Voice, Equality, and the Internet

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DRAFT—NOT FOR CITATION

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The Internet and the "Democratization" of Politics

The world has arrived at an age of cheap complex devices of
great reliability; and something is bound to come of it.

Vannevar Bush
"As We May Think"
July 1945

In March of 1993, a group of college students at the University of Illinois posted
a small piece of software onto the Internet. The program was called Mosaic, and it
was the world's first graphical Web browser. Prior to Mosaic, the World Wide Web,
invented a few years previously by an English physicist working in Geneva, was
but one of a number of applications that ran on top of the Internet. Mosaic changed
everything.[1] Unlike the cumbersome text-based programs that had proceeded it, Mo-
saic made the Web a colorful and inviting medium that anyone could navigate. The
Internet was soon transformed from a haven for techies and academics into the fastest
growing communications technology in history.

The release of Mosaic was the starting gun for the Internet revolution. Mosaic
was quickly commercialized as the Netscape browser, and Netscape's public stock
offering in 1995 ushered in the Internet stock market bubble. But almost from the
moment that it became a mass medium, the Internet was seen as more than just a
way to revamp commerce and the practice of business. Its most important promise,
many loudly declared, was political. New sources of online information would make
citizens more informed about politics. New forms of Internet organizing would help

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[1] For the two good studies of the early history of the Internet in general, see Abbatte 1998; Hafner
1998. For a firsthand account of the creation of the Web, see Berners-Lee 2000.

recruit previously inactive citizens into political participation. Cyberspace would become a robust forum for political debate. The openness of the Internet would allow citizens to compete with journalists for the creation and dissemination of political information.

More than a decade after Mosaic transformed the Internet, many contend that at least part of the Internet's political promise has been fulfilled. Those arguing that the Internet is transforming politics come from the upper echelons of politics, journalism, public policy, and law. Howard Dean campaign manager Joe Trippi effuses that "The Internet is the most democratizing innovation we've ever seen, more so even than the printing press" (Trippi 2005:235). The Internet's increasing importance may be the only thing that Trippi and Bush-Cheney campaign manager Ken Mehlman agree on. The key lesson of the 2004 campaign, according to Mehlman, is that "technology has broken the monopoly of the three [TV] networks," and that "instead of having one place where everyone gets information, there are thousands of places" (Crowe 2005).

Other prominent public officals have concluded that the Internet's influence extends beyond the campaign trail. Former Senate majority leader Trent Lott, who resigned after a few bloggers highlighted racially charged remarks, acknowledged the Internet's power, grumbling that "Bloggers claim I was their first pelt, and I believe that. I'll never read a blog" (Chaddock 2005). FCC Chairman Michael K. Powell used the Internet to justify looser regulation of broadcast media, explaining that, "Information technology ... has a democratizing effect ... With a low cost computer and an Internet connection every one has a chance to 'get the skinny,' the 'real deal,' to see the wizard behind the curtain" (Powell 2002.).

Journalists, too, have been concluded that the Internet's challenge to traditional media is real, and that the medium "will give new voice to people who've felt voiceless" (Gillmor 2004:xviii). Radio host and Emmy-winning former news anchor Hugh Hewitt (a blogger himself) writes that "The power of elites to determine what [is] news via a tightly controlled dissemination system [has been] shattered. The ability and authority to distribute text are now truly democratized" (Hewitt 2005:70–71). Former NBC and PBS president Lawrence Grossman concludes that the Internet gives citizens "a degree of empowerment they never had before" (Grossman 1995:146). CNN President Jonathan Klein has taken such claims even farther, famously worrying that the Internet has given too much power to "some guy sitting on his couch in his pajamas" (Colford 2004). Tom Brokaw has argued that bloggers represent "a democratization of news" (Guthrie 2004). *New York Times* reporter Judith Miller laid part of the blame for her travails on overzealous bloggers, claiming that *Times* editor-in-chief Bill Keller told her "You are radioactive... You can see it in the blogs" (Shafer 2006). Bloggers also played a role in the resignation of Howell Raines, the *Times'* previous editor-in-chief, in the aftermath of the Jayson Blair scandal (Kahn and Kellner 2004).

The notion that the Internet is making public discourse more accessible has even

found expression in case law. In striking down the Communications Decency Act, the US Supreme Court emphasized the potential of the Internet to create a radically more diverse public sphere:

> Any person or organization with a computer connected to the Internet can "publish" information...
> Through the use of chat rooms, any person with a phone line can become a town crier with a voice that resonates farther than it could from any soapbox. Through the use of Web pages, mail exploders, and newsgroups, the same individual can become a pamphleteer. As the District Court found, "the content on the Internet is as diverse as human thought."[2]

Given the high court's decision, it is perhaps unsurprising that in *John Doe v. Cahill* (2005), the Delaware Supreme Court held as a matter of fact that "the Internet is a unique democratizing medium" that allows "more and diverse people to engage in public debate."[3]

It may be comforting to believe that the Internet is making American politics more democratic. But in a few important ways, beliefs that the Internet is "democratizing" politics are simply wrong.

Democratization and Political Voice

This book is about the Internet's impact on American politics. It deals with some of the central questions in this debate: Is the Internet making politics less exclusive? Is it empowering ordinary citizens at the expense of elites? Is it, as we are often told, "democratizing" American politics?

On one hand, those arguing for the political importance of the Internet seem to have been vindicated by recent events. Online political organizations, such as the left-leaning group Moveon.org, have attracted millions of members, raised tens of millions of dollars, and become a key force in electoral politics.[4] Even more importantly, the 2004 election cycle showed that candidates themselves can use the Internet to great effect. This book looks closely at how Howard Dean used the Internet to recruit tens of thousands of previously inactive citizens as campaign volunteers. Dean's success at raising money from small, online donations—along with the subsequent successes of Wesley Clark, John Kerry, and even George W. Bush—challenged almost everything political scientists thought they knew about political giving. And increasingly, the Web seems to have empowered a huge corps of individuals who function both as citizen-journalists and political commentators. Collectively, the weekly read-

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[2]*Reno v. ACLU* 1997 US 521.
[3]*John Doe No. 1 v. Cahill et al.* 2005 DE 266 Sec. III-A.
[4]For a scholarly discussion of MoveOn, see Kahn and Kellner 2004, Chadwick 2006.

ership of the top dozen political blogs rivals that of *Time*, *Newsweek*, or *The New York Times*.[5]

But if the successes of Internet politics are increasingly obvious, they have also tempted us to draw the wrong conclusions. If we want to understand the fate of politics in the Internet age, we also need to acknowledge new and different types of exclusivity that shape online politics. In a host of areas, from political news to blogging to issue advocacy, this book shows that online speech follows winners-take-all patterns. Paradoxically, the extreme "openness" of the Internet has fueled the creation of new political elites. The Internet's successes at "democratizing" politics are real. But the medium's failures in this regard are less acknowledged, and ultimately just as profound.

The argument of this book has several parts, and I expect some of the claims I make to be controversial. Yet part of the problem with debates about Internet politics comes from the vocabulary that is used. Because the language is fuzzy, much of the reasoning has been, too. So the first task of this book is to define what, exactly, we are talking about.

Defining "Democratization"

At the heart of this semantic problem are conflicting definitions and claims about the word "democracy" itself. Those who discuss the Internet's impact on political life are enormously fond of the word "democratization," yet public discussion has used the word "democratize" in at least two distinct senses. If the two are confused, the argument I offer here will make very little sense.

One meaning of the word democratize is normative. As George Orwell wrote in "Politics and the English Language" (1946), "The word Fascism has now no meaning except in so far as it signifies 'something not desirable.'" Orwell notes that the word democracy has been "similarly abused... It is almost universally felt that when we call a country democratic we are praising it: consequently the defenders of every kind of regime claim that it is a democracy, and fear that they might have to stop using that word if it were tied down to any one meaning."

Discussion of Internet politics has been mired in this same problem. To say that the Internet is a "democratic" technology is to imply that the Internet is a good thing. This problem is not new: previous communications technologies, from the telegraph to the rotary press to radio and television, were similarly proclaimed to be "democratic" (e.g. Bimber 2003a, Starr 2004, Barnouw 1966, McChesney 1990). Nonetheless, popular enthusiasm for technology has made it more difficult to have a sober appraisal of the Internet's complicated political effects. Discussions of technical matters easily morph into unhelpful referendums on the technology's social value.

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[5]This conclusion comes from comparing circulation figures from the Audit Bureau of Circulation (online at AccessABC.org) with blog visitor data from SiteMeter.com compiled by N.Z. Bear (Bear 2004).

Broad claims about the goodness of the Internet are, of course, difficult to refute. The Internet now touches countless areas of economic, social and political life. Adding up and evaluating every impact of this technology is beyond the scope of this book. For the most part, this volume tries to defer overarching judgements about the value of the technology.

The central argument therefore focuses on the second definition of democratization. This definition is descriptive. Most talk about Internet-fueled "democratization" has been quite specific about the political changes that the Internet ostensibly promotes. In these accounts, the Internet is redistributing political influence; it is broadening the public sphere, it is increasing political participation, it is involving citizens in political activities that were previously closed to them, and it is challenging the monopoly of traditional elites. This second definition of "democratization" presumes first and foremost that the technology will amplify the political voice of ordinary citizens.

This book is a work of political science, and political voice has long been a central concern of the discipline. As Verba, Schlozman and Brady declare in *Voice and Equality* — a work to which this book is obviously indebted — "meaningful democratic participation requires that the voices of citizens in politics be clear, loud, and equal" (Verba, Schlozman and Brady 1995:509). In this regard, political scientists have naturally been interested in the the sorts of activities discussed in a typical high school civics course. We want to know not just which citizens vote, but also which citizens are most likely to write a letter to their Congressman, what sorts of citizens volunteer for a political campaign, what types of individuals give money to political interest groups. Political scientists have long known that patterns of political participation favor traditionally advantaged groups – though the magnitude of this advantage varies greatly across different types of political participation.[6]

In recent years, some have suggested that the Internet makes it necessary to expand the study of political voice to include online activities and online speech. Most studies of political voice were written before substantial numbers of Americans were online. Partly, political scientists have wanted to know about online analogues of traditional political acts. If sending a letter to one's congressman deserves to be studied as part of political voice, surely sending an email does too; if mailing a check to a candidate counts, so does an online credit card donation.[7]

If political scientists have mostly talked about voice in the context of political participation, others have wondered whether the Internet might force us to reconsider more fundamental assumptions. Many areas of political science, such as scholarship on public opinion, have drawn a sharp distinction between the political elites (in-

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[6]On this point see Schattschneider 1960, Verba, Schlozman and Brady 1995, Rosenstone and Hansen 1993, Lijphart 1997.

[7]Of course, elected representatives themselves may not consider an email to be equivalent to a handwritten letter; for a discussion of the relative weight members of congress attach to constituent correspondence, see Lebert 2003, Frantzich 2004.

cluding journalists) who craft and disseminate media messages, and the mass public which receives them (e.g. Zaller 1993, Page and Shapiro 1992). Yet in the Internet age, some have wondered about the blurring of these traditionally ironclad distinctions. As Arthur Lupia and Gisella Sin put it,

> The World Wide Web [...] allows individuals—even children—to post, at minimal cost, messages and images that can be viewed instantly by global audiences. It is worth remembering that as recently as the early 1990's, such actions were impossible for all but a few world leaders, public figures, and entertainment companies—and even for them only at select moments. Now many people take such abilities for granted. (Lupia and Sin 2003)

If citizens could write their own news, create their own political commentary, and post their views before a worldwide audience, this would surely have profound implications for political voice. Scholars such as Michael Schudson (1999) have talked about "monitorial citizenship," suggesting that democracy can work tolerably well even if citizens only pay attention to politics when things go obviously wrong. In this account, just responding effectively to "fire alarms" or "burglar alarms" can give citizens a strong political voice (On this point see Zaller 2003, Prior 2006; but see also Bennett 2003b). From this perspective, the Internet might make monitoring more effective. It might allow citizens themselves to play part of the role traditionally reserved for the organized press.

Political philosophers have also worked in recent years to expand the notion of political voice, with a torrent of scholarship on what has come to be called deliberative democracy. Much of the initial credit for refocusing scholarly attention goes to Jürgen Habermas (1981, 1989, 1996); yet what John Dryzek (2002) terms the "deliberative turn" in political thought now includes numerous prominent scholars (Rawls 1995, Cohen 1989, Nino 1998, Gutmann and Thompson 1996, Ackerman and Fishkin 2004). Despite their differences, these deliberative democrats all agree that democracy should be more than just a process for bargaining and aggregation of preferences. All suggest that true participation requires citizens to engage in direct discussion with other citizens. The Internet's political impacts have often been viewed through the lens that deliberative democrats have provided. The hope has been that the Internet would expand the public sphere, broadening both the range of ideas discussed and the number of citizens allowed to participate.

Scholars thus disagree about what precisely citizenship requires, and what our definitions of political voice should therefore include. Yet proponents of participatory citizenship, deliberative citizenship, and monitorial citizenship all focus on political equality—and particularly on making formal political equality meaningful in practice. This book focuses on areas where the overlap among these concerns is likely to be greatest, and where the Internet's political impact has been clearest. It examines the Howard Dean campaign, online political advocacy communities, and the rise of

blogs. It looks at the role of search engines in guiding citizens to political content, and it attempts to measure where exactly citizens go when they visit online political Websites. In each case, this book focuses on a central question: is there evidence that the Internet has expanded the voice of ordinary citizens?

Framed in this way, broad questions about democratization can be broken down into a series of smaller, and ultimately answerable, questions. Some of these deal with political voice as traditionally conceived: Are there types of political participation which have been increased by the Internet? Have significant numbers of previously inactive citizens been recruited into political activism? Other questions deal with claims that the Internet will challenge vested political interests, encourage public debate, or even blur traditional distinctions between elites and the mass public. Exactly how open is the architecture of the Internet? Are online audiences more decentralized than audiences in traditional media? How many citizens end up getting heard in cyberspace? Are those who *do* end up getting heard a more accurate reflection of the broader public?

The main task of this book is to provide answers to this series of small questions. I also attempt, more cautiously, to say how these small answers fit together to provide a broader picture of Internet politics. Yet in order to understand this larger project, several points must be made first. Chief among them is to explain how the critique of online politics I offer here differs from the visions of the Internet that other scholars have offered.

A Different Critique

Scholars of the Internet have generally been more cautious than public figures and journalists, but they too have focused on claims that the Internet is democratizing politics. Scholars have come at this issue from a variety of perspectives—and partly as a result, we now have a far more complete picture of the Internet than we did during the mid- to late-1990s. At the same time, scholars have also come to conflicting conclusions about the Internet's political impacts.

One longstanding reason for skepticism has been the so-called "digital divide." Even as the pool of users expanded dramatically during the 1990s, disadvantaged groups—blacks, Hispanics, the poor, the elderly, the undereducated, those who live in rural areas—continued to lag behind in their access to and use of the Net (NTIA 2000, 2002; Bimber 2000; Wilhelm 2000). While the some recent data suggest that some gaps have narrowed, important differences remain, particularly with respect to age, race and education (Dijk 2005, Warschauer 2004, Mossberger, Tolbert and Stansbury 2003). And increasingly, research has shown that the skills that users need to use the Web effectively are perhaps even more stratified than access itself (Hargittai 2003, Dijk 2005, DiMaggio et al. 2004, Norris 2001). Recent surveys suggest, too, that the

online population has plateaued since 2001, dampening expectations that a rising Internet tide would quickly end such inequalities (Bimber 2003b).

Aside from the digital divide, scholars have suggested other reasons that the Internet will have little impact on politics—or even change it for the worse. Some have proposed that the movement of traditional actors and political interests online means that cyberpolitics simply mirrors traditional patterns—that, as Margolis and Resnick put it, online politics is simply "politics as usual" (Margolis and Resnick 2000; see also Davis 1998). Others have worried that market concentration within Internet-related technology sectors—from network hardware to Internet Service Providers—would compromise the medium's openness (e.g. Noam 2003). The search engine marketplace has been a particular locus of concern; as Introna and Nissenbaum explain, search engines "provide essential access to the Web both to those with something to say and offer as well as those wishing to hear and find" (Introna and Nissenbaum 2000).

Others have worried that instead of too much concentration, the Internet will provide too little. Cass Sunstein concludes that the Internet will mean the end of broadcasting; with audiences widely dispersed over millions of Website, general interest intermediaries will disappear, political polarization will accelerate, and public debate will coarsen (Sunstein 2001; see also Shapiro 1999, Wilhelm 2000). Robert Putnam is likewise concerned that the Internet will produce "cyberapartheid" and "cyberbalkanization" (Putnam 2000). Joseph Nye even suggests that "the demise of broadcasting and the rise of narrowcasting may fragment the sense of community and legitimacy that underpins central governments" (Karmark and Nye 2002:10).

Against this backdrop of concern, we have seen an explosion of scholarship documenting concrete examples of Internet-organized political activities that look strikingly different from traditional patterns. From established interest groups such as Environmental Defense to brand new organizations like MoveOn, from the Zapatista revolt to the Seattle WTO protests, scholars have isolated examples of political activity that would not have been possible in the pre-Internet era.[8] In these accounts, large, loose coalitions of citizens are able to use the Internet and related technologies organize themselves with breathtaking speed. Some have seen these examples as evidence that the Internet is "disintermediating" political activity, allowing for greater organizational flexibility while radically diminishing the role of political elites.

But if most scholars now agree that the Internet is allowing new forms of political organizing, there has been disagreement about the ultimate significance of these changes. Some have argued that citizen disinterest in politics will short-circuit much of the Internet's potential political impact. Using longitudinal data, Jennings and

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[8]On the reorganization of Environmental Defense (formerly the Environment Defense Fund), see Bimber 2000. On the emergence of MoveOn, see Kahn and Kellner 2004, Chadwick 2006. Important scholarship on the Zapatista movement includes Castells 2000, Garrido and Halavais 2003, Cleaver Jr 1998; but see May 2002. For analysis of the Seattle WTO protests, see Bennett 2003a, Rheingold 2003, Smith 2001.

Zeitner (2003) found that Internet use had little effect on civic engagement. Pippa Norris argued the Internet "probably has had the least impact on changing the motivational basis for political activism" (Norris 2001:22). Bruce Bimber similarly concludes that, despite organizational innovation, "it does not appear, at least so far, that new technology leads to higher aggregate levels of political participation" (Bimber 2003a:5).

Others have disagreed. Tolbert and McNeal (2003) argued that, controlling for other factors, those with access to the Internet and online political news were more likely to report that they voted in the 1996 and 2000 election. Krueger (2003) similarly suggested that the Internet would indeed mobilize many previously inactive citizens. Some scholars also concluded that, at least for younger citizens, Internet use was associated with increased production of social capital (Shah, Kwak and Holbert 2001, Shah, McLeod and Yoon 2001, Johnson and Kaye 2003).

This book thus aims to address myriad different lines of scholarship. In its analysis of the Dean campaign, of blogging, and of other examples of "open source politics," the book adds to our understanding of the Internet's potential to mobilize and organize. It seeks deepen our understanding of the digital divide—how the skills, motivations, and search strategies of users interact with search tools, and with the broader structure of the Web. With access to new data sources, the book is able to offer a richer description of online audience concentration—particularly among media Websites and political Websites—than previous work on Internet politics.

Yet this book particularly hopes to address recent scholarship that, despite long-standing concerns, concludes that the Internet *is* giving ordinary citizens greater voice in public discourse. These scholars acknowledge the continuing effects of the digital divide, the influence of economic forces and Internet gatekeepers, and the simple fact that all Web sites are not created equal. But as Yochai Benkler concludes, "We need to consider the attractiveness of the networked public sphere not from the perspective of mid-1990s utopianism, but from the perspective of how it compares to the actual media that have dominated the public sphere in all modern democracies" (Benkler 2006:260). Richard Rogers opts for a similar stance, suggesting that despite its limitations the Web should be seen as "the finest candidate there is for unsettling informational politics," offering greater exposure to alternate political viewpoints not aired on the evening news (Rogers 2004:3). The growth of blogging in particular has inspired hopeful conclusions. Chadwick states that "The explosion of blogging has democratized access to the tools and techniques required to make a political difference through content creation" (Chadwick 2006). While Drezner and Farrell note that some blogs garner far more readership than others, they state that "Ultimately, the greatest advantage of the blogosphere is its accessibility" (Drezner and Farrell 2004b).

This book will return to Benkler's arguments about what he terms "the networked public sphere"—partly because Benkler's *Wealth of Networks* is an important work in its own right, and partly because Benkler provides an admirably clear digest of similar claims made by others. I will suggest that such accounts suffer from two dif-

ferent sorts of problems. First, key empirical claims about online political communities do not match up with the data this book provides. For example, Benkler claims that "Clusters of moderately read sites provide platforms for a vastly greater number of speakers than are heard in the mass-media audience"; "As the clusters get small enough," Benkler suggests, "the obscurity of sites participating in the cluster diminishes, while the visibility of superstars remains high, forming a filtering and transmission backbone for universal uptake and local filtering" (Benkler 2006:242, 248; see also Drezner and Farrell 2004a). As this book shows, the "moderately read" outlets trickle-up theories of online discourse rely on are in short supply at every level of the Web.

Second, even to the extent that the Internet or the blogosphere *does* work the way that Benkler and others suppose, Internet politics seems to nurture some democratic values at the expense of others. If our primary concern is the commercial biases of traditional media organizations, or the need for a strong corps of citizen watchdogs, than online politics may indeed promote positive change. Yet it is important to remember that democratic politics has other goals, too. No democratic theorist expects citizens' voices to be considered exactly equally, yet all would agree that pluralism fails whenever vast swaths of the public are systematically unheard in public debates. The mechanisms of exclusion may be different online, but this book suggests that they are no less effective.

Ultimately, this book argues that the Internet is not eliminating exclusivity in political life; instead, it is shifting the bar of exclusivity from the *production* of political information to the *filtering* of political information. I want to conclude this introductory chapter by stressing two related themes that underlay much of what is to come. First, the infrastructure of the Internet is less open than many continue to assume. Second, in considering political speech online, we must be mindful of the difference between speaking and being heard.

The Importance of Infrastructure

From the start, those who have written about the political possibilities of the Internet focused on the architecture of the medium. Unlike television or radio, the Internet was seen as a true "narrowcasting" or "pointcasting" medium, where highly-targeted content would be seen by small audiences, and every citizen was a potential producer of content. This claim seemed to be everywhere—from Bill Gates' bestseller *Business at the Speed of Thought* to more academic titles such as Nicholas Negroponte's *Being Digital* and Andrew Shapiro's *The Control Revolution*. In politics as in business, scholars presumed that the the biggest changes would come from a host of new, smaller entrants, who took advantage of lowered barriers to entry. Small, marginal interests and minor political parties, for example, were considered particularly likely to be advantaged by the open architecture of the Internet.

Of course, the architecture of the Internet does tell us much about the possibilities of the medium. Yet the understanding of the Internet's infrastructure which has pervaded most discussion of the medium is incomplete. The various pieces which make up the architecture of the Web function as a whole—and that system is only as open as its most narrow chokepoint.

The Infrastructure of the Internet

I will be referring to infrastructure a great deal, so it is worth taking some time here to define the term. In its most general sense, infrastructure refers to the subordinate parts of a more complex system or organization.[9] The history of the word is instructive: the word infrastructure was first used in military contexts. In order to field an effective fighting force, one needs not just infantrymen and tanks, but also a network of supporting buildings, installations and improvements: bases, supply depots, railroad bridges, training camps, etc. Collectively, these supporting facilities came to be known as infrastructure. It remains conventional wisdom that the infrastructure which supplies and knits together an army is often more important than the combat units themselves; a popular aphorism among military personnel is that "amateurs study tactics; professionals study logistics."

For the purposes of this book, I will be talking about infrastructure in two distinct senses. First of all, I'll be talking about the infrastructure of communications technologies. In its broadest sense, the infrastructure of the Internet could be said to encompass a great deal: the computers, wiring, and other hardware; the network protocols that allow nodes on the network to talk to one another; the software code that runs the individual computers; the electrical grid that powers these machines; or even the schooling that allows users to read and create online text.

I do not intend to analze every technology and social activity that undergirds Internet use. My goal, rather, is to describe a few important parts of the Internet infrastructure which constrain citizens' choices. It remains common to talk about the millions of Websites online that citizens can choose to visit. Some scholars have talked about the importance of filters, worrying that citizens will consciously choose to not see some categories of content and some sources of information.[10]

But the most important filtering, I argue, is not conscious at all—it is rather a product of the larger ecology of online information. The link structure of the Web is critical in determining what content citizens see. Links are one way that users travel from one site to another; all else being equal, the more paths there are to a site, the more traffic it will receive. The pattern of links that lead to a site also largely determines its rank in search engine results.

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[9]The *Oxford English Dictionary* defines infrastructure as "A collective term for the subordinate parts of an undertaking; substructure, foundation..." Similarly, *Merriam-Webster* defines infrastructure as "the underlying foundation or basic framework (as of a system or organization)."

[10]On this point see Sunstein 2001; Shapiro 1999; Negroponte 1995.

Because of the infrastructure of the Internet, then, not all choices are created equal. Some sites consistently rise to the top of Yahoo and Google's search results; some sites never get indexed by search engines at all. The visibility of political content on the Internet seems to follow winners-take-all patterns, with profound implications for political voice. If we abstract away these underlying parts of how citizens interact with the Internet, it is easy to overlook the real patterns in who gets heard online.

In recent years scholars such as Lawrence Lessig have argued that if we are to understand the social implications of this technology, we must take a broader view of what the Internet's infrastructure includes (Lessig 2000). Regulation of the Internet, Lessig argues, happens not just through laws and norms, but through the fundamental design choices that went into building the Internet, and through the software code that often determines what users are and are not allowed to do.

One key argument of this book is that our understanding of the technological architecture of the Internet needs to be broader still. The network protocols that run the Internet say nothing about search engines, and yet these tools now guide (and powerfully limit) most users' online search behavior. The technological specifications of hyperlinks allow them to point anywhere on the Web, yet in practice social processes have distributed them in winners-take-all patterns. If we consider the architecture of the Internet more broadly, we find that users' interactions with the Web are far more circumscribed than many realize, and that the circle of sites they find and visit is much narrower than is generally assumed. All of this changes our conclusions about how much room there is online for citizens' voices.

The Infrastructure of Politics

The other way in which the notion of infrastructure is useful, I suggest, is in reconceptualizing the ways in which the Internet impacts American politics. The analogy I suggest concerns the impact of the Internet on commerce. In popular coverage of the Internet's effects on business, a few online retailers such as Amazon.com or Ebay have gotten much of the attention. Yet behind these online behemoths there is a less glamorous but more important story. For every Amazon or eBay, hundreds of businesses have quietly used the Internet and related information technologies to streamline operational logistics and generally make business processes more efficient.[11] The most important impacts of Internet have been at the backend of business; not storefronts, but supply chains.

I suggest that the impact of the Internet on political practice is likely to mirror the Internet's impact on business practice. The Internet does seem to be changing the processes and technologies that support mass political participation and guide elite strategy. Part of the claim here is that changing the *infrastructure* that supports participation can alter the *patterns* of participation. Email solicitation, for example, may

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[11]For economists' treatments of this phenomenon, see Littan and Rivlin 2001; Borenstein and Saloner 2001; Lucking-Reiley and Spulber 2001; Brynjolfsson and Hitt 2000.

inspire a very different set of citizens to contribute than those who give in response to direct mail.

Early visions of how the Internet would alter political campaigning envisioned large numbers of ordinary citizens visiting campaign web sites, engaging in online discussions, using this un-mediated information as a basis for political decision-making. Thus far the reality has been different. Most of those who visit campaign web sites are partisans (Bimber and Davis 2003; see also Howard 2005, Foot and Schneider 2006). The most successful campaign sites to date have acknowledged this fact, using their online presence to solicit funds and volunteers, not to sway undecided voters. In his discussion of election behavior, Herrnson suggests that congressional campaigns are two contests rolled into one: a campaign for votes, and a campaign for resources (Herrnson 2003). The evidence suggests the Internet has been more important for the latter than for the former.

The Difference Between Speaking and Being Heard

Discussion of the infrastructure of the Internet highlights a key distinction that needs to be made regarding political voice. As we have seen, many continue to assume that the Internet allows motivated citizens, for the first time, the potential to be heard by a worldwide audience. Debates about blogging provide many recent examples of this assumption in action. Klein, Brokaw, and numerous others have accepted the notion that blogs have expanded ordinary citizens' voice in politics, and have moved on to a discussion of whether this change is good or bad for American democracy.

Yet this book argues that such conclusions are premature. This study is careful to consider who speaks, and who gets heard, as two separate questions. On the Internet, the link between the two is weaker than it is in almost any other area of political life.

In this respect, the Internet diverges from much of what political scientists have grown to expect from the literature on political behavior. In many avenues of political participation, scholars have noted that once initial barriers to participation are overcome, citizen's voices get considered relatively equally. When citizens vote, each ballot carries the same weight in deciding an election. When citizens volunteer for a political campaign or an advocacy group, they all face similar limits—at the extremes, no volunteer has more than twenty-four hours a day to contribute towards a campaign. The greatest exception to this rule has been political fund-raising; among the relatively small set of citizens who donate to political campaigns and interest groups, disparities in wealth make some citizens' voices much louder than others.[12] Even here, though, there are important (though imperfect) limits that constrain in-

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[12] As Verba, Schlozman and Brady write, "...When we investigated the extent of participatory distortions for a series of politically relevant characteristics, in each case we found it to be markedly greater for contributions than for other forms of activity" (Verba, Schlozman and Brady 1995:512).

equalities in who gets heard. Under federal election law, no citizen can donate more than $2000 total to any one candidate over the course of an election cycle.[13]

A central argument of this book is that direct political speech on the Internet—by which I mean the posting of political views online by citizens—does not follow these relatively egalitarian patterns. If we look at citizens' voices in terms of the *readership* their postings receive, political expression online is orders of magnitude more unequal than the disparities we are used to in voting, in volunteer work, and even in political fundraising. This book also shows that, by the most commonly used social science metrics, online audience concentration equals or exceeds that found in traditional media.

This is not the conclusion I expected when I began this research several years ago. Other scholars may also find these conclusions counterintuitive. It is indeed true that the amount of material available online is vast. In Chapter 3, in the first large-scale survey of political content online, I download and analyze millions of Web pages on half a dozen diverse political topics. Even these methods likely capture only a small fraction of all these topics. And yet despite—or rather because of—the enormity of the content available online, citizens seem to cluster strongly around the top few information sources in a given category. The broad patterns of who gets heard online, I argue, are nearly impossible to miss.

Too often, normative debates about the Internet have gotten ahead of the evidence. Deductive arguments based on a faulty empirical foundation have been more distracting than enlightening. But if this book leaves many normative questions about the Internet's political effects unanswered, I hope that it will help reframe ongoing debates. If the question is, "Is the Internet good for American politics?", then the answer may well be yes. If the Web has somewhat equalized campaign giving across economic classes, most democratic theorists will applaud. Similarly, in an era where many scholars have worried about declines in civic participation, evidence that new tools like Meetup.com can mobilize previously inactive citizens will be welcomed.[14] The Internet has made basic information on countless political subjects accessible to any citizen skilled enough and motivated enough to seek it out. Blogs and other online forums may help strengthen the watchdog function necessarily for democratic accountability.

Yet when we consider direct political speech—the ability of ordinary citizens to have their views considered by their peers and by political elites—the facts bear little resemblance to the myths that continue to shape both public discussion and scholarly debate. While it is true that citizens face few formal barriers to posting their views online, this is openness in the most trivial sense. From the perspective of mass politics,

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[13]Contribution limits have never been completely effective, and new tactics—such as donating money to independent "527" political groups—have emerged even as some older loopholes have been closed.

[14]Macedo et al. 2005 provides an excellent, comprehensive overall of the myriad studies on declining civic participation.

we care most not about who posts, but about who gets read—and there are plenty of formal and informal barriers which hinder ordinary citizens' ability to reach an audience. Most online content receives no links, attracts no eyeballs, and has minimal political relevance. Again and again, this study finds powerful hierarchies shaping a medium that continues to be celebrated for its "openness." This hierarchy is structural, woven into the very hyperlinks that make up the Web; it is economic, in the dominance of companies like Google, Yahoo, and Microsoft; and it is social, in the small group of white, highly-educated, male professionals who are vastly over-represented in online opinion. Google and Yahoo now claim to index tens of billions of online documents; hierarchy is a natural and perhaps inevitable way to organize the vastness of online content. Yet these hierarchies may not be neutral with respect to democratic values.

Understanding the subtle and not-so-subtle ways in which the hierarchies of online life impact politics will be an important task in the 21st century. The Internet has served to level some existing political inequalities, but it has also created new ones.

CHAPTER 2

The Lessons of Howard Dean

> Not only are we going to New Hampshire, we're going to South
> Carolina and Oklahoma and Arizona and North Dakota and
> New Mexico, and we're going to California and Texas and New
> York. And we're going to South Dakota and Oregon and
> Washington and Michigan. And then we're going to Washington,
> D.C., to take back the White House! Yeeaarrhhh!
>
> Howard Dean
> January 19, 2004

If we want to understand how the Internet is changing the political voice of citizens, there's no better place to start than with Howard Dean, whose name remains synonymous with Internet politics. This is one case, I argue, where the conventional wisdom is correct. The evidence for the Internet's influence on the Dean campaign is even stronger than many have supposed. The rise and fall of Howard Dean's candidacy shows us much about what the Internet can do for candidates—and what it cannot.

Dean's meteoric path through the 2004 presidential primaries seems in some ways quite predictable. Longstanding political science wisdom suggests several explanations for Dean's ultimate defeat: the central issue of electability, which seemed to weigh heavily against his campaign; the fact that primary voters are more moderate than party activists; the well-documented difficulty of regaining lost momentum. Less systematic factors—such as numerous verbal gaffes and one infamous scream—surely contributed as well.

Still, the Dean campaign exposes a curious gap in political science knowledge. If Dean's failure now seems unsurprising, how are scholars to explain his brief but remarkable success? Though Dean entered the race a relative unknown, he shattered previous fundraising records, won numerous key endorsements, from Al Gore's to

the AFL-CIO's, and had a strong plurality in the polls in the months leading up to the Iowa caucuses.

If we want to understand Dean's early and unexpected rise as the Democratic front-runner, we should begin by considering one obvious difference between 2004 and previous primary campaigns: the role of the Internet. Dean's use of the Web to organize, invigorate, and finance his campaign has been much celebrated, but it remains too little understood.

This chapter attempts to reconcile Dean's experience with standard political science views on primary campaigns. Two themes emerge. First, previous scholarship on presidential primaries, which emphasizes the importance of momentum, needs to be viewed in light of the Web's political demographics. Although liberals and conservatives are online in roughly equal numbers, survey data suggest that liberals visit political Web sites much more than do moderates or conservatives. This likely helped Dean by making the online campaign, in essence, an early primary among a very liberal constituency.

Second, the Dean campaign marks an ongoing shift in how candidates use the Web. In the business world, the Internet's real successes have been not in retail, but at the backend: thousands of businesses have quietly used the Internet to streamline organizational logistics. Dean's example suggests that the Web may alter the infrastructure of politics in a similar fashion. Dean used the Internet to revamp backend campaign functions such as fund-raising and volunteer recruitment—critical tasks that did *not* involve mass appeals to voters. In ways both large and small, Dean's example does not fit with what political scientists think they know about primary dynamics, political recruitment, patterns of political giving, elite strategy, and even the so-called digital divide.

The Liberal Medium?

In covering the Dean campaign, the popular press consistently emphasized the novelty of its tactics. Howard Dean did something that was smart, brave, and unprecedented—something that only a candidate with little to lose would do: he created a genuinely interactive campaign Website. Previous online campaigns—including those of John McCain and Jesse Ventura, the most celebrated antecedents to Dean's efforts—kept rigid control over their Web presence.[1] Encouraging supporters to generate their own content, join online discussions, create their own Dean sites, and even to organize their own events necessarily meant that the campaign gave up some control over the messages it projected. In considering what Dean means for the future of digital poli-

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[1]For a discussion of the ways in which Website interactivity can reduce positive impressions of a candidate, see Stromer-Galley 2000, Sundar, Kalyanaraman and Brown 2003. On Jesse Ventura's campaign more generally, see Lentz 2001.

tics, I should begin by acknowledging that many campaigns will not follow this lead. Strong candidates have little incentive to take such chances.

Still, Dean's digital innovations are inadequate to explain his successes. To understand what happened during the course of the 2004 primaries, we must look more closely at those who use the Web for political purposes. Online politics, it seems, has a puzzlingly liberal character.

As we note above, it was clear from the beginning that Web access and usage patterns closely tracked existing social cleavages. The rich and educated used the Internet more than those with less money and education; women lagged behind men; Hispanics and African-Americans trailed their white and Asian counterparts. Though most of these gaps in usage have narrowed in recent years—particularly gender differences—large disparities remain.[2] Indeed, as scholars have looked beyond mere "access" to the Internet and focused on essential user skills, these disparities appear to be as profound as ever.[3]

For political scientists, the demographics of Web users have seemed consistent with a familiar and disturbing pattern. In *Voice and Equality*, for example, Verba, Schlozman, and Brady argue that differences in political resources result in a systematic distortion in the perceived preferences of the public, and that this distortion favors traditionally privileged groups and those with conservative views (Verba, Schlozman and Brady 1995). If the Internet is itself an important political resource— a powerful tool for political organizing, fundraising, and information gathering— placing the new medium disproportionately in the hands of advantaged groups might be expected to perpetuate or even exacerbate a conservative bias in American politics.

Yet survey data seem to tell a very different story. To illustrate this, I turn to the 2000 and 2002 General Social Survey, the first large-scale surveys to combine measures of Web usage with metrics of users' political and social views. The GSS's political orientation questions reveal no difference between the political leanings of users and non-users. Yet although the liberal to conservative ratio among Web users mirrors that of the general population, the two groups have starkly different usage patterns.

Liberals dominate the audience for politics online. Across a wide range of politically relevant activities, from gathering news online to visiting government Web sites, liberals outpace conservatives by a wide margin. As seen in tables 1 and 2, the results are particularly dramatic for visits to political Web sites, where more than twice as many liberals as conservatives fall into the highest category of Web use. Among self-identified Democrats, frequent visitors to political Websites are dramatically more liberal than the party as a whole; they are more highly educated than the general public; and while voters as a group skew older, those who visit political Websites are

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[2]On the current dimensions of the digital divide, see Dijk 2005, Warschauer 2004, NTIA 2002, Lenhart et al. 2003.

[3]On this point see Hargittai 2003, Mossberger, Tolbert and Stansbury 2003.

	None	1-2 times	3-4 times	> 5 times	Total
Liberals	62%	20 %	7%	11%	291
Moderate	74%	17%	6%	4%	344
Conservatives	69%	19%	7%	5%	327
Total	659	179	63	61	962

Table 2.1: This table presents 2000 and 2002 General Social Survey data on the number of visits to political Web sites, broken down by self-reported political attitudes. It shows that liberals are, in general, significantly more likely to visit political Websites than moderates or conservatives. The most striking finding concerns those who report visiting political Web sites more than five times in the previous 30 days: liberals are more than twice as likely to report visiting a political Web site over that period as conservatives.

disproportionately young.

In Dean's case, the importance of these skewed political demographics is clear. In the early campaign, Dean positioned himself to the left of most competitors. Dean declared that he represented "the Democratic wing of the Democratic party" (Nagourney 2003) and offered forceful opposition to the Iraq war while other competitors adopted more nuanced positions. If the patterns of political Web use were reversed— if conservatives visited political sites far more than liberals—the Internet would clearly not have been such an asset for Dean. Dean would have raised much less money online, recruited fewer volunteers, and attracted less positive press coverage of his online efforts.

These findings force us to consider whether Dean's experience might be part of a larger trend in online activism that benefits liberal views. Later chapters confirm the findings seen in this survey data, showing that liberal sites attract dramatically greater levels of traffic than conservative sites do. Should we expect this liberal-conservative gap to be temporary, or an enduring feature of the online political landscape?

At this point, we do not know. There is some reason to expect that conservatives will catch up. The Internet is a young medium, and effective methods of online organizing are still largely experimental. As user sophistication continues to improve, as conservative candidates invest resources in exploiting the Web, and as conservative partisans themselves see online participation as a key part of political activism, online politics may have less of a liberal cast.

Ideological differentials in usage may not fade quickly, though. 2004 was not 1994; the majority of the American public had been online for several years before Dean started his run for the presidency. There is no liberal-conservative gap in access more generally, or in time spent online. Moreover, many other mediums of political outreach have had a persistent partisan character. For example, direct mail solicitation

	Model A Coeff. *Std. Err*	**Model B** Coeff. *Std. Err*
Extremely liberal	.72***	.70***
	(.21)	(.21)
Liberal	.33***	.30**
	(.12)	(.16)
Slightly liberal	.32***	.28**
	(.13)	(.16)
Slightly conservative	.10	-.03
	(.12)	(.16)
Conservative	.17	.11
	(.12)	(.12)
Extremely conservative	.23	.32
	(.24)	(.25)
Years of education		.04***
	()	(.02)
Income		-.00
	()	(.02)
Age		.00
	()	(.00)
Female		-.17***
	()	(.08)
Black		-.08
	()	(.15)

Table 2.2: This table presents ordered probit models of the frequency of visits to political Websites. The ordinal dependent variable is constructed from answers to the question: "How many times in the last 30 days have you visited a political Web site?" 4 categories: 1: never; 2: 1-2 times; 3: 3-5 times; 4: more than 5 times.

has long been a more effective tool for Republicans than Democrats.

The Dean campaign serves to highlight the importance of the liberal-conservative gap in political Web usage, but it does little to show us how this disparity will evolve as online politics matures. Measuring and understanding the ideological divide in political Web use is critical in understanding nearly every aspect of online politics.

"Big Mo' " Meets the Internet

Liberal overrepresentation online dovetails with a larger point about the dynamics of the primary process. The concept of momentum enjoys a central place in scholarship on presidential primaries. The snowball effects of early success (or failure) are substantial: candidates who win the first primaries receive more favorable press coverage, more public interest in the campaign, more volunteers, and more money. The order of these contests is thus critically important. For example, as Bartels shows, it was "pure, unadulterated luck" that states most favorable to Gary Hart—overwhelmingly white states without major urban populations—were first on the 1984 electoral calendar. The Iowa and New Hampshire results greatly magnified the seriousness of Hart's challenge to Walter Mondale.[4]

Dean's candidacy benefited enormously from a digital version of the Gary Hart effect. In June of 2003, the leading liberal activist site MoveOn.org sponsored what it termed an "online primary." Dean won, receiving a 44 percent plurality.[5] The symbolism of the win was appropriate: in a larger sense, the entire online campaign came to serve as a sort of virtual primary. Dean's demonstrable successes on the Web generated the sort of coverage, enthusiasm, and compounded success that candidates usually enjoy only after winning an actual electoral contest.

Dean's Internet campaign generated a spiral of positive press coverage. A Lexis-Nexis search finds 1,325 stories in major papers that mentioned Dean's Internet success during the six months preceding the New Hampshire primary—a priceless publicity boon for a candidate who began as a dark horse. Both the scale of Dean's online organization and his unprecedented success at raising large amounts of money in small donations seemed to qualify as newsworthy. Dean's campaign provided other tangible metrics of success: the long list of supportive Weblogs, the number of hits on its home page, the number of Dean house parties, and the number of citizens willing to sign up as supporters on the Dean Web site. Overall, the breadth of Dean's online organization was taken as evidence that Dean had broad grassroots support.

Dean was not the only beneficiary. Gen. Wesley Clark, whose late entry shook up the primary contest, witnessed a similar effect. Though Clark's online efforts were dwarfed by Dean's, they nonetheless outpaced the rest of the field. Clark raised $17 million, much of it online—far less Dean's $52 million, but raised over a shorter time span (CRP 2004). Though Clark did not have the extensive network of Webloggers that Dean relied on, he did make good use of both the campaign Website and other online tools. As with Dean, the press counted these online victories as pro-Clark momentum, citing them as evidence of grassroots support and the campaign's financial robustness. The 2004 Internet campaign thus became in an important sense the earliest primary. But as GSS data shows, those who visit political Web sites are a con-

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[4]Bartels 1988, esp. Ch. 10; quote p. 260.
[5]MoveOn.org 2003.

stituency like no other.

Dean's example shows that it is possible to translate online interest into tangible political resources—money, positive press coverage, and volunteers. It also shows that the Web can grant a partly intangible asset: early momentum. Even if the press proves more skeptical of future online "groundswells," the financial and organizational advantages to be won online may offer future campaigns a critical early boost.

The Internet and the Infrastructure of Politics

Overall, then, Howard Dean suggests that political behavior in the online world follows unexpected fault lines. There is a second lesson to be drawn from the Dean campaign: the Internet may alter key parts of the nation's political infrastructure. Dean's example suggests that the Web's evolution in the business world is being repeated in the political realm. As Chapter 1 argues, the real success of the Web for commerce has been at the backend. For every Amazon.com or Ebay, hundreds of businesses have quietly used the Internet to restructure their supply chains. Business-to-business, not business-to-consumer, is where the real transformation has taken place.

Now a similar shift may be taking place with online politics. Initially, most candidates tailored their Web sites to reach swing voters, independents, and the undecided—the elusive median voter. This strategy produced dismal results. Survey data show that those who visit political Web sites are not swing voters, but rather those with strong party affiliations and strong preexisting views on politics (Bimber and Davis 2003, Ch. 4; see also Foot and Schneider 2006, Howard 2005). Traffic to most campaign sites has been a trickle, and (at least until the Dean phenomenon) campaign managers commonly saw the Internet as not more than a sideshow of the "real" campaign. Bruce Bimber and Richard Davis thus conclude, in one of the the best studies of digital campaigning, that the Web will have modest effects on mass politics.

Bimber and Davis are right that online campaigning thus far consists of "preaching to the converted." Yet increasingly, Dean and other candidates have turned this fact to their advantage. Instead of online appeals to the median voter, a new breed of campaign Web site seeks to engage and motivate those most likely to become core supporters. If Web sites are not a way to reach the masses, the Dean campaign and others have shown that they can be a powerful tool for fund-raising and energizing the faithful. In short, Dean demonstrates that the Internet can affect what might be termed the supply chain of politics.

Backend logistics are a critical component of candidate strategy, and the locus of many types of political activity. The gap between prevailing theory and Dean's experience is particularly significant for fund-raising and recruitment of volunteers. Focusing our attention on these two areas, I ask: What would have happened to the Dean campaign without the Internet?

Internet Fundraising

Prior to Dean's example, it was commonplace to downplay the importance of the Internet for campaign fundraising (e.g. Ward and Gibson 2003:20; Cornfield and Rainie 2003). Bill Clinton's 1996 campaign had raised only $10,000 online (Davis 1998:109). While some early survey data suggested that campaign giving was one of the few political activities affected by Internet used (Bimber 2001), the amount of money raised online remained modest. In the 2000 campaign cycle, Gore and Bush raised only $2.7 and $1.6 million, respectively; McCain raised $1.4 million in the three days following his victory in the New Hampshire primary (Bimber and Davis 2003:39).

Against this backdrop, Dean's Internet fundraising was both surprising and hugely important. For candidates in presidential primaries, the ability to raise funds is a prerequisite to being taken seriously, and no previous candidate of either party had successfully translated two-digit donations into real money. By the end of January 2004, as the primaries commenced, Dean had raised more that $41 million, much of it online; 318,884 citizens had contributed to the Dean campaign.[6] Overall, 61 percent of Dean's financial resources came from those giving $200 or less. Only 2,851 donors—less than 1 percent of the total—gave $2,000, the maximum under federal law. These large givers provided 11 percent of Dean's total funds.

The distribution of giving for the Dean campaign was almost exactly the reverse of his rivals. To keep Dean's success in perspective, note that Bush's reelection campaign dwarfed Dean's money-raising efforts, raising a total of $130.8 million over the 2003 calendar year alone. By the end of January 2004, 42,649 of Bush's donors had given the federal maximum of $2,000. These large gifts accounted for 68 percent of Bush's total, while donations of less than $200 contributed less that 16 percent of Bush's funding. And though Democratic candidates like John Kerry and John Edwards raised far less than Bush, their campaigns similarly relied on large donors to get them through the early primaries. At the end of January, those who gave the $2,000 maximum were responsible for 58 percent of Kerry's campaign war chest, and 73 percent of Edwards' financial resources.

The Dean campaign departs from academic expectations in several respects. First, because of the influx of small donors, the less-than-affluent contributed a greater share of Dean's funding than that of any major presidential candidate in recent decades. Second, smaller donations send less precise messages to candidates. Verba, Schlozman and Brady declare that the power of contributions is the fact that they are both "loud and clear"—money is key to electoral success, and it communicates a great deal about the giver's preferred policies. But the sheer number of citizens who donated to the Dean campaign means that the messages were rather soft and indistinct. A hand-delivered $2,000 check communicates more information than 40 individual $50 credit card contributions submitted via the campaign Web site. Third, most Internet donations to Dean's campaign were spontaneous. Traditionally, donating money to a po-

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[6] All fundraising figures from CRP 2004.

litical campaign is the type of political participation least likely to be self-generated, and personal social contacts play an important role. Most campaign contributions are solicited, and people that the donor already knows are generally the ones who ask for donations (Verba, Schlozman and Brady 1995, Ch. 5). By contrast, Dean's funding came mostly from individuals who sought out the campaign on their own.

The overall implications are clear. If Dean's success can be repeated on a wide scale, political scientists will have to reexamine much of what they think they know about the relationship between money and politics: the demographics and political views of those who give money, how donations are solicited, the clarity with which money communicates preferred policies, and the extent of the rightward preference distortion that political fundraising induces in American politics.

Networks of Political Recruitment and the 'Net

Political scientists have often noted that those who participate in politics are those who are asked. The literature on political participation emphasizes the role that social networks and social pressure play in recruitment. Yet if social networks typically serve as gatekeepers in the political process, record numbers of Dean supporters seem to have jumped the fence.

Dean's focus on "meetups"—Web-organized face-to-face meetings of citizens interested in the campaign—seems particularly consequential. Meetups proved to be an elegantly simple organizational strategy. At either the official Dean site or at the Meetup.com homepage, citizens could offer their email address and ZIP code, and immediately receive email reminders about pro-Dean meetings in their vicinity. The process of signing up for a local Dean meetup could take as little as 30 seconds.

By the time Dean dropped out of the Democratic race, 640,937 people had registered as Dean supporters through the campaign Website; 188,941 of those had signed up to receive notices about meetings in their area.[7] According to Meetup.com's attendance figures, more than 40 percent of these supporters—about 75,000 people—actually attended a meeting. Dean meetups were organized in 612 cities. As one of the founders of a state Dean organization declared, "We always considered the meetups to be our primary recruiting tool."[8] Survey data collected from Dean meetup participants in Massachusetts by Christine Brinkley, Bruce Weinberg, and Jesse Gordon suggests that these gatherings were indeed an effective tool.[9] More than 96 percent of respondents reported that they wished to become active volunteers after attending a Dean meetup. In both sheer numbers of those who attended early candidate events,

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[7]Data on the total number of supporters from the Dean Website (http://www.deanforamerica.com//). Data on number of Dean supporters registered for meetups from Meetup.com.

[8]Personal communication, Jesse Gordon, cofounder of Mass for Dean, Feb. 19, 2004.

[9]Williams, Weinberg and Gordon 2004; survey data available online at *http://meetupsurvey.com/study/reportsdata.html*.

and in the wide geographic dispersion of these volunteers, Dean greatly exceeded expectations for an ostensibly minor candidate.

Some popular accounts suggested that Dean's campaign was transforming numerous previously inactive citizens into activists. Joe Trippi himself remarked on the inexperience of Dean's campaign volunteers (Trippi 2005:xii). In their October and January surveys, Williams, Weinberg, and Gordon found that only 39 and 47 percent of their respondents, respectively, had volunteered in previous election cycles. Other scholarly surveys of Dean volunteers found similarly low levels of experience (Klotz 2004, Kohut 2005).

In contrast, most primary campaign volunteers are chronic participators; previous studies have suggested that, for almost every candidate, two-thirds to four-fifths of their primary campaign workers are veterans (e.g. Johnson and Gibson 1974). Data on caucus attendees in the 1988 nominating contest reinforces that conclusion. For every candidate but one, more than two-thirds of their volunteers were previously active as either campaign workers or party officers (Abramowitz et al. 2001). Jesse Jackson's insurgent candidacy in many ways resembles Dean's, but even 72 percent of Jackson's volunteers were veterans. (Pat Robertson's religiously-inspired campaign is the only exception; only 35 percent of its volunteers had previous experience.)

Ross Perot's 1992 campaign provides another interesting point of comparison with Dean. Perot used a 1-800 telephone number to solicit volunteers and was credited in popular accounts with recruiting previously inactive citizens. Nonetheless, data gathered by Ronald Rapoport and Walter Stone shows that more than 67 percent of Perot's volunteers had previous campaign experience; moreover, about a third had been working for Bush or Dukakis four years before (Rapoport and Stone 1999).

The most surprising finding to emerge from Williams, Weinberg and Gordon's data, however, is not that Dean's volunteers were relatively inexperienced, but that only 23 percent (October) and 31 percent (January) of survey respondents learned about meetups from someone they knew. Almost all of the rest found out about the first gathering they attended through the national Dean Web site, the local pro-Dean Web site, or the Meetup.com homepage. These figures are a significant departure from the expectations set by previous scholarship. Verba, Schlozman and Brady, for example, found that more than 80 percent of contacts for campaign recruitment came through personal relationships (Verba, Schlozman and Brady 1995, Ch. 5). According to the civic voluntarism model, ground-level social networks should have been necessary to attract and retain supporters. In Dean's case, these networks were largely absent—yet new technology allowed Dean to create local, decentralized social networks from scratch.

Dean Without the Internet: Considering the Counterfactual

I have so far offered a causal explanation for Howard Dean's initial rise as the Democratic party front-runner. In social science, causal questions are ultimately about

counterfactuals. Thus, it is worth putting these observations together to ask: but for the Internet, how should we have expected Dean's campaign to unfold? While such analysis is never an exact science, the strong body of established research on participation, fund-raising, and primary politics makes Dean's case study easier than most.

In the 2004 primary field, Dean had several potential advantages over his competitors that would have been important with or without the Internet. Many Dean supporters opposed the war in Iraq, and there was no other staunch anti-war candidate. As both Governor and medical doctor, Dean presented a compelling personal narrative. His energetic presence on the stump (and the fervor of his attacks on the president) contrasted sharply with many of his rivals. For the dark horse candidate, being ignored is the biggest danger; Dean was consistently quotable.

A completely offline Dean campaign, then, would still have had important strengths. But one thing it would not have done is raise more than a fraction of the $52 million that Dean ultimately received. Dean's campaign defied the example of every previous primary candidate, the Republicans' longstanding advantage in small donations, and every political science model about how much candidates raise and from whom. It is not just the grand sums of money raised that point to the influence of the Internet—though that was important enough—but also the balance betweeen large and small donations. The only other recent primary campaigns to raise a substantial percentage of their funding from small donors—specifically Clark and Dennis Kucinich—were themselves heavily invested in the Web. Not only that, once Senator John Kerry had the nomination, his sudden success in online fund-raising dramatically increased the proportion of funding he received from smaller donors: whereas at the end of January, 58 percent of his money had come from those giving $2,000 each, by the end of June those who gave the maximum accounted for only 34 percent of Kerry's total war chest (CRP 2004).

To get a sense of Dean's expected fundraising without the Internet, let us make two assumptions for the sake of argument: first, that Dean's online success did not scare off more large donors than it attracted; and second, that without the Internet, large donors would have provided roughly the same proportion of Dean's funding that they did for previous primary candidates, or for those of Dean's competitors who failed to run strong Web campaigns. Dean attracted 2,851 donors who gave the $2,000 maximum. Let us conjecture that these donors would otherwise have accounted for 50 percent of Dean's funds—still less than the percentage that they accounted for in the early fundraising for George W. Bush, John Kerry, John Edwards, Dick Gephardt, and Joe Lieberman. In that case, Dean would have raised no more than $11 million in campaign funds, 21 percent of his actual total—placing him behind all of the above candidates in campaign funds.

These facts leaves us with only two credible conclusions: either the Internet suddenly made it possible for a few candidates to raise more money in smaller chunks than in the past; or some other change in the political landscape—a change that happened to be correlated with extensive campaign Web use—was responsible. Given

that so much of this new funding was received online, Occam's razor suggests that we assign the Internet the causal role.

The second area where Dean's campaign would have unfolded differently concerns his network of volunteers. Comparing Williams, Weisberg and Gordon's data with the profile of volunteers in previous campaigns suggests that, without the meetup phenomenon, Dean's volunteer corps would have been significantly smaller. Moreover, it would have grown far more out of existing interpersonal networks, it would not have been as geographically dispersed, and it would have had proportionally more veterans and fewer previously inactive volunteers.

Finally, the early press coverage that Dean received focused largely on his online success in fund-raising and volunteer recruitment. Without the financial and organizational fruits of the online campaign, much of this coverage would simply not have happened, leaving Dean to struggle with name recognition in a crowded field. And of course, without extensive press coverage to make his campaign credible, Dean would not have won major endorsements.

So where would Dean have been with far less money, with a leaner volunteer organization, and without such ubiquitous (and often glowing) early coverage of his campaign? Not out of the race, probably—with luck, and without the curse of high expectations, strong finishes in Iowa and New Hampshire might have given him a solid base to build on in the later primaries. Nonetheless, without the Internet, it seems impossible that Dean would have become so formidable so early.

The End of the Beginning

For months leading up to the Iowa caucuses, the Dean campaign seemed poised to do for the Internet what the Kennedy-Nixon debate did for television: provide an undeniable demonstration of the new medium's political power. The result proved anticlimactic. In the aftermath of the Dean meltdown, it would be easy for observers to dismiss Dean's candidacy as a failed referendum on the importance of digital politics. Many lessons of the Dean campaign are indeed remedial ones: momentum matters; a candidate's perceived viability and electability matter; candidate gaffes and misstatements matter; and it matters that primary voters have different preferences than party activists. Even the best-funded campaigns are not assured of victory.

But this is not the whole story. In trying to squeeze Dean into established patterns, scholars may miss the important ways in which he simply doesn't fit. The puzzle for political scientists is not why Dean failed, but how he ever become the front-runner in the first place.

My answer to this question is simple: to paraphrase a previous presidential campaign, it's the Internet, stupid. There is strong evidence the Internet was an indispensable component of Dean's fund-raising success. Dean challenges nearly all of the conventional wisdom on political fund-raising: who gives, to whom, how much,

and with what sort of underlying message. With the nomination in hand, John Kerry suddenly inherited Dean's fund-raising success, raising a stunning $40 million just in the first quarter of 2004 ($26 million of that online) and keeping pace with the Bush fund-raising machine. Kerry ultimately raised $83 million online, more than 1/3 of his fundraising total (Justice 2004). Kerry's online cash influx implies that Dean's campaign was not a fluke, but rather part of a larger shift in the American political landscape.

Internet fund-raising is not the only Dean legacy. Dean also used the Web (and specific sites like Meetup.com) to build a minor candidacy into a national movement. The geographic reach of the campaign, the size of its volunteer corps, and its ability to reach previously inactive citizens were all a result of Dean's Internet strategy.

Dean's candidacy is thus the best evidence to date that the Web matters for politics. His example makes it doubly important to understand how this resource is distributed, and it highlights important ideological gaps in who uses the Web for politics. The digital divide is not just about access, user skills, or even what Pippa Norris labels a "democracy gap" between the engaged and the politically indifferent (Norris 2001). For practical politics, the most crucial divide concerns the attitudes of those who frequent political Web sites. Disproportionate liberal use laid the groundwork for everything Dean accomplished and ensured that the online political audience would be particularly receptive to his message. Much of the future of online politics depends on how persistent this liberal-conservative gap proves to be.

The Dean campaign marks the end of the beginning for the study of the Internet in political science, the moment when the medium dramatically impacted traditional concerns like fund-raising and mobilization. There is still a great deal that we do not know about the Internet and its implications for political life. For those who study political campaigns, Dean made filling in those gaps a lot more important.

"Googlearchy": The Link Structure of Political Websites

> If everyone has a voice, no one really has a voice. Any single
> voice will be drowned out by many thousands of "Gee, this is my
> blog, I thought it would be a good idea to start one because my
> cat is so cute. I'll post pictures of my cat and I love Jesus."

<div align="right">

user "Dancin Santa"
posted on Slashdot.org

</div>

In studying political voice, social scientists have examined many types of citizen participation. They have studied who volunteers for political campaigns, who writes letters to their elected representatives, who joins advocacy groups, who donates money to political causes—and, of course, which citizens vote, and for whom. It was these traditional political activities, along with their online analogues, which were the focus of the previous chapter. Howard Dean won the attention of Internet enthusiasts and skeptics alike because his campaign showed that the Internet could impact these longstanding concerns. Every campaign hopes for numerous volunteers; Dean showed that volunteers could be mobilized online. Every campaign wants lots of money; the Internet fueled Dean's fundraising success.

This focus on traditional areas of political activism is quite correct, as far as it goes. Yet this chapter takes a step back. Claims about the Internet and political voice have focused as much on political discourse as on political participation. The recurring suggestion is the the Internet is a "narrowcasting" or "pointcasting" medium which levels the playing field, and gives voice to marginalized or resource-poor groups. According to some, even citizens in their sleepwear can be heard in online politics.

Claims about the importance of narrowcasting online have persisted, in part, because they are difficult to test. Such theories argue—rather counterintuitively—that it is not the biggest sites that matter online, but rather the smallest. By definition, such

sites get so little traffic that their relative importance cannot be accurately measured with survey data. Even with the massive, 10 million-subject Hitwise sample used in later chapters is unable to adequately measure traffic patterns at such a microscopic level.

This chapter proposes a new approach to deal with this dilemma. It suggests that, if we want understand how the Internet is (and is not) changing the political landscape, we have to consider a very different sort of political behavior: hyperlinking. In the process, it is necessary to rethink certain assumptions about the "openness" of the Internet.

In his 1999 book *Code*, Lawrence Lessig argued that the Internet was governed not just by laws and norms, but also by software. On the Internet, different layers of software code control everything from where data packets are routed to how many people are allowed join an AOL chatroom. Lessig and others argued that the Internet's code was not fixed—and that attempts by commercial and security interests to change the architecture of the Internet threaten the medium's openness. [1]

These scholars are surely correct that we need to take a closer look at the infrastructure of the Internet if we are to understand its social and political effects. Yet a central argument of this book is that our understanding of the Internet's infrastructure needs to be broader. In this chapter, we argue that the link structure of the Internet is particularly important in shaping online political activity.

Millions of Americans have now created their own blogs or Websites. Hundreds of thousands of businesses and organizations have followed suit. Creating a link to another Web site hardly conjures up the energetic activity that "activism" assumes, and those linking to other sites may not even be advocating the political views they reference. As this chapter will show, the way in which these Website owners link to each other is anything but random.

The interlocking patterns hyperlinks form are the reason the medium was named "the Web" in the first place. Hyperlinks encode much useful information. Most users see a tangible demonstration of this every day: PageRank, the ranking algorithm which powers the Google search engine, relies largely on the link structure of the Web to order its results. Other search engines, including Yahoo and Microsoft Search, also focus on link structure.

The research described in this chapter was performed in collaboration with Kostas Tsioutsiouliklis and Judy Johnson, then of NEC Research Laboratories. We argue that the link structure of the Web can approximate the relative visibility, and the relative traffic, of political Web sites, even in the communities too small to study with cross-sectional data. The number of links pointing to a site is correlated with both its ranking in search engines, and the number of visitors the site ultimately receives. The link topology of the Internet thus allows us to draw a rough map of how the attention of citizens is distributed across different sources of online information.

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[1] In this vein, see Castells 2000, Boyle 1996, Deibert 2000, Deibert 2003.

Tsioutsiouliklis, Johnson and I use computer science techniques to explore millions of Web pages, looking at topical clusters of sites focused on a variety of subjects: Congress, general politics, abortion, the presidency, the death penalty, and gun control. The distribution of links within each community of sites approximates a power law, where a small set of hyper-successful sites receives most of the links.

Popular wisdom that the Web functions as a "narrowcasting" or "pointcasting" medium is not consistent with this data. Nor are claims that the Internet is dominated by a "long tail," or that online political communities provide "vast" numbers of "moderately read" outlets for citizen debate. The link topology of the Web suggests that the online public sphere is less open than many have hoped or feared.

What Link Structure Can Tell Political Scientists

The structure of the Web has been a fertile area of scholarship in recent years. Though most of this work has been done by computer scientists and applied physicists, the patterns they have found in the apparent chaos of the Web should give political scientists cause to rethink the Web's political implications.

In looking at the structure of the Web, the central finding is that links between sites obey strong statistical regularities. Over the entire Web, the distribution of both inbound and outbound hyperlinks follows a power law or scale-free distribution (Barabasi and Albert 1999; Kumar et al. 1999). More precisely, the probability that a randomly selected Web page has K links is proportional to $K^{-\alpha}$ for large K.

Data follow a power law distribution when the size of an observation is inversely and exponentially proportional to its frequency. For example, the distribution of wealth, as Pareto famously explained, is a power law distribution, where 20% of the population controls 80% of the wealth (Pareto 1897). Numerous other social and natural phenomena follow this pattern as well, from earthquakes to intracell protein networks, from the size of firms to the size of cities, from the severity of wars to the number of sexual contacts (Huberman 2001; Krugman 1994; Cederman 2003; Liljeros et al. 2001).

As the diverse scholarship related to power laws demonstrates, power law structures can be generated by very different underlying processes. But in every case, a power law distribution leads to starkly inegalitarian outcomes. Imagine a hypothetical community where wealth is power-law distributed: At one end of the spectrum, there is one millionaire, ten individuals worth at least 100 thousand dollars, a hundred people worth 10 thousand dollars, and a thousand people worth at least a thousand dollars. At the opposite end, 1,000,000 people have a net worth of $1. In this hypothetical community, wealth is distributed in proportion to the function $K^{-\alpha}$, where $\alpha = 1$.

In the context of the Web, studies have found the online environment to be far more concentrated even than the hypothetical example above, generating values of

$\alpha \approx 2.1$ for inbound hyperlinks, and $\alpha \approx 2.72$ for outbound hyperlinks (Kumar et al. 1999; Barabasi et al. 2000; Lawrence and Giles 1998; Faloutsos, Faloutsos and Faloutsos 1999).[2] A few popular sites (such as Yahoo or AOL or Google) receive a large portion of the total links; less successful sites (such as most personal Web pages) receive hardly any links at all. Traffic, like link structure, follows a power-law distribution with roughly the same parameters (Huberman et al. 1998; Adamic and Huberman 2000). There is thus a small set of sites that receive most of the links, and a small set of sites that receive most online visitors. For the purposes of this chapter, it is important to show that these two groups are one and the same.

We do this in two ways. In the next sections, we explain *why* we should expect the number of links pointing to a site to be a powerful predictor of traffic: both surfing patterns and search engines send users to the sites that have accumulated the most links. Then, we test this expectation by looking at real world data on the correlation between links and site traffic.

Finding Online Information

In order to visit a Web site, one must be able to find it in the first place. Known sites, or sites found by offline means, can be visited by typing in the URL or by using a bookmark within a Web browser. Content the user has *not* seen before, however, can be found in only two ways. First, it can be discovered by surfing away from known sites; or second, it can be found with the help of online search tools such as Google or the Yahoo directory service. In both cases, the number of inbound hyperlinks is a crucial determinant of a Web page's visibility.

Much of the association between inbound links and traffic is simple: hyperlinks exist to be followed. The more hyperlinks there are to a given site, the more chances users on connecting sites have to follow them. In the aggregate, more paths to a site means more traffic.

What is true for individual surfers is doubly so for search engines. The first generation of search engines, such as Alta Vista, focused on keyword density and other characteristics found within individual Web pages. The Google search engine was a powerful disruptive technology. Google's contribution was to take a broader view, and use the connections *between* Web sites to find the best content. Google founders Sergey Brin and Larry Page developed PageRank, a recursive algorithm in which sites that receive lots of links, from *other* sites that receive lots of links, are ranked most highly (Brin and Page 1998; Pandurangan, Raghavan and Upfal 2002). In essence, sites are ranked in a popularity contest, in which each link is a vote, but the votes of popular sites carry more weight.[3]

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[2]Barabasi et al. and Kumar et al. seem to disagree on the value of α for outgoing hyperlinks; Barabasi et al. propose a value of $\alpha = 2.4$. This scholarship also shows that these parameters have been highly stable over time, even as the Web has undergone explosive growth.

[3]As time has passed, Google has increasingly incorporated other factors into its rating algorithm.

Both search engines and surfing behavior thus privilege the same sorts of Web pages. Sites which are heavily linked to become prominent; most other sites are likely to be ignored.

According to April 2006 data, Google owns 50 percent of the U.S. search engine market[4]; this compares to 28 percent for Yahoo Search, and 13 percent for MSN Search (*The un-Google* 2006). Over the past several years, Google has steadily taken market share from its rivals. One might think that a less concentrated search engine market would help ensure diversity in the content seen. But once search engines focus on link structure, the popularity contest dynamics seen with PageRank are difficult to avoid. The HITS algorithm is one widely-known alternative to PageRank, and uses the mutually reinforcing structure of "hubs" and "authorities" to rank results (Kleinberg 1999; Marendy 2001). Ding et al. show that, despite the fact that the HITS approach is "at the other end of the search engine spectrum" from PageRank, it tends to rank the same set of sites first. Indeed, both algorithms—and any likely competitors—produce results that are hardly different than just ordering sites by the number of inlinks they receive (Ding et al. 2002; see also Tomlin 2003). (Similarity in search results will be explored in greater detail in the following chapter.)

The Relation Between Inbound Links and Web Traffic

To recap: we know that over the entire Web both traffic and links are power-law distributed. We also have reason to believe that traffic will be driven to heavily-linked sites. But how close is the relationship between link structure and site visits in practice?

Both my own analysis and that of other researchers suggests that the connection is reasonably strong. Lada Adamic of Hewlett Packard Laboratories provided us with data on links to Web sites along with the number of visitors these sites receive. The site visit data are from a randomly-selected, anonymized set of users from a large Internet service provider. They include 120,000 site visits by 60,000 users; the link data for visited sites was compiled by Alexa corporation.

In these data, the number of inbound links and the number of site visits are highly correlated, generating a correlation coefficient of .704. The raw number of hyperlinks pointing to a site does predict much of its traffic. These results seem particularly strong given that the data includes advertising links; because the click-through rate on online advertising is notoriously low, advertising sites are heavily-linked but

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Though these refinements make it harder to manipulate search engine results, they make only modest changes in the overall rankings—particularly in the first few pages of search results. As of this writing, PageRank and similar measures of link structure continue to be the backbone of Google's ranking system.

[4]This figure includes Google-powered searches on AOL.com. AOL searches were 7 percent of the total market; with AOL excluded, Google's market share was 43 percent.

lightly visited.[5]

In power law distributions a tiny portion of the observations produce most of the variance. We might posit that removing or de-emphasizing the top sites would weaken this correlation. Taking the square root of the data—and therefore compressing the difference between the largest and smallest observations—does attenuate the relationship between links and traffic. After taking the root of the data, the correlation coefficient drops to .449. Segmenting the data suggests a similar conclusion. If we look at just the top 500 sites by traffic, the correlation coefficient rises slightly, to .726. Yet in the remainder of the data *without* these top 500 sites, the correlation coefficient is only .118.

Link patterns thus seem reasonably good at identifying the small group of heavily trafficked sites. There is far less variance to explain with less popular sites, and here inbound links tell us little about whether a site is likely to receive two visitors or twenty.

Others have similarly suggested a strong connection between links and traffic to blogs. Several sites track the number of links that these online journals receive, and many blogs use sitemeter.com to track visitors. Using this data, Clay Shirky found that links and traffic have roughly the same correlation within Weblogs as in the above data on the Web as a whole (Shirky 2004). Shirky, too, finds that links are best at predicting the traffic of popular sites.

All of this returns us to our prior question: how is traffic distributed among political Websites? While the global power law distribution of the Internet is clear, subgroups of sites also diverge significantly from the overall pattern. Within specific categories of sites, researchers have found that the hyperlinks are less skewed toward a few dominant sites (Pennock et al. 2002). Benkler in particular has made much of Pennock et al.'s research, arguing that it supports his "Goldilocks" theory that online concentration is "just right." Political content online, Benkler suggests, is just concentrated enough to support "universal uptake and local filtering."

It is worth emphasizing, however, that even in Pennock et al.'s research, communities that follow more egalitarian patterns are the exception rather than the rule. The communities that do not follow winners-take-all hierarchies—for example, sites for publicly listed companies, university homepages, and newspaper homepages—all have one thing in common: they are parasitic upon pre-existing, real world social networks. Employees at public companies are familiar with both the largest corporations, and with companies within their market niche; university scholars recognize both the Harvards and Yales of the educational world, and their peers at nearby educational institutions. As Barabasi (2002) notes, this level of horizontal visibility within communities is rare online.

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[5]According to the terms under which we received these data, the site URLs were unlabeled; therefore, advertising links could not be omitted from the analysis.

It is thus far from clear whether subcategories of political sites should be as egalitarian as Benkler assumes. The only way to understand the structure of political Websites is to measure it directly. The next section proposes methodology to do exactly that.

The Link Structure of Online Political Communities

In this chapter we survey the portions of the Internet that the average user is most likely to see while searching for common types of political information. It is explicitly not an attempt to map every political site online, or even every political site in a given category. The aim is not to overcome the limits imposed by the scale of the Web; rather, it is to demonstrate the biases these limitations introduce in the number and types of sites encountered by typical users.

The research design we have chosen comes out of a large body of established computer science research. (Part of that research is summarized in the "Appendix on Methodology" at the end of the book.) The methodology we implement has four main parts:

1. Create 12 lists of 200 highly-ranked "seed sites" in a variety of political categories. Six categories are chosen; in each category, one list is taken from Google search engine results, and one is taken from the Yahoo directory service.

2. Build Web robots to crawl outward from these 200 sites, following every link in turn, 3 links deep. For each crawl, this requires downloading roughly 250,000 HTML pages, or about 3,000,000 pages across all 12 crawls.

3. Classify these downloaded pages using Support Vector Machine (SVM) algorithms, to see whether newly encountered pages are relevant to the given category—if, for example, a page discovered by crawling away from gun control sites also focuses on gun control. Those pages that do belong in a particular category are classified as "positive."

4. For each of the 12 crawls, analyze the distribution of inlinks within the set of "positive" sites.

Ultimately, six categories of Web sites were chosen: abortion, gun control, the death penalty, the U.S. congress, the U.S. presidency, and the catch-all category of "general politics." It is clearly infeasible to classify the downloaded Web pages with human coders. Even if one could classify 120 Web sites an hour, it would take an individual working 8 hours a day 10 years to classify 3,000,000 pages. Human categorization also raises questions of bias and subjectivity.

To solve this problem, we classify these Web sites automatically using Support Vector Machines, or SVMs. The technical operation of SVMs are described in the Appendix. The SVM classifier produces reliable categorization of relevant Web pages.

	Downloaded	Topical (SVM)	SVM unsure
Abortion (Yahoo)	222,987	10,219	717
Abortion (Google)	249,987	11,733	1,509
Death Penalty (Yahoo)	212,365	10,236	1,572
Death Penalty (Google)	236,401	10,890	938
Gun Control (Yahoo)	224,139	12,719	1,798
Gun Control (Google)	236,921	13,996	1,457
President (Yahoo)	234,339	21,936	2,714
President (Google)	272,447	16,626	3,470
U.S. Congress (Yahoo)	215,159	17,281	2,426
U.S. Congress (Google)	271,014	21,984	4,083
General Politics (Yahoo)	239,963	5,531	1,481
General Politics (Google)	341,006	39,971	10,693

Table 3.1: This table illustrates the size of the Web graph crawled in the course of my analysis, as well as the number of sites that the SVM classifiers categorized as positive. The first column gives the number of Web pages downloaded. Columns two and three give the number of pages which are classified by the SVM as having content closely related to the seed pages, as well as the pages about which the SVM was hesitant.

Most importantly, human coding (discussed below) suggests that it produces very few false positives.

The choice of seed sites is obviously an important one. Not only does this set of sites determine the starting point for the Web crawlers, and thus the area of the Web downloaded and analyzed, these sites are also used to train the Support Vector Machines to recognize relevant content. We were initially concerned about possible biases between human-categorized content and the machine-categorized content returned by search engines. Therefore, in each category, we analyze both seed sets generated by Google, and seed sets taken from the human-categorized Yahoo directory. Ultimately, both the Google and Yahoo seed sets lead to the same conclusions.

Results

The six political topics examined are quite different from one another, and our research design introduces many sources of potential heterogeneity. The level of consistency in our results is therefore all the more striking. All twelve of the crawls reveal communities of Web sites with similar organizing principles and similar distributions of inbound hyperlinks.

First, let us examine the scope of the project. Table 1 lists the number of pages downloaded, as well as the results of the SVM classification. The size of the crawls

	Yahoo	Google	Overlap
Abortion	10,219	11,733	2,784
Death Penalty	10,236	10,890	3,151
Gun Control	12,719	13,996	2,344
President	21,936	16,626	3,332
U.S. Congress	17,281	21,984	3,852
General Politics	5,531	39,971	1,816

Table 3.2: This table gives the overlap, on a given political topic, between the crawls generated by the Yahoo seed set and that generated with the first 200 Google results. The global overlap is significant, and closer examination of the data suggests that overlap is nearly complete for the most heavily linked pages in each category.

is quite large, averaging about a quarter of a million pages. The size of the SVM "positive" sets varies by subject; communities focused on particular political issues were smaller than those focused on the presidency or the U.S. congress. Out of the large number of pages crawled, only a fraction were relevant to the given category.

Table 1 suggests that the SVM classifier is good but not perfect. Human coding of 500 randomly drawn "positive" Websites found only 9 where the human coder classified the Webpage as unrelated to the issue area. Similarly, few sites in the negative set seem to be misclassified.[6] A significant portion of sites, however, are close to the SVM's decision boundary, and are thus classified as "unsure." Sites about which the SVM was hesitant range from 7 to 25 percent of the size of the positive set. Human coding suggests that the large majority of these sites should be included in the positive set. Secondary analysis conducted with "unsure" sites included in the positive set found no substantive differences from the results detailed below.

In several cases, the the Google and Yahoo seed sets were quite different. There was initially some concern that the communities identified might not be directly comparable. Table 2, which shows substantial overlap between the positive sets from the different Yahoo and Google crawls, does much to alleviate those fears. It suggests that the Yahoo and Google crawls are exploring the same communities, and provides a clear demonstration of the small diameter of the Web. Most of the pages in the positive set are obscure, and receive only a few inlinks. The least overlap occurs with pages with one hyperlink path to them. Among the most heavily linked pages, the overlap between the Yahoo and Google results is almost complete.

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[6]Human coding of 200 negative sites found no examples where the human coder disagreed with the SVM. However, this finding may say less about the accuracy of the SVM classifiers than about the narrow diameter of the Web; for example, Albert et al. found that two random pages on the Web are, on average, 19 clicks apart. (Albert, Jeong and Barabasi 1999). This means that any large-scale crawl will quickly encounter lots of irrelevant content, and that even a classifier that put 100 percent of sites into the "negative" category would be right the large majority of the time.

	SVM positive set	Links to SVM set	Within-set links
Abortion (Yahoo)	10,219	153,375	121,232
Abortion (Google)	11,733	391,894	272,403
Death Penalty (Yahoo)	10,236	431,244	199,507
Death Penalty (Google)	10,890	291,409	149,045
Gun Control (Yahoo)	12,719	274,715	178,310
Gun Control (Google)	13,996	599,960	356,740
President (Yahoo)	21,936	1,152,083	877,956
President (Google)	16,626	816,858	409,930
U.S. Congress (Yahoo)	17,281	365,578	310,485
U.S. Congress (Google)	21,984	751,306	380,907
General Politics (Yahoo)	5,531	320,526	88,006
General Politics (Google)	39,971	1,646,296	848,636

Table 3.3: This table gives the number of links to sites in the SVM positive set, from both outside the set and from one positive page to another. Note that, in most cases, links from other positive pages provide the majority of the links.

The collection of Web pages found using these methods is between 10,000 and 22,000 for all but one of the areas studied (Table 3.2). Given the vastness of the Web, these pages are likely only a small fraction of all pages on these topics. Of even greater interest than the size of these topical communities, however, is the way in which they are organized. Table 3.3 gives an overview of the link structure leading to these relevant pages.

Globally, the Web graph is sparse; a randomly selected series of pages will have few links in common. In contrast, the number of links between our positive pages is uniformly large. For 10 of the 12 crawls, links from one positive page to another account for more than half the total. This increases our confidence that we have identified coherent communities of pages.[7]

Ultimately, however, what we want to know is the distribution of these inbound links. The first column of Table 4 contains the number of *sites* in each category which contain at least one positive *page*. For example, abortionfacts.com is a prominent anti-abortion Web site. Abortionfacts.com contains within it many Web pages that are relevant to the abortion debate. If what we are interested in is the number of sources

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[7]It is worth noting that the results shown are based on raw data, and may thus inflate somewhat the connectedness of the graph. To take one example: moratoriumcampaign.org, a popular site opposed to the death penalty, contains a number of heavily cross-linked relevant pages—and relevant page *A* may even contain more than one link to relevant page *B*. Eliminating cross-links between pages hosted on the same site eliminates a large portion of the links. The distribution of inlinks, however, remains stubbornly power-law distributed. Because we believe that the total number of inlinks is the best predictor of a site's visibility and traffic, this analysis focuses on the raw numbers.

	Sites	Links to top site (%)	Top 10 (%)	Top 50 (%)
Abortion (Yahoo)	706	15.4	43.2	79.5
Abortion (Google)	1,015	31.1	70.6	88.8
Death Penalty (Yahoo)	725	13.9	63.5	94.1
Death Penalty (Google)	781	15.9	53.5	88.5
Gun Control (Yahoo)	1,059	28.7	66.7	88.1
Gun Control (Google)	630	39.2	76.8	95.9
President (Yahoo)	1,163	53.0	83.2	94.9
President (Google)	1,070	21.9	65.3	90.9
U.S. Congress (Yahoo)	528	25.9	74.3	94.8
U.S. Congress (Google)	1,350	22.0	51.4	82.3
General Politics (Yahoo)	1,027	6.5	36.4	70.3
General Politics (Google)	3,243	13.0	44.0	74.0

Table 3.4: This table demonstrates the remarkable concentration of links that the most popular sites enjoy in each of the communities explored. The first column lists the number of sites that contain at least one positive page; note that many sites contain numerous relevant pages. Columns 2, 3, and 4 show the percentage of inlinks attached to the top site, the top 10 sites, and the top 50 sites in a given category.

of political information, it makes greater sense to count all of the pages at abortion-facts.org as a single unit. The number of sites offering political information must, by definition, be smaller than the total number of pages.

The most important results are captured in the other three columns of Table 3.4. Here we find the percentage of inlinks attached to the top site, the top 10 sites, and the top 50 sites in each crawl. The overall picture shows a startling concentration of attention on a handful of hyper-successful sites. Excluding one low-end outlier, the most successful sites in these crawls receive between 14% and 54% of the total links—all to a single source of information.

Particularly telling is the third column, which shows the percentage of inlinks attached to the top ten sites for each crawl. In 9 of the 12 cases, the top ten sites account for more than half of the total links. The top 50 sites account for 3–10% of the total sites in their respective categories, but in every case they account for the vast majority of inbound links.

There is thus good reason to believe that communities of political sites on the Web function as winners-take-all networks. But is the inlink distribution among these sites governed by a power law? The answer seems to be yes. Consider the figures below: Figure 3.1 looks at sites on the U.S. presidency; Figure 3.2 looks at sites devoted to the death penalty. One is generated from a Yahoo seed set; the other is from Google.

The unmistakable signature of a power law distribution is that, on a chart where
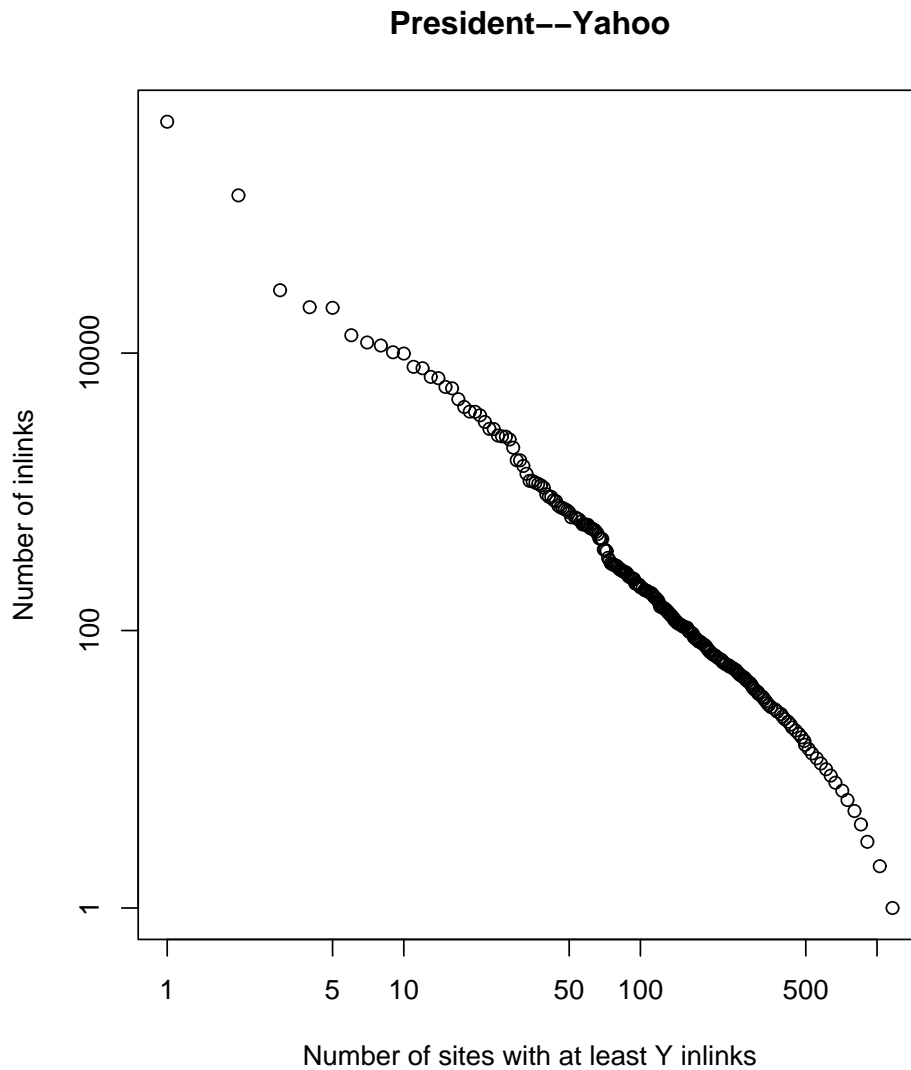
President––Yahoo

Figure 3.1: This chart shows the distribution of inbound hyperlinks for sites which focus on Pres. George W. Bush. Both axes are on a log scale. Note that the data form a straight line—unmistakable evidence of a power-law distribution.

both of the axes are on a logarithmic scale, the data should form a straight line. This is precisely what Figure 3.1 shows—a textbook power law distribution. A similar but less exact pattern is evident in Figure 3.2, which is more typical of the communities crawled. Here the line formed by the data on the log-log scale bulges outward slightly; the slope of the line gets steeper as the number of sites increases. The death

penalty community deviates from a power law at the tails—particularly among the most popular sites, where a pure power law would produce astronomical numbers of links.[8]

Table 3.5 shows the results of fitting a power law to the data gathered by each of the 12 crawls. In this case, the model chosen is a simple ordinary least squares regression. The dependent variable is the log of the number of links pointing to a given Web site. For example, if site Q has 1500 inlinks, its value on the dependent variable is equal to $ln(1500)$, or 7.31. The explanatory variable is the log of the number of sites which have at least as many inlinks as site Q. Since a power law relationship between the two variables should produce a straight line on a log-log scale, a linear regression on the log-transformed data is a straightforward way of testing how well such a distribution fits the data. In this context, the constant is the log of the number of inlinks which the model predicts for the community's most popular Web site.

This analysis shows that, with a few caveats, a power law fits the distribution of inlinks within these political communities well. The Yahoo abortion community is a markedly poorer fit than the other 11 communities explored, though the power law model still produces an R^2 of .9016. The power law model consistently predicts greater numbers of inlinks for the four or five most successful sites than we see in the data; to a lesser degree it underpredicts the number of sites that have only a handful of links. These deviations, particularly in the upper part of the curve, are substantively significant, as they dilute the concentration of attention on the small number of successful sites.

Still, even with outliers at both tails, power law models produce an R^2 greater than .95 in 11 or the 12 communities. The body of the data, in *every* community, adheres stubbornly to a power law, and omitting the 5 highest and lowest link values usually produces a near-perfect fit. Inlink distribution within political communities is bound by powerful statistical regularities.[9]

Site Visibility and the Emergence of "Googlearchy"

Whether online communities are better characterized by power laws or by some other variety of extremely skewed distribution is, of course, not the central point. For political scientists concerned about the level of concentration within communities dedicated to political expression, two lessons are clear. First, the number of highly visible sites is small by any measure. It seems a general property of political communities online that a handful of sites at the top of the distribution receive more links than the

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[8]The slightly curvilinear shape—which forms a soft, downward-facing parabola in the log-log scale—may suggest an admixture between a power law and some other distribution with an extreme skew (such as a log-normal distribution with a mean of 0).

[9]ADD TESTS OF LOG-NORMAL AND POWER LAW WITH EXPONENTIAL CUTOFF; POWER LAW WITH EXPONENTIAL CUTOFF DOES BEST

rest of relevant sites put together. Second, comparative visibility drops off in a rapid and highly regular fashion once one moves outside the core group of successful sites. Falloff in site visibility is not linear; rather, it follows an exponential function over many orders of magnitude. Given the diversity both in seed sets and in the types of communities explored, these results are surprisingly strong and consistent.

One more point deserves emphasis: the power law structure persists even if these sites are broken down into sub-communities. In the two crawls of the abortion community, for example, pro-choice sites outnumber pro-life sites by roughly three to one. However, both pro-life and pro-choice sites are governed by a power law. Although the slope is different across the two groups (with pro-life sites being more concentrated), the overall structure continues to focus attention on a few top sites. The same pattern is evident in the gun control and death penalty communities, which both contain clearly opposing subgroups. The structure of political groups on the Web thus may loosely be termed fractal in nature—portions of the community mirror the winners-take-all structure of the whole. Here again, political content reproduces results seen in other areas of the Web (Dill et al. 2002).

Taking together, the insights in this chapter add up to a new theory that we call "Googlearchy": the rule of the most heavily linked. Building upon previous research, and the data referenced above, this theory offers several claims.

First, Googlearchy suggests that the number of links pointing to a site is the most important determinant of site visibility. Sites with lots of inbound links should be easy to find; sites with few inlinks should require more time and more skill to discover. All else being equal, sites with more links should receive more traffic.

Second, Googlearchy suggests that niche dominance should be a general rule of online life. For every clearly defined group of websites, a small portion of the group should receive most of the links and most of the traffic. Communities, subcommunities, and sub-subcommunities may differ in their levels of concentration; yet overall, online communities should display a Russian-nesting-doll structure, dominated at every level by winners-take-all patterns.

Third, Googlearchy suggests that this dependence upon links should make niche dominance self-perpetuating. Heavily linked sites should continue to attract more links, more eyeballs, and more resources with which to improve the site content, while sites with few links remain ignored.

By relying so heavily on links, search engines should reinforce or even accelerate this rich-get-richer phenomenon. Search engines should produce patterns of traffic at least as concentrated as those produced if citizens were surfing randomly across the Web.

Since this original research was performed, other scholars have attempted to test the Googlearchy claim that search engines will reinforce of inequalities in link structure and traffic. Some scholars have presented data that search engines *are* worsening the rich-get-richer phenomenon, making online traffic more concentrated worse than would be produced by random surfing alone (Cho and Roy 2004). Others have dis-

puted this claim, arguing that search engines make online traffic less concentrated than it would otherwise be (Fortunato et al. 2006).

The evolving debate over whether search engines produce a "vicious cycle" is important, but it should not obscure the larger point. The scholarly dispute focuses on how much online concentration can be blamed on search engines—and whether modern search methods are making inequality marginally better or marginally worse. None of this research has disputed the conclusion that profound inequalities in links define search engine visibility and patterns of traffic.

The Politics of Winners-Take-All

The body of this chapter has focused on technical subjects of a sort that scholars of politics have rarely considered. It has talked at length about why link density is an effective proxy for online audience share. It has shown that communities of Web sites on different political topics are each dominated by a small set of highly successful sites. In concluding, it is important to remind ourselves why this matters. We know that the Web gives citizens millions of choices about where to go to get their political information. What we *have not* known, however, is how much the Web expands the number of choices that people actually use.

Lack of data has allowed scholars to make very different assumptions about the political impact of the Web. Those who have made grand claims about the Internet and politics have often argued that the Web is part of an epochal shift from broadcasting to narrowcasting. In this view, wired citizens are supposed to rely on a much broader set of sources for their political information. This chapter—and the three the follow—provide no support for those utopian or dystopian visions. Yes, almost anyone can put up a political Website. But this fact means little if few political sites receive any visitors. Putting up a political Website is usually equivalent to hosting a talk show on public access television at 3:30 in the morning.

For those who have assumed that the Web will transform politics for good or ill, this paper thus challenges visions of the Web as a "narrowcasting" medium. But they are not the only ones for whom this research is problematic. The scale of online concentration is so profound that it forces us to rethink not just the enthusiasm surrounding the Internet, but also popular reasons for skepticism.

Large sites are clearly important on the Web—Yahoo dwarfs other portal sites, Amazon.com dominates online book selling, Ebay dominates online auctions, and online news is dominated by familiar names like CNN and the *New York Times*. What scholars have *not* generally understood, though, is that these winners-take-all patterns are repeated *at every level* of the Web.

The very pervasiveness of these phenomena belies the explanations that political scientists have offered for them. We do not blame America's high rate of functional illiteracy for Amazon.com's market dominance; it thus begs credulity to think that

civic shortcomings are driving concentration in the political news market. The online political advocacy communities we study in this chapter are not driven by commercial pressure, and yet the winners-take-all patterns within them are stark. Nor can we blame these patterns on powerful interest groups. The increasingly-important Weblog community is noncommercial, and initially had little association with traditional political groups. And yet, as we shall see in Chapter 6, Weblogs obey the same power law distributions in links and traffic that we see in the Web as a whole.

The clear implication is that more fundamental forces are at work—and political scientists need to understand these larger phenomena before grafting traditional models of politics onto the online environment.

The theory of Googlearchy suggests that online concentration comes from the sheer size of the medium, and the inability of any citizen, no matter how sophisticated and civic-minded, to cover it all. In most areas of political science, it is common to assume that most citizens know little about politics and take drastic shortcuts in the processing of political information. But if strong heuristics are needed to decide between two candidates on a ballot, how much more extreme do these heuristics need to be in deciding among millions of political Web sites? Previous scholarship has not emphasized enough this profound mismatch between the vastness of online political information and citizens' limited cognitive resources. Political scientists need more explicit models of how citizens respond to the astonishing overabundance of online information.

Scholars also need to reassess how the political possibilities of the Web are constrained by its architecture. It was the ostensible openness of the Web that inspired political scientists to take note of it. Scholars located this openness in the Internet's most basic design decisions: the end-to-end protocol which runs the Internet allows any computer online to connect to any other; a link on an HTML page can point to anywhere on the Web. But the various pieces which make up the architecture of the Web function as a whole—and that system is only as open as its most narrow chokepoint. The end-to-end nature of the Web might not limit the political sites that citizens visit, but the link structure of the Web certainly does.

Numerous areas of political science depend on assumptions about the flow of political information—from interest group formation to political engagement, voting behavior to political mobilization, public opinion to partisanship, collective action problems to democratic discourse. While scholars in these areas have no intrinsic interest in the link structure of the Web, all have an obvious stake in the political messages that citizens see. If political scientists want to gauge the ability of the Internet to amplify the voices of average citizens, they must first understand the patterns of concentration which govern almost every aspect of online life, politics very much included.
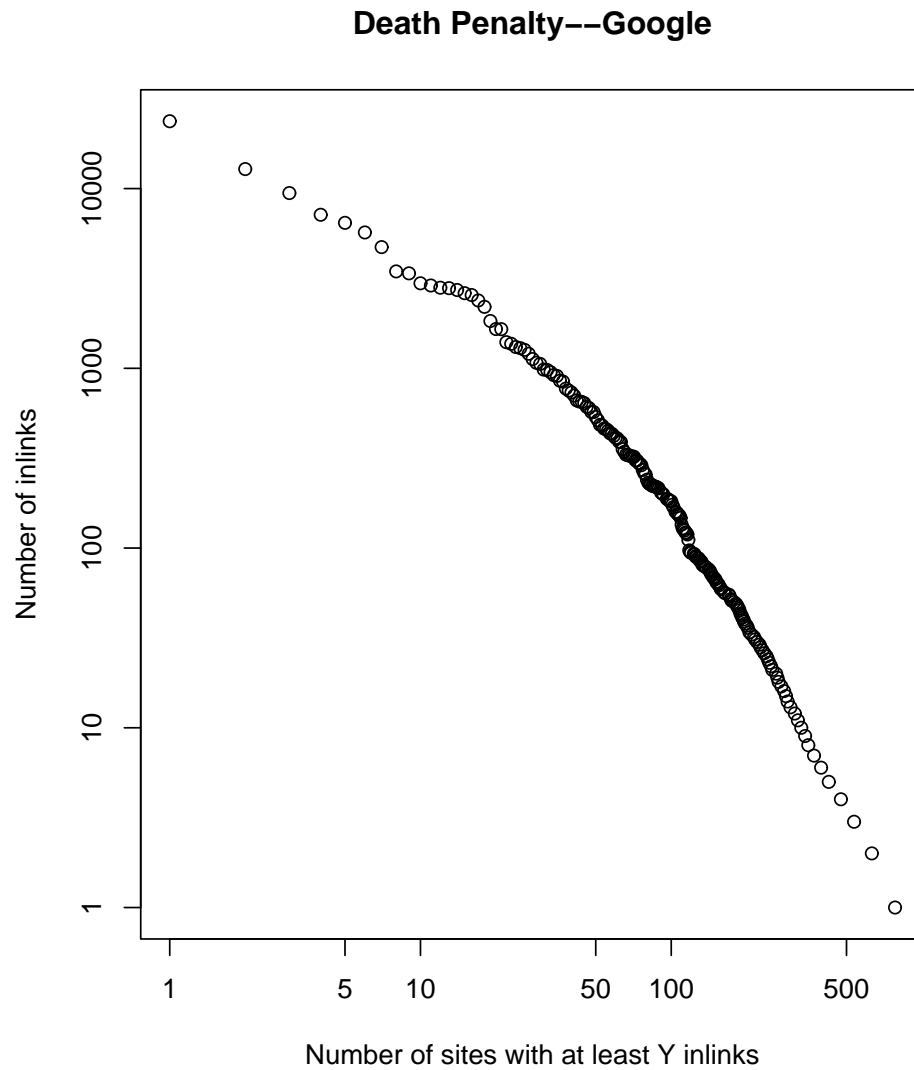
Figure 3.2: This figure illustrates the distribution of inlinks for sites focusing on the death penalty. Here again we see strong evidence of a power-law distribution, although there is a slight upward bulge to the plotted data. Fitting a power-law to to these data produces an R^2 of .9516—the second-lowest among the communities explored.

	Coefficient $(-\alpha)$	Constant	R^2
Abortion (Yahoo)	-1.544	11.834	.902
Abortion (Google)	-1.488	11.819	.972
Death Penalty (Yahoo)	-1.684	12.007	.977
Death Penalty (Google)	-1.958	13.960	.952
Gun Control (Yahoo)	-1.458	11.650	.961
Gun Control (Google)	-1.806	13.113	.968
President (Yahoo)	-1.659	13.014	.992
President (Google)	-1.705	13.285	.975
U.S. Congress (Yahoo)	-1.909	13.239	.971
U.S. Congress (Google)	-1.530	12.952	.953
General Politics (Yahoo)	-1.252	10.583	.956
General Politics (Google)	-1.454	13.536	.977

Table 3.5: This table shows the results of fitting a power law to the 12 communities explored, by means of an OLS regression on the logged data. The dependent variable is the log of the number of inlinks that a given site (e.g. site Q) has received; the explanatory variable is the log of the number of sites in the sample that have at least as many inlinks as site Q. If a power law follows the form $K^{-\alpha}$, the coefficent above is equal to $-\alpha$, the slope of the power law line on a log-log scale. The constant represents the log of the number of links that the most popular site is predicted to receive.

Political Traffic and the Politics of Search

> As long as we're 80 percent as good as our competitors, that's
> good enough. Our users don't really care about search.

<div align="right">

Anonymous Web portal CEO
1998
Quoted in Google's corporate history

</div>

The previous chapter discussed the link structure of political sites on the World Wide Web. Link structure can provide a microscopic view of Web content, allowing us to survey the "haves" and "have nots" within even the tiniest of online niches. If we take seriously claims that that Internet is a narrowcasting medium, this sort of method for small-scale analysis is indispensable. Still, the patterns seen in political communities in Chapter 3 raise as many questions as they answer. To understand the Web's political impact, we need not just a microscope, but a big-picture view of traffic on the Web. We need to put the winners-take-all patterns found within these small communities of Websites into proper context.

As we have seen, debates about the political impact of the Web have begun from quite divergent assumptions about how the medium is being used. Because Internet usage is more purposive than other forms of media consumption, one fear is that citizens will see only what they search for—and that searching for political information will not be high on the public's agenda. Some evidence suggests that this "seek and ye shall find" phenomenon is already at work. Markus Prior (2007) found that the Internet use had strikingly different effects, depending on one's political engagement. For those citizens interested in politics, Internet use increased political knowledge; for the politically apathetic, however, more time online had the opposite effect. While political junkies may use the Internet to follow politics, other users focus instead on getting the sports scores or reading the online edition of *Soap Opera Digest*.

To gauge the Internet's larger effects on the American political landscape, then, we need to return to the sorts of questions which motivated the discussion in Chap-

ter 3, this time on a broader scale. Where do people go online? How many visits do politically relevant Websites receive against the broad backdrop of Web traffic? What sorts of citizens visit political sites? And where does all of this traffic to political Websites come from, anyway? This chapter attempts to answer these questions with the help of a rich new data source.

It may seem surprising that such fundamental questions have remained unanswered, but getting data on these subjects has been difficult. The decentralized nature of the Internet means that only large Internet service providers (ISPs) and dedicated Internet-tracking firms have access to representative data on online traffic patterns. This chapter was made possible through the assistance of Hitwise Competitive Intelligence, a firm that partners with large ISPs to collect and analyze Internet traffic. Hitwise provides subscribers only with anonymized, aggregate data, but the scope of traffic Hitwise analyzes is vast. As of May 2006, the Hitwise sample included data on 1,076,817 English-language Websites[1]; Hitwise tracked traffic to these sites from 10 million American households that subscribed to its ISP partners. Because (as we shall see) political Websites account for only a tiny portion of overall Web traffic, the large Hitwise data set is preferable to data collected by other organizations, all of whom rely on smaller samples.

Importantly, Hitwise provides clickstream data, allowing us to see—at least in the aggregate—which sites users visit before and after a particular Website. This chapter thus examines not just the total traffic that accrues to each site, but the paths that typical users take to get there.

As expected, Hitwise's clickstream data emphasizes the importance of search engines in directing traffic to politically relevant sites. One in five visits to news and media Websites—and more than a quarter of visits to political Websites—comes directly from search engine queries. The last half of this chapter looks closely at the real-world queries that drive traffic to news sites and political advocacy sites. If search engines prove important in directing political traffic, the Hitwise data shows that the way citizens use these tools is partly surprising.

Traffic data, and query data, both inform debates about the role of online gatekeepers. Whether sites like Google and Yahoo should be seen as strong gatekeepers, or mere reflections of broader "democratic" social forces, has been the source of much dispute. Market concentration among search engine providers has been a particular source of concern, and three companies—Google, Yahoo, and Microsoft—now handle 95 percent of all search engine queries (Tancer 2006). There have even been calls to regulate Google as a public utility (e.g. Thierer and Crews 2003).

Would a more diverse search engine market provide more diversity in what citizens see? If the arguments for Googlearchy presented in the previous chapter are

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[1]The number of Websites that are included in Hitwise's traffic numbers varies over time. Sites are only ranked if they reach a minimum threshold of traffic; this means that Hitwise's weekly data always track a greater number of Websites than the monthly data. Hitwise constantly updates its database to add new Websites, and it undergoes regular audits to remove outdated entries.

correct, there should be substantial overlap between Yahoo's search results and those provided by Google. The last part of this chapter puts that claim to the test.

The Big Picture

Of all the things that discussions about online politics have been lacking, the most glaring has been a sense of scale. Here the Hitwise data is particularly helpful. As of this writing, no other data source measures traffic from such a large sample of the U.S. public, to such a large portion of the Web. By cataloging traffic to hundreds of thousands of the most visited sites on the Web, the Hitwise data can provide a much-needed sense of perspective.

While the appendix talks in greater length about the strengths and limitations of the Hitwise data, a few points should be repeated here. Hitwise's primary measure of traffic is the number of "visits" a site receives. Following standard industry practice, a "visit" is defined as a request for a Webpage or series of Webpages from a site, with no more than 30 minutes between clicks. In general, this measure emphasizes sites that are visited frequently, but not *too* frequently. An individual who browses through Google's results many times a day, never going more than 29 minutes between clicks, would be recorded as a single visit. The number of visits a site receives is a better metric of its proportional importance in the public's media diet than alternative metrics such as "audience reach," which measure the portion of the online population visited a site within a given window of time.

Figure 4.1 addresses the issue of scale, and demonstrates visually just how important news sites and political sites are—or are not—in comparison to other online content. The outer circle represents the total volume of Internet traffic. Within it, smaller circles represent the portion of traffic that goes to specific categories of Web usage.

Overall, about 10.5 percent of Web traffic goes to adult or pornographic websites. A slightly smaller portion (9.6 percent) goes to Webmail services, such as Yahoo Mail or Hotmail. 7.2 percent of traffic goes to search engines, while only 2.9 percent of Web traffic goes to news and media sites. These facts alone tells us much about citizens' priorities in cyberspace.

In the center of the figure is a small circle denoting the 0.12 percent of traffic that goes to political Websites. This tally is so low that one might be tempted to assume that important sites have been omitted from the category. Yet (as subsequent graphics will show) a closer examination finds no obvious gaps in membership. The relative ranking of political sites within their niche matches our predictions; the community itself is just a far smaller slice of the Internet pie than many have imagined.

Figure 4.2 presents a more comprehensive picture of Internet traffic, at least at the very top. Instead of looking at categories of content, this figure is a network map of traffic among the 50 most visited Websites (with adult sites omitted). As above, the traffic to a site is proportional to the Website's area; the width of lines between sites is
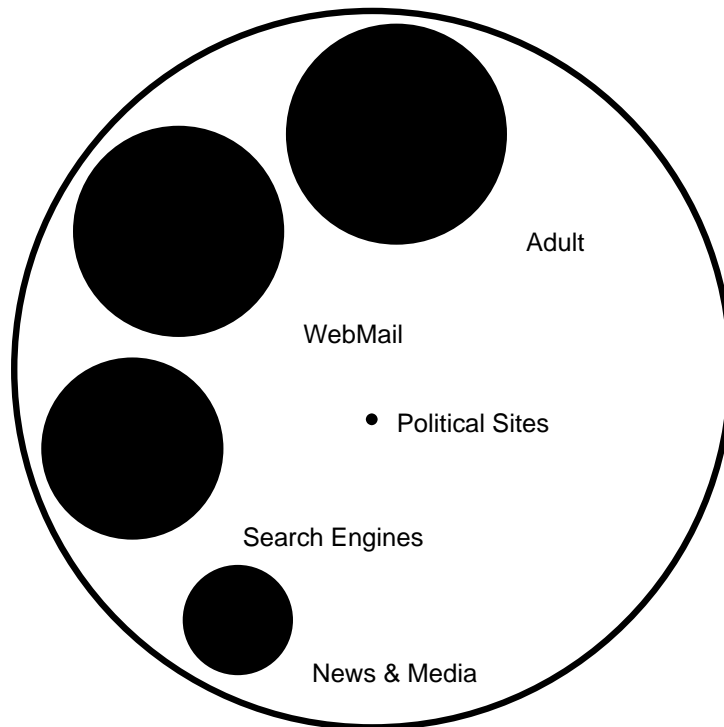
Figure 4.1: This figure displays the relative traffic received by different categories of online content. While adult sites receive more than 10 percent of Web visits, political sites receive slightly more than one tenth of one percent.

proportional to the number of users visiting site A immediately after site B. Because Hitwise has access to ISP data, this does not necessarily mean that users followed a direct link between the two sites; they could also have used a browser bookmark, or typed in a URL. Arrows indicate the direction of traffic flow. To provide a sense of scale, MySpace, the most popular site in the figure, accounts for 6.3 percent of all non-adult Web traffic; Google attracts an additional 4.8 percent. The traffic between MySpace and MySpace Mail, the widest edge on the graph, represents 2.5 percent of all non-adult traffic.

Chapter 5 examines the issue of online concentration in detail, and provides metrics that to compare online concentration with that in traditional media. Yet it should be noted that this small set of sites gets a hugely disproportionate share of Web traffic. Taken together, these top 50 sites—out of the 773,000 that Hitwise tracked—received 41 percent of Web traffic for the week of May 12, 2007, when this data was collected. Even this number is deceptive; there is an enormous disparity in traffic between the top 7 or 8 Websites, and the rest of the top 50. Every site listed gets a substantial
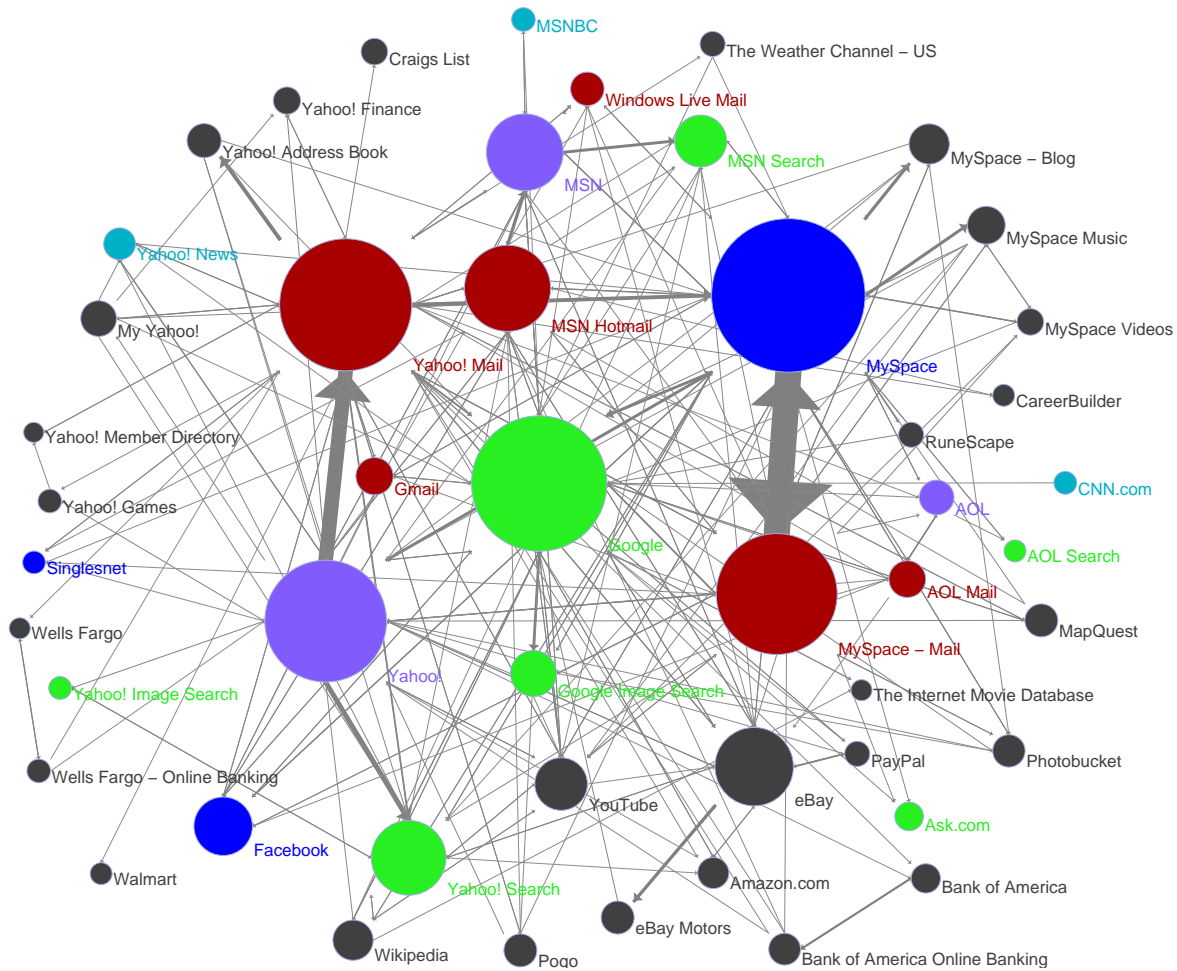
Figure 4.2: This figure maps traffic between the top 50 sites on the Web, according to Hitwise data from May 2007. Different categories of Websites are coded in different colors: search engines are in green; social networking sites are in dark blue; Webmail sites are in red; portal sites are in purple; and news sites are in light blue. All other sites are in black. Among other things, this graphic demonstrates the enormous disparity in traffic between the top 10 Websites and the other 40.

portion of its traffic from at least one of the top 10 Websites. As expected, there is a great deal of traffic sharing between Google-branded, Yahoo-branded, and MySpace-branded sites.

There are no political sites among this top 50. If the graphic was expanded to include the top 100 sites in the Hitwise data—or even the top 500 sites – not a single political site would qualify for inclusion. For April 2007, HuffingtonPost.com and FreeRepublic.com were the most popular political Websites. Huffington Post ranked
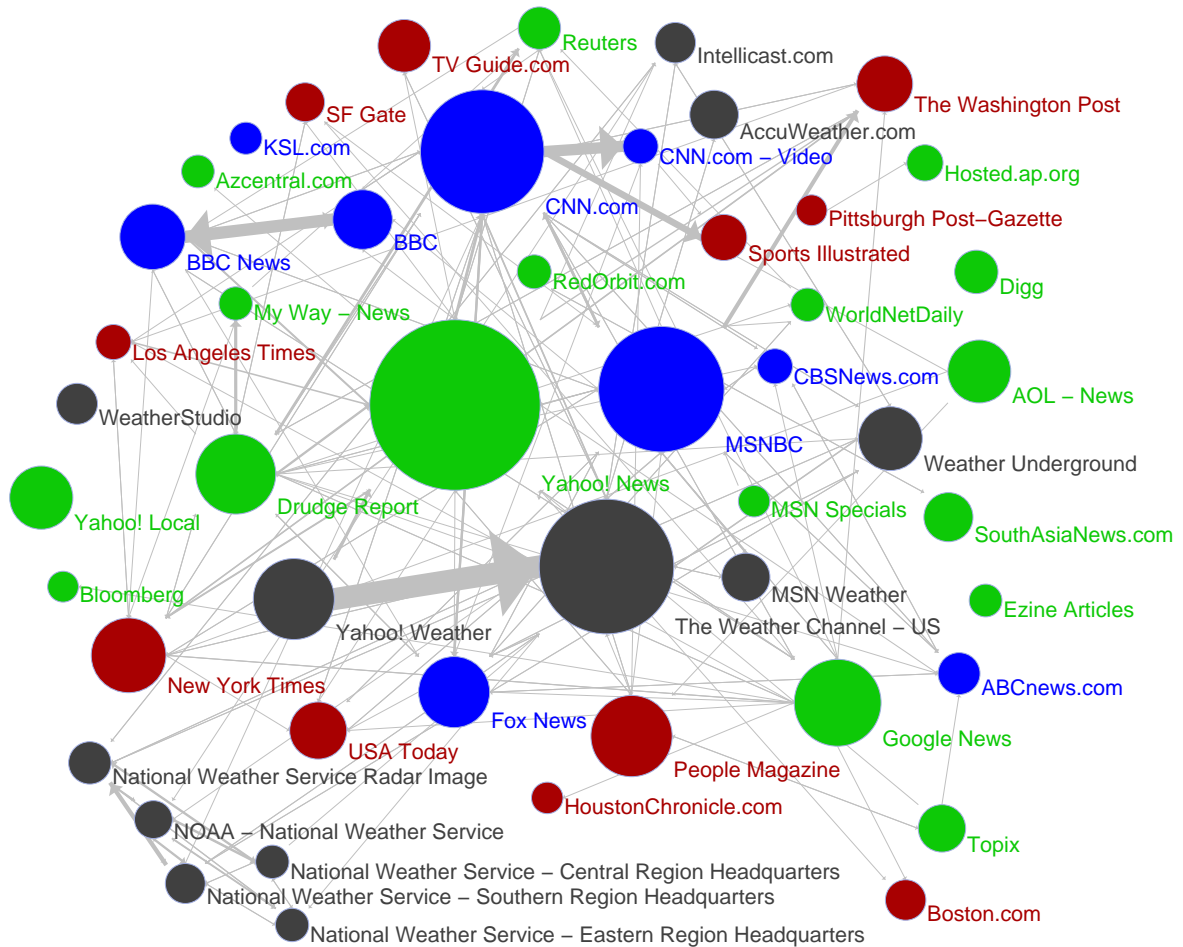
Figure 4.3: This graphic maps traffic among the top 50 sites in Hitwise's news and media category, as of May 12, 2007. Sites run by print outlets are in red, sites run by broadcast companies are in blue, weather sites are in black, and Web-only sites are in green.

796th among all non-adult Websites; Free Republic was ranked 871st.

Figure 3 performs a similar analysis, this time looking at traffic among the top 50 sites in Hitwise's "News and Media" category. Hitwise describes the category as including "Websites of magazines and newspapers, and news relating to the computer and IT industry"; Websites for broadcasting corporations are also prominent members, including sites for the Weather Channel, CNN, MSNBC, and the BBC. Here again, the size of a site is proportional to the traffic it receives, and edge width is proportional to traffic flow.

The findings here are somewhat different from findings for the Internet as a whole.

Figure 4.4: This figure maps traffic among the top 50 political Websites, as of May 2006. Liberal- or Democratic leaning sites are in blue; conservative- or Republican-leaning sites are in red. Self-declared neutral or nonpartisan sites are in gray.
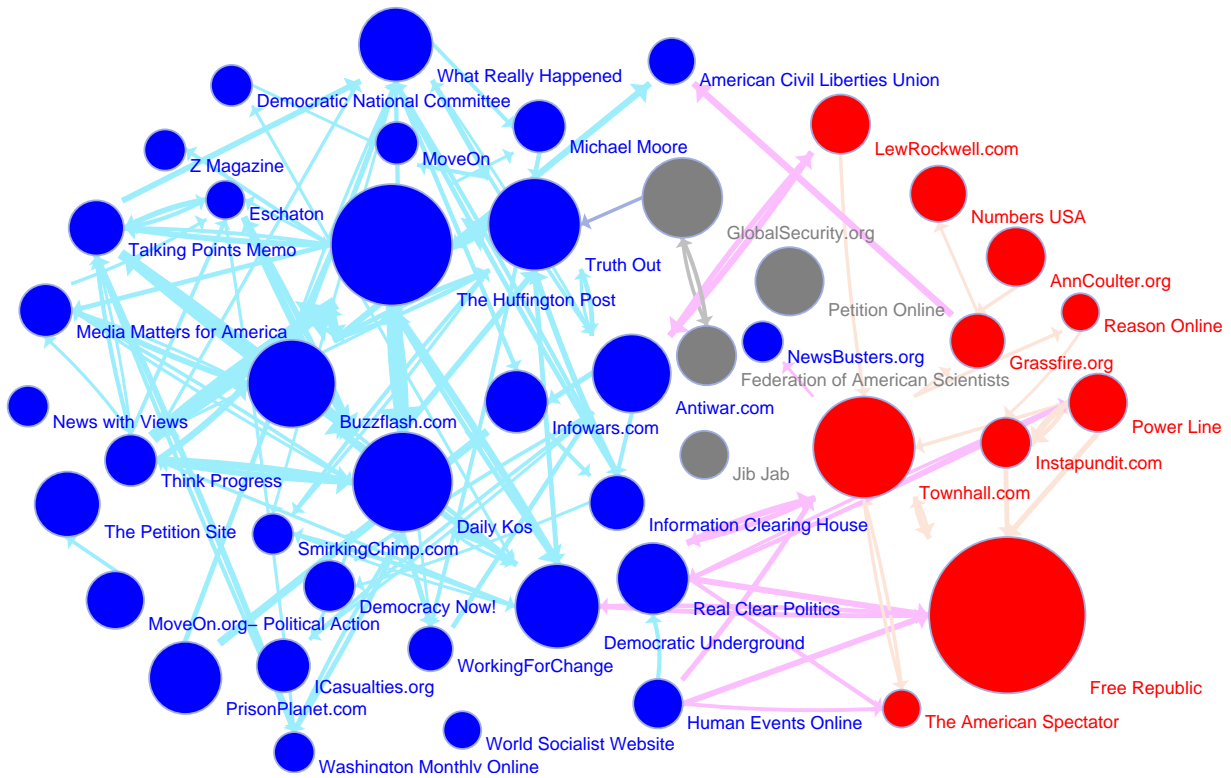
The disparity between the largest sites and the smallest sites is less extreme than in the previous map, and the largest sites play less of a role in directing traffic patterns. News sites are more destination than gateway to the rest of the Web; many of these sites get a substantial portion of their traffic from the top sites in the previous graph. In general, citizens do seem to get their online and offline political messages from the same sources; even Web-only outlets, such as Yahoo News, Google News, or the Drudge Report, rely almost exclusively on traditional outlets and wire services. Still, the online news market is not a perfect mirror of traditional media.

Given the magnitude of traffic flowing to other categories of online content, traffic to political sites is small enough to be a rounding error. As we have seen, some have hoped that this might be a blessing—that within sites focused on politics traffic would be concentrated enough to filter out the best content, but diffuse enough to empower ordinary citizens.

Such hopes find little support in this data; unlike some have predicted, the small volume of political traffic does not mean that traffic is equitably distributed. Figure

4.4 maps traffic among political Websites. Hitwise defines political Websites as those "which belong to particular political parties or organizations, plus sites that are devoted to expressing views on local or international political issues." Here the graph includes the top 50 political Websites, a group that collectively receives 60 percent of the category's traffic. For political sites, we are concerned not just with the divide between the popular sites and the also-rans, but also with the relative audience share among the most popular outlets. The most popular political sites listed include all of the expected names: online forums such as FreeRepublic.com, prominent advocacy groups such as MoveOn.org, and of course popular political blogs such as DailyKos or Instapundit. Chapter 6 looks at blogs and blog rankings more closely; the ranking of top political blogs by traffic in Hitwise's account is nearly identical to rankings of blogs based on either the number of inbound links they receive, or other metrics of traffic.

Discussion of the online public sphere have imagined that political blogs, advocacy organizations, and other noncommercial outlets would challenge the monopoly that commercial media have had on public discourse. Judging by traffic, this challenge does not seem to be particularly strong. News and media sites still receive 30 times as many visits as political websites do. That level of readership is large by the standards of traditional opinion journals, such as *The Nation* or *The New Republic* or *The National Review*, all of which are minor print publication. Yet political sites remain a small niche amid the larger Web.

Chapter 2 suggested that liberals were more active Web users than conservatives, and this data is consistent with that conclusion. Overall, visits to liberal sites outpace visits to conservative sites by a margin of 2 to 1.

Political sites do demonstrate strong liberal and conservative factions. Liberal-leaning sites are in blue; conservative sites are in red. Ostensibly nonpartisan sites are in gray. Political sites clearly share more traffic with their ideological compatriots, and this data provides some support for claims of online echo chambers (e.g. Sunstein 2001). All told, only 2.6 percent of traffic from one Top 50 political Website to another crosses ideological lines.[2] Still, 12 of the 50 sites receive or send a significant portion of their traffic from across the aisle.

Traffic Demographics

Hitwise also provides demographic data about visitors to these categories of websites. While traffic information comes from Hitwise's ISP partners, Hitwise's demographic information comes from pairing this ISP-level traffic with an opt-in "mega

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[2]Note that, due to limitations of Hitwise's data, only traffic sharing above a certain minimum threshold could be measured; in this case, traffic flows of at least .01 of one percent of all outgoing traffic from the community's most popular site (FreeRepublic.com during the month that this data was gathered). Any traffic sharing below this level of cross traffic was excluded from the analysis.

	<$30k	$30–60K	$60–100K	$100–150K	$150K+
All Websites	24%	28%	26%	14%	8%
News & Media Sites	23%	27%	26%	15%	8%
Political Sites	23%	27%	30%	13%	6%

Table 4.1: This table breaks down Web traffic by household income. These figures show little difference in

	Male	18-24	25-34	35-44	45-54	55+
All Websites	49%	20%	23%	23%	19%	16%
News & Media Websites	56%	12%	20%	22%	20%	26%
Political Websites	59%	9%	13%	20%	25%	32%

Table 4.2: This table shows the age and gender balance of visitors for the four-week period preceeding May 19, 2007.

panel" that includes 2.5 million-subject subset of Hitwise's 10 million U.S. users. (Again, more details on Hitwise's methodology can be found in the appendix.) These opt-in panels–as with other forms of survey data—may be subject to some bias, as those who agree to participate may not be entirely representative of the broader online population. While Hitwise's opt-in panel methodology has been vetted by independent auditors, some details of how it works remain confidential. Still, Hitwise's panel data should do a good job of painting the broad strokes of traffic demographics in our areas of interest.

One curious things about Hitwise's demographic data is what it does not show. Figure 1 breaks down Web traffic by household income. The same three categories of Web use discussed above are represented here: all non-adult Web traffic, traffic to news and media sites, and traffic to political sites. These figures represent the percentage of total site visits coming from households with these income levels.

In each case, relative disparities in traffic and income are modest. Income levels of news and media site visitors are nearly identical to those across all Web visits.

For age and gender, however, disparities in Web usage are dramatic. Over the entire web, Hitwise's sample shows that women account for slightly more Web traffic than men. Yet men generate significantly more of the traffic to news sites and to political sites than women do. There is a 12 percentage point gender gap in online news traffic, and an 18 point male advantage in political site visits. Overall parity in online usage does is not reflected in online news and online politics.

Age differences are also striking, and they provide a reality check on media reports that, over and over, have portrayed online politics as a youthful phenomenon. While general Internet use overrepresents younger citizens, online politics does not.

18 to 34-year-olds account for 43 percent of all Web traffic, but they generate just 32 percent of visits to news sites, and only 22 percent of visits to political sites. The converse is also true: while those 45 and older are responsible for only 35 percent of general Web use, they produce 46 percent of traffic to news and media sites and 57 percent of traffic to political sites. Nearly two decades of social science research has documented the decline of political engagement among the young (e.g. Macedo et al. 2005). This data show that the Internet is hardly immune to this phenomenon.

Search Engines and (Lack of) User Sophistication

Mapping broad patterns of online traffic, as we saw earlier in the chapter, emphasizes one unsurprising fact: much traffic on the Web is directed by search engines. Traffic to news sites and political sites is no exception. To understand how citizens reach politically relevant Websites, then, we need to look more closely at the role that search engines play.

Recent research on search engines has emphasized two central points. First of all, the large majority of the online population has used search engines. In early 2005, the Pew Internet and American Life Project found that 84 percent of Web users had used search engines at least once; on any given day, the study suggested, 56 percent of those online used a search engine to locate content (Fallows 2005). Search engine use has been widely adopted, but remains far from universal.

Second, most user interaction with these tools is unsophisticated. The Pew report's conclusions that users are "unaware and naive" mirrors other research, particularly digital divide scholarship which focuses on the skills and social support that users need to use the Web effectively. Among these studies, some of the most systematic evidence comes from Hargittai's work with a large, representative sample of Internet users in a laboratory setting. Hargittai showed that many Internet users could not complete simple online tasks; asking subjects to find a political candidate's Website was among the toughest challenges (Hargittai 2003).

Lack of user sophistication has specific implications for the types of searches that users employ. Many have reported that search phrases are typically short and highly general, with the large majority of searches employing only one or two terms (Silverstein et al. 1998; Jansen et al. 1998; Morahan-Martin 2004). Sophisticated search techniques—such as quotation marks, parentheses, and boolean operators such as AND or OR—are employed in only a small portion of searches.

Second, this research emphasizes that the first page of results is particularly important. In one early study Silverstein et al. analyzed roughly one billion queries—representing 285 million user sessions—contained in an Alta Vista log file. The authors found that 85 percent of users do not look past the first page of results, and that users seldom modified their initial query (Silverstein et al. 1998; see also Spink et al. 2002, Jansen et al. 1998). Commercial usability studies, and research on how users

find health information, have echoed these conclusions (Nielsen 1999, Morahan-Martin 2004). More recent studies have found that, as search engines have improved, users have been viewing even fewer results pages (Jansen and Spink 2006).

AOL's August 2006 release of search data from 657,426 users reinforced this finding (Pass, Chowdhury and Torgeson 2006). Consisting of randomly-drawn user search sessions from March through May 2006, the AOL data showed that 90 percent of total clicks went to sites on the first page of results. Even more striking, 74 percent of clicks went to the top five search results; the top result alone received 42 percent of all clicks.

These two themes are important in framing our understanding of search engines. Yet at the same time, this previous research also spotlights how much we had yet to learn. Placing users in a laboratory setting and assigning them to complete tasks may tell us what they are capable of, but it says little about what users seek out on their own initiative. Users may rely on short, general queries, but we still want to know *which* queries they use. What sorts of searches are most important in driving users to political Web sites?

The Hitwise data used in this chapter classifies Websites by category and subcategory. The *New York Times* Website, for example, is included in both the "News and Media" category, and in the "News and Media—Print" subcategory. Classification is not exclusive. Traffic to the popular political Weblog DailyKos.com is included in both the "Lifestyle—Blogs and Personal Websites" and the "Lifestyle—Politics" subcategories. Clickstream data allows Hitwise to record which search terms brought citizens both to individual Web sites, and to broader categories and subcategories of Web content.

For politics, we are particularly interested in search traffic to two categories of Websites. First, we want to understand the role that search engines play in directing citizens to news content. If there is indeed widespread citizen disinterest in politics, few of the queries that lead citizens to new sites should be political in nature. We examine the top 990 terms that citizens searched for immediately before visiting a news Website. This data was collected in the first week of November, 2005.

Second, and even more important, we want to know about the interaction between search engines and explicitly political Websites. How much traffic do such Websites get directly from search engines? What sorts of terms do citizens use when searching for politics? Do some types of search queries dominate? To answer these questions, we look at the 1020 most common searches that led users to political sites during the first week of November, 2005.

Rank	Query	% of Total
1	weather	0.42%
2	hurricane wilma	0.26%
3	cnn	0.22%
4	news	0.15%
5	consumer reports	0.15%
6	janet jackson	0.13%
7	drudge report	0.13%
8	tv guide	0.13%
9	new york times	0.12%
10	myspace layouts	0.11%
11	bbc	0.11%
12	cnn.com	0.11%
13	martha stewart	0.10%
14	powerball	0.09%
15	usa today	0.09%
16	msnbc	0.09%
17	rosa parks	0.09%
18	drudge	0.08%
19	fox news	0.08%
20	bird flu	0.07%

Table 4.3: This table shows the top 20 searches that led searchers to news and media Websites during the week of November 7, 2005, according to data from Hitwise corporation.

What Users Search For

News-Related Queries

We begin by looking at news-related search queries. According to Hitwise, 19.5 percent of all news site visits came directly from search engines; an additional 16.5 percent of traffic came directly from portal front pages (such as Yahoo.com).

Table 1 presents the top 20 search queries that led users to news Websites for the week of November 7, 2005. Several things are apparent from this list. We would expect that current events influence citizens' search terms, and this list supports this assumption. Many events from late October and early November 2005—such as the landfall of hurricane Wilma, the death of Rosa Parks, and concerns about bird flu—are reflected in this list.

Second, no single search term accounts for more than four-tenths of one percent of all news searches. This fact in itself is surprising. We saw highly concentrated patterns

of links within communities of political Websites in the previous chapter. In next chapter, too, we see that broader patterns of traffic are an order of magnitude more concentrated than we see with search queries.

These data suggest, then, that great diversity in search terms has not led to similar diversity in traffic flow. Why? One reason is that two different search queries may lead to citizens to the same source of information. Searches on Yahoo or Google for "CNN," "Cable News Network," or simply "news" all return CNN.com as the top result. In the same vein, a few large sites such as Yahoo or Wikipedia offer (literally) encyclopedic information on countless different topics. This hypothesis is consistent with evidence that the size of Websites is power law distributed; while a few sites have hundreds of thousands or even millions of pages, most sites have only a few pages of content (e.g. Barabasi and Albert 1999, Adamic and Huberman 2000).

Perhaps the most interesting findings come from qualitative analysis of these queries. To better understand what citizens were searching for, each of the 990 news queries was further classified by human coders. Coders were asked to identify, first, whether the query seemed to be seeking a specific Website, news organization, or information outlet. Searches for "drudge report" or "tv guide" or "yahoo news" or "cnn" were considered to be site-specific searches.

Second, coders were asked if the query was political. If the search concerned a contemporary political issue or political news event, it was considered to be a political search. Searches for sites that focused principally on politics—as opposed to general news organizations, or specialized outlets on non-political topics—were also considered to be political searches.

The three individual coders made their coding decisions independently. The coding guidelines were designed to be highly inclusive about what classified as political content. Queries about general issues that had potential political dimensions—such as searches for "hurricane" or "vietnam"—were given the benefit of the doubt and classified as political. Despite an element of subjectivity, agreement between any two coders was greater than 95 percent. Cases of coder disagreement were classified by majority rule.

Many scholars have concluded that lack of skill limits citizens' online activities, and many queries did suggest a lack of user sophistication. As we expect, the most popular search queries are short. Search engines process queries based on the number of terms they include, with spaces automatically used to separate terms—for example, "new york times" is a three-term query. 96 percent of news and media site queries used three or fewer terms.

Our sample of news searches included only a handful of misspellings; misspellings are, almost by definition, unlikely to end up on a list of most common queries. Yet a surprisingly large number of the most popular queries were actually URLs, such as "cnn.com." 119 of the 990 queries–12 percent–included a .com or .org URL ending. Typing "cnn.com" into Google or Yahoo will find the site, but such queries do suggest possible user confusion. There were also a number of popular search terms in which

Terms	News	Politics
1	35%	26%
2	44%	43%
3	17%	19%
4	3%	7%
5+	<1%	6%

Table 4.4: This table lists the number of term in searches that led users to news and media Websites, and to political Websites. The chart is based on November, 2005 data from Hitwise corporation.

spaces were omitted, such as "usatoday."

The number of citizens searching directly for URLs is part of a broader finding. Most news searches in these data are *not* focused on current events or subjects of interest. A substantial majority of searches, rather, contain the names of specific news outlets or specific Web pages. Of 990 total searches, 595—three-fifths—were searches for specific websites or online news outlets. In short, most searches involve citizens seeking out news organizations they are already familiar with.

Scholars have seldom provided clear and specific expectations about what citizens will choose to search for in the realm of politics and political news. Yet one common assumption is that citizens will begin with an interest in a political topic, and then type queries about that subject into search engines. Although much news traffic does come directly from search engines, news-related queries show a different pattern: citizens searching not for topics, but for known sources.

This list of popular news-related queries is consistent with claims that few citizens are motivated to search out political information. Though coding was if anything over-inclusive, only 69 of the 990 searches—7 percent—were classified as political. Weighting these queries by their popularity produces the same result, with political searches accounting for 7 percent of search traffic in the sample. Within these 69, 44—roughly three-fifths—were queries about political issues. Another 18, about one-quarter, were queries about political figures. The number of politically-relevant news queries is too small to generalize from. Nonetheless, it is safe to say that politically-related queries are only a small portion of the searches that send citizens to news sites.

Political Searches

As we saw above, overtly political Websites constitute a much smaller part of the online universe than do news Website—only .13 percent of non-adult Web traffic, or roughly one in 750 site visits. Search engines are more important in finding political content than they are for leading citizens to news sites. According to Hitwise, polit-

ical Websites as a category received 26.2 percent of their traffic directly from search engines. This number, of course, does not include many surfers who may have originally found the site using a search engine, but later return by using bookmarks or simply remembering the URL. It is easy to find sites where search engines account for even more of the traffic. In the previous chapter we mentioned Abortionfacts.com– the site that (as of this writing) has for several years been Google's top result for the query "abortion," and is currently Yahoo's number 2 result. According to Hitwise December 2005 data, 80 percent of traffic to AbortionFacts.com came directly from search engines.

Proportionally, lower-traffic sites in this sample get more of their traffic from search engine referrals. For October 2005, the top 20 political Websites averaged 18 percent of their visits from search engines. Sites ranked 101 through 120, by contrast, averaged 43 percent of visitors through search engine referrals.[3]

We can also show search engines' greater importance to small sites visually. Figure 4.5 plots the rank of sites within the Politics category against the portion of traffic they receive from search engine. Only the top 140 sites are listed. This graphic shows both the great variation in the traffic that individual sites receive from search engines, on that less popular sites are, on average, more dependent on search traffic. A local regression line is overlaid on the graph, showing how the expected traffic from search engines grows as we move farther down the ranks of political sites.

Political searches appear more concentrated than news searches, although the smaller number of political Websites in our sample likely contributes to this finding. Hitwise tracked traffic to 518 popular political Websites during the week studied. The 1020 most popular search terms accounted for 19 percent of all searches that led users to political Websites. Table 2 presents the 20 most common searches. As with news-related queries, human coding was used to sort these queries into five categories:

1. Queries about political issues;

2. Queries naming specific Websites or online outlets;

3. Queries about political organizations;

4. Queries about political personalities;

5. Miscellaneous queries.

Coding was exclusive, with every term was placed in one of the five categories. When a site might conceivably belong in more than one category, preference was given to what seemed the primary intention of the user. A search for "Michael Moore", for example, was classified as search for a political personality, while a search for

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[3]A standard t-test shows the difference in means between these two groups to be highly significant, generating a t-value of 4.12.
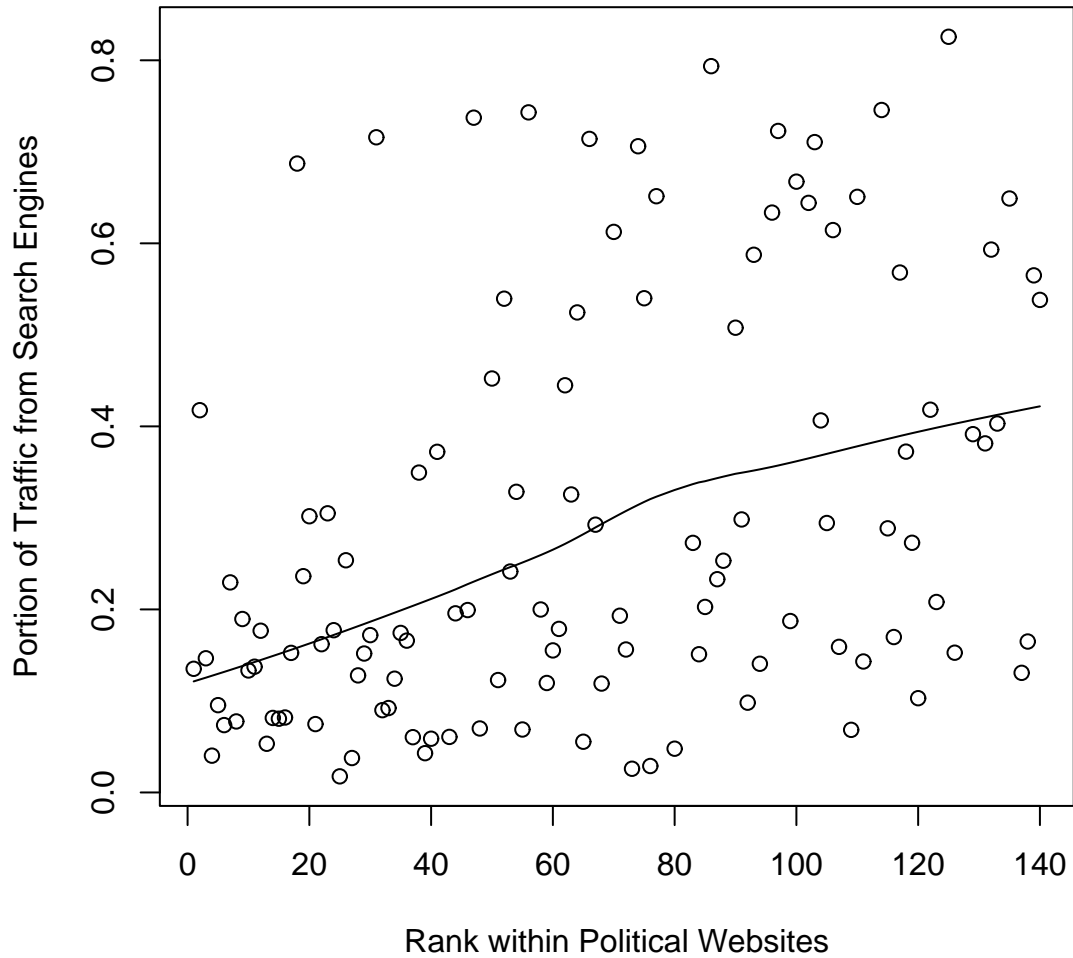
Figure 4.5: This figure plots the portion of traffic that political Websites receive against their rank within the community. A LOWESS local regression line is overlaid on the data.

"michaelmoore.com" was classified as a search for a specific site. Agreement between coders was high; pairwise comparison among the three coders exceeded 90 percent in every case.

Here, of course, political search terms do not have to compete with queries seeking the weather report or television listings. The largest category consisted of queries about political issues. 487 of the 1020 searches—just under half—were classified as issue queries. Weighted by popularity, issue queries were proportionally less important, accounting for 39 percent of traffic.

Just as with political news, a substantial number of political searches focus not on

Rank	Search Term	% of total
1	abortion	0.41%
2	jibjab	0.25%
3	michael moore	0.23%
4	vietnam war	0.21%
5	jib jab	0.21%
6	antiwar.com	0.20%
7	aclu	0.18%
8	ann coulter	0.18%
9	death penalty	0.14%
10	jibjab.com	0.14%
11	free republic	0.13%
12	infowars	0.13%
13	huffington post	0.13%
14	biodiesel	0.12%
15	failure	0.12%
16	huffington	0.11%
17	truthout.org	0.11%
18	huffingtonpost.com	0.11%
19	democracy now	0.11%
20	american spectator	0.11%

Table 4.5: This table shows the top 20 searches that led searchers to political Websites, according to November 7, 2005 data from Hitwise corporation.

issues, but on outlets. 15 percent of searches (154 out of 1020) were seeking specific Websites. As the top 20 search terms suggest, though, this category of query was disproportionately popular, accounting for 27 percent of search traffic in our sample. Here again many queries include url information; 43 searches include .com, and 17 include .org.

In addition to those who searched for specific Websites, 13 percent of queries—and about 12 percent of the total search traffic—involved searches for specific political organizations. In most cases, the organization's official Website is the first result in both Yahoo and Google.

Another common theme in these queries were searches for political personalities. Typically consisting of just the first and last name of a public official or political figure, these 190 personality-focused searches amounted to 17 percent of searches by traffic.

Lastly, 5 percent of searches (54 queries) fell into the miscellaneous category. This group included queries that did not fit cleanly into any other classification. The largest component of the miscellaneous category were adult-themed or sexually-explicit searches; 25 of the 54 miscellaneous queries fit this description. Only a few queries in this cat-

Category	% of traffic	Top Result	Top 5	Top 10
Political issues	39%	42%	61%	47%
Site-specific	27%	100%	–	–
Political personalities	17%	66%	65%	46%
Political organizations	12%	90%	73%	55%
Miscellaneous	5%	37%	53%	41%

Table 4.6: This table shows agreement between the Google and for different categories of political queries.

egory had any obvious relationship to politics.

For political searches then, just as with news-related searches, a substantial portion of searches are seeking not topics of interest, but familiar information outlets. Overall, roughly two-fifths of searches by traffic were looking for either specific Websites or specific organizations. These searches are naturally less likely to help citizens discover new sources of political information and divergent political perspectives.

Search Engine Agreement

This search query data highlights unexpected patterns in the search behavior of users. But ultimately, we want to know not just what citizens search for, but the interaction between these queries and the most popular search tools. The Googlearchy hypothesis predicts that there should be substantial overlap between modern search engines. Of particular concern are Yahoo and Google, who together handle more than four-fifths of all US search queries (Tancer 2006). For political content, how much does it matter which search engine citizens use? Is search engine agreement higher for some sorts of queries than for others?

The simplest way to address these questions is to plug these 1020 political queries into Yahoo and Google, and calculate the level of agreement. To this end, a simple methodology was adopted. First, a small computer program (generously provided by Seaglex Software) was used to send each of these queries to Yahoo and Google, and then to parse the HTML pages of Yahoo and Google results. Because most searches do not go beyond the first page of results, only the first 10 results (the default number included on Yahoo or Google's first page) were analyzed. Sponsored links – such as targeted advertising, or links to internal Yahoo or Google content – were ignored.

Second, a Perl script was used to compare agreement between the Yahoo and Google results. For both theoretical and practical reasons, comparison was done at the level of the Web domain, and not the specific Webpage returned. Concerns about media diversity have focused on the number of media sources that citizens are exposed to, not the specific news articles or broadcast programs they see. In this context, the

larger Web domain (such as nytimes.com or nationalreview.com) most closely corresponds to an information source as seen in traditional media outlets, (such as the print versions of the *New York Times* or *The National Review*). Moreover, if Google's top result is www.example.com, and Yahoo's top result was www.example.com/index.htm, some page-based comparisons will miss the fact that both URLs resolve to the same Webpage.[4]

Methodology comparing the text of the URLs has additional limitations. In searches for "abortion," both Yahoo and Google place the National Abortion and Reproductive Rights League near the top of of their results. Yet the NARAL Website uses two different URLs; Yahoo knows the site as ProChoiceAmerica.org, while Google points users to NARAL.org. While some specific instances (including this one) were corrected by hand, this example shows why text-based comparisons may understate the true level of agreement.

Nonetheless, this methodology does provide a good first step towards understanding to what degree—and in what areas—the two most popular search engines agree with one another. Table 4.3 presents the results of this analysis. For each of the five categories, it shows Yahoo and Google agreement for the top site, the top five sites, and the top 10 sites.[5]

Which of these measures is most important likely depends on the specific category considered. For site-specific searches, and for searches looking at specific political organizations, citizens seem to be seeking a single online outlet. Agreement on the top site would therefore be the most important metric. For searches containing the name of a specific political organization, Yahoo and Google agree on the top result 90 percent of the time. For site-specific searches, agreement between search engines is even higher. In every case – a full 100 percent of queries in the site-specific search category – Yahoo and Google agreed on the top result. Indeed, for queries which contained URL information (about one-third of this category), Google returns not the typical 10 results, but only a single result pointing to the relevant URL. For this reason, it is not possible to compare Yahoo and Google results in this category beyond the top site.

For political personalities and political issues, the most important metric is likely different. Here most users do not seem to be seeking a specific online outlet. For these categories, then, agreement among the top five results—the results a typical user can see without downward scrolling—would seem to be most important. Our methodology finds a 61 percent "top five" overlap between Yahoo and Google for political issue searches, and a 65 percent agreement for searches focusing on political personalities.

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[4]One key advantage of the Hitwise data is that Hitwise's technology is able to automatic redirection and identical site content, and is thus able to sidestep this problem.

[5]The Yahoo and Google results used for comparison were collected during the last week of November, 2005; all searches within a given category (such political issues or political personalities) were performed on the same day.

Google and Yahoo use different ranking algorithms and different methods of crawling the Web. Yet even in political issue searches—the area where overlap is smallest—these data suggests that Google and Yahoo will typically have three of their top five sites in common.

How Wide a Gate?

As this chapter shows, search engines do direct an enormous volume of Web traffic. Yet despite the importance of these tools, there has been much disagreement over the role that search engines play. Are search engines strong gatekeepers, with a great deal of autonomous influence in directing Web traffic? Or are search engines simply mediators, mirroring existing institutions and social structures?

To some degree, of course, the answer is "both." Public discussion of search engines' gatekeeeping role has focused in part on the economic power of search providers. Certainly Google and Yahoo have become large and successful companies; as of May 2007, Google's market capitalization was $151 billion, while Yahoo was valued at $38 billion. (The next chapter will look at the economics of these firms in more detail.)

Yet while market power matters, economics are not the whole story. The structure of the Web matters too. The substantial overlap between Yahoo and Google's search results likely reflects these winners-take-all linkage patterns. Users' reliance on short, general queries, and their overall lack of sophistication, also truncates the content seen by the public. As of March 2006, Google claimed to find 837,000,000 results for a query on "politics," a remarkable technological feat; yet this huge aggregation of content matters little if few users venture past the first page of search results—or even to scroll down to the bottom of that first page. The types of queries citizens use also makes a difference.

Citizens do seem to be finding what they seek online. In addition to the fact that most searches do not venture past the first page of results, users express confidence in their ability to find what they are looking for online (Fallows 2005). Still, those who had hoped that the Internet would expand the political information citizens access have to contend with two central facts. First, relatively little of what citizens are seeking in political. Search engines, along with Web portals, are major conduits of traffic to news websites. But citizens are more likely to get the weather report and the sports scores online than to follow political issues.

Second, much of what citizens seek is familiar. Roughly three-fifths of searches for news are source-specific, while about 40 percent of political searches are similarly seeking specific sites or specific political organizations. Searches for familiar organizations and outlets are understandably less likely to expand the sources of political information citizens use.

This is another way, then, that search engines help keep the attention of the public highly centralized. Yahoo and Google allow citizens to find new Websites, but they

also make it easy for users to return to known sources. The Web may have allowed millions of small-scale Websites to proliferate online; yet for news and politics, these smaller sites are often not what citizens are looking for.

For politics, debates about search engines should not be allowed to distract us from more fundamental concerns. Against the broad backdrop of online traffic, news sites and political sites of of secondary importance. Only about 3 three of every 100 site visits is to a news and media Website. Slightly more than 1 site visit in a thousand is to political a political Website. Pornographic content is two orders of magnitude more popular than political content.

The patterns of online traffic detailed in this chapter should help weaken many persistent myths about online political discourse. Non-profit Websites for political advocacy, and even prominent political blogs, get only a small tiny fraction of the attention that traditional news outlets receive. Older citizens far outpace younger citizens in visits to political Websites.

Still, the biggest and most consistent problem with debates about online politics has been an absence of perspective. Scholars, public officials, and journalists have paid a great deal of attention to online politics. Citizens themselves, though, have directed their attention elsewhere.

CHAPTER 5

Online Concentration

What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention, and a need to allocate that attention efficiently among the overabundance of information sources that might consume it.

<div align="right">

Herbert A. Simon
Computers, Communications, and the Public Interest
1971

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In the 1989 movie *Field of Dreams*, Kevin Costner plays an Iowa farmer who hears voices in his cornfields. These voices ultimately repeat a simple but persistent message: "If you build it, they will come." In large part, this book is about that *Field of Dreams* assumption. Over the past decade and a half, the Web has been built. Billions upon billions of documents are now online, and this vastness of content has been used to support claims that Internet audiences must be more widely dispersed than audiences for broadcasting or print. The notion that the Internet is part of a continuing shift from broadcasting to narrowcasting, and that the Web will empower new small-scale producers of content, is a central part of the Internet's identity in the public mind. From law to public policy, democratic theory to party politics, interest in the Internet has begun from the belief that the Web is "democratizing" the flow of information.

This chapter takes issue with that assumption. Chapter 3 and Chapter 4 have looked at patterns of online attention at both the macro and micro levels. This chapter goes further, directly challenging the notion that Web audiences are less concentrated than those for traditional media. If true, this fact alone should shift our expectation about who gets heard online.

This claim—that audiences are as concentrated online as off—will be controversial, and in part the previous two chapters have been intended to lay the foundation

for it. They have suggested many potential reasons for this concentration, and argued that the infrastructure of the Internet is not as open as many have assumed. For average citizens, or even for superhuman ones, navigating billions of Webpages requires drastic cognitive shortcuts. Power-law patterns in the link structure of the Web channel users towards heavily linked sites. Most citizens do not venture beyond the first page of results, many use search tools to find familiar sources, and search engines themselves often agree on which sites are most relevant. This chapter will add to this list, suggesting that the economic structure of online content production also encourages audiences to cluster around a small set of successful Websites.

This chapter's central goal, however, is to measure just how concentrated online audiences are. The hope is that the reader finds the book's explanations persuasive, and that by the end he or she will view online concentration as expected or even overdetermined. Yet for politics, it is important to measure the extent of online concentration no matter what gives rise to it. Our questions here are straightforward: What portion of online readership accrues to the most popular outlets? How do the patterns we see online compare to those we have become accustomed to in traditional media? Claims about the Internet are comparative; its presumed political effects come from displacing traditional media. Is the Internet really a sharp break with the broadcast model?

Barriers to Entry

In order to understand concentration in new media, we need to begin by reviewing a few basic lessons about concentration in the old. Market concentration is one area where economists are in near-complete agreement. In the absence of a legal monopoly or predatory business practices, concentrated markets are those which allow economies of scale—that is, the more that a firm produces, the lower its average costs.

Consider the venerable newspaper, the oldest medium of mass communication. For the past several decades, fewer than 1 percent of U.S. daily newspapers have had a direct competitor in the same city (Dertouzos and Trautman 1990, Rosse 1980). Economics research has shown that these local newspaper monopolies result from economies of scale; because the largest firm is able to operate more cheaply, it drives smaller competitors from the market (e.g. Rosse 1967, Rosse 1970, Dertouzos and Trautman 1990, Reddaway 1963). Newspapers face high fixed costs, and low marginal costs. Producing the first copy of a newspaper is extremely expensive, requiring a large staff and substantial infrastructure; producing a second copy costs only pocket change.

Newspapers and broadcast media in this regard have a similar cost structure to utilities such as water or telephone or electricity, classic examples of "natural" monopolies. For water or electric service, a large initial investment in physical infrastruc-

ture is required. Wiring must run from the generating station to the household, and plumbing must run from a reservoir to the home and back to a wastewater treatment facility. Getting that first gallon of water to house may require thousands of dollars, but the second, third, and thousandth gallons cost little. Software is another opt-cited example of a natural monopoly: while developing a piece of software requires substantial developer effort, producing perfect copies of the finished product is very cheap.

What I want to suggest is that many online markets similarly face high fixed costs and low marginal costs, and that widespread talk about how the Internet is "lowering barriers to entry" can thus be misleading. Many important online market segments are hugely capital-intensive. First movers enjoy a substantial advantage. And because large upfront investments can be averaged over the entire user base, online markets often provide large economies of scale.[1]

We talked briefly in the last chapter about the economics of the search engine market. In fact, Yahoo and Google are content providers, with search results a critically important form of online content. For Google to become the market leader, the company needed more than just a bright idea for a new search algorithm. It also required massive capital investment, with hundreds of millions of dollars spent on research, personnel, marketing, and software code—not to mention the physical hardware necessary to handle billions of queries a day.

The company's financial statements emphasize these facts starkly. Since Google became a public corporation in August of 2004, the company has disclosed far more of its finances. For the 2005 fiscal year, Google reported $6.14 billion in revenues (Google 2005:40). 40 percent of that money went directly to "Costs of Revenues," primarily traffic acquisition costs—money paid to advertising partners and others who directed users to Google's site. The traffic that Google receives is thus not just the natural result of having an attractive Website; Google pays out billions of dollars annually to have other Websites funnel visitors to its online properties. As of December 31, 2005, Google employed 2,093 employees to do research and development; over all of 2005, the company spent $484 million on R&D (Google 2005:18, 41).

Perhaps the biggest surprise in Google's balance sheet has been the huge sums spent on capital equipment. For 2003 through 2005, the company reported net income of $1.97 billion, but spent $1.33 billion on property and equipment. In other words, capital expenditures over this three-year period soaked up two-thirds of Google's net income. At the end of 2005, Google listed $949 million in information technology equipment as assets. One analyst called Google's capital equipment spending "unfathomably high," noting that Google spent the same portion of its revenue on equipment as a typical telephone company (Hansell 2006). Even so, Google CEO Eric

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[1]In a similar vein, some scholars have seen the probable convergence of the Internet with television broadcasting as re-instituting high barriers to entry—and thus reducing content diversity (Gandy 2002, Owen 1999, Roscoe 1999). I argue here that barriers to entry have never been as low as these scholars contend.

Schmidt said that this spending was not enough. Referring to the enormous volume of Web pages, e-mail, and video on the company's servers, Schmidt declared that "Those machines are full. We have a huge machine crisis" (Hansell 2006).

What has it taken for other search engines to compete with Google? Judging by Yahoo and Microsoft's examples, the unsurprising answer is "lots of money." In many respects, Yahoo's finances look similar to Google's. Yahoo reported $5.26 billion in revenues during fiscal 2005; yet, as with Google, "Costs of Revenues" ate up 40 percent of Yahoo's revenue, with (again) most of that sum spent on acquiring traffic. In the same year, Yahoo spent $1.03 billion on marketing, and $547 million on "product development," which included improvement to its Website and general research and development costs (Yahoo 2005:66). As of December 2005, Yahoo reported owning $838 million in computer equipment.

Yahoo illustrates barriers to entry in the search engine market in another way as well. For most of its history, Yahoo relied on other companies to provide search results for its Web portal. In the first quarter of 2004, Yahoo stopped licensing search technology from Google and switched to its own, in-house search engine. Yahoo bought its search technology through a rapid series of corporate acquisitions in 2003, ultimately absorbing companies including Inktomi, Overture, and existing search engines including AltaVista and All the Web. Inktomi cost Yahoo $290 million; Overture cost a whopping $1.7 billion (Yahoo 2005:47).[2] As Yahoo CEO Terry Semel described it, the financial costs and strategic risks of these deals were huge, yet Yahoo feared that without these acquisitions it would be impossible to enter the search business. Said Semel, "We bet everything we had–we bet the company on those acquisitions, because if it failed we would have been in serious problems, and if we had allowed one of the other guys to get it and shut us out, we would have been in [an] even greater situation" (Semel 2006).

Microsoft's search engine investment is harder to quantify based on the company's financial disclosures, but there is no doubt that it has been similarly enormous. In May of 2006, Microsoft announced that it would spend $2 billion more than expected over the coming year. Microsoft claimed that this extra spending was needed to compete with Google (Lohr and Hansell 2006).

The same capital-intensive spending patterns visible with search engines can be seen in other online markets. Consider another prominent online business: Amazon.com. Amazon's original business model made clear that the company would only be profitable at enormous sales volumes; the hope was that, after building a large customer base and investing in extensive offline and online infrastructure, few booksellers would be able to compete. Amazon bet that the Internet would produce *high* barriers to entry that would limit future competition. The wager seems to have been correct. Amazon's operation is now an enormous (and enormously expensive) one, with $8.14 billion in revenue for 2005 (Amazon.com 2005). Amazon's nearest

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[2]Yahoo acquired Overture shortly after it acquired AltaVista and All the Web.

competitor, Barnes & Noble.com, had 2005 online sales of $440 million—5 percent of Amazon's online sales (Barnes and Noble 2005:30).

The difficulty of competing against an established online firm like Amazon.com can also be seen in the example of Borders.com. The Borders Group is a large national bookselling chain, with established distribution channels and a wide customer base. But after struggling to make their Website profitable, Borders in August 2001 threw in the towel, and agreed to let Amazon.com take over all of their Website operations (Soto 2001). Any corner bookstore can put up a bare-bones Website for a minimal investment. But if a company like Borders cannot play in the same league with Amazon, who can? How can Mom and Pop's Books compete effectively against a company that spent $451 million in 2005 just developing, maintaining, and improving its Web properties (Amazon.com 2005:50)?

This financial data forces us to reconsider the supposed differences between online and traditional markets. No one looks at telephone companies—or even software companies—and assumes that barriers to entry are low. Yet this argument still remains common in online markets where firms face similar cost structures. The same financial pressures blamed for market concentration in the offline world are quite visible online.

Distribution, Not Production

Blanket claims that the Internet is lowering "barriers to entry," then, are at odds with the evidence. Yet in one key area, the Internet is altering the cost structure of media firms and content producers: it lowers the cost of distribution. Consider the music industry. Distributing songs through online music services like Apple's iTunes saves the cost of pressing and distributing a compact disc, and the costs associated with maintaining a retail storefront. Even if all of their sales were online, however, record labels would still have to pay promotional costs, studio time, artist royalties, and a host of other expenses. One recent estimate suggests that eliminating physical distribution of CDs would save record labels only about 25 percent (Anderson 2004).

Returning to the example of newspapers is even more instructive. For newspapers, it is generally far cheaper to pay for a Website than to pay for printing presses, pressmen, paper, ink, delivery vans, and paper boys. Yet whether their readers are online or off-line, newspapers still have to pay reporters, editors, janitors, and office staff; they still require offices, desks, computers, and telephones. To understand how much the Internet matters, it makes sense to divide newspaper spending into two categories: first, money spent creating articles, photographs, and other content; and second, money spent printing and distributing that content. If all of the *New York Times'* readers suddenly switched to the online edition, printing costs would disappear, but the first category of costs would remain largely unchanged.[3]

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[3]For example, Picard (2002:64) notes that newspapers would be eager to use the Internet to save on

Since many newspaper companies are public, they are required by law to disclose some of their internal finances. The accounting the SEC requires is not perfect for our purposes, but it does offer insight into how much newspapers spend to print and distribute their paper product. The New York Times Company, for instance, is one of the largest newspaper firms by circulation; the New York Times Co. publishes the *New York Times*, the *Boston Globe*, the *International Herald Tribune*, and smaller regional papers like the *Worcester Telegram Gazette*.

Newspapers are a labor-intensive industry. As the New York Times Co. explains in its annual report, "The News Media Group's main operating expenses are employee-related costs and raw materials, primarily newsprint" (New York Times 2005:F4). In 2005, the New York Times Company spent $321 million on raw materials, accounting for 11 percent of the collective operating expenses of its newspapers (New York Times 2005). Labor costs for the New York Times Co. are larger than raw material costs, at $691 million (New York Times 2005:F22).

While a breakdown of labor costs across the different news organizations under the Times Company's umbrella is difficult, for the *New York Times* itself the paper's labor agreements tell us much about how these employee-related costs are distributed. The large majority of the *Times'* workforce is unionized; roughly 3,000 *Times* employees are union members(New York Times 2005:10).[4] The membership of these labor unions isolates "production employees"—typesetters, stereotypers, drivers, operating engineers, pressmen, etc.—from those responsible for the paper's content. 1600 *Times* employees are members of the New York Newspaper Guild, which represents the paper's journalists, photographers, and editors. The remaining 1400 unionized employees are all members of production or delivery unions. More than half of the *Times'* unionized staff is thus devoted to content creation—the category of costs where the Internet has little impact.

Another glimpse into newspaper finance comes from the Knight Ridder Corporation, which at the end of 2005 was the second-largest newspaper firm by circulation.[5] Knight Ridder owned 32 daily newspapers, and 65 non-daily newspapers, in 29 markets. In the 2005 fiscal year, Knight Ridder had total operating costs of $2.51 billion (Knight Ridder 2005:40). Of this sum, Knight Ridder paid $413 million for newsprint, ink, and other consumables—16 percent of the company's total operating

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production and distribution costs, but that any savings would come only if readership and advertising revenue remained constant—an unlikely assumption.

[4]Overall, The New York Times Media Group has 4800 full-time equivalent employees. However, the NYT Media Group includes not just the *Times* itself, but also the radio station WQXR, the New York Times News Service, NYTimes.com, the *International Herald Tribune*, and the Discovery Times cable television channel. According to the annual report, the *IHT* has 350 full-time employees; information is not provided on the number of employees for for the other subdivisions. Note that management employees are also not included in the union rolls.

[5]In early 2006, unhappy Knight Ridder shareholders forced the sale of the company; it was purchased by the McClatchy Company, another newspaper chain, in June 2006. Knight Ridder's fate is further illustration of the difficulties facing papers in smaller markets.

costs. Knight Ridder listed production costs of approximately $130 million, and circulation costs of approximately $330 million (Knight Ridder 2005:21). In short, printing and distribution were only about a third of Knight Ridder's operating costs.

For newspapers and similar content providers, then, claims that the Internet will transform citizens from consumers to producers are problematic. For content that is intrinsically cheap to produce, lower distribution costs might matter. With political blogs, anyone with a minimum of computer savvy and an opinion can post his thoughts online; yet blogging is something of an exception. For content that is already expensive to create, but where average distribution costs are low, the Internet does not change the economic logic of concentration. If anything, the Internet's ultra-low distribution costs would seem to accelerate it, guaranteeing even larger economies of scale.

In one big way, however, the Internet does change the rules for traditional media outlets. As we note above, geographic boundaries have long served to protect local monopolies. Only three newspapers have significant national distribution: the *New York Times*, *USA Today*, and the *Wall Street Journal*. Online, these local newspapers now compete with thousands of other outlets from around the country and around the world. Over-the-air broadcasting has long been defined by similar geographic restrictions. Radio or television broadcasts can only be received within a local region.

These changes force us to ask: at which level are we to measure diversity? For individual citizens, the Internet has increased their choice of news outlets by several orders of magnitude. A resident of Walla Walla, Washington interested in international news no longer has to be content with the *Walla Walla Union-Bulletin*; she can read the *New York Times*, the *London Times*, or even the *Times of India*. Yet discussions about media diversity most often take place in the context of national politics. The common suggestion is that, because of the Internet, Americans as a whole will rely on a broader set of news outlets and political information sources. At the national level, however, an increase in diversity is not a foregone conclusion.

Online Concentration

Before looking at concentration across media, we should begin by examining patterns of Web traffic on their own. Here again, the Hitwise data allows us to look at Web usage on both the macro and micro levels. This data is not as fine-grained as that in Chapter 3; the crawling and classification techniques used there found more than 1000 sites with abortion-related content, for example, while Hitwise's *entire* politics category for May 2006 consisted of less than 1000 Websites. At the same time, the Hitwise data allows us to look directly at audience share, rather than using indirect measures such as inbound links.

Table 5.1 illustrates the portion of audience captured by the top outlets for both online and offline media. Set aside for a moment the last three rows of this table,

	N	Top 10	Top 20	Top 50	Top 100	Top 500
All Websites	1,325,850	26%	30%	35%	40%	51%
News & media	7,041	29%	37%	47%	56%	79%
Political sites	970	31%	43%	62%	77%	99%
Radio audience	1290	7%	11%	21%	33%	77%
Newspaper circulation	1058	19%	29%	46%	61%	91%
Magazine circulation	653	27%	36%	52%	67%	98%

Table 5.1: This table presents data on audience share for both online and offline media outlets. Web data comes from Hitwise Competitive Intelligence, radio data is from the Arbitron corporation, and newspaper and magazine circulation comes from the Audit Bureau of Circulations.

which deal with print circulation and radio audiences, and consider just the first three rows. The first row presents aggregate data for all 1.3 million web sites that Hitwise tracked in February 2006. Below it are concentration figures for the more than 7,000 news and media Websites and the 970 political Websites that Hitwise tracked over the same period.

Given the vast expanse of online content, it is startling how narrowly users focus on the top few Websites. Hitwise categorizes Web sites conservatively, separating out (for example) visits to mail.yahoo.com from visits to the main Yahoo Web portal. Despite this, the top 10 sites receive more than one-quarter of all Web visits. The Hitwise data suggests that half of Web traffic goes to .00001 percent of all Websites.

Yet the large market share of the most popular sites is not the whole story. While the top five sites receive 20 percent of all Web traffic, accounting for 50 percent of Web traffic requires us to look at the top 500 sites. The lower end of the audience distribution is far, far more fragmented than that for traditional media. Individually, each of these lower-ranked sources is insignificant; yet collectively, these sites account for a substantial fraction of Web traffic.

Chapter 3 suggested that the Web was fractally organized, with winners-take-all patterns at every level. The Hitwise data is consistent with this hypothesis. For the top 10 and top 50 web sites, concentration in politics traffic is similar to traffic patterns for media sites and to traffic patterns over the entire Web. Looking at the the top 500 political sites is less meaningful, as it includes more than half the tracked outlets.

Comparative Data, Comparative Metrics

Expectations that the Internet will produce a broad and flat distribution of audience attention are not borne out by his data. Yet the real test is comparative—data on Web audiences needs to be placed alongside data from traditional media.

The most apt comparison for online content is print media, as the Web remains overwhelming a text-based medium. There is, fortunately, a single authoritative source of data on print audiences. The Audit Bureau of Circulations (ABC) certifies circulation figures for nearly all major US newspapers and magazines. ABC data used here comes from December 2003, and includes 1058 daily newspapers and 653 national magazines.[6]

We also want to look at a concentration within broadcast media. In this regard, it is easier to gather national data for radio than for television. Data used here comes from the Arbitron corporation, a major industry source for US radio audience and demographic information. The Arbitron data include 1290 radio stations in the nation's top 50 radio markets. These 50 markets include more than 120 million Americans age 12 or older, roughly half the nation's 12-and-older population.

All of this data is national, not regional, in scope. Radio stations in Cleveland and Baltimore cannot compete with each other for listeners, but every Web site in a given niche competes directly against all the rest. One aim of this analysis is to compare locally fragmented media against online content which does not face the same geographic restrictions.

When this print and radio data is placed alongside data from the Web, overall concentration looks surprisingly similar. Returning to table 5.1, the top 10 newspapers receive 19 percent of the nation's newspaper circulation, and the top 10 magazines receive 27 percent of magazine circulation. By comparison, the top 10 Websites received 26 percent of all Web traffic; within news and media sites, 29 percent of traffic goes to the top 10 outlets.

Perhaps the most interesting comparison is between newspaper circulation and traffic to news and media Websites. In both cases, the top 50 outlets account for slightly less than half of the total market; yet the distribution of audience is different between the two media. Popular sites are more important online, but so are tiny sites. The most important difference comes from what might be termed "middle class" outlets. Outlets ranked from 101 to 500 account for 35 percent of print newspaper readership, but only 22 percent of readership for media sites. And while papers below the top 500 represent only 9 percent of the nation's print circulation, 21 percent of media site visits go to outlets ranked 500 or below.

Table 5.2 offers another representation of this data . It again compares media Website traffic to newspaper and magazine circulation, grouping outlets in categories ranked by popularity: the top ten outlets, outlets 11 to 20, outlets 21 to 50, etc. Row one presents the market share of these ranked categories for media sites. Rows two and three subtract the newspaper and magazine market share in these categories from the media website numbers.

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[6]Though more recent data is available for the top 200 outlets (and is used below), this slightly older data includes all magazines and newspapers tracked by ABC, not just the top 100 or top 200 outlets. For daily newspapers, the data reflect whichever day of the week has the highest circulation.

	Top 10	11–20	21–50	51–100	101–500	501+
News & Media Websites	29%	12%	10%	9%	23%	21%
vs. Newspaper circulation	+10%	+2%	-7%	-6%	-7%	+12%
vs. Magazine circulation	+2%	+3%	-6%	-6%	-8%	+20%

Table 5.2: This table compares the distribution of audience share for news and media Websites against circulation numbers for newspapers and magazines.

Audience share among media sites is not more equal online—Table 5.2 shows that the top 20 outlets grab more of the online market than they do in print media. But there are substantial drops in audience share for those media organizations in the middle categories—outlets ranked 21 to 500. Though the top media outlets online seem at least as important as those in print, audience share for small and middling outlets has been shifted downward. The smallest outlets have not taken over the media environment online. Instead, they seem to have cannibalized the audience of their moderately-sized peers.

Metrics for Concentration

Looking at the market share of the top outlets is not the only way to measure concentration, and social scientists have long relied on more systematic measures to judge the gap between the resource-rich and the resource-poor. For our purposes, I adapt two of the most broadly used metrics in order to compare concentration across online and offline media. I also apply a recently-proposed metric developed specifically to measure media diversity.

The first of these metrics is the Gini coeffient. Originally developed in the early 20th century to measure income inequality, Corrado Gini himself declared that the Gini coefficient could be used to calculate relative inequality for almost any resource (Gini 1921). The Gini coefficient is the mean difference across all observations between the Lorenz curve and the line of perfect equality.[7] Stated formally, if y is a vector of incomes, with extreme values of y_{min} and and y_{max}, a mean of μ, and a cumulative distribution of $F(y)$, the Gini coefficient can be calculated as follows:

$$G = \frac{\int_{y_{min}}^{y_{max}} F(y)[1 - F(y)]}{\mu}$$

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[7]The Lorenz curve can be obtained by plotting the cumulative distribution function of the resource in question against the cumulative distribution of the population possessing the resource. In a population governed by perfect equality, the Lorenz curve is a perfectly straight line: 30 percent of the population owns 30 percent of the wealth, 75 percent of the population owns 75 percent of the wealth, etc.

The Gini coefficient produces possible values between 0 and 1. Higher values correspond to greater inequality.

The second measure of inequality is the Herfindahl–Hirschman Index, or HHI. Developed to measure firm power within industries, HHI is calculated by taking an observation's total resource share expressed as a percentage, squaring it, and taking the sum across all observations. More formally, the Herfindahl–Hirschman Index can be calculated as:

$$HHI = \sum_{1}^{N} P_i^2$$

where P_i is the percentage of total resources controlled by the ith media outlet or Web site. The HHI has possible values between 0 and 10,000.

Lastly, we use the Noam Index, a recent metric proposed by Eli Noam, which attempts to balance the market power of the largest players with the number of media outlets that reach a nontrivial audience. As Noam puts it, "one should not have to choose between a measure of market power (the HHI) or of pluralism (the number of voices) but ought to incorporate both" (Noam 2004). Noam's solution to this problem is to take the HHI and divide it by the square root of the number of media "voices" in a given market. The Noam index is thus derived from the following equation:

$$HHI = \sum_{1}^{N} \frac{P_i^2}{\sqrt{\hat{N}}}$$

where P_i is the percentage of total audience attracted by the $i^{t}h$ media outlet, N is the number of outlets, and $\hat{N}$ is the number of outlets with at least 1 percent market share. As Noam explains, "One per cent seems a reasonable floor: small but not trivial" (Noam 2004). As with the HHI, the Noam index gives possible values between 0 and 10,000; however, all non-monopoly markets will score lower on the Noam index than they do on the HHI.

The HHI and the Gini coefficient are the most commonly used metrics of inequality or concentration in the social sciences; the Noam index is too new to have seen much use. This set of measures is attractive in part because each differs in its emphases. HHI, by squaring its components, focuses on the observations with the very highest values. Smaller players receive almost no weight in calculating the HHI. The Gini coefficient, by contrast, is a just a mean—the mean difference between the Lorenz curve and the line of perfect equality—and it is drawn equally from all observations in the data. Adding a large number of observations with small values raises the Gini coefficient dramatically.

The results of this analysis can be seen in table 5.3. Each of these metrics reinforces the conclusion the online audiences are at least as concentrated as those in traditional

	Gini coeff.	HHI	Noam Index
All Websites	.76	69	22
News & media sites	.88	134	40
Political sites	.85	140	31
Radio audience	.53	19	*
Newspaper circulation	.69	73	18
Magazine circulation	.70	123	34

Table 5.3: This table summarizes three metrics of media concentration across both online and traditional content. Overall, it finds that online audiences are at least as concentrated as audiences for offline media. No single radio station reached the Noam Index's 1 percent threshold, and so the Noam index could not be calculated for radio audiences.

media.[8] The first column of the table shows the Gini coefficient across of of these media categories. The Gini coefficient for overall Web traffic, for for news and media sites, and for sites focusing on politics, the Gini coefficient suggests greater inequality online than in print or radio.[9] Perhaps, one might suggest, an avalanche of small online publishers is pulling the average down, making it difficult to see that Internet audiences are spreading their attention across a broader set of outlets.

The second and third columns of Table 5.3 show that this is not the case. Thousands of information producers with minuscule market share might alter the Gini coefficient, but would have no effect on the HHI. The HHI numbers suggest that traffic over the entire Web is about as concentrated as newspaper circulation. Within news and media web sites, and within sites focusing on politics, the HHI actually exceeds that for magazines and newspapers. By this metric there is no evidence that news and media consumption is less concentrated online than off.

The Noam index also finds comparable concentration between Web content and traditional media. The number of "voices" used in the Index—outlets reaching 1 percent of market share—seems little different on the Web than in print. 9 Websites have at least 1 percent of all Internet traffic, along with 11 news and media sites and 21

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[8]Two recent cross-media studies adopt similar metrics and reach similar conclusions. Yim 2003 finds that, in traditional media, concentration increases with the number of outlets available. Comparing circulation figures of the top 100 newspapers with the number of links their Web sites receive, Hamilton suggests that the economics of producing online news may result in concentration rather than dispersion (Hamilton 2004, Ch. 7).

[9]One limitation of the Hitwise data is that traffic numbers are only given for sites that have more than .01 percent of the category's total visits. The gini coefficient can only be calculated using sites above this threshold, reducing the N in the "All Websites" category to 1346, in the "News and Media" category to 1810, and in the "Politics" category to 558. However, constraint does make the gini coefficient numbers more comparable across media. This lower N also likely reduces the level of inequality reported, making our comparison here a conservative one.

political sites; this compares to 16 newspapers and 13 magazines who have at least 1 percent of national circulation. The number of outlets online is far greater than in traditional media, but the number reaching a "not trivial" audience has not budged.

Newspaper Concentration in Print and Pixels

These data and metrics point to consistent conclusions. Yet a radio station is not interchangeable with a news magazine, and neither is exactly equivalent to a Website. Ideally, we would like to isolate the effects of the distribution medium from other factors—to examine the same content, produced by the same organizations, distributed both online and off.

One segment of the media lends itself to such a comparison: newspapers. Of the nation's 200 most widely circulated newspapers, all now publish their content on the World Wide Web, either on their own Websites or on a site partnered with another news organization. With only a handful of exceptions, newspaper Websites overwhelmingly present the same articles, prepared by the same staff, as the paper's print edition. To be sure, many newpapers have *tried* to extend themselves beyond just posting online versions of their print editions; yet as Boczkowski (2005) shows, few of these efforts have met with much success. Scholars have long portrayed newspapers are big organizations with entrenched bureaucracies (e.g. Epstein 1974), and this fact has been painfully evident in newspaper responses to the Internet phenomenon.

To make this comparison, we gather February 2006 data from the Audit Bureau of Circulations, looking at the top 200 daily newspapers by circulation. We then gather Hitwise visitor data from the same month for these newspaper's Websites, and apply the same metrics used above.[10] The results can be seen in table 5.4. Across every measure, newspaper content is more concentrated online than in print. The top 10 outlets control more of the total market, and the Gini coefficient for Website traffic is larger than that for circulation. The HHI and Noam index are twice as large for the online data.

A closer look shows that online distribution has benefited some types of newspapers far more than others. According to Hitwise, the *New York Times* and the *Washington Post* have online traffic roughly 2.5 times their share of the print newspaper market. The *Boston Globe* and the *San Francisco Chronicle* double their online market share in comparison to their print circulation. One newspaper—the *Washington Times*—does even better. A conservative paper based in the nation's capital, the *Washington Times* has a weekday circulation of less that 100,000. The paper's extensive cov-

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[10]15 smaller newspapers are omitted from the data below, because their official Websites are produced in partnership with larger newspapers. Additional analyses were performed with just the top 100 newspapers (which did not include any missing data), and with the missing newspapers replaced by the next 15 lower-ranking sites. In both cases the substantive results were identical to those presented to Table 5.4. Note that the gini coefficient is the only metric likely to be affected by such missing data.

	Top 10	Gini coeff.	HHI	Noam Index
Newspapers—Print circulation (top 200)	30%	.50	143	33
Newspapers—Website traffic (top 200)	42%	.62	304	65

Table 5.4: This metric summarizes metrics of concentration for newspapers, both online and in print. Even when comparing the same news organizations across the two media, online content shows substantial higher levels of concentration by every measure.

erage of national politics from a right-leaning perspective, however, has earned it an online readership more than three times its share of the print market.[11]

Yet among the rest of the outlets, the story is far different. More than two-thirds of newspapers attract a smaller share of online traffic than print circulation. It is disproportionately local, smaller-circulation papers which are weaker online than offline. Papers like the *Wilmington Star-News* and the *Provo Daily Herald*, which each have a far smaller audience share online than off, face much tougher challenges online than does the *New York Times* or the *Washington Post*.

Overall, this data suggests that there may be a tradeoff between competing democratic values. We want citizens to have access to the nation's best newspapers, no matter where they live. At the same time, geographic barriers which used to limit most communities to a handful of broadcast stations and a single local paper have also meant a more concentrated and less diverse media environment at the national level.

The Missing Middle

Many recent conversations about the Internet and media concentration have been framed by talk of the "long tail." Popularized by technology journalist Chris Anderson, the notion behind the long tail is that media is moving from a model of scarcity, to a model of plenty. Traditional retailers (such as Blockbuster Video) have limited shelf space, so they con only afford to carry the most popular titles; yet online companies (such as Netflix) can offer far broader selections. Instead of "squeezing millions from a few megahits at the top of the charts," the Internet allows producers to exploit "the millions of niche markets at the shallow end of the bitstream"(Anderson 2004). Anderson claims that "all those niches can potentially add up to a market that is as big as (if not bigger than) the hits" (Anderson 2006a).

The long tail represents a rebranding and a refinement of claims that the Internet promotes "narrowcasting" at the expense of mass media. For our purposes here, we will set aside talk about music or movies or books; perhaps in these areas Anderson's

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[11]The *Washington Times* is the only such outlier in the sample.

arguments do hold (though some have been skeptical). Yet many, including Anderson himself, have applied the same principles to politics (Reynolds and Reynolds 2006).[12]

This chapter suggests there are problems with this sort of thinking. First, there is the economics of content production. Some types of content are cheap to produce; some are not. Talk about the long tail or narrowcasting is irrelevant to online markets where barriers to entry remain high. Almost by definition, mass media is expensive to produce but cheap to distribute, guaranteeing large economies of scale for the most successful outlets. If the Internet lowers distribution costs still further, the forces that created media concentration in print and on the airwaves still remain.

We have seen that political content is a niche market within the broader Web. News and media and political Websites are the categories of content most relevant for politics, and for both groups it is hardly true that the "tail" of the distribution adds up to half of the total market. It is possible, as we saw in Chapter 3 and Chapter 4, to break these broader political niches down into subcategories and sub-subcategories of content, looking just at liberal sites, or just at sites on Congress or gun control, or just at pro-choice or pro-life abortion sites. Yet the ability to subdivide the Web into "millions of niches" does not guarantee an egalitarian outcome, any more than Zeno's paradox guarantees that an arrow will never hit its target.

The biggest story here is not the long tail, but what we might call the "missing middle." From the beginning the Internet has been portrayed as a media Robin Hood—robbing audience from the big print and broadcast outlets, and giving it to the little guys. Yet the data in this chapter suggests that audiences are moving in both directions. On one hand, the news market in cyberspace seems even more concentrated on the top 10 or top 20 outlets than print media is. On the other, the tiniest outlets have indeed earned a substantial portion of the total eyeballs. News and media sites ranked 500 or below, for example, receive 23 percent of the category's traffic, far more than in any traditional media. It is "middle class" outlets which have seen relative decline in the online world. Moreover, it is overwhelmingly smaller, local media organizations which have lost out to national sources.

These findings contradict the more simplistic narratives that continue to dominate public discourse. For example, not long ago the editorial board of the *New York Times* argued that the Internet had made A. J. Liebling's famous aphorism about the freedom of the press obsolete:

> Freedom of the press, so the saying goes, belongs only to those who own one. Radio and television are controlled by those rich enough to buy a broadcast license. But anyone with an Internet-connected computer can reach out to a potential audience of billions. (Cohen 2006)

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[12]Top blogger Glenn Reynolds states that Anderson's book "has a pretty strong Army of Davids resonance in places" (Reynolds and Reynolds 2006); Anderson similarly remarks on "how well my thesis and that of [Reynolds' book] *An Army of Davids* dovetail (Anderson 2006b).

Like much else written about the Internet, the *Times'* statement is both technically correct and misleading. The Internet does provide any citizen a *potential* audience of billions, in the same way that *potentially* pigs can fly. In their enthusiasm, many have forgotten to do the math, and that math shows that the odds of hitting it big are vanishingly small. Individually, each of the myriad sources which make up the long tail are insignificant; even together, they remain only a fraction of the content citizens actually see.

In a world with thousands of news sources only a few clicks away, many assumed that organizations like *CNN* or *The New York Times* would become less important. For those concerned that the Internet will destroy general interest intermediaries, the continuing strength of large, name-brand news outlets is welcome. Whether a sharper divide between big and small outlets is good news for other democratic values—media diversity, a broad public sphere, and equal participation in civic debates—is a far more doubtful prospect.

Blogs: The New Elite Media

The flaw in the pluralist heaven is that the heavenly chorus sings with a strong upper-class accent.

E. E. Schattschneider
The Semi-Sovereign People
1960

Those who have been enthused about the Internet's political implications, as well as those who have looked at the new medium suspiciously, have begun by assuming that the Internet is bad news for broadcasters and general interest intermediaries—that the Internet will funnel the attention of the public away from traditional news outlets and interest groups, and towards countless small-scale sources of political information. As previous chapters have shown, this assumption is mostly wrong. Audience concentration on the Web is at least as great as in traditional media. The winners-take-all patterns we discover in the ecology of the Web—both in its link structure and its traffic patterns—do not fit with what many have assumed.

So far, so good. Yet the concentration we find online does not mean that the Internet merely supports "politics as usual." We began by looking at the the role of the Internet in Howards Dean's presidential campaign. This chapter looks at the rise of blogs—another area of American politics where the Internet has brought dramatic changes.

Weblogs or "blogs"—first-person, frequently updated online journals presented in reverse chronological order—are a new feature of the political landscape. Virtually unknown during the 2000 election cycle, by 2004 these online diaries garnered millions of readers and received extensive coverage in traditional media. Most have assumed that blogs are empowering ordinary citizens, and expanding the social and ideological diversity of the voices which find an audience. Stories of "ordinary" citizens catapulted to prominence by their blogging have been told and retold. Some

have even suggested that blogging and "citizen journalism" will displace the "elite" or "old" media.

The consensus which emerged in the wake of the 2004 election was that blogs were both influential and potentially dangerous. Reporters argued that top blogs reached a modest but influential readership, and that blogs could help organize activists and raise campaign funds. Blogs were believed to frame issues, focus attention on overlooked stories, and hold established media to account when their coverage erred. At the same time, there was concern about how this influence would be wielded. Journalists still commonly deride the accuracy of blogs, and bloggers' partisan tone violates journalistic norms and is believed to polarize public discourse.

This chapter begins by examining recent data on the extent to which Americans read and create blogs, and goes on to explore popular claims that blogs are reshaping political communication. Both praise and condemnation of blogging depend on widely-shared beliefs about who reads blogs, and who writes them.

Many of these beliefs are mistaken. In the last part of the chapter, I gather systematic data on those bloggers who reach a substantial audience. Bloggers fit poorly into the narrative that has been constructed for them. Traffic to blogs follows winners-take-all patters; though more than millions Americans now maintain a blog, only a few dozen political bloggers get as many readers as a typical college newspaper. Yet the problem is not just the small number of voices that matter—it is that those voices are quite unrepresentative of the broader electorate.

Partly because of their intensely personal nature, blogs present an important case study in online speech, and in understanding which voices matter online. Ultimately, blogs have given a small group of educational, professional, and technical elites an important voice in American politics. Blogs have done far less to amplify the political voice of average citizens.

Blogs Hit the Big Time

Of all of the changes in the media environment between the 2000 and 2004 elections, the growth of blogs ranks among the biggest. At the end of 2000, few Americans had heard the term "blog." By the end of the 2004 election cycle, discussions of political blogging were difficult to ignore.

If we want to understand blog influence on the 2004 campaign, one place to start is by examining nationwide surveys conducted after the election. Two national telephone surveys were conducted by the Pew Internet and American Life Project in November of 2004 (Ranie 2005); an additional nationwide telephone survey was conducted in February 2005 by the Gallup organization (Saad 2005). According to the Pew survey, of the roughly 120 million Americans online, 7 percent—or 8 million Americans total—had themselves created a blog. 27 percent of Internet users reported reading blogs, making 32 million Americans blog readers. Gallup similarly found

that 15 percent of the public read blogs at least a few times a month; 12 percent read political blogs this often.

Compared to traditional outlets such as newspapers and television news, blogs remained niche players. Two percent of Gallup respondents visited political blogs daily, an additional 4 percent visited several times a week, and 6 percent more visited a few times a month; 77 percent never visited political Weblogs. Pew results were similar; 4 percent of Internet users reported reading political blogs "regularly" during the campaign; an additional 5 percent reported that they "sometimes" read political blogs. Even among Internet users, 62 percent of Pew respondents did not "have a good idea" of what a blog was. 56 percent of the Gallup sample was "not at all familiar" with blogs.

Still, blogging has seen rapid growth for a form of publishing that only began in 2000 and 2001. In June of 2002, a Pew survey found that 3 percent of Internet users were bloggers. By early 2004, that number had jumped to 5 percent of Internet users, and to 7 percent by November of 2004. The growth of blog readership was even more rapid. In the spring of 2003, 11 percent of Internet users reported reading blogs; by February of 2004, that number was 17 percent. In November 2004, 27 percent of Internet users were blog readers—a growth of 56 percent in just nine months. Not all of this readership, of course, was focused on political blogs.

Both blog publishing and blog readership continued to grow rapidly after the 2004 election. A Pew telephone survey conducted in April 2006 found that 8 percent of Internet users—12 million American adults—maintained a blog (Lenhart and Fox 2006). A stunning 39 percent of Internet users, or 57 million citizens, reported that they read blogs. 11 percent of bloggers stated that politics was the main topic of their online journals; if accurate, that would put the number of political blogs at about 1.3 million.

According to the Pew report, bloggers are evenly split betweeen men and women; roughly half are 30 years of age or younger. Bloggers are more highly educated than the public at large, with 37 percent of the sample having earned a bachelor's degree. Perhaps most importantly, 38 percent of bloggers are knowledge-based professional workers, compared with 16 percent in the population as a whole.

While the Pew and Gallup data illustrate the broad contours of blog readership, data from Hitwise allows us to examine the demographics of those who read the most popular political Weblogs. As Table 6.1 shows, there is a gender divide between liberal and conservative weblogs. While the top liberal blogs have male readership of between 32 and 55 percent, conservative blog readership varies from 53 to 89 percent male. Hitwise data shows, too, the breakdown of blog readership by age. For each of these blogs, between two-thirds and four-fifths of their readership is 35 or older. Table 6.2 lays out these results in detail. Chapter 4 suggested that visits to political Websites were dominated by older Web users. These blogs show dramatically higher levels of readership by the young than political Websites more generally. Still, on average, half of visitors to these blogs are 45 or older.

Rank	Blog	Male readership (%)
1.	*DailyKos.com*	*47%*
2.	Instapundit	59 %
3.	*Eschaton (Atrios)*	*52%*
4.	Michelle Malkin	57 %
5.	*Crooks and liars*	*32%*
6.	Little Green Footballs	89%
7.	Powerline	74%
8.	RedState.org	68%
9.	*Wonkette*	*46%*
10.	Andrew Sullivan	53%
11.	*Kevin Drum*	*55%*
12.	Hugh Hewitt	80%

Table 6.1: This table presents Hitwise data on the a gender of blog visitors for a set of top political Weblogs for October, 2005. Liberal bloggers are in italics. Though we would expect that conservative blogs would have higher male readership, the extent of the disparity is surprising.

The overall picture, therefore, shows blogs to be a small but rapidly growing part of the media environment. There are important differences between the profile of those who create blogs and that of the general public. But as we shall see, the differences between bloggers and the wider public pales in comparison to the gap between the few dozen political bloggers who find a large audience, and the hundreds of thousands of bloggers who do not.

Bloggers and the Media

Blogs are so new that relatively little has been published by academics about their political implications. Scholars who have examined blogging have focused on a number of consistent themes. Some have looked at two basic questions: do blogs matter, and if so, how? The answer offered seems to be "yes"; that top blogs reach a small but influential audience, and that powerful insights trickle up to these to these top outlets (Drezner and Farrell 2004a, Bloom 2003, Benkler 2006) Others have examined blogging's ability to "democratize" political content creation (Chadwick 2006), and the implications of this for truth claims and perceptions of credibility (Johnson and Kaye 2004, Matheson 2004). Research by Adamic and Glance (2005) Adamic and Glance 2005 has also looked at patterns of linkage among political blogs; among other things, it showed levels of liberal-conservative cross-linkage far higher than that found in the traffic patterns detailed above.

Rank	Blog	18–34	35–44	45–54	55+
1.	DailyKos.com	34%	13%	29%	24%
2.	Instapundit	29%	22%	20%	29%
3.	Eschaton (Atrios)	26%	29%	31%	14%
4.	Michelle Malkin	19%	29%	19%	33%
5.	Crooks and liars	29%	16%	30%	26%
6.	Little Green Footballs	26%	22%	20%	32%
7.	Powerline	21%	16%	24%	40%
8.	RedState.org	29%	26%	26%	20%
9.	Wonkette	28%	19%	41%	12%
10.	Andrew Sullivan	31%	34%	12%	13%
11.	Kevin Drum	22%	24%	23%	30%
12.	Hugh Hewitt	31%	23%	25%	21%
	Average	27%	23%	25%	25%

Table 6.2: The table presents Hitwise data on the age of visitors to prominent political blogs, as of October 2005. Because of rounding, each row may not add up to exactly 100 percent. The central finding here is that blogger readership is not just limited to the young. On average, half of the readership to these blogs comes from those 45 and older.

The relatively small volume of academic writing has been counterbalanced by an avalanche of debate in the popular press. This surge of interest in blogs can be charted by the number of stories about them in major newspapers (Table 6.3). The earliest mention of blogs in the Lexis-Nexis database is not until 1999. In the whole of 2000, there were only 9 references to blogs in their current meaning as online journals. In 2001 blogging tools became more widely available to the public through the efforts of companies like Blogger.com; much of the early coverage of blogs focused on their social implications. The real explosion in news coverage of blogs, though, was spurred by politics. In 2003, as Howard Dean's insurgent campaign for president took off, blogs were given much of the credit.

If we are to understand the relationship between blogs and politics, it is worth cataloging expectations about blogging in media reports. Partly, this is to get a broader view of claims and expectations about blogging than provided in the few academic articles on the subject. Yet another rationale is even more basic. Blogs are important, scholars have argued, because public discourse matters. If this is true, then it is worth cataloging the themes that have dominated public debates about blogging.

This section thus examines claims made about political blogging in newspapers and periodicals. Thanks to electronic indexes, much of this writing is easily searchable. This chapter sifts through *all* of Lexis-Nexis articles between 1999 (when the word was coined) and the end of 2004 that mention any variant of the words "blog"

Year	# of Newspaper Stories
1999	3
2000	9
2001	209
2002	408
2003	1442
2004	3212

Table 6.3: This table presents the number of stories in major papers contain references to "Weblog" or "blog." (Several references to "blog" as a British slang word have been omitted in the 1999 and 2000 data.) Source: Lexis–Nexis.

and "politics." In total, I examine more than 300 news articles in major papers, and more than 150 articles in magazines and journals. Discussion about blogs in print has been remarkably consistent, returning again and again to the same themes and concerns.

"Ordinary Citizens"

The central claim about blogs in public discourse is that they amplify the political voice of ordinary citizens. Almost everything written about blogs has explored this belief. Most often, the mood is upbeat: "You, too, can have a voice in Blogland" (Campbell 2002); "[blogs] enable anyone with an opinion to be heard" (Megna 2002). As the Washington Post explained, "When you have a theory or a concern, telling people over the phone, it's not that effective, but put it on your blog and you can tell the whole world" (McCarthy 2004). This vision of blogs is often fit into a larger framework of Internet empowerment: "...blogging is one of the most interesting ways in which the Internet empowers people. They cost almost nothing to put up and they allow anyone with an opinion the ability reach millions of people instantly and simultaneously" (Bartlett 2003).

These claims about blogging are so standard that they have given birth to their own genre, what might be termed the Joe Average Blogger feature. Such articles begin by producing a citizen of the most ordinary sort. Personal characteristics that argue against political influence, such as youth or a blue-collar profession, are emphasized. The moral is political empowerment: one citizen who suddenly has a voice in the political arena thanks to his or her blog. Numerous examples of this genre can be found (e.g. Weiss 2003, Falcone 2003, Kessler 2004, McCarthy 2004).

Such optimistic narratives have not gone entirely unchallenged. Coverage has noted that "some skeptics question whether every supporter's passing thought deserves a public platform, or whether the musings of an almost anonymous voter are worth reading" (Weiss 2003). Others have made fun of bloggers when they write—

literally—about what they had for lunch (Hartlaub 2004a). As one reporter put it, "Ordinary people writing unpaid about things that matter to them may mark a crucial change in the information landscape; it can also be skull-crushingly dull" (MacIntyre 2004).

Still, few have disputed the notion that blogs are making political discourse less exclusive. As an executive producer at MSNBC explained, "it's a more democratized form of commentary. It lets some other voices and ideas into that airless room that the media has become" (Campbell 2002). Blogs have been hailed as "harbingers of a new, interactive culture that will change the way democracy works, turning voters into active participants rather than passive consumers, limiting the traditional media's role as gatekeeper, and giving the rank-and-file voter unparalleled influence" (Weiss 2003). As one blogger explained in the *Los Angeles Times*, "Bloggers are about providing more points of view, about providing those points of view in an authentic and personal voice" (Stone 2004).

Diversity in the blogosphere is thus taken for granted. This new form of political expression is "fabulously unscripted," and it "spans a spectrum of beliefs and interests as diverse as the Web itself" (Stone 2004). Because bloggers are nothing more than average citizens, and because they do not need to cater to the demands of audiences or editors, "the universe of permissible opinions will expand, unconstrained by the prejudices, tastes or interests of the old media elite" (Last 2002).

Do Blogs Matter?: Lott, Dean and Rather

Judging from popular press coverage, then, blogging is the second coming of online politics—the Internet redistributing political power to the grass roots (or, as many bloggers call themselves, the "netroots"). This claim was reiterated at moments when bloggers' writings seemed to impact broader political concerns. Arguably the first instance of this grew from an unlikely source: a birthday party. Sen. Majority Leader Trent Lott, in remarks at Sen. Thurmond's 100th birthday celebration, noted that Lott's home state of Mississippi was "proud" to have voted for Thurmond during his 1948 run for president on a segregationist platform. Lott stated that if Thurmond had won, "We wouldn't have had all of these problems over the years." Though Lott's remarks were delivered live on C-SPAN, with a few important exceptions most news organizations ignored Lott's remarks. Blogs were given credit for refusing to let the issue die (e.g. von Sternberg 2004). Conservative bloggers such as Andrew Sullivan and Instapundit's Glenn Reynolds condemned Lott's remarks; liberal bloggers such as Joshua Micah Marshall and Atrios highlighted previous remarks by Lott that seemed to approve of segregation. When Lott issued a weak apology early the following week, a cascade of coverage followed, ultimately forcing Lott to resign his leadership position. Assessments of blogs' part in Lott's resignation remain contro-

versial.[1]

Political weblogs were also credited with an important role in online campaigning during the 2004 electoral cycle. Numerous articles highlighted the importance of blogs in Dean's online efforts (e.g. Baker, Green and Hof 2004). Bloggers were seen as a new source of money for congressional candidates (Faler 2004b; Lillkvist 2004; Martinez 2004). The Democratic party's decision to give 36 bloggers media credentials at the 2004 Democratic national convention was declared a "watershed" (Perrone 2004), and was widely covered.[2]

But the single most important incident in winning the blogosphere respect was the scandal that some bloggers branded as "Rathergate." On September 8th, 2004, CBS News broadcast a report on George W. Bush's Vietnam-era Air National Guard service. CBS claimed to have unearthed documents showing that Bush had failed to fulfill his military obligations. Late that night, an anonymous member of FreeRepublic.com, a forum for right-wing views, wrote that the CBS documents couldn't have come from an early 1970s typewriter. Early the next morning, Power Line, the second-most-trafficked conservative blog, linked to this posting; Charles Johnson, proprietor of the third-largest conservative Weblog, soon posted documents typed in Microsoft Word which he claimed matched the disputed documents. Much traditional media coverage followed, and CBS ultimately conceded that it could not verify the documents' authenticity. Dan Rather announced his resignation as news anchor a few months later.

In the media post-mortems which followed, bloggers were given the starring role. The headline in *The New York Times* declared: "No Disputing It: Blogs are major players" (Wallsten 2004b). According to many, Rather's troubles put mainstream media on notice: the distributed network of bloggers functioned as a "truth squad" adept at "double-checking and counter-punching the mainstream media" (*Web of politics* 2004, Seper 2004b). As political scientist Daniel Drezner explained, "A couple of the blogs raised factual questions—it was like firing a flare. Then the mainstream journalists did the heavy lifting. It was highly symbiotic" (von Sternberg 2004). Even the lowliest online activist might trigger a cybercascade powerful enough to bring down a

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[1] One popular account concluded afterward that "Never before have [blogs] owned a story like they did the Trent Lott saga" (Fasoldt 2003); top blogger Markos Moulitsas Zuniga likewise declared, "The point when I knew we had an impact is when we got Trent Lott fired" (Nevius 2004; see also Smolkin 2004; Kornblum 2003). Political scientist Joel Bloom argues that it was bloggers' persistent coverage of the issue that transformed it from an ignored story to a front-page issue. Daniel Drezner and Henry Farrell also assign blogs a critical role in the Lott affair, arguing that journalistic readership made blogs an important driver of mainstream media coverage (Drezner and Farrell 2004a; see also Ashbee 2003). Yet other scholars have been more cautious. Noting that *The Washington Post* and *ABC News* did cover the story within 36 hours of the event Esther Scott concludes that "How much of the story made its way from the blogs—as opposed to other Internet sources, such as [ABC News'] *The Note*—into the mainstream is difficult to determine" (Scott 2004:23). Blogger Kevin Drum, himself credited with a significant role in the Lott affair, ultimately argues for a similar conclusion. Says Drum, "I suspect that blogs played a role in the Trent Lott affair, but not as big a role as we think" (Drum 2005).

[2] For examples see Hartlaub 2004a; Perrone 2004; Halloran 2004; Memmott 2004.

national political leader. As one Democratic activist declared, "It was amazing Thursday to watch the documents story go from [a comment on] FreeRepublic.com, a bastion of right-wing lunacy, to Drudge to the mainstream media in less than 12 hours" (Wallsten 2004b).

Taken together, the Dean campaign and the Lott and Rather resignations convinced many skeptics that blogs were worth paying attention to. As one pundit declared, "I've had my doubts about Web logs... [but] I've changed my mind, big time" (Taube 2004). Blogs, the argument went, had come to set the agenda for other media "in a way not unlike talk radio" (Fasoldt 2003). Blogs allowed "issues and ideas ... [to] remain in the publics mind for months longer" (Seper 2004a). And although most of the general public didn't read blogs, those who did ranked among the most influential citizens. As the *Washington Post* summarized, blog readers "tend to be white, well-educated and, disproportionately, opinion leaders in their social circles" (Faler 2004a). A wide assortment of political elites themselves—from opinion journalists like Paul Krugman to political operatives like former Clinton advisor Simon Rosenberg and Dean campaign manager Joe Trippi—proclaimed themselves addicted to blogs (Scott 2004; Morse 2004; Trippi 2005).

Partisanship and Innaccuracy

By the end of the 2004 election cycle, then, most public discussion took for granted that blogs had become an important part of the political landscape. There was also much agreement on how blogs wield political influence—by setting the broader media agenda, and by reaching an elite audience of opinion leaders and (especially) journalists. Yet grudging respect for blogs coexisted uneasily with concern about what blogging meant for political discourse. Again and again, journalists claimed that blogs had two central failings. First, they suggested that blogs were sensational and inaccurate. Second, they argued that the partisan nature of blogs poisoned public debate. In large part, these criticisms depended on assumptions about bloggers' backgrounds.

Much vitriol was directed at bloggers for their salaciousness and ostensible innaccuracy. As bloggers became accredited journalists at the Democratic National Convention, one newspaper editorialized that "they would be wise to start putting a higher premium on accuracy" (*Blog–Hopping* 2004). One reporter declared bloggers were "like C-SPAN in the hands of a 19-year-old" (Wood 2004). The *American Prospect's* Natasha Berger railed against "the serious problem of quality control in the increasingly powerful blogging world" (Seipp 2002). For some, blogs inspired even harsher language. "Political blogs have crawled from the Web's primordial ooze, evolving into a mutant strain of journalism. In the freewheeling online world, bloggers — often partisans — can spin the news till they get vertigo, free from the clutches of (a) an editor and (b) the truth" (Manuel 2004). In one oft-referenced remark, Jonathan Klein (subsequently president of CNN) declared that "You couldn't have a starker contrast

between the multiple layers of checks and balances [of network news organisations] and a guy sitting in his living room in his pajamas writing" (Colford 2004).

Bloggers may have caught flaws in CBS's coverage, but journalists were quick to pounce when bloggers fell short of journalistic standards. When the Drudge Report claimed that John Kerry had had an extramarital affair, the allegations quickly migrated to Wonkette.com and other blogs (Smolkin 2004). [3] Blogs also incubated rumors about John Kerry's military record that were picked up—and largely discredited—by the mainstream press (von Sternberg 2004).[4] Similarly, on election day 2004, several top bloggers posted early—and misleading—exit poll results that seemed to show John Kerry headed for victory (Horn 2004; Hartlaub 2004b). After the exit poll incident, blogger Ana Marie Cox commented, "All of a sudden blogs were back to being the pajama-clad amateurs"(Bishop 2004).

Closely tied to concerns about blogs' accuracy are worries about their partisanship. As one *New York Times* article defined it, this is "the very nature of the blog – all spin, all the time" (Williams 2004). Many argued that "it is a dangerous mistake to grant the usually partisan bloggers the privileges of more mainstream journalists" (Yeager 2004). *Washington Post* columnist Robert J. Samuelson was even more emphatic: "[E]veryone can punch up partisan blogs – the fast food of the news business. What's disturbing is that, like restaurants, the news media may increasingly cater to their customers' (partisan) tastes. News slowly becomes more selective and slanted" (Samuelson 2004). One editorial board similarly worried that "Depending on your reading habits, you may not get to the truth, but only a series of opinions that fit your point of view " (Seper 2004a).

So You Want to Be a Blogger

Popular blog coverage has thus presented a consistent narrative of how and why blogs matter in American politics. At the heart of these descriptions is the notion that blogging is making political discourse less exclusive, giving ordinary citizens an expanded political voice. Criticisms of blogging have been a mirror image of this same claim. Blogging, in the view of critics, is *too* democratic: It empowers the unqualified and the insipid, tramples on norms of accuracy and objectivity, and replaces trained professionals with partisan hacks.

In a technical sense, it is true that blogging allows a large group of citizens to air their opinions in public. But the more important question is not who posts on blogs,

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[3] Mainstream news organizations largely dropped the issue after both Kerry and the woman named denied any relationship.

[4]In a matter with fewer electoral consequences, a link from Wonkette also helped to expose the story of Jessica Cutler, a congressional staffer who wrote an anonymous blog detailing her sexual escapades on the Hill, including what she alleged were dalliances with a married Bush administration official (Rosen 2004). In the miniscandal that followed, Cutler's identity was exposed, she was fired from her job, given a book contract, and ultimately ended up posing nude for Playboy magazine.

but who actually gets read. The remainder of this chapter is focused on this question: who *does* get heard in the blogosphere? First, how many political bloggers have managed to assemble more than a modest audience? Second, what are the characteristics of this group of successful bloggers?

Room at the Top?

Chapter 3 and Chapter 5 suggested that online political communities have highly skewed distributions of links and traffic. The same pattern holds with political Weblogs. N. Z. Bear's blogging ecosystem tracks 5,000 of the most widely read blogs, compiling data from the SiteMeter tracking service used by many (though not all) bloggers (Bear 2004). The most popular blogs in this listing receive several hundred thousand visits daily, while the least popular receive 10 daily visitors. In early March of 2005, the most popular blog—Markos Moulitsas Zuniga's DailyKos.com—by itself accounted for 10 percent of all blog traffic in the sample. The top five blogs, taken together, account for 28 percent of blog traffic; the top ten blogs accounted for 48 percent. All sites with more than 2,000 visits a day—the standard used for the broader survey below—got 74 percent of traffic within the sample.

It has often been observed that voice in the blogosphere is highly personal. One place to begin, then, is to take a look at the most popular "A-list" bloggers. The following are brief profiles of the top ten political bloggers by audience, according to N.Z. Bear's traffic numbers, as of early December 2004. Bloggers who do not use SiteMeter to track visitors to their site are not included in these rankings. Though rankings for the top ten have been reasonably stable over the past several years, this list should be taken as a snapshot, not as an authoritative catalog.

1. Lawyer and democratic political consultant Markos Moulitsas Zuniga, 32, is proprietor of DailyKos.com, the most trafficked political Weblog in the world. Zuniga graduated with a journalism degree from Northern Illinois University, where he edited the student newspaper, and earned a law degree at Boston University. Half Greek and half Salvadoran, Zuniga spent part of his childhood in El Salvador, and served a three year enlistment in the United States Army. Zuniga lives in Berkeley, CA.

2. University of Tennessee Law professor Glenn Reynolds, 44, is the author of the conservative site Instapundit.com. Reynolds grew up as "a grad-student and faculty brat," and lived in Dallas, Cambridge, and Heidelberg before returning to Tennessee (Geras 2004). Reynolds holds a B.A. from the University of Tennessee, and a J.D. from Yale; he lives in Knoxville, Tennessee.

3. The blog Eschaton is published by Atrios—the pseudonym of Duncan Black, 32, a former economics professor. Black earned a Ph.D. in Economics from Brown University, and has held research or teaching positions at the London School

of Economics, UC Irvine, and Bryn Mawr college. Before blogging, Black had extensive experience in grassroots activism. Black is currently a Senior Fellow at Media Matters for America, a left-leaning media watchdog organization. Black lives in center city Philadelphia.

4. Charles Johnson, 51, is a Web designer and former professional jazz guitarist who created the conservative Weblog "Little Green Footballs" (LGF). After his jazz career (which included several appearances on recordings that went gold), Johnson started CodeHead Software. He and his brother later started a Web design firm; the original LGF blog started as a testbed for the company's design work. Johnson lives in Los Angeles.

5. Joshua Micah Marshall, 35, a professional journalist, writes the liberal blog TalkingPointsMemo.com. Marshall earned an bachelor's degree from Princeton and a Ph.D. in early American history from Brown. Marshall served as editor at *The American Prospect*, and has written for beltway-focused publications such *The Washington Monthly* and *The Hill*. At the time that this survey was conducted, Marshall lived in Washington, D.C.; he has since moved to New York City.

6. As of December 2004, the only woman blogger in SiteMeter's top ten was Ana Marie Cox, 31. Cox attended the University of Chicago and the University of Texas at Austin, and did graduate work at UC Berkeley. During the Internet boom, Cox was the executive editor of the influential Internet journal Suck.com; Cox then worked as a writer and editor at the *American Prospect*, *Mother Jones*, and the *Chronicle of Higher Education*. The Wonkette blog is actually owned by Nick Denton, one of the creators of BlogAds, a blog advertising service. Cox lives in a suburb of Washington D.C.

7. PowerLine, a right-wing blog, is run by three undergraduate Dartmouth alumni: John Hinderaker, Scott Johnson, and Paul Mirengoff. All three are lawyers: Hinderaker has his J.D. from Harvard, Johnson from the University of Minnesota, and Mirengoff from Stanford. Before blogging, Hinderaker and Johnson had written political commentary together for more than a decade. Hinderaker and Johnson live in the Minneapolis / St. Paul area; Mirengoff lives in Washington, D.C.

8. Kevin Drum, 46, a former software consultant and technology executive, is another prominent blogger. Drum's father was a professor of Speech Communications at Cal State Long Beach; his mother taught elementary "gifted and talented" programs. Drum started college at CalTech as a math major, but transferred to Cal State Long Beach, where he edited the college newspaper and graduated with a degree in journalism. Drum's most recent corporate position was as Vice President of Marketing at a software firm, followed by several years of software consulting. Drum started the blog Calpundit in August 2002; in

early 2004, the *Washington Monthly* hired Drum to move his blog onto their newly-renovated Web site. Drum lives in Orange County, California.

9. Andrew Sullivan, 42, writes the eponymous blog AndrewSullivan.com. The former editor-in-chief of *The New Republic*, Sullivan has written for a numerous publications, including the *Sunday Times* (London), and the *New York Times*. Born in southern England, Sullivan did his undergraduate work at Oxford, where he was president of the prestigious Oxford Union debating society. Sullivan holds two degrees from Harvard: a Masters in Public Administration from the Kennedy School of Government, and a Ph.D. from the Department of Government. Sullivan lives in Washington, D.C.

10. Hugh Hewitt, Professor of Law at Chapman University and nationally-syndicated radio host, runs the blog HughHewitt.com. Hewitt won three Emmys during ten years as co-host of "Life and Times," a nightly news and public affairs program sponsored by Los Angeles' PBS affiliate KCET. Hewitt has published several books. Hewitt graduated from Harvard College and earned his J.D. from Harvard Law School.

If we want to know how blogging has altered political voice, one place to start is by asking where these now-very-public individuals would be without their blogs. The short time frame makes counterfactuals easier. In a world without blogs, Kevin Drum would likely still be a Silicon Valley software consultant; Charles Johnson would be just another LA-based Web designer. Blogging has given a prominent platform to several individuals whose political writing might otherwise have been limited to a few letters to the editor.

Yet from a broader perspective, blogging appears far less accessible. Andrew Sullivan and Hugh Hewitt were famous pundits long before they began blogging. The highly skewed distribution of blog readership means that a few voices are exponentially more popular than the rest; in any sort of community defined by a power law, there is little room at the top. While press coverage has emphasized the success stories—particularly the unlikely success stories—it has often ignored the other million political bloggers who receive no traffic at all.

These top ten bloggers force us to reconsider claims that bloggers lack the training and norms of traditional journalists. In fact, five of these ten individuals—Marshall, Cox, Drum, Sullivan, and Hewitt are—are current or former professional journalists from traditional news organizations.[5] For those who have continued to work as journalists, their is some evidence that their employers hold them accountable for what they write on their personal Websites. For example, Andrew Sullivan reported that he had been "banished" from his job writing for *The New York Times Magazine* after he wrote critical things in his blog about *Times* editor Howell Raines.

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[5]While it is unclear whether Drum considers himself a journalist, there is no question that he currently is employed by a traditional media organization.

If there is disagreement over politics and policy among these bloggers, it is not because they come from radically divergent backgrounds. All of the top bloggers are white; Zuniga, who is half Greek and half Latino, is the only arguable exception. Neither is the picture of gender diversity an inspiring one. At the time the survey was conducted, Cox was the only woman among this group of top bloggers.

Yet perhaps the most striking characteristic of this group is its educational attainment. Of the top ten blogs, eight are run by people who have attended an elite institution of higher education—either an Ivy League school, or a school of similar caliber like Caltech or Stanford or the University of Chicago. Seven of the top ten are run by someone with a J.D. or a Ph.D.—and one of the exceptions, Ana Marie Cox, did graduate work at Berkeley and worked as an editor at the *Chronicle of Higher Education*. At least two of the ten bloggers—Glenn Reynolds and Kevin Drum—are the children of academics.

All of this raises the question, How different are bloggers from what many bloggers derisively term the "elite media"? Like traditional journalism, blog traffic is concentrated on a small number of outlets. Many blogs are run by journalists, or by those with journalistic training. And journalists or not, all of the top 10 bloggers have advantages that distinguish them from "ordinary citizens." Political consultants and Yale-educated lawyers have not traditionally been underrepresented in the corridors of political power. Even those with the least previous connection to journalism and politics—namely Kevin Drum and Charles Johnson—-possess uncommon technical expertise and management experience. Business owners and executives, too, have not historically been an underrepresented class in American politics.

Yet the relatively elite social background of the top 10 bloggers is, in itself, not conclusive. Many of these bloggers dispute the claim that they represent a privileged set of citizens. Moulitsas Zuniga, Hewitt, and Reynolds have all written books celebrating the power of the "netroots," books with titles like *Crashing the Gates* or *An Army of Davids*. Bloggers often emphasize the community production of information in the blogosphere. It is common to talk about blogging as an "ecosystem," in which both large and small blogs have their place. The ease with which blogs can link to one another, and norms which require bloggers to acknowledge one another's work, mean in theory that anyone can point out insights that others have neglected.

The culture of blogging may somewhat ameliorate the elitism inherent in having blog readership focused on a few bloggers who are unrepresentative of the general public. Still, there are limits to what the openness of blogging culture can accomplish. Top bloggers may read more blogs than the average citizen, but their reading habits are likely also skewed towards popular blogs. It is one thing if the top 10 bloggers, who serve as filters for the rest of the blogosphere, come from relatively elite backgrounds. But what of the second and third tier bloggers? If we are to take seriously the "trickle up" theory of online debate, we need to know who these ideas are trickling up from. We need systematic knowledge about a broader swath of the blogging community.

Blogger Census

To answer some of these questions, I conducted a census of top bloggers, combining publicly available biographical information with a short survey distributed via e-mail. Numerous post-mortems of the 2004 election declared that this was the election cycle when blogs "arrived" as a political force. Using average traffic for early December 2004 as a baseline, I attempted to gather information on every political Weblog that averaged more than 2,000 visitors a week.[6] The list was compiled from N.Z. Bear's Weblog Ecosystem project, which aggregated data from the SiteMeter tracking service. 87 political blogs had at least this level of traffic; I was able to gather detailed background information on 75 of these 87 blog publishers.[7]

A census of political bloggers naturally raises questions of scale. It makes sense to focus on the top part of the power law curve, the sites that get the majority of blog traffic, but deciding how far down to delve in the blog rankings is a matter of judgment. The 2,000-visitors-a-day cutoff was chosen for both theoretical and practical reasons. From the perspective of mass politics, 2,000 daily visitors seemed to be beyond the point of diminishing returns. Choosing a different cutoff—say, 1,000 readers per day—would have doubled the number of bloggers to be surveyed, yet together the added blogs would have had fewer readers than DailyKos or InstaPundit. Limiting the census to 87 blogs also allowed the survey to be conducted by a single researcher.

Because blog traffic is not fixed, this survey should be seen as a representative snapshot of a moving target. Many short-term factors, such as a link from a more prominent blog, can influence a blog's traffic on a given day or week. Variation in traffic seems to depend on a site's overall rank within the blogosphere. Huberman and collaborators have shown that, in the arena of e-commerce, site traffic is governed by Brownian motion, with the variance in traffic roughly proportional to a site's rank within its niche (Huberman 2001). A similar phenomenon seems to govern political blogs, where less popular sites have proportionally larger swings in traffic. Looking at these blogs a few weeks later might therefore have generated a slightly different set of sites in the sample, particularly for blogs near our 2,000-visitor cutoff.

Information on these top bloggers was collected in two ways. First, an attempt was made to find out about bloggers' backgrounds through public sources—news articles found through Lexis-Nexis, Google searches on the individual's name, and biographies or CVs posted by bloggers themselves. For the top 10 bloggers, for example, all information was gathered through public sources. When public informa-

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[6]The hope was that, a month following the election, traffic numbers would be closer to normal levels. For those blogs that received greater exposure during the run up to the election, the December 2004 data also provided an indication if that increased exposure had translated into higher average readership.

[7]Blogs tracked by the Blogging Ecosystem project that did not focus on politics were excluded from the analysis.

tion was not available, bloggers were sent e-mails asking them to take a short survey focusing on social background, education, and occupational history.

The fact that this survey was able to be conducted at all shows that bloggers are an accessible bunch. The large majority of bloggers were polite, friendly, and eager to respond to the queries of a social scientist. This fact is particularly remarkable given the massive volume of e-mail that most of these individuals receive.

Unlike any other area of political discourse, it is common for bloggers to write under pseudonyms, or under just their first names. Of the 87 blogs included in the study, 24 fell into that category. These pseudonymous bloggers were invited to take the survey, but were encouraged to withhold or be vague about details that might prove personally identifying. Of the 10 active bloggers who failed to respond to our entreaties, only two blog under their real names.[8]

Of these 86 blogs, 25 contained regular postings from more than one blogger. The nature of these arrangements varied significantly, from a two close friends who collaborated in producing the site, to a loosely affiliated group of 10 or more contributors. For blogs with multiple posters, the individual responsible for the largest number of posts was asked to take the survey.

With data gathered on 75 of the 87 bloggers, the response rate for the survey significantly exceeds the average, though this "response rate" includes many about whom information was gathered from public sources. However, eight of the 24 pseudonymous bloggers—one third of the total—failed to fill out the survey. This is the category of blogger about which we can say the least.

Education

If the "A-List" bloggers profiled above share remarkable educational pedigrees, the wider group of bloggers in our census does too. First, all but two of the respondents had graduated from college. This is, of course, significantly above the average in the general population. Even more revealing is the quality of the undergraduate and graduate institutions these bloggers attended. The survey asked bloggers to name any institutions they had attended for college and graduate school. From this data, I determined whether bloggers had attended an "elite" educational institution at some point in their academic careers. Elite educational institutions were defined as:

1. Institutions that ranked in the top 30 by the 2004 *U.S. News and World Report* survey of universities. This group includes all seven Ivy League universities, and well-known institutions; examples from the sample include Stanford University, the University of Chicago, Rice University, Emory University, the University of Michigan, and the University of California at Berkeley.

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[8]In addition to these ten, two of the blogs included in the original 87 sites stopped updating their content during the weeks the survey was conducted. Neither of these bloggers responded to our queries.

2. Highly selective liberal arts colleges, defined as one of the top 20 liberal arts colleges in the 2004 *U.S. News and World Report* rankings. Examples from the sample included Williams College, Swarthmore College, and Claremont McKenna College.

3. The US military service academies, including the graduate school at the Command and General Staff College.

Of the 67 respondents who named the colleges or universities that they had attended, 43—nearly two thirds—had attended at least one elite institution. [9] A strong majority of these bloggers also held an advanced degree. 46 of the 75 bloggers—61 percent—had earned a master's or a doctorate. (According to the Census Bureau's 2002 Current Population Survey, 9 percent of US adults held an advanced degree.) 55 out of of the 75 respondents fell into at least one of these two categories.

That is not all. There are roughly one million lawyers in the United States, out of an adult population of 217 million (Ayres 2005). Yet lawyers or those with a J.D. make up 20 percent of the top bloggers, comprising 15 out of the 75 respondents. Similar findings hold true for Ph.D.'s and professors. 12 of the top bloggers have Ph.D.'s or M.D.'s – 16 percent of the total. 19 bloggers, more than a quarter of the sample, are current or former professors. Seven of these 19 are law professors, making legal scholars particularly prominent online.

These findings look even more dramatic when educational background is weighted by readership. Two-thirds of the traffic in our sample went to bloggers with a doctorate—a J.D., Ph.D., or M.D. No other segment of the media drives such a large portion of its audience to such highly educated individuals.

Bloggers have often been contrasted (negatively) with traditional journalists. Yet how do these groups really compare? One metric comes from a 1996 study by the American Society of Newspaper Editors (ASNE). According to the ASNE, only 90 percent of newspaper journalists have a bachelor's degree, while only 18 percent of newspaper journalists have graduate degrees (ASNE 1997). It may be unfair to place our small, elite group of bloggers alongside a broad, representative sample of newspaper journalists. Yet commentary equating the two groups continues to be widespread among journalists themselves, and blog traffic is far more concentrated on top bloggers than newspaper readership is on top journalists.

Perhaps the educational advantages that these top bloggers enjoy partly explains their lack of deference to journalists. It is common for bloggers to question journalistic norms, and many bloggers believe themselves to be smarter than a typical journalist.

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[9]The specific names of educational institutions attended are particularly likely to be personally identifying, and many pseudonymous bloggers chose not to reveal that information. In cases where these bloggers provided enough information to judge the caliber of the school that they attended—such as noting it was an Ivy League institution, or noting that it was a "standard state school"—they have been included in the results. Otherwise, these respondents have been omitted.

Given the profusion of doctorates and Ivy-league degrees in the upper echelons of the blogosphere, it is possible that the bloggers are right.

Occupation and Technical Background

The top bloggers have more education, from more prestigious schools, than do most journalists or most members of the public. Unsurprisingly, this group has also been highly successful in the workplace.

First, many bloggers are themselves journalists. 16 of the 75 bloggers in our sample, or 21 percent, are either professional journalists, or regular writers for a newspaper or magazine. Yet this number understates the number of bloggers with journalistic experience. 14 additional bloggers reported close contact with journalism, such as public relations professionals who routinely write press releases, or bloggers who were college journalists or opinion columnists. Overall, nearly two-fifths claimed close familiarity with traditional reporting, periodical publishing, or opinion journalism.

Many bloggers who are neither lawyers, professors, or journalists work in the business world. For those who do come from the private sector, what kind of jobs do they have? Most bloggers seem to be educational elites; are those in the business sector largely business elites?

The answer seems to be yes. The survey tried to measure the extent to which individuals had held senior corporate posts. It defined bloggers as business elites when they fell into at least one of four categories:

1. Those who have owned, or served on the board of, a business.

2. Those employed as a corporate officer at the rank of Vice President or higher.

3. Those who have worked as a senior management consultant, either as a individual or as an employee of a prestigious management consulting firm such as MacKinsey or the Boston Consulting Group.

4. Those who showed other evidence of serving a senior strategic management role. (One example from our sample was a senior business professor, who had done work for several Fortune 100 companies.)

Thirty-seven percent of the sample—27 of 73 respondents—qualify as past or present business elites under these criteria. The private sector voices heard in the blogosphere are not those of cubicle jockeys or service industry workers. They are overwhelming those of business owners, senior executives, and business consultants.

Lastly, many bloggers have professional expertise in computer systems. The survey looked at the number of respondents who either had academic degrees in computer science or electrical engineering; who held or had held jobs that depended

primarily on their expertise in technology, from engineering work to Web design to technical support; or who were technology journalists. 30 out of 76 respondents—39 percent of the sample—fell into one of these three categories.

The unmistakable conclusion is that almost all the bloggers in our sample are elites of one sort or another. More than two thirds were educational elites, holding either an advanced degree or having attended one of the nation's most prestigious schools. A hugely disproportionate number of bloggers are lawyers or professors. Many are members of the "elite media" that the blogosphere so often criticizes. An even larger fraction are business elites, those who are either business owners or corporate decision-makers. Also hugely over-represented in the blogosphere are technical elites, those who get paid to work with technology.

In fact, in our sample, there is only one respondent, a pseudonymous blogger at the lower end of our traffic numbers, who is neither a journalist, nor a technical, educational, or business elite. Ironically enough, he lives and works in Washington, D.C.

This educational and occupational data suggests a broader point about the professional skills that bloggers possess. In a general, bloggers are people who write for a living. From professors to PR specialists, lawyers to lobbyists, fiction authors to management consultants to technical writers, the large majority of bloggers depend on the written word for their livelihood. Running a successful political blog requires strong analytical training, an encyclopedic knowledge of politics, the technical skill necessary to set up and maintain a blog, and writing ability equal to that of a print journalist. It is not an accident that there are no factory workers or janitors in the upper ranks of the blogosphere.

There is another element, too, which favors those from professional backgrounds. Running a world-class blog requires both free time and autonomy over one's schedule. Jakob Nielsen, a well-known usability expert, talks about "stickiness"—defined as the ability of a site to convert users who stumble across it into repeat visitors (Nielsen 1999). According to Nielsen, the largest factor in a site's "stickiness" is how frequently content is updated.

The top Weblogs are by definition the stickiest sites of their kind. Almost all are updated several times a day. The need to update frequently is a key part of the infrastructure of blogging, and this systematically reduces the readership of anyone with an incompatible occupation. No one working a 10 hour shift at Wendy's would be able to update her blog on her smoke break. Professors, lawyers, and business owners often have no direct supervisor, and no one to set their schedule. In the blogosphere, as in the Athenian agora, those who devote themselves to public debates are those with social autonomy.

Gender, Race and Ethnicity

While nearly anyone can start his own blog, the most widely read political bloggers are not average Joes. In several ways, that may be a good thing. The skill set required of top bloggers is extensive, and if the top blogs really were written by random members of the public, fewer people would read them.

Yet if bloggers are a remarkably successful and well-educated group, the data suggests other potential problems for democratic politics. First, few political blogs are run by women. In addition to Ana Marie Cox, who edits the blog Wonkette, our sample included only four other blogs with female proprietors. Jeralyn Merritt, 55, is a nationally known criminal defense attorney who runs the crime blog TalkLeft.com. Ann Althouse, 52, is a professor of law at the University of Wisconsin–Madison. Betsy Newmark, 47, is a history and civics teacher from Raleigh, North Carolina. Finally, a blog called The Daily Recycler, which posted video clips of news events, listed its author as "Sally," a woman living in Seattle, Washington.[10] (Michelle Malkin, a prominent conservative syndicated columnist, would also have been included in this group had her blog been included in the SiteMeter rankings.) These numbers are in stark contrast with traditional journalists. According to the 1996 ASNE survey, 37 percent of newspaper reporters are women; for reporters under 30, the gender ratio is exactly even (ASNE 1997).

If the relative absence of women's voices in the blogosphere stands out from the survey data, the situation is at least as striking regarding racial and ethnic diversity. Consider the case of Oliver Willis. Willis, 27, is a centrist Democrat who lives in the DC suburbs. At the time of our census, Willis worked in the Web department of Media Matters for America, a left-leaning media watchdog organization which also employed (in presumably more lavish style) the blogger Atrios, otherwise known as former economics professor Duncan Black. According to N.Z. Bear's Sitemeter data, Willis was the only identifiably African-American blogger to receive more than 2,000 visitors a day. During the week this study was done, Willis averaged roughly 4,000 daily visitors, or less than 2 percent of the traffic received by DailyKos.

Other racial and ethnic minorities seem largely absent in the blogosphere. One pseudonymous blogger identified himself as Asian. A Google search of his blog archives, looking for keywords related to this ethnicity, suggested that this part of his heritage was unknown to his readers. And of course, Markos Moulitsas Zuniga, who runs the blogging juggernaut Daily Kos, is half Greek and half Salvadoran.[11] These are the only voices of color visible among the top bloggers.

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[10]Sally did not respond to our e-mails, and seems to have stopped updating her web site.

[11]As noted above, conservative writer Michelle Malkin is a prominent Asian-American blogger whose site was not included in the SiteMeter data.

Bloggers and Op-Ed Columnists

Bloggers are often compared with traditional journalists; yet as we saw above, the most popular bloggers come from social and education backgrounds far more elite than that of the typical newspaper journalist. If we want to understand how blogs are influencing public discourse, and how blogging is different from previous forms of commentary, newspaper reporters do not provide the best yardstick. A better measure comes from comparing our group of bloggers with the few dozen op-ed columnists who write for the nation's most prestigious newspapers.

Like op-ed columnists, bloggers are in the business of political argument and persuasion; with a few exceptions, bloggers do not routinely engage in reportage. The bloggers in our sample with traditional media experience are overwhelming opinion journalists. Increasingly, the audience that top blogs attract is comparable to that of opinion columnists in an elite newspaper. According to comScore MediaMetrics, NYTimes.com received 14.6 million unique visitors in October of 2004, the month preceding the presidential election (NYTD 2004). It has been reported that DailyKos received more than 8 million visitors per month over the same period—and as Moulitsas Zuniga put it, "This isn't a newspaper. They're all coming to read me. Not the sports page" (Nevius 2004).

Op-ed columnists are highly public individuals, and without exception, detailed biographies are only a Google search away. For our purposes, I looked at all columnists writing on at least a biweekly schedule for the *New York Times*, the *Wall Street Journal*, the *Washington Post*, and the *Los Angeles Times* as of January 10, 2005. The number columnists and the frequency with which they write varies across the four papers. The *Los Angeles Times* had four op-ed columnists, while at the other extreme the *Washington Post* had a dozen regular op-ed writers; there were 30 writers across the four publications. These 30 columnists were compared against the top 30 bloggers about whom I was able to learn full background information.

These regular op-ed columnists are by definition the elite of the elite. By a significant majority, they are the product of elite educational institutions. They are overwhelmingly white men. Partly by virtue of their professional obligations, they live in major coastal urban centers. Yet these columnists as a group are in some ways more representative of the public than the top bloggers are. The columnists *are* somewhat more likely than the bloggers to have attended an Ivy League school. Fourteen of the columnists are Ivy Leaguers, compared to ten of the bloggers. This Ivy League gap is particularly pronounced at the undergraduate level. Eleven of the columnists received their undergraduate degree from the Ivy League, while "only" 6 of the top 30 bloggers can say the same.

Yet if we are willing to look beyond the Ivy League, and to count schools like Stanford and Caltech and UC Berkeley and Swarthmore as elite institutions, all of the educational gaps are reversed. According to the standards used above—the nation's top 30 universities, along with the top 20 liberal arts colleges—it is the bloggers

who have the advantage. Two-thirds of the op-ed columnists have attended at least one elite educational institution; 73 percent of bloggers fall into the same category. Slightly less than half of the columnists have either an advanced graduate degree or have done graduate study, in contrast to 70 percent of bloggers. Twenty percent of op-ed columnists have earned a doctorate; more than half of the bloggers have.

Bloggers also look remarkable compared to other elite groups in American society. Consider Cappelli and Hamori's work on the educational backgrounds of executives holding "c-level" posts in Fortune 100 corporations—Chief Executive Officer, Chief Financial Officer, Chief Operating Officer, and Chief Technology Officer, as well as division heads and senior vice-presidents. They found that 10 percent of these executives had a bachelors degree from the Ivy League (Cappelli and Hamori 2004). Across our sample of 75, 16 percent of bloggers had an undergraduate Ivy-League degree.

These findings raise the question of what, exactly, the phrase "elite media" means. These top bloggers have educational backgrounds that exceed those of professional columnists. Readership of the top blogs rivals the nation's top op-ed pages. Moreover, the blogosphere has succeeded in re-creating some of the traditional punditocracy's most worrisome elitist characteristics.

Foremost among these is a dearth of gender and ethnic diversity. Then-*New York Times* op-ed columnist Anna Quindlen remarked in 1990 that most op-ed pages operate with a "quota of one" for female columnists (Quindlen 2006). 16 years later, these facts had hardly changed. As of 2005 Maureen Dowd, who succeeded Quindlen as columnist, remained the only female op-ed writer on the *Times'* staff. The *Los Angeles Times* and the *Washington Post* also had one female columnist; the *Wall Street Journal* had two. That brought female representation on elite opinion pages to five out of 30 columnists. Blogs have not improved on this record, with only three female bloggers in the top 30.

The same story holds true for racial and ethnic minorities. There are three African-American op-ed columnists, but there are no identifiable African-Americans among the top 30 bloggers. There was one Asian blogger, and one (Moulitsas Zuniga) of mixed Latino and Greek heritage. Op-ed columnists may be a poor substantive representation of the American public; yet in this regard it seems that top bloggers are even worse.

Rhetoric and Reality

Bloggers, like many political actors, often justify themselves by claiming to represent the viewpoints of ordinary citizens. Hugh Hewitt declares on the cover of his book *Blog* (2005) that "the blogosphere is smashing the old media monopoly and giving individuals power in the marketplace of ideas." Glenn Reynold's book, *An Army of Davids* (2006), is subtitled "How Markets and Technology Empower Ordinary People to Beat Big Media, Big Government, and Other Goliaths." Markos Moulitsas Zuniga

and Jerome Anderson may disagree vehemently with Reynolds and Hewitt about politics, but their book *Crashing the Gates* (2006) also enthuses that blogging and the "netroots" enables "people-powered politics." Bloggers themselves have not been alone in making such claims. Newspapers and magazines have consistently claimed that blogging gives ordinary of citizens greater influence on politics.

Some claims about blogs are true. Tens of millions of Americans now read political blogs at least occasionally; according to the Pew Internet and American Life Project, more than a million Americans have become political bloggers themselves. Blogs are not likely to replace traditional journalism, but blogging has already transformed the smaller niche of opinion journalism. The top blogs are now the most widely read sources of political commentary in the United States.

Yet the very success of the most popular bloggers undercuts blogging's central mythology. Of the more than a million citizens who write a political blog, only a few dozen have more readers than a small town newspaper. For every blogger who reaches a significant audience, ten thousand journal in obscurity. And while it is sometimes difficult to decide who counts as an "ordinary" citizen, the few dozen bloggers who get most of the blog readership are so *extra*-ordinary that such debates are moot.

Rarely has the phrase "the marketplace of ideas" been so literal as with blogs. In order to be heard in the blogosphere, a citizen has to compete with millions of other voices. Those who come out on top in this struggle for eyeballs are not middle schoolers blogging about the trials of adolescence, nor are they a fictitious collection of pajama-clad amateurs taking on "old media" from the comfort of their sofas. Overwhelmingly, they are well-educated white male professionals. With only one exception, all of the bloggers in our census were either educational elites, business elites, technical elites, or traditional journalists.

It is therefore difficult to conclude that blogging has changed which sorts of citizens have their voices heard in politics. If our primary concern is the factual accuracy of blogs or the quality of bloggers' analysis, the elite backgrounds of the top bloggers may be reassuring. Yet most Americans have not attended an elite university, and do not have an advanced degree. Most Americans are not journalists or computer professionals; most Americans are not business owners, senior executives, or management consultants. Most Americans are not white men. The vigorous online debate that blogs provide may be, on balance, a good thing for American democracy. But as many continue to celebrate the "democratic" nature of blogs, it is important to acknowledge that many voices have been left out.

Elite Politics in the Internet Age

> More tears are shed over answered prayers than unanswered ones.
>
> Mother Theresa

In the early 1990s, when the Internet first came to public notice, the notion was that Internet would put a printing press in the hands of every citizen. Citizens would become producers of political information, not just passive consumers; the market for political news and information would expand and fragment. The Internet would make it easier to become informed about politics, and it would become easier for citizens to organize.

Recent events have reinvigorated such talk. Howard Dean may not have been inaugurated president, but his campaign was widely seen as inaugurating a new era of electronically-mediated political participation. The rise of blogging poses a potent challenge to the so-called "elite media," according to prominent members of the elite media themselves. With perhaps one million Americans blogging about politics—at least according to one recent estimate (Lenhart and Fox 2006)—the citizenry has rushed to their digital printing presses with an eagerness beyond the most optimistic predictions.

This book has asked a series of questions that may seem impertinent in the current climate. Has the Internet really changed who speaks in politics? Has it changed who gets heard? In some areas the Internet has had the expected effects. In campaign finance, traditionally the most exclusive avenue of political participation, the Internet has brought changes in political giving, with smaller and less affluent donors giving more. With volunteer recruitment, too, the Internet has allowed some candidates to mobilize a broader and less experienced group of citizens. It is now well-established that the Internet can enable broader, more diffuse interests to organize than was pre-

viously possible, and that blogs and other online publications can sometimes influence mainstream media coverage.

Yet the central conclusion of this book is that the Internet has not greatly expanded the political voice of ordinary citizens. There are many reasons for this failure. Other scholars have focused on the digital divide, on citizen interest (or disinterest) in politics, and on the ability of established institutions—news organizations, political parties, interest groups—to move online. This book has focused on a different set of factors. In conclusion, it is worth reiterating some of the barriers to political democratization that this book has emphasized.

Four Barriers to Openness

1. Link Structure and Site Visibility

First, the link structure of the Web limits the content that citizens see. When Tim Berners-Lee created the first HTML pages, it was the ability of Internet documents to link to one another which was the great innovation. Links do not just provide paths for surfers; with the advent of Google, the number of links pointing to a site became a critical means by which search engines found and ranked content.

If links help determine online visibility, how links are distributed tells us much about who gets heard on the Web. Across the Web as a whole, links follow a power law or scale-free distribution, with most links going to the most popular sites. This book shows that these global patterns are repeated within political content. The Web seems to be fractally-organized, with winners-take-all patterns emerging at every level.

The importance of links challenges notions that online equality is easy or inevitable—and it raises a different set of democratic concerns than those usually associated with the Internet. The role links play in determining which sites are seen likely serves to reinforce niche dominance, in which broad Web communities focus most of their attention on a small group of successful sites. Moreover, the theory of Googlearchy suggests that the dominance of these winning sites will be self-perpetuating. The small clique of Websites with most of the links and most of the traffic will continue to attract the audience and resources needed to improve, while unsuccessful sites and most new entrants remain invisible.

If Googlearchy proves true, it may be welcomed by those worried about the quality of online content. While some have suggested it is difficult or impossible for citizens to coordinate their reading habits (e.g. Sunstein 2001), Googlearchy suggests just the opposite. Still, the fact that small communities focus their attention and resources on a few top outlets comes at a cost, filtering out less popular voices.

2. Search Engines and Search Behavior

Second, much search engine use is shallow. It is no surprise that many citizens are not interested in politics, and visits to news sites and political advocacy sites are only a tiny portion of online traffic. But lack of political interest also interacts with the search strategies citizens employ, and with the design of search tools themselves.

Part of the issue stems from the difference between navigational queries (which seek a specific site or online outlet), and content queries (which seek information on political topics or political personalities). Chapter 4 showed that, of the top 1000 queries that led citizens to political Websites in November 2005, roughly 40 percent were seeking specific Websites or specific political organizations. Searches that directed citizens to news and media sites were even more likely to be navigational queries. In large part, search engines are used to seek out familiar sites and familiar sources.

By definition, navigational queries are unlikely to take citizens to sites that they have never heard of. Navigational searches generate near perfect agreement among the two top search engines; and even for content queries, overlap between search engines is high. "Seek and ye shall find" may be a general rule of online life, but *how* citizens seek also constrains what they see.

3. The Economics of Content Production

Third, even in the digital world, some content is expensive to produce. It may be cheap to start a blog—Web users can even have their blog hosted for free by companies like Blogger or LiveJournal or MySpace—but it is a mistake to conflate blogs or small-scale political advocacy Websites with traditional journalism. Even online, it is traditional news organizations that supply most of the public's political news and information. Blanket claims that the Internet is "lowering barriers to entry" are misleading.

Decades of economics research shows that when the biggest firms are able to achieve the lowest average costs, markets become highly concentrated. Markets which require large upfront costs, such as water utilities or telephone service or software, become "natural" monopolies. Many online firms face the same sorts of pressures. Companies like Google and Yahoo spend more of their revenue on equipment than a typical telephone company—and then they spend billions more in research and development.

Media companies have long tended towards concentration for the same reasons. Early radio programs were expensive to produce, but cheap to broadcast, and these two facts quickly created nationwide networks of broadcasters (e.g. Barnouw 1966, McChesney 1990, Starr 2004). Similarly, today 99 percent of U.S. daily newspapers have no direct competitors (Dertouzos and Trautman 1990, Rosse 1980). Production of a newspaper requires strong institutions and large, upfront investments in salaries

and infrastructure; yet each additional printed copy costs publishers only pocket change.

When the Internet lowers the cost of distributing expensive-to-create content, it doesn't reverse the economic logic of concentration—it amplifies it. If additional readers require minimal extra cost, the Internet guarantees large economies of scale. This is part of the reason why, on the Web, prominent national newspapers like the *New York Times* and the *Washington Post* have gobbled up market share from papers in smaller markets. Nearly every online market, from computer equipment to book-selling, shows strong concentration. We should be unsurprised when markets for political news and political information fit the same mold.

4. Online Social Elites

Fourth, even in areas without incumbent players, and where content *is* cheap for a single individual to produce, social hierarchies have quickly emerged. Again and again, we have heard claims that the Internet is shifting power away from political elites. The Internet is supposed to allow more voices to reach a non-trivial audience, and these new voices are supposed to be more representative of the general public.

These expectations have not been fulfilled. Political Weblogs are perhaps the most important test of these claims; blogs may reach only a fraction of the public, but they are now the most widely read form of US political commentary. While the tail of the distribution includes many hundreds of thousands of political bloggers, a small group of "A-list" bloggers actually gets most political blog traffic. This level of inequality exceeds that found in any traditional form of political participation.

Not only does the number of influential voices remain small, the most prominent bloggers are hardly "average" citizens. Bloggers are commonly derided as ignorant, pajama-clad amateurs, the digital *demos* run amuck. But for bloggers who actually find an audience, the reality is far different. Widely-read bloggers are overwhelmingly lawyers, professors, journalists, business executives, and computer professionals; most have a graduate degree or have attended an elite college or university.

In our census of top bloggers, two thirds of all traffic went to blogs published by a Ph.D., M.D., or J.D. Talk about blogs empowering ordinary citizens rings hollow when top bloggers are better educated, more male, and less ethnically diverse than the "elite media" that blogs often criticize. Blogs may be an increasingly influential part of a larger media environment—but to describe them as a "a democratization of news," as Tom Brokaw recently did (Guthrie 2004), is to misunderstand the phenomenon.

A Narrower 'Net

There are thus many reasons why the Internet has proved less open than many expected. Sorting out the relative importance of these factors (including factors other

scholars have pointed to) is a question that still calls for future research. Yet what is indisputable is that the Internet has not led to a simple, wholesale shift from a few big outlets to lots of little ones. Small-scale, citizen-produced content is online, as hordes of political bloggers demonstrate. Yet the audience for online news outlets and political Websites is shaped by two powerful and countervailing trends: continued or accelerated concentration among the most popular outlets, combined with fragmentation among the least-read ones.

Much fuss continues to made about small-scale information producers on the Web. This debate has taken many guises, from early discussions about "narrowcasting" or "pointcasting," to talk about "the Daily Me" and personalized content, to more recent enthusiasm for "The Long Tail." Benkler's defense of the "networked public sphere" (which we will return to below) follows in this same vein, arguing that the contributions of myriad small online information producers is transforming politics for the better. Even Cass Sunstein's recent book *Infotopia*—in many ways a reversal from his earlier work—suggests that new, self-correcting aggregation techniques allow vast numbers of small information producers to contribute to public life.

This focus on small content producers is partly deserved; collectively, such outlets *do* receive more of the total audience online than in traditional media. There are even prominent cases (though few and suspiciously overused) where little-trafficked Websites seem to have triggered a "cybercascade," bringing facts or issues to wide attention.

Yet talk about small-scale online content can also be misleading. Instead of the "inevitable" fragmentation of online media, audiences on the Web are actually *more* concentrated on the top 10 or 20 outlets than are traditional media like newspapers and magazines. This fact is particularly clear with regard to newspapers: newspaper readership is far more concentrated online than off, benefitting the *The New York Times* and *The Washington Post* far more than small-town papers. Though the Internet has been portrayed as a media Robin Hood, robbing from the audience-rich and giving to the audience-poor, it is really "middle class" outlets that have suffered the greatest relative decline in readership.

For those accustomed to traditional media, it may seem paradoxical that the Internet has made both the biggest *and* the smallest outlets more important. Yet this is only one in a long list of paradoxes. Almost any Web user can start his own Weblog, yet it is overwhelming social and educational elites who are heard in the blogosphere. In many areas of the Web, the important organizations are the same as in the pre-Internet era, yet several now-influential interest groups would not exist without the Internet. New Internet news outlets have not displaced traditional news organizations, though bloggers and other Web-based sources have influenced mainstream media coverage at key moments, and blogs are now the most widely read form of political commentary. Elites continue to direct most online organizing; yet the Web has made campaign fund-raising broader and less dependent on personal affluence.

Expectations that the Internet would bring across-the-board increases in civic participation have not been fulfilled. Still, on a smaller scale, the Internet has played a role in convincing previously inactive citizens to contribute time and money to politics. Those who have increased their political giving are a small portion of the public, but collectively, their donations have dramatically altered the calculus of campaign funding.

Even though the Internet has altered the political landscape, then, claims that the Internet is giving ordinary citizens greater political voice should be greeted critically. This skepticism should be based not just on the digital divide, or the movement of traditional interests online, or the claim that Internet politics is just "politics as usual." Skepticism should be based on a deeper understanding of the infrastructure of the Internet, as well as an acknowledgment that much of Internet politics is elite politics in a different guise.

History, Error, and Infrastructure

Big changes in American communications rarely have immediate impacts on American politics. Ten years passed between the release of the Mosaic browser and Howard Dean's use of the Internet to break campaign fundraising records. Significant numbers of American households started buying televisions in 1949 and 1950; yet it was not until the Kennedy-Nixon debates a decade later that political scientists had clear evidence that television had changed presidential politics (Kelley 1962). The future influence of Franklin Roosevelt's fireside chats was hardly obvious when radio was the province of teenage boys swapping jazz recordings. From the beginning, there was a lively public debate over the benefits and costs of leaving the telegraph in private hands (Starr 2004). Still, few foresaw that a telegraph monopoly would lead to the Associated Press' news monopoly and its staggering influence on Gilded Age politics. The social and political dimensions of communications innovations have always matured more slowly than the technology itself.

This volume is thus a chronicle of the Internet in its adolescence. Many observers hurried to be the first to predict where the Internet would steer politics; it is far too late to join that crowd. Still, in the political realm the Internet has yet to reach full maturity. Though the Internet played a far larger role in the 2004 election than in any previous election cycle, many methods of online organization remain experimental.

For all that is still unknown about Internet politics, several things are clear. One historical lesson is the importance of infrastructure in determining the political possibilities of the medium. In the late 1920s and early 1930s, as radio emerged as a mass medium, political scientists focused almost exclusively on the technology needed to broadcast and receive radio waves. Radio waves followed no laws but the laws of physics (e.g. Beard 1931). The name broadcasting itself implied that radio would be heard by a broad swath of the citizenry, allowing even the "unleavened mass of illit-

erates" to follow politics (Bromage 1930). The social breadth that radio was required to cover was supposed to be a good thing for democratic practice.

Yet a few years later, when the APSA's own civic education radio program was canceled by NBC, political scientists decided that their initial assessments had been too hasty. Their angry postmortems focused not on the technology itself, but on the role of broadcast advertising, the relationship between the network and its affiliates, the funds needed to produce a successful radio program, and the rare personal qualities required of a radio personality (NACRE 1937). Abandoning his early enthusiasm, prominent scholar Thomas Reed declared that these initially overlooked features transformed broadcasting into "a potential menace to culture and democracy" (Reed 1937).

For us, the lesson is largely the same. The four barriers discussed above lead to a more general point: Just as with radio, political scientists have had an incomplete vision of what the infrastructure of the Internet includes. The TCP/IP protocol, which allows any computer on the Internet to talk to any other, is indeed remarkably open. The HTML used to create most Web content allows direct links to any online document.

Yet in defining infrastructure, we should look beyond the simple technical details of the technology to the social, economic, political, and even cognitive processes that enable it. Even the cheapest hardware and the most open protocols do not eliminate inequalities in the creation of political content, or in finding that content once it is online. By focusing solely on the most open parts of the Internet architecture, our understanding of the Internet's political effects has been systematically distorted.

A broader and more nuanced understanding of the Internet's architecture serves to highlight important areas of ignorance. We need to know more about how the infrastructure of the Internet, broadly construed, interacts with the interests and skills of the citizenry. As potential choices expand, so does the importance of citizens' preferences and cognitive strategies. We also need to study why some groups online are easier to mobilize than others. Survey data shows that liberals are more likely to be heavy users of political Websites than conservatives; likewise, traffic to liberal political Websites far outstrips traffic to conservative ones. The Internet's long-term impacts on partisan politics depend greatly on how enduring this liberal-conservative gap proves to be.

Yet if the Internet's architecture is narrower than many have assumed, we must not overlook the ways in which the Internet *is* expanding the numbers of citizens who participate in politics. Here insight comes from looking not at the infrastructure of the Internet, but at the infrastructure of politics. The core practices that make up political participation are being altered by electronic communications.

The Internet seems to be good at tying together large, loose, geographically dispersed groups in the pursuit of common goals. Through technologies like Meetup.com, Dean was able to create local volunteer organizations from diffuse nationwide interest. Dean broke fund-raising records by relying on tens of thousands of small online

donors, not a handful of large contributors. From the Seattle WTO protests to be Million Mom March, other scholars have also concluded that "networked politics" is changing the logic of collective action, and increasingly favoring broad, diffuse interests (Bennett 2003a, Bimber 2003a, Lupia and Sin 2003, Postmes and Brunsting 2002).

The Strength and Weakness of the Networked Public Sphere

Yet if patterns of political participation are changing, the substance of these changes shows another paradox: expanded participation has also brought an expanded role for political elites. By concentrating audiences, each of the four barriers discussed above increases the influence of those running the top outlets. Activities such as political fundraising or campaign volunteer work may be becoming more inclusive, but even here it is difficult to conclude that the power of political elites has simply diminished.

The large, loose coalitions seen in many areas of Internet politics do not necessarily shift power to the "grassroots," at least as traditionally understood. Political scientists have long argued that persistent, local social networks play the most important role in convincing citizens to contribute time and money to politics (e.g. Verba, Schlozman and Brady 1995, Rosenstone and Hansen 1993). Yet campaign Websites now provide an unmediated channel between elites and partisans, and this shift allows candidates to direct and organize supporters in new ways. Most attendees learned about Dean's meetups not from friends or acquaintances, but from the national Dean home page or the national Meetup.com Website. It was not preexisting social ties that drove most Dean volunteers; rather, the national Dean campaign used Internet channels to create new, local social networks from scratch. Dean deemphasized the preexisting, locally-organized networks of activists that the word "grassroots" usually refers to.

Given the rhetoric which still surrounds online politics, it is necessary to emphasize the obvious. The small group of bloggers who receive tens of thousands of hits daily are clearly political elites. Prominent online political groups, such as Moveon.org, still rely heavily on formal and informal elites to run their organizations. Political candidates and their paid staff members *certainly* qualify as political elites. All of the most celebrated examples of online politics have relied on political elites in order to persuade, coordinate, and organize. Moreover, "new" Internet elites are not necessarily more representative of the general public that the "old" elites are. Those claiming that the Internet is "democratizing" politics need to begin by acknowledging these central facts.

Trickle-Up Theories of Online Discourse

Some scholars have acknowledged the persistence of elites, and still concluded that pluralism is thriving online. In these accounts, the social hierarchies which domi-

nate blogging and other forms of online organizing are an essential and benign part of community-based production. Traffic over the entire Web might be highly concentrated, but smaller political niches are supposed to follow far more egalitarian patterns. Elite bloggers are believed to aggregate small contributions into a representative and useful whole; highly visible blogs filter the vast expanse of online opinion, while the (supposedly) larger number of gatekeepers provide myriad paths for ordinary citizens to inject concerns into public debate. Search engines such as Google ostensibly make even the most obscure content available to those motivated enough to search for it.

This book has shown that such trickle-up theories rest on dubious assumptions. They typically insist that Internet content should be evaluated against the baseline of traditional media—but don't acknowledge that online audiences are just as concentrated on top outlets than audiences for print media. Blogging may now be the most widely read form of political commentary, but the bloggers in our census are grossly unrepresentative of the broader public. While Google and Yahoo index billions of online documents, the design of search engines, the structure of the Web, and the shallowness of citizens' search strategies limit the "shelf space" available for any particular political topic.

Trickle-up theories of online politics also rely explicitly on broad, representative set of moderate-sized outlets that allow "vastly greater" numbers of citizens to find an audience (Benkler 2006:242). It is not exactly clear what qualifies an outlet as "moderately read," nor how many mid-sized outlets are enough to satisfy the key role that Benkler and others assign them. It is clear, however, that middle-tier print news organizations receive a far smaller portion of the online market than they capture offline. The pattern of traffic we see with print organizations is mirrored within online politics at every level—within the broad group of political sites, within blogs, within smaller issue-specific political communities. One consistent difference between online and offline media is that, online, moderately-sized outlets attract a significantly smaller fraction of the overall market. It is not clear why we should invest the hundreds of thousands of blogs who receive only a trickle of readers with greater authority than the small-scale political discussions that already take place around water coolers or kitchen tables.

Benkler also suggests that the tendency of Websites to cluster in topical communities ameliorates the broader pattern of concentration, arguing that as we look at smaller niches and sub-niches of Websites, "the obscurity of sites participating in the cluster diminishes" (Benkler 2006:248). A few categories of Websites might work this way, but there is overwhelming evidence that political Websites do not. For example, the large-scale Web surveys we perform find more than a thousand Websites with abortion-related content; the majority of these sites receive only a handful of links from other abortion sites.

Still, the biggest concern with networked theories of democracy is not that they are mistaken, but that they do not acknowledge the tradeoffs that are the price of the

Internet's political successes. Though this book has been descriptive rather than normative in focus, it is clear that the Internet is strengthening some democratic values at the expense of others. The power-law structure of networked politics seems particularly well suited to a "fire alarm" or "burglar alarm" model of public oversight (McCubbins and Schwartz 1984, Schudson 1999, Arnold 1990,Snider 2001, Zaller 2003; but see Bennett 2003b).[1] Even the countless bloggers with few readers can get national attention if they uncover information that news organizations or elite bloggers find particuarly valuable or scandalous. The investigation of former congressman Mark Foley, for example, seems to have been jump-started when an obscure blog published suggestive emails sent by Foley to an underage male who was a former congressional page. Top bloggers are extraordinarily well-educated, and seem as well-prepared to serve as public guardians as traditional op-ed columnists. Highly-focused blog readership keeps the public's attention on a few, credible sources that can sound the alarm when policymakers stray too far from preferences of the public. So long as large, national news organizations remain strong, the blogosphere may prove a valuable supplement to traditional outlets, filtering political information through a different set of constraints, concerns, and biases.

But although a few obscure bloggers have drawn attention to political scandals, traditional outsiders do not necessarily have an easier time getting heard online. Top bloggers can command sustained, widespread attention to their views and preferences, while other bloggers need the cooperation of widely-read outlets to be heard at all. The preferences of smaller bloggers are likely to be repeated and amplified when they fit with the views of elite outlets—otherwise, they are likely to be ignored. The profile of those who have succeeded in touching off scandals reinforces the sense that it is elites who have been most successful at taking advantage of the Internet. "Buckhead," the anonymous Free Republic poster who claimed that CBS was using forged documents, turned out to be long-time GOP figure Harry MacDougald, the prominent Atlanta lawyer who led the effort to disbar then-president Bill Clinton (Wallsten 2004a). The intially anonymous blogger who published Rep. Mark Foley's "overly-friendly" emails to former pages turned out to be Lane Hudson, a staffer for the Human Rights Campaign, the largest gay and lesbian advocacy group (Levey 2006). In these celebrated cases, the Internet did not empower ordinary citizens—rather, it allowed disgruntled elites to get around institutional constraints.

Scholars who have looked at the Internet from the perspective of deliberative democracy have raised related concerns. As we have seen, some have hoped that the public sphere in cyberspace would be a bit closer to a Habermasian ideal—that political discourse would be freer from corporate influences, and that public debates would be both more inclusive and more thoughtful. Yet as Andrew Chad-

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[1]On this point, see the discussion in Bimber 1998, Snider 1996; as Bimber describes the argument, "the Net might increase the popular accountability of government without measurably enhancing the level of information or knowledge of individual voters."

wick puts it, "the road to e-democracy is littered with the burnt-out hulks of failed projects" (Chadwick 2006). The online deliberation which *is* taking place has often been roundly criticized, even by some initial enthusiasts. Some have concluded that the design of online spaces favors consumers over citizens, and corporate interests over the public interest (Lessig 2000:69, McLaine 2003, Gamson 2003). Online discussions seem to have difficulty generating the mutual respect that democratic deliberation ostensibly requires, particularly given the widespread "trolling" and "flaming" in online forums (e.g. Kayany 1998, Herring 2002, Wilhelm 2000). Others have similarly worried that online "echo chambers" will promote polarization rather than compromise (Sunstein 2001, Shapiro 1999). And of course, political bloggers have been repeated attacked in the popular press for their supposedly uncivic practices.

But if online debate has not achieved "true" deliberation, it has given new urgency to the fears of deliberative democracy's skeptics. Lynn Sanders argues that deliberative democracy fails because "Some citizens are better than others at articulating their views in rational, reasonable terms" (Sanders 1997:348); those whose voices go unheard "are likely to be those who are already underrepresented in formal political institutions and who are systematically materially disadvantaged, namely women; racial minorities, especially Blacks; and poorer people" (Sanders 1997:349) Peter Berkowitz concludes that deliberation empowers an even narrower set of citizens:

> Since it shifts power from the people to the best deliberators among them, deliberative democracy... appears to be in effect an aristocracy of intellectuals. In practice, power is likely to flow to the deans and directors, the professors and pundits, and all those who, by virtue of advanced education, quickness of thought, and fluency of speech can persuade others of their prowess in the high deliberative arts.

Something very much like Berkowitz's vision has already taken hold online. The online public sphere is already a *de facto* aristocracy dominated by those skilled in the "high deliberative arts."

New Technology, Old Failures

If deliberative theorists are likely to be disappointed by the reality of the online public sphere, it is worth remarking on another, older school of scholarship that also seems to have something to say about the Internet's successes and failures. At least since the 1950s, political scientists have relied primarily on theories of pluralism to explain the distribution of power within American politics.[2] Pluralists describe policymaking as

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[2]The list of scholars who have contributed to pluralist theories of politics is long; here I particularly rely on the works of Robert Dahl, who has offered the most influential expositions of pluralist theory.

a negotiation among interest groups and public officials, with different sets of competing elites ascendant in different policy arenas. Pluralists argue that the political resources are unequal but "non-cumulative"—that most citizens have some power resources, and no one type of political resource (particularly wealth) eclipses all the rest. Because there are multiple centers of power in political decision-making, and because the political system provides multiple opportunities to shape policy, pluralists have contended that American democracy prevents one group or class of citizens from consistently dominating.

Yet as E. E. Schattschneider's epigraph for the previous chapter suggests, pluralism has never lacked for critics, even amid its own ranks. The central criticisms have been remarkably consistent over the past half century: namely, that American democracy fails to provide adequate representation across lines of race and class, and that it fails to bridge the gap between policy elites and the mass public.

If these really are the most pressing problems with American pluralism, thus far it is hard to conclude that the Internet has solved them. There are, of course, many areas of politics where the Internet's long term impact remains hazy. But with political blogs, with political entrepreneurs such as MoveOn's Wes Boyd and Joan Blades, and even with widely-known incidents such as "Rathergate" and the Mark Foley scandal, those whose political voices have been amplified the most have been white, upper-middle-class, highly-educated professionals. In the areas where the evidence is clearest, the Internet seems like the answer to a problem that American politics did not have.

The persistence of the digital divide makes the failures of pluralism and online deliberation even more salient. A decade of scholarship has documented continuing inequalities in access to the Internet, in the skills required to find and process online content, and in the desire to seek out political information on the Web. But if it takes substantial skill and motivation to *read* political blogs, this book has shown that the skills and commitment necessary to *be read* online are several orders of magnitude more exclusive.

Ultimately, then, the Internet seems to be both good news and bad news for the political voice of the average citizen. The Internet has made campaign financing more inclusive, and allowed broad, diffuse interests to organize more easily. For motivated citizens, vast quantities of political information are only a a click away. Internet politics is not just "politics as usual"; online interests are hardly a perfect mirror of the off-line political landscape.

Yet where the Internet has failed to live up to its billing has to do with the most direct kind of political voice. If we consider the ability of ordinary citizens to write things that other people will see, the Internet has fallen far short of the claims that continue to be made about it. It may be easy to speak in cyberspace, but it remains difficult to be heard.

On Data and Methodology

Support Vector Machine Classifiers

For social scientists attempting to do systematic study of the Internet, the size of the Web is a central problem. As of this writing, Google claims to index more than 8 billion online dfocuments. A researcher could spend an entire lifetime online and still see only a minuscule fraction of the total content posted on the World Wide Web. How, then, can we gather accurate data about the broad swath of online materials available to citizens?

One response is to use technological solutions to this technological problem. There are a variety of different automated techniques for cataloging, categorizing, and classifying Web pages and other online documents. For the portion of my research described in Chapter 3, my research partners and I relied on support vector machine (SVM) classifiers. With the assistance of NEC Research Labs—and particularly NEC researchers Kostas Tsioutsiouliklis and Judy A. Johnson—I used support vector machine methods to classify Webpages. In this case, we had downloaded hundreds of thousands of HTML documents using Web crawlers. We wanted a way to determine which pages were relevant to the topics we were interested in—for example, which of these thousands of pages dealt with the issue of abortion, and which did not.

This appendix seeks to outline and clarify the methodology we used. It seeks to explain the basics of what SVMs are, how they work in practice, and what issues other scholars should bear in mind as they assess this research. While the emphasis here is on praxis rather than theory, references are provided to far more indepth articles and books on the rapidly-evolving literature on SVMs.

There are several basic facts about support vector machines that must be understood before discussing the mathematics behind them. First of all, support vector machines are a method drawn from learning theory. They are a method of supervised machine learning—a way of creating a function from training data. The SVM is fed a series of objects with the "correct" values assigned by the human operator. The SVM

looks at the "features" of the objects, and based these training examples, it creates a function that assigns differential weight to these different features. In theory, then, the SVM learns inductively which features of an object are important, and which are not.

Second, SVMs can be used to assign either continuous values ("regression") or discrete values ("classification"). In our case, we are concerned with the use of SVMs as classifiers. In this role, it is important to understand that SVMs are binary classifiers. They provide a "yes" or "no" answer, separating cases into one of two groups—a "positive" set, and a "negative" set. While SVMs can be assigned more complex classification tasks, this requires breaking down the learning tasks into a binary branching tree, and in essence training one SVM for every branch point. To understand how this branching tree might work in practice, consider one task that SVMs have proved good at: recognizing handwritten characters. One might train SVMs, first, to classify a handwritten character as either upper case or lower case; at the lowest level of the tree, it will be asked to distinquish between similar characters such as "g" and "q."

Support vector machines work by using a hyperplane to separate the training data into two classes, trying in the process to maximize the margin—that is, to make the distance from the closest examples of the two different types as large as possible. Each case, or piece of data, is represented as a single point in a high dimensional space. Once the training set is used to draw the hyperplane, new data points are classified by which side of the hyperplane they are on. This process may sound complicated, but as I explain below, the intuition behind it is easy to understand.

To see how this is so, consider Figure 1. It shows a very simple support vector machine in action. Real support vector machines draw decision boundaries in thousands or hundreds of thousands of dimensions; Figure 1 asks us to draw a decision boundary in only 2 dimensions. In this figure, we can seen two different types of data points: circles and squares. The circles and squares are placed on the plot by their values on two sample covariates: their values of "X," and their values of "Y." The squares tend to have high values of both X and Y; the circles tend to have low values on both of these variables. Consequently, the circles are clustered in the lower left-hand corner of the plot, the squares in the upper right corner.

These two groups of points are the "training set"—the initial set of points that teach the SVM where to draw the boundary separating the two groups. The next question is how exactly to draw this boundary. SVMs work in a manner that may initially be counterintuitive to social scientists used to techniques like ordinary least squares regression: they ignore most of the data. The key process, again, is to maximize the margin: to identify the small set of points closest to a boundary line that can cleanly separate the two groups. In Figure 1, points in the top right or lower left of the graph are not near the margin, and they therefore have no influence on drawing the decision boundary. Now consider only the points closest to the boundary line, marked on the graph with arrows. Each of these points represents a *support vector*. The boundary line is drawn to put the greatest possible distance between the deci-
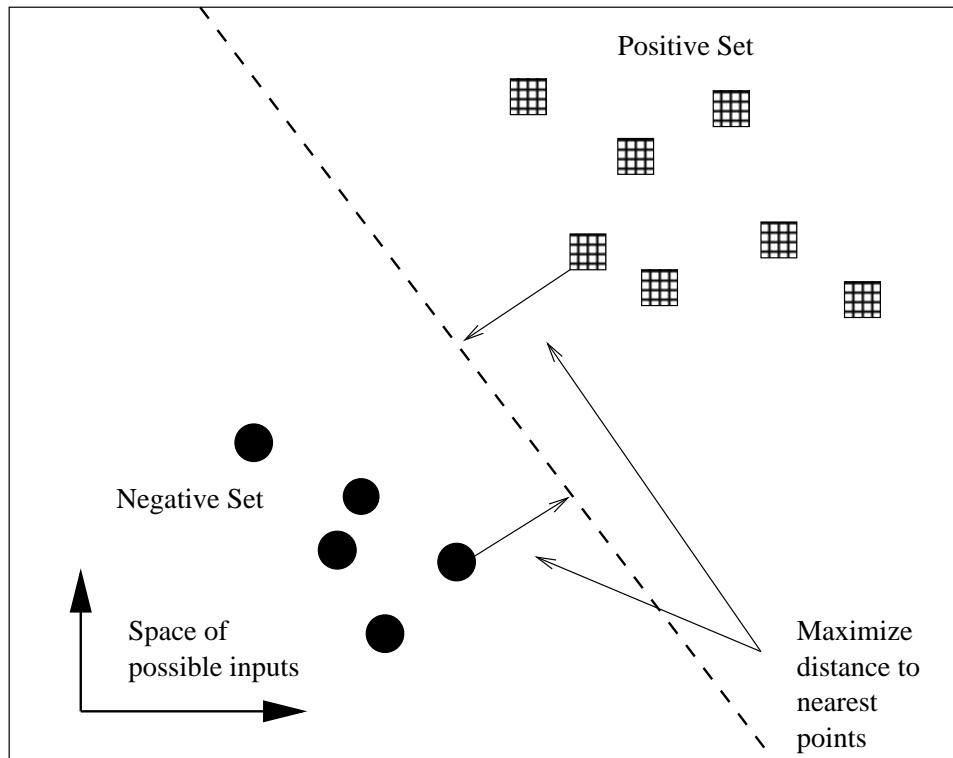
Figure A.1: This figure shows a simple linear support vector machine. The boundary decision line is drawn to maximize the distance between itself and the *support vectors*, the points closest to the line. This example owes much to the explication of Platt 1998.

sion boundary and these points at the margins.

Once the boundary line is drawn, classification is simple. The support vector machine can be presented with new data points, where only these points' values of X and Y are known. If these points are above the line, they are classified as squares; if they are below the line, they are classified as circles.

If we extrapolate this example to larger numbers of dimensions, we get a fair approximation of how support vector machines function. If we have three dimensions instead of the two in our example, a plane rather than a line is required to draw the decision boundary. In four or more dimensions, a hyperplane is required. Formally, a hyperplane is an N-dimensional analogue of a plane; it serves divide an 'N + 1' dimensional space into two parts.

This simple example raises a few obvious questions. First of all, what if it isn't possible to separate the two groups cleanly? In many real world data sets, there may not be a single hyperplane that can split the positive and negative sets. In 1995, Cortes and Vapnik introduced what they termed a "soft margin" method to deal with cases

of mislabeled examples (Cortes and Vapnik 1995). This refinement was a significant advance over Vapnik's original formulation (1963). Soft margin algorithms choose a hyperplane that provides the maximum margin for the nearest cleanly split examples, effective disregarding those data points on the "wrong" side of the boundary.

If support vector machines work by drawing hyperplane decision boundaries in high dimensional spaces, it is important to understand how the objects to be classified are mapped onto this space. The methods of mapping vary greatly depending on context and application. But in our case, they are relatively straightforward. As we note above, we are interested in classifying text documents—specifically, large numbers of Web pages written in HTML. In each of the dozen Web communities we examine, the training set consists of 200 Webpages focused on a political topic, and several thousand pages of completely random Web content.

Each of these Webpages in the training set is treated as an object; the next task is determining what "features" these objects have that allow the 200 relevant pages to be distinguished from the random content. We begin by discarding any HTML formatting. Punctuation and stop words–such as "the"—are also removed. Then, we compile a list of *all* words and word pairs contained in the training set. This list is large—in our examples, the total number of words or word pairs is in the low hundreds of thousands.

Each of these words and word pairs then becomes a "feature." If there are 120,000 different words or word pairs in the training set pages, for example, then *each* Webpage has 120,000 different features. For each feature, every Webpage is given one of only two values: a "1" if the Webpage contains at least one instance of that word or pair of words, or a "0" if it does not. (This 0–1 coding scheme is a matter of computational convenience; one could also count the number of times the word appears, or adopt some other scheme based on ordered categories. The experiences of Tsioutsiouliklis and Johnson, however, have lead them to the opinion that more detailed coding makes little difference to the actual categorization.)

The next step is to map each of these Webpages as a single point in a large dimensional space. Each feature becomes a single dimension; if the the number of features identified is 120,000, for example, then the space has 120,000 dimensions. The point in this space corresponding to each Webpage is identified by its value—in this case, either one or zero—on each dimension.

Drawing a decision boundary in two dimensions is easy; computing the maximum margin boundary in a space with thousands of points and hundreds of thousand of dimensions is much less trivial. In particular, drawing the margin requires solving a difficult quadratic programming (QP) optimization problem. For the purposes of this paper, we implement sequential minimal optimization (SMO) in order to train our support vector machine (Platt 1998). Introduced by Platt, this technique makes training a support vector machine significantly less computationally intensive.

Once this decision boundary is drawn, the SVM is "trained." Newly encountered Webpages can be classified by their position in this space. HTML formatting and

stop words in these pages are again discarded; so are words and word pairs not in the training set. Once the hyperplane is drawn, classification is rapid. As Chapter 3 explains, in order to be slightly more cautious, we actually divide the sites into three rather than two categories. Positive sites are those significantly above the hyperplane; sites significantly below the margin are classified as negative. Sites about which the SVM was unsure—that is, sites that are quite close to the decision boundary—are classified as "unsure."

Advantages and Disadvantages of SVM Classification

The above section should serve as a basic introduction to how support vector machines function, and the methodology we followed in employing them. Just as important, however, is a discussion of why this technique is attractive in our case, and what potential disadvantages it may possess.

SVM techniques have received a good deal of attention from computer scientists and learning theorists in recent years,[1] and have found uses in a wide variety of applications—from face detection (Osuna, Freund and Girosi 1997) to handwritten character recognition (LeCun et al. 1995). They have proven particularly effective in classifying content based on text features—an area where SVM methods show substantial performance improvements over the previous state of the art, while at the same time proving to be more robust (Joachims 1998). All of these are complex tasks that are relatively easy for human beings to accomplish, but that have been traditionally difficult for computers.

The areas where SVMs have been successful, then, highlight the potential advantages of this technique. First of all, support vector machines allow decisions to be made based on an extremely large number of potential factors, even when these factors cannot be systematically identified *ex ante*. Cognitive scientists, for example, cannot provide a simple or easily defined set of rules about how human beings recognize handwritten characters. Nonetheless, with a large training set, SVMs can learn to make the "correct" classification of the character the large majority of the time, based on complex criterion that human coders cannot themselves articulate.

Second, support vector machine techniques are highly scalable. In our case, it was literally impossible to classify the millions of Web pages we downloaded with human coders. When the number of objects to be classified in small, it makes little sense to train a support vector machine to make classification decisions. But for problems which require classification of millions of objects, supervised machine learning techniques are currently the only feasible approach.[2]

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[1]For an accessible and widely-cited introduction to support vector machines, see Burges 1998.

[2]Note that the scalability of support vector machines depends, in part, on the fact that difficulty of learning depends on the complexity of drawing the appropriate margin. This complexity is only indirectly related to the dimensionality of the feature space. In other words, adding features does not necessarily make drawing the boundary more difficult.

The major disadvantages of support vector machines are the converse of their strengths. First, SVMs require a great deal of time and technical expertise to implement successfully. This project relied on internal software developed by NEC Research Laboratories; in recent years, other programs and tools supporting SVM classification have been made freely available to any interested researcher, notably Joachims' *SVM-Light* and Chang and Lin's LIBSVM. Still, no current SVM software qualifies as easy to use, and patience and substantial programming experience are prerequisites.

Even more importantly, the process by which SVMs classify objects may be opaque. Decision boundaries are drawn based on thousands upon thousands of different features. SVM software does detail which features receive the most weight in drawing the decision margin. However, these weights are difficult to interpret; moreover, the number of features which receive substantial weight may be so large that space constraints make them difficult to report. Even technical readers may balk upon encountering page upon page of numbers without any clear meaning.

Support Vector Machines, therefore, must ultimately be evaluated mostly by subjective criteria—by precisely the kind of complex human cognitive processes they are designed to mimic. Subjective decisions are obviously important in choosing the training set. The are also, ultimately, the most important metric for evaluating the accuracy of the classification decision. In the context of our research, the ideal is to have these pages coded with a consistency and accuracy identical to what human coders would provide if they were to read through these several million Webpages. The technique we relied on in this research was to sample from the machine classified Web pages, and have the sampled sites rated blindly by human coders. The results of this comparison are explained in more detail in Chapter 3, but in general it finds extremely high levels of agreement for those sites which are not close to the decision boundary. Sites about which the SVM is unsure—that is, sites which lie close to the decision margin—provided less agreement, but the large majority were coded as belonging in the positive set. This fact is likely because the training sets were filled with clear examples of relevant and irrelevant sites, and not marginal cases which may have provided more information on the proper decision boundary.

The algorithms used in SVM analysis have evolved rapidly, the software tools supporting SVM classification are improving, and the properties (and problems) of these techniques are becoming better understood. For these reasons, it is likely that coming years will see SVM techniques more commonly used and accepted within the social sciences.

Surfer Behavior and Crawl Depth

In addition to the use of SVM classifiers, the research in Chapter 3 is also unusual in its use of large-scale Webcrawlers. The principles behind these Webcrawlers are easy to understand: they simply download all pages that are three clicks or less away

from our seed sets. It is worth a brief detour to explain why travelling only three links away from the seed set should capture the large majority of relevant political Web sites.

The diameter of the Web is small: two randomly chosen Web sites are, on average only 19 hyperlinks apart (Albert, Jeong and Barabasi 1999). By traveling three links away from our seed set, our study examines graphs with a diameter of 6—three links in any direction. One consequence of this property, however, is that crawling more than a few links away from the original seed set requires crawling a large fraction of the World Wide Web. In this case, increasing the depth of the crawl by 1 increases the number of sites that must be downloaded, stored, and analyzed by a factor of 20.

Research on the behavior of Web surfers gives us strong reason to believe that increasing the depth of the crawl would be of limited benefit. Huberman et al. show that the number of links that a user will follow away from a starting Web site can be modeled extraordinarily well by an inverse Gaussian distribution. The probability that any path on the Web will exceed depth L is governed by the following equation:

$$P(L) = \sqrt{\frac{\gamma}{2\pi L^3}} exp[\frac{-\gamma(L-\mu)^2}{2\mu^2 L}]$$

Data taken from the unrestricted behavior of AOL users produces estimates of γ and μ of 6.24 and 2.98, respectively. While most surfing paths on the Web are only a few clicks deep, the heavy tails of the Gaussian distribution mean that even a path that contains a dozen or more clicks contains a non-trivial portion of the probability mass.

This research suggests that the moderately deep crawl we perform should capture the large majority of surfing behavior away from the seed sites. If Huberman et al.'s numbers hold, roughly 80% of searches will terminate before exceeding the depth of the crawl we perform. And under these same assumptions, the benefits of a deeper crawl would to be modest. Increasing the depth one level would expand the portion of search behavior covered by only 5–10%, while it would increase the difficulty of analysis by a factor of 20. To provide a sense of perspective, increasing the depth of the crawl by one would have required us to download and analyze 4.5 million Web sites for *each* of the 12 crawls. This would have meant crawling roughly 54 million pages total, and would ultimately have taken up more than 5 terabytes of disk storage.

Hitwise's Data and Methodology

Lastly, much of in this book is based on data from Hitwise Competitive Intelligence. In order to understand the nature of this data, it is worth outlining how and from whom it was collected, and its strengths and limitations for our purposes.

Hitwise is a multinational firm focused on measuring online traffic. Founded in Australia in 1998, Hitwise has expanded its business to the UK (2001) and the United States (2003); Hitwise also operates in New Zealand, Hong Kong, and Singapore. Globally, Hitwise claims more than 1200 clients. Prominent corporate customers include Internet firms such as Google, Ebay, and Ask.com, media companies such as CBS and MTV, and other a variety of other well-know brands from Honda to Heinz foods.

For media scholars, the Hitwise data is an enormously rich resource, offering an unparalleled view of Internet traffic at the clickstream level. Yet Hitwise data also present academic researchers with tradeoffs and challenges. Some of these are already familiar to researchers who have used data prepared by corporations, such as AC Nielsen audience data, or surveys prepared for consumer research (e.g. Putnam 2000). Other issues are unique to this data source.

Hitwise data is gathered in partnership with Internet Service Providers (ISPs). Hitwise creates software which its partner ISPs then install within their networks. Hitwise's software monitors the online traffic of ISP subscribers; for the month of April, 2007, Hitwise tracked visits to 773,924 Websites from 10 million U.S. households. The number of sites included in the Hitwise panel fluctuates constantly. This fluctuation comes from two main sources. First, Hitwise includes sites in its ranking if they exceed some minimum of Web traffic. It is for this reason that Hitwise's monthly data includes a greater number of Websites that Hitwise's weekly data; the longer time span allows more sites to reach the traffic required for inclusion. Second, Hitwise regularly audits the sites included in its rankings, removing outdated entries.

2.5 million of the 10 million also participate in opt-in "mega panels," run by companies such as Experian and Claritas. These opt-in panelists provide much more detailed demographic, lifestyle, consumer data. Ultimately, the ISPs provide Hitwise only with anonymized, aggregate data. Hitwise does not release the names of its ISP partners. However, Hitwise does state that their sample' 'include[s] some of the top ISPs as well as a geographically diverse range of middle tier and small ISPs, representing both home and work usage" (Hitwise 2007).

Hitwise uses this sample to construct a variety of metrics, all defined according to industry-standard metrics. Many of these standards are defined by the Interactive Advertising Bureau (IAB), a nonprofit advertising-industry consortium. (The IAB claims that its member companies are responsible for selling more than 86 percent of online advertising in the United states.) The most important measure for our purpose is the number of "visits" a site receives. A visit is described as a request for a Web page by a browser, with no more than 30 minutes between clicks. Note that this metric records use that is frequent, but not too frequent: a single individual who spent all day reading CNN.com would as one visit.

Hitwise does measure the number of page views that individual sites serve to users, but this metric is problematic. One reason for this is that page counts are highly dependent on the architecture of a Website. Some online publications, for example,

deliberative break up their content to force users to load many short pages; others do not. Because this metric not very comparable across Websites, it is not referred to in the text. It is worth noting, however, that page counts produce far higher levels of inequality than site visits. MySpace alone accounted for 18 percent of all page views on the Web during April of 2007. For political sites, too, an analysis of page views would suggest far higher levels of inequality than that seen with site visits alone.

Hitwise's method of monitoring has clear strengths and weaknesses. One key strength is scalability. Incredibly, the Hitwise sample represents nearly 1 in 10 households nationwide, according to the 2000 census (Bureau 2001). For smaller online niches, such breadth of coverage is indispensable.

Hitwise's methodology is also far better than the alternatives in gathering a representative cross-section of Web traffic. Traffic is measured across all users, not just those willing to install monitoring software on their computer. Because most of Hitwise's sample is unaware that their search behavior is being measured, any observer effect should be minimal.

For individual-level analysis, Hitwise data is (by design) quite limited. Hitwise's methods allow us to see the sum of users' online paths, but picking particular surfers out of this flow of traffic is not possible. Not only does Hitwise average user behavior, it allows researchers to look only at sites visited immediately before and immediately after the site or category of interest.

Deeper patterns in user online behavior are thus obscured. For example, we might imagine that surfers who enter a political blog from a search engine may exhibit different characteristics and search behaviors than those referred by another blog. If this is true, it cannot be studied with the Hitwise data.

Still, given privacy concerns, some of these limits are reassuring. For example, in August of 2006, AOL released search records that included 20 million search requests from more than 657,000 of its subscribers. Though AOL's data was intended to be anonymous,it listed users by a unique user ID number; the search queries themselves sometimes contained individually identifying information, particularly in combination with one another.

The fact that some details of Hitwise's methodology and corporate agreements remain proprietary or confidential may raise flags, particularly for academic users. Several factors partly assuage these concerns. First, Hitwise has arranged for detailed, independent audits of its methodology and data collection procedures. Recent audits have been performed by Price Waterhouse Cooper, which concluded that the company's claims about its data-gathering methodology, and its claims about the representativeness of its sample, were truthful and accurate. (Price Waterhouse Cooper also certified that Hitwise's privacy policies did indeed operate as claimed.)

Second, many of Hitwise's clients are large Internet companies such as Google and eBay. These firms have extensive in-house expertise in analyzing Web traffic, as well as access to large data sets of their own with which to cross-validate Hitwise's

measures. It would be difficult to hide significant methodological flaws from such clients.

Third, in April 2007 Hitwise agreed to be acquired by The Experian Group, a credit- and consumer-information firm based in Ireland, for the sum of $240 million. Experian is a publicly-traded company, and Hitwise's claims about its methodology were reiterated in corporate legal disclosures related to the purchase. Any misleading claims in this context, of course, can subject corporate officers to civil and criminal penalties.

For those interested in large-scale Internet traffic analysis—particularly in a niche as small as political Websites—there are few alternatives to Hitwise. Hitwise's main competitors are Nielsen NetRatings and comScore MediaMetrix. Each of these companies rely almost entirely on an opt-in panel methodology, recruiting users to install Internet-monitoring software on their computers. Users are offered incentives to participate; for example, comScore offers participants server-based virus scanning and sweepstakes prizes. Panelists know that their Internet usage is being individually monitored, which may alter their online behavior. comScore claims to have a nationwide sample of 120,000 users, or slightly more than 1 percent of Hitwise's U.S. sample.

Nielsen//Netratings and comScore have resisted independent audits of their panel methodologies in the past, despite reports of problems and inconsistencies with their data. These concerns came to a head in April 2007, when the IAB strongly criticized their panel methodology, and demanded that these firms submit to independent audits (Rothenberg 2007). The IAB's demands prompted Nielsen//Netratings and comScore to promise greater accountability and transparency in their methods. Thus far, it remains unclear what changes will be made.

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