The Prevalence of Political Discourse in Non-Political Blogs

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Abstract

Though political theorists have emphasized the importance of political discussion in non-political spaces, past study of online political discussion has focused on primarily political websites. Using a random sample from Blogger.com, we find that 25% of all political posts are from blogs that post about politics less than 20% of the time, because the vast majority of blogs post about politics some of the time but infrequently. Far from being taboo topics in those non-political blogs, political posts got slightly more comments than non-political posts in those same blogs, and the comments overwhelmingly engage the political topics of the post, mostly agreeing but frequently disagreeing as well. We argue that non-political spaces devoted primarily to personal diaries, hobbies, and other topics represent a substantial place of online political discussion and should be a site for further study.

Introduction

Many recent studies of politics in online spaces have focused on political Usenet groups (e.g., Kelly et al 2005) blogs (e.g., Adamic and Glance 2005; McKenna and Pole 2007, Koop and Jansen 2009, Yano and Smith 2010), political media and news sites and their audiences (e.g., Park et al 2009, Park et al 2011), and political and media accounts on social network sites (e.g., Golbeck and Hansen 2011). These political spaces are no doubt important, but this focus mostly neglects that a good deal of political opinion formation occurs outside of explicitly political venues. Even people very interested in politics may be exposed to political news and opinion in spaces not devoted to those topics, and people who are less interested in politics may never visit explicitly political sites. Using a sample of blogs hosted by Blogger.com as an example, we argue that research of online political discussion should be broadened to include non-political spaces.

Inclusion of diverse points of view in debates can lead to better decision-making (Nemeth and Rogers 1996) and increase the legitimacy of controversial decisions (Ross et al 1997). Scholars have expressed concern that the Internet may reduce individuals' exposure to diverse opinions in online discussion, particularly as they use the technology to access items that support their own views while filtering out disagreeable content (Sunstein 2001).

Some of the most alarming support for concerns about polarization in online political discussions has come from studies of political blogs. For example, Adamic and Glance (2005) found that political blogs rarely link to blogs expressing opposing views. Gilbert et al (2009) analyzed comment threads on several prominent blogs and found that political blogs are echo chambers; a comment was more than three and a half times as likely to agree with the original blog post as it was to disagree.

Other work challenges these alarms. Kelly et al found diversity in discussions within some political USENET groups (2005), and Stromer-Galley found that participants in online political discussions report seeking out diverse opinions, though she was unable to determine the actual diversity in the discussions (2003). Survey research from the 2004 election suggested that readers of online political content are not using the tailorability of the web to filter out contradictory viewpoints and may in fact see a wider range of opinion than counterparts receiving news from traditional sources (Horrigan et al 2004). Munson and Resnick (2010) found mixed results: some people actively seek out opinion diversity in their information sources, while many others are averse to politically challenging material.

Empirical studies indicate that online political discussions have the potential to approach deliberative ideals. Price and Cappella created a political chat room to use as a research setting (2002). They introduced a random sample of people to this research setting and then measured indicators of quality of online discussion and its impacts on participants, including opinion change, opinion quality, electoral engagement, social trust, community engagement, distortions, and alienating effects. The researchers observed positive outcomes in discourse quality and civic engagement.

Politics in non-political spaces

Several decades of work within political sociology has shown that political opinion may be frequently, even primarily, shaped through non-political intermediaries (friends and family members, opinion leaders, etc.) This happens in the broad context of social interactions at times and in places where participants are not explicitly seeking out political information (e.g. Putnam 2000, Habermas 1962) but where "chance encounters" (Sunstein 2001) with opposing views may occur.

Some recent work has shown the value and importance of studying politics online wherever it occurs, even outside of political and news spaces. Researchers found a correlation between the quantity and sentiment of Twitter mentions of candidates on the one hand and both political debate performance (Diakopoulos and Shamma 2010) and election results (Tumasjan et al 2010) on the other. During the 2010 US midterm elections, 8% of online adults reported posting political content to Twitter or another social network site, and 11% said they discovered on a social network site for whom their friends voted (Smith 2011).

When politics comes up in non-political spaces online, we might expect the discussion to more closely approximate deliberative ideals than conversations in political spaces. The reason is that participants with more diverse views may be present, given that the audience formed around some other topic, and the desire to maintain relationships formed for other reasons may make them more disposed to listen to each other and to make the effort to frame arguments in a way that opponents will understand. If political discussion does occur frequently in non-political spaces online, then, we argue that such spaces will be important settings for study of online political discussion.

Through survey research, Wojcieszak and Mutz (2009) found that political discussion does occur in non-political spaces. People reported that of online apolitical chat rooms and message boards they were part of, between 30% and 70% "ever talked about political topics or controversial public issues." It is not clear, however, how frequently these topics come up or the nature of the discussions. Goel et al (2010) found that Facebook users are often unaware of differences of opinion with their Facebook friends, suggesting that political topics come up infrequently or that people do not reveal their opinions when they do come up.

Eliasoph's investigations of political speech (1998) found that both jokes and serious discussion about politics in social clubs tended to be met with silence rather than provoke a discussion on the topic, either out of ignorance or to avoid expressing disagreement in a social setting where they did not know the opinions of others or knew that others disagreed. Mutz and Martin (2001) also note a tendency to avoid political disagreement in interpersonal relationships in order to promote social harmony, and Noelle-Neumann (1993) found that this is particularly true when in social contexts with diverse views. Given the mixed social contexts of many personal or non-political blogs – where readers may be coworkers, friends, family, acquaintances, potential employers, or strangers – might bloggers choose to stay quiet rather than risking offense?

We are left, then, with important empirical questions. In this paper, we investigate the empirical prevalence of political posts in different types of blogs, and the reactions those posts get. In particular, we answer the following questions:

- How prevalent are political blog posts on non-political blogs?
- Relatedly, what is the distribution of political blog posts across different categories of blogs?
- When readers of non-political blogs encounter political posts, do they treat them as taboo, or do they engage with the political content of the post?

Methods

To study these questions, we used a collection of posts and comments from blogs hosted by Blogger.com. Each blog was categorized into one of eight categories and each post was categorized as political or nonpolitical.

Data set and collection

From 6-20 January 2008, we automatically monitored Blogger.com's "recently updated" list, checking it at periodic intervals to identify 23,904 blogs that were written in English, had existed at least since 31 August 2007, and had at least five posts total. On 3 June 2008, we used the Google Data API to download all of the posts for each of these blogs that still existed. This sampling method does introduce some bias into our sample, as blogs with more frequent posts are favored for inclusion. We wanted to ensure that the blogs in the study had some minimum level of activity and audience, so we further constrained our sample to exclude blogs with less than twenty posts and less than five comments total. This combination of the comment requirement and that the blogs existed from August 2007 until at least June 2008 also had the effect of eliminating many spam blogs.

Classification of posts

Human coders classified 6,691 posts as political or non-political. These posts were selected through a combination of purposeful and random sampling. Initially, we drew 2000 random posts from the full sample of posts. While coding these posts as political and nonpolitical, we realized that our set of blogs still contained many blogs that were either spam or not written entirely in English, so researchers looked at each blog and removed many non-English and spam blogs, reducing the number of blogs to 8,861 (and the number of sampled posts to 1,691). To increase the number of political posts for training purposes, we coded the originally sampled posts as political or non-political, then identified blogs that had at least one political post in the original sample and drew an additional 4,000 posts at random from those blogs. We also added another sample of 1,000 posts drawn randomly from all of the posts in our sample.

We considered posts about public policy, campaigns, and elected or appointed officials as political, and did not restrict this definition to politics in the United States. Posts were classified as political even if the political content was only a brief mention in a much broader post; that is, we coded for the presence or absence of political remarks, not for the primary topic of the post. Comments (if any) were not included in the text to be classified, so the label was based only on what the post author wrote in the post title, keywords, and body. To assess the validity of this measure, two human ratings (by a researcher and an undergraduate student employee) were collected on a randomly selected subset of 500 of these posts, after the two raters first discussed 25 posts that one researcher rater found to be difficult to classify. The kappa score (Cohen 1960) between the two human raters on the 500 randomly selected posts was 0.969, and so a single rating of the remaining posts was collected. The classification yielded 1,676 political posts and 5,015 nonpolitical posts.

The political posts on nonpolitical blogs took a variety of forms. Some posts encouraged readers to vote. Others asked questions (e.g., a lengthy post discussing a child's illness asks "why can't we get universal healthcare for children?"). Some of these political posts were re-posts of something the author received by email or found on another blog. Others included quick, throwaway references (e.g. a quick complaint about a political figure in the middle of a mostly unrelated post). Some of these posts were also much longer pieces, expressing disapproval about a political figure or action, or talking through their decision about how to vote in an election.

With the human-coded data as a training set, we used Weka (Witten and Frank 2005) to classify each post as political or nonpolitical. For tokens, we lowercased each post and took the 10,000 most common alphabetic strings in the training set. Stemming was not used. We then reduced the features using Weka's implementation of correlation-based feature subset selection (Hall and Smith 1999). After evaluating several classifiers, we used Multinomial Naïve Bayes (McCallum and Nigam 1998).

	10-fold cross validation	1000 random, hold-out posts
Accuracy	0.965	0.985
Kappa	0.902	0.902
Specificity	0.997	0.995
Sensitivity (Recall)	0.869	0.874

Table 1: Classifier performance measures

Table 1 presents two sets of performance measures for this classifier. The first is from a 10-fold cross validation on the full set of posts classified by human coders. Because the full set over-sampled political posts, the second evaluation classified the 1000 posts drawn uniformly at random, trained on the remaining 5,691 human-coded posts. The kappa for both tests, 0.902, was well above the benchmark that Landis and Koch (1977) propose for "almost perfect" agreement, 0.81. The sensitivity rate means that, on our random sample of 1000 blogs, 87.4% of political posts were correctly classified as political. The specificity rate means that 99.5% of posts classified as nonpolitical were in fact nonpolitical. Using the full human-coded data for training, the classifier identified 217,727 political posts and 2,136,551 non-political posts, about 10.2% political.

Though simply tallying the posts on any given blog that were classified as political and dividing by total posts gives an estimate of prevalence (percent of posts that are political) for that blog, that estimate would be biased. To see this, consider a blog that posts about politics only one percent of the time, with 10 political posts and 990 non-political ones. In expectation, 8.74 of the 10 political articles will be classified as such. Of the non-political posts, 0.5% will be incorrectly classified as political, about 4.95 posts. Thus, when the true prevalence is 1%, the estimation procedure of simply counting the number of items classified as political, will, in expectation, yield a slightly higher true prevalence estimate, 13.95/1000 or 1.40%. The problem is even worse at the other extreme. If a blog had 100% political posts, on average, only 87.4% would be classified as political and the expected value of the estimate would be 87.4%, much lower than the true 100%. The problem with the naïve estimator is that it does not take into account the error rate of the classifier. The challenge of estimating true prevalence from observed prevalence (p) when there is a known error rate in the observation technique (the classifier in our case) has been addressed in medical statistics work (Zhou et al 2002). We generate corrected prevalence estimates (p^*) on a per blog basis according to the following:

Category	Description	n	%	Post per week per blog Mean (stdev)	Comments per post Mean (stdev)
Diary	Individual, group, or family blog with news about life. Includes blogs that are collections of links, images, or videos that interested the author if the collection does not fit into one of the other categories.	5307	60.5%	3.62 (5.17)	2.33 (6.10)
Hobby & Fan	Blog about a particular hobby, interest, or activity (such as crafts, photography, programming, or cooking). Also includes blogs by enthusiasts of a particular TV show, celebrity, actor, movie, musical group, or sports team. Incudes travel and exercise diaries (e.g. someone who writes about running or cycling as a hobby).	2148	24.5%	5.81 (5.81)	2.20 (8.30)
Professional & sales	Blog for a trade, educational, or professional association, or containing news, tips, or advice for people in a particular career or line of work, or an official blog to promote a product, service, or event, to interact with customers, or to provide news about a business or other organization.	519	5.9%	40.1 (567.42)	2.20 (8.81)
Politics	Blog with commentary or news on issues or controversies in politics and government	422	4.8%	11.89 (18.47)	3.11 (12.88)
Religion	Blog by/about religious organizations, daily devotionals, or meditations. Does not include life diaries by people for whom religion is a big part of their life.	200	2.3%	4.06 (4.49)	2.06 (5.75)
Civic & issue	Blog that promotes a *particular* social or political change, such as an environmental organization	81	0.9%	7.85 (13.12)	1.35 (3.71)
Health & Wellness	Blog with tips, suggestions, support, or advice for health and/or wellness. Includes patient diaries and blogs with advice about exercise for health.	66	0.8%	3.75 (3.87)	2.16 (5.91)
Ethnic / cultural	Blog about a particular culture or heritage.	22	0.3%	2.27 (5.54)	1.35 (2.92)

Table 2: Blogs by category. Descriptions are those provided to Mechanical Turk workers.

$$p^* = \frac{p - (1 - specificity)}{sensitivity - (1 - specificity)}$$

For example, when the observed rate p was 1%, we estimate a lower adjusted rate p^* of 0.6%, and when the observed p is less than 0.5%, the adjusted p^* will be negative. When the observed rate p was 10%, we estimate an adjusted rate p^* of 10.9%. And when the observed rate p was 70%, we estimate an adjusted rate p^* of 80.0%.

We then use our corrected estimates of p^* to generate revised estimates of the total number of political and nonpolitical posts on each blog. We sum up those estimates to estimate the cumulative prevalence of political posts in various collections of blogs, including the collection of blogs that rarely if ever contain political posts. Note that when p^* is negative for a blog, that blog's contribution to the estimated cumulative total will be negative. This procedure is equivalent to adding up the number of posts for a whole collection that were classified as political or non-political to generate a value p for the collection, and then applying the correction to generate a value p^* for the whole collection.

Classification of blogs

We then classified each of these blogs according to genre. To do this, we used Amazon's Mechanical Turk micro-task market. Each blog was shown to five users of Mechanical Turk, who were each asked to enter the title of the blog (as

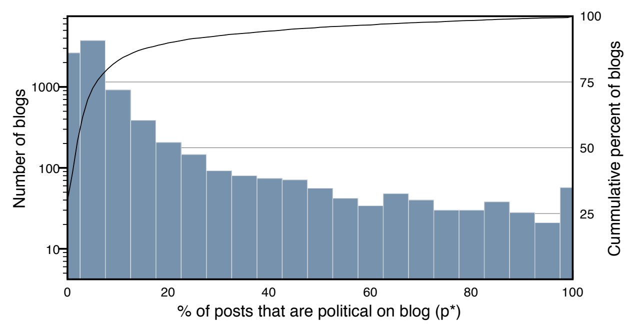

Figure 1. Most blogs have few political posts.

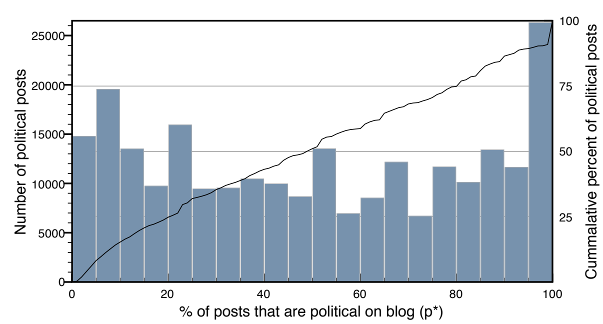

Figure 2. Many political posts appear in blogs that each have few political posts.

a check to ensure the rater looked at the blog), and to identify the category to which it belonged from a list of eight categories (with brief descriptions; Table 2) or to mark it as a spam blog or a blog not written entirely in English. In some cases, particularly bad workers were identified and their completed tasks were reassigned to other workers, so these tasks received more than five ratings. If the blog was still active, the workers were shown the blog in an iframe; if not, the workers were shown an iframe with text-only copies of the posts and titles. We then used the get-another-label tool[1], developed by Panos Ipeirotis, to reconcile the ratings from different Mechanical Turk workers (Sheng et al 2008). On 315 blogs labeled by both a researcher and the Mechanical Turk process, the overall kappa was 0.72. This classification process also identified 96 additional blogs that were written only partially in English or that were spam; these blogs were removed from our sample. This left 2,354,278 posts from 8,765 blogs.

Results

The majority of these 8,675 blogs were diary (60.5%) or hobby and fan blogs (24.5%), with political blogs accounting for less than 5% of our sample (Table 2). The political blogs had more posts per week than any other category except for professional and sales blogs, and also had, on average, more comments per post than other blog categories.

Not surprisingly, many blogs in our data set contained no political posts (Figure 1); we estimate that 30% of blogs contained no political posts and another 60% post about politics between 0% and 20% of the time, with an estimated overall prevalence (*p**) 3.0%, across blogs that each post about politics less than 20% of the time. Cumulatively, however, because there are so many of these blogs, they account for 25% of total political blog posts (Figure 2).

The frequency of political posts on non-political blogs fluctuated mildly, tracking national political events in the United States (Figure 3), most noticeably the November 2006 election and an increase leading up to and early in the 2008 primary season. The data for early 2006 are noisy because there are fewer blogs in the sample from that time. It is also possible that a portion of the measured increase in political discussion during the primary season results from the classifier having an easier time detecting political posts containing candidates' names.

Prevalence of political posts by category

The prevalence of political posts varied across the categories (Figure 4). As one would expect, political blogs

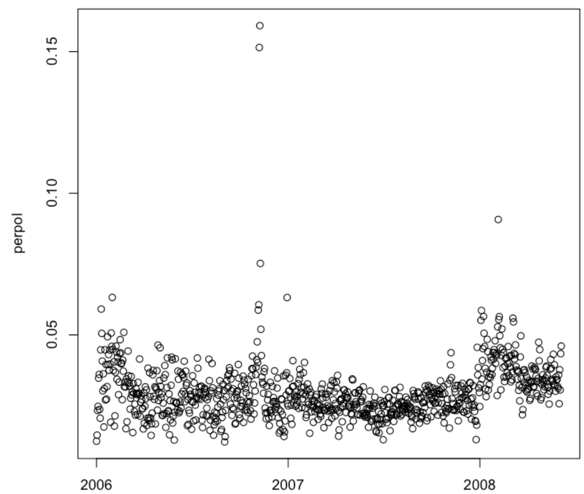

Figure 3. Portion of total posts, by day, that are political from blogs that are political <20% of the time.

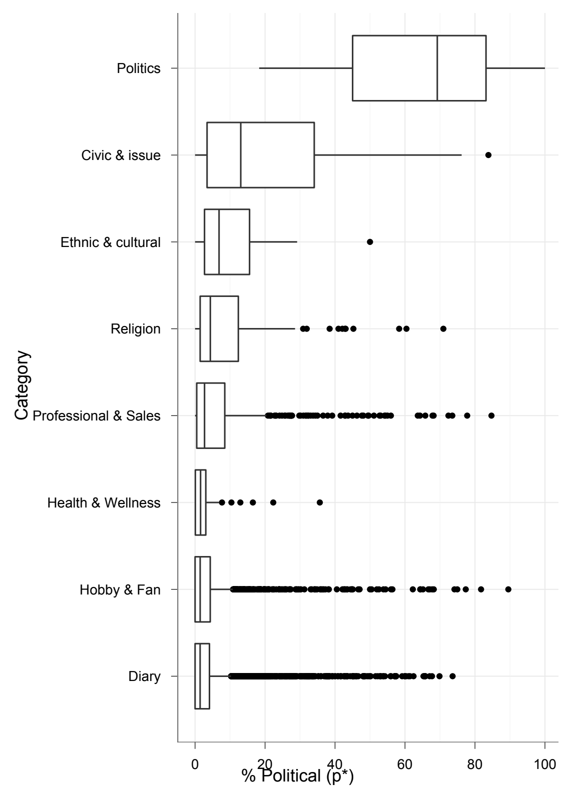

Figure 4. Prevalence of political posts by blog category. (box is first quartile, median, upper quartile; whiskers extend from smallest to maximum value, up to 1.5 times the interquartile range; individual blogs are shown as outliers.)

[1] http://code.google.com/p/get-another-label/

had the greatest prevalence of political posts (but even some political bloggers showed quite a bit of difficulty staying on their professed topic), followed by civic and issue blogs, which included town news sites or advocacy sites for a particular issue (e.g., environmental concerns) or a particular group (e.g., LGBT blogs). Some categories showed several more political outliers, such as diary blogs by people who had a lot to say about politics, and hobby or professional blogs where some hobbies or professions might be very connected to political issues (e.g., guns and gun control laws) while others are quite removed (e.g., scrapbooking). In general, all categories except politics and civic & issue had at least three quarters of the blogs with less than 20% political posts. On the other hand, in all categories, even personal diaries, hobby, and health & wellness, at least half the blogs had at least one political post.

Are political posts treated as taboo on non-political blogs?

The next question we addressed using the Blogger.com sample is whether politics is treated as a taboo subject on the non-political blogs. In these non-political contexts, do blog readers simply ignore and choose not to respond to political posts? Do they discourage the author from posting such material? Though exposure to diverse points of view may be achieved simply by having diverse readers encounter political opinions on others' blogs, interaction is required for a deliberative conversation to occur.

Many of the authors seem to be self-conscious about their decision to bring politics into the non-political spaces, beginning or ending the post with statements such as "Rambling, Uninformed, Brutish Political Rant of the Week," "forgive my outrage," "okay, time to get off the soapbox," or "please excuse my rant." This appeared to be particularly true for posts that had politics as their main topic. Future work should examine, in detail, the prevalence and nature of such introductions or warnings before making a political post in a non-political blog.

Despite this written hesitation from the authors, political posts on nonpolitical blogs actually receive about a quarter of a comment more, on average, than nonpolitical posts on the same blog (Table 3). These posts also do not appear to be getting more responses just because they are an exception to the blog's normal content: political posts on political blogs also receive more comments than the non-political posts, suggesting that the political posts on the nonpolitical blogs do not receive more comments simply because they are about a different topic than other posts on the blog. To test whether these results were significant, we computed an OLS regression for the expected comment count on a post based on the mean comments per post on that blog, whether the post was political or not (an indicator variable), whether the blog was categorized as political or not (an indicator variable), and the interaction effect between whether the post was political and whether the blog was political (Table 4). A political post on a nonpolitical blog is expected to get 0.20 additional comments than a nonpolitical post on the same blog, and a political post on a political blog is expected to get 0.07 more comments than a nonpolitical post on the same blog.

Because many of the political posts on non-political blogs also discussed other subjects, we sought to measure whether the comments on nonpolitical blogs engaged the political content of the post, talked about something else, or discouraged the post's author from discussing politics on their blog. Unfortunately, the classifier for whether a post was political or not was impractical to use on the comments: the comments tended to be briefer, and, taken out of context, were likely to produce unreliable results. Instead, we sampled 250 posts and associated comment threads at random from the political posts on non-political blogs that had at least one comment. Researchers first verified that each of these posts had some political content, and coded it for whether it was about other topics as well. For those that posts were indeed political, we coded each responding comment for:

- whether it was spam,
- whether it engaged the political content of the post,
- whether the commenter agreed, disagreed, or neither with the blogger's political position (according to the criteria for agreement in Gilbert et al 2009), and
- whether the author said the blog post's content did not belong.

		Mean comments on	
	n	**Political Posts**	**Nonpolitical posts**
Non-political blogs	6181	2.506	2.250
Political blogs	414	3.489	2.675

Table 3: Mean comments per post by post and blog type. Includes only blogs with both political and nonpolitical posts.

	ß	**Std Error**	***p*-value**
Intercept	-0.012	0.0015	<0.001
Mean comments for blog	1.000	0.0001	<0.001
Political post	0.207	0.0298	<0.001
Political blog	-0.158	0.0468	<0.001
Political post * political blog	-0.138	0.0777	0.075

Table 4: OLS regression for expected number of comments on a post, given the blog's average number of comments per post, whether the post was political, and whether the post was political. n=2,354,278 posts across 8,765 blogs. Robust standard errors from clustering by blog according to the Huber-White method. $F(4, 8764) = 3.862e+05$ ($p<0.0001$); adjusted $R^2 = 0.3962$.

	Decision	% agree	κ
Post	Had some political content?	100%	1.00
	Had other, non-political topics?	100%	1.00
Comment	Spam?	98%	0.87
	Engaged political content of post?	93%	0.79
	Agreed, disagreed, or neither with post's author?	91%	0.84
	Said the blog post's political content did not belong?	100%	1.00

Table 5: Inter-rater reliability on 56 comments on 42 blog posts.

		n	%
Engaged political content of post		823	83%

Among comments engaging with political content

		n	%
Expressed	agreement	334	41%
	neither / balanced	119	45%
	disagreement	370	14%

Table 6: Analysis of 990 comments by people other than the post author and not by spammers on 244 political posts on nonpolitical blogs.

In total, we coded 1188 comments on 244 posts (the other 6 had been misidentified as political); 23 of these comments were removed as spam comments. 56 comments on 42 posts were coded by at least two researchers; inter-rater reliability on each of the coding categories is shown in Table 5.

Of these 244 political posts on nonpolitical blogs, 60 (25%) also talked about at least one other subject that was not politics. The posts had an average of 4.8 non-spam comments per post, which drops to 990 comments (an average of 4.1 per post) once comments by the blog post author are excluded.

Because many of these posts contained other topics, and because even a political post might prompt a friend to post a comment about simply catching up, we needed to know how many of these comments engaged the political content of the original blog post or a subsequent comment. 961 (83%) of the 1165 total comments, and 823 (83%) of the comments by people other than the blog post author, engaged the political content in some way. While a more thorough analysis of the discourse quality is beyond the scope of this paper, we note that these comments included a mix of thoughtful critiques of policies, personal stories, advocacy for candidates and issues, and ad-hominem attacks on or crass jokes about the appearance or behavior of politicians and their family members. Only two comments (0.2%) suggested that politics did not belong on the blog.

We next looked at the rates of agreement and disagreement among the political comments on these nonpolitical posts, considering just the comments by someone other than the blog author. Of these comments, 334 expressed agreement with the post's author (41%), 119 expressed disagreement (14%), and 370 (45%) expressed neither disagreement nor agreement or were balanced between the two. This deviates only slightly from the agreement to disagreement ratio that Gilbert et al found among political blogs (47% agreement, 13% disagreement, and 40% neither), though it does so in the direction of slightly more disagreeing or neutral comments (an agreement to disagreement ratio of 2.9 rather than 3.6).

Discussion

The volume of political discussion on non-political blogs from Blogger.com is substantial, both in the posts and the comments on these posts. This offers some support for Wojcieszak and Mutz's finding that people report more exposure to cross-cutting political opinions in non-political online spaces than in political ones, in that political discussion does exist on non-political blogs. This work adds an important qualifier, though: even if people are encountering challenging or disagreeable political opinions when reading non-political blogs, they are at best only slightly more likely to voice that disagreement in the blog comments than commenters on political blogs. A variety of factors may contribute to the high agreement to disagreement ratio observed in the comments, including political homophily among social networks (Goel et al 2010) and a tendency of those to disagree to stay quiet in order to maintain social harmony (Noelle-Neumann 1993).

We might expect similar volumes of political discussion in at least some other online non-political spaces – other blogging services, forums, and mailing lists. The results of a Pew Internet and American Life Project survey (2011) show that a portion of adults are publicly posting political content and supporting or following political figures and issues on Twitter and other non-political social network sites, and even more are learning about their friends' political preferences as a result of these actions. One important direction for future research is to investigate how different formats and design features differ in their affordances for political discussion. For example, it may be that blogs are treated as a zone of personal expression and so it is socially acceptable for the author to write occasionally about politics, while the same freedom may not occur in forums or email lists that have formed around non-political topics.

While we have shown that at least some non-political spaces contribute to online political discourse, we have yet to evaluate these non-political spaces yield more deliberative political discussions than political spaces. We believe this is a critical area for future research.

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