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## The Opposite of Republican: Polarization and Political Categorization

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### Abstract

Two experiments examined the typicality structure of contrasting political categories. In Experiment 1, two separate groups of participants rated the typicality of 15 individuals, including political figures and media personalities, with respect to the categories Democrat or Republican. The relation between the two sets of ratings was negative, linear, and extremely strong,  $r = -.9957$ . Essentially, one category was treated as a mirror image of the other. Experiment 2 replicated this result, showing some boundary conditions, and extending the result to liberal and conservative categories. The same method was applied to two other pairs of contrasting categories, healthy and junk foods, and male and female jobs. For those categories, the relation between contrasting pairs was weaker and there was less of a direct trade-off between typicality in one category versus typicality in its opposite. The results are discussed in terms of implications for political decision making and reasoning, and conceptual representation.

*Keywords:* Categorization; Typicality; Political cognition

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What is the relation between a category and its opposite? Intuitively, there is a trade-off between membership in one category and membership in its contrasting category. In addition to making the important point that category membership reflects a graded typicality structure, Rosch and Mervis (1975) hypothesized that the most typical members of a category will be the least typical members of its contrasting category. In the extreme, the two categories would be mirror images of each other. For example, being an odd number perfectly predicts not being an even number. On the other hand, some contrasting categories may not be straightforward opposites, such as practical gifts versus frivolous gifts or sunny days versus cloudy days.

This question is particularly relevant to the study of politics. In the United States' two-party system, the categories Democrat and Republican appear to be in direct contrast. Most

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elections feature a contest between a Democrat and Republican candidate and political discourse typically features Democratic and Republican viewpoints. Indeed, Lakoff (2002) has identified the origins of the contrasting nature of political parties in “diametrically opposite moral systems” based on liberalism and conservatism. The increased polarization of political parties in Congress (McCarty, Poole, & Rosenthal, 2006) and in the mass public (Abramowitz & Saunders, 2008; Fiorina, Abrams, & Pope, 2006; Hetherington & Weiler, 2009; Jacobson, 2007) has bolstered the contrasting nature of political parties in the United States. In this heightened era of polarization, it seems unlikely that a person could be perceived as typical of both a Democrat and a Republican. Rather, one would predict that people conceptualize the parties as mirror images of each other: Anything that makes someone more of a Democrat makes him or her equally less of a Republican.

In psychological research, exemplar models of categorization make a related assumption, that category membership is a positive function of similarity to members of a target category and a negative function of similarity to members of a contrast category (e.g., Nosofsky, 1988). Other research has addressed the nature of mental representation for contrasting categories. It has been suggested that representations of categories vary from being interrelated to isolated (Goldstone, 1996). Some categories, particularly those that form a mutually exclusive, exhaustive set, may be defined in terms of each other. In the limit, a category may be negatively defined, that is, defined entirely in terms of another category. Indeed, Davis and Love (2010) have suggested that repeated practice in distinguishing members of one category from another, especially those that differ along a continuum, may lead to distortions such that the two categories are represented as opposing caricatures (see also Goldstone, Steyvers, & Rogosky, 2003; Palmeri & Nosofsky, 2001). On the other hand, some categories may have isolated representations, or intrinsic meanings that do not depend on other categories (see also Barr & Caplan, 1987).

Rosch and Mervis (1975) suggested that natural language categories are constructed to maximize between-category differences (and maximize within-category similarity). Verbeemen, Vanoverberghe, Storms, and Ruts (2001) tested the hypothesis of Rosch and Mervis that the most typical members of a category would tend to be the least typical members of its contrast category. (Verbeemen et al. argued that Rosch and Mervis’s own studies had confounded between-category and within-category effects.) Overall, Verbeemen et al. found poor evidence for the hypothesis, across multiple pairs of categories. For example, they examined the contrasting pair of categories of fruits and vegetables. It was possible to predict an item’s typicality in the fruit category from its similarity to other fruits, and likewise typicality in the vegetable category was predictable from similarity to other vegetables. But an item’s typicality in the fruit category was poorly predicted from information about the vegetable category, and vice versa.

Based on the Verbeemen et al. (2001) study, one might be pessimistic about predicting typicality ratings in the Democrat category from typicality ratings in the Republican category (or vice versa). In addition, categorization research (Barsalou, 1987, 1989, 1993; Heit & Barsalou, 1996) has emphasized that typicality ratings themselves are unstable. Even when making judgments about a single category, different people are sometimes inconsistent with each other, and sometimes the same person will make inconsistent typicality

ratings in different contexts. Presumably, there would be even greater opportunity for inconsistency when the category itself differs. So on that basis as well, one would expect that typicality in one political party is a less than perfect predictor of typicality in the other party. Moreover, it is commonly asserted that there is little difference between the two parties since they have an incentive to moderate their policies to appeal to the median voter (Downs, 1957). To the extent that all politicians are alike, that is, if political categories do not truly maximize between-category differences, then, again, there should not be a strong negative correlation between typicality in one party and typicality in the other. Finally, within political psychology, there has been an ongoing debate on whether partisan identity is unidimensional or multidimensional (Jost, Federico, & Napier, 2009). To the extent that Democrats and Republicans vary on multiple, uncorrelated dimensions, judgments about one party may be somewhat unpredictable from the other. Relatedly, Greene (2005) has noted the significant presence of ambivalence in the electorate, namely that voters both like and dislike their own political parties. If some people are ambivalent about political parties, one might expect a less-than-perfect relationship between judgments about one party versus the other.

In Experiment 1, we examined whether typicality ratings in the Democrat and Republican categories were strongly predictive of each other, addressing the question of whether these two categories are represented as mirror images, or instead whether ratings in one category are somewhat unpredictable from the other. The stimuli included highly partisan individuals as well as less partisan individuals. We surmised that the mirror image relation between Democrat and Republican might be stronger for the highly partisan stimuli. In Experiment 2, we set out to replicate and extend these findings.

## 1. Experiment 1

### 1.1. Method

#### 1.1.1. Participants

A total of 351 University of California, Merced, undergraduates participated, taking part in a survey within a larger packet of unrelated questionnaires. The students, from various social science courses, received extra credit. The experiment was conducted in October 2008, just before the November presidential election. There were two main between-subject conditions, assigned randomly. There were 178 participants who made typicality ratings with respect to the Democrat category and 173 participants who made typicality ratings with respect to the Republican category.

#### 1.1.2. Stimuli

The survey was presented on a single sheet of paper. At the top were instructions about making typicality ratings in terms of goodness of example, giving the sample question of whether apples are a good example of a fruit. Participants then rated 15 individuals on typicality either as a Democrat or as a Republican. We had pretested stimuli to find individuals

who would be familiar to most students and cover a range of political affiliations. These individuals included five current or former government officials who we expected to be typical Democrats (Joe Biden, Bill Clinton, Hillary Clinton, Al Gore, and Barack Obama), three government officials expected to be typical Republicans (George W. Bush, John McCain, and Sarah Palin), three Republican government officials expected to be less typical (Colin Powell, Condoleezza Rice, and Arnold Schwarzenegger), and four media personalities with various political leanings (Jay Leno, David Letterman, Bill O'Reilly, and Oprah Winfrey). The individuals were listed in two different random orders, with about half of the participants seeing each order.

### 1.1.3. Procedure

Participants worked at their own pace, making 1–7 typicality ratings, with one labeled “very poor example” and seven labeled “very good example.”

## 1.2. Results and discussion

Table 1 depicts the average typicality ratings for each of the 15 individuals. Typicality in one category was almost perfectly predictive of atypicality in the other category. The correlation,  $r$ , between the two sets of ratings across the 15 individuals, is  $-.9957$ . The relation between Democrat and Republican typicality ratings is illustrated in Fig. 1, where there is a negative and highly linear relation between the two sets of ratings. Although we had expected less systematic responding for more moderate figures, and for some of the media

Table 1  
Political typicality ratings from Experiments 1 and 2

Individual	Experiment 1		Experiment 2			
	Democrat	Republican	Democrat	Republican	Liberal	Conservative
Joe Biden	5.84	2.15	5.24	2.38	4.74	3.14
George W. Bush	1.73	6.11	1.69	6.50	2.30	5.21
Bill Clinton	6.00	2.23	5.96	1.86	4.98	3.15
Hillary Clinton	6.13	1.97	6.13	1.92	4.87	3.44
Al Gore	5.39	2.37				
Jay Leno	4.34	3.32	4.31	3.36	4.73	3.34
David Letterman	4.52	3.44	4.09	3.28	4.47	3.31
John McCain	1.62	6.38	1.46	6.41	2.31	5.40
Barack Obama	6.32	1.70	6.32	1.68	5.52	3.24
Bill O'Reilly	3.07	4.60				
Sarah Palin	1.76	5.93	2.09	5.69	2.29	5.04
Colin Powell	3.57	4.10	3.38	4.49	3.40	4.31
Condoleezza Rice	3.36	4.49	2.90	4.46	3.35	4.40
Arnold Schwarzenegger	2.92	4.84	2.70	4.86	3.43	4.55
Oprah Winfrey	5.31	2.65	5.15	2.73	4.98	3.36
Homer Simpson			3.39	2.42	4.78	2.25
Britney Spears			3.36	3.17	4.75	2.25

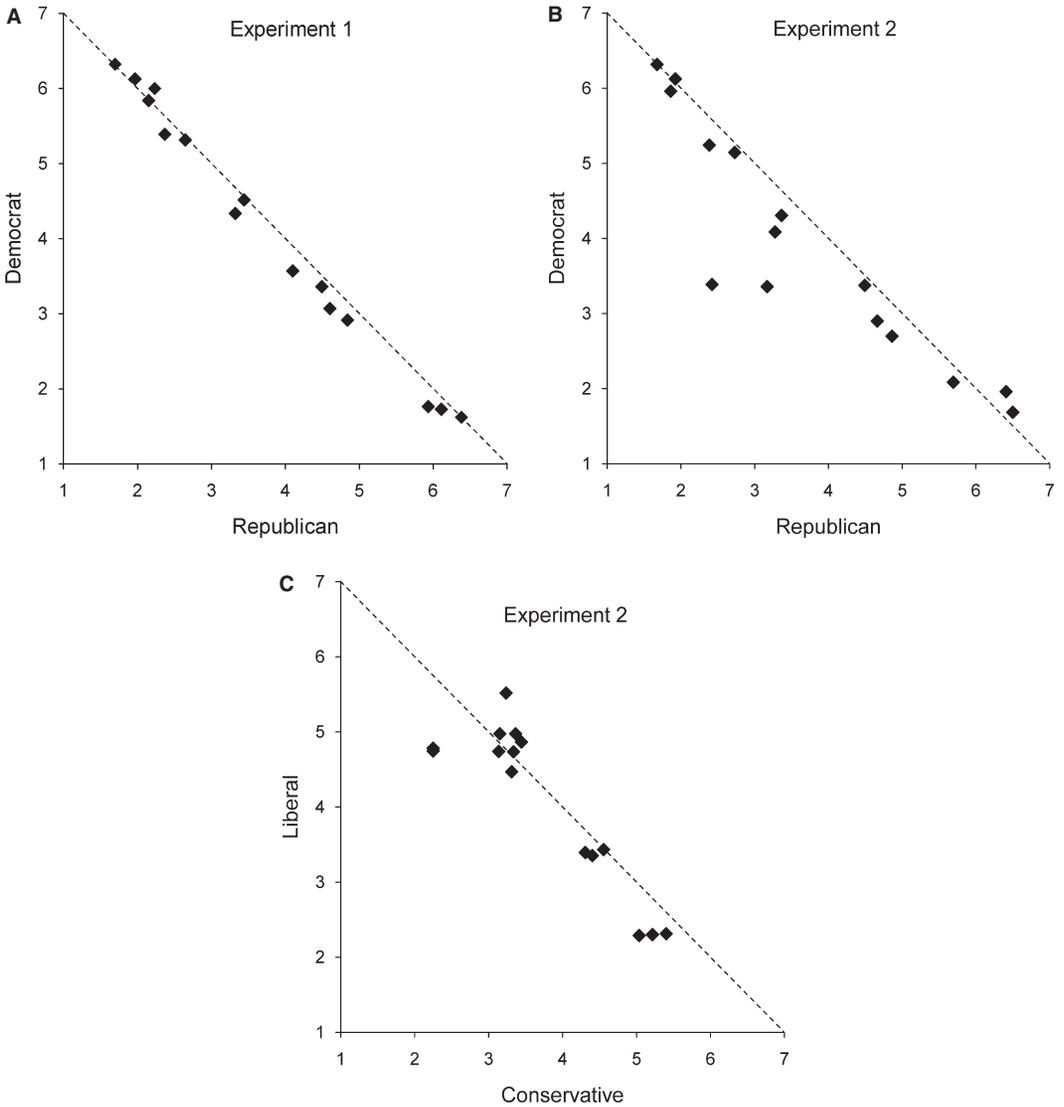


Fig. 1. Typicality ratings for Democrat and Republican categories, Experiments 1 and 2, and for liberal and conservative categories, Experiment 2.

personalities with unclear political affiliations, visual inspection of Fig. 1 suggested no notable outliers from the main diagonal.

The extreme negative correlation between Republican and Democratic typicality ratings suggests that participants perceived individuals as typical of one party or the other, but not both. As expected, highly partisan individuals such as George W. Bush and Hillary Clinton were rated toward the end of the extremes of the scale, whereas less explicitly partisan individuals such as David Letterman and Jay Leno were located toward the center. These results are novel evidence that political parties in the United States are seen as mirror opposites.

The near-perfect correlation in typicality ratings is particularly surprising given past results showing instability of typicality (Barsalou, 1987, 1989, 1993; Heit & Barsalou, 1996). Moreover, our results stand in contrast to work in the object domain (Verbeemen et al., 2001) showing that typicality in a target category is relatively poorly predicted from information about contrast categories. However, our results are consistent with the suggestion of Barr and Caplan (1987) that extrinsically defined categories will tend to have very systematic typicality structures (although their account would not have predicted such a high level of agreement between participants).

## **2. Experiment 2**

Whereas the sign of the correlation in Experiment 1 was expected, its strength was highly unexpected. Hence, Experiment 2 was an attempt to replicate and extend Experiment 1. In terms of replication, we again collected Democrat and Republican typicality ratings for 13 of the individuals from Experiment 1. In terms of extension, we included two nonpolitical individuals (one a fictional character) that we expected to not be typical of either party, and hence fall off of the main diagonal.

We also collected typicality ratings on the two major ideologies in the United States: liberal and conservative. Public debate among candidates, elected officials, and news media underscore this left-right, bipolar distinction. By extending our analysis to ideological categories we are able to offer an empirical test of Lakoff's (2002) prediction that liberal and conservative constitute opposite categories. Furthermore, we are able to examine whether ideological categories operate in the same fashion as partisan categories. Abramowitz and Saunders (1998) have shown that people's ideology and partisanship have become much more closely aligned due to the two parties taking clearer ideological positions in the post-Reagan era. Accordingly, conservatives are increasingly likely to identify as Republicans and liberals are more likely to identify as Democrats. As with Democrat and Republican, we hypothesize a negative correlation between typicality ratings for liberal and conservative.

Yet ideology is not the same thing as party identification. The liberal-conservative distinction might be weaker than the Democrat-Republican distinction because liberal and conservative are more like trait adjectives, whereas Democrat and Republican are more like richly structured categories. Markman (1989) has suggested that traits provide a weaker basis for drawing inferences than do categories, which are more deeply and stably embedded in conceptual structure (see also Gelman & Heyman, 1999). Furthermore, Conover and Feldman (1981) have argued that people organize their political beliefs in a multidimensional fashion and that these dimensions are distinct but not opposing or bipolar. For instance, they found only a weak negative correlation across respondents in their evaluations of liberals versus conservatives. If liberal and conservative are not straightforward opposites, the relationship between liberal and conservative may be weaker than that between Democrat and Republican.

By way of extension, we also examined pairs of contrasting categories from two other domains to examine whether the extremely strong negative and linear relationship in typi-

cality appears elsewhere. We collected typicality ratings for various foods with respect to the categories healthy foods versus junk foods. Like Democrats and Republicans, healthy foods and junk foods seem to be opposites, so one might expect the same mirror-image structure. On the other hand, some foods might be considered neither healthy foods nor junk foods. We also collected typicality ratings for various jobs with respect to the categories male jobs versus female jobs. Again, male versus female are contrasting categories, and typical male jobs versus female jobs might be seen as opposites. On the other hand, some jobs might be considered typical of both male and female jobs. We note that although previous research has indicated that food categories (Ross & Murphy, 1999) and occupational categories (Dahlgren, 1985) have graded typicality structures, previous work in these domains has not examined whether there is a highly negative and linear relation between typicality in one category and typicality in another category.

### 2.1. Method

The method was the same as Experiment 1 except for the following. A total of 427 students participated, receiving three surveys in a random order, although a small number did not return all three. For the political surveys, 104 participants rated typicality in Democrat, 66 rated typicality in Republican, 83 rated typicality in liberal, and 142 rated typical in conservative. (Unfortunately, the political surveys were distributed unevenly, but they still provided sufficient data to obtain stable averages for each rated item.) For the food surveys, 188 participants rated typicality in healthy foods, and 206 participants rated typicality in junk foods. For the job surveys, 187 participants rated typicality in male jobs, and 207 participants rated typicality in female jobs. The experiment was conducted in April 2009, a few months after the January presidential inauguration.

For the political surveys, we deleted two individuals from Experiment 1, Al Gore and Bill O'Reilly, and replaced them with two nonpolitical individuals, Homer Simpson and Britney Spears. For the food survey, we used 15 different foods as stimuli, chosen by the experimenters as seeming to include healthy foods, junk funds, and in-between cases: apple, bacon, Big Mac, burrito, cake, cheese, chili, Coca Cola, frozen yogurt, orange juice, pasta, potato chips, salad, sushi, and whole wheat bread. For the job survey, we chose 15 jobs, intended to include typical male and female jobs as well as in-between cases, after consulting sources that listed statistically common male and female jobs. The stimuli were as follows: artist, auto mechanic, bookkeeper, construction worker, dental assistant, hairdresser, lawyer, lumberjack, nurse, professor, receptionist, restaurant manager, salesperson, teacher, and truck driver.

### 2.2. Results and discussion

We first present typicality ratings with respect to Democrat and Republican. These are shown in Table 1 and plotted in Fig. 1. First, looking at the 13 individuals also used in Experiment 1, the correlation between the two sets of ratings is  $-.9870$ , that is, still extremely strong, negative, and linear. In Fig. 1, these are the 13 data points falling near the main

diagonal. The two data points falling below the diagonal correspond to Homer Simpson and Britney Spears. Essentially, these two individuals are atypical both of Democrats and Republicans. When these two individuals are included, the correlation across 15 items drops to  $-.9180$ .

Next, we present typicality ratings with respect to liberal and conservative. These are shown in Table 1 and plotted in Fig. 1. Across the 13 individuals from Experiment 1, the correlation is strong and negative,  $-.9722$ . These data points generally follow the main diagonal. Of these 13 individuals, the data point falling furthest below the diagonal is for Sarah Palin, perhaps reflecting the populist nature of her political persona, making her less typical of either ideology. The data point that is most noticeably above the line is for Barack Obama, who is considered very typical of liberals but is also considered somewhat typical of conservatives, perhaps reflecting a few high-profile appointments of centrist figures to the federal bureaucracy soon after his election. The two added individuals for Experiment 2 are those data points falling furthest below the diagonal, corresponding to Homer Simpson and Britney Spears, again being relatively atypical of either ideology. With these two data points included, the correlation across 15 items drops to  $-.9007$ .

The average typicality ratings for the 15 foods are shown in Table 2, separately for the healthy food and junk food categories. The correlation between the two sets of ratings, across the 15 foods, is  $-.9664$ . The relation between healthy food and junk food typicality ratings is illustrated in Fig. 2A. Although there is still a highly negative relation between the two sets of ratings, most of the ratings fall below the main diagonal, suggesting that there is less of a direct trade-off between being a healthy food and being a junk food. Looking across foods, as a food becomes less typical of junk foods, it does not become equally more typical of healthy foods. The three foods that fall furthest below the main diagonal are bacon, burrito, and chili. In each case, these are rated moderately typical of junk foods, and

Table 2  
Food typicality ratings from Experiment 2

Food	Healthy Food	Junk Food
Apple	6.57	1.77
Bacon	1.98	4.41
Big Mac	1.39	6.02
Burrito	2.62	4.26
Cake	1.68	5.63
Cheese	3.95	3.17
Chili	2.80	3.83
Coca Cola	1.52	5.73
Frozen yogurt	4.44	3.34
Orange juice	5.38	2.25
Pasta	3.88	3.09
Potato chips	1.44	6.10
Salad	6.10	1.83
Sushi	4.74	2.62
Whole wheat bread	6.13	1.95

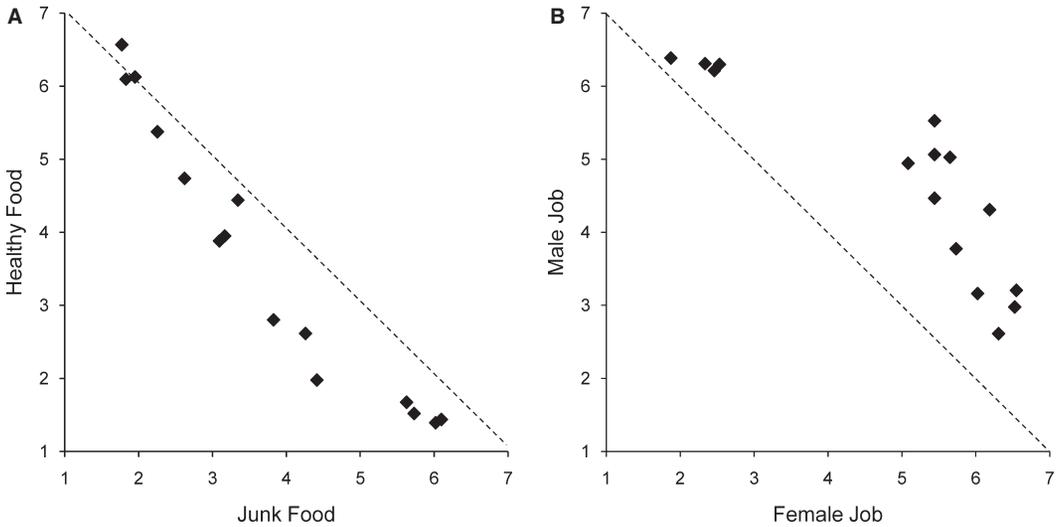


Fig. 2. Typicality ratings for healthy food and junk food (A), and male job and female job (B) categories, Experiment 2.

low on typicality for healthy foods. Unlike political judgments, where no politician was considered atypical of both Democrats and Republicans, it is possible to be relatively atypical for both healthy foods and junk foods.

The average typicality ratings for the 15 jobs are shown in Table 3, separately for male jobs and female jobs. The correlation between the two sets of ratings across the 15 jobs is  $-.8733$ , weaker than for political or food typicality ratings. The relation between male jobs and female jobs typicality ratings is illustrated in Fig. 2B. Although there is still a negative

Table 3  
Job typicality ratings from Experiment 2

Job	Male Job	Female Job
Artist	4.47	5.44
Auto mechanic	6.50	2.53
Bookkeeper	3.78	5.73
Construction worker	6.31	2.33
Dental assistant	3.16	6.02
Hairdresser	2.98	6.53
Lawyer	5.53	5.44
Lumberjack	6.39	1.87
Nurse	3.21	6.55
Professor	5.03	5.65
Receptionist	2.61	6.31
Restaurant manager	5.07	5.44
Salesperson	4.95	5.08
Teacher	4.31	6.19
Truck driver	6.21	2.46

relationship between the two sets of ratings, all of the ratings fall above the main diagonal, suggesting there is not a direct trade-off between male jobs and female jobs. Looking across jobs, as a job becomes less typical of female jobs, it does not become equally more typical of male jobs. The three jobs that are furthest above the main diagonal are artist, lawyer, and professor. In each case, these are rated above the midpoint of the typicality scale for both male and female jobs. Whereas no one was considered typical of both Democrats and Republicans, it is possible to be relatively high in typicality for both male jobs and female jobs. In particular, several highly typical female jobs were also considered typical of male jobs.

In summary, these results suggest that food and job categories are different than political categories. Foods can be low in typicality for both healthy and junk foods. Jobs can be high in typicality for both male and female jobs. In contrast, with the exception of an entertainer (Britney Spears) and a fictional character (Homer Simpson), Experiment 2 replicated Experiment 1 in terms of showing that partisan categories are opposites. For typicality judgments in contrasting political categories, and to a slightly lesser extent for ideological categories, there is an extremely strong, negative, and linear relationship. Given that Experiments 1 and 2 were conducted just before, and just after, a presidential election, it is possible that the polarized nature of political categories was heightened during this period. There is no doubt that due to media exposure, participants were particularly familiar with politicians at this time. Finally, the fact that the results were different for political categories than for foods and jobs suggests that the results were not just due to some idiosyncrasy of the method (e.g., having hundreds of participants), given that the same method was used for all domains.

Why do the results differ for political categories? We suspect that there are multiple reasons. The results may be due in part to participants' past experience comparing Democrats and Republicans (Davis & Love, 2010). Yet the same might be said for comparisons between healthy food and junk foods, or male and female job stereotypes. We cannot rule out the possibility that our participants' judgments simply reflect political reality. In today's polarized partisan climate, the most liberal Republican in Congress is to the right of the most conservative Democrat and this difference is largely reflected in the mass public (McCarty et al., 2006). Furthermore, in the current political climate the proposals of one political party are routinely opposed by the other political party. The media reinforce this reality by spotlighting these disagreements. Finally, because of the highly systematic nature of our results, we speculate that participants maintain a rule or theory (Murphy & Medin, 1985) that there can be no overlap between the Democrat and Republican categories, and whatever makes someone more typical of one party makes him or her less typical of the other. Such a rule does not seem to be present for the food and job categories.

### **3. General discussion**

Two experiments demonstrated that people view political party categories in the United States as opposites. The opposite of Republican is Democrat. In Experiment 1, the correlation,  $r$ , between the ratings for Democrat and Republican was  $-.9957$ , a nearly perfect

negative relationship between categories. In Experiment 2, we replicated this result and extended it by looking at political ideology and two other domains, jobs and foods. The results for political ideology follow the same pattern we found for party categories: Liberal is the opposite of conservative. In contrast to party and ideological categories, we also found that types of jobs and foods allow for category members to be either more typical of both categories (male and female jobs) or less typical of both categories (healthy or junk foods).

Taken together, these findings suggest that the U.S. political system is highly coherent and organized. Far from Tweedledee and Tweedledum, public figures in the United States—as members of political parties or ideological backgrounds—offer a distinct choice since a candidate running for office is not typical of both. Voting decisions based on party (or ideological) affiliation that is highly structured in a bipolar fashion may have the unintended effect of enhancing citizen competence by tightening the association between one's political views and one's political candidates. If the voter understands that a politician cannot both be a Republican and a Democrat or both a liberal and a conservative, it provides a clear choice for that voter since these differences are grounded in opposing worldviews (Lakoff, 2002). Furthermore, understanding the parties as opposites reinforces policy voting as voters strongly associate candidates with the issue positions of their parties (Nicholson, 2005; Rahn, 1993) and because interparty distinctions are reinforced in a political era in which the most conservative Democrat in Congress is to the left of the most liberal Republican member.

Although the understanding that political figures cannot be all things to all people may enhance citizen competence in elections, it may also provide a hurdle to governance. Effective governance often requires compromise and consensus. However, if a person knows that a Republican is sponsoring a policy proposal, Democratic Party identifiers may oppose it since they understand that a proposal backed by a Republican is likely the opposite of the Democratic proposal. Thus, the bipolar organization of political categories may inhibit public agreement on all things political.

Given our conceptualization of political parties as categories, it is natural to begin to raise other questions from categorization research and apply them to political categories. One empirical question is what will happen when there is a more complicated category structure, for example, a multiparty system? For example, in the British Parliament, there are three major political parties, Conservative, Labour, and Liberal Democrat, and several important regional parties. Is Labour the opposite of Conservative? We expect not, although there still might be a systematic relation between typicality in one party and typicality in contrasting parties.

Another important question is what is the nature of representation for political categories. Perhaps the most important distinction is between similarity-based and theory-based representation (Murphy & Medin, 1985). For example, do judgments about whether someone is a Democrat depend on similarity to known Democrats or do they depend on a theory of what it means to be a Democrat (and to not be a Republican)? We also note the possibility that representations of political categories could include "prior examples" (Heit, 1994, 1998b, 2001) corresponding to prior knowledge of stereotypical Democrats and Republicans, along with knowledge of real political figures.

One can also ask to what extent political categories are a different kind of category than other categories, such as natural kind categories, human-made objects, and social categories. Medin, Lynch, and Solomon (2000) proposed three criteria for deciding whether some domain of categories is truly of a different kind than others. The first criterion is content. It seems that political categories are associated with a mixture of content (social information, mass media, historical information, and formal legislation) that distinguishes political categories from other kinds of categories. The second criterion is structure. Our results indicate that political categories are extremely polarized, more so than other categories we have assessed. The third criterion is processing. At this point, we cannot say whether political categories are processed using the same or different mechanisms as other kinds of categories, although we would prefer a unifying account rather than assuming different processing for political categories.

Finally, we pose the question of how political categories are used in reasoning. As noted above, political categories influence reasoning tasks such as deciding which candidate and which policies to support. Could models of category-based inductive reasoning (e.g., Heit, 1998a; Kemp & Tenenbaum, 2009; Osherson, Stern, Wilkie, Stob, & Smith, 1991; Sloman, 1993; see Hayes, Heit, & Swendsen, 2010, for a review) be applied to predicting citizens' voting decisions or elected officials' support of legislative proposals? Given the strong and systematic relation between representations of contrasting political categories, we expect that models of inductive reasoning would be particularly successful in the political domain.

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