ESSAYS

CYBERSPACE AS/AND SPACE

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The appropriate role of place- and space-based metaphors for the Internet and its constituent nodes and networks is hotly contested. This Essay seeks to provoke critical reflection on the implications of place- and space-based theories of cyberspace for the ongoing production of networked space more generally. It argues, first, that adherents of the "cyberspace" metaphor have been insufficiently sensitive to the ways in which theories of cyberspace as space themselves function as acts of social construction. Specifically, the leading theories all have deployed the metaphoric construct of cyberspace to situate cyberspace, explicitly or implicitly, as separate space. This denies all of the ways in which cyberspace operates as both extension and evolution of everyday spatial practice. Next, it argues that critics of the "cyberspace" metaphor have confused two senses of space and two senses of metaphor. The cyberspace metaphor does not refer to abstract, Cartesian space, but instead expresses an experienced spatiality mediated by embodied human cognition. Cyberspace in this sense is relative, mutable, and constituted via the interactions among practice, conceptualization, and representation. The insights drawn from this exercise suggest a very different way of understanding both the spatiality of cyberspace and its architectural and regulatory challenges. In particular, they suggest closer attention to three ongoing shifts: the emergence of a new sense of social space, which I call networked space; the interpenetration of embodied, formerly bounded space by networked space; and the ways in which these developments alter, instantiate, and disrupt geographies of power.

INTRODUCTION

The appropriate role of metaphor in cyberlaw, and particularly of place- and space-based metaphors for the Internet and its constituent nodes and networks, is hotly contested. The "cyberspace" metaphor, which originated in science fiction, first migrated into legal discourse via the work of academic commentators who advanced unabashedly exceptionalist arguments about the nature and appropriate legal treatment of

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Internet-based activities.[1] Although these arguments did not go unchallenged, the claim that cyberspace is deeply and essentially different from "real space" was a compelling one for many scholars. Even though conventional wisdom now rejects the initial exceptionalist claim that cyberspace is inherently more free than "real space," the belief that it is nonetheless inherently different has persisted. At the same time, however, court decisions in cases challenging unauthorized access to web-based information have invoked place- and space-based metaphors to serve a variety of far more pragmatic purposes relating to the demarcation of virtual "property."[2] Perhaps predictably, the tenor of the judicial embrace of "cyberspace" has caused some cyberlaw scholars to rethink their own metaphoric commitments. What began as a relatively narrow critique of the property metaphor's doctrinal and political entailments has now blossomed into a full-blown debate about the merits of cyberspatial reasoning and rhetoric.[3]

Scholarly criticism of the foundational cyberspace metaphor has two predominant strains. Some scholars argue that the cyberspace metaphor and its place- and space-based entailments are the product of a mass delusion fostered, in equal measure, by judicial incomprehension and academic romanticism.[4] On this view, the Internet is simply a communications network, and the cyberspace metaphor distracts from doctrinally faithful and/or economically rational policymaking. Other scholars invoke the tradition of postmodernist cultural studies, and contend that uncritical adoption of the cyberspace metaphor produces undesirable "political and ideological consequences."[5]

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1. See, e.g., I. Trotter Hardy, The Proper Legal Regime for "Cyberspace," 55 U. Pitt. L. Rev. 993, 994–95 (1994); David R. Johnson & David Post, Law and Borders—The Rise of Law in Cyberspace, 48 Stan. L. Rev. 1367 (1996) [hereinafter Johnson & Post, Law in Cyberspace]; David R. Johnson & David G. Post, The Rise of Law on the Global Network, *in* Borders in Cyberspace: Information Policy and the Global Information Infrastructure 3, 12–28 (Brian Kahin & Charles Nesson eds., 1997) [hereinafter Johnson & Post, Law on the Global Network]; David G. Post, Governing Cyberspace, 43 Wayne L. Rev. 155 (1996).

2. See, e.g., Register.com v. Verio, Inc., 356 F.3d 393, 437–39 (2d Cir. 2004); Theofel v. Farey-Jones, 341 F.3d 978, 982–83 (9th Cir. 2003); eBay, Inc. v. Bidder's Edge, Inc., 100 F. Supp. 2d 1058, 1067 (N.D. Cal. 2000); CompuServe Inc. v. Cyber Promotions, Inc., 962 F. Supp. 1015, 1025–26 (S.D. Ohio 1997); see also Reno v. ACLU, 521 U.S. 844, 889–91 (1997) (O'Connor, J., concurring) (characterizing cyberspace as place capable of being zoned).

3. Leading early critiques of the property metaphor are Dan L. Burk, The Trouble with Trespass, 4 J. Small & Emerging Bus. L. 27 (2000), and Maureen A. O'Rourke, Property and Competition on the Internet: In Search of an Appropriate Analogy, 16 Berkeley Tech. L.J. 561 (2001).

4. See, e.g., Orin S. Kerr, The Problem of Perspective in Internet Law, 91 Geo. L.J. 357 (2003); Timothy Wu, When Law and the Internet First Met, 3 Green Bag 2d 171 (2000) [hereinafter Wu, First Met].

5. See, e.g., Dan L. Burk, Legal Consequences of the Cyberspatial Metaphor, *in* 1 Internet Research Annual: Selected Papers from the Association of Internet Researchers Conferences 2000–2002, at 17, 18 (Mia Consalvo et al. eds., 2003) [hereinafter Burk,

Most recently, interdisciplinary work based on the literature on human cognition and philosophy of mind has upped the ante, arguing that we use place- and space-based metaphors for the Internet because our cognitive makeup dictates that we must.[6] Far from resolving matters, however, this work has served only to add fuel to the fire. Cyberlaw scholars from all positions on the spectrum have resisted the perceived tyranny of the cognitive theoretic approach, arguing either that courts can and should resist the pull of place-based metaphors or that they already do.[7] The debate about metaphor and cyberspace has become, as well, a debate about agency; if one were so inclined (and some are), one might say that cognitive theory is the new essentialism, or even the new determinism, both "isms" freighted with much rejected baggage.

This Essay seeks to move beyond debates about place and property "in" cyberspace and to provoke critical reflection on the implications of place- and space-based theories of cyberspace for the ongoing production of networked space more generally. In particular, I wish to make three arguments.

First, the internal debate among theorists of cyberspace as space—the debate about what kind of space cyberspace "is"—has been insufficiently sensitive to the ways in which the theories themselves function as acts of social construction. When the dominant place- and space-based approaches to cyberspace are compared, what is most important about these approaches is the way in which all of them have situated the metaphoric construct of "cyberspace" in relation to "real space." Within exceptionalist and unexceptionalist theories alike, the metaphor is deployed to situate "cyberspace," explicitly or implicitly, as separate space. For exceptionalist theories, the assumption of separateness enables and ratifies highly ritualized and simplified conceptions of social ordering, which gain traction partly because they are envisioned as playing out a step removed from "real space." This is as true of the exceptionalist theories now in vogue as it was of the more explicitly utopian theories that cyberspace legal scholars now reject. For unexceptionalist theories, the assumption of separateness enables and ratifies a denial of difference; it is possible to assert that cyberspace is "just like" real space only if one ignores that cyberspace is peopled by real users who experience cyberspace and real space as different but connected, with acts taken in one having consequences in the other. In all cases, theories of cyberspace as separate space give short shrift to cyberspace as both exten-

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Cyberspatial Metaphor]; Richard Ford, Against Cyberspace, *in* The Place of Law 147, 154 (Austin Sarat, Lawrence Douglas & Martha Merrill Humphrey eds., 2003).

6. Dan Hunter, Cyberspace as Place and the Tragedy of the Digital Anticommons, 91 Cal. L. Rev. 439, 469–75 (2003).

7. See, e.g., Burk, Cyberspatial Metaphor, supra note 5, at 21–22; Kerr, supra note 4, at 389–405; Mark A. Lemley, Place and Cyberspace, 91 Cal. L. Rev. 521 (2003); David McGowan, The Trespass Trouble and the Metaphor Muddle, 1 J.L. Econ. & Pol'y 109 (2005).

sion and evolution of everyday spatial practice—as a space neither separate from real space nor simply a continuation of it. That is to say, they ignore both the embodied, situated experience of cyberspace users and the complex interplay between real and digital geographies.

Second, the external debate among cyberspace skeptics—the debate about whether "cyberspace" is "a space" at all—is framed too narrowly, in ways that mistake the nature of cognitively constrained agency and spatiality. To say that humans reason spatially is not to say that we are place-bound, or property-bound, but simply to say that we are embodied, situated beings, who comprehend even disembodied communications through the filter of embodied, situated experience. On this understanding of spatiality, the perceived conflict between the cyberspace-as-ideology and cyberspace-as-biologically-determined arguments is, for the most part, illusory. Critiques of the cyberspace metaphor grounded in postmodernist cultural studies are correct to stress the importance of space and spatial metaphors as culturally and ideologically laden vehicles for the extension of power. Space in that sense, however, is rather different from the spatiality with which cognitive theory is concerned. Properly understood, the critique from postmodernist theory and the insights supplied by cognitive theory are compatible, not contradictory.

Third and finally, the insights drawn from this exercise suggest a very different way of understanding the spatiality of cyberspace and its architectural and regulatory challenges: The important question is not what kind of space cyberspace is, but what kind of space a world that includes cyberspace is and will become. Cyberspace is part of lived space, and it is through its connections to lived space that cyberspace must be comprehended and, as necessary, regulated. In particular, a theory of cyberspace and space must consider the rise of networked space, the emergent and contested relationship between networked space and embodied space, and the ways in which networked space alters, instantiates, and disrupts geographies of power.

What follows is not intended as a grand theory of cyberspace and space, and is intended more pointedly as a manifesto against any such grand theory. It is offered both as a speculative ontology of networked space and as an argument for the necessarily provisional character of such ontologies. The contested nature of "cyberspace" reflects, and sometimes refracts or amplifies, the contested nature of space generally. If there is a grand theory at the root of these observations, it is simply this: The production of networked space, including cyberspace, should proceed in ways that promote the well-being of the embodied, situated beings who inhabit it.

I. Cyberspace as (Separate) Space

Legal theories of cyberspace as space conventionally have been classified according to their position on whether "cyberspace" is different from "real space" in ways that should affect the formulation of legal rules. For

some thinkers, whom I will call cyberspace exceptionalists, "cyberspace" and "real space" are fundamentally different; for other scholars, whom I will call cyberspace unexceptionalists, they are not. That classification, though, is far too simple, and ignores the ways in which theories about the nature of cyberspace are both normative and performative. I would like to suggest a richer taxonomy, based on the nature of the imagined relation between "cyberspace" and "real space" and premised on explicit acknowledgment of the central roles of ideology and desire in framing that relation.

Social theorists who study place and space recognize three general categories of constructed places, each of which serves and expresses very different functions.[8] Utopia are imaginary places through which their designers articulate visions of ideal social ordering. Isotopia are constructed, whether deliberately or by force of habit, after the pattern of existing places. The interplay between the ideal and the real, and between the ideal and its opposite, the dystopia, are much explored topics. The ideal and the analogous, however, do not exhaust our narratives of place. In a provocative lecture in 1967, Michel Foucault offered the term "heterotopia" to describe a third type of place that he viewed as peculiarly constitutive of distinct human societies.[9] Like utopia, heterotopia are places "that have the curious property of being in relation with all . . . other sites."[10] But while utopia exist only in the imagination, heterotopia are real spaces in which the ordinary rules of behavior are, in different ways, suspended to permit the enactment of a variety of processes and rituals that do not occur in ordinary spaces. Examples range from the exotic to the mundane. As paradigmatic cases of heterotopia, Foucault cited brothels and colonies, both of which demarcate "extreme poles" in relation to all other spaces.[11] Other examples, however, included theaters, which juxtapose on a single stage (or screen) a disparate set of places and times; museums, which seek to "constitut[e] a place of all times that is itself outside of time and inaccessible to its ravages"; and gardens, which seek to create an idealized microcosm of the natural world.[12]

There is now a sizable literature within the fields of cultural studies and cultural geography devoted to exploring the concept of heterotopia and the social and cultural functions of heterotopian spaces. Some scholars have equated heterotopia with marginality, and situated them as pe-

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8. Foundational writings include Michel Foucault, Of Other Spaces, Diacritics, Spring 1986, at 22 [hereinafter Foucault, Of Other Spaces], and Henri Lefebvre, The Production of Space (Donald Nicholson-Smith trans., Blackwell 1991) (1974).

9. Foucault, Of Other Spaces, supra note 8, at 24. The text of the lecture was first published posthumously in 1984.

10. Id. at 24.

11. Id. at 27.

12. Id. at 25–26.

ripheral sites of resistance to the orderings imposed by society.[13] This criterion, however, does not seem to be precisely what Foucault had in mind when he listed as examples of real-space heterotopia theaters, museums, and gardens, all quite mainstream sites of difference. A more comprehensive, and to my mind more satisfying, definition is supplied by Kevin Hetherington: "Heterotopia are spaces in which an alternative social ordering is performed."[14] This definition preserves the relational function of heterotopia, but encompasses a broader range of orderings. More specifically, Hetherington argues that in the modern, Western world, the alternative orderings performed within heterotopian spaces "derive[ ] from a utopian view of modernity as an exercise in both freedom and control in all its ambivalence."[15] This formulation explicitly links heterotopian orderings with utopian strivings, and acknowledges that these strivings produce "ordering effects both intended and unintended."[16] It is, moreover, capacious enough to encompass all of the different examples to which Foucault referred; each site enacts the modern dialectic between rationality and romanticism in a way that differentiates it from and situates it in relation to all other sites.[17]

Considering the ways in which the leading theories of cyberspace as space map to the categories of utopia, isotopia, and heterotopia exposes a consistent underlying theme that cuts across all perspectives on the sameness/difference question. Exceptionalist approaches, whether utopian or heterotopian, and unexceptionalist/isotopian approaches all are deeply dependent upon conceptualization of cyberspace as separate space: space that is defined in relation to real space, but that exists apart from it. The metaphoric construct of cyberspace as separate space underlies and supports the claim of difference or sameness, in each case at the expense of cyberspace as experienced by its real-life users. This denies the embodied spatiality of cyberspace users, who are situated in both spaces at once. It also overlooks the complex interplay between real-space geographies of power and their cyberspace equivalents.

A. *Ideal Space*

The utopian strain of place-based thinking about cyberspace appears most prominently in the early cyberlaw literature on sovereignty and jurisdiction. Within these theories, cyberspace is separate from real space

13. See Kevin Hetherington, The Badlands of Modernity: Heterotopia and Social Ordering 20–38 (1997); Rob Shields, Places on the Margin: Alternative Geographies of Modernity 260–65 (1991).

14. Hetherington, supra note 13, at 40.

15. Id. Foucault observes that heterotopia are universal to all human societies, but that they are culturally mutable and may serve different functions within different societies. Foucault, Of Other Spaces, supra note 8, at 24–25.

16. Hetherington, supra note 13, at 67.

17. For a helpful discussion of this dialectic, see Richard Coyne, Technoromanticism: Digital Narrative, Holism, and the Romance of the Real (1999).

both as a positive and a normative matter. Cyberspace utopian theories have fewer adherents today; instead, as discussed below, their most important components have been subsumed within theories of cyberspace more properly described as heterotopian. The cyberspace utopians have been most influential, however, precisely where their contribution is least remarked: in catalyzing the narrative construction of cyberspace as separate space.

Among cyberliterate nonlawyers, the most famous formulation of cyberspace utopianism is undoubtedly John Perry Barlow's. Writing at the dawn of the Internet age, Barlow prophesied that cyberspace would be "a civilization of the Mind" and exhorted the world's governments, "Your legal concepts . . . do not apply to us."[18] Among lawyers, the more influential formulation of this vision was the one articulated by David Johnson and David Post.[19] Writing in a more pragmatic vein, Johnson and Post bracketed the question of sovereignty and substituted a more lawyerly focus on day-to-day authority to make rules and decide disputes. Cyberspace would be, if not a separate kingdom, at least a separate jurisdiction, in which the laws of real space need not necessarily apply. Instead, in the time-honored tradition of utopian thought, cyberspace would be subject to its own laws and constituted by consent of its self-selected members.

The utopianism of Barlow and Johnson and Post rested on a presumed community of interest divorced from physical borders and the authority of real-space sovereigns. Ironically for all that, theirs was a deeply geographic conception of sovereignty. Utopian thinking is about discursive construction of community, and therefore also deeply and fundamentally about place.[20] Although it did not rely on traditional methods of demarcating place from a surrounding space, utopian thinking about cyberspace was no different. In the time-honored tradition of utopian

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18. John Perry Barlow, A Declaration of the Independence of Cyberspace, Feb. 8, 1996, at http://homes.eff.org/~barlow/Declaration-Final.html (on file with the *Columbia Law Review*).

19. Johnson & Post, Law in Cyberspace, supra note 1; Johnson & Post, Law on the Global Network, supra note 1; David G. Post & David R. Johnson, "Chaos Prevailing on Every Continent": Towards a New Theory of Decentralized Decision-Making in Complex Systems, 73 Chi.-Kent L. Rev. 1055 (1998); see also David R. Johnson, David Post & Susan P. Crawford, A Commentary on the ICANN "Blueprint" for Evolution and Reform, 36 Loy. L.A. L. Rev. 1127 (2003) (endorsing consensus as valid basis for Internet policymaking); David R. Johnson, Susan P. Crawford & John G. Palfrey, Jr., The Accountable Internet: Peer Production of Internet Governance, 9 Va. J.L. & Tech. 9 (2004) (arguing that Internet technologies will enable new online social order based on decentralized decisionmaking).

20. For illuminating discussions of the nature and history of utopian thinking, see Krishan Kumar, Utopia and Anti-Utopia in Modern Times (1987) (tracing evolution of utopian thinking in Western thought); Ruth Levitas, The Concept of Utopia (1990) (same); cf. Benedict Anderson, Imagined Communities: Reflections on the Origin and Spread of Nationalism (rev. ed. 1991) (exploring processes of discursive construction of the nation-state).

thinkers, the cyberspace utopians sought to use intellectual affinity to construct a sense of place based on separation from existing places.[21]

The utopian version of cyberspace exceptionalism has been called both naive (about human nature and the realities of power) and essentialist (about the nature of the Internet). There was truth to both charges. Whatever its theoretical virtues, the utopian vision of cyberspace did not scale to the large, heterogeneous online communities that began to develop in the late 1990s. As Michael Froomkin's exploration of the discursive structure of the Internet Engineering Task Force makes clear, constructing online communities based on ideals of participation and deliberation takes hard work—work for which not all cyberspace communities are equally suited.[22] This work may therefore be both an existence proof of cyberspace self-governance within a utopian framework of discursive rationality (as Froomkin would have it) and the exception that proves the rule. And as Lawrence Lessig and Joel Reidenberg explained, the ungovernability of cyberspace was neither a permanent nor a technologically necessary feature.[23]

I suspect, however, that neither critique gets the failure of cyberspace utopianism precisely right. If Barlow, Johnson and Post, and their fellow utopians were naive, theirs was the willful naivete of the revolutionary who recognizes a moment of possibility and tries to wrest that moment from the clutches of history. They understood that cyberspace is designed and that self-determination must be consciously chosen and carefully pursued. Arguably, they did not confuse "is" and "ought" so much as deliberately conflate them to advance a distinct vision of the good. And in theory, at least, they articulated a distinctly revolutionary project: to imagine what law might look like constructed from the ground up.

It is most accurate, I think, to say that the utopian theory of cyberspace as separate space failed not in its presumption of regulatory separateness, but in its presumption of experiential separateness. To the cyberspace utopians, cyberspace was "the final frontier," as remote from Washington or San Jose or Geneva as Jupiter or Mars. More formally, cyberspace was "empty" space: potentiality waiting to be filled up with settlements, structures, and norms, from which the constitutive legal texts of the community would then emerge. But of course both of those presumptions were wrong. Cyberspace is in and of the real-space world, and is so not (only) because real-space sovereigns decree it, or (only) because

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21. Cf. Edward Soja, Surveying Law and Borders: Afterword, 48 Stan. L. Rev. 1421, 1426 (1996) (characterizing cyberspace utopians' project as effort to use law to shape geography according to shared values).

22. A. Michael Froomkin, Habermas@discourse.net: Toward a Critical Theory of Cyberspace, 116 Harv. L. Rev. 749 (2003).

23. Lawrence Lessig, Code and Other Laws of Cyberspace (1999) [hereinafter Lessig, Code]; Joel R. Reidenberg, Lex Informatica: The Formulation of Information Policy Rules Through Technology, 76 Tex. L. Rev. 553 (1998).

real-space sovereigns can exert physical power over real-space users, but also and more fundamentally because cyberspace users are situated in real space. Cyberspace is not, and never could be, the kingdom of mind; minds are attached to bodies, and bodies exist in the space of the world. And cyberspace as such does not preexist its users. Rather, it is produced by users, and not (in most cases) as a deliberate political project, but in the course of going about their lives. The technologies and "places" that constitute cyberspace have been assimilated into the lives of millions of ordinary people who embrace the Internet as a tool for pursuing their ordinary, real-world ends. The cyberspace that has resulted from all of this activity is a utopia inhabited and produced by real people, and thus, by necessary implication, no utopia at all.

It is precisely the denial of this connection to experience that enabled the cyberspace utopians to persist for so long in their insistence on the possibility of atomistic private ordering in cyberspace.[24] Although this view may have been accurate, more or less, as a description of social practice among the earliest cyberspace users, it fell demonstrably short as the community of cyberspace users became larger and more heterogeneous, and as their experience of cyberspace increasingly was mediated by large commercial entities similar to those that mediate interactions in real space. More concretely, most of these users wanted no part of the vision that the cyberspace utopians offered. Individuals and intermediaries alike wanted a predictable, secure framework for structuring their online dealings, a need that the cyberspace utopians did not address.

In more recent years, the cyberspace utopianism movement has in large part redirected its intellectual energies toward the study of virtual worlds. It is unclear whether this shift represents a deliberate strategy in which virtual worlds are seen as a laboratory for developing microcosms of the larger utopian project,[25] or whether it signals the abandonment of that project and the shift toward a more admittedly imaginary utopianism.[26] Policy debates about the future of the Internet now are driven largely by the give-and-take between theories in the remaining two cate-

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24. See, e.g., Johnson & Post, Law in Cyberspace, supra note 1, at 1387–91; Post & Johnson, supra note 19, at 1086–92; Barlow, supra note 18.

25. See, e.g., Caroline Bradley & A. Michael Froomkin, Virtual Worlds, Real Rules, 49 N.Y.L. Sch. L. Rev. 103, 139–46 (2004) (arguing that massive multiplayer online role playing games can serve as test beds for certain types of legal rules).

26. See, e.g., Edward Castronova, The Right to Play, 49 N.Y.L. Sch. L. Rev. 185, 185, 200–05 (2004) (arguing that virtual worlds are "magic circles" that should be insulated from real-world legal systems using statutes of "interration"); F. Gregory Lastowka & Dan Hunter, The Laws of the Virtual Worlds, 92 Cal. L. Rev. 1 (2004) (arguing that virtual worlds are not just games, but rather places whose citizens should enjoy rights of self-governance). This framing follows the distinction drawn by Ruth Levitas between modern and postmodern utopianism: Modern utopianism sees utopia as the achievable future, while postmodern utopianism imagines a fantastic parallel universe. Ruth Levitas, The Future of Thinking About the Future, *in* Mapping the Futures: Local Cultures, Global Change 257, 257–59 (Jon Bird et al. eds., 1993).

gories. At the same time, however, the narrative of cyberspace as experientially separate has persisted, attesting to the attraction of utopian thought even among those who purport to reject it.

B. *Ordinary Space*

Some legal scholars responded to the perceived excesses and inadequacies of cyberspace utopianism by rejecting any notion of cyberspace exceptionalism. Most did not, however, reject the cyberspace metaphor itself; instead, they argued that cyberspace was a space like any other.[27] For these theorists, what the cyberspace exceptionalists romanticized as "cyberspace" was simply a direct transposition of the marketplace, or the library, or the public square, and the legal rules that applied there should be the same whether online or off. Within this "unexceptionalist" understanding of cyberspace, cyberspace is formally separate, but that separateness lacks any substantive dimension. It is possible to maintain this position, however, only if one ignores the real-life experience of cyberspace users.

Consider, first, the online marketplace. Long before the cyberspace utopians acknowledged the possibilities for online commerce, the cyberspace unexceptionalists recognized the great commercial potential of this new medium. In the main, however, the cyberspace unexceptionalists believed that cybermarkets would differ from real-space markets chiefly in inessential respects. Cyberspace would reduce transaction costs and increase choice of products, services, and trading partners, but in other respects cybermarkets would function as real-space markets do. That prediction has proved wrong. For businesses, the advent of cyberspace has catalyzed restructuring of both transactions and organizations, enabling a degree of geographic distribution and "just-in-timeness" that otherwise would have been unthinkable.[28] For individuals, as Jerry Kang's explorations of cyberspace privacy have shown, the experience of shopping in cyberspace and the experience of shopping in real space are quite different, and shopping in cyberspace can produce consequences that affect

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27. See Frank H. Easterbrook, Cyberspace and the Law of the Horse, 1996 U. Chi. Legal F. 207; Richard A. Epstein, Cybertrespass, 70 U. Chi. L. Rev. 73, 82–84 (2003); Richard A. Epstein, Intellectual Property: Old Boundaries and New Frontiers, 76 Ind. L.J. 803, 818 (2001) ("[T]he rules that govern ordinary space provide a good template to understand what is at stake in cyberspace."); Richard A. Epstein, The Roman Law of Cyberconversion, 2005 Mich. St. L. Rev. 103, 108–11; Timothy S. Wu, Note, Cyberspace Sovereignty?—The Internet and the International System, 10 Harv. J.L. & Tech. 647, 662–65 (1997); Eugene Volokh, Freedom of Speech, Cyberspace, Harassment Law, and the Clinton Administration, Law & Contemp. Probs. Winter/Spring 2000, at 299, 302–03. As Part II discusses, some scholars who initially expressed sympathy for this position eventually became adherents of the view that cyberspace is not a place, or space, at all. See, e.g., Timothy Wu, Application-Centered Internet Analysis, 85 Va. L. Rev. 1163, 1168–69 (1999) [hereinafter Wu, Internet Analysis]; Wu, First Met, supra note 4.

28. For discussion of these changes and their repercussions, see Manuel Castells, The Rise of the Network Society 184–217 (2d ed. 2000).

individuals in real space.[29] Unless they take care to avoid it, shoppers in cyberspace leave data trails that can tell interested parties precisely where they have been; this information, in turn, can be used to "personalize" the shopping experience to a degree that would be infeasible in "real space."

Next, consider the digital library. On the unexceptionalist view, cyberspace is "just like" a real world library, only better (again) because of the endless variety of information it presents at relatively low cost. But, as specialists in information management are acutely aware, the processes of information access and use play out quite differently in cyberspace.[30] The networked information technologies that constitute cyberspace enable much more finely grained control over access to and use of information, and also enable much more comprehensive collection of information about access and use.[31] These technologies also blur distinctions between private copying and public distribution of copyrighted works that historically have functioned as important safety valves within the copyright system.[32] These changes raise difficult theoretical and practical challenges that are bound up with the fate of real-world libraries and intellectual property owners, and that directly affect the ways in which real-world individuals experience information goods.

Finally, consider the virtual public square. Early cyberspace unexceptionalists insisted that cyberspace is like the real-space public square, only better, because anyone could reach an audience of millions at a trivial cost. The ready accessibility of a forum for "cheap speech" was seen as inevitably democratizing.[33] But online speech is different from speech in real space on every conceivable metric. Online anonymity and pseudonymity magnify both the opportunity for malice and the possibility for expressive experimentation.[34] Other activities, ranging from peaceful picketing to the heckler's veto, are rendered structurally more difficult by

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29. Jerry Kang, Information Privacy in Cyberspace Transactions, 50 Stan. L. Rev. 1193, 1198–99 (1998); Jerry Kang & Dana Cuff, Pervasive Computing: Embedding the Public Sphere, 62 Wash. & Lee L. Rev. 93, 105–07 (2005).

30. See Christine L. Borgman, From Gutenberg to the Global Information Infrastructure: Access to Information in the Networked World (2000); Siva Vaidhyanathan, The Anarchist in the Library: How the Clash Between Freedom and Control Is Hacking the Real World and Crashing the System (2004).

31. See Julie E. Cohen, DRM and Privacy, 18 Berkeley Tech. L.J. 575, 584–87 (2003) [hereinafter Cohen, DRM and Privacy]; Julie E. Cohen, A Right to Read Anonymously: A Closer Look at "Copyright Management" in Cyberspace, 28 Conn. L. Rev. 981, 983–86 (1996).

32. See Jessica Litman, Digital Copyright 81–86 (2001); Julie E. Cohen, Copyright's Public-Private Distinction, 55 Case W. Res. L. Rev. 963, 963–65 (2005); Jessica Litman, Lawful Personal Use (Mich. Legal Studies, Research Paper No. 06-004, 2006), available at http://ssrn.com/abstract=926575 (on file with the *Columbia Law Review*).

33. See, e.g., Eugene Volokh, Cheap Speech and What It Will Do, 104 Yale L.J. 1805, 1833–47 (1995).

34. See David G. Post, Pooling Intellectual Capital: Thoughts on Anonymity, Pseudonymity and Limited Liability in Cyberspace, 1996 U. Chi. Legal F. 139.

the need to create onscreen juxtapositions that mirror juxtapositions forced by real space.[35] Legal guarantees of expressive freedom, which presume public ownership of common spaces, map poorly to a space whose access points are, for the most part, privately controlled.[36]

The isotopian vision of cyberspace is, in short, a failure of description, a willful misreading of the emergent spatial codes of cyberspace. Even when cyberplaces are designed to mirror "real" places, they are not the same. A real-space marketplace, library, or public square and its cyberspace counterparts are isotopes in the more specialized sense familiar to the physical chemist: They are the same in some ways, but in other ways quite startlingly different. This feature of cyberspace makes it difficult to determine how real-space laws and even real-space norms of behavior should apply. As Lawrence Lessig has put it, the differences in cyberspace expose the latent ambiguities in even formerly straightforward legal guarantees.[37]

Equally important, the isotopian vision of cyberspace is also a willful misreading of the spatial codes of a real space suddenly networked. Why, after all, should we care whether cybermalls accumulate massive databanks of detail about shoppers and readers, or whether it is easy or hard to picket in cyberspace? We care because the shoppers and speakers affected are real people, not simply disembodied virtual users. We care also because as cybermalls, cyberlibraries, and cyberspeech increasingly replace (or displace) their real-space analogues, the rules governing them become increasingly important.

C. *Contrasting Space*

Many legal commentators have seen the debate about the nature of "cyberspace" as bounded and defined by the utopian and isotopian poles. If one admits the possibility of a third kind of constructed space that is neither entirely ideal nor entirely ordinary, but rather is defined in relation to ordinary space, this divide seems artificial. In fact, the leading contemporary theories of cyberspace as space are more accurately characterized as heterotopian. While isotopian theories of cyberspace founder on misleading assumptions of sameness, these theories are predicated on difference. Unlike utopian theories of cyberspace, however, they acknowledge more directly both the technological malleability of cyberspace and the ways in which that malleability may be made to serve the political and economic goals of real-world entities. These theories might therefore seem promising vehicles for exploring both the social construc-

35. See Lucas D. Introna & Helen Nissenbaum, Shaping the Web: Why the Politics of Search Engines Matters, 16 Info. Soc'y 169, 178–81 (2000); Dawn C. Nunziato, The Death of the Public Forum in Cyberspace, 20 Berkeley Tech. L.J. 1115, 1167–70 (2005).

36. See David J. Goldstone, A Funny Thing Happened on the Way to the Cyber Forum: Public vs. Private in Cyberspace Speech, 69 U. Colo. L. Rev. 1, 17–47 (1998); Nunziato, supra note 35, at 1121–42.

37. Lessig, Code, supra note 23, at 22.

tion of cyberspace and the spatiality of cyberspace as experienced by its users. Heterotopian theories of cyberspace also have failed at these tasks, however, again for reasons that can be traced to their assumptions about the separateness of cyberspace from real space.

Current theories of cyberspace as space trace their origin to influential works by Lawrence Lessig and Joel Reidenberg that debunked the utopian vision of the early cyberspace exceptionalists. In *Code and Other Laws of Cyberspace*, Lessig memorably assailed the cyberspace utopians for their failure to acknowledge the technological contingency of cyberspace freedoms and the consequent importance of digital technology, or "code," as a regulatory modality.[38] Reidenberg, meanwhile, argued that code could and should be harnessed in the service of state regulatory interests.[39] Among U.S. legal scholars, *Code* in particular has become the foundational text for current theories of cyberspace as space. In the post-*Code* world, it is no longer considered tenable to ascribe to cyberspace any immutable political character. What has perhaps been overlooked in the rush to cyberspace anti-essentialism, however, is that Lessig articulated a vision of cyberspace that remained both fundamentally spatial and fundamentally exceptionalist. Rather than identifying cyberspace with any fixed point of singularity, he positioned cyberspace as a site for the construction of difference: a site for the performance of heterotopian social ordering.[40] Lessig's own heterotopian vision was civil libertarian in character; others have invoked the core regulatory insight to advance quite different visions.

Although exquisitely attuned to the potential uses of code for social engineering in the service of various theories of cyberspace, the post-*Code* exceptionalists have proved far less attuned to the social engineering performed by the theories themselves. As sites for the enactment of utopian strivings, heterotopia tell us more about ourselves than they do about the invariant character of particular spaces. Heterotopian spaces are constituted at the intersection of logic and desire, rationality and representation. Within the work of the post-*Code* exceptionalists, the interesting questions toward which the concept of heterotopia points us are these: When confronted with the malleability and the (relatively) unbounded possibilities of cyberspace, what kinds of alternate social orderings do we imagine and seek to enable? Which attributes of real space do we seek to perfect and harness in the service of utopian ambitions?

Here Foucault's preliminary typology of heterotopia is of more than passing interest for serious students of the information society. Recall the distinctive spaces that occupy the "extreme poles" of the heterotopian

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38. Id. at 24–29.

39. Reidenberg, supra note 23, at 586–92.

40. Lessig, Code, supra note 23, at 63–84, 100–08, 186–87, 208–09; see also Lawrence Lessig, The Future of Ideas: The Fate of the Commons in a Connected World 120–40 (2001) [hereinafter Lessig, Future of Ideas] (arguing that cyberspace should be designed to preserve "its character at its birth").

spectrum: colonies and brothels. The axis of variation between the two extremes is not, as the contemporary mind might tend to suppose, that between law and lawlessness, but rather that between distinct and antithetical modes of ordering. "Colony" denotes a single, uniform ordering rigidly imposed, while "brothel" denotes a multiplicity of orderings that arise spontaneously and consensually in response to the desires of the participating parties.[41] Thus understood, these paradigms correspond almost too well to two narratives that have come to dominate legal and policy debates about the future of cyberspace.

Consider two very different post-*Code* approaches to the design and regulation of networked information technologies. The first vision has antecedents in the utopianism of Barlow and Johnson and Post, but it does not depend on formal jurisdictional separation. Instead, its adherents hold that freedom inheres in the design of information technologies in ways that facilitate unfettered online interactions and relatively unconstrained use of information goods.[42] The second vision drives the anti-essentialist critique of cyberspace exceptionalism to very different ends. Its adherents, mostly but not exclusively members of the large information industries, argue that information technologies should be redesigned to build in control via digital rights management and filtering capabilities, and that a broad range of service providers from ISPs to software designers should police flows of online content.[43]

Within Foucault's typology, "brothel" maps rather well to the vision of the information society as one of technologically enabled freedom facilitating multiple, spontaneous, and consensual orderings. "Colony," meanwhile, maps equally neatly to the vision of this society as one of unlimited commodification and control based on a single, predictable, and uniformly enforceable set of rules. The Internet of Morpheus, KaZaA, and BitTorrent is a brothel (or, if one prefers, an Edenic wilderness of democratic discourse and social meaning-making), in which the power to propose rules of interaction with both people and information is broadly distributed. The Internet of digital rights management, take-down notices, and content filtering is a colony, in which permissible interactions

41. It seems fair to note that this characterization of brothels probably was influenced by Foucault's own predilections. As I will argue, brothels do adhere to some invariant rules, and not all people who enter brothels experience them as liberatory.

42. See, e.g., Yochai Benkler, The Wealth of Networks: How Peer Production Transforms Markets and Freedom (2006) [hereinafter Benkler, Wealth of Networks]; Lessig, Future of Ideas, supra note 40, at 120–40; Dan Hunter & F. Gregory Lastowka, Amateur-to-Amateur, 46 Wm. & Mary L. Rev. 951 (2004).

43. See, e.g., Content Protection in the Digital Age: The Broadcast Flag, High-Definition Radio, and the Analog Hole: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Property of the H. Comm. on the Judiciary, 109th Cong. 18–25, 29–32 (2005) (testimony of Mitch Bainwol, CEO, Recording Industry Association of America, and Dan Glickman, Chairman and CEO, Motion Picture Association of America); Ronald J. Mann & Seth R. Belzley, The Promise of Internet Intermediary Liability, 47 Wm. & Mary L. Rev. 239 (2005); Randal C. Picker, Rewinding *Sony*: The Evolving Product, Phoning Home and the Duty of Ongoing Design, 55 Case W. Res. L. Rev. 749 (2005).

are rigidly structured in the interest of an assertedly greater social good. Like the real-space brothels and colonies that they mimic, both visions illustrate Hetherington's definitional point about the ambivalence between freedom and control, but each enacts this ambivalence differently.

There are at least three distinct reasons to be troubled by this convergence. First, as already noted, the choice between brothel and colony is a choice between extremes: between dreams of unlimited freedom to order one's own dealings and dreams of perfect control over permissible orderings. Both brothels and colonies seek to enact utopian visions, but by building those visions within the larger society rather than by separating entirely from it. At the level of theory, then, both are vulnerable to the conventional objections to utopianism. Both "brothelizing" and colonizing proceed by denial of the messy entailments of reality—entailments in the form of communal obligation, on the one hand, and entailments in the form of human imperfection, on the other. The choice between the two is, therefore, a profoundly unsatisfactory choice. Neither brothels nor colonies are particularly conducive to human fulfillment. To admit only dreams of total freedom or total control seems too limiting.

Second, the two visions of the information society are nonetheless strangely interdependent. Rigidity and license historically have maintained a curious symbiosis. In the 1920s, Prohibition gave rise to Al Capone; today, privately deputized copyright cops and draconian technical protection systems spur the emergence of uncontrolled "darknets."[44] In science fiction, technocratic, rule-bound civilizations spawn "edge cities" marked by their comparative heterogeneity and near imperviousness to externally imposed authority. These cities are patterned on the favelas and shantytowns that both sap and sustain the world's emerging megacities. As Foucault observed in a different context, discipline requires and defines itself against deviance.[45] As Henri Lefebvre observed, the opposite is also true; deviance requires and defines itself against discipline.[46] The pattern suggests an implicit acknowledgement that each heterotopian narrative is in critical ways incomplete, and that neither the order of the colony nor the freedom of the brothel is as perfect as it purports to be.

Third, the dichotomy between brothel and colony creates a misleading impression of overall completeness. We may recognize that one

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44. See Peter Biddle et al., The Darknet and the Future of Content Distribution, *in* Digital Rights Management 155, 156–57 (Joan Feigenbaum ed., Lecture Notes in Computer Science Series No. 2696, 2003); Fred von Lohmann, Measuring the Digital Millennium Copyright Act Against the Darknet: Implications for the Regulation of Technological Protection Measures, 24 Loy. L.A. Ent. L. Rev. 635 (2004).

45. See Michel Foucault, Discipline and Punish: The Birth of the Prison 82–103 (Alan Sheridan trans., Pantheon Books 1977) (1975) [hereinafter Foucault, Discipline and Punish].

46. Lefebvre, supra note 8, at 319–20; see also Shields, supra note 13, at 83–101 (tracing nineteenth-century Brighton's construction as carnivalesque pleasure zone against background of Victorian propriety).

man's colony is another man's prison, yet conclude that the option of the brothel provides a needed release from the harshness of any perceived oppression. But just as one man's brothel is another woman's prison, so it is not true that the choice between "information colonies" and "information brothels" will result in freedom of access for all Internet users. There are many who lack equal access to both options; for them, the choice is not a choice at all.[47] And even for those with full access to both options, the choice presented by the two together is unsatisfactory, because it corresponds neither to their experiences nor to their expectations. Just as Foucault posited a spectrum of heterotopian orderings, so Internet users seek, and expect, a wide variety of online experiences—online gaming, online banking, fan fiction, comparison shopping—that fall in between the two extreme poles. Experientially, cyberspace is not a unitary phenomenon; there is not one cyberspace, but many.

If all of this were simply a question of allocation of rights and responsibilities in virtual space, it would not be very important. Once again, though, the problem is significant precisely because what occurs in cyberspace is not separate from what occurs in real space. Debates about information access and control in cyberspace have consequences that bleed over into real space; it is people in real space who want and need information, and for whom neither the brothel nor the colony holds sustained attraction. Both heterotopian visions of cyberspace fail spectacularly in that regard. Both theories fetishize difference, and it is only because they also assume separateness that the visions they put forward remain tenable.

D. *Summary: Different/Connected Space?*

Theories of cyberspace as space fail not because they lack the proper understanding of whether "cyberspace" is different from "real space," and indeed that debate simply muddies the issue. Rather, they fail because they lack appreciation of the many and varied ways in which cyberspace is connected to real space and alters the experience of people and communities whose lives and concerns are inextricably rooted in real space. A sustainable theory of cyberspace as space must remedy this omission.

First, though, we must consider the arguments of those who charge that "cyberspace" is simply the wrong metaphor to use. In particular, the

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47. This phenomenon, popularly known as the "digital divide," has many different aspects. For a sampling, see Ann Bartow, Women in the Web of Secondary Copyright Liability and Internet Filtering, 32 N. Ky. L. Rev. 449 (2005); Anupam Chander & Madhavi Sunder, The Romance of the Public Domain, 92 Cal. L. Rev. 1331 (2004); Margaret Chon, Erasing Race?: A Critical Race Feminist View of Internet Identity-Shifting, 3 J. Gender Race & Just. 439 (2000); Alan Story, Burn Berne: Why the Leading International Copyright Convention Must Be Repealed, 40 Hous. L. Rev. 763 (2003); Kali Tal, The Unbearable Whiteness of Being, at http://freshmonsters.com/kalital/Text/Articles/whiteness.html (last visited Oct. 11, 2006) (on file with the *Columbia Law Review*) [hereinafter Tal, Unbearable Whiteness of Being].

argument that I have made about connectedness, and about the costs of denying connectedness, might be read to support the claim that the "cyberspace" metaphor distracts legal theorists from their proper focus on the Internet as a tool for structuring real-world dealings, and from their proper role as sober, clearheaded policy analysts. That conclusion would be too hasty. Cyberspace is not separate space, but the "cyberspace" metaphor nonetheless captures a dimension of experience that legal theorists cannot avoid and cannot afford to ignore.

II. Cyberspace as Embodied Spatiality

For critics of the "cyberspace" metaphor, talk of the social construction of cyberspace will seem to overlook the central difficulty with theorizing cyberspace as space: It isn't "a space," but rather "just a network," and should be studied accordingly.[48] A variant of this view holds that spatial metaphors may still play a useful role in the resolution of particular disputes, and that courts and legislators therefore should indulge in flights of metaphoric fancy only on those occasions, and only in a far more self-conscious and goal-oriented way.[49] For other critics, particularly those affiliated with postmodernist cultural studies, the problem with theorizing cyberspace as space arises precisely because the spatiality of cyberspace is socially constructed: Under either of the leading heterotopian theories of cyberspace, the cyberspace metaphor functions in practice as a tool for the hegemonic exercise of power. Because spatialization is politically suspect, it follows that the use of spatial metaphors should be consciously resisted.[50]

This two-pronged resistance to spatialization persists, I will suggest, largely because of misunderstandings about both the kind of spatiality that the "cyberspace" metaphor expresses and the processes by which the metaphor operates. To understand cyberspace's spatiality, one must disentangle the concept of experienced spatiality from abstract, conceptual models of "space," and also from the related but distinct concepts of place and property. The "cyberspace" metaphor expresses an experienced spatiality mediated by embodied human cognition. To the extent

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48. See Jack L. Goldsmith, Against Cyberanarchy, 65 U. Chi. L. Rev. 1199, 1242 (1998); Jack Goldsmith, Regulation of the Internet: Three Persistent Fallacies, 73 Chi.-Kent L. Rev. 1119, 1120–21 (1998); Wu, Internet Analysis, supra note 27, at 1168–69; Wu, First Met, supra note 4.

49. See Brett M. Frischmann, The Prospect of Reconciling Internet and Cyberspace, 35 Loy. U. Chi. L.J. 205, 207–10 (2003); Kerr, supra note 4, at 389–405; Lemley, supra note 7, at 526–42 ("The cyberspace as place metaphor can be valuable. . . . But blind application of the metaphor to reach a particular result obscures more than it illumines. The metaphor will serve its purpose only if we understand its limitations . . . . [M]etaphor is no substitute for legal analysis.").

50. See Burk, Cyberspatial Metaphor, supra note 5, at 21–22; Ford, supra note 5, at 177 ("[I]n the case of the Internet, a metaphysics of space threatens to derail sound analysis and to smuggle in, as inevitable or logically compelled, background rules that should be subject to debate.").

that they reject this sort of spatiality, both the "just-a-network" critique and the postmodernist critique are wrong. Both critiques, however, are also to an important extent right. As this Part explains, the cognitive theoretic understanding of embodied spatiality and the postmodernist emphasis on the social production of space combine to teach important lessons for the study of both cyberspace and networked space more generally. The just-a-network critics, meanwhile, are (paradoxically) right in a very fundamental way about the importance of understanding "cyberspace" as a network within "real space," a point to which I will return in Part III.

A. *Cognition, Spatiality, and Metaphor: Why the "Just-a-Network" Critique Is Wrong*

How can an assemblage of cables, routers, and servers be "a space"? Thus posed, the question answers itself (or so the argument goes); any person of normal intelligence must see quite plainly that it cannot. In a very real sense, the just-a-network critique of the cyberspace metaphor is a primal cry of intellectual outrage at what appears as a willful act of self-deception. To add insult to injury, the self-deception is performed by those who should know better; scholars and judges should possess the capacity to distinguish between metaphor and reality, even if dot-com hucksters and science fiction writers do not. This argument confuses two different senses of "space" and two different senses of "metaphor."

To begin, it is important to appreciate that space has both formal and experiential definitions. Within the formal definitions, space is conventionally understood as a void, an emptiness to be "filled up" by people and things.[51] Mathematically, this conventional understanding is formalized by modeling empty space as Cartesian/Euclidean space: an absolute (non)entity structured by abstract mathematical laws.[52] The just-a-network critics' core argument is that cyberspace is not "a space" in this formal sense. That is right, as far as it goes.

Within experientially derived models, space is neither absolute nor empty. One does not and cannot apprehend abstract, Cartesian space experientially. Space is experienced, instead, in terms of situatedness and orientation. The human cognitive apparatus is structured to apprehend the immediate environment as three-dimensional, and to organize

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51. For a useful description of how this understanding evolved, see Michael R. Curry, Discursive Displacement and the Seminal Ambiguity of Space and Place, *in* Handbook of New Media: Social Shaping and Consequences of ICTs 502 (Leah A. Lievrouw & Sonia M. Livingstone eds., 2002).

52. More precisely, the Cartesian/Euclidean understanding of abstract space continues to structure discourses across a range of disciplines, even though more advanced work in mathematics and the physical sciences indicates that it does not reflect a fixed, external reality.

object perception and depth perception accordingly.[53] The process of cognition is "egocentric rather than geocentric";[54] we orient objects with respect to ourselves, not the reverse. Our understanding of the world around us as differentiated and bounded flows, in the first instance, from the experience of the self as bounded and oriented with respect to surrounding objects.[55] Space in this sense is relative and mutable; it is simultaneously apprehended through embodied perception and produced by our own actions.

The embodied, situated basis of cognition also shapes our language. Specifically, as Lakoff and Johnson have shown in great detail, the use of language to communicate abstract concepts is structured at a fundamental level by a rich, interlocking set of spatial and directional metaphors.[56] Among others, we implicitly characterize ideas as containers (which hold water or do not) and arguments as buildings (which have foundations) or journeys (which have starting and ending points). Thus, embodied perception supplies the ready-to-hand models of concreteness that render abstractions intelligible.[57] Although Lakoff and Johnson distinguish spatiality mediated by embodied perception from formal, Cartesian space, the leading cognitive theoretic intervention in the legal debate about the spatiality of cyberspace nonetheless seems to conclude that it is Cartesian space that is cognitively entrenched.[58] The terminology is slippery, so the distinction is easily overlooked. The spatiality that Lakoff and Johnson

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53. See, e.g., Elizabeth S. Spelke, Origins of Visual Knowledge, *in* 2 An Invitation to Cognitive Science: Visual Cognition in Action 99, 119–20 (Daniel Osherson et al. eds., 1990); Ranxiao Frances Wang & Elizabeth S. Spelke, Human Spatial Representation: Insights from Animals, 6 Trends Cognitive Sci. 376, 378–80 (2002). The contemporary scientific understanding of cognition traces its origins to Descartes and Kant, who first advanced the hypothesis that cognition structures experience. See Rene Descartes, Optics, reprinted in 1 Philosophical Writings of Descartes 152, 168–75 (John Cottingham et al. eds., 1985); Immanuel Kant, Critique of Pure Reason 157–63 (Paul Guyer & Allan W. Wood eds. & trans., Cambridge Univ. Press 1998) (1781). Research in cognition has borne out this insight, even as research in the physical sciences has tended to undermine the conclusions that Descartes reached about the nature of space itself.

54. Wang & Spelke, supra note 53, at 376.

55. George Lakoff & Mark Johnson, Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought 16–36 (1999) [hereinafter Lakoff & Johnson, Philosophy in the Flesh]; cf. Oliver Sacks, The Man Who Mistook His Wife for a Hat and Other Clinical Tales 43–54 (1987) (describing phenomenon of "proprioception," or sense of body, which mediates body's connection to world).

56. George Lakoff & Mark Johnson, Metaphors We Live By (1980) [hereinafter Lakoff & Johnson, Metaphors We Live By]; see also Peter Gärdenfors, Conceptual Spaces: The Geometry of Thought (2000) (developing theory of "conceptual spaces" based on centrality of spatial metaphors in cognitive semantics).

57. And so abstract reasoning is pragmatic and ad hoc at the most fundamental level. Cf. Coyne, supra note 17, at 154–56 (juxtaposing Lakoff's work on metaphor with Heideggerian phenomenology).

58. See Lakoff & Johnson, Metaphors We Live By, supra note 56, at 56; Hunter, supra note 6, at 515–16.

describe, however, has little to do with mathematical models or empty containers and everything to do with egocentric, embodied perception.

The cognitive theoretic understanding of "metaphor" is distinct from the term's use in literary criticism and its offshoots. Within these latter disciplines, metaphor is understood as consciously chosen ornamentation, even as it is analyzed for the unintended messages it may convey. The just-a-network argument, like the long tradition of legal rationalism within which it is situated, relies heavily on this understanding of metaphor as fundamentally superfluous to reason.[59] But the metaphoric structuring with which cognitive theory is concerned operates at a deeper and often unnoticed level. When I say that someone's argument "rests on quicksand," I am consciously deploying metaphor as rhetoric; when I describe the same argument as being "grounded in solid fact," neither I nor my intended audience may recognize that I am speaking metaphorically. The two sorts of metaphor are related—both use one concept to express another that is more abstract, in the process appropriating a complex web of associative meaning—but they are distinct. The latter mediates language and reason alike, and cannot so easily be cast aside. For similar reasons, the process of spatial metaphorization identified by cognitive theorists also should not be confused with the concept of "spatial aptitude" as measured by popular personality and intelligence tests. Spatial aptitude refers to a type of problem-solving ability that takes language as given. Spatialization operates in the realm of language; it is something that everyone does at an entirely unconscious level.

The phenomenon of embodied cognition and the related cognitive theoretic understanding of metaphor support the following broad but minimalist claim (and only this claim): If embodied, experienced spatiality is hardwired, "cyberspace" too is embodied, experienced space; it cannot help but be. This conclusion matches the way Internet users understand and describe their own experiences. Specifically, "cyberspace" is experienced in terms of distances, landmarks, and juxtapositions, exactly as the theory of embodied cognition would predict. Cyberspace distances are measured differently, in clicks or retrieval times rather than in walking or driving times, but they are distances nonetheless. Many educated Internet users resist this characterization, but this is chiefly because they conceive of "distance" in Cartesian terms; experientially, distance is time. (How far from your office do you live?)[60] Similarly, the juxtapositions produced by cyberspace technologies are different from those produced

59. For an illuminating discussion of this point, see Hunter, supra note 6, at 458–65.

60. Thanks to Rebecca Tushnet for this diagnostic. This usage of time might offend a Cartesian purist, see, e.g., Lemley, supra note 7, at 523–26, but it would not in the least surprise a specialist in quantum theory or post-Euclidean mathematics. Nor would it surprise a cartographic historian. The practice of mapping evolved from an earlier practice of "route mapping," which represented the distance between two places in terms of travel time, intermediate cities and towns, and other significant landmarks. See, e.g., Timothy Brook, Geographical Sources of Ming-Qing History 3–13 (1988); Kai Brodersen, The Presentation of Geographical Knowledge for Travel and Transport in the Roman

by real-space technologies, but they are still juxtapositions, and they determine the experienced geography of cyberspace from the user's situated perspective. It is only logical, then, that we should formulate a long list of spatial metaphors—"web site," "navigate," "go to," "go back," "download," "upload"—to describe the experience of Internet use.[61] We do so not because "cyberspace" is "a space" in the Cartesian sense, but because the metaphors describe an experience that is always already mediated by embodied cognition. For many Internet users, the word "cyberspace" may play only a relatively minor role in this process.

Within the cyberlaw literature, the debate about the spatiality of cyberspace has devolved into a parochial and heavily politicized debate about the appropriate role of property metaphors in resolving legal disputes about unauthorized access to web sites. Much of the current discussion concerns whether as a result of our cognitive makeup it is natural and inevitable to see cyberspace as a *place* (a term often used interchangeably with *space*), and if so, whether the legal entailments of *property* flow from that perception. One view, identified with the postmodernist critique, is that space/place politically chosen leads necessarily to property; legal reform, then, depends in the first instance on rejecting spatialization.[62] Another, now identified with cognitive theory, sees space/place as necessarily chosen, with property in some form as one inevitable result; on this view, legal reform requires redefining the prevailing understanding of property.[63] Both approaches leap from space to place, and thence to property, as if the three terms were necessary equivalents. But just as place and property are not the same thing, neither are space and place.

Consider first "property." Formally, the term "property" denotes a legal relation between people with respect to an identifiable thing. (This definition is, of course, subject to deconstruction in all sorts of ways, but it will do for present purposes.) The thing in question may be tangible or intangible, and tangible property may include land, buildings, and movable chattels. The legal (ownership) relation may be one of freehold property, common property, leasehold property, commons, or even nonproperty. Although we frame some problems of object identification in metaphoric terms (e.g., "bundle of sticks"), the spatial metaphors just described do not dictate the categories of ownership at all; they are socially chosen. As already noted, scholarly work purporting to apply cognitive theory to the "cyberspace" debate seems to fall back implicitly on the (Cartesian) understanding of space as a container, within which property

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World: *itineraria non tantum adnotata sed etiam picta*, *in* Travel and Geography in the Roman Empire 7, 14–19 (Colin Adams & Ray Laurence eds., 2001).

61. Some of these metaphors were used in similar ways in the pre-Internet personal computing environment.

62. See Burk, Cyberspatial Metaphor, supra note 5, at 21–22; Ford, supra note 5, at 177. The just-a-network critics are in substantial agreement with the postmodernists' description of the relationship between metaphor and outcome, but see space/place reasoning as an exercise in self-indulgence rather than a manifestation of political power.

63. See Hunter, supra note 6, at 472–88, 514–18.

rights are needed to manage the things contained.[64] It may well be that the formal definitions of property and space are intimately connected, but that argument has nothing to do with the cognitive theoretic understanding of embodied spatiality. Property has experiential entailments as well, and here the connection to fundamental cognitive processes may be closer. The theory of property for personhood, for example, holds that property should vest more readily in certain things than in others.[65] This understanding of property seems rooted at least partially in processes of embodied cognition, specifically in the ability to recognize objects external to and distinct from the self that directly and concretely affect personal well-being. Such rudimentary spatial mapping, however, cannot account for the legal status of ownership, which is socially constructed.[66]

"Place," in turn, has several possible meanings, but none of these meanings precisely equals either "property" or "space." Formally, a reference to place may mean coordinates on a map; on this understanding, "place" is interchangeable with Cartesian "location," and places are identified so that they may be found. Formal or Cartesian space encompasses geographic/mapped places but is broader; it represents both totality and infinity. Experientially, "place" is much more fluid. Places emerge as a function of experience and "imageability"; they are not identified as such a priori, but emerge from practice.[67] Under this approach, what counts as a place will be different for each person, and not every location will be a place. (And so, just as it makes no sense to think of cyberspace as a unitary phenomenon, it makes no sense to say that "cyberspace" is a place; rather, cyberspace includes many places.) Experienced space encompasses a variety of distinct, imaged places, but also the concrete generalities of orientation, direction, and juxtaposition, which are brought to

64. See id. at 515–16.

65. Margaret Jane Radin, Reinterpreting Property 35–71 (1993).

66. The literature attempting to integrate evolutionary biology and property law makes precisely this sort of error. See, e.g., Jeffrey Evans Stake, Pushing Evolutionary Analysis of Law or Evolving Law: Design Without a Designer, 53 Fla. L. Rev. 875, 886–88 (2001); Jeffrey Evans Stake, The Uneasy Case for Adverse Possession, 89 Geo. L.J. 2419, 2424–26 (2001).

67. See Kevin Lynch, The Image of the City 9–12 (1960); Joseph Rykwert, The Seduction of Place: The City in the Twenty-First Century 5–11 (2000); Yi-Fu Tuan, Space and Place: The Perspective of Experience (1977); Yi-Fu Tuan, Topophilia 192–224 (1974); Doreen Massey, Power-Geometry and a Progressive Sense of Place, *in* Mapping the Futures: Local Cultures, Global Change, supra note 26, at 59, 63–68; see also L. Jean Camp & Donna M. Riley, Bedrooms, Barrooms and Boardrooms on the Internet, *in* Interconnection and the Internet: Selected Papers from the 1996 Telecommunications Policy Research Conference 220–21 (Gregory L. Rosston & David Waterman eds., 1997) (arguing that experienced "place" supplies firmer foundation for legal rules regulating online conduct); Michael J. Madison, Rights of Access and the Shape of the Internet, 44 B.C. L. Rev. 433, 485–506 (2003) (arguing that experienced "place" supplies firmer foundation for legal rules governing appropriate access to web sites); Jean Camp & Y.T. Chien, The Internet as Public Space: Concepts, Issues, and Implications in Public Policy, Computers & Soc'y, Sept. 2000, at 13, 18–19 (arguing that experienced "place" provides firmer foundation for identifying and differentiating among online public spaces).

bear even in settings that do not evoke a sense of place. Finally, neither the abstract nor the affective sense of place corresponds precisely to property, although rules derived from property concepts may be deployed to construct rules of behavior for particular places.

Cyberlaw's debate about the deployment of property metaphors to solve social problems concerning the allocation of online resources is important, but the linked debate about the spatiality of cyberspace largely misses the mark. Spatiality is hardwired, in the cognitive theoretic sense, only in terms of the concrete generalities of embodied experience, and the "cyberspace" metaphor accurately reflects the experience of Internet use only in this minimally determined sense. Getting to both place and property requires the superimposition of additional layers of affective and culturally contingent meaning.

B. *Space, Geography, and Power: The Postmodernist Critique Reconsidered*

If spatiality is hardwired and spatial metaphorization inevitable, one might suppose that the postmodernist critique of the "cyberspace" metaphor's social and political entailments also rests on shaky ground. As the foregoing discussion suggests, however, the lessons from cognitive theory about the central importance of embodied spatiality do not require rejection of the postmodernist critique in its entirety. Cognitive theory undermines the strand of postmodernist critical thought that emphasizes textuality and deconstruction, and therefore reads spatialization as arbitrary. But the postmodernist understanding of space and spatiality is not monolithic. The cognitive theoretic understanding of embodied spatiality aligns closely with postmodernist critical work that foregrounds materiality, embodied experience, and everyday practice.

The postmodernist understanding of space and spatiality has two predominant strands. Both begin by rejecting social narratives grounded in abstract historicism, and by urging greater attention to the role that conceptions and uses of space play in the production of power. For thinkers within the first strand of the postmodernist tradition, space, like many other categories, has no necessary correspondence to a fixed reality; on this view, what we experience as reality is social construction all the way down.[68] It is this strand upon which the postmodernist critics of the cyberspace metaphor rely when they assert that cyberspace is pure social construction, a figment of our collective, place- and property-obsessed imagination.[69]

The second strand of the postmodernist understanding of space and spatiality focuses more closely on the intertwining of power, epistemology, and spatialized perception in everyday practice. Beginning with

68. See, e.g., Jean Baudrillard, Simulacra and Simulation (Sheila Faria Glaser trans., Univ. of Mich. Press 1994) (1981); Jacques Derrida, Of Grammatology (Gayatri Chakravorty Spivak trans., Johns Hopkins Univ. Press 1976) (1967).

69. See Burk, Cyberspatial Metaphor, supra note 5, at 18; Ford, supra note 5, at 154.

Foucault and Lefebvre, thinkers in this second strand have challenged the preeminence of the abstract conception of space that is deeply rooted in the Western philosophical tradition, and that I have labeled the "formal" conception: that of space as an inert, neutral container for human activity. They have asserted that space does not exist in any such absolute, a priori form; it is not something that human activity fills up, but rather something that human activity produces.[70] These scholars agree that all sociospatial orderings are constructed and contingent; unlike their deconstructionist colleagues, however, they acknowledge that sociospatial ordering in some form is inevitable. They therefore focus on critically interrogating existing sociospatial logics. In particular, they seek to draw attention to the ways in which the social production of space is structured by power, experience, desire, and representation, and to illuminate the complex relation between the social production of space and the social production of knowledge. They argue that particular features of constructed space (including both singularities, such as the Champs Elysees or the twin towers of New York's World Trade Center, and more general categories, such as the mental institution, the marketplace, and the home) take on powerful metaphoric, and ultimately metonymic, significance.

The research in cognition described above does not undermine the second strand of the postmodernist understanding of space and spatiality, but strengthens it. Within cognitive theory, the primacy of spatiality requires rejection of both the conventional distinction between the noumenal and the phenomenal, on one hand, and the deconstructionist position on the arbitrariness of purportedly natural categories, on the other. Fixed reality exists, but it isn't external and a priori; instead, it is internal and dependent on innate cognitive structures. For all intents and purposes, only the phenomenal world exists.[71] That insight converges substantially with the critical interrogation of space and spatiality undertaken by the second-strand postmodernists at the level of theory. Just as these postmodernists point to a simultaneous disconnect and interconnect between the perceived and the conceived, so cognitive theorists argue that even the conceived is structured by the perceived in deeply determined ways. Cognitive theorists of language observe that the metaphor/metonymy relation is constituted via the mapping of embodied metaphors to abstract concepts, and that such mappings create some meanings and

70. See Foucault, Discipline and Punish, supra note 45, at 170–94; Michel Foucault, The Eye of Power, *in* Power/Knowledge: Selected Interviews and Other Writings 1972–1977, at 146, 148–50 (Colin Gordon ed., 1980); David Harvey, The Condition of Postmodernity 201–60 (1989); Lefebvre, supra note 8; Edward W. Soja, Postmodern Geographies: The Reassertion of Space in Critical Social Theory (1989); Foucault, Of Other Spaces, supra note 8.

71. See Lakoff & Johnson, Metaphors We Live By, supra note 56, at 185–228; Lakoff & Johnson, Philosophy in the Flesh, supra note 55, at 541–44.

foreclose others.[72] Yet the mappings themselves are not fixed; Lakoff and Johnson show that different cultures interpret and express spatial orientations differently.[73] Both the metaphoric mappings and the abstract, conceptual structures that they support are contingent and subject to change. The cognitive theoretic model of embodied spatiality thus complements the relatively impressionistic empiricism of the second-strand postmodernists with a more rigorous empirical grounding.[74]

The lessons of this convergence between critical theory and critical empiricism are striking. We can't reject entirely the tyranny of structure, but we need to locate that tyranny in a different place than has been supposed by mainstream Western philosophy and resisted by first-strand postmodernist thinkers. The cyberspace metaphor is neither an arbitrary fiction that can be jettisoned nor a description of some fixed, external reality, but rather an inevitable perceptual byproduct of the human cognitive apparatus. The interplay between metaphor and metonymy—between the visible content and experienced architecture of the Web and its metaphorically mediated connection to the network as a whole—defines our experience of cyberspace, and ultimately enables us to define cyberspace itself. The commitment to spatiality runs far deeper than mere politics or intellectual fashion.

This conclusion may still leave us in far more determined a world than most legal theorists of cyberspace-as-place care to admit. The first critical point to recall, however, is that the determinedness does not correspond precisely with either conventional understandings of ownership or conventional understandings of place. Nor, for that matter, does it correspond with conventional understandings of abstract space. To say that spatiality is hardwired is not, in the end, to say very much at all about the relational and legal entailments of particular spaces. It is simply to say that embodiedness and situatedness are hardwired. The specific translations from space to place and from place to property are products of quite a different set of structures, opportunities, and constraints.

The second critical point is that "cyberspace" is—necessarily—constituted as space via the interaction between metaphorically mediated experience and metaphorically driven abstraction. It therefore becomes vitally important to interrogate theories of cyberspace as space to determine how well they match up against, and account for, cyberspace as experienced. Here the postmodernist understanding of space as socially produced is essential. Thoughtful analysis and policymaking for cyberspace must differentiate between the necessary and irreducible spa-

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72. See Lakoff & Johnson, Metaphors We Live By, supra note 56, at 35–40, 151–55, 160–66.

73. Id. at 139–46.

74. This is not an isolated case of complementarity. See Jerry Kang, Trojan Horses of Race, 118 Harv. L. Rev. 1489, 1501–06 (2005) (arguing that social cognition theory and empirical studies of implicit bias validate claims about social construction of race advanced by critical race theorists).

tiality of cyberspace and heterotopian narratives driven by ideologies about the kind of space that cyberspace is.

The third critical point is that to conflate the cyberspace metaphor in all of its possible instantiations with a particular set of entrenched power relations reproduced in virtual space is to give away the game. One cannot simply refuse to talk about cyberspace as space, and to do so is to abandon powerful tools. In Richard Ford's words, "[t]erritories are made, not found,"[75] but it does not follow that we can simply refuse to imagine them. It also does not follow that acknowledging the spatiality of cyberspace leads inevitably to a fixed set of social and legal inequalities. The cyberspace metaphor in practice is not culturally neutral, but neither is it immutable.

III. Cyberspace and Space

Together, the inadequacy of theories of cyberspace as separate space and the central importance of embodied spatiality point the way toward a very different approach to understanding the spatiality of cyberspace. We do not need to decide what kind of (separate) space cyberspace is, but rather to inquire how cyberspace changes experienced space. A sustainable theory of cyberspace *and* space must emerge at the intersection of cognitive theory and postmodernist critical geography. It is not necessary to this understanding that cyberspace be a unitary phenomenon, or "place"; cyberspace can and does include a multiplicity of places and experiences, which in turn are connected to experienced space in many different ways. At the same time, however, such a theory must take into account the powerful hold on the collective imagination exerted by conceptualizations of networked space as empty and infinitely malleable.

It is useful to begin this inquiry by returning, once again, to the just-a-network critics and their insistence that the Internet (but never "cyberspace") is part of the real world. These scholars are right to emphasize the connection to the real, even as they overlook the spatiality of that connection. As Justin Hughes has aptly illustrated with reference to the interstate highway system, even "just" a communications network changes the character of existing space; once the highway is built, some places are more accessible and others less so.[76] In 1950, Houston, Texas was closer to Paris, Texas than to Paris, France; today, the reverse is true for many people. Social space is produced by the elaboration and path-dependent cumulation of networks for the movement of goods, communication, and people. In Lefebvre's evocative metaphor, the resulting structure of social space is "reminiscent of flaky *mille-feuille* pastry":

> Considered in isolation, [social] spaces are mere abstractions. As concrete abstractions, however, they attain "real" existence by

75. Ford, supra note 5, at 151.

76. Justin Hughes, The Internet and the Persistence of Law, 44 B.C. L. Rev. 359, 373 (2003).

> virtue of networks and pathways, by virtue of bunches or clusters of relationships. Instances of this are the worldwide networks of communication, exchange and information. It is important to note that such newly developed networks do not eradicate from their social context those earlier ones, superimposed upon one another over the years, which constitute the various markets: local, regional, national and international markets; the market in commodities, the money or capital market, the labour market, and the market in works, symbols, and signs . . . . Each market, over the centuries, has been consolidated and has attained concrete form by means of a network: a network of buying- and selling-points in the case of the exchange of commodities, of banks and stock exchanges in the case of the circulation of capital, of labour exchanges in the case of the labour market, and so on . . . . Thus social space . . . emerged in all its diversity . . . .[77]

Similarly, the spatial relationships and practices enabled by the Internet contribute to the production of social space as they are layered over those that preceded the Internet.

Borrowing from Lefebvre's theoretical model, we might hypothesize that "cyberspace," like space more generally, is constituted via the interactions between and among practice, conceptualization, and representation.[78] It is a nexus of social practice by embodied human beings; a site for the enactment of visions of the ideal organization of social and economic activity; and a catalyst for impressionistic reimaginings of sociospatial practice. Both the experientially grounded "cyberspace" metaphor and its conceptual iteration via theories of cyberspace as separate space are of central importance in this process. Even though cyberspace is not separate space, theories that tell us it is and must be separate space play an important role in structuring our thinking, and have implications that play out at the representational and conceptual levels. But cyberspace is also part of experienced space, and a theory of cyberspace and space must account for this dimension of connectedness.

How ought we to think about the ways in which the layered extension of networked communications technologies shapes the production of cyberspace, and thus of experienced space? The question is an extraordinarily difficult one because of the large number of variables involved. Here, I would like to focus on three aspects of this layering-over that I believe are particularly significant: the emergence of a new sense of social space, which I will call networked space; the interpenetration of embodied, formerly bounded space by networked space; and the ways in which these developments alter the spatialized production of power. With respect to each, the layering-over of cyberspace exerts profound and often contradictory effects. I will argue that cyberlaw's project for the past decade has been to understand and provide a vocabulary for evaluating precisely these changes.

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77. Lefebvre, supra note 8, at 86.

78. Id. at 33, 38–46.

A. *Networked Space*

Recall that within all of the leading theories of cyberspace as separate space, key points of difference between "cyberspace" and "real space" are that cyberspace enables "cheap speech" and relatively frictionless commerce, and enables both kinds of conduct to ignore or transcend geographic and political borders. The details regarding allocation of costs and control play out in different ways within the different theories, but there is substantial convergence on these larger themes. Claims about the frictionlessness and unboundedness of cyberspace can be, and have been, criticized rigorously and persuasively on their own merits; revisiting those critiques is not my primary concern here. My aim instead is to suggest that the different orderings of speech and commerce produced by cyberspace, and the differences in the ways that these reorderings are experienced by different individuals and social groups situated in real space, pervasively remake experienced space in ways that merit our critical attention.

One way to understand the role of cyberspace in catalyzing the emergence of networked space is by exploring the products of efforts to map cyberspace. Historians who study the practice of mapping understand that maps do not simply depict a fixed, univalent reality. Mapping is an exercise in both representation and conceptualization. Maps and mapping practices change over time in response to changed understandings of geography, sovereignty, and geopolitical significance, and understandings of geography, sovereignty, and geopolitical significance are produced, in part, by prevailing practices of mapping.[79] It is thus not surprising that efforts to map "cyberspace"/"the Internet" have emerged as a site of contestation. Since different positions on the "cyberspace" question each speak different, partial truths about cyberspace's spatiality, it is also not surprising that efforts to map "cyberspace"/"the Internet" from these perspectives have continually disrupted one another. Rather than validating a particular point of view on either the sameness/difference question or the space/just-a-network question, these efforts cumulatively have revealed both the synergies and the differences that the shift to networked space creates.

Some efforts to map cyberspace have subscribed to the assumption of experiential separateness that has dogged legal theorists of cyberspace. Perhaps the most influential of these was the conceptual mapping performed in William Mitchell's *City of Bits*, which focused on identifying places and functions "within" cyberspace.[80] At the same time, however,

79. For explorations of this dialectical relationship, see Jeremy Black, Maps and Politics (1997); J.B. Harley, The New Nature of Maps: Essays in the History of Cartography (Paul Laxton ed., paperback ed. 2002); John Pickles, A History of Spaces: Cartographic Reason, Mapping and the Geo-Coded World (2004).

80. William J. Mitchell, City of Bits: Space, Place, and the Infobahn (1995); see also Adam B. King, Mapping the Unmappable: Visual Representations of the Internet as Social Constructions (Ind. Univ. Ctr. for Soc. Informatics, Working Paper No. 00-05, 2000),

Mitchell's choice of the "city" metaphor and his careful insistence on linking cyberplaces functionally to parallel places in real space undermined the notion of separateness. Mitchell's treatment suggested powerfully that cyberspace is not a place, but a conglomeration of places, many with quite prosaic functions that connected directly to "the practice of everyday life" in real spaces.[81]

Other mapmakers have sought to map the Internet as "just a network" within real space. These efforts have produced overlay maps showing the real-world geographic distribution of quantifiable network components such as backbone cables and routers, major nodes, and numbers of Web sites organized by hosting domain.[82] To a degree that should not have been surprising to anyone, the early overlay maps revealed that Internet activity corresponded substantially to the real-world organization of geopolitical and economic activity, thereby further undermining the metaphoric construct of cyberspace as separate space. Over time, however, the network overlay maps have suggested shifts in relations among existing sites of real-space activity and traced the growth of new high-tech enterprise zones in developing countries, and thus have disrupted the just-a-network theorists' implicit understanding of real space as fixed and invariant.

Taken cumulatively, these mappings do not support a separate existence for cyberspace, but instead highlight the importance of conceptualizing a networked space that includes cyberspace. This approach finds broad support in the work of social scientists who study the emergence of the "information society." In the words of sociologist Manuel Castells, the space of the twenty-first century is a "space of flows":[83] networked space that includes and is in part produced by activities both real and virtual, and by the interconnections among the virtual and the real. As a broad range of theorists has recognized, networked space is shaped, as well, by the uses of information and communications technologies to control flows of information, both within cyberspace and across its interfaces to

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available at http://rkcsi.indiana.edu/archive/CSI/WP/wp00-05B.html (on file with the *Columbia Law Review*) (discussing "conceptual" and "logico-spatial" representations of online resources); Martin Dodge, An Atlas of Cyberspaces, at http://www.cybergeography.org/atlas/atlas.html (last revised Feb. 3, 2004) (on file with the *Columbia Law Review*) [hereinafter Dodge, Atlas] (collecting "conceptual maps," "information space maps," and "information landscapes").

81. The phrase is de Certeau's and refers to the myriad ways in which everyday practice evades social and conceptual structuring. See Michel de Certeau, The Practice of Everyday Life (Steven Rendall trans., Univ. of Cal. Press 1984) (1974).

82. For examples, see Martin Dodge & Rob Kitchin, Mapping Cyberspace 82–91 (2001); King, supra note 80 (discussing "network topology" and "network traffic" representations of online activity); Dodge, Atlas, supra note 80 (collecting "geographic maps" and "ISP maps"); Martin Dodge, Network Topology Maps, at http://www.cybergeography.org/topology_maps.html (last visited Oct. 12, 2006) (on file with the *Columbia Law Review*).

83. Castells, supra note 28, at 407–59.

"real space."[84] These technologies in turn presuppose and require concrete, material infrastructures and organizational logics that are tightly linked to "real space" geographies.[85]

Concurrently, the seductive image of cyberspace as empty space "filled up" with virtual activity has come under challenge from scientists who study the ontology of complex networks. This work identifies the Internet as one example of a "scale-free" network: a network in which the distribution and connectivity of nodes follows a power-law distribution—"a continuous hierarchy of nodes spanning from rare hubs to the numerous tiny nodes"—rather than a bell curve.[86] Although scale-free networks can appear infinitely plastic to their users, they are not so in practice. The patterns of flow between nodes and to and from hubs follow predictable mathematical laws, and so inscribe path dependencies that affect the direction of later flows. These insights point the way to a more promising theory of cyberspace/the Internet as itself produced by and producing flows of information, interaction, and development. This convergence between the sociology of networked society and the science of complex networks suggests powerfully that perceived differences between "cyberspace" and "real space" are differences in degree, rather than differences in kind. Both the sociological theory of a "space of flows" and the mathematics of scale-free networks apply to any complex human activity structured by interconnection. We might say then that cyberspace makes these latent characteristics of real space manifest, forcing an appreciation of real space (including cyberspace) as networked space: lived space constituted both by flows and by the path dependence of flows.

If we return to the topics of online speech and online commerce that have preoccupied theorists of cyberspace, we can see that this literature described both new patterns of flow and new patterns of the production of experienced space. Turning first to speech, the essential insight of both cyberspace exceptionalists and unexceptionalists, and of the leading heterotopian theories of cyberspace as separate space, was that flows of "speech" in networked space are different. There is substantially less agreement on the precise nature of the difference. For some scholars, networked space is a space of expanded communicative opportunity, defined by the centrality of blogs, wikis, gripe sites, and distributed peer production of cultural goods ranging from software to fan fiction.[87] For

84. See, e.g., James R. Beniger, The Control Revolution: Technological and Economic Origins of the Information Society (1986); Alexander R. Galloway, Protocol: How Control Exists After Decentralization (2004); Vaidhyanathan, supra note 30; Robert Latham & Saskia Sassen, Digital Formations: Constructing an Object of Study, *in* Digital Formations: IT and New Architectures in the Global Realm 1, 1–33 (Robert Latham & Saskia Sassen eds., 2005).

85. See Global Networks, Linked Cities (Saskia Sassen ed., 2002) (exploring geographic properties of emerging global networks of capital and communication).

86. Albert-Laszlo Barabasi, Linked: The New Science of Networks 69–72 (2002).

87. See, e.g., Benkler, Wealth of Networks, supra note 42; Lessig, Future of Ideas, supra note 40, at 120–40; Jack M. Balkin, Digital Speech and Democratic Culture: A

others, the more salient feature of networked space is the enhanced control over communication exerted by intellectual property owners and online intermediaries, or self-imposed by individuals.[88] Taken together, these arguments support a more moderate (and much more interesting) position: Cyberspace's difference is neither fixed nor unidirectional, but manifests as a problematic and always emergent tension between a broadening out and a closing in of boundaries and networks.

Turning next to commerce, we see that within networked space, changes in connectivity on national and global scales are pervasively remaking the pattern of experienced connections. In manufacturing, networked communications technologies eliminate time and collapse linear distance. Reshaped by global connectivity and just-in-time delivery, commodity markets increasingly mirror the efficiencies of capital markets.[89] At the same time, however, these shifts render supply chains more vulnerable to short-term disruptions, and capital markets more vulnerable to dramatic price swings.[90] Both types of markets also manifest a "dynamic of simultaneous geographic dispersal and concentration" in emerging "global cities."[91] On a more personal scale, global connectivity promotes personalized trade within virtual communities such as eBay and craigslist.org, but simultaneously fosters increasing alienation, as both personal information and cultural goods become more thoroughly commodified. Here again, then, cyberspace's difference manifests as an ongoing dialectic between increased opportunity and enhanced risk, and between personalization and standardization. Within the cyberlaw literature, there is little effort at unified exploration of these linked phenomena.[92]

Here again, the emerging science of complex networks tends to validate the conflicting insights produced by both the theory and the lived

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Theory of Freedom of Expression for the Information Society, 79 N.Y.U. L. Rev. 1 (2004); Yochai Benkler, Sharing Nicely: On Shareable Goods and the Emergence of Sharing as a Modality of Economic Production, 114 Yale L.J. 273, 330–44 (2004); Hunter & Lastowka, supra note 42.

88. See, e.g., Cass R. Sunstein, Republic.com 51–88 (2001); Marjory S. Blumenthal & David D. Clark, Rethinking the Design of the Internet: The End to End Arguments vs. the Brave New World, 1 ACM Transactions on Internet Tech. 70, 82–86, 91–96 (2001); Michael D. Birnhack & Niva Elkin-Koren, The Invisible Handshake: The Reemergence of the State in the Digital Environment, 8 Va. J.L. & Tech. 6, ¶¶ 45–66 (2003), at http://www.vjolt.net/vol8/issue2/v8i2_a06-Birnhack-Elkin-Koren.pdf (on file with the *Columbia Law Review*).

89. See Castells, supra note 28, at 184–217.

90. See, e.g., Robert E. Spekman & Edward W. Davis, Risky Business: Expanding the Discussion on Risk and the Extended Enterprise, 34 Int'l J. Physical Distribution & Logistics Mgmt. 414 (2004); Nancy Toross, Comment, Double-Click on This: Keeping Pace with On-Line Market Manipulation, 32 Loy. L.A. L. Rev. 1399 (1999).

91. Saskia Sassen, Locating Cities on Global Circuits, *in* Global Networks, Linked Cities, supra note 85, at 1, 2–4.

92. A promising start is Margaret Jane Radin, Online Standardization and the Integration of Text and Machine, 70 Fordham L. Rev. 1125 (2002).

experience of networked space. The mathematical laws that govern scale-free networks tell us that even absent externally imposed controls via firewalls and filtering, flows of speech would fall into constrained patterns, and much speech would remain unfound and unheard even as flows of commerce penetrated more widely. This is so because the vast majority of traffic over scale-free networks flows to and from large hubs,[93] a state of affairs that is good for commerce (or, at least, for commerce of the centralized variety) but far less conducive to the widespread, decentralized exchange of speech. Theorists of democratic discourse in cyberspace need to take a hard look at the principles of scale-free network geography, which contradict both the assumption (on the speech side) that an individual website is the equivalent of a soapbox in Central Park or Times Square and the assumption (on the commerce side) that networked space reduces barriers to entry.[94]

In light of these attributes of networked space, it is unsurprising that representations of networked space in popular and mass culture express profound ambivalence. The Internet of *You've Got Mail* and *Something's Gotta Give* is a benign communication resource that enables soulmates to overcome their initial prejudices against one another; that of *The Net* an insidious tool for economic and political manipulation. Doctors on *E.R.* use an Internet chat room to track down reports of adverse reactions to new drugs that powerful pharmaceutical companies have declined to make available. In *Enemy of the State*, a grid of networked information technologies enables near total surveillance in the service of powerful political interests. And so on. Although study of cultural representations of cyberspace is commonplace in other disciplines, scholarship in cyberlaw has barely considered the role of these representations in shaping perceptions of a networked space that includes cyberspace.

The essential insight these works express is that all of the changes catalyzed by cyberspace do not simply make *cyberspace* different. Changes in the ways that information is experienced and the ways that economic, political, and personal interaction is structured alter the character of lived space, including real space. Energy spent arguing about whether cyberspace augurs more freedom and less control or more control and less freedom would be better spent considering what it might mean to live in a world in which communicative and economic opportunities are simultaneously expanding and contracting.

Some critical theorists who study the rise of the networked society have questioned whether the shift to networked space is a conceit of the global elites. But when we expand our focus from the experience of being "in" cyberspace to the effects produced by the layering-over of cyber-

93. See Barabasi, supra note 86, at 55–92.

94. For two early and rigorous efforts in this direction, see Benkler, Wealth of Networks, supra note 42, and Neil Weinstock Netanel, Copyright and "Market Power" in the Marketplace of Ideas, *in* Antitrust, Patents and Copyright 149 (Francois Leveque & Howard Shelanski eds., 2005).

space and real space, it becomes easier to see that the shift to networked space has a wide range of consequences that extend much more broadly. These consequences appear most obviously in the linked realms of marketing and surveillance. RFID tags in smart cards and consumer goods can be activated and linked to information networks, as can geolocation devices in cell phones and cars. This dimension of the "always-on" experience affects everyone who transacts and travels, not just those who deliberately connect to "cyberspace."[95] Here the shift to networked space changes the character of existing space even for those people who are unaware of its presence.

In the linked realms of speech and commerce, there is reason to think that the rise of networked space may broadly affect the distribution of social resources. A "digital divide" is never only digital; its consequences play out wherever political and economic decisions are made and wherever their results are felt. Legal scholars have long worried about the structure of speech markets for exactly this reason, but most legal discourse about the structure of speech markets is highly abstract. Changes in speech markets are experienced locally, in the spatial distribution of bookstores, libraries, newsstands, broadcast franchises, protests, collaborations, and innumerable other activities.[96] In addition, it is equally important to consider how a digital divide might alter other resource distributions that inhere in social space. If the haves increasingly shop online while the have-nots shop in "real space," the real-space distribution of goods, services, and employment patterns likely will change, and with it the real-space distribution of all of the activities that make up the commerce of daily life.[97] At the same time, the shift to networked space produces new juxtapositions between different groups of haves and have-nots. As one example, the practice of outsourcing customer service operations to developing countries creates new patterns of communication that over time may alter the way that third-world employees and first-world customers understand both each other and themselves.[98] More generally, media flows in the global culture economy become raw material for the construction of "imagined worlds" within which individuals and communities reproduce and reinvent themselves.[99]

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95. Cf. Hughes, supra note 76, at 371 ("As our appliances become 'smart,' our houses become 'wired,' our telephony is done with packet-switching, and our cable, telephone, and Internet services bundle and unbundle, will we know when we 'crossed' the cyberspace border? Even if we did know, should it matter?").

96. For a thought-provoking discussion of the spatial segregation of speech, see Timothy Zick, Speech and Spatial Tactics, 84 Tex. L. Rev. 581 (2006).

97. At the very least, it seems likely that continued tax breaks for Internet commerce will have profoundly regressive effects.

98. See Kiran Mirchandani, Practices of Global Capital: Gaps, Cracks and Ironies in Transnational Call Centres in India, 4 Global Networks 355, 370 (2004).

99. Arjun Appadurai, Modernity at Large: Cultural Dimensions of Globalization 33–47 (1996).

To emphasize the experiential and representational dimensions of connectedness as methods of apprehending networked space is to remind ourselves that networked space is produced and experienced by embodied beings. The project of mapping flows of information and categorizing large-scale shifts in resource distribution is important, but by itself insufficient to describe all of the effects of the shift to networked space. Of equal descriptive and theoretical importance are a variety of ethnographic and interpretative approaches to the study of individuals and social groups.[100] On the whole, cyberlaw scholarship is exquisitely attuned to the importance of self and processes of self-constitution, and some cyberlaw scholarship stresses the equal importance of social groups and the processes by which they are constituted. What is missing from cyberlaw's narratives about "cyberspace" as a catalyst for fundamental change (or as simply more of the same old thing) is a sense of the body in cyberspace: of cyberspace as produced by and producing embodied experience. Cyberlaw scholars have largely ignored the bodies in which selves and groups reside, and therefore have overlooked literatures that might help to illumine networked space as experienced space.

B. *Embodied Space*

If networked space is overtheorized within the cyberspace legal literature, embodied space suffers from the opposite problem: Within the cyberspace legal literature it is theorized away, or completely ignored. The official story of the transition to the information economy is the story of a slow but inexorable shift to the virtual that continues a process of commodification tracing back to the industrial revolution. In the transition to the information economy, property, labor, and money become not only commodified, but also disembodied. Informational property, intellectual labor, and human capital flow effortlessly around the world, constrained here and there by regulatory "speed bumps," but largely unmoored from physical constraints.[101]

To the extent that the (embodied) self appears within this narrative, it is as a placeholder for more abstract values: a site of autonomous choice, of deliberative democracy, or of postmodern liberation. Indeed, for many thinkers of "cyberspace" the rise of cyberspace seems to seal the

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100. See, e.g., Pierre Bourdieu, Outline of a Theory of Practice 1–30 (Richard Nice trans., Cambridge Univ. Press 1977) (1972); Pierre Bourdieu, Practical Reason 3–13 (Polity Press 1998) (1994); Foucault, Discipline and Punish, supra note 45, at 135–228; Clifford Geertz, Thick Description: Towards an Interpretive Theory of Cultures, *in* The Interpretation of Cultures 3 (1973). For examples of such ethnographic approaches applied, respectively, to law and to technology, see Naomi Mezey, Law as Culture, 13 Yale J.L. & Human. 35, 57–65 (2001), and Steve Woolgar, Configuring the User: The Case of Usability Trials, *in* A Sociology of Monsters: Essays on Power, Technology and Domination 58, 66–75 (John Law ed., 1991) [hereinafter A Sociology of Monsters].

101. Occasionally, embodiedness appears within the academic literature as a species of transaction cost. See, e.g., Dan L. Burk, Federalism in Cyberspace, 28 Conn. L. Rev. 1095, 1101–07 (1996) (testing application of Tiebout hypothesis to Internet-based activity).

body's ultimate irrelevance to questions of social theory and social ordering—although different groups read that irrelevance differently. Thus, libertarian social critics see in cyberspace the eventual apotheosis of enlightened social and economic individualism; while liberal theorists of a more communitarian bent envision processes of reasoned, collective deliberation that approach the ideals defined by Habermas and Rawls. For postmodernist cultural critics of a deconstructionist bent, who see the world as a collection of texts, cyberspace—the space of the pseudonymous avatar, the writerly reader, and the readerly writer—confirms the primacy of signs and exposes their infinite pliability. Beyond utopian strivings, cyberspace is a palimpsest within which each group seeks to write its own preferred version of the body's disappearance.[102] But in denying the spaces of the body, all of these theorists overlook the situated, materially structured character of both individual and group agency.

Attention to embodied reality forces an appreciation of the fact that the transition to the virtual is always partial, equivocal, and unstable. Just as property, labor, and money cannot be completely commodified,[103] so they also cannot be completely dephysicalized. In particular, the virtuality of "human capital" is always only fictional. Individual human beings, irreducible to bits, remain stubbornly localized—wherever we may travel, we are always somewhere and somewhen. It follows that the embodied self cannot simply be assumed away; rather, a theory of networked space must critically interrogate the experiential and political entailments of embodiedness within that space.

Although not explicitly making this connection, some recent cyberlaw scholarship can be read as centrally concerned with precisely this question. In the area of privacy, calls for a context-based understanding of information privacy, for a rethinking of the abstract vision of the liberal self that undergirds much contemporary thinking about privacy, and for recognition of the ineluctable spatiality of intellectual privacy seek to understand how privacy-related expectations play out in the real spaces inhabited by real people.[104] In the area of intellectual property, a

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102. For an illuminating discussion of the disappearance of the body within "cybernetic" discourse, see N. Katherine Hayles, How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics (1999). Hayles observes:

> [O]ne could argue that the erasure of embodiment is a feature common to both the liberal humanist subject and the cybernetic posthuman. Identified with the rational mind, the liberal subject possessed a body but was not usually represented as being a body. Only because the body is not identified with the self is it possible to claim for the liberal subject its notorious universality, a claim that depends on erasing markers of bodily difference . . . .

Id. at 4–5.

103. See Karl Polanyi, The Great Transformation: The Political and Economic Origins of Our Time 72–75 (Beacon Press 1957) (1944) (elaborating theory of land, labor, and capital as "fictitious" commodities).

104. See Cohen, DRM and Privacy, supra note 31; Peter Galison & Martha Minow, Our Privacy, Ourselves in the Age of Technological Intrusions, *in* Human Rights in the

diverse collection of scholars has begun to explore the importance of spatiality and context in structuring conceptions of the public domain, the personal and social implications of automated copyright enforcement and "piracy surveillance," the centrality of performance and physical manipulation within the communicative lexicon, and the intricate connections between culture, intellectual property, and identity politics.[105] This work, which probes the evolving relationships between law, technology, and the contextually situated self, cannot avoid raising questions about the materiality of these relationships.

A close reading of this work through the lens of ineluctable materiality suggests powerfully that the story of experienced cyberspace is increasingly the story of the pervasive interpolation of networked space and networked information technologies into the spaces of the body. Data flows increasingly have escaped the obvious bounds of the networked computer, and cross into and out of homes, cars, personal accessories, and public spaces by many avenues. Control of these flows has assumed paramount importance in the interlinked realms of intellectual property and privacy—realms that until recently were not perceived as interlinked at all. To an increasing extent, the production of networked space is characterized by the dissolution and penetration of personal boundaries that we have long regarded as fixed and natural. These shifts expose the constructedness of embodied space; they teach us that critical theorists who stress the importance of the body as a site of social discourse and the social and discursive construction of identity formation have been right all along.

The effects of this interpolation are neither unidirectional nor fixed. Some changes enable the ever more pervasive penetration of constraint

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'War on Terror' 258 (Richard Ashby Wilson ed., 2005); Helen Nissenbaum, Privacy as Contextual Integrity, 79 Wash. L. Rev. 119 (2004); Helen Nissenbaum, Protecting Privacy in an Information Age: The Problem of Privacy in Public, 17 Law & Phil. 559 (1998); see also Neil M. Richards, The Information Privacy Law Project, 94 Geo. L.J. 1087 (2006) (reviewing Daniel J. Solove, The Digital Person: Privacy and Technology in the Information Age (2004)) (criticizing prevailing scholarly assumption that information privacy issues are sui generis and disconnected from other privacy issues).

105. See Julie E. Cohen, Copyright, Commodification, and Culture: Locating the Public Domain, *in* The Future of the Public Domain 121 (L. Guibault & P.B. Hugenholtz eds., 2006); Julie E. Cohen, Pervasively Distributed Copyright Enforcement, 95 Geo. L.J. 1 (forthcoming 2006) (on file with the *Columbia Law Review*) [hereinafter Cohen, Pervasively Distributed]; Julie E. Cohen, The Place of the User in Copyright Law, 74 Fordham L. Rev. 347 (2005); Sonia K. Katyal, The New Surveillance, 54 Case W. Res. L. Rev. 297 (2003); Sonia K. Katyal, Privacy vs. Piracy, 7 Yale J.L. & Tech. 222 (2005); Sonia K. Katyal, Semiotic Disobedience, Wash. U. L. Rev. (forthcoming 2006) (on file with the *Columbia Law Review*); Joseph P. Liu, Copyright Law's Theory of the Consumer, 44 B.C. L. Rev. 397 (2003); Joseph P. Liu, Owning Digital Copies: Copyright Law and the Incidents of Copy Ownership, 42 Wm. & Mary L. Rev. 1245 (2001); Madhavi Sunder, Intellectual Property and Identity Politics: Playing with *Fire*, 4 J. Gender Race & Just. 69 (2000); Madhavi Sunder, IP^3, Stan. L. Rev. (forthcoming 2007) (on file with the *Columbia Law Review*); Rebecca Tushnet, Copy This Essay: How Fair Use Doctrine Harms Free Speech and How Copying Serves It, 114 Yale L.J. 535 (2004).

and control. RFID tags can be deployed to track the movement of goods, but also of the people who wear or use them. Other vectors for control include digital rights management technologies designed to regulate information use, data mining and biometric technologies designed to extend surveillance, and geolocation capabilities inserted into the operations of personal communications technologies. Geolocation technologies also enable the superimposition (or reconstruction) of national borders and nation-based regulation within the linked realms of e-commerce and online speech.[106] These trends operationalize networked space as a space of fine-grained social discipline[107]—yet some of these technologies, differently implemented, might vest greater control in individual cyberspace users. Open RFID and filtering standards might enable collaborative labeling of content and vendors, while rights management and biometric tools could enable greater individual control over security and authentication.[108]

Other technological developments have been read to suggest that networked space will function primarily as a space of empowerment. Peer-to-peer applications route flows of digital content as desired by end users without centralized control points. Spaces set apart for wholly virtual communication and play enable anonymous interaction and experimentation; these aspects of networked space celebrate the freedom that comes from disembodiedness, even if it is always only temporary.[109] Yet each of these developments also may decrease individual control over the penetration of networked space into embodied space. In an effort to win legitimacy, a new trade association claiming to speak on behalf of the "distributed computing industry" is seeking to adapt peer-to-peer networks for both distribution of protected content and enforcement of content-protection rules.[110] And some cultural critics have argued that

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106. See Joel R. Reidenberg, Technology and Internet Jurisdiction, 153 U. Pa. L. Rev. 1951, 1960–69 (2005); Joel R. Reidenberg, Yahoo and Democracy on the Internet, 42 Jurimetrics J. 261, 272–78 (2002).

107. See Cohen, Pervasively Distributed, supra note 105 (manuscript at 22–29) (characterizing regulation by "universal, technologically-encoded constraint" as a form of "crisis management" designed to separate and marginalize unauthorized flows of information).

108. See Kang & Cuff, supra note 29, at 128–43; Jonathan Zittrain, What the Publisher Can Teach the Patient: Intellectual Property and Privacy in an Era of Trusted Privication, 52 Stan. L. Rev. 1201, 1240–49 (2000); Simon Byers et al., Searching for Privacy: Design and Implementation of a P3P-Enabled Search Engine (2004), available at http://lorrie.cranor.org/pubs/pets04.pdf (on file with the *Columbia Law Review*).

109. See, e.g., Allucquère Roseanne Stone, The War of Desire and Technology at the Close of the Mechanical Age 34–39, 84–93, 178–83 (1995); Jerry Kang, Cyber-Race, 113 Harv. L. Rev. 1130 (2000); Lastowka & Hunter, supra note 26, at 14–29; cf. Sherry Turkle, Life on the Screen: Identity in the Age of the Internet 268–69 (1995) ("[T]he culture of simulation may help us achieve a vision of a multiple but integrated identity whose flexibility, resilience, and capacity for joy comes from having access to our many selves. But . . . people can get lost in virtual worlds.").

110. See Distributed Computing Industry Association, at http://www.dcia.info/About/index.php (last updated Jan. 8, 2006) (on file with the *Columbia Law Review*).

the "play" occurring in the anonymous, disembodied spaces of "cyberspace" in fact reinscribes racialized and gendered conceptions of the Other that exist in real space.[111]

In still other respects, the shift to networked space catalyzes perceptions of and relations to the body's immediate surroundings in "real" space that are harder to pigeonhole within preexisting theoretical frames. The experience of using Mapquest for driving directions entails both diminished reliance on traditional, Cartesian maps and diminished reliance on other spatial cues for navigation. This may increase the degree to which other people's neighborhoods are experienced only via increasingly homogenized main thoroughfares—or, it may reduce the time spent consulting maps, and enable travelers to interact more directly with their surroundings. The widespread use of mobile personal communications technologies enables the sensation of continuous contact, but also intensifies a phenomenon that social theorists of communication describe, variously, as "absent presence" or "present absence": a distanced and distancing relation to people physically present and events currently unfolding in real space.[112]

Popular and artistic imaginings of the relation between networked space and embodied space are similarly constituted by the interplay of fear and desire. Within mass commercial culture, overtly dystopian renderings of the networked information age and its extension into embodied space abound. Yet the picture is also more complicated. Although the simplistic technoboosterism of the mid-twentieth century—epitomized by the starship Enterprise and its benign computerized steward—is out of vogue in mass and popular culture, more complex visions have emerged that foreground individual agency. Within science fiction, William Gibson's and Neal Stephenson's protagonists rely on digital doppelgangers to negotiate provisional, improvised survival strategies within the interstices of real-world structures of power. To escape rigidly deterministic social control, Ethan Hawke's character in the film *Gattaca* and Tom Cruise's in the film *Minority Report* effectively rewrite portions of their own biological codes to avoid detection. On television, joyful, consumerist visions of the networked body jostle for elbow room with their more dystopian cousins, iPod ads sandwiched between pitches for spam filtering services and identity theft protection. Dystopian renderings within mass culture may also serve a prophylactic function, enabling viewers to embrace the conveniences of the networked information age while

111. See Ford, supra note 5, at 170–77; Lisa Nakamura, Cybertypes: Race, Ethnicity, and Identity on the Internet 31–60 (2002); Bartow, supra note 47, at 470–81; Chon, supra note 47; Kali Tal, Book Review (2001), at http://www.freshmonsters.com/kalital/Text/Reviews/Nakamura.html (on file with the *Columbia Law Review*) (reviewing Nakamura, supra); Tal, Unbearable Whiteness of Being, supra note 47.

112. See, e.g., Leopoldina Fortunati, The Mobile Phone: Towards New Categories and Social Relations, 5 Info. Comm. & Soc'y 513, 515–20 (2002); Kenneth J. Gergen, The Challenge of Absent Presence, *in* Perpetual Contact: Mobile Communication, Private Talk, Public Performance 227, 236–40 (James E. Katz & Mark A. Aakhus eds., 2002).

relying on mass culture to reenact, in ritualized fashion, their darkest fears, and allowing policymakers to label worst-case scenarios as fiction and conspiracy theory.

Understanding the emergent relationships between and among cyberspace, networked space, and embodied space requires a rethinking of current, highly abstract conceptions of cyberspace and of the self, and of disembodied conceptions of cyberspace activity. Cyberspace is neither empty nor abstract, and is certainly not separate; it is a network of connections wrapped around every artifact and human being. In Donna Haraway's evocative term, networked space is the space of the cyborg, of the dissolution of boundaries between the network and the self.[113] The trope of the cyborg, which has proved enormously influential among nonlegal theorists of cyberspace, has received little attention from cyberlaw scholars. Yet the work in privacy and intellectual property described above echoes precisely Haraway's concerns. What this literature so far has lacked, and what Haraway provides, is an orientation to the broadly shared problematic of identity formation within a social space that is simultaneously networked and embodied.

Tellingly, Haraway cautions that cyborg space cannot be avoided or evaded by retreat to an imaginary and finally mythological naturalism.[114] Instead, the self and the networked world must come to some rapprochement. The important question concerns not the boundary of the unitary self, but rather the relation between networked space and embodied space, and the patterns of flow between them. Relevant patterns will include flows of information to, from, and about the self and flows of information that link the self to and enable the constitution of groups and communities. For law and technology alike, relevant questions will include the allocation of rights and abilities to access, control, and alter these flows.[115]

Another way of putting this point, perhaps, is that the nature of networked/embodied space, and of the networked/embodied self, will depend critically on the construction of differentially bounded space, which I will define provisionally as space within which information flows are defined by a semantic and technical structure of permissions and authentications. Networked/embodied space can be a space of domination or a space of critical practice, depending on who keeps the boundaries and controls the permissions. William Mitchell offers a vision of the con-

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113. Donna J. Haraway, Simians, Cyborgs, and Women: The Reinvention of Nature 149–81 (1991).

114. Id. at 151. In science and technology studies, this position is identified with Heidegger and the fetishization of pretechnological Being. See Martin Heidegger, The Question Concerning Technology, *in* Basic Writings 307 (David Farrell Krell ed., 1993).

115. For a thought-provoking discussion of these issues in the context of ubiquitous computing technologies, see David J. Phillips, From Privacy to Visibility: Context, Identity, and Power in Ubiquitous Computing Environments, 23 Soc. Text, Summer 2005, at 95.

struction of a permission-based cyborg space that is largely optimistic.[116] Haraway is more guarded, more wary of the potential for an "informatics of domination."[117] The networked/embodied space of today manifests both tendencies. Both merit further critical inquiry.

C. *The Spatial Production of Power*

Attention to boundaries and permissions at the intersection between networked space and embodied space invites attention to a third distinctive aspect of the layering of cyberspace over existing space, which concerns changes in the spatial production of power. The observation that cyberspace/the Internet disrupts existing power relationships and enables new ones is not new; cyberlaw scholarship has been centrally concerned with questions of power. On the whole, however, cyberlaw scholarship has tended to overlook or oversimplify the spatial and material dimensions of power exercised through and across information networks. Focusing on these dimensions highlights several important variables that are worth considering more closely. The rise of networked space and its interpolation into embodied space affect not only the means by which power is exercised, but also the visibility with which it operates and the scale at which it is produced.

To begin, I should make clear that I do not mean the term "power" in a pejorative sense, but rather in the sense offered (as a seeming afterthought) by Foucault: "as a mode of action upon the actions of others" that is "exercised only over free subjects, and only insofar as they are free."[118] Thus defined, power does not simply reduce to oppression, but more generally encompasses all of the "way[s] in which certain actions may structure the field of other possible actions."[119] Nor is power an evil to be rooted out in the name of liberty or equality. Foucault emphasized that "[a] society without power relations can only be an abstraction."[120] The question at any given time, then, is how to understand and critically evaluate the particular set of power relations that exists.

Debates about the social production of power are shaped in the first instance by conceptual frameworks about the sorts of power that should and should not trouble us. Within U.S. legal discourse generally, frameworks for analyzing the production of power have tended to center on the appropriate role of the state, and have relied on application of the public/private dichotomy to distinguish more troubling from less troubling arrangements. The legal realists and later the critical legal studies movement challenged this dichotomy, asserting the constitutive role of law even in formally private arrangements. For most cyberlaw scholars,

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116. William J. Mitchell, Me++: The Cyborg Self and the Networked City (2004).

117. Haraway, supra note 113, at 161–72.

118. Michel Foucault, Afterword: The Subject and Power, to Hubert L. Dreyfus & Paul Rabinow, Michel Foucault: Beyond Structuralism and Hermeneutics 208, 221 (1982).

119. Id. at 222.

120. Id. at 222–23.

the shift to networked space has suggested that the problem of power is even more complex than those critics claimed. Within the cyberlaw mainstream, the traditional public/private debate has given way to the analytic framework self-styled as the "New Chicago School" and extended into cyberlaw studies by Lessig. This framework recognizes four primary "modalities of regulation": the market, norms, law, and architecture (or "code"), and holds that regulation inheres in the interactions among them.[121] In particular, cyberlaw's distinctive contribution to the legal literatures on regulation and governance has been to establish the central importance of technical sites for the production and extension of power.

Within the legal literature, cyberlaw scholarship has performed the role that the umbrella field known as science and technology studies (STS) performs within the social sciences more generally. STS scholars and their methods are diverse, but they are united in their rejection of the assumption, pervasive within the mainstream of social and cultural theory, that technologies and artifacts have fixed forms and predetermined, neutral trajectories. They argue that this analytical "black boxing" of technologies and artifacts conceals the extent to which they are socially shaped.[122] Technologies and artifacts are not neutral constants within social processes, nor do they impose their own teleologies. Instead, their development and ongoing evolution are subsumed within processes more properly understood as sociotechnical.

The irony in this parallel is that the cyberlaw literature has developed in near complete isolation from the STS literature.[123] The prevailing mode of analysis of networked space among cyberlaw scholars is descriptively and theoretically poorer for this isolation. The insight that artifacts constrain ("regulate") behavior has a long history within STS, and is mined within that literature in far more subtle ways. Although the four-modalities approach emphasizes the malleability of code in response to other regulatory forces, it does not entirely avoid the vice of black boxing. Work in this emerging tradition has tended either to advocate deliberate, technocratic manipulation of code in the service of social engineering or to engage in reflexive privileging of market-driven design processes.[124] STS scholarship stakes out a more complex middle ground,

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121. Lessig, Code, supra note 23, at 85–99; Lawrence Lessig, The New Chicago School, 27 J. Legal Stud. 661, 662–72 (1998).

122. See generally, e.g., Wiebe E. Bijker, Of Bicycles, Bakelites, and Bulbs: Toward a Theory of Sociotechnical Change (1995); Bruno Latour, The Pasteurization of France (Alan Sheridan & John Law trans., Harvard Univ. Press 1988) (1984); A Sociology of Monsters, supra note 100; Langdon Winner, Autonomous Technology: Technics-Out-of-Control as a Theme in Political Thought (1977).

123. A notable exception is Dan Burk's work. See, e.g., Dan L. Burk, DNA Rules: Legal and Conceptual Implications of Biological "Lock-Out" Systems, 92 Cal. L. Rev. 1553 (2004); Dan L. Burk, Legal and Technical Standards in Digital Rights Management Technology, 74 Fordham L. Rev. 537 (2005).

124. To be fair, the project of constructing a regulatory taxonomy has been greatly complicated by other problems specific to law, particularly the transnational character of

positioning technologies and artifacts as sites of contestation among a variety of market and nonmarket actors. In Carolyn Marvin's words, new technologies in particular have no "natural edges," but instead serve as focal points around which the self-interested behaviors of existing groups coalesce.[125] Practice, rhetoric, and representation figure importantly in the production of power around and through technologies and artifacts. These processes cannot be understood strictly in terms of external regulatory vectors any more than they can be understood in terms of individual rights abstractly conceived. These insights counsel both more careful attention to the emergent character of sociotechnical processes and greater modesty with regard to the possibilities of engineering code-based solutions to regulatory problems.

Understanding the production of power by and through networked space requires a three-way synthesis, in which cyberlaw's core regulatory insight is juxtaposed with the methodologies and insights of STS and infused with the central importance of experienced spatiality.[126] Flows of information through networked space, and across the interfaces of networked/embodied space, are constructed substantially by choices expressed through technical standards and protocols. These processes are social and emergent, and have consequences both spatial and material. They operate in what Saskia Sassen terms "analytic borderlands":[127] between public and private, between technical and social, and between network and body. Mapping these borderlands requires descriptive and analytical tools that do not simply reduce them to borders.

Like the production of power in "real space," the production of power in networked space relies on techniques of both visibility and invis-

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cyberspace conduct. Thus, some scholarly projects have focused on generating taxonomies of transnational regulatory forms. See, e.g., Hughes, supra note 76, at 373–93.

125. Carolyn Marvin, When Old Technologies Were New: Thinking About Electric Communication in the Late Nineteenth Century 4–8 (1988); cf. Latour, supra note 122, at 62 ("What [the Pasteurians] did is much more interesting than what they are credited for. . . . They . . . forced all those groups that were interested in infectious diseases but expected nothing of the laboratory to be interested in their laboratories. In order to succeed in this operation, they had to retranslate what others wanted.").

126. Cf. Latham & Sassen, supra note 84, at 1, 4–5 (envisioning methodology that juxtaposes STS's critical stance toward "technology" with new set of analytical categories for evaluating social and cultural effects of extant techno-logics). Oddly enough, given their preoccupation with materiality, STS scholars also appear to have given little thought to the spatiality of sociotechnical processes. Occasional efforts seek to remedy this omission. See John Law, Objects, Spaces and Others (Feb. 4, 2000) (unpublished manuscript, on file with the *Columbia Law Review*), available at http://www.lancs.ac.uk/fss/sociology/papers/law-objects-spaces-others.pdf; John Law, Topology and the Naming of Complexity (Dec. 6, 2003) (unpublished manuscript, on file with the *Columbia Law Review*), available at http://www.lancs.ac.uk/fss/sociology/papers/law-topology-and-complexity.pdf.

127. Saskia Sassen, Territory, Authority, Rights: From Medieval to Global Assemblages 379–86 (2006) [hereinafter Sassen, From Medieval to Global Assemblages].

ibility.[128] Some exercises of power, such as surveillance intended to deter crime, rely on a combination of the two; the fact of surveillance is visible, but the details of surveillance behavior are deliberately concealed. The shift to networked space affords these forms of surveillance greater geographic range and concomitantly greater potential for leveraging invisibility; it is not only impossible to know whether the watchers are watching, but also to determine who and where they are, and what other sources of information they might be using.[129] The emergence of technical sites for the production of power also brings wholly new techniques of invisibility into play. In "real space," both the boundaries that restrict the movement of people and goods and the means for authorizing movement are visible. The boundaries and authorizations that structure flows of speech and commerce within networked space, and that control flows across the interfaces to embodied space, are more difficult to discover.

The emergence of technical sites for the spatial production of power also constitutes new regulatory and political processes, and does so in ways that alter the patterns of visibility and invisibility typically associated with modern forms of democratic government. The new regulatory fora are the expert processes by which technical standards are defined and revised. These processes are diverse; some are operated by private consortia of technology companies, others by open-membership organizations, and others by government bodies. For most ordinary cyberspace users, however, even nominally "open" or "public" standards processes are opaque and mysterious. Within the cyberlaw literature, fidelity to "the market" as a regulatory modality, and to overarching narratives about the incompatibility of "regulation" and "innovation," has tended to impede careful analysis of these processes as regulatory processes. Much work remains to be done in evaluating and comparing different methods of formulating standard-based regulation, and in considering whether and how to respond to the different kinds of invisibility that they create. In addition, the emergence of technical standards processes as political processes raises difficult and important questions about whether governance by elites trained predominantly in technical fields is normatively desirable, and about the theories of "cyberspace" that these elites are likely to bring to the table. Cyberlaw scholarship typically has paid little atten-

128. Here again, the foundational works on the spatial production of power are Foucault, Discipline and Punish, supra note 45, and Lefebvre, supra note 8.

129. It is for this reason that some technology activists seek to combat networked surveillance not with law, but with visible counter surveillance. See David Brin, The Transparent Society: Will Technology Force Us to Choose Between Privacy and Freedom? (1998); Steve Mann et al., Sousveillance: Inventing and Using Wearable Computing Devices for Data Collection in Surveillance Environments, 1 Surveillance & Soc'y 331 (2003), available at http://www.eyetap.org/papers/docs/sousveillance.pdf (on file with the *Columbia Law Review*). But equal visibility does not mean equal power.

tion to these questions, and has tended to assume that openness to technical elites is a valid measure of openness generally.[130]

Both the overt deployment of power in and through networked space and the working out of power within relatively invisible standards processes coordinated by technical elites alter the scale on which power is expressed and experienced. Critical geographers have long argued that questions of power intersect with questions of scale.[131] The burgeoning literature on globalization identifies the emergence of a new sense of space as simultaneously global and local, without mediating levels in between. Eric Swyngedouw has coined the term "glocal" to describe this space, which simultaneously collapses some scales and renders others inconceivably large.[132] Glocal space is a byproduct of networked space: It is produced by the layering of cyberspace over "real" space, and by the interpenetration of the two.[133] Within networked space, "glocalization" is characterized by the technologically mediated disappearance of intermediate levels of scale, and by the reconstruction of the local on the micro level, as a site of struggle over the boundaries of the embodied self.

The technical question "does it scale?" thus both crystallizes and masks questions that are fundamentally political. Both ends of the scale harbor possibilities for oppression—authoritarian control by large agglomerations of power, and intimate control via the interpolation of discipline into embodied space. In the abstract, though, it is hard to generalize about the politics of scale in networked/embodied space, as the malleability of networked space also opens new possibilities for empowerment. These tensions between global and local, and between constraint and empowerment, are evident in many of the examples already discussed. The tensions between global and local are also reflected in the search for reconstituted forms of intermediate localism. Experientially, the flattening of networked space presses against the reality of the cognitive construction of place and space, processes that begin locally and build outward. Both the construction of new "places" in cyberspace and the development of voluntary, distributed peer networks amenable to local editing and revision are responses to this broadening and homogenizing of lived space.[134] The upsurge of academic and grassroots emphasis

130. See, e.g., Lessig, Code, supra note 23, at 100–08; Froomkin, supra note 22, at 855–71.

131. See, e.g., Massey, supra note 67, at 61–63; Neil Smith, Homeless/Global: Scaling Places, *in* Mapping the Futures: Local Cultures, Global Change, supra note 26, at 87, 97–101.

132. Erik Swyngedouw, Neither Global nor Local: "Glocalization" and the Politics of Scale, *in* Spaces of Globalization: Reasserting the Power of the Local 137, 140–42 (Kevin R. Cox ed., 1997).

133. Cf. Sassen, From Medieval to Global Assemblages, supra note 127, at 343–77 (arguing that new "digital assemblages" are frontier along which prevailing conceptions of territory, authority, and rights are being redefined).

134. These constructions are examples of what Latham and Sassen call "digital formations": "coherent configuration[s] of organization, space, and interaction" that

on participatory culture, meanwhile, can be seen both as an outgrowth of resistance to glocalization and as an embrace of it. New cultural practices of "distributed localism," such as weblogs, wikis, and fan fiction collectives, reconstruct the local as a globally distributed network of like-minded individuals. Here the politics of scale intersect with the politics and pragmatics of visibility: Efforts to build new forms of distributed localism are both enabled and constrained by the form and content of technical standards, and the politics of distributed localism in turn enable and constrain the technical evolution of network standards.

As before, works of mass culture both reflect and recast the linked themes of power, visibility, and scale. As noted earlier, the visibility of surveillance has emerged as a potent cultural theme, and one that is inevitably linked with spatial control. Other works reenact both ambivalence about glocalization and anxiety about control over the local. Some of the most perceptive, like the film *Pleasantville*, present local and global in bittersweet contrast. Others, including most memorably *The Truman Show* and the *Matrix* series, nurture the nagging suspicion that the familiarity of the local is no more than a mirage. Largely unexplored is the extent to which the fears and desires nurtured by such works shape popular responses to current controversies about the risks associated with networked information technologies and the extent to which their operation conceals, reveals, or prevents imbalances of political or economic power.

The collapse of the local into embodied space draws attention, finally, to a more mundane and material way in which the shift to networked space and its interpolation into embodied space alter the visibility and the spatiality of power relations. STS scholars' distrust of "black boxing" refers not simply to narratives of technological fixity and determinism but also to the processes by which relations of power become embedded in the material landscape. Struggles to stabilize the form and social meaning of technologies and artifacts are processes by which the visible becomes gradually invisible. As power struggles are resolved, or confined within narrower parameters, artifacts and protocols assume a more definite form that both embodies and conceals the terms of resolution. The power embodied within relatively hardened technologies and artifacts is to an important degree experienced materially and spatially. As Marvin's exploration of the emergence of "electric communication" shows, new technologies are experienced, learned, and assimilated by and through the body, no less so by experts than by the uninitiated.[135] As we struggle to shape our technologies and configure our artifacts, they also quite literally configure us, guiding us toward the well-worn paths

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emerge around new digitally enabled social practices. Latham & Sassen, supra note 84, at 10. For a discussion of one such experiment, see Patrice Riemens & Geert Lovink, Local Networks: Digital City Amsterdam, *in* Global Networks, Linked Cities, supra note 85, at 327.

135. Marvin, supra note 125, at 109–51.

that render the material a matter of habit.[136] The cyberlaw credo that "code is law" recognizes that Internet technologies encode an especially powerful and peculiarly invisible form of discipline, but it does not acknowledge that these technologies also form the material substrate within which complex social patterns take root.[137] The effects of the resulting sociotechnical architectures are subtle and complex, and cannot be assessed simply in terms of what makes us "more" or "less" free.

Here I have done no more than scratch the surface of a set of relationships that is extraordinarily complex. I hope to have established, however, both that the topic is extraordinarily important and that nothing short of a methodological revolution will suffice if cyberlaw is to grapple adequately with the consequences of the shift to networked space and the interpolation of networked space into embodied space. The emergent geographies of power within networked space shape the conditions of possibility, the conditions of participation, and the conditions of material existence. Understanding and responding to these shifts requires a process of far-ranging inquiry. Many important questions have tended to slip between the cracks in an analytical universe that seeks to unpack "code" while taking "law," "norms," and "the market" for granted, and that is predicated on a teleology of disembodiment. Evaluating the spatial production of power within networked space will require a larger and more diverse set of tools than the one that cyberlaw scholars have typically employed.

Conclusion: Cyberspace as/and Contested Space

"Cyberspace" is most usefully understood as connected to and subsumed within an emerging, networked space that is inhabited by real, embodied users and that is apprehended through experience. In particular, both networked space and networked/embodied space are continually shaped and reshaped by the dynamics identified in Part III and by the contingent interplay among them. If there is something unique about "cyberspace" as space, it is that to a far greater degree than is ordinarily the case, we must simultaneously consider both legal regulation and technical design, and must constantly reconsider the interactions between the two.[138] Struggles over the design and regulation of network protocols and technologies will be a flashpoint for struggles about the shaping of networked space more generally (and vice versa). If so, however, it be-

136. See Bruno Latour, Technology Is Society Made Durable, *in* A Sociology of Monsters, supra note 100, at 103, 103–10.

137. See Galloway, supra note 84, at 20–27. Galloway argues that in the information age this material discipline, or "protocol," is eclipsing Foucauldian discipline. I think he has misread Foucault in important respects, but that is a subject for another occasion.

138. See David D. Clark, John Wroclawski, Karen R. Sollins & Robert Braden, Tussle in Cyberspace: Defining Tomorrow's Internet, 13 IEEE/ACM Transactions on Networking 462, 465–66 (2005), available at www.acm.org/sigs/sigcomm/sigcomm2002/papers/tussle.pdf (on file with the *Columbia Law Review*).

comes especially important to recognize that the design/regulation choices that we make are not just choices about "cyberspace" in isolation from "real space." They are choices about the shape of the new "space of flows": about the nature and visibility of the boundaries and permissions that operate at the interface(s) between networked space and embodied space, and about the visibility and scale of the power relations manifested through technical protocols and standards. Translating these considerations into law and policy in a principled yet pragmatic way is cyberlaw's ongoing project.