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Framing moral intuitions? The evolution of same-sex marriage in news media

Abstract: Moral disagreements are often the source of heightened emotional contention in partisan politics. The issue of same-sex marriage in the US is a seemingly illustrative case. Yet emerging theories in moral psychology cannot explain the rapid inter-generational growth in support for same-sex marriage. By employing two methods of discrete text categorization, this paper investigates how same-sex marriage has been framed in mainstream news media over the past 23 years, the moral appeals evoked in partisan arguments, and the major topics associated with same-sex marriage. I present exciting, though, preliminary findings from two studies of discrete text categorization. Study 1 utilizes the Linguistic Inquiry Word Count and moral foundations theory dictionary to infer moral frames used by news media regarding the same-sex marriage debate. Study 2 employs latent Dirichlet allocation (LDA)-based topic modeling to estimate the major topics associated with same-sex marriage in news media. I find that morality may not as important as it seems and that over time, same-sex marriage has been increasingly framed as a general, public concern and less as an individualized, episodic problem.

"I have been to this point unwilling to sign on to same-sex marriage primarily because of my understandings of the traditional definitions of marriage. But I also think you're right that attitudes evolve, including mine." —President Barack Obama. Oct. 27, 2010.

Under what conditions—or *information environments*—do attitudes on a major social policy “evolve”? Same-sex marriage is often framed as a “culture war” issue in American news media because of the way it elicits moral outrage between partisan liberals and conservatives. Heated arguments over such issues seem to suggest there are intractable moral disagreements that lie at the heart of partisan politics. Moral foundations theory (MFT) suggests the two sides understand entirely different moral languages, making it nearly impossible to understand the other’s point of view (Haidt & Joseph, 2004; Graham, Haidt & Joseph, 2009). MFT explains the psychological and evolutionary bases reflected in cross-cultural systems of morality and makes predictions about why individuals and groups tend to value certain actions and see others as unequivocally immoral, wrong or harmful (Haidt & Joseph, 2004; Graham et al., 2009). MFT suggests that moral judgment resides in moral intuition and that moral reasoning is merely the process by which an individual consciously rationalizes these underlying intuitions.

However, intuitionist theories such as MFT do not provide a clear explanation to a rapid, intergenerational shifts in explicit attitudes on a moral issues. The issue of same-sex marriage is an illustrative case. According to Gallup, moral acceptance of same-sex marriage has increased 19

percent between 2001 and 2013 and today, a majority of Americans support same-sex marriage (Jones, 2013). One would imagine that generational factors would account for the majority of his shift in public opinion, but interestingly, Americans aged 55 and older represented the fastest changing group—increasing their support by 25 percent since 2001 (Jones, 2013). To better understand the dynamic relationship between the news-mediated information environment and attitudes toward seemingly morally relevant issues, I investigate how new media has framed same-sex media over the past 23 years.

I hope to shed light on three major questions:

1. Does MFT predict the rhetoric used by conservative and liberal news media?
2. Are there noticeable changes in issue framing on same-sex marriage over time?
3. What topics are associated with same-sex marriage in mainstream and partisan news?

Background

Framing typically refers to the ways in which political elites, mass media, and organized interests “define and construct a political issue or public controversy” (Nelson, Clawson & Oxley, 1997, p. 567). By selecting what information to present and how to present it, media frames interpret and contextualize complex political events and issues for their audience. Politicians, activists, and media commentators use frames to impart meaning in the messages they broadcast. Framing draws associations between issues, events, policies, social groups, and political actors and thus, gives an interpretation and diagnosis of the issue or policy (Entman, 1993). In general, framing helps citizens make sense of politics often by connecting public policy to values and resources that have important consequences in the minds of voters. Studies have shown that public opinion has been responsive to partisan frames on the subject of race (Mendelberg, 2001; Zaller, 1992) and health care reform in the mid-1990s (Winter, 2008) among others. Some suggest that cognitive “accessibility” (how salient the concept or association is in one’s mind) is the key pathway for understanding the impact of framing messages (Mendelberg, 2001; Nelson & Kinder, 1996). Others find that frames affect an individual’s judgment regarding the importance or relevance of those concepts or associations embedded in the frame (Nelson et al., 1997; Miller & Krosnick, 2000; Lau & Schlesinger, 2005). In one study, Valentino, Hutchings, and White (2002) find that implicit racial messages affect attitudes toward government spending by increasing the accessibility of racial predispositions. Thus, frames work by affecting conscious, deliberate cognitive processing as well as automatic, implicit processing.

“Framing effects” are evidenced when alternate presentations of an issue or an event (sometimes referred to as “logically equivalent”) produce measurable changes in opinion (Chong & Druckman, 2007). Kahneman and Tversky (1981) first demonstrated the power of framing in a series of economic experiments. In one study, Quattrone and Tversky (1988) find that preferences for a particular policy could be reversed if the policy frame highlights rates of employment or rates of unemployment. In their study, “90% employment” policies are preferred over “10% unemployment” policies even though the two policies are logically equivalent. Framing effects have been demonstrated in a variety of domains, including economic decision-making (Tversky & Kahneman, 1981), public opinion (Jacoby, 2006), political efficacy (Ansolabehere, Iyengar, Simon, & Valentino 1994), media studies (Iyengar & Kinder, 1987; Gamson, 1992), and partisan conflict (Jacoby, 2000).

Chong and Druckman (2007) remark, “[framing] may be effective in shaping opinions through heuristics rather than direct information about the substance of a policy” (p. 111). Repeated messages and redundancy of cues tend to reinforce associational networks. Westen (2007) refers to this as the activation and reinforcement of networks of association, although this concept is elsewhere referred to as schemata (e.g. Valentino, Hutchings, & White, 2002). Westen (2007) notes, “The more neural ‘tracks’ a message activates throughout the brain—through words, images, intonation, and music, all of which activate different neural circuits—the more evocative and memorable it is likely to be” (p. 273). The idea of networks is similar to Jamison’s (1992) “identification” category in negative ad comparisons. In Jamison’s typology, identification primes an association between an opponent and a negative image, idea or policy. One tactic includes “us vs. them” framing. Jamison (1992) also notes “loyalty versus treason” as a recurrent theme. Such themes relate to moral foundations theory (MFT) proposed by (Haidt & Joseph, 2004; Haidt et al., 2009).

Prior research on the issue of same-sex marriage suggests that the issue has been framed around concerns for equality and morality (Brewer, 1999, 2003; Button, Rienzo, & Wald, 1997). Indeed, several studies indicate a particular potency of moral appeals in predicting political preference for candidates, policies, and systems of justice (Koleva, 2012; Haidt, Graham, & Joseph, 2009; Skitka & Tetlock, 1991). However, there is mixed evidence linking the relationship between moral values and vote choice (Ansolabehere, Rodden, & Snyder, 2006; Hillygus & Shields, 2004).

Ansolabehere et al. (2006; 2008) report that while attitudes on culture war issues are significantly associated with vote choice, attitudes on economic issues better predict vote choice.

The social intuitionist model (SIM) argues that moral intuitions are "gut feelings" that arise automatically through an affective, *intuitive* process (Haidt, 2001). Moral intuition prompts an evaluation (e.g. right vs. wrong, approach vs. avoid) of the person(s) or situation, which constitutes their moral judgment. Subsequent moral reasoning is an effortful, conscious process that aims to rationalize intuitive moral judgments. "Rarely" is moral judgment the product of moral reasoning (Haidt, 2001). Moral foundations theory (MFT) orients social and political values around five fundamental moral domains. Haidt (2012) argues that different cultures build on a set of moral foundations in different ways, implying that the expressions of moral foundations are contextually and culturally dependent. Still, cross-cultural research suggests variance in moral norms (e.g. ritualistic religious practices) stem from a common set of evolutionary concerns (Haidt & Joseph, 2004).

According to Haidt (2003), morality relies upon a set of emotions that are linked to the interests or welfare of social groups and societies at large. "Moral emotions" are affective signals that prompt moral intuitions, or reactive feelings toward right and wrong (Haidt and Joseph, 2004). This highlights two important features of MFT: at the micro level, morality guides everyday social interactions and judgments, while at the macro level, it binds (and blinds) groups together (Haidt, 2012). Haidt and Graham (2007) argue moral intuitions or "gut feelings" reflect a set of evolutionarily adaptive moral foundations—harm, fairness, ingroup, authority, and purity (Haidt, 2012; Graham et al., 2009). These are described in Table 1 below.

Table 1 Moral foundations

Harm/Care	Protect and care for the young, injured or vulnerable. Concerns for human suffering.
Fairness/Cheating	Protect communities from cheaters. Concerns for equality, social justice, abuse of power
Authority/subversion	Sensitivity to signs of rank or status, and to signs that other people are (or are not) behaving properly, given their position.
Ingroup/betrayal	Related to history of tribalism and shifting coalitions. Sensitivity to signs that another person is/is not a team player. It makes us trust and reward in-group, distrust out-group
Purity/sanctity	Evolved to the challenge of a world of pathogens and parasites. Underlies the idea that the body is a temple & can be desecrated by immoral activity/contaminants.

Adapted from Graham et al., 2009

Haidt (2012) and Graham et al. (2009) find that liberals and conservatives rely on different sets of moral foundations. Generally, self-identified liberals tend to value (in order of magnitude): harm, liberty, and fairness foundations. Self-identified conservatives tend to have a broader set of

moral concerns and tend to value each of the five foundations relatively equally. They tend to value harm and liberty less than liberals, but value authority, fairness, sanctity, and loyalty more than liberals (Haidt, 2012; Graham et al., 2009).

There is evidence that priming and framing issues around certain moral foundations evoke reliance on particular moral intuitions. Utilizing MFT as a framework for analysis, Feinberg and Willer (2013) showed that framing messages about the environment in terms of sanctity, rather than the more typical harm/care frame, increased conservatives' support for environmental policies. The authors suggest framing the issue around sanctity triggers intuitions that resonate with conservatives. Similarly, in one of the studies by Uhlmann et al. (2009), priming participants with patriotism made them more likely to endorse consequentialist military action regardless of their political orientation (Uhlmann et al., 2009). In a study by Inbar, Pizarro, and Bloom (2011), experimentally-induced disgust was found to prime negative attitudes toward gay men, although it did not affect attitudes toward lesbians or other out-groups. MFT has been used to predict within-party variation in favorability ratings for political candidates of the same party (Iyer, Graham, et al., 2010), partisan variance in life narratives (McAdams, Albaugh, Farber, et al., 2008), disgust sensitivity among conservatives (Jarudi, 2009; Inbar, Pizarro, Iyer, & Haidt, 2012), and attitudes toward of "culture war" issues in public policy (Koleva, Graham, Iyer, Ditto, & Haidt, 2012). Such research suggests that moral values may have a particular potency in determining political preference and partisan ideology in American politics.

Description of same-sex marriage corpus

I investigate same-sex marriage framing using an original corpus¹ constructed from news stories covering the issue over a twenty-three year period. I searched the occurrence of "same-sex marriage" (and its variant references²) in news articles published by the New York Times, Washington Post, USA Today, and by conservative- and liberal-leaning news magazines. All articles were retrieved through a broad LexisNexis search and all data were subsequently analyzed (i.e. no sample was drawn from this search. All articles were included). Table 2 provides a descriptive overview of the data used in this study and Table 3 provides a detailed breakdown of the conservative and liberal magazine categories.

¹ By corpus, I mean a singular collection of text

Table 2 Overview of corpus

	Conservative Magazines	Liberal Magazines	<i>The New York Times</i>	<i>USA Today</i>	<i>The Washington Post</i>	Newspapers combined
Years	1996-2012	1994-2012	1990-2012	1990-2012	1990-2012	1990-2012
N (years)	17	19	23	23	23	23
N (total articles)	1912	1131	7806	1882	7778	17466

*Combined news includes the NY Times, Washington Post, and USA Today.

I selected to use leading national newspapers for several reasons. First, the influence such papers have on the content and distribution of information to regional news outlets around the country is well known. Second, media coverage is often what the general public picks up on (Iyengar, 2005). Third, I consider these data to function as a logical comparison group to partisan news magazines, which were aggregated into conservative and liberal magazine indices. See Table 3. Lastly, these sources are well suited for replication studies and theory testing, and theory building.

Table 3 Composition of Conservative and Liberal Magazine Indices

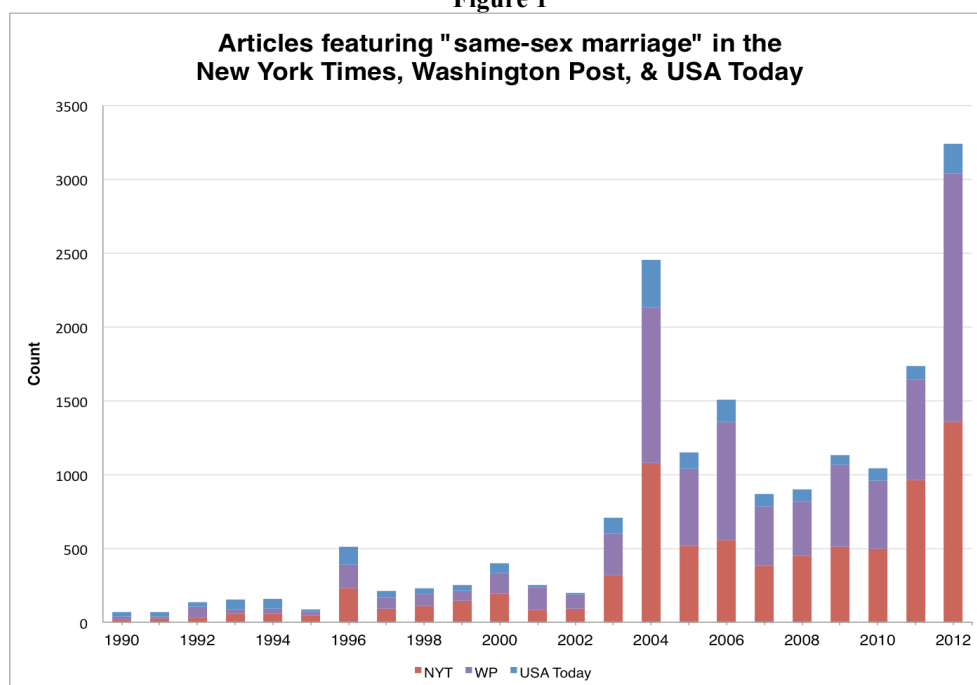
Conservative Magazines	N	Liberal Magazines	N
Weekly Standard	378	Time Out	25
National Review	880	The American Prospect	154
U.S. News & World Report	226	The New Republic	294
The American Spectator	407	In These Times	114
City Journal	21	Newsweek	422
		The New Yorker	122
Total	1912	Total	1131

Figure 1 shows the number of stories featuring same-sex marriage in the New York Times, Washington Post, and USA Today beginning in 1990 and extending through 2012. It is quite evident that media attention to the issue since 1990 has expanded dramatically. There has been a noticeable increase in the number of stories since 2004, which coincides with Massachusetts becoming the first state to legally recognize same-sex marriages. Also in 2004, San Francisco Mayor Gavin Newsom ordered the city to begin issuing marriage licenses to same sex-couples but only a month later, the California Supreme Court ordered a halt to same-sex weddings and voided

² Search terms: gay marriage OR same sex marriage OR homosexual marriage OR same-sex marriage OR marriage equality OR equal marriage OR civil union OR domestic partnership OR

the marriages. In 2000, Vermont became the first state to legally recognize *civil unions*, offering the same benefits and responsibilities as marriage, whilst not defining the relationship as such. Similarly in 2000, California began allowing same-sex couples to register as domestic partners. Washington DC was first to recognize domestic partnerships (irrespective of the sex of each partner) in 1992. California was only the second state to do so in 2000. A second peak is seen in 2012, coinciding with President Obama's formal endorsement on May 9th that same-sex marriage should be legal.

Figure 1



In Study 1, I am interested in the moral rhetoric used in news media on the issue of same-sex marriage and the extent to which these messages are framed around the five moral foundations. In particular, I am interested in testing whether MFT is predictive of the types of moral foundations that conservative and liberal media use most frequently. To do so, I utilize the moral foundations dictionary (MFD) (Graham & Haidt³) developed for use with the Linguistic Inquiry Word Count software (Pennebaker, 2003). As Quinn et al. (2010) note, there are important assumptions made across different methods of text categorization. With dictionary methods, the categories are known prior to running the analysis. Similarly, category nesting, relevant text features and mapping are also known, and coding can be automated (Quinn et al., 2010).

The MFD contains 6 categories—one for each moral foundation as well as a “general morality” category. Each category contains a corresponding list of representative word stems. Word stems enable the computer to identify a particular word regardless of its tense, plural or singular form, etc. Table 4 provides a snapshot of word stems contained in each category.

Table 4 Selection of word stems contained in the moral foundations dictionary

Harm	Fairness	Ingroup	Authority	Purity	General morality
care	equal*	communit*	complan*	clean*	character
compassion*	fairmind*	family	comply	exploitat*	ethic*
damag*	favoritism	loyal*	father*	holy	ideal*
defen*	justice	nation*	honor*	modesty	immoral*
guard*	prejud*	homeland*	illegal*	obscen*	moral*
suffer*	reciproc*	solidarity	protest	pervert	principle*
sympath*	tolerant	together	obey*	sin	value*

MFT suggests that advocacy for same-sex marriage has played a minimal, if any, role in shifting views about same-sex couples. According to this theory, influencing moral intuitions on the issue of same-sex relations can only be achieved by modifying the network of affective responses elicited by the thought of same-sex relationships. Yet if intuitions related to certain issues are immune to reasoned argument, how come there is a measurable shift in explicit attitudes toward same-sex relationships? Such changes could plausibly derive from cultural or situational factors that mediate a common set of moral intuitions. Can reframing the issue into one that elicits different moral intuitions help over- turn one's initial intuitive reaction? The perceived shift in moral judgments of same-sex relations may not be caused by a change in moral intuitions, but from a change in cultural norms that entirely reframe the issue into one that primes use of different moral foundations and thereby, different moral intuitions.

At the same time, moral reasoning is akin to motivated reasoning—the observation that individuals are more likely to accept information as valid if it is consistent with their own preferred conclusion than if it runs contrary to what they want to believe (Kunda, 1990; Ditto & Lopez, 1992; Ditto, 2009). In a series of studies, Uhlmann, Pizarro, Tannenbaum and Ditto (2009) find that political partisans engage in motivated moral reasoning by selectively recruiting consequentialist or deontological logic to rationalize the moral permissiveness of ideologically preferred out- comes. Their findings suggest, perhaps not surprisingly, that morality is flexible in the political domain.

³ provided at <http://www.moralfoundations.org/othermaterials>

The authors suggest that having access to multiple intuitions allows individuals to rely on whichever one satisfies their preferred conclusion. In similar vein, Cohen (2003) suggests parties mediate the relevance of the moral values used to justify public policy and while individuals can see this effect in other people, they remain blind to group influence on themselves. Such findings would predict that a shift in attitudes about same-sex marriage among the electorate is not due to reasonable deliberation about the perceived goodness of public policy, but rather is due to elite cues that signal a shift in official party stances on issue positions.

Hypotheses for study 1

As Prior (2007) argues, the political media environment is increasingly fragmented and more individuals choose to consume news that aligns with their own partisan convictions. Therefore, I expect partisan magazines will use morality framing more often (proportionally) than national newspapers (H1). Following prior research on MFT (Graham et al, 2009; Koleva et al., 2012; Feinberg & Willer, 2013), I expect liberal media to frame same-sex marriage around concerns for harm and fairness as described by MFT (H2) and conservative media to frame same-sex marriage around concerns for upholding authority and moral purity as described by MFT (H3). H3 also conforms with research on conservative personalities, which suggest Republicans are "authoritarian" (Adorno et al, 1950; Jost et al., 2008).

Study 1

I calculated the average proportion of words corresponding with each MFD category and compared it to the total number of words per year by source. Table 5 reports the average proportion of MFD words across all years for each source along with its standard deviation.

Table 5 Descriptive statistics for MFD analysis

	Harm		Fairness		Ingroup		Authority		Purity		General Morality	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Conservative Magazines	0.43	0.07	0.36	0.11	0.65	0.11	0.72	0.12	0.25	0.1	0.45	0.12
Liberal Magazines	0.44	0.08	0.45	0.14	0.65	0.11	0.64	0.15	0.25	0.16	0.41	0.12
<i>The New York Times</i>	0.44	0.09	0.41	0.08	0.63	0.11	0.71	0.07	0.23	0.08	0.33	0.04
<i>USA Today</i>	0.52	0.11	0.39	0.14	0.63	0.15	0.72	0.16	0.22	0.14	0.37	0.12
<i>The Washington Post</i>	0.44	0.06	0.41	0.13	0.64	0.15	0.66	0.12	0.26	0.14	0.35	0.05
Newspapers combined	0.47	0.07	0.4	0.07	0.64	0.08	0.7	0.07	0.24	0.1	0.35	0.05

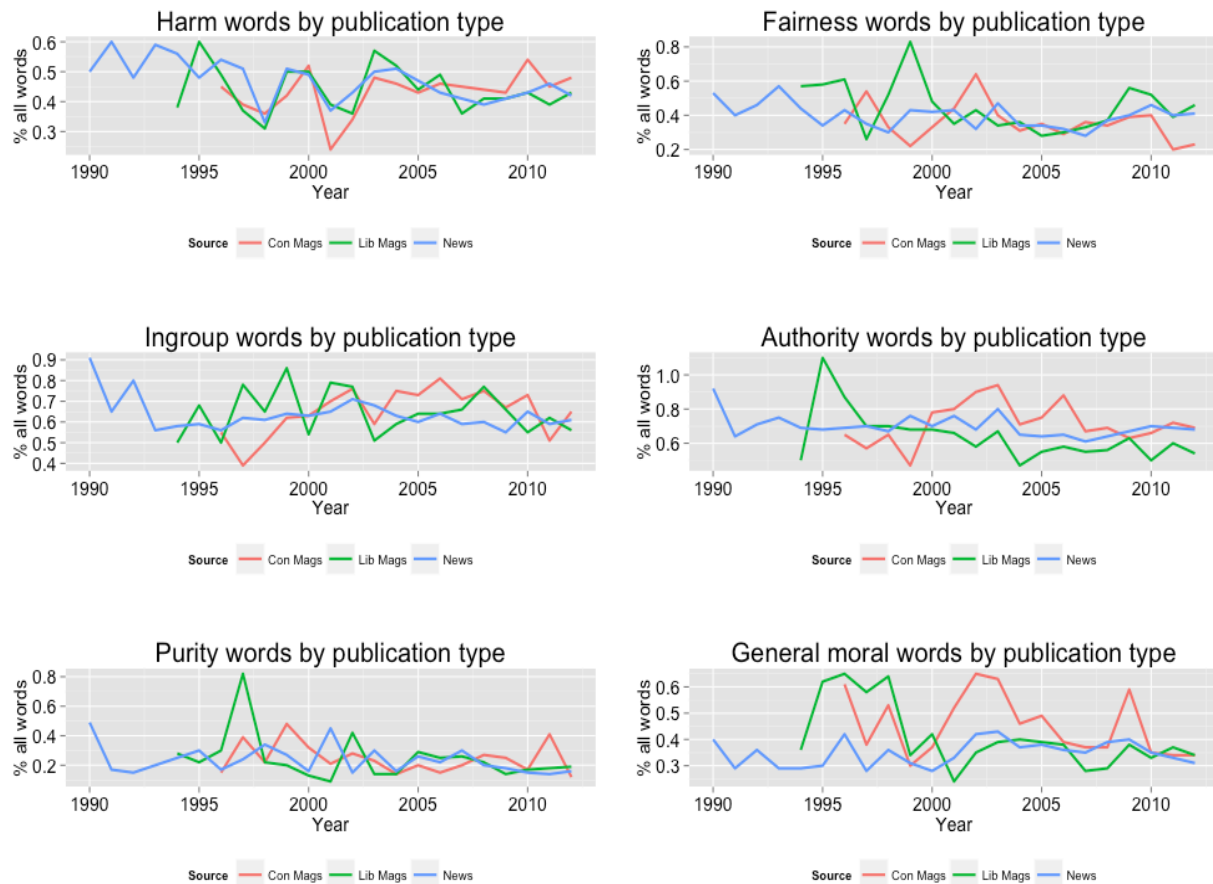
Note: Means reported as a percentage of total words; "Newspapers combined" averages across the NY Times, Washington Post, and USA Today.

Looking at table 5, across all news publications, ingroup and authority related words were used most frequently and at much higher rates than the theory would predict. In violation of H3, the

proportion of purity words used in conservative magazines ranks lowest among all 6 MFD categories. On average, liberal and conservative magazine tended to use purity words at equal rates. Although liberal magazines use the highest proportion of fairness words relative to all other publications, liberal magazines tend to use authority and ingroup words more frequently. Thus, H2 is also unsupported.

Following Feinberg and Willer (2012), I examined the MFD results from the combined news measure, liberal, and conservative magazines over time using a repeated measures analysis of variance, which yielded a weak, but significant effect, $F(29, 29) = 4.28, p < .001$. Within the model, only authority $F(1, 29) = 7.45, p < .05$ was significant. These results cannot confirm H1. The use of morality framing by partisan news magazine and newspapers over time is marginal. Next, I examined differences in moral framing between conservative and liberal magazines again using a repeated measures analysis of variance, which yielded a weak, but significant effect, $F(11, 24) = 2.69, p < .05$. Within the model, none of the categories were significant. Again, these results do not allow for the null hypothesis on H2 or H3 to be rejected.

Figure 2 compares the proportion of MFD categories identified in conservative and liberal magazine (per year) compared to those in less partisan news. “News” represents an aggregate measure of all 3 national newspapers used in this study.

Figure 2 MFD over time

Note: Data are given as total percentage of words.

Figure 2 provides a useful illustration of how reliance on MFD categories has changed over time. It is interesting to note that between 2001 and 2002 there is a noticeable drop in the use of harm words in simultaneously in upshot in words related to fairness. Interestingly, purity words were most frequent among liberal magazines prior to 2000. Only recently does there appear to be any movement by conservative magazines to incorporate purity concerns when framing same-sex marriage. General moral words have not increased among national newspapers or liberal magazines, but around 2000 conservative magazines have slowly increased reliance on general morality frames when discussing same-sex marriage.

Discussion

In general, the percentage of words MFD word identified in the corpus is not particularly revealing. To be sure, there are other statistical methods to analyze these data that would allow for

increased leverage over the data (via degrees of freedom). However, examining the descriptive data, one wonders whether substantively, it will make any difference.

Given the results of the MFD analysis, I can draw several conclusions about the methodology. The dictionary is either inappropriate for large scale data or may need further refinement by including more words and perhaps categories. The dictionary provided by the authors may not be representative of the categories they describe. In my analysis, I modified the dictionary by collapsing vice-virtue categories under each foundation. Still, my results suggest hardly any relationship between moral foundations and issue framing of same sex marriage. The results point to at least one of the following conclusions. Either, 1) same-sex marriage is not frequently framed as a moral issue, at least in the case of print news, or 2) MFT and/or the MFD do not have much predictive power in describing how political issues are framed in terms of moral imperative. Given this, I turn now to study 2, which hopes to be more promising.

Study 2

In study 2, I wanted to find out how useful computational categorization methods are in understanding issue framing over time within a broader political context. I employ Latent Dirichlet Allocation (LDA)-based topic modeling, a generative statistical method for Natural Language Processing (NLP) (Blei, Ng, & Jordan, 2003). LDA-based topic modeling has become popular in a variety of academic fields due to its effectiveness in discovering understandable topics (Steyvers & Griffiths, 2007). Topic modeling is a relatively new methodology to explore political text, but has been used in prior research to examine position taking in European Parliament speeches (Proksch & Slapin, 2009) ideological scaling (Lowe, Benoit, Mikhaylov, & Laver, 2011), expressed agendas by political parties (Grimmer, 2010), and attention to issues (Quinn et al., 2010) among others.

Topic modeling analyzes a corpus of documents, generating *topics*, or statistical co-occurrence of words for which a core assumption is that the grouping has some semantic meaning (Blei et al., 2003; Grimmer, 2010). The method also generates a sparse matrix of the appearance of topics in individual documents. In conducting LDA, the goal is to determine the structure that best explains the corpus of documents by computing the distribution of topics over the documents. Words and documents are the observable variables, whereas topics are the latent variables (Grimmer, 2013; Steyvers & Griffiths, 2007). With topic models, only the relevant text features are known a priori to the analysis. Neither the categories, category nesting or mapping are known prior to the analysis (Quinn et al., 2010).

The great advantage in using this method is that researcher bias is greatly reduced from the analysis. Rather than enter the data with a preordained code (as was done with the MFD in study 1), study 2 applies unsupervised topic modeling to the same-sex marriage corpus. Since there are many (perhaps infinite) ways of categorizing political phenomena, one common critique of framing studies is that the code classifications lack conceptual boundaries and are more partial to the worldview of the particular researcher than of external reality (Entman, 1993). Topic modeling is an alternative method to weigh against such critiques.

Iyengar (1991) distinguishes two types of news framing that convey vastly different sentiments about a broader issue domain: episodic and thematic. Episodic frames illustrate an issue by depicting the experiences of affected individuals and/or relevant, discrete events. In contrast, thematic frames present issues in a generalized context, referencing "common knowledge". Iyengar found subjects who viewed episodic news reports were less likely to consider society responsible for the event than those who viewed thematic news reports about the same issue. Subjects who viewed thematic frames were more likely to attribute the causes and solutions to governmental policies and other factors beyond an individual's control. In one study, Iyengar (1991) found that those who viewed episodic news stories about poverty, which depicted the lives of the homeless and unemployed, were much more likely to attribute responsibility for the problem to the actions of those individuals or groups. In contrast, those who viewed thematic new stories, which discussed the national rates of unemployment or poverty, were more likely to attribute responsibility to society or the government (Iyengar, 1991). Framing issues as individualized problems leads people to endorse individualized solutions whereas framing issues as collective problems will lead people to endorse collective solutions.

Hypotheses for Study 2

Following Iyengar (1991), I expect episodic frames will be more common than thematic ones (H4). Since episodic frames are more likely to be about specific events, individuals and groups and therefore should be present only when such events and or individuals are newsworthy at the time (H5). Yet, given the evolution in public opinion in recent years, I expect the use of thematic framing to increase over time (H6).

Procedure

The R package "topicmodels" provides the code for latent Dirichlet allocation (LDA) models and Correlated Topic Model (CTM) by David M. Blei and co-authors as well the code for fitting a

model using Gibbs sampling algorithm proposed by Newman et al., (2009) (Gruen & Hornik, 2013). With VEM and LDA models, topics are assumed to be uncorrelated. The correlated topics model (CTM; Blei and Laerty 2007) is an extension of the LDA model where correlations between topics are allowed (Gruen, 2013). Gibbs sampling is a member of Markov Chain Monte Carlo (MCMC) group of algorithms. The distributed algorithms for Gibbs sampling were proposed in

In this study, the collection of same-sex marriage news articles published each year (per publication) is treated as an individual document. I estimated three models on the corpus in order to determine the best fit: variational expectation maximization (VEM), LDA using Gibbs sampling, and the CTM. The models approximate the variational parameters and estimates the log-likelihood by the Kullback-Leibler distance method (Gruen, 2013). I determined the average entropy for each fitted model over the documents, which indicates how evenly spread the topic distributions were over the topics. The Gibbs sampling method produced the lowest average entropy (1.66) compared to the VEM (2.49) and CTM (2.48) models. This indicates that the topic distributions for the Gibbs sampling method were the least evenly spread over the documents. After examining the topics generated from all three models, I determined that the Gibbs model benefitted from increased parsimony in relation to the topics and found the semantic coherence to be the best among all three models. Thus, I proceeded using the Gibbs model. To decide on the “best” (K) number of topics to obtain from the models, I inspected the log-likelihoods for a range of K-values and produced models for those K-values with the highest log likelihood values. After viewing the semantic coherence of the topics, I settled K=28.

The topic model provides the Dirichlet posterior parameters— the discrete distribution representing its mean for each document. Thus, documents may be compared by measuring the divergence of their distributions over topics. In this case, it means we can compare the topics contained within a collection of news articles published by The NY Times, Washington Post, and USA Today, as well as liberal, and conservative magazines by year. Such aggregation methods have a normalizing effect of the number of news articles published by any given source per year.

Results and discussion

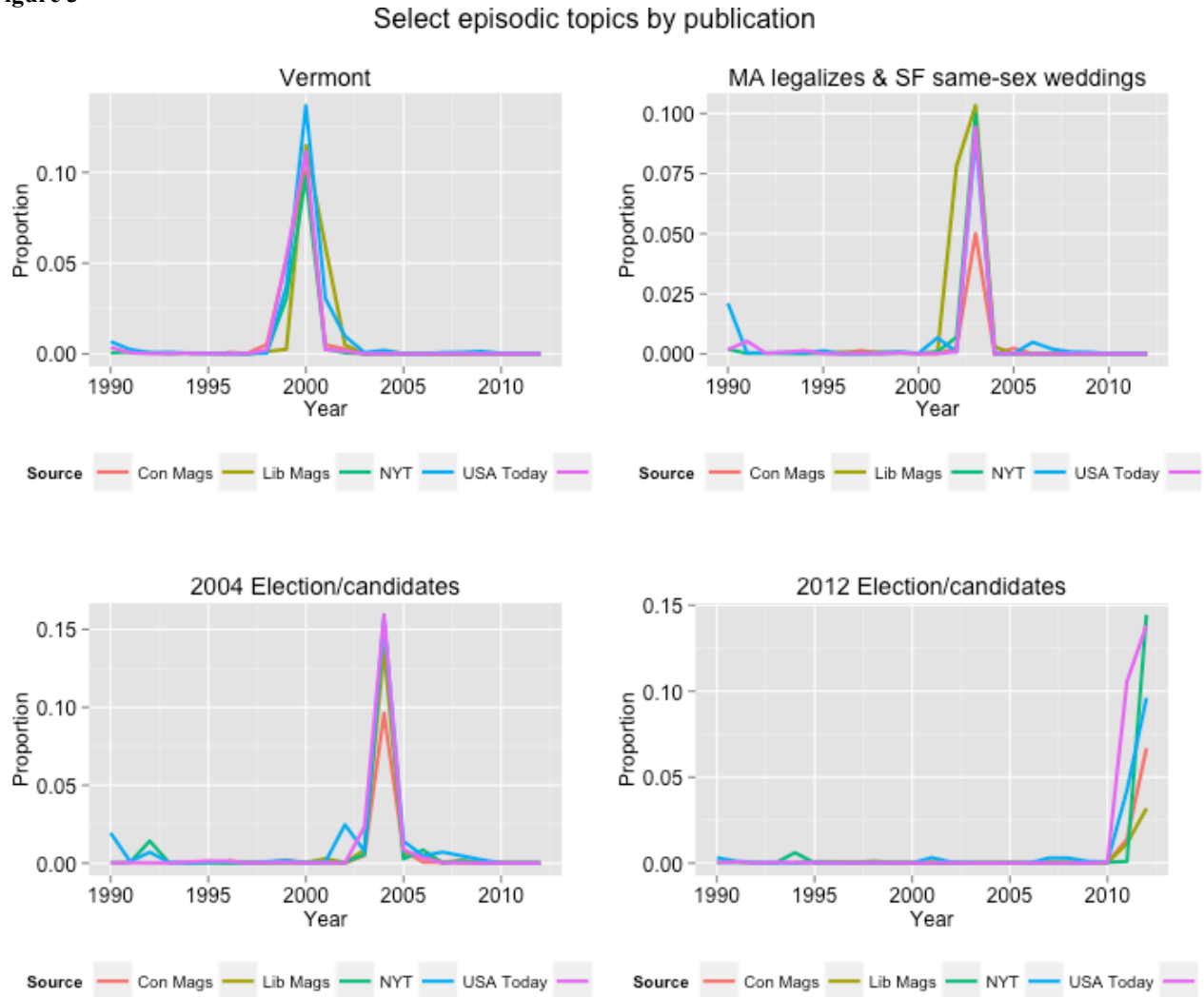
Through iteration and refinement of the topic model (e.g removing words with little meaning like “to” or “whether” as well as URLs), the topic semblance and cohesiveness improved dramatically. It is worth noting though, that this procedure was both time and CPU-intensive. The final 28-topic model produced several topics did not contain terms like “gay,” “lesbian,” “same-

sex,” or “marriage” and clearly were not clustered around discussion of same-sex marriage. This is an important (and positive) finding because it signals that the topic model has distinguished rhetoric surrounding same sex marriage from that which is not about same-sex marriage. Due to the broad nature of the Lexis search, it is to be expected that articles will discuss a range of issues other than and same-sex marriage. For example, in reviewing the corpus qualitatively, I noted several articles that were election primers discussing where the candidates stood in relation to many issues. Only topics that identified at least one of the original search terms (e.g. “gay”) within the top 20 word stems were included in the subsequent analysis. In total, I retained 13 out of 28 topics. The topic model assigns a number to each set of topics, or groups of word stems. Table 6 displays the topics of interest to this study along with the corresponding word stems generated from the topic model.

Table 6 Topics estimated by Gibbs-LDA

	Topic label	Selection of the top word stems by topic
Thematic	1 Legal opposition	marriag, court, law, state, constitut, amend, right, gay, feder, argument, homosexu, same-sex, against
	2 Momentum	state, republican, marriag, gay, democrat, vote, support, campaign, right, american, elect, polit, parti
	3 Public opinion	marriag, gay, right, peopl, same-sex, member, law, nation, work, coupl, public, support, want, poll, chang
	4 Societal/Partisan viewpoints	polit, american, world, democrat, peopl, right, social, power, republican, parti, want, public, believ, time
	5 Particularized benefits	homosexu, clinton, gay, heterosexu, lesbian, partner, citi, benefit, domest, church, bill, hawaii, employe
Episodic	6 2004 Election/candidates	bush, kerri, presid, marriag, democrat, amend, vote, iraq, campaign, edward, gay, war, constitut, issu, conv
	7 2012 Election/candidates	obama, romney, presid, santorum, same-sex, marriag, voter, mormon, support, percent, equal, iowa, vote
	8 MA legalizes & SF weddings	tea, proposit, judg, walker, newsom, suprem, california, justic, case, court, massachsett, kagan, trial, const
	9 2000 Election	gore, vermont bush, union, homosexu, clinton, civil, california, gay, gop, benefit, measur, march, mccain, vi
	10 2012 Primary	obama, cuomo, theater, manhattan, bachmann, romney, huntsman, perri, same-sex, gingrich, unit, coupl
	11 Vermont	dean, gay, lesbian, vermont, homosexu, union, church, sodomi, canada, gephardt, coupl, episcop, bishop
	12 Inside the Beltway	obama, district, council, washington, mcdonnell, fenti, same-sex, deed, maryland, brown, ami, repeal, mem
	13 Featured NY ceremonies	new, senat, manhattan, mayor, percent, conserv, same-sex, democrat, compani, church, perform, jersey

Next, I coded for episodic and thematic framing. I coded episodic frames when topics included terms that predominately identified specific people, places, or events. I coded thematic frames when topics included more general references. These categories were then verified through a qualitative analysis of the corpus. See the appendix for sample articles and their corresponding topic assignments. During the qualitative analysis, I also cross-checked, edited, and refined the set of semantic labels I assigned to each topic, which can be seen in Table 6. I found 5 of the 13 topics reflected thematic framing while 8 of the 13 topics reflected episodic framing. This confirms H4—episodic frames are indeed more common than thematic ones. Figures 3 and 4 display the proportion of a particular topic contained in each document.

Figure 3

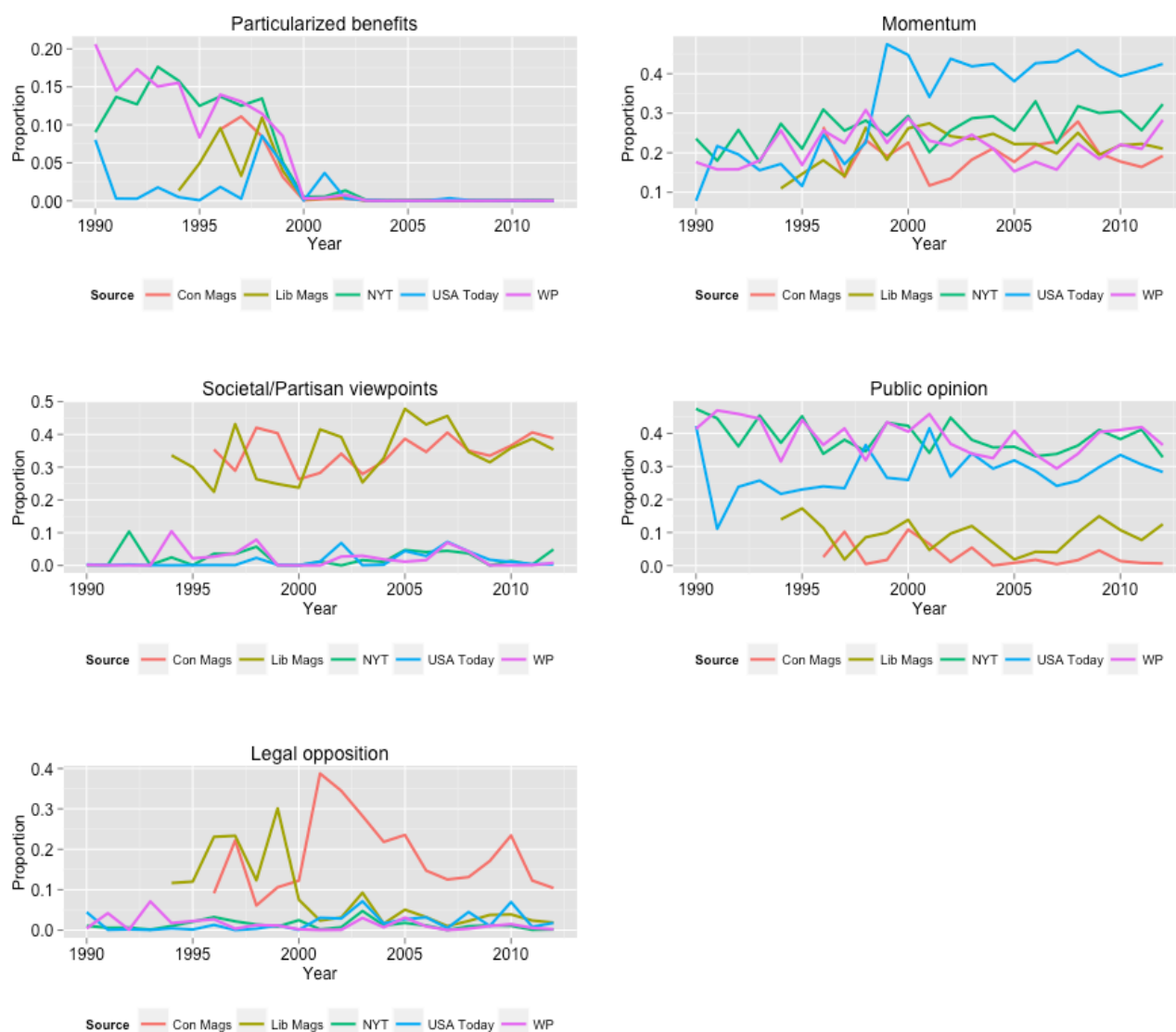
Note: Data are given in terms of proportion (out of 1), not in terms of percent.

Figure 3 displays the prevalence of episodic topics over time. Although I included only a sample of episodic frames due to space constraints, I can confirm that each of the episodic frames displayed similar trends. These topics expressed specific newsworthy events that occurred at particular moments in time, often referring to specific places and people. In addition, all news publications tended to converge on these newsworthy topics. Thus, H5 is confirmed. However, variation among publications is also seen. Conservative magazines tended to discuss Massachusetts' legalization of same-sex marriage/San Francisco's same-sex wedding ceremonies, the 2004 and 2012 election with reference to same-sex marriage proportionally less than leading newspapers. In addition, liberal magazines tended to discuss same-sex marriage in relation to the 2012 election

proportionally less than newspapers. This is somewhat surprising given popular discussions about same-sex marriage being a “hot” issue for conservatives and liberals alike. By making same-sex marriage salient during elections, news media contribute to setting the electoral agenda (Iyengar & Kinder, 1987). This effect should increase the likelihood that newsreaders will focus on these “top of the head” issues when determining how to vote (Zaller, 1992). This trend is more clearly seen in the case of Massachusetts’ legalization of same-sex marriage/San Francisco’s same-sex wedding ceremonies where liberal magazines preceded all others in setting the agenda.

Figure 4

Thematic topics by publication



Note: Data are given in terms of proportion (out of 1), not in terms of percent.

In figure 4, note the continuity of thematic versus episodic frames over time. All except for the particularized benefits topic are prevalent throughout the 23-year time period. The sudden decline around 2000 in this topic is interesting nonetheless. This topic tended to reference articles related to employer and local governmental policies granting same-sex couples similar workplace benefits (e.g. child care, healthcare, housing) as married couples. Some states and the District of Columbia provided such benefits by allowing same-sex couples to register as domestic partners. Such discussions tended to refer to same-sex couples as “homosexual” and “unmarried,” a terminology that begins to fade over time, especially in *The New York Times* and *Washington Post*. Notably, neither “marry” nor “marriage” are included as top 30 terms for this topic. The dramatic fall in discussions of particularized benefits is worth additional investigation.

The momentum frame show a general positive trend over time and *USA Today* displaying dramatic increase beginning around in the late 90s. The momentum topic tended to refer to same-sex marriage in relation to general discussions of elections, state ballot measures, and state and federal legislation. The societal/partisan viewpoints topic is found most often in liberal and conservative magazines where the articles are usually longer and contained in-depth coverage of an issue. This topic tended to discuss same-sex marriage in relation to political parties, history, and family matters. The public opinion topic is most common among newspapers. In articles discussing same-sex marriage, the topic model estimates that nearly 40% of the content features information about where the American public and political parties stand on the issue. Looking at societal/partisan viewpoints and public opinion side-by-side, note the similarity of trends is flipped for magazines versus newspapers. The topic model estimates that the structure of the conversations in partisan magazines versus newspapers is different. Although the content of these topics is very similar, they may be distinguished by their partisan bias. Partisan magazines tended to approach the issue with a dominant position or opinion whereas newspapers would typically approach the issue at least, to some extent, from two sides. Finally, the legal opposition topic shows conservative magazines after year 2000 began discussing same-sex marriage in relation to its constitutionality, building legal and strategic arguments about the various court case considering the issue same-sex marriage. Prior to 2000, this topic is prevalent in liberal magazines. At this point, it is unclear why this would be.

Finally, it is worth noting that between 1996-2006 Gallup polls asked, "Do you think marriages between *homosexuals* should or should not be recognized by the law as valid, with the

same rights as traditional marriages?" Beginning in May 2006 Gallup Polls asks, "Do you think marriages between *same-sex* couples should or should not be recognized by the law as valid, with the same rights as traditional marriages? [emphasis added]" The only difference in the question wording is the reference to same-sex couples versus homosexuals. This trend is also reflected by the topic model, which shows all news media referring to same-sex couples as homosexuals in the particularized benefits topic (which declined dramatically after 2000) as well as in conservative magazines in the legal opposition topic. One intriguing correlate is that in 2000, Vermont became the first state to legally recognize civil unions. Perhaps this offered a new vocabulary for newspapers to begin to use. Referring back to MFT, it is possible that for some, the word "homosexual" is associated with implicit disgust, whereas the phrase "same-sex" does not carry the same associative and intuitive baggage.

Taken together, these data⁴ cannot confirm H6 but looking at these topics individually does confirm an increase in thematic framing over time. The thematic topics describe a much more dynamic framing environment than initially hypothesized. Thematic frames did tend to broaden the focus, assigning responsibility to government, business, and larger social forces.

Conclusion

In this paper I asked whether moral foundations theory predicted variance in framing same-sex marriage. Given the low amount of variance—and low occurrence of moral language found in news media generally—I also attempted to use existing theory to help understand new methods in political inquiry with the goal of theory building in mind. I do not (and do not intend to) make any claims about why shifts in public opinion on same-sex marriage have occurred. Rather, by examining the information environment surrounding same-sex marriage, I hope to shed light on the context in which public policy issues evolve and to provide contextual reference when interpreting public opinion on same sex marriage.

There are many explanations for changes in public opinion toward same-sex marriage. Public opinion trends may simply reflect the social desirability bias, i.e. that respondents publicly express support for same-sex marriage even if they privately disapprove of it because they want to appear politically correct. Moreover, shifts in public opinion about same-sex marriage may not adequately capture how individuals actually feel about the issue or the perceived goodness of same-

sex marriage, but instead captures public opinion responding to cues from political elites that signal acceptance of such a public policy extending rights to same-sex couples.

Moral foundations theory is persuasive, but it does not prove to be very predictive in this case. It could be that many opponents of same-sex marriage disapprove on moral grounds, but issue framing by conservative news magazines suggests there are more complex and strategic considerations at play. This is evidenced by the legal opposition frame found in study 2. Indeed, topic modeling provided more insight into understanding the dynamic relationship between publicly mediated information and attitudes toward same-sex marriage. Study 2 reveals some shifting language in terms of referring to same-se marriage— from domestic partnerships to homosexual marriage to gay marriage to same-sex marriage. These results also suggest a decline in references to same-sex couples as special interest groups looking for particularized benefits and an increase in references to broader, public policy discussions surrounding voter referenda, federal and state legislation, and the Supreme Court seen in the momentum topic. Such results provide useful insight into the information environment under which public policy is shaped.

⁴ These data are gladly available by request. Email jonesjj@uci.edu

Appendix

Samples from documents containing topic terms (in bold letters).

Topic 1: Legal/constitutional opposition

Weekly-Standard “Wedding Bill Blues. Time for a **constitutional amendment** to protect **marriage**?” 14 Oct. 2002

The first part of the **amendment** would forbid any **court** or **legislature** from conferring the name of **marriage** on **same-sex** relationships, while the second would prevent **judges** from ordering **state** legislatures to create civil **unions** or give **marriage** benefits to **homosexual couples**. **Laws** respecting civil **unions** would be unaffected, supporters say, and **states** could still grant domestic partnerships the **legal** benefits of marriage.

Topic 2: Momentum

NY Times “Both Parties Wear Smiles for Democrats Convention Site” 9 May 2004

And then there is the **gay marriage** issue, which **Republican** leaders believe will cause many independents to **support** President Bush. Massachusetts has been at the center of the controversy since the **state**’s highest **court** ruled that **same-sex marriage** would become legal on May 17. Gov. Mitt Romney, a **Republican**, and the Democratic-controlled legislature both **support** a **ban** on gay marriage, but thousands of reporters will descend on Boston to cover the convention long before the **Constitution** can be amended.

Topic 3: Public opinion

USA Today “Vermont gives **gay couples** first-class citizenship” 29 Jun 2000

While what’s happening in Vermont is groundbreaking, it is also in keeping with a monumental **national** shift in **public** opinion. There’s a growing realization -- from corporate executives to judges to average folks -- that **gay** relationships deserve protection. Already, 50% of adults believe **gay couples** ought to have the same type of **rights** or benefits as married **couples**, such as inheritance **rights**, tax breaks and employer-provided health coverage, a Los Angeles Times **poll** found this month.

Topic 4: Societal viewpoints

Newsweek “A Straight Perspective: Do heterosexuals have a role in the increasingly politicized battle for gay rights?” 22 Jul 2005

While most **Americans** favor equal employment opportunity for lesbians and **gay** men, a recent Gallup **poll** found that 56 **percent** of **Americans** oppose **marriage** for same-sex couples, with 39 **percent** in favor and 5 percent unsure. The debate continues around the **world**, with the first **gay** male couple being married recently in Spain, the third country to legally recognize such relationships over strong objections by the Roman Catholic **Church** and other groups. Canada, where a similarly fierce **political** battle has played out, this week became the fourth **nation** on this list.

US News and World Report “Call off the war on gays” 3 Aug. 1998

On one basic point, **conservatives** are **right**: A great many **Americans** feel uncomfortable when asked by **gay** activists to go beyond quiet acceptance of homosexuality to **policies** that seem to promote it. **Polls** show, for example, that most **people** want an end to discrimination against **gays** in the workplace but balk at same-sex marriages. Nor do most parents want kids coming home from school believing that **gay** is “cool,” and that experimentation with **gay** sex is trendy

Topic 5: Particularized benefits

NY Times “**Bill** Would Give Unwed **Couples** Equal **Benefits**” published on 21-Nov-1990:

Unmarried **domestic partners** would be protected against **discrimination** and would be able to document their relationship officially under a **bill** that went before the New York **City** Council yesterday. The proposed **law** would, for example, expand health **benefits** to the unmarried partners of **city employees**. It would also extend

municipal hospital **benefits** and prison visitation **rights** to such **couples** and would apply to city-owned housing and shelters. Both **heterosexual** and **homosexual couples** would be covered. Though some other **cities** have enlarged the concept of what constitutes a **family**, turning the **bill** into **law** in New York could be arduous. The **City** Council insists that it has no jurisdiction in the matter.

Washington Post “**Gay Rights** Activists Seek a Supreme Court Test Case” 19-Dec 1993:

A new body of “**gay rights**” **law** is developing as judges across the country become less tolerant of government policies that **discriminate** against **homosexuals**. The goal of **gay rights** lawyers is the Supreme Court, where they hope the justices will rule that the Constitution protects **homosexuals** from **discrimination**. Toward that end, activists are coordinating their legal efforts nationally and pursuing cases with the most sympathetic victims they can find.

Topic 8: CA Proposition 8

The New Yorker “GOING PLACES; An ambitious young mayor takes San Francisco.” 4 Oct 2004

Most surprising was a policy that drew attention far beyond San Francisco: in mid-February, Newsom directed the city clerk to begin marrying same-sex couples in defiance of the state statute that prohibits gay marriage—under the doubtful but audacious theory that the statute violated California’s constitution.

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