic growth in Denmark in 2015 is expected to be 1.5 %. Compared to the previous year, this represents a clear improvement in Danish economic growth.</p> <p>In light of the latest development in Danish growth, would you say that over the past year the nation's economy has gotten better, stayed about the same, or gotten worse?</p>	<p>In the third quarter of 2015, the economic growth in Denmark was -0.1 %. This is the first time in over a year that economic growth is negative.</p> <p>In light of the latest development in Danish growth, would you say that over the past year the nation's economy has gotten better, stayed about the same, or gotten worse?</p>

**Table S4:** Stimulus material from **Study 4 (DEN)**. Original text was in Danish. The treatment was assigned as a part of an open-ended question about who the respondent holds responsible for the economic situation in Denmark.

Positive Treatment	Negative Treatment
<p>According to preliminary numbers from Statistics Denmark, Danish economy grew by only 0.7 percent in 2015. This is markedly worse than expected by economists.</p> <p>We are now interested in hearing your thoughts about who you think is responsible for the current economic situation in Denmark. Please write as many of your considerations in the field below – some keywords or a few sentences are enough.</p>	<p>According to preliminary numbers from Statistics Denmark, Danish economy grew by up to 1.7 percent in 2015. This is markedly better than expected by economists.</p> <p>We are now interested in hearing your thoughts about who you think is responsible for the current economic situation in Denmark. Please write as many of your considerations in the field below – some keywords or a few sentences are enough.</p>

## B Full Model Outputs

This section contains the full output from the regression models used to produce Figure 2, 3, 4, 5 and 6 in the main article.

### B.1 Model Output for Figure 2

Figure 2 in the main article shows how Democrats and Republicans (Study 1) revised their retrospective economic perceptions and attributions of responsibility in response to positive and negative news about economic growth. Table S5 shows the numerical results from the two regression models used to produce the point estimates in Figure 2.

**Table S5: Study 1 (US).** The conditional effect of receiving negative and positive evidence about GDP growth (relative to no information) on perceptions of the economy as well as attributions of responsibility. Effects are conditional on respondents' partisanship. Unstandardized OLS estimates, standard errors in parentheses.

	Dependent variable:	
	Economic Perceptions	Attribution of Responsibility
	(1)	(2)
Positive info. ( <i>ref=No info.</i> )	-0.13*** (0.03)	0.22*** (0.04)
Negative info. ( <i>ref=No info.</i> )	-0.18*** (0.02)	0.25*** (0.03)
Incumbent ID ( <i>ref=Opp. ID</i> )	0.23*** (0.02)	0.16*** (0.03)
Positive × Incumbent ID	0.06 (0.04)	-0.28*** (0.05)
Negative × Incumbent ID	-0.01 (0.03)	-0.45*** (0.04)
Constant	0.47*** (0.02)	0.52*** (0.02)
Observations	1,377	1,346
Adjusted R <sup>2</sup>	0.27	0.11
Residual Std. Error	0.24	0.31

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## B.2 Model Output for Figure 3

Figure 3 in the main article shows how opposition and government identifiers in Denmark (Study 2) revised their retrospective economic perceptions and attributions of responsibility in response to positive and negative news about economic growth. Table S6 shows the numerical results from the two regression models used to produce the point estimates in the figure.

**Table S6: Study 2 (DEN).** The conditional effect of receiving negative and positive evidence about GDP growth (relative to no information) on perceptions of the economy as well as attributions of responsibility. Effects are conditional on respondents' partisanship. Unstandardized OLS estimates, standard errors in parentheses.

	Dependent variable:	
	Economic Perceptions (1)	Attribution of Responsibility (2)
Positive info. ( <i>ref=No info.</i> )	0.02 (0.02)	-0.05 (0.03)
Negative info. ( <i>ref=No info.</i> )	-0.09*** (0.02)	0.07** (0.03)
Incumbent ID ( <i>ref=Opp. ID</i> )	0.06*** (0.02)	0.11*** (0.03)
Positive × Incumbent ID	0.02 (0.03)	0.03 (0.04)
Negative × Incumbent ID	-0.02 (0.03)	-0.18*** (0.04)
Constant	0.65*** (0.02)	0.58*** (0.02)
Observations	881	875
Adjusted R <sup>2</sup>	0.10	0.05
Residual Std. Error	0.18	0.25

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

### **B.3 Model Output for Figure 4**

Figure 4 in the main article compares how all groups of partisans responded to news about economic growth in Study 2 (DEN) where a Center-Left coalition government was in place (Social-democrats and the Social-Liberals) and Study 3 (DEN), where a Center-Right party, the Liberals, was in power. Table S7 and S8 give the numerical results used to produce the point estimates in Figure 4 in the main article.



**Table S7: Partisan responsiveness when Social–democrats (A) and Social-liberals (B) are in power (Study 2).** The conditional effect of receiving negative news about GDP growth (relative to positive information) on perceptions of the economy as well as attributions of responsibility. Effects are conditional on respondents’ partisanship and shown for all party groups in Study 2. Unstandardized OLS estimates, standard errors in parentheses. Party labels: Social-Democrats (A), Social-Liberals (B), Conservatives (C), Socialist People’s Party (F), Liberal Alliance (I), Danish People’s Party (O), Liberals (V), and Unity list (Ø).

	Dependent variable:	
	Economic Perceptions	Attribution of Responsibility
	(1)	(2)
Negative info ( <i>ref=Positive info.</i> )	−0.15*** (0.03)	−0.08** (0.03)
B ( <i>ref=A</i> )	−0.03 (0.04)	−0.04 (0.05)
C ( <i>ref=A</i> )	−0.03 (0.04)	−0.13** (0.06)
F ( <i>ref=A</i> )	−0.07** (0.03)	−0.03 (0.04)
I ( <i>ref=A</i> )	−0.09*** (0.04)	−0.24*** (0.05)
Independent ( <i>ref=A</i> )	−0.13*** (0.03)	−0.11*** (0.04)
O ( <i>ref=A</i> )	−0.12*** (0.03)	−0.09*** (0.03)
V ( <i>ref=A</i> )	−0.10*** (0.03)	−0.16*** (0.03)
Ø( <i>ref=A</i> )	−0.10*** (0.03)	−0.08* (0.04)
Negative info × B	0.01 (0.05)	−0.04 (0.07)
Negative info × C	0.01 (0.06)	0.12 (0.07)
Negative info × F	0.01 (0.05)	−0.03 (0.06)
Negative info × I	0.03 (0.05)	0.26*** (0.07)
Negative info × Independent	0.04 (0.04)	0.10** (0.05)
Negative info × O	0.06 (0.04)	0.16*** (0.05)
Negative info × V	0.04 (0.04)	0.22*** (0.05)
Negative info × Ø	0.07 (0.04)	0.01 (0.06)
Constant	0.75*** (0.02)	0.69*** (0.02)
Observations	1,263	1,239
Adjusted R <sup>2</sup>	0.10	0.04
Residual Std. Error	0.19	0.25

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table S8: Partisan responsiveness when the Liberals (V) are in power (Study 3).** The conditional effect of receiving negative news about GDP growth (relative to positive information) on perceptions of the economy as well as attributions of responsibility. Effects are conditional on respondents' partisanship and shown for all party groups in Study 2. Unstandardized OLS estimates, standard errors in parentheses. Party labels: Social-Democrats (A), Social-Liberals (B), Conservatives (C), Socialist People's Party (F), Liberal Alliance (I), Danish People's Party (O), Liberals (V), and Unity list ( $\emptyset$ ).

	Dependent variable:	
	Economic Perceptions (1)	Attribution of Responsibility (2)
Negative info ( <i>ref=Positive info.</i> )	-0.07*** (0.02)	0.10*** (0.03)
B ( <i>ref=A</i> )	0.14*** (0.03)	-0.14*** (0.05)
C ( <i>ref=A</i> )	0.12*** (0.04)	-0.03 (0.06)
F ( <i>ref=A</i> )	0.08** (0.04)	-0.05 (0.05)
I ( <i>ref=A</i> )	0.12*** (0.03)	-0.03 (0.04)
Independent ( <i>ref=A</i> )	-0.001 (0.02)	-0.01 (0.03)
O ( <i>ref=A</i> )	0.06*** (0.02)	0.01 (0.03)
V ( <i>ref=A</i> )	0.14*** (0.02)	-0.02 (0.03)
$\emptyset$ ( <i>ref=A</i> )	0.01 (0.03)	-0.01 (0.04)
Negative info $\times$ B	-0.10** (0.05)	0.05 (0.07)
Negative info $\times$ C	0.02 (0.06)	-0.15* (0.08)
Negative info $\times$ F	-0.05 (0.05)	0.05 (0.07)
Negative info $\times$ I	0.01 (0.04)	-0.23*** (0.06)
Negative info $\times$ Independent	0.01 (0.03)	-0.06 (0.04)
Negative info $\times$ O	-0.02 (0.03)	-0.14*** (0.04)
Negative info $\times$ V	0.03 (0.03)	-0.12** (0.05)
Negative info $\times$ $\emptyset$	-0.04 (0.04)	0.05 (0.05)
Constant	0.53*** (0.01)	0.57*** (0.02)
Observations	1,827	1,906
Adjusted R <sup>2</sup>	0.10	0.03
Residual Std. Error	0.20	0.30

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## B.4 Model Output for Figure 5

Figure 5 in the main article shows how Democrats and Republicans in Study 1 rated the effectiveness of six arguments about the responsibility of different actor on a scale from 1 to 7 (1 = Definitely NOT effective; 7 = Definitely effective). The arguments appear in full length below:

- A “President Obama has a bigger responsibility for the [strong/-/weak] economic growth in the country than anyone else, because the President can easily increase or decrease government spending”
- B “The President of the United States is the leader of the country. At the end of the day, the [strong/-/weak] economic growth in the country is President Obamas responsibility”
- C “The Federal Reserve has a bigger responsibility for the [stong/-/ weak] economic growth in the country than President Obama, because the Fed is politically independent and controls the interest rate in the country”
- D “The party that controls Congress has a bigger responsibility for the [strong/-/weak] economic growth in the country than President Obama, because Congress can pass and block economic policy”
- E “What ultimately drives U.S. economy is decided on Wall Street. Big business and banks are the ones responsible for the [strong/-/weak] economic growth in the country not President Obama”
- F “The U.S. economy is highly dependent on exporting products to foreign markets like China. Global trends in the world economy are responsible for the [strong/-/weak] economic growth in the country not President Obama”

Table S9 and S10 give the numerical results used to produce the point estimates shown in Figure 5 in the main article.

**Table S9:** The effect of receiving negative or positive news about GDP growth (relative to no information) on the rating of different arguments about President Obama’s responsibility. Effects are conditional on respondents’ partisanship. Unstandardized OLS estimates, standard errors in parentheses.

	Argument:		
	A “Obama spending”	B “Obama leader”	C “The Fed”
Negative info. ( <i>ref=No info.</i> )	−0.16 (0.22)	0.05 (0.21)	−0.15 (0.19)
Positive info. ( <i>ref=No info.</i> )	−0.98*** (0.22)	−1.15*** (0.21)	0.56*** (0.19)
Democratic ID ( <i>ref=Republican ID</i> )	−0.93*** (0.23)	−1.20*** (0.23)	0.68*** (0.20)
Negative × Democratic ID	−0.38 (0.28)	−0.64** (0.28)	0.36 (0.24)
Positive × Democratic ID	1.36*** (0.28)	1.69*** (0.28)	−0.49** (0.24)
Constant	4.47*** (0.18)	5.04*** (0.17)	3.50*** (0.15)
Observations	1,397	1,402	1,408
Adjusted R <sup>2</sup>	0.06	0.11	0.05
Residual Std. Error	1.91	1.86	1.63

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table S10:** The effect of receiving negative or positive news about GDP growth (relative to no information) on the rating of different arguments about President Obama’s responsibility. Effects are conditional on respondents’ partisanship. Unstandardized OLS estimates, standard errors in parentheses.

	Argument:		
	D “Congress”	E “Wall Street”	F “Foreign Markets”
Negative info. ( <i>ref=No info.</i> )	0.14 (0.20)	−0.33* (0.20)	−0.04 (0.19)
Positive info. ( <i>ref=No info.</i> )	0.82*** (0.20)	0.94*** (0.20)	1.03*** (0.18)
Democratic ID ( <i>ref=Republican ID</i> )	1.34*** (0.21)	0.67*** (0.21)	1.08*** (0.19)
Negative × Democratic ID	0.63** (0.26)	1.25*** (0.26)	0.42* (0.24)
Positive × Democratic ID	−1.52*** (0.26)	−1.35*** (0.26)	−1.33*** (0.24)
Constant	3.29*** (0.16)	3.27*** (0.16)	3.11*** (0.15)
Observations	1,402	1,404	1,401
Adjusted R <sup>2</sup>	0.15	0.13	0.10
Residual Std. Error	1.73	1.72	1.61

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## B.5 Model Output for Figure 6

Figure 6 in the main article shows how incumbent and opposition identifiers allocate credit and blame selectively when answering an open-ended question. The dependent variable is binary and takes the value 1 if the respondent states that he or she attributes full or partial responsibility to the incumbent (see SI section C for more detail on coding). Table S11 below gives the numerical estimates from three Linear Probability Models where the binary outcome variable has been regressed on treatment assignment (negative vs. positive contrast), party identification and their interaction. Since the model is saturated, models with a more complex link function (e.g. logit or probit) return similar estimates. The estimates in Table S11 are used to produce Figure 6 in the main article.

**Table S11:** The effect of receiving negative news about GDP growth (relative to positive information) on the probability of attributing responsibility to the incumbent in an open-ended question. Effects are conditional on respondents' partisanship. Estimates are from a Linear Probability Model, robust standard errors in parentheses.

	Study 1 (US)	Study 3 (DEN)	Study 4 (DEN)
Negative info. ( <i>ref=Positive info.</i> )	0.23*** (0.05)	0.03 (0.04)	0.18*** (0.05)
Incumbent ID ( <i>ref=Opp. ID</i> )	0.09** (0.06)	-0.06 (0.05)	0.08 (0.06)
Negative × Incumbent ID	-0.48*** (0.08)	-0.14* (0.07)	-0.27*** (0.08)
Constant	0.34*** (0.03)	0.41*** (0.03)	0.19*** (0.03)
Observations	1,170	750	497

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## C Human Coding of the Open Response

Study 1, 3 and 4 included an open-ended question where respondents were asked to freely list their thoughts about who or what they thought was responsible for the state of the economy. In Study 1, subjects were asked “[w]e are now interested in hearing your thoughts about who or what you think is responsible for the economic situation in the country. More than one possibility may come to mind. Please write your thoughts in the field below. Some sentences and/or keywords are enough.” In Study 3 and 4 the question read: “We are now interested in hearing your thoughts about who you think is responsible for the current economic situation in Denmark. Please write as many of your considerations in the field below – some keywords or a few sentences are enough.”

To determine the meaning of the text provided by respondents, three human coders were instructed to classify the open response with respect to whether the respondent assigned responsibility to the incumbent (Coder 1 and 2 coded the text from Study 3 and 4 and Coder 2 and 3 coded the open responses from Study 1). For Study 3 and 4, two of the human coders were instructed to classify each open response according to the scheme displayed in Table S12.

**Table S12:** Coding scheme used for Study 3 and 4 (Denmark).

Code	Description
0	If the respondent ONLY provides random words/numbers/symbols (e.g. “sa31sda”, “...” etc.) OR if the respondent ONLY writes, that he or she does not know what to say (e.g. “don’t know”, “no idea”, “stupid question”, “difficult question” etc.)
1	If the respondent ONLY assigns responsibility to OTHER actors/factors than the current government (e.g. “banks”, “outside forces”, “world economy”, “oil prices”, “previous government” etc.)
2	If the respondent assigns PARTIAL responsibility to the current government. The respondent mentions the current government, but at the same time, he or she also mentions that other actors/factors are responsible.
3	If the respondent assigns FULL responsibility to the current government. The respondent only mentions the current government and does not assign responsibility to other actors or factors in his or her open response.

Since the word “government” has somewhat different connotations in the United

States, the coding scheme for Study 1 focused on whether respondents mentioned President Barack Obama or the Democrats. In addition, the coding scheme for Study 1 contained two additional categories. The first aimed at classifying respondents who openly said that they did not believe the stimulus material (only 1.9 % of the respondents were coded in this category). The second category was meant to capture answers that did not directly mention President Barack Obama or the Democrats, but mentioned broader categories which implicate these actors (see Table S13 below). In the analysis, this category is collapsed with the two other categories that implicate President Obama (i.e., category 15, 2 and 3 are collapsed, see section C.2 for robustness to different recoding decisions). The coding scheme and instructions for Study 1 are shown in Table S13.

**Table S13:** Coding scheme used for Study 1 (United States).

Code	Description
-1	If the respondent says that he or she does not believe the stimulus material or says that it is “fake”
0	If the respondent ONLY provides random words/numbers/symbols (e.g. “sa31sda”, “...” etc.) OR if the respondent ONLY writes, that he or she does not know what to say (e.g. “don’t know”, “no idea”, “stupid question”, “difficult question” etc.)
1	If the respondent ONLY assigns responsibility to OTHER actors/factors than President Barack Obama or the Democrats (e.g. “banks”, “outside forces”, “world economy”, “oil prices”, “Republicans”, “congress” etc.)
15	If the respondent ONLY mentions President Barack Obama or the Democrats INDIRECTLY, that is, the respondent does not mention President Barack Obama or the Democrats, but mentions broader categories that clearly contain these actors (e.g. “government”, “government regulation”, “leadership”, “executive branch” etc.)
2	If the respondent assigns PARTIAL responsibility to President Barack Obama or the Democrats. The respondent directly mentions President Barack Obama or the Democrats, but at the same time, he or she also mentions that other actors/factors are responsible.
3	If the respondent assigns FULL responsibility to President Barack Obama or the Democrats. The respondent only mentions President Barack Obama the Democrats and does not assign responsibility to other actors or factors in his or her open response.

Table S14 gives an overview of the distribution of respondents in the categories and basic descriptive statistics on the open response. As can be seen in the two first rows in Table S14, respondents provide relatively brief answers. The median number of words provided by subjects in all three studies is 4 or 5, but as the interquartile range given in the parentheses attests to, the number of words written is quite variable. For example, in Study 2 the middle fifty percent of the distribution lies between 1 and 19 words. Unsurprisingly, when only considering respondents who provided a meaningful answer (i.e. not coded as category “0”), the median number of words written is somewhat higher.

Furthermore, looking at the percentage of cases in each category some variability is clearly evident across the three studies. For example, the percentage of respondents providing no answer is relatively high in Study 1 whereas non-response is more modest in Study 4. The relatively high non-response rate across the studies is likely a product of the survey setting and the difficulty of the task at hand.<sup>1</sup> Non-response notwithstanding, however, the key observation across the three studies is that a fair share of the respondents actually assign responsibility to the incumbent. Moreover, the reliability of the codes—as witnessed by the inter—coder agreement rate and Krippendorff’s alpha—is sufficiently high across Study 1, 3 and 4.

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<sup>1</sup>When regressing a binary indicator capturing non-response on treatment assignment, party identification and their interaction, there are no systematic differences in the non-response rate.



**Table S14:** Does the respondent mention the incumbent in the open-response? Overview of classifications for the open-ended answers in Study 2, 3 and 4 as well as descriptives of the data. The classification was carried out by two trained coders.

	Study 1 (US)	Study 3 (DEN)	Study 4 (DEN)
<i>Word counts (median [IQR])</i>			
All respondents	5 [1, 19]	4 [2, 16]	5 [2, 16]
Respondents who provide an answer	10 [3, 27]	7 [2, 23]	7 [3, 19]
<i>Classification (percent):</i>			
-1 Does not believe article	2	–	–
0 No answer	27	22	13
1 Other (f)actors only	35	43	63
2 Incumbent AND other (f)actors	8	19	16
3 Incumbent only	18	16	8
15 Obama indirectly	10	–	–
	100 %	100 %	100 %
Total N	1,874	2,248	1,508
Inter-coder agreement rate <sup>a</sup>	.87	.94	.96
Krippendorf's alpha	.89	.92	.94

*Notes:* In Study 1, respondents were asked “We are now interested in hearing your thoughts about who or what you think is responsible for the economic situation in the country. More than one possibility may come to mind. Please write your thoughts in the field below. Some sentences and/or keywords are enough.” Study 3 and 4: “We are now interested in hearing your thoughts about who you think is responsible for the current economic situation in Denmark. Please write as many of your considerations in the field below – some keywords or a few sentences are enough.”

<sup>a</sup>: The inter-coder agreement rate is the average proportion of times that Coder 1 and Coder 2 agree across the four categories.

## C.1 Validity of Coding Scheme

To further probe the validity of the coding scheme, I carried out a word-level validation of the coded open-ended responses. If the coding scheme has at least some validity, we would expect to see clear and meaningful differences in the text that respondents write when we compare the open responses classified as “1” (i.e., where respondents only mentioned other actors than the incumbent) against those classified as “3” (i.e., where respondents only mentioned the incumbent). To compare the text, all of the open responses that were classified as “1” were aggregated into one large document and the responses classified as “3” were aggregated into a second document. That is, the first document yields all of the text that respondents write when they are classified as “only attributing responsibility to other actors/factors” and the second document gives the text for those respondents that are coded as stating that they only hold the incumbent responsible. Using the usual bag-of-words assumption (Grimmer and Stewart, 2013), these two documents were transformed into a  $K \times W$  matrix where  $K$  is the number of documents (in this case 2) and  $W$  is the number of unique words appearing across the whole corpus of text. To retain meaning, the words are not stemmed.

This setup allows us to determine which words—used among respondents—are the most predictive of an open-response being classified as either “assigns full responsibility to the incumbent” or “assigns no responsibility to the incumbent”. If the coding scheme validly captures what it is supposed to, we would expect to see words that are intuitively (dis)connected to the incumbent as some of the most predictive words.

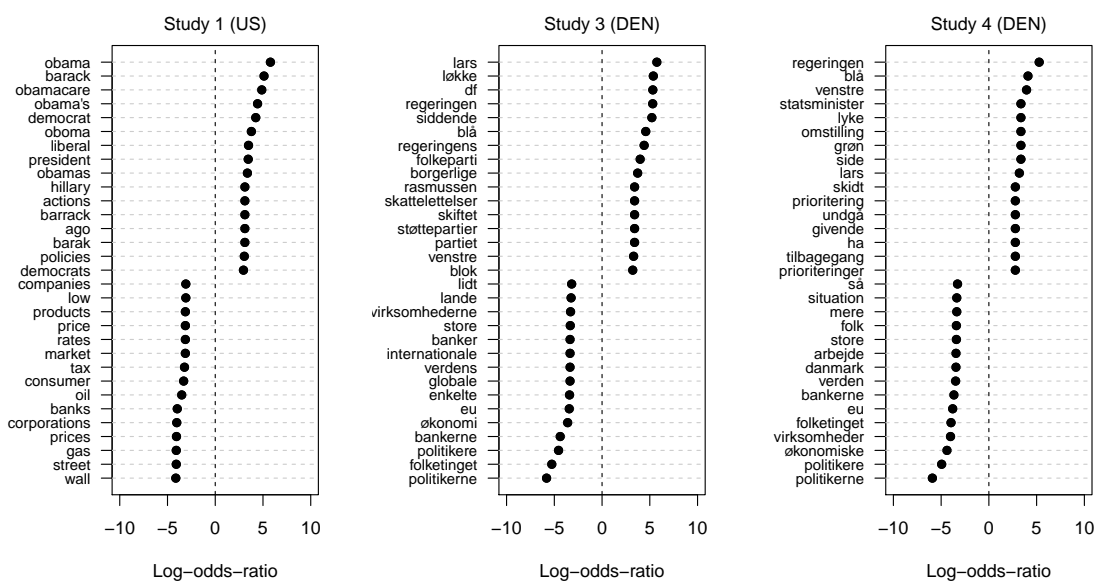
To obtain a measure for the association between the occurrence of a word,  $w$ , and the human classification, 1 or 3, I compute a simple odds ratio and take the logarithm (base 2) of the ratio to center the metric evenly around 0 (the ratio also includes add-one smoothing to avoid empty cells). The word-level association is calculated using the following equation:

$$\log(\text{odds ratio}_w) = \log_2\left(\frac{y_w^{(3)} + 1}{n^{(3)} - y_w^{(3)} + 1}\right) - \log_2\left(\frac{y_w^{(1)} + 1}{n^{(1)} - y_w^{(1)} + 1}\right) \quad (1)$$

Here,  $y_w^{(3)}$  is the frequency of word  $w$  occurring in the text that respondents write

when they only assign responsibility to the incumbent (indicated by the superscript “3”) and  $n$  gives the total frequency of all words being used within the given classification. For intuition, the left-hand part of odds ratio (the nominator) gives the odds of seeing word  $w$  conditional on the respondent being coded as saying that only the incumbent is responsible. That is, when the respondent assigns full responsibility to the incumbent, what words are then the most likely to be used within this category? The denominator (right-hand part) also gives the odds of seeing the same word,  $w$ , but now conditional on the respondent stating that only other factors than the incumbent are responsible for the state of the economy. The ratio of the two odds thus gives us a sense of how well a given word predicts our classification: For example, if the word “obama” occurs relatively often when the respondents are classified as blaming or crediting President Obama and occurs infrequently when respondents assign responsibility to other actors, then it will result in a high and positive log-odds-ratio. If the word “banks” occurs infrequently among respondents classified as assigning responsibility to the incumbent and occurs frequently among respondents that are classified as blaming or crediting other factors, it will result in a negative log-odds-ratio.

Figure S1 shows the log-odds-ratios for the 15 words with the most positive ratios and for the 15 words with the most negative log-odds-ratios. Reassuringly, among the words with the highest log-odds-ratios, i.e. the words most predictive of the respondent stating that the incumbent is responsible, are words we would intuitively connect with the incumbent. For example, in Study 1 from the United States words like “obama”, “barack”, “obamacare”, “democrat” and “president” are some of the most predictive of respondents being classified as crediting or blaming the incumbent. In Study 3 and 4 from Denmark we see the same pattern: Words like “lars”, “løkke” and “statsminister” are some of the most positive log-odds-ratios and all refer to the Prime Minister Lars Løkke Rasmussen. At the other end of the scale, we also see words that are intuitively associated with blaming or crediting other factors than the incumbent. In Study 1, words like “banks”, “corporations”, “prices”, “wall” and “street” are some of the most predictive words. In Study 3 and 4, words like “folketinget” (parliament), “eu” (european union) and “bankerne” (banks) are the most predictive of a respondent being classified as attributing responsibility to other factors. In all, the coding scheme thus appears to validly capture whether a respondent assigns responsibility to the incumbent or not.



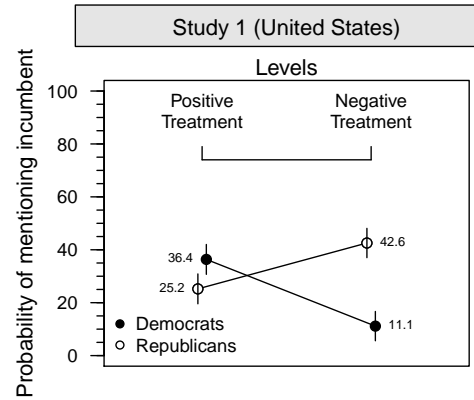
**Figure S1:** Word-level validation of the coding scheme. What words are most strongly associated with a respondent being classified as only assigning responsibility to the incumbent (positive values) and only assigning responsibility to other actors or factors (negative values). Entries are the 15 words with the most positive and negative log-odds-ratios.

## C.2 Robustness to Different Recoding Decisions

Below I show the robustness of the results reported in Figure 6 in the main manuscript to different recoding decisions. In the analysis, the classification assigned by the human coder for each open response is collapsed into a binary outcome capturing whether the respondent assigns responsibility or not to the incumbent. The analyses below show that the results in the main article do not depend on recoding decisions when collapsing the coded categories into a binary outcome. Each table on the left hand side shows a given recoding of the dependent variable, that is, how the original variable is collapsed into a binary outcome. The associated figure on the right hand side shows the results for that particular recoding of the variable.

Code	Recoding
-1	NA
0	0
1	0
15	0
2	1
3	1

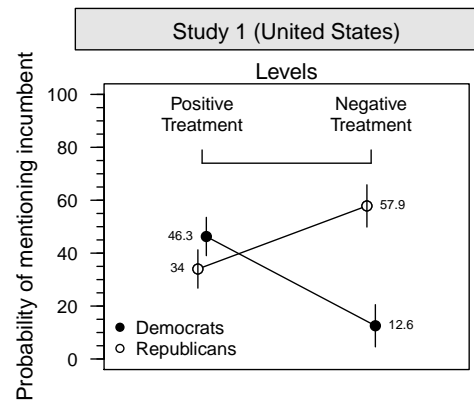
**Table S15:** Recoding of original codes in Study 1



**Figure S2:** Regression results using new coding

Code	Recoding
-1	NA
0	NA
1	0
15	NA
2	NA
3	1

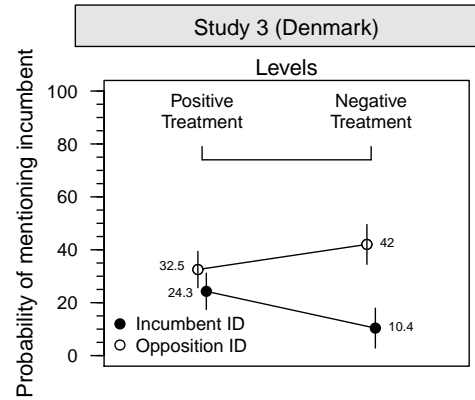
**Table S16:** Recoding of original codes in Study 1



**Figure S3:** Regression results using new coding

Code	Recoding
0	NA
1	0
2	NA
3	1

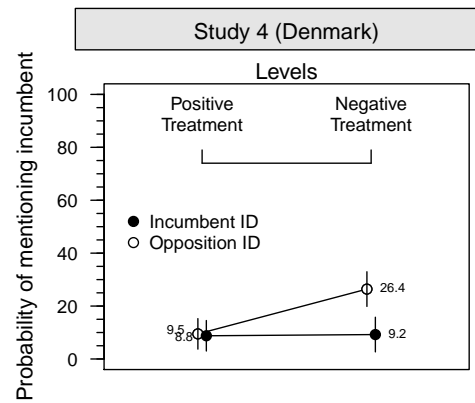
**Table S17:** Recoding of original codes in Study 3



**Figure S4:** Regression results using new coding

Code	Recoding
0	NA
1	0
2	NA
3	1

**Table S18:** Recoding of original codes in Study 4



**Figure S5:** Regression results using new coding

## D Automated Discovery of Lexical Features

Figure 7 in the main article shows how the word usage among Democrats and Republicans changes when they are confronted with either positive or negative news about economic growth. More specifically, the analysis shows an estimated log-odds-ratio for each unique word appearing across the whole corpus of text where the ratio compares the relative frequency of a given word written in the positive condition against the negative treatment condition. The log-odds-ratios are estimated separately for Republicans and Democrats. Following the approach outlined by Monroe, Colaresi and Quinn (2008), the log-odds-ratio has been standardized (as z-scores) to account for the variance of the estimated ratios and the ratios have further been regularized with a Dirichlet prior to penalize meaningless “function-words” (such as “the”, “you”, “not” etc.). Below, I describe the estimation procedure.

Before the log-odds-ratios were estimated, the open-responses were aggregated up to five separate documents:

Document	Text written by:
$k_1$	Democrats in the negative treatment condition
$k_2$	Democrats in the positive treatment condition
$k_3$	Republicans in the negative treatment condition
$k_4$	Republicans in the positive treatment condition
$k_5$	All respondents in all experimental conditions

Using the usual bag-of-words assumption (Grimmer and Stewart, 2013), these five documents were transformed into a  $K \times W$  matrix where  $K$  is the number of documents and  $W$  is the number of stemmed unique words appearing across the whole corpus of text. In Study 1, for example, a total of 2,579 words appeared. For intuition, the comparison of the relative word frequencies across these documents is essentially the inner-workings of the estimation technique detailed below. For example, our estimate of how the word usage changes among Democratic respondents when comparing the negative to the positive treatment condition is essentially a comparison between document  $k_1$  and  $k_2$ . For Republicans, the comparison is between document  $k_3$  and  $k_4$ . The last and fifth document,  $k_5$ , which contains the text from all respondents in all conditions is used to set the prior distribution of words (a Dirichlet

distribution) which can then be assigned more weight in the estimation of the log-odds-ratios (by setting a scale parameter,  $\alpha_0$ ). The more weight that is assigned to the prior, the bigger the differences in word usage between the negative and positive treatment conditions will have to be in order to be detected in the analysis—what is referred to a regularization or shrinkage. Thus, if the word usage among Democrats is to differ significantly across the negative and positive treatment conditions it is not enough that Democrats just use different words across the conditions—such word usage will also have to be different from how these words are used more generally by all respondents across all the experimental conditions.

To fix ideas, the estimated regularized log-odds-ratio for word  $w$  is denoted  $\hat{\delta}_w$  and is estimated with the following equation for Democratic respondents (the equation is adopted from Monroe, Colaresi and Quinn 2008 and slightly edited to fit the context of this study):

$$\hat{\delta}_w^{(k_2-k_1)} = \log 2 \left( \frac{y_w^{(k_2)} + \alpha_w}{n^{(k_2)} + \sum_{w=1}^W \alpha_w - y_w^{(k_2)} - \alpha_w} \right) - \log 2 \left( \frac{y_w^{(k_1)} + \alpha_w}{n^{(k_1)} + \sum_{w=1}^W \alpha_w - y_w^{(k_1)} - \alpha_w} \right) \quad (2)$$

Here,  $y_w$  is the word count of word  $w$  with a superscript indexing the document ( $k_1$  through  $k_5$ ) and  $n$  gives the total word count in the specified document. For Republican respondents, the critical comparison is between document  $k_3$  and  $k_4$  and the equation is thus:

$$\hat{\delta}_w^{(k_4-k_3)} = \log 2 \left( \frac{y_w^{(k_4)} + \alpha_w}{n^{(k_4)} + \sum_{w=1}^W \alpha_w - y_w^{(k_4)} - \alpha_w} \right) - \log 2 \left( \frac{y_w^{(k_3)} + \alpha_w}{n^{(k_3)} + \sum_{w=1}^W \alpha_w - y_w^{(k_3)} - \alpha_w} \right) \quad (3)$$

The parameter  $\alpha_w$  is the prior word count for word  $w$  and it set by the following equation:

$$\alpha_w = \alpha_0 \frac{y_w^{(k_5)}}{n^{(k_5)}} \quad (4)$$

Note that the fraction in equation 4 is simply the prior probability of word  $w$  or how often it appears across the entire open responses (that is, in document  $k_5$ ). This fraction is multiplied by the scaling parameter  $\alpha_0$  which can be interpreted as the



“prior sample size.” Taken together, equation 4 simply yields the prior frequency of word  $w$  and the larger the scaling parameter  $\alpha_0$ , the more the prior will shrink the estimated log-odds-ratios for the two partisan groups. In the analysis, the scaling parameter is set to a prior sample size of 500.<sup>2</sup>

Lastly, and to incorporate the uncertainty in the estimation of each word-specific log-odds-ratio, the odds-ratios are standardized by their estimated variance. Again following Monroe, Colaresi and Quinn (2008), the statistical process generating the observed word frequencies is assumed to be multinomial and it thus follows that the variance of the log-odds-ratios for Democrats can be estimated as:

$$\hat{\sigma}^2\left(\hat{\delta}_w^{(k_2-k_1)}\right) = \frac{1}{y_w^{(k_2)} + \alpha_w} + \frac{1}{y_w^{(k_1)} + \alpha_w} \quad (5)$$

And similarly for Republicans:

$$\hat{\sigma}^2\left(\hat{\delta}_w^{(k_4-k_3)}\right) = \frac{1}{y_w^{(k_4)} + \alpha_w} + \frac{1}{y_w^{(k_3)} + \alpha_w} \quad (6)$$

This leads to standardized and regularized log-odds-ratios (expressed in z-scores),  $\hat{\zeta}_w$ , that are plotted in Figure 7 in the main article. For Democrats the estimated log-odds-ratios for word  $w$  is simply the regularized log-odds-ratio standardized by its estimated variance:

$$\hat{\zeta}_w^{(k_2-k_1)} = \hat{\delta}_w^{(k_2-k_1)} / \sqrt{\hat{\sigma}^2\left(\hat{\delta}_w^{(k_2-k_1)}\right)} \quad (7)$$

And for Republicans:

$$\hat{\zeta}_w^{(k_4-k_3)} = \hat{\delta}_w^{(k_4-k_3)} / \sqrt{\hat{\sigma}^2\left(\hat{\delta}_w^{(k_4-k_3)}\right)} \quad (8)$$

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<sup>2</sup> When the scaling parameter is set at a higher level it shrinks the estimated log-odds-ratios more towards 0 (as it should), yet the relative placement of each word is very similar. Thus, the substantive result is not sensitive to small changes in the value of the scaling parameter. See section ??.

### D.1 Robustness to Different Values of Scaling Parameter

Below I show that the results are similar regardless of the exact value for the scaling parameter,  $\alpha_0$ . The Figures shows the same results as in Figure 7 in the main article, but with different levels set for the scaling parameter. As is evident when looking at the figures, increasing the scaling parameter shrinks the estimated log-odds-ratios as it should (i.e. the estimates are forced towards 0), yet the relative placement of the words remains very similar.

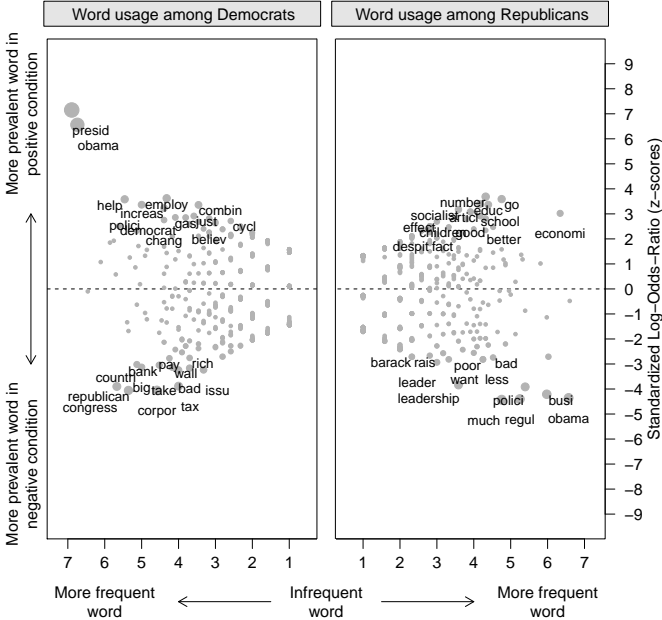


Figure S6: Results when scaling parameter,  $\alpha_0$ , is set to 1,000.

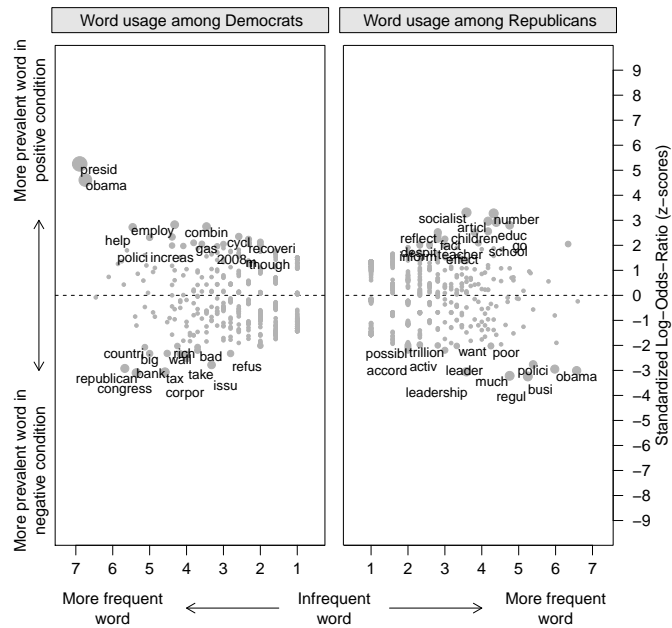


Figure S7: Results when scaling parameter,  $\alpha_0$ , is set to 5,000.

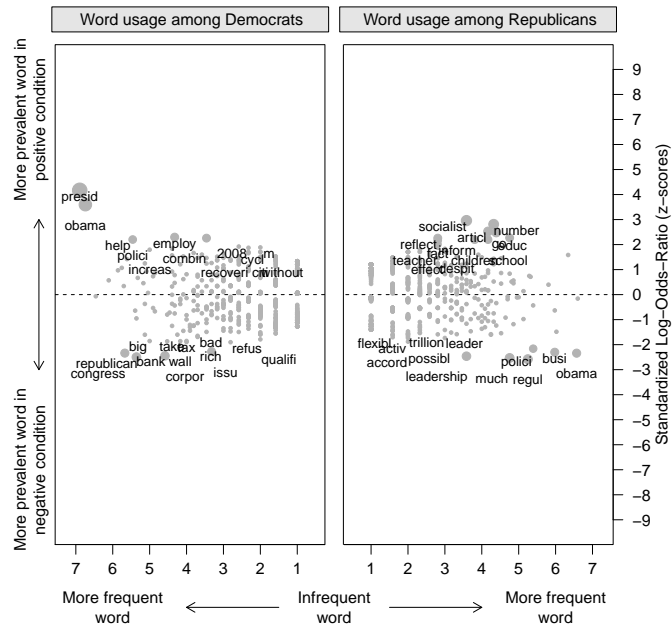


Figure S8: Results when scaling parameter,  $\alpha_0$ , is set to 10,000.

## References

- Grimmer, Justin, and Brandon M Stewart. 2013. "Text as Data." *Political Analysis* 21(3): 267-97.
- Monroe, Burt L., Michael P. Colaresi, and Kevin M. Quinn. 2008. "Fightin' words." *Political Analysis* 16(4): 372-403.