



CODE

version 2.0

LAWRENCE LESSIG



A Member of the Perseus Books Group  
New York

Copyright © 2006 by Lawrence Lessig CC Attribution-ShareAlike

Published by Basic Books  
A Member of the Perseus Books Group

Printed in the United States of America. For information, address Basic Books, 387  
Park Avenue South, New York, NY 10016-8810.

Books published by Basic Books are available at special discounts for bulk purchases  
in the United States by corporations, institutions, and other organizations. For more  
information, please contact the Special Markets Department at the Perseus Books  
Group, 11 Cambridge Center, Cambridge MA 02142, or call (617) 252-5298, (800)  
255-1514 or e-mail [special.markets@perseusbooks.com](mailto:special.markets@perseusbooks.com).

CIP catalog record for this book is available from the Library of Congress.

ISBN-10: 0-465-03914-6  
ISBN-13: 978-0-465-03914-2

06 07 08 09 / 10 9 8 7 6 5 4 3 2 1

# O N E

---

## c o d e i s l a w

ALMOST TWO DECADES AGO, IN THE SPRING OF 1989, COMMUNISM IN EUROPE died—collapsed, like a tent, its main post removed. The end was not brought by war or revolution. The end was exhaustion. A new political regime was born in its place across Central and Eastern Europe, the beginnings of a new political society.

For constitutionalists (like me), this was a heady time. I had graduated from law school in 1989, and in 1991 I began teaching at the University of Chicago. At that time, Chicago had a center devoted to the study of the emerging democracies in Central and Eastern Europe. I was a part of that center. Over the next five years I spent more hours on airplanes, and more mornings drinking bad coffee, than I care to remember.

Eastern and Central Europe were filled with Americans telling former Communists how they should govern. The advice was endless. And silly. Some of these visitors literally sold translated constitutions to the emerging constitutional republics; the rest had innumerable half-baked ideas about how the new nations should be governed. These Americans came from a nation where constitutionalism seemed to work, yet they had no clue why.

The Center's mission, however, was not to advise. We knew too little to guide. Our aim was to watch and gather data about the transitions and how they progressed. We wanted to understand the change, not direct it.

What we saw was striking, if understandable. Those first moments after communism's collapse were filled with antigovernmental passion—a surge of anger directed against the state and against state regulation. Leave us alone, the people seemed to say. Let the market and nongovernmental organizations—a new society—take government's place. After generations of communism, this reaction was completely understandable. Government was the

oppressor. What compromise could there be with the instrument of your repression?

A certain kind of libertarianism seemed to many to support much in this reaction. If the market were to reign, and the government were kept out of the way, freedom and prosperity would inevitably grow. Things would take care of themselves. There was no need, and could be no place, for extensive regulation by the state.

But things didn't take care of themselves. Markets didn't flourish. Governments were crippled, and crippled governments are no elixir of freedom. Power didn't disappear—it shifted from the state to mafiosi, themselves often created by the state. The need for traditional state functions—police, courts, schools, health care—didn't go away, and private interests didn't emerge to fill that need. Instead, the needs were simply unmet. Security evaporated. A modern if plodding anarchy replaced the bland communism of the previous three generations: neon lights flashed advertisements for Nike; pensioners were swindled out of their life savings by fraudulent stock deals; bankers were murdered in broad daylight on Moscow streets. One system of control had been replaced by another. Neither was what Western libertarians would call “freedom.”

About a decade ago, in the mid-1990s, just about the time when this post-communist euphoria was beginning to wane, there emerged in the West another “new society,” to many just as exciting as the new societies promised in post-communist Europe. This was the Internet, or as I'll define a bit later, “cyberspace.” First in universities and centers of research, and then throughout society in general, cyberspace became a new target for libertarian utopianism. *Here* freedom from the state would reign. If not in Moscow or Tblisi, then in cyberspace would we find the ideal libertarian society.

The catalyst for this change was likewise unplanned. Born in a research project in the Defense Department,<sup>1</sup> cyberspace too arose from the unplanned displacement of a certain architecture of control. The tolled, single-purpose network of telephones was displaced by the untolled and multipurpose network of packet-switched data. And thus the old one-to-many architectures of publishing (television, radio, newspapers, books) were complemented by a world in which anyone could become a publisher. People could communicate and associate in ways that they had never done before. The space seemed to promise a kind of society that real space would never allow—freedom without anarchy, control without government, consensus without power. In the words of a manifesto that defined this ideal: “We reject: kings, presidents and voting. We believe in: rough consensus and running code.”<sup>2</sup>

---

As in post-Communist Europe, these first thoughts about freedom in cyberspace tied freedom to the disappearance of the state. As John Parry Barlow, former lyricist for the Grateful Dead and co-founder of the Electronic Frontier Foundation, declared in his “Declaration of Independence for Cyberspace,”

Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather.

But here the bond between freedom and the absence of the state was said to be even stronger than in post-Communist Europe. The claim for cyberspace was not just that government would not regulate cyberspace—it was that government *could not* regulate cyberspace. Cyberspace was, by nature, unavoidably free. Governments could threaten, but behavior could not be controlled; laws could be passed, but they would have no real effect. There was no choice about what kind of government to install—none could reign. Cyberspace would be a society of a very different sort. There would be definition and direction, but built from the bottom-up. The society of this space would be a fully self-ordering entity, cleansed of governors and free from political hacks.

I taught in Central Europe during the summers of the early 1990s; I witnessed through my students the transformation in attitudes about communism that I described above. And so I felt a bit of *déjà vu* when, in the spring of 1995, while teaching the law of cyberspace, I saw in my students these very same post-communist thoughts about freedom and government. Even at Yale—not known for libertarian passions—the students seemed drunk with what James Boyle would later call the “libertarian gotcha”:<sup>3</sup> no government could survive without the Internet’s riches, yet no government could control the life that went on there. Real-space governments would become as pathetic as the last Communist regimes: It was the withering of the state that Marx had promised, jolted out of existence by trillions of gigabytes flashing across the ether of cyberspace.

But what was never made clear in the midst of this celebration was *why*. Why was cyberspace incapable of regulation? What made it so? The word itself suggests not freedom but control. Its etymology reaches beyond a novel by William Gibson (*Neuromancer*, published in 1984) to the world of “cybernetics,” the study of control at a distance through devices.<sup>4</sup> So it was doubly puzzling to see this celebration of “perfect freedom” under a banner that aspires (to anyone who knows the origin, at least) to perfect control.

As I said, I am a constitutionalist. I teach and write about constitutional law. I believe that these first thoughts about government and cyberspace were just as misguided as the first thoughts about government after communism. Liberty in cyberspace will not come from the absence of the state. Liberty there, as anywhere, will come from a state of a certain kind. We build a world where freedom can flourish not by removing from society any self-conscious control, but by setting it in a place where a particular kind of self-conscious control survives. We build liberty as our founders did, by setting society upon a certain *constitution*.

But by “constitution” I don’t mean a legal text. Unlike my countrymen in Eastern Europe in the early 1990s, I am not trying to sell a document that our framers wrote in 1787. Rather, as the British understand when they speak of their “constitution,” I mean an architecture—not just a legal text but a way of life—that structures and constrains social and legal power, to the end of protecting fundamental values. (One student asked, “constitution” in the sense of “just one tool among many, one simple flashlight that keeps us from fumbling in the dark, or, alternatively . . . more like a lighthouse that we constantly call upon?” I mean constitution as in lighthouse—a guide that helps anchor fundamental values.)

Constitutions in this sense are built, they are not found. Foundations get laid, they don’t magically appear. Just as the founders of our nation learned from the anarchy that followed the revolution (remember: our first constitution, the Articles of Confederation, was a miserable failure of do-nothingness), so too are we beginning to understand about cyberspace that this building, or laying, is not the work of an invisible hand. There is no reason to believe that the foundation for liberty in cyberspace will simply emerge. Indeed, the passion for that anarchy—as in America by the late 1780s, and as in the former Eastern bloc by the late 1990s—has faded. Thus, as our framers learned, and as the Russians saw, we have every reason to believe that cyberspace, left to itself, will not fulfill the promise of freedom. Left to itself, cyberspace will become a perfect tool of control.

Control. Not necessarily control by government, and not necessarily control to some evil, fascist end. But the argument of this book is that the invisible hand of cyberspace is building an architecture that is quite the opposite of its architecture at its birth. This invisible hand, pushed by government and by commerce, is constructing an architecture that will perfect control and make highly efficient regulation possible. The struggle in that world will not be government’s. It will be to assure that essential liberties are preserved in this environment of perfect control. As Siva Vaidhyanathan puts it,

---

While once it seemed obvious and easy to declare the rise of a “network society” in which individuals would realign themselves, empower themselves, and undermine traditional methods of social and cultural control, it seems clear that networked digital communication need not serve such liberating ends.<sup>5</sup>

This book is about the change from a cyberspace of anarchy to a cyberspace of control. When we see the path that cyberspace is on now—an evolution I describe below in Part I—we see that much of the “liberty” present at cyberspace’s founding will be removed in its future. Values originally considered fundamental will not survive. On the path we have chosen, we will remake what cyberspace was. Some of that remaking will make many of us happy. But some of that remaking, I argue, we should all regret.

Yet whether you celebrate or regret the changes that I will describe, it is critical to understand how they happen. What produced the “liberty” of cyberspace, and what will change to remake that liberty? That lesson will then suggest a second about the source of regulation in cyberspace.

That understanding is the aim of Part II. Cyberspace demands a new understanding of how regulation works. It compels us to look beyond the traditional lawyer’s scope—beyond laws, or even norms. It requires a broader account of “regulation,” and most importantly, the recognition of a newly salient regulator.

That regulator is the obscurity in this book’s title—Code. In real space, we recognize how laws regulate—through constitutions, statutes, and other legal codes. In cyberspace we must understand how a different “code” regulates—how the software and hardware (i.e., the “code” of cyberspace) that make cyberspace what it is also regulate cyberspace as it is. As William Mitchell puts it, this code is cyberspace’s “law.”<sup>6</sup> “Lex Informatica,” as Joel Reidenberg first put it,<sup>7</sup> or better, “code is law.”

Lawyers and legal theorists get bothered, however, when I echo this slogan. There are differences, they insist, between the regulatory effects produced by code and the regulatory effects produced by law, not the least of which is the difference in the “internal perspective” that runs with each kind of regulation. We understand the internal perspective of legal regulation—for example, that the restrictions the law might impose on a company’s freedom to pollute are a product of self-conscious regulation, reflecting values of the society imposing that regulation. That perspective is harder to recognize with code. It could be there, but it need not. And no doubt this is just one of many important differences between “code” and “law.”

I don’t deny these differences. I only assert that we learn something useful from ignoring them for a bit. Justice Holmes famously focused the regulator

on the “bad man.”<sup>8</sup> He offered a theory of regulation that assumed that “bad man” at its core. His point was not that everyone was a “bad man”; the point instead was about how we could best construct systems of regulation.

My point is the same. I suggest we learn something if we think about the “bot man” theory of regulation—one focused on the regulation of code. We will learn something important, in other words, if we imagine the target of regulation as a maximizing entity, and consider the range of tools the regulator has to control that machine.

Code will be a central tool in this analysis. It will present the greatest threat to both liberal and libertarian ideals, as well as their greatest promise. We can build, or architect, or *code* cyberspace to protect values that we believe are fundamental. Or we can build, or architect, or code cyberspace to allow those values to disappear. There is no middle ground. There is no choice that does not include some kind of building. Code is never found; it is only ever made, and only ever made by us. As Mark Stefik puts it, “Different versions of [cyberspace] support different kinds of dreams. We choose, wisely or not.”<sup>9</sup> Or again, code “determines which people can access which digital objects . . . How such programming regulates human interactions . . . depends on the choices made.”<sup>10</sup> Or, more precisely, a code of cyberspace, defining the freedoms and controls of cyberspace, will be built. About that there can be no debate. But by whom, and with what values? That is the only choice we have left to make.

My argument is not for some top-down form of control. The claim is not that regulators must occupy Microsoft. A constitution envisions an environment; as Justice Holmes said, it “call[s] into life a being the development of which [cannot be] foreseen.”<sup>11</sup> Thus, to speak of a constitution is not to describe a hundred-day plan. It is instead to identify the values that a space should guarantee. It is not to describe a “government”; it is not even to select (as if a single choice must be made) between bottom-up or top-down control. In speaking of a constitution in cyberspace we are simply asking: What values should be protected there? What values should be built into the space to encourage what forms of life?

The “values” at stake here are of two sorts—substantive and structural. In the American constitutional tradition, we worried about the second first. The framers of the Constitution of 1787 (enacted without a Bill of Rights) were focused on structures of government. Their aim was to ensure that a particular government (the federal government) did not become too powerful. And so they built into the Constitution’s design checks on the power of the federal government and limits on its reach over the states.

Opponents of that Constitution insisted that more checks were needed, that the Constitution needed to impose substantive limits on government’s



power as well as structural limits. And thus was the Bill of Rights born. Ratified in 1791, the Bill of Rights promised that the federal government would not remove certain freedoms—of speech, privacy, and due process. And it guaranteed that the commitment to these substantive values would remain despite the passing fancies of normal, or ordinary, government. These values—both substantive and structural—were thus entrenched through our constitutional design. They can be changed, but only through a cumbersome and costly process.

We face the same questions in constituting cyberspace, but we have approached them from the opposite direction.<sup>12</sup> Already we are struggling with substance: Will cyberspace promise privacy or access? Will it enable a free culture or a permission culture? Will it preserve a space for free speech? These are choices of substantive value, and they are the subject of much of this book.

But structure matters as well, though we have not even begun to understand how to limit, or regulate, arbitrary regulatory power. What “checks and balances” are possible in this space? How do we separate powers? How do we ensure that one regulator, or one government, doesn’t become too powerful? How do we guarantee it is powerful enough?

Theorists of cyberspace have been talking about these questions since its birth.<sup>13</sup> But as a culture, we are just beginning to get it. As we slowly come to see how different structures within cyberspace affect us—how its architecture, in a sense I will define below, “regulates” us—we slowly come to ask how these structures should be defined. The first generation of these architectures was built by a noncommercial sector—researchers and hackers, focused upon building a network. The second generation has been built by commerce. And the third, not yet off the drawing board, could well be the product of government. Which regulator do we prefer? Which regulators should be controlled? How does society exercise that control over entities that aim to control it?

In Part III, I bring these questions back down to the ground. I consider three areas of controversy—intellectual property, privacy, and free speech—and identify the values within each that cyberspace will change. These values are the product of the interaction between law and technology. How that interaction plays out is often counter-intuitive. My aim in this part is to map that interaction, so as to map a way that we might, using the tools of Part II, preserve the values that are important to us within each context.

Part IV internationalizes these questions. Cyberspace is everywhere, meaning those who populate cyberspace come from everywhere. How will the sovereigns of everywhere live with the claimed “sovereignty” of cyberspace? I

map a particular response that seems to me inevitable, and will reinforce the conclusion of Part I.

The final part, Part V, is the darkest. The central lesson of this book is that cyberspace requires choices. Some of these are, and should be, private: Whether an author wants to enforce her copyright; how a citizen wants to protect his privacy. But some of these choices involve values that are collective. I end by asking whether we—meaning Americans—are up to the challenge that these choices present. Are we able to respond rationally—meaning both (1) are we able to respond without undue or irrational passion, and (2) do we have institutions capable of understanding and responding to these choices?

My strong sense is that we are not, at least now, able to respond rationally to these challenges. We are at a stage in our history when we urgently need to make fundamental choices about values, but we should trust no institution of government to make such choices. Courts cannot do it, because as a legal culture we don't want courts choosing among contested matters of values. Congress should not do it because, as a political culture, we are deeply skeptical (and rightly so) about the product of this government. There is much to be proud of in our history and traditions. But the government we now have is a failure. Nothing important should be trusted to its control, even though everything important is.

Change is possible. I don't doubt that revolutions remain in our future. But I fear that it is too easy for the government, or specially powered interests, to dislodge these revolutions, and that too much will be at stake for it to allow real change to succeed. Our government has already criminalized the core ethic of this movement, transforming the meaning of *hacker* into something quite alien to its original sense. Through extremism in copyright regulation, it is criminalizing the core creativity that this network could produce. And this is only the beginning.

Things could be different. They are different elsewhere. But I don't see how they could be different for us just now. This no doubt is simply a confession of the limits of my own imagination. I would be grateful to be proven wrong. I would be grateful to watch as we relearn—as the citizens of the former Communist republics are learning—how to escape these disabling ideas about the possibilities for governance. But nothing in the past decade, and especially nothing in the past five years, has convinced me that my skepticism about governance was misplaced. Indeed, events have only reinforced that pessimism.

## S E V E N

---

---

### w h a t t h i n g s r e g u l a t e

JOHN STUART MILL WAS AN ENGLISHMAN. HE WAS ALSO ONE OF THE MOST influential political philosophers in America. His writings ranged from important work on logic to a still striking text about sexual equality, *The Subjection of Women*. But perhaps his most important continuing influence comes from a relatively short book titled *On Liberty*. Published in 1859, this powerful argument for individual liberty and diversity of thought represents an important view of liberal and libertarian thinking in the second half of the nineteenth century.

“Libertarian,” however, has a specific meaning for us. For most, it associates with arguments against government.<sup>1</sup> Government, in the modern libertarian’s view, is the threat to liberty; private action is not. Thus, the good libertarian is focused on reducing government’s power. Curb the excesses of government, the libertarian says, and you will ensure freedom for your society.

Mill’s view was not so narrow. He was a defender of liberty and an opponent of forces that suppressed it, but those forces were not confined to government. Liberty, in Mill’s view, was threatened as much by norms as by government, as much by stigma and intolerance as by the threat of state punishment. His objective was to argue against these private forces of coercion. His work was a defense against liberty-suppressing norms, because, in England at that time, these were the real threat to liberty.

Mill’s method is important, and it should be our own as well. It asks, What is the threat to liberty, and how can we resist it? It is not limited to asking, What is the threat to liberty from government? It understands that more than government can threaten liberty, and that sometimes this something more can be private rather than state action. Mill was not concerned with the source of the threat to liberty. His concern was with liberty.

Threats to liberty change. In England, norms may have been the threat to free speech in the late nineteenth century; I take it they are not as much a threat today. In the United States in the first two decades of the twentieth century, the threat to free speech was state suppression through criminal penalties for unpopular speech; the strong protections of the First Amendment now make that particular threat less significant.<sup>2</sup> The labor movement was founded on the idea that the market is sometimes a threat to liberty—not so much because of low wages, but because the market form of organization itself disables a certain kind of freedom.<sup>3</sup> In other societies, at other times, the market is a key to liberty, not the enemy.

Thus, rather than think of “liberty’s enemy” in the abstract, we should focus upon a particular threat to liberty that might exist in a particular time and place. And this is especially true when we think about liberty in cyberspace. I believe that cyberspace creates a new threat to liberty, not new in the sense that no theorist had conceived of it before,<sup>4</sup> but new in the sense of newly urgent. We are coming to understand a newly powerful regulator in cyberspace. That regulator could be a significant threat to a wide range of liberties, and we don’t yet understand how best to control it.

This regulator is what I call “code”—the instructions embedded in the software or hardware that makes cyberspace what it is. This code is the “built environment” of social life in cyberspace. It is its “architecture.”<sup>5</sup> And if in the middle of the nineteenth century the threat to liberty was norms, and at the start of the twentieth it was state power, and during much of the middle twentieth it was the market, then my argument is that we must come to understand how in the twenty-first century it is a different regulator—code—that should be our current concern.

But not to the exclusion of other significant “regulators.” My argument is not that there’s only one threat to liberty, or that we should forget other, more traditional threats. It is instead that we must add one more increasingly salient threat to the list. And to see this new, salient threat, I believe we need a more general understanding of how regulation works—one that focuses on more than the single influence of any one force such as government, norms, or the market, and instead integrates these factors into a single account.

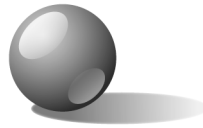
This chapter is a step toward that more general understanding.<sup>6</sup> It is an invitation to think beyond the threat to liberty from government power. It is a map for this more general understanding.

#### A DOT’S LIFE

There are many ways to think about “regulation.” I want to think about it from the perspective of someone who is regulated, or, what is different, con-

strained. That someone regulated is represented by this (pathetic) dot—a creature (you or me) subject to different regulations that might have the effect of constraining (or as we’ll see, enabling) the dot’s behavior. By describing the various constraints that might bear on this individual, I hope to show you something about how these constraints function together.

Here then is the dot.



How is this dot “regulated”?

Let’s start with something easy: smoking. If you want to smoke, what constraints do you face? What factors regulate your decision to smoke or not?

One constraint is legal. In some places at least, laws regulate smoking—if you are under eighteen, the law says that cigarettes cannot be sold to you. If you are under twenty-six, cigarettes cannot be sold to you unless the seller checks your ID. Laws also regulate where smoking is permitted—not in O’Hare Airport, on an airplane, or in an elevator, for instance. In these two ways at least, laws aim to direct smoking behavior. They operate as a kind of constraint on an individual who wants to smoke.

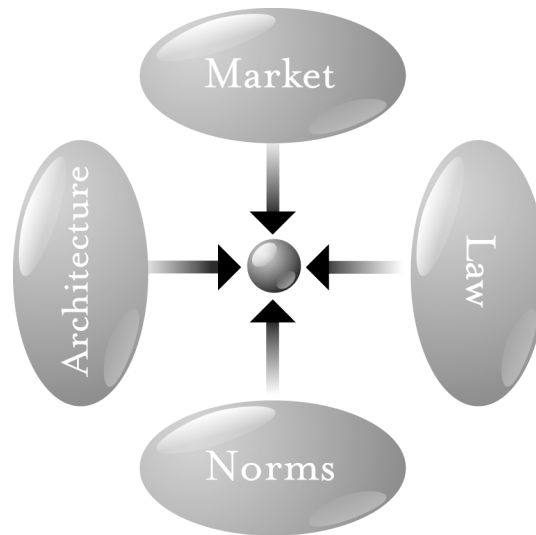
But laws are not the most significant constraints on smoking. Smokers in the United States certainly feel their freedom regulated, even if only rarely by the law. There are no smoking police, and smoking courts are still quite rare. Rather, smokers in America are regulated by norms. Norms say that one doesn’t light a cigarette in a private car without first asking permission of the other passengers. They also say, however, that one needn’t ask permission to smoke at a picnic. Norms say that others can ask you to stop smoking at a restaurant, or that you never smoke during a meal. These norms effect a certain constraint, and this constraint regulates smoking behavior.

Laws and norms are still not the only forces regulating smoking behavior. The market is also a constraint. The price of cigarettes is a constraint on your ability to smoke—change the price, and you change this constraint. Likewise with quality. If the market supplies a variety of cigarettes of widely varying quality and price, your ability to select the kind of cigarette you want increases; increasing choice here reduces constraint.

Finally, there are the constraints created by the technology of cigarettes, or by the technologies affecting their supply.<sup>7</sup> Nicotine-treated cigarettes are addictive and therefore create a greater constraint on smoking than untreated cigarettes. Smokeless cigarettes present less of a constraint because they can be smoked in more places. Cigarettes with a strong odor present more of a constraint because they can be smoked in fewer places. How the cigarette is, how it is designed, how it is built—in a word, its architecture—affects the constraints faced by a smoker.

Thus, four constraints regulate this pathetic dot—the law, social norms, the market, and architecture—and the “regulation” of this dot is the sum of these four constraints. Changes in any one will affect the regulation of the whole. Some constraints will support others; some may undermine others. Thus, “changes in technology [may] usher in changes in . . . norms,”<sup>8</sup> and the other way around. A complete view, therefore, must consider these four modalities together.

So think of the four together like this:



In this drawing, each oval represents one kind of constraint operating on our pathetic dot in the center. Each constraint imposes a different kind of cost on the dot for engaging in the relevant behavior—in this case, smoking. The cost from norms is different from the market cost, which is different from the cost from law and the cost from the (cancerous) architecture of cigarettes.

The constraints are distinct, yet they are plainly interdependent. Each can support or oppose the others. Technologies can undermine norms and laws; they can also support them. Some constraints make others possible; others make some impossible. Constraints work together, though they function differently and the effect of each is distinct. Norms constrain through the stigma that a community imposes; markets constrain through the price that they exact; architectures constrain through the physical burdens they impose; and law constrains through the punishment it threatens.

We can call each constraint a “regulator,” and we can think of each as a distinct modality of regulation. Each modality has a complex nature, and the interaction among these four is also hard to describe. I’ve worked through this complexity more completely in the appendix. But for now, it is enough to see that they are linked and that, in a sense, they combine to produce the regulation to which our pathetic dot is subject in any given area.

We can use the same model to describe the regulation of behavior in cyberspace.<sup>9</sup>

Law regulates behavior in cyberspace. Copyright law, defamation law, and obscenity laws all continue to threaten *ex post* sanction for the violation of legal rights. How well law regulates, or how efficiently, is a different question: In some cases it does so more efficiently, in some cases less. But whether better or not, law continues to threaten a certain consequence if it is defied. Legislatures enact;<sup>10</sup> prosecutors threaten;<sup>11</sup> courts convict.<sup>12</sup>

Norms also regulate behavior in cyberspace. Talk about Democratic politics in the alt.knitting newsgroup, and you open yourself to flaming; “spoof” someone’s identity in a MUD, and you may find yourself “toaded”;<sup>13</sup> talk too much in a discussion list, and you are likely to be placed on a common bozo filter. In each case, a set of understandings constrain behavior, again through the threat of *ex post* sanctions imposed by a community.<sup>14</sup>

Markets regulate behavior in cyberspace. Pricing structures constrain access, and if they do not, busy signals do. (AOL learned this quite dramatically when it shifted from an hourly to a flat-rate pricing plan.)<sup>15</sup> Areas of the Web are beginning to charge for access, as online services have for some time. Advertisers reward popular sites; online services drop low-population forums. These behaviors are all a function of market constraints and market opportunity. They are all, in this sense, regulations of the market.

Finally, an analog for architecture regulates behavior in cyberspace—code. The software and hardware that make cyberspace what it is constitute a set of constraints on how you can behave. The substance of these constraints may vary, but they are experienced as conditions on your access to cyberspace. In some places (online services such as AOL, for instance) you must enter a

password before you gain access; in other places you can enter whether identified or not.<sup>16</sup> In some places the transactions you engage in produce traces that link the transactions (the “mouse droppings”) back to you; in other places this link is achieved only if you want it to be.<sup>17</sup> In some places you can choose to speak a language that only the recipient can hear (through encryption);<sup>18</sup> in other places encryption is not an option.<sup>19</sup> The code or software or architecture or protocols set these features, which are selected by code writers. They constrain some behavior by making other behavior possible or impossible. The code embeds certain values or makes certain values impossible. In this sense, it too is regulation, just as the architectures of real-space codes are regulations.

As in real space, then, these four modalities regulate cyberspace. The same balance exists. As William Mitchell puts it (though he omits the constraint of the market):

Architecture, laws, and customs maintain and represent whatever balance has been struck in real space. As we construct and inhabit cyberspace communities, we will have to make and maintain similar bargains—though they will be embodied in software structures and electronic access controls rather than in architectural arrangements.<sup>20</sup>

Laws, norms, the market, and architectures interact to build the environment that “Netizens” know. The code writer, as Ethan Katsh puts it, is the “architect.”<sup>21</sup>

But how can we “make and maintain” this balance between modalities? What tools do we have to achieve a different construction? How might the mix of real-space values be carried over to the world of cyberspace? How might the mix be changed if change is desired?

#### ON GOVERNMENTS AND WAYS TO REGULATE

I’ve described four constraints that I’ve said “regulate” an individual. But these separate constraints obviously don’t simply exist as givens in a social life. They are neither found in nature nor fixed by God. Each can be changed, though the mechanics of changing them is complex. Law can have a significant role in this mechanics, and my aim in this section is to describe that role.

A simple example will suggest the more general point. Say the theft of car radios is a problem—not big in the scale of things, but a frequent and costly enough problem to make more regulation necessary. One response