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# Introduction: On Not Taking the Hyperlink for Granted

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## Introduction: On Not Taking the Hyperlink for Granted

### **Abstract**

Book description: "Links" are among the most basic—and most unexamined—features of online life. Bringing together a prominent array of thinkers from industry and the academy, *The Hyperlinked Society* addresses a provocative series of questions about the ways in which hyperlinks organize behavior online. How do media producers' considerations of links change the way they approach their work, and how do these considerations in turn affect the ways that audiences consume news and entertainment? What role do economic and political considerations play in information producers' creation of links? How do links shape the size and scope of the public sphere in the digital age? Are hyperlinks "bridging" mechanisms that encourage people to see beyond their personal beliefs to a broader and more diverse world? Or do they simply reinforce existing bonds by encouraging people to ignore social and political perspectives that conflict with their existing interests and beliefs? This pathbreaking collection of essays will be valuable to anyone interested in the now taken for granted connections that structure communication, commerce, and civic discourse in the world of digital media. - See more at: [http://www.press.umich.edu/297297/hyperlinked\\_society#sthash.APFUH8ip.dpuf](http://www.press.umich.edu/297297/hyperlinked_society#sthash.APFUH8ip.dpuf)

### **Disciplines**

Communication | Communication Technology and New Media

## JOSEPH TUROW

### Introduction: On Not Taking the Hyperlink for Granted

At the end of the first decade of the twenty-first century, a computer user searching on the Web is unlikely to consider the enormous achievement represented by the highlighted links that beckon from the screen. In 1945, by contrast, Vannevar Bush was excited just to imagine the possibility of a hyperlink. He saw it as opening new gates to human understanding.

An MIT-trained electrical engineer who cofounded Raytheon in the 1920s, Bush headed the Office of Scientific Research and Development during World War II, the office that oversaw the development of radar, the proximity fuse, and the atomic bomb. Afterward, as the main force behind the establishment of the National Science Foundation, he pushed the federal government to fund what he called “The Endless Frontier.” What was needed, he said, was a scientific establishment that would contribute to the public good by devoting itself to questions of the utmost national and international importance. For Bush, figuring out how to create an instant intertextual link was one of those world-historical questions.<sup>1</sup>

In the July 1945 *Atlantic Monthly* magazine, Bush asked what sorts of problems would most challenge physicists after the war. His answer: the need to keep track of the growing mass of specialized publications that were, in his opinion, making it impossible for scientists to learn about studies in other fields that might help them solve society’s problems. He asserted that “our methods of transmitting and reviewing the results of research are generations old and by now totally inadequate.” He complained that indexes, the dominant method of pointing people to information, were too limited in their categorization of knowledge and too far from the texts they were citing to be useful as creative sparks. He added that the human mind “operates by association.” The best way to build knowledge, then, would be to create links between recorded ideas that could be retrieved and passed on.

This basic idea was not unprecedented. For centuries, the publishers of the Talmud have, for example, linked individual phrases in the text with the opinions of select commentators about those phrases. They have placed the commentators' works in a frame around the Talmudic text, making it easy for readers to go back and forth between one and the other set of writings. Bush's idea, however, was to link all types of textual knowledge in a continual, unfolding manner, and he saw science—a major cause of the knowledge “problem”—as the source of solutions. He himself conceived of a *memex*—a desk that combined a microfilm reader, screen, special electronic tubes, and a keyboard—that would allow the user to insert code to link any point in a microfilmed document to any other point. The reader could retrieve those connections at will, pass it along to anyone else with a memex, and buy knowledge with prerecorded linkages. It would, he asserted, open a new world of understanding:

Wholly new forms of encyclopedias will appear, ready made with a mesh of associative trails running through them, ready to be dropped into the memex and there amplified. The lawyer has at his touch the associated opinions and decisions of his whole experience, and of the experience of friends and authorities. The patent attorney has on call the millions of issued patents, with familiar trails to every point of his client's interest. The physician, puzzled by a patient's reactions, strikes the trail established in studying an earlier similar case, and runs rapidly through analogous case histories, with side references to the classics for the pertinent anatomy and histology. The chemist, struggling with the synthesis of an organic compound, has all the chemical literature before him in his laboratory, with trails following the analogies of compounds, and side trails to their physical and chemical behavior.

The historian, with a vast chronological account of a people, parallels it with a skip trail which stops only on the salient items, and can follow at any time contemporary trails which lead him all over civilization at a particular epoch. There is a new profession of trail blazers, those who find delight in the task of establishing useful trails through the enormous mass of the common record. The inheritance from the master becomes, not only his additions to the world's record, but for his disciples the entire scaffolding by which they were erected.

One can easily sense the excitement that Bush experienced when thinking about the implications of these retrievable associative trails.

Other technologists eventually began to share his enthusiasm for these new modes of connection as well, and in the mid-1960s, the writer and technology philosopher Ted Nelson coined the term *hyperlinks* to describe them. Nelson also began to sketch ideas about how the rather crude model of the memex that Bush laid out could work on contemporary computer systems. In particular, Nelson conceptualized the link in relation to specific text strings rather than whole pages and emphasized the value of a worldwide computer network through which to share the linked materials. Working independently around the same time, a Stanford Research Institute team led by Douglas Engelbart (with Jeff Rulifson as chief programmer) brought the hyperlink concept to fruition, first (in 1966) by connecting items on a single page and then (in 1968) by implementing a way to jump between paragraphs in separate documents.<sup>2</sup>

Those foundational activities paved the way for the links that most Internet users know today—the highlighted words on a Web page that take them to certain other places on the Web. But these “embedded” links are only the tip of an iceberg of types of instant connections. Links have morphed beyond their initial look to function as hot areas (where a picture or graphic are turned into a link), in-line links (where thumbnail photos or other elements are connected from one site to another automatically), tags (that allow people to categorize links), API (application programming interface) mapping “mashups” (where people use data from open-source cartography programs to make maps with links that suit their purposes), and RSS data feeds (that enable users to connect to changing information from sites without going to them directly). And we also see the creation of links that are based not on individual nomination but on the aggregation of opinions. A hyperlink on Google, for example, is the product of a complex computer-driven formula that calculates the popularity of a Web site by noting, among other things, how many sites link to it. The Google example also, of course, points to yet another development: the “industrialization” of the link. The past decade has witnessed the growth of an entirely new business that measures an advertiser’s success by an audience member’s click on a commercial link. The idea is to entice the user to the advertiser’s site, opening a raft of marketing possibilities. And there’s more. The growing convergence of digital media means that instant linking is no longer just the province of the Web on the desktop. Already we see interaction among desktop computers, cell phones, PDAs, MP3 players, store payment systems, television sets, digital video recorders, and even billboards.

These sorts of activities validate Bush’s intuition about the utility of

“associative trails”—though they don’t always match his utopian vision of their august intellectual purpose. In 2006, a *New York Times Magazine* article suggested that the link may be one of the most important inventions of the last fifty years. For links are not only ubiquitous; they are the basic forces that relate creative works to one another for fun, fame, or fortune. Through links, individuals and organizations nominate what ideas and actors should be heard and with what priority. They also indicate to audiences which associations among topics are worthwhile and which are not. Various stakeholders in society recognize the political and economic value of these connections. Corporations, governments, nonprofits and individual media users often work to privilege certain ideas over others by creating and highlighting certain links and not others. The fact that the Federal Trade Commission’s Web site, for example, highlights links to reports with certain approaches to privacy protection and not to others not only reflects the commission’s political views but may also bolster those views by pointing the public toward certain ideas at the expense of others. Through these sorts of activities, linking affects the overall size and shape of the public sphere.

Any discussion of how to promote a healthy society offline as well as online must therefore pay close attention to links. The aim should be to facilitate the widest possible sharing of varied, reliably sourced information in order to encourage specialized groups and society as a whole to confront their past and present in relation to the future. With a cornucopia of new media technologies and millions of Web sites and blogs, it would be easy to assume this goal is imminent. Yet a wide range of critics has lamented that this is not in fact the case. Some claim that both mainstream and nonestablishment sectors of the digital media target people who already agree with them, by producing content that reinforces, rather than challenges, their shared points of view. Other critics claim that media users themselves show little inclination toward diverse ideas. On the contrary, they tend to use the Web to confirm their own world-views—for example, by going to political blogs with which they sympathize politically or even by ignoring news on the Web and on TV altogether.

How should we understand these claims that linking is not living up to its possibilities? What evidence do we have for them? What are the political, economic, and social factors that guide linking in mainstream media firms and among individual actors such as bloggers and wikipedians? What should we expect audiences to know about links? What *do* they know, and what do they want? And, finally, what new research approaches

are needed to (1) track the various considerations that drive the creation of particular links and not others, (2) map the various vectors of knowledge and power that digital connections establish, and (3) understand how people interact with the connection possibilities that call out to them in various media?

The essays in this collection engage these questions and others in their attempts to understand the social meaning of the hyperlink. The project started as a conference called “The Hyperlinked Society” that I convened at the University of Pennsylvania’s Annenberg School for Communication on Friday, June 9, 2006. With the support of the John D. and Catherine T. MacArthur Foundation and the Annenberg Public Policy Center, about two hundred people from around the United States as well as Canada, China, the Netherlands, Israel, Australia, Germany, and England came together to address the social implications of instant digital linking. The guiding assumption of the meeting was that we need cross-disciplinary thinking to do justice to this multifaceted subject. Our panelists therefore included renowned news, entertainment, and marketing executives; information architects; bloggers; cartographers; audience analysts; and communication researchers. The audience, also quite accomplished, participated enthusiastically.

We did not intend to solve any particular problem at the meeting. Instead, the goal was to shed light on a remarkable social phenomenon that people in business and the academy usually take for granted. Just as important, the conference made clear that although research exists on other aspects of hyperlinking (most notably the mapping of Web interconnections), key aspects of the linked world have yet to be explored systematically. In keeping with this, many of the participants commented on the need to promote greater awareness of and discussion about the world of fascinating issues surrounding the instant digital link.

By bringing together essays from several of the conference panelists, all of which were commissioned and written in the months after the event, this collection aims to begin/catalyze/jump-start this larger discussion. When Alison Mackeen at the University of Michigan Press, who attended the conference, suggested that we consider a related book project, Lokman Tsui and I checked again to find that there are indeed very few writings about the economic, cultural, political, or general social implications of instantaneous digital linking. We thus asked our contributors to write essays that would encourage thinking and research on an aspect of contemporary life that is so central that it is often taken for granted. The aim was not to drill deeply into particular research projects. It was, rather,

to write expansively, provocatively—even controversially—about the extent to which and ways in which hyperlinks are changing our worlds and why. In short, we hope that this book will function as a platform from which others—professors, graduate students, lawmakers, corporate executives—will launch their own research projects and policy analyses.

We thank the contributors for rising magnificently to this challenge. Each essay contains enough ideas to spark a multitude of other writings and research projects. Moreover, various implicit conversational threads wind their way through the material, as each of the seventeen authors references issues discussed elsewhere in the book. Reading through the essays several times, I was struck by a Vannevar-Bush-like desire to place “associative trails” onto pages so that the reader could jump to other places in the book that question or confirm or rethink the ideas just expressed. We’ve actually begun to do that in the online version of this book, and we’ve opened the site up for others to join in as well. So please check it out.

One challenge posed by these interrelated essays was how to organize them. Lokman Tsui and I considered a number of organizing principles, as we moved chapters into different relationships with one another, before deciding on the following three parts: “Hyperlinks and the Organization of Attention,” “Hyperlinks and the Business of Media,” and “Hyperlinks, the Individual and the Social.” The first of these three, “Hyperlinks and the Organization of Attention,” focuses on the fundamental nature of hyperlinks and the purposes for which various actors—companies, governments, individuals—create certain links and not others for different/certain types of users. The second part drills down specifically to the considerations that motivate businesses, particularly the news and advertising industries, to use hyperlinks in particular ways. The final section of the book, “Hyperlinks, the Individual and the Social,” asks what we know and need to find out about hyperlinks’ roles in encouraging individuals to think about themselves and their society in certain ways and not others.

As I noted earlier, though, the broad themes of the essays overlap in significant ways, even across the three parts. So, for example, James Webster’s piece, “Structuring a Marketplace of Attention,” not only introduces the central theme of the first section—how entities organize links and, in turn, command users’ attention—but suggests how that theme relates to the business of media as well as the individual and the social. Webster recommends that the reader “think about the hyperlinked environment as a marketplace of attention.” Drawing from Anthony Gid-



dens's theory of structuration, he argues that while an examination of the political economy of links indicates that organizational interests shape the array of links that Internet users confront, a step back suggests that users have more power over the system than might first appear. Webster explains that search and recommendation systems, as well as many other collaborative features of the hyperlinked environment, present findings that are not based on the edict of a few dominant organizations but, rather, built "by amassing people's preferences and behaviors." Webster maintains: "No one opinion leader or vested interest is able to dictate the output of these systems; hence they have a compelling air of objectivity. . . . Yet, they create, perpetuate, and/or modify structures that direct the attention of others."

Arguing that "this duality of structure is an essential and increasingly pervasive dynamic of the marketplace," Webster then turns to ask about the "patterns of attention" that the marketplace produces and their possible social consequences. In so doing, he introduces issues that thread through other parts of the book, including (perhaps especially) that of social polarization. Webster notes that some observers are concerned that the structure of linking might lead people to see and follow only those connections that match their own narrow interests and political opinions. But he doesn't take a definitive stand on how realistic this worry is. Instead, he ties the concern back to his main theme: that the aggregated "actions of agents" through links are profoundly influencing "the structures and offerings of the media environment." Webster's piece is a nice setup for the various voices that follow—voices that agree with him, disagree with him, or take some of his points in new directions.

Alex Halavais does a bit of all three of these things. One way he moves the discussion forward is to provide a historical perspective on linking's so-called curse of the second order. That is the idea that once people considered measures of hyperlink popularity important, they worked to game the results in their favor. One sensational result is "Google bombing," a technique used by angry groups to associate a keyword search with a Web site. So, for example, an organized campaign led to Google's association of the word *failure* with a biography of George W. Bush. More mundane but also more long-lasting is another result: namely, that "an entire industry has grown up around the manipulation of search engine results." In emphasizing this development, Halavais is pointing out that the aggregated "actions of agents" that Jim Webster foregrounds are not necessarily as innocent or democratically created as they sometimes appear. In so doing, he identifies a tension that threads through many of the

essays in this collection, between the recognition that link patterns might sometimes be the uncoordinated results of various desires and the awareness that they might also reflect a struggle for power by corporate, government, or advocacy interests to lead people toward certain sites—and certain worldviews—and not others.

The essays by Philip Napoli, Lokman Tsui, Eszter Hargittai, and Seth Finkelstein focus in different ways on the manipulation of links in the service of power. Napoli brings a political economy perspective to bear on the broad claim that links are among the primary tools that big media firms use in their attempts to gain the kind of power in the Internet world that they enjoyed before its ascent. He makes a case generally that “the technological forces compelling a new medium such as the Internet to defy the confines of traditional media are counteracted to some degree by a number of countervailing social and institutional forces that clearly are influencing both the structure of the online realm and the ways that consumers navigate the online space.” Turning specifically to hyperlinks, he argues that emerging research supports the political economy logic that “the imbalances in content accessibility and prominence that characterize the traditional mass media world are being replicated in the online world.”

Along the way to this conclusion, Napoli offers several provocative assertions about the workings of power in the online world. He cites, for example, Jonathan Zittrain’s remark that in the online world, “the dynamics of the gatekeeping process have changed significantly, perhaps becoming a bit more covert.” In a related vein, he notes that hyperlinking “serves as a primary mechanism via which an online provider exerts control over its audience and . . . manages ‘audience flow.’” An examination of these issues is crucial to understanding the relationship between linking and social power; and while Napoli provides an introductory framework for examining them, Tsui, Hargittai, and Finkelstein engage and extend them more deeply. Lokman Tsui presents a comparative examination of the manner in which newspapers and blogs control their links. Eszter Hargittai sketches both various ways entities try to use links to exploit individuals online and research on the knowledge people need to have in order to resist such exploitation. And Seth Finkelstein focuses on the assumptions that guide what Web users see as important when they explore the Web through contemporary search engines.

All three writers reveal a world behind the links people see—a world that is complex and not easily accessible to most Web users. Lokman Tsui’s research deals with the decisions that different sorts of Web pub-

lishers make as they point their readers through links to certain world-views as opposed to others. Tsui finds that the *New York Times* and *Washington Post* point almost exclusively to their own articles, while major blogs link much more frequently beyond themselves—especially to other blogs. His piece raises fascinating questions about the commercial and professional imperatives that might be causing those differences.

Hargittai discusses the commercial and ideological reasons behind splogs—that is, Web sites that include nothing but links. She points out that while search engines are continually involved in a “cat-and-mouse game” with spammers over these sites, Internet users “are caught in the middle, having to deal with the resulting confusion.” Noting that “links are at the forefront of how user attention is allocated to content on the Web,” Hargittai goes on to point out that researchers have only begun to investigate how users interpret and approach links. Hargittai’s own formative work in this area reveals a wide range of expertise among Internet users and suggests that the high degrees of link literacy may be correlated with higher socioeconomic status. One takeaway of her research is, thus, that link literacy may be a key intervening variable for predicting people’s ability to navigate online in ways that protect their money and sensitive personal information. Another takeaway is the need for researchers to study the often complex world of links in greater detail.

As Seth Finkelstein sees it, though, the kind of link literacy that Eszter Hargittai rightly would like all Internet users to have is still not enough to correct for basic structural problems in the reasons people confront certain links and not others. Finkelstein’s topic is the arcane world of search engine algorithms. Using a number of provocative case studies as illustrations, he worries that Internet users misread Google rankings as indications of authority—and authoritativeness—rather than as simply the indications of popularity that they really are. He notes that the common search assumptions push minority views downward in the rankings, and he suggests that links play a primarily conservative role: “Rather than subvert hierarchy, it’s much more likely that hyperlinks (and associated popularity algorithms) reflect existing hierarchies.” Thus, he cautions that society must realize that “businesses that mine data for popularity,” such as the major search engines, “are not a model for civil society.”

In view of the commercial nature of so much of the Web, the business considerations that drive linking are clearly a crucial subject. Part 2 presents essays on hyperlinks and the business of media, by executives who are deeply involved in exploring this relationship. Although they don’t answer the questions Tsui’s study raises, they nevertheless reveal much of

the current and future direction of the Internet and other digital media. The first essay, by Martin Nisenholtz, who leads the *New York Times's* digital business, provides insight into the profound rethinking that links are forcing on traditional newspaper organizations. The *Times* was in the forefront of newspapers' experimentation with the Web with links as early as 1996. The newspaper's management did not, however, really begin to retool for the new world until after around 2000. *Times* executives recognized that "Web content is part of a huge, swirling 'conversation' taking place across the Internet twenty-four hours a day, seven days a week, in every corner of the earth." Nisenholtz sketches some of the pressures that flow from this basic circumstance, including the realization that up to 40 percent of the online newspaper's readership comes in through links that point to the paper's articles but are unrelated to the *Times*. How to think about those "side-door" readers, how to maximize the time spent on the site by them and (more important) by the 60 percent who go directly to the *Times* site, how to make money from all of this when people don't seem inclined to pay for most of their online news material—these are key issues that speak directly to the challenges faced (often with far more desperation than in the case of the *New York Times*) by newspapers around the world.

With people wandering to so many virtual places, including areas—such as Craigslist—that take profitable classified advertising from traditional papers, management has reason to be deeply concerned. So do executives from the entire spectrum of traditional media—from television, radio, and magazines through yellow pages and billboards—who worry that in coming years, marketers will transfer much of their money to Google, Yahoo, AOL, MySpace, MSN, and a handful of other Web powerhouses that can locate and communicate directly to consumers who fit the exact profile they want. But executives across the media spectrum are not sitting idle. On the contrary, they are acting on their understanding of threats to and opportunities for revenue in the new digital age. Old-style media companies, including the largest conglomerates, are reshaping themselves with new divisions, alliances, and business models.<sup>3</sup>

A large part of their challenge involves persuading marketers to advertise on their sites. Simply attracting consumers may not be enough. As MySpace and YouTube found in 2006 and 2007, many national marketers are wary about placing their ads next to user-generated content of poor quality or taste, which might embarrass the brands. Media executives, then, must develop their plans for the digital environment with the perspectives of advertisers and their agency advisors firmly in mind. As

influential actors in this arena, Tom Hespos, Stacey Lynn Schulman, and Eric Picard point to important directions in marketers' approaches to communicating with consumers, with a particular emphasis on links.

Their different suggestions regarding the roads marketers ought to take are complementary rather than conflicting. Tom Hespos asserts that pushing ads toward consumers "becomes less effective year after year," and he applauds companies that are spending the resources to understand how to use "the fundamental shift in the dynamic of human communication brought about by hyperlinking" to have a "conversation" with their target customers. "There are," he states, "millions of conversations taking place right now on the Internet—on blogs, social networks, bulletin boards, and other Internet communities (including virtual worlds like Second Life)—that have something to do with unaddressed needs." Hespos adds that all of these conversations are connected through "the building block we call the hyperlink," and he points out that firms such as Nielsen, Cymfony, and Technorati have built ways for marketers to "listen to these conversations" about their brands. In keeping with this, he exhorts marketers to find more and more ways to have potential customers come to them through links, instead of continuing to try to push old ad formats at them.

Stacey Lynn Schulman would likely endorse Hespos's position wholeheartedly. For her, the challenges that industry strategists face in attempting to understand and persuade consumers are not confined to the declining value of the push commercials that Hespos mentions. They also relate, she states, to the pitfalls of traditional syndicated research about consumers, which "is battling dwindling cooperation rates each year, while fragmented consumer segments demand bigger and better respondent samples." Her alternative goes beyond the auditing of consumer discussion that Hespos urges, into exploration of hyperlink clicks as "a map of actual behavior that expresses not only what purchases we make but what passions and concerns we have." She points out: "Media preferences, brand preferences, attitudinal disposition, and consumption habits are still primarily measured in separate studies by separate research vendors. By following and segmenting the patterns of hyperlinking, they can now be rolled into a single-source, behavioral composite of core consumer segments."

Eric Picard and Marc Smith would probably concur with both Tom Hespos and Stacey Lynn Schulman. Their objectives here are nevertheless different. Picard's aim is to suggest ways to turn the traditional television set into an arm of the digital marketplace, while Smith sees the fu-

ture mobile phone from that standpoint. Picard sees Americans' relationship with the domestic box changing dramatically in the coming years. The spread of the digital video recorder (DVR) will allow people to record programs; "next-generation cable solutions, such as IPTV, will make almost all content available on demand through a simple set-top box, over a broadband connection"; and "video delivered to mobile devices over wireless broadband and downloaded to handheld media players will flourish, enabling place shifting as well as time shifting of content." To the consumer, this may seem like a cornucopia; but for marketers, it could spell a disastrous difficulty, since the presence of a DVR and digital audiovisual material will make it easier than ever for viewers to skip commercials.

For Picard, though, hyperlinks offer a means of solving this potential problem. First, they make it possible to extend the demographic and behavioral profiling that is conducted on the Web to all media, including digital television, "in completely anonymous and privacy-appropriate ways." Second, they make it possible to serve different commercials to different viewers based on their interests, with the expectation that the matchup will lead the viewer to pay attention. Third, they create interactive formats for those targeted commercials, "giving the audience the ability to hyperlink from a short version of the ad into a longer version of the ad" or letting them connect to lots more information about the product.

If Eric Picard somewhat futuristically sees cross-media information about individuals coming to bear on the ways marketers use digital television to reach them, Marc Smith goes even farther into the future. He conceives of a new form of hyperlink emerging. He calls it a *hypertie* and describes it as a technology, in a smart phone or other mobile device, that allows people to quietly relate their background, interests, and prior encounters with others (people or companies) via inaudible digital communication. Smith points out that collected hypertie data would be a gold mine to academics and marketers, especially because it allows "for the unnoticed and unreflected consumption of content." This is precisely the value that Stacey Lynn Schulman sees in tracing hyperlinks on the Web. But Smith and Picard are extending this same logic to other media domains.

One theme that runs through all the essays of part 2 is that of privacy. Marc Smith's comment about the unobtrusive data-collecting capabilities of futuristic handheld devices brings the issue into stark relief. With such capacities, he states, "privacy issues are sharpened." He concludes, "The

walls have ears and eyes, and others' eyes and ears are now high-fidelity and archival." In fact, Hespos, Picard, and Schulman also realize that there is a marked tension between their desire to learn huge amounts about individuals in the interest of persuading them and the individuals' desire not to have certain information about themselves shared. In keeping with the latter worry, the authors express a desire for openness about the data-collection process or for anonymity in using the data. Such comments are, however, made only in passing and with no details. While it may be comforting to believe that the kind of surveillance of consumers that these marketers foresee can be carried out with genuine transparency and anonymity and without controversy, it is not at all clear how such protections can be implemented or guaranteed.<sup>4</sup> The technologies of privacy as they relate to hyperlinking deserve a lot of attention from executives, policy makers, and academic researchers.

One of the six writers in the final part of the book—Stefaan Verhulst—does take up the privacy gauntlet. But all the essayists in part 3 deal centrally with another crucial issue of hyperlinking: the nature of the connections that links encourage. David Weinberger starts it off with a simple statement: "Links are good." In explaining his equating of links and morality, he presents an elegant disquisition on how to think of things in terms of goodness, badness, prototypical uses, and moral behavior. He concludes: "The goodness of links comes not from the quality of the pages they point to or the semantic contexts in which they're embedded. The goodness of links operates at a level below that." That structural level fulfills a fundamental function of the link, which to Weinberger is sharing. Weinberger notes, "We send people to another site (assuming we aren't the sort of narcissists who link only to themselves) where they can see a bit of the world as it appears to another. . . . Our site probably explains why we think it will matter to them and how it matters to us, even if that explanation is 'Here's a trashy site I hate.' Pointing people to a shared world, letting how it matters to others matter to us—that's the essence of morality and of linking."

Weinberger's perspective may seem utopian, but he is quick to point out that while linking provides a potentially invaluable structure for understanding how the world matters to others, the actual implementation of those connections can, in fact, be positive or negative: "The linked structure of the Web . . . is a giant affordance that we may do good or bad with." Although none of the other authors in part 3 puts the issue in such stark terms, they all grapple with the extent to which hyperlinking, as it is evolving now, is facilitating or hindering the creation of a pluralistic,

democratic, and caring society. To Stefaan Verhulst and Jeremy Crampton, evaluating the relationship between hyperlinking, individuals, and society comes down to understanding that the patterns of links can be seen as maps of the world that help determine our sense of reality. Because, as Verhulst notes, all maps “contain the biases of their creators,” it is important to bear in mind that citizens have historically received their ideas of the world through maps drawn by the authority of rulers. The rise of new mapping technologies, such as Google Earth, provides for the real possibility that members of the public can generate data that they can link to the mapmaking software in order to create alternative versions of the world that highlight the presence of poverty, pollution, and other issues that challenge those in power.

Verhulst notes both positive and negative aspects of the new mapping age that hyperlinking to databases has brought. “New maps,” he says, “can widen our horizons, build new social and political affiliations, improve policy and industry decisions, and democratize perceptions of the world.” At the same time, he recognizes that the new technology of the “linked age” can also lead individuals, governments, and corporations to exercise power for such problematic purposes as auditing of people’s activities without their knowing it and presenting useful links selectively, by making them available to some types of people and not others, so as to create “a balkanized landscape of censored information.” Thomas Crampton places more emphasis than Verhulst on the favorable impact of the increased democratic control over links. He writes of “a new, populist cartography in which, through new forms of linking, the public is gaining access to the means of producing maps.” He presents examples of ways that advocacy groups have linked the free Google Earth and Yahoo Maps to free or inexpensive GIS (geographic information systems) software in the service of causes relating to the environment, disease, and electoral politics. Such activities, he states, are part of “a larger movement of counterknowledges that are occurring in the face of ever-increasing corporatization of information, such as the consolidation of the news media into the hands of a few global multinationals and their dominance by fairly narrow interests.” Unlike Verhulst, Crampton does not emphasize the ability of these global interests to turn link technology against the populists. The problems he notes involve knowledge barriers: how can poor people with little IT support ever learn to use links to blogs and maps to advance their own interests, and how can those who have the relevant skills be persuaded to promote such learning?

While Crampton and Verhulst point to the possibilities that politically engaged uses of links offer to forces concerned with the equalization of



social power, Lada Adamic, Markus Prior, and Matthew Hindman ask what people's everyday activities online suggest about the Web's contribution to pluralism and understanding across socioeconomic classes. Adamic describes her realization that examining vectors of online links made it possible to see "what had been hidden before, the social relationship." Her essay is a personal reflection on her research efforts to understand the link patterns that emerge among people when they engage in different spheres of life—social, commercial, and political. But her overarching theme is that "the hyperlink frequently reveals very real underlying communities" and that some interests, such as cooking or knitting, "have the ability to span cities, if not continents." She stresses, too, that bloggers' approach to the use of links in online interactions is often quite self-reflective, sardonic, and lighthearted. Echoing Weinberger a bit, she muses that "this [self-]awareness and the basic human inclination to take in and share information will continue to shape the hyperlinked landscape of online spaces."

Adamic's association of linking patterns with information sharing also begs a basic question: sharing with whom? Markus Prior poses the question this way: "Can hyperlinks, by connecting people who would otherwise go their separate ways in the sprawling new media landscape, prevent the kind of fragmentation that observers see looming large?" Research by Lada Adamic and Natalie Glance does shed light on this subject. They asked whether conservative blogs link to liberal blogs and vice versa, and they found a quite divided blogosphere. Liberals clearly preferred to link to other liberals, conservatives to other conservatives; only about 10 percent of the links were across the ideological divide. Prior moves the topic forward by asking two questions: "Can anything be done to keep media users from exclusively exposing themselves to ideologically extreme media outlets that offer little information to challenge their existing opinions?" and "Can anything be done to keep media users from ignoring political information altogether?"

Drawing on data from cable television and some early studies of Internet use, Prior's answer, in capsule, is that the problem implied by the first question has been exaggerated, while the difficulty implied by the second question is quite real. He concludes: "In a world where media content of many different genres and subgenres is abundantly available around the clock, tuning out of politics is easy. Hyperlinks could make their greatest contribution to democracy in encouraging the politically uninterested." Marshaling data from Adamic and Glance and others, however, he argues that "this is the function they are least likely to serve."

It is a gloomy assessment that might become still gloomier as a result

of the marketing trajectories that Stacey Lynn Schulman, Eric Picard, Tom Hespos, and Marc Smith outline in part 2. Each of these four contributors expects that the future of marketing communication will be about finding out what people are like and what they like and then surrounding them directly and through links with advertising and editorial content based on those calculations. That strategy may well result in people being exposed (rather than exposing themselves) to certain views of the world that reinforce their existing images of themselves and offer little information to challenge their existing opinions. The processes through which this sort of personalization will take place are in their infancy, and it will take decades to learn the ways in which and the extent to which people receive very different views of the world that stifle pluralistic perspectives and conversations.

In the meantime, Matthew Hindman gives us yet another concern to consider regarding sharing and the public sphere. While Prior is centrally concerned with the ideological pluralism of the new media environment, Hindman focuses on source diversity by asking about the number of people who get a chance to be heard in the public sphere. He grants that the Internet is strengthening some democratic values, such as encouraging collective action and public oversight over institutions. Yet, he proposes, the public's ability to make an impression online is vastly overrated. "Many continue to celebrate the Internet for its inclusiveness," he says, but that inclusiveness is "precisely what the online public sphere lacks," and "part of the problem is the extraordinary concentration of links and patterns in online traffic." As Hindman notes, observers of the Web have often suggested that A-list political bloggers attract disproportionate attention. He goes farther, however. Using data from Hitwise, a company that audits Web traffic, he argues that "even the emergence of a blogging A-list barely scratches the surface of online inequality."

This brief summary of Hindman's core point only skims the surface of his piece. The contribution is rich with ideas that echo, extend, and grapple with many of the thoughts about the social impact of hyperlinking that appear elsewhere in this book and beyond. Despite being the final essay in this book, it does not sum up the meaning of instant digital connections; nor does it intend to do so. We are only at the beginning of an age where these sorts of ties are becoming part of everyday life. The great possibilities of information sharing that so excited Vannevar Bush about links are still exciting today, and many of them are becoming reality. But it will be decades before the most interesting and provocative implications can be assessed or even identified. In fact, despite these writers'

wide-ranging knowledge and imagination, they focus primarily on the Internet and do not discuss the other areas in which companies are beginning to make instant linking a crucial part of life.

Retailing is a hotbed of this emerging activity. Many supermarkets already link customers' purchases (as audited by frequent shopper cards) to customized discount coupons at checkout. A few large chains are now testing small computers attached to carts and activated by customers' frequent shopper cards. The computers can link to a history of shoppers' purchases and, with help from a tracking device that tells where each customer is in the store, continually offer individualized discounts and alert shoppers to specials that history (or statistical analyses) says they would want. The customer's mobile handset is becoming part of this linked-in shopping experience, too. For customers who "opt in," mobile phone companies are starting to use their ability to locate customers continually in time and space to offer them advertisements for restaurants or other establishments based on where they are or where they are likely to go and when. Phone manufacturers are working with credit card companies to implement near field communication (NFC) chips that allow people to use their phones to pay for things. These are fascinating developments, the tip of an iceberg of changes in consumers' relationships with stores and goods. They raise important questions about people's understanding of how information collected about them is stored, moved across different media, and used. They also bring up some of the nonspecifically political issues about linking and power: Who gets connected to the best discounts and why? Do customers have control over the ways retailers, phone companies, and credit card firms categorize them—in essence, over the ways companies tell stories about and evaluate them? To what extent and how do the digital labels firms place on customers as a result of their handset habits become part of the profiles that marketers and governments use about them when they go on the Internet, watch television, or even walk down the street?

Although these questions don't relate directly to the overt political concerns that so many of the contributors to this volume discuss, their relevance to the broader issues of social power that run through the essays is clear. How can we maximize citizens' ability to use links to better themselves, recognize the existence of other points of view, and learn about alternatives that can give them power? How can we encourage people to understand the maps that companies and governments make about them and to make new ones that give them greater ability to understand themselves and others and to advocate for change? As the essays,

taken together, suggest, it is crucial for all of us to keep asking these questions about the nature of our connections in the digital age.

## NOTES

1. V. Bush, "As We May Think," *Atlantic Monthly*, July 1945, <http://www.theatlantic.com/doc/194507/bush>. Michael K. Buckland has pointed out that Bush's idea of quickly linking knowledge derived from his attempt to improve upon a microfilm retrieval system pioneered by Emanuel Goldberg, the Russian-Jewish head of Zeiss Ikon in the 1920s, whose career and celebrity in Europe was cut short by the Nazis. See Michael K. Buckland, "Emanuel Goldberg, Electronic Document Retrieval and Vannevar Bush's Memex," *Information Science* 43, no. 4 (May 1992): 284-94.

2. "Hyperlink," Wikipedia, <http://en.wikipedia.org/wiki/Hyperlink>.

3. See, for example, J. Turow, *Niche Envy: Marketing Discrimination in the Digital Age* (Cambridge, MA: MIT Press, 2006).

4. See, for example, J. Turow et al., "The FTC and Consumer Privacy in the Coming Decade" (paper presented at the Federal Trade Commission meeting "Protecting Consumers in the Next Tech-ade," Washington, DC, November 8, 2006); J. Turow, *Open to Exploitation: American Shoppers Online and Offline* (Philadelphia: Annenberg Public Policy Center, [2005]); J. Turow, *Americans and Online Privacy: The System Is Broken* (Philadelphia: Annenberg Public Policy Center, 2003). All can be accessed at the Annenberg Public Policy Center Web site: <http://www.annenbergpublicpolicycenter.org/AreaDetails.aspx?myId=2>.