

SILICON SIMULACRA

Post-humans of the Machine Worlds

Len Ellis

Preface and Introduction

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PREFACE

Like many liberal arts PhDs who couldn't find a decent paying job in academia, I drifted into marketing and earned a good living working at big Madison Avenue agencies. Most of my career was spent on the leading edge, doing data-based and online marketing, and one thing kept gnawing at me: the consumer-like entities with whom I was communicating—data profiles and cyberpersonas—were as a matter of fact part human and part machine. I looked for a book about these hybrid entities but couldn't find one. So, I wrote one. At the end of the day, the result seemed worth sharing.

Although the text combines my academic and business backgrounds, it doesn't advance scholarship and won't improve anyone's ROI. Rather, it seeks to complement the literatures of both communities. For academics, the examination of real-world practices puts meat on the bones of their largely theoretical arguments, of course with the messiness for which the real world is well known. Conversely, these theoretical arguments reveal to marketers dimensions and trajectories of their real-world practices that are outside their conceptual frameworks, naturally with the abstraction for which ivory-tower thinking is well known.

The perception of hybrid entities, emerging within databases and networks, could only be presented as an essay, one person's working out of a topic. So the aim is to make a plausible argument and do so in language as plain as the topic allows. Accordingly, the text examines closely the assumptions, mechanics and dynamics of our virtual versions but largely ignores their rapidly evolving technical details. The omissions of greater substance are multiplayer games and virtual worlds. Role-playing in immersive environments through customized avatars is a novel arena for social interaction that one day may have broad implications, but it's currently a niche interest. Meanwhile, our silicon simulacra apply to everyone, are here today and are no game.

In developing this analysis, I borrowed a lot from others. The notes acknowledge them. For readers who want to delve deeper, the notes often include references to others' works on the same topics as well as occasional bibliographic comments. For the record, these references do not imply that the authors cited would agree with the arguments advanced here. The bibliography is limited to works that were quoted in the text or especially important to its arguments. All Web pages referenced in the notes and bibliography were accessible as of February 2010. To facilitate sharing portions of the book's argument, individual chapters are available as PDF files at www.siliconsimulacra.com

Various friends, relatives, co-workers and teachers read parts of the manuscript along the way, and their comments helped me strengthen and clarify its arguments. These generous folks include Andrew Ellis, Tess Harris, Max Kalehoff, Richard Kluger, Rebecca Lieb, Michael Lydon, Lois Lynn, Allan Silver and Brooke Knight Warner. Erin Brenner did an excellent job in preparing the manuscript for publication, as did the team at CreateSpace, Amazon's print-on-demand company. Any deficiencies rest, of course, with the author.

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INTRODUCTION

If a man would rather be a machine, I cannot argue with him. He is a different being from me.

—Samuel Johnson in James Boswell, *The Life of Samuel Johnson* (1858)

What is used as an element in a machine is in fact an element in a machine.

—Norbert Weiner, *The Human Use of Human Beings* (1950)

As far back in time as we know, humans and our tools have been interrelated. Our hominid precursors invented tools approximately 2 million years ago and altered the course of their evolution. Over the next 1.8 million years, their success with tools changed the pressures of natural selection and played a causal role in the emergence of *Homo sapiens* and our physiology—our bipedalism, brain size, pelvic structure and other physical features.¹ Ever since, we've been inventing tools, machines and technologies that augment our powers. But until recently, humans and our devices have been separate.

Today, scientists are busy blurring that boundary. Some are trying to upload the human brain, encoding its operations into computers to enable these machines to think, even learn; that branch of computer science is called artificial intelligence. Others are working in the field of virtual reality, physically sticking their heads and hands into machines via head-mounted displays and data gloves that feed images, sounds and other signals directly into the human sensorium.

While these pursuits are on the leading edge, the rest of us, at least in the wired nations, are already immersed

from the neck up in two of the biggest technologies ever invented: the datascape and cyberspace. The former refers to the vast array of business and government computers where data about every one of us is processed, stored, exchanged, combined, analyzed and then acted upon. The latter refers to the worldwide network of interlinked computers, through which everyone can connect with everyone else.

Both the datascape and cyberspace are close to the concept of technology as explored by Martin Heidegger in “The Question Concerning Technology.” As a philosopher, Heidegger tried to grasp the essence of technology, the particular claim of *all* technology *everywhere* and *always*, regardless of any specific purposes and properties. That essence is mastery, and it poses two inherent dangers: it’s expansionist and reductionist. That is, technology will take from the world anything it needs and reduce it into a means to an end. It’s a way of being in the world that sets up and brings forth all things so they are available as a stockpile of manipulatable resources on call for instrumental use. The datascape and cyberspace are specific instances; they set up and bring forth humans in particular ways to, with and for others’ use. But there’s a crucial difference. For Heidegger, human and machine were still subject and object. In the datascape and in cyberspace the human subject is reconstituted inside the machine as an element of the object.²

In popular science fiction the nightmare of humankind being subjugated by a marching army of androids has been superseded by the threat of being assimilated into human-machine collectives, like “the Borg” from the television series *Star Trek: The Next Generation* or “The Matrix” of the Hollywood movie series—hive-like amalgams of flesh and metal, blood and data, that are both self and society at once. That future of human assimilation into the machine is reality today. All of us are already reconstituted inside the datascape as data profiles and in cyberspace as cyberpersonas.

These simulacra are hybrid entities. They are part human. We continually update both the datascape and cyberspace, and as we change, our simulacra change in tan-

dem. And they are part machine. In the datascape we appear as probabilities of behavior, an informational output; in cyberspace, we appear as patterns of connections, a network effect. The data profile and cyberpersona are our machine appearances, the forms in which these two machines set us up and bring us forth to, with and for others within them. How we stand relative to each differs. We are largely passive in the datascape. The powerful call us up as probabilities to inform their decision making. We are largely active in cyberspace. We create our own patterns as we present ourselves to and connect with others. Before examining when and how our simulacra came to be, how they re-present us and what opportunities and challenges each poses, the self they re-present needs its own introduction.

The Modern Self

The self we know and to whom many still aspire—the continuous, whole and bounded individual whose will is exercised in choice and action—did not always exist. He (sic) emerged with the modernization of Western society, a transformation that began in the 16th century and reached maturity in the early 20th. At the end of the 20th century, this self started to disappear and may be gone altogether in the 21st. Here’s the gist of that history.

The foundational ethos of modern Western culture was humanism, the belief that Man possesses an end of his own and that human agency is the source of hope, critique and progress, the engine of history and the locus of emancipation. That ethos was a recipe for continual change and what happened over four centuries of modernization was this: The Reformation, Renaissance, Scientific Revolution, French Revolution and Industrial Revolution gave rise to the nation state, the spread of market capitalism and the emergence of mass urban society.

Two features distinguished how modernity organized human affairs. One was the chunking up of social life into

separate realms—church and state, government and commerce, work and leisure, knowledge and labor, science and art—with institutions and practices specific to each. The most basic division, ubiquitous and a given for the others, was that between the public and private spheres and the types of relationships that prevailed in each. The public sphere, largely government and commerce, was organized using *impersonal* relationships, such as transactions, contracts, laws, rules and other standardized procedures, that were to govern the pursuit of power and wealth among *replaceable* persons. The private sphere, largely family, lovers and friends, consisted of *personal* relationships—unguarded expressions of intimacy, affection and generosity—based on the unique qualities of *irreplaceable* persons.³

Modernity's second distinguishing feature was to cast the individual as the irreducible unit of both spheres but in two modes, pursuing self-interest in the public sphere and self-expression in the private. In modernity's public sphere, individualism meant the equality of all, a radical idea at the time. In the medieval period, collective life and one's station in that life were organized by hierarchal social bonds defined by birthright and custom, such as the privileges of the estates, the control of commerce by guilds, the coercion of faith by the clergy and others. Champions of modernity characterized these social relationships as artificial and restrictive, arguing instead that all men were fundamentally alike, sharing an essential and constant nature, and should enjoy the status and rights appropriate to all men. Once the 18th century secured the equality of all men in the public realm, the 19th century turned to the uniqueness of each individual in the private sphere. What was general to all became the ability of each to be this and no other individual. The incomparable self, realized largely in the private sphere, was how the universal found expression in the 19th century.

Working out the two individualisms was a central theme of modern Western culture. Self-interest with its calculating instrumental rationality is usually traced back to René

Descartes' "detached thinker" and then forward to the enlightened self-interest upon which John Locke based a liberal political philosophy and Adam Smith based his theory of self-regulating markets. Self expression with its inner outpourings is usually traced back to Jean-Jacques Rousseau's "natural man" and then forward into Romanticism, most notably among English and German poets, yielding our modern concepts of art, genius and individuality. In summary, modernity entailed two modes of individualism: the equality of all in pursuing self-interest through impersonal relationships with replaceable others in the public sphere and the uniqueness of each in pursuing self-expression through personal relationships with irreplaceable others in the private sphere.⁴

No sooner had the individual become established as the irreducible unit of both spheres than the assumptions about the world on which he was based came under diverse and ultimately fatal attacks. Karl Marx the social thinker, not the political agitator, launched the first attack in the mid-19th century. He killed off Culture with a compelling argument that our material conditions, especially for Marx the regime of production, shape the ideals to which we aspire as well as how we express our aspirations. Around the same time Charles Darwin knocked off both Man and Nature. He demoted Man to man, surrendering our unique status in the universe in exchange for a small branch in the animal kingdom, and he recast Nature as an engine blindly selecting for survival those individual variations better suited to local conditions. Two decades later God died. Friedrich Nietzsche wrote His obituary in 1882 and included all the other external moralities of good and evil. Early in the new century, Science lost its truth status when Albert Einstein bumped off Isaac Newton by proving that space and time were not absolute concepts but were instead relative to the observer. Meanwhile Freud led us to doubt the Self. We could no longer believe the reasons that we professed to account for our actions; they were likely rationalizations, sublimations or some other distortion

of inner urges. The coup de grace was World War I's massive butchery. Machine guns, mustard gas, tanks and aeroplanes blew up what was left of our 19th century ideals: the chivalric holdovers of honor and glory, the belief that technology per se meant improvement and the legitimacy of lesser authorities, civil, religious and familial.

The systematic unraveling of our truths took up most of the 20th century. The liberal arts, including history and literature, and the social sciences, including anthropology, economics and sociology, were deconstructed, revealing foundations built not on universal truths but on local ideals, resulting in baked-in "biases." Within just a few generations, the entire Western canon was trashed as the ideology of dead white males, masking, by accident or by design, racism, sexism, colonialism and imperialism, while humanism itself was derided as misguided hubris. As for the physical sciences, after Einstein, they all went "relative to the observer." Truths were no longer givens in Nature waiting to be revealed but were instead replicable answers to specific questions posed by particular people in particular times and places for particular purposes. In short, nothing was ever discovered. Everything was always invented. Such bedrock concepts as empiricism, objectivity, experimentation and measurement still produced practical and reliable answers to the questions posed, but now the answers and the questions that conjured them into existence are understood as socially constructed.

The *death of God* is the smart set's shorthand for modernity outsmarting itself into relativism — everything is as meaningful as everything else—and into nihilism—human life and history have no grand purpose, meaning or destiny. In casting off God, Man, Nature, Science and all the other universal, eternal and certain higher truths and grand narratives, modernity also cast the individual adrift. A frequently quoted passage from Albert Camus' *The Myth of Sisyphus* describes our malaise midway through the 20th century: "In a universe divested of illusions and light, man feels an alien, a stranger. His exile is without remedy since he is deprived

of the memory of a lost home or the hope of a promised land."

Today, rudderless relativism is the new normal. The ongoing proliferation of media, publicizing myriad perspectives, proves repeatedly every day that no one truth exists. Similarly, late-modern aesthetics embraces a world of many truths and, so, favors collage and pastiche in art and fusion and mixture in music. Ethics bend the same way, toward detachment, irony and the easy acceptance of a plurality of pleasures, none of which has meaning superior to the others. Hardly anyone today asks meaning-of-life questions—where we come from, why we're here and where we're going—because hardly anyone believes that truths are available to answer those questions. Instead, a late-night TV comedian jokes about truthiness: "something that seems like truth—the truth we want to exist." This resonates so broadly, it was named Word of the Year by the American Dialect Society in 2005 and by Merriam-Webster in 2006.

Not only are the grand narratives in disarray, but our little lives as producers and consumers are in a tizzy as well. No longer do we expect to stay at one company for a lifetime and retire with a gold watch and a company pension. All jobs today are temporary, and we're told that our skills must be portable and that we must be open to and adept at re-skilling so we can plug into new opportunities as they arise. Similarly, the one-size-fits-all American Dream that the World War II generation shared was succeeded by the marketing of difference, at first to groups, then to segments and niches, tomorrow to markets of one. Modernity premised the individual as the irreducible unit of everything and, thanks largely to modernity, it's the only thing we can lay claim to.

And even that claim is slipping away. The individual as the hero of modernism—owner of his own person and capabilities, whose autonomous will is exercised in choice and action in the polity, economy and family—was always theoretical rather than actual. From the very birth of modernity, everyone knew that "no man is an island, entire to itself,"

while much of modern social science has focused on proving just how much of our individuality is neither singular nor original but is instead molded by and with others through such patterns of social interaction as acculturation, socialization, reference groups, peer pressure, significant others, other-directedness and status seeking. Nurture as much as nature shapes each of us, we now believe, inside and out.

In today's late-modern age we even question the existence of an individual subjectivity that is bounded off from others. According to appraisals associated with theories of phenomenology in philosophy, deconstruction in literary criticism and post-structuralism in linguistics, the "in here" of each of us exists in language. Like the fish doesn't know it's in water, we can't easily apprehend that each of us comes to consciousness within language and that every thought and feeling is a borrowing from, a reconfiguration of and a re-presentation of what's already there, prefigured, in language. Just as the "out there" of history, physics, sociology, biology and so on are now seen as socially constructed by and within communities of interpretation, so too each individual's "in here" is no longer seen as bounded off from others but as co-created with others from within language.

While this perspective reframes the self's subjectivity as inter-subjective, it still leaves one boundary intact, the boundary between the world of subjects and the world of objects, between humans and things. The two phenomena examined here cross this boundary in and across our everyday life. Each of us is already immersed in the datascape and increasingly immersed in cyberspace, and each of us is reconstituted by and within each machine as data profiles and cyberpersonas, respectively.⁵

These hybrid entities are this book's foreground, the describable and comprehensible manifestations of the larger phenomenon that can be glimpsed in the background, the assimilation of humans to machines and the emergence of the post-human. This new term refers to an entity that comes from and is continually nourished by the carbon-based world

but is disembodied, shaped by and for the silicon-based world. The vector from carbon to silicon is information, and the resulting entity lacks the boundaries, coherence and destiny of singular individuals. It is instead composed of heterogeneous components that are subject to continuous construction and reconstruction and that manifest different identities under different perspectives.⁶ This post-human form is the way we are set up and brought forth in both machine worlds, but the particulars of each are the place to begin.

Data Profiles

Profiles of us made in the datascape make many people uneasy. One issue is power, our sense that calculations, judgments and decisions about us are being made behind the scenes in unknown ways that could be damaging and over which we have no control. Initially, government was the threat. In Franz Kafka's novel *The Trial* (1916—1917, published posthumously in 1925), a judicial court has accused and arrested the protagonist but will not reveal what information it has, what decisions it's making or what crimes it's charging; the ordeal is a nightmare. A no less chilling everyday reality was described in *Cancer Ward* (1968) by Alexander Solzenitsyn:

As every man goes through life he fills in a number of forms for the record, each containing a number of questions ... There are thus hundreds of little threads radiating from every man, millions of threads in all. If these threads were suddenly to become visible, the whole sky would look like a spider's Web, and if they materialized as rubber bands, buses, trams and even people would all lose the ability to move, and the wind would be unable to carry torn-up newspapers or autumn leaves along the streets of the city. They are not visible, they are not material, but every man is constantly aware of

their existence ... Each man, permanently aware of his own invisible threads, naturally develops a respect for the people who manipulate threads.⁷

In the 1970s Western European nations and the United State—the former, systematically, the latter, haphazardly—started putting limits on the state’s use of data. Today, even when aimed at protecting citizens from terrorists, government initiatives with data analytics are criticized as profiling, while its use of personally identifiable information is curbed on privacy grounds. We have many watchdogs to protect our liberties against government encroachment, as we should, but data in that same decade escaped the boundaries of governments and their bureaucracies. That’s when businesses, large and small, enabled by the availability of low-cost computing and consumer-level data, began parsing us into data-based profiles.

Consumers know the parts of this commercial practice that we can see. We know that most of the data are the electronic detritus that we leave behind in the process of consuming whenever we pay with plastic, browse a Web site, use a frequent shopper card, request information, submit claims, use a cell phone, return a warranty card, enter a sweepstakes, fill out a survey and act in any other way that surrenders data to merchants. We also know the general purpose of their data-crunching—to enable businesses to determine which goods and services, which incentives and benefits, they should offer to whom—because we’re on the receiving end. Some also know that this data travels; it’s bought, sold and combined with still other data to create profiles of us that suit the still different purposes of still other marketers.

Privacy defenders decry this practice but their accusations are ill grounded and misleading. Data-based profiles are not individual dossiers. Profiles describe groups, aggregates of hypothetical “persons” statistically defined as more likely than others to behave in some way desired by a marketer. These groups are created to enable marketers to differen-

tiate these persons from those persons and to treat them differently, justified by optimizing profits or efficiency. Of course, statistical differentiation in the service of commercial discrimination engenders problems of fairness and transparency. These are not privacy issues, however. Rather, they speak to how the method is used and as such are rather superficial. The deeper issues with data-based marketing are rooted in the assumptions of social statistics, the older and more general method for using numbers to apprehend human affairs of which marketing analytics is a commercial version.

The first chapter recounts how this lens was developed in the 19th century to help particular people achieve particular purposes. It reveals the two limitations that are intrinsic to this method and that persist today. First, social statistics measures and predicts frequencies of individual variability within populations. It cannot explain, much less predict, anything at all about individuals. Second, the data that are rolled up into statistics are created by performing radical surgery on reality. Creating any datum requires such surgery but, when applied to human affairs, the process cannot capture much of what actually matters most to humans—our ideals, aspirations, possibilities and other qualitative future-facing drivers of human nature and action. The disappearance of individuals’ qualities and possibilities was loudly criticized at the birth of the social statistics, as was the peril in this practice: the more prevalent data-based decision making about human affairs becomes, the more it tends to erode the legitimacy of those other ways of apprehending human affairs that do address those matters and push them into the shadows.

Roughly a century later, the data-based view of human affairs did become nearly ubiquitous in the wildly successful commercial practice of data-based marketing. The second chapter is a brief history of this development. Starting in the 1970s, the advent of the Information Age, especially the availability of low-cost data about individual consumers and their households and low-cost data processing, made

this type of marketing possible. It was an economic crisis, however, that made it advantageous. Specifically, this way of framing and addressing consumers helped rescue the entire U.S. economy by turning it away from mass-manufacturing and mass-marketing the American Dream to the manufacturing of variety and the marketing of difference. Its success in parsing us by our differences in order to predict who among us are most likely to buy what products is the unsung hero of this tectonic shift. Over the last four decades, it helped drive consumer spending to over 70 percent of U.S. gross domestic product while driving its own growth to roughly half of all external spending by U.S. marketers.

The third chapter of the book's first half examines the three ways in which marketers address us: how all marketing communications conjures us up as self-expressionists; then, more narrowly, how advertising conjures us up as daydreamers; finally and quite closely, how data-based marketing conjures us up as probabilities.

Probabilistic profiles of ersatz "persons" provide the basis for almost all marketing decision making today, and all of us are conjured up, thousands of times daily, as some constellation of attributes that define some of us as more likely than others to fulfill some marketer's desire. Consider, for example, a college grad with liquid assets of \$200,000 living in a mid-sized city, a mother with a cat and a European car and a head of household operating a home office. These are not three people, they're three profiles of the same person, created by three different marketers, each for his own purpose. Marketers work the datascape like a kaleidoscope, continually churning us into profiles, and we're never the same person twice. Indeed, we're never even our own person once. In each and every instance, the eye of the beholder defines us.

This practice doesn't compromise individuals, it reconstitutes us as informational entities. It's a coding practice. The records of our individual lives are the flow of raw material for remaking us into probabilities designed to meet the purposes of others, and a probability as an informational en-

tity has qualities of its own. It exists only when called up, can only be called up in particulars relative to the observer and when called up is open to entrance and manipulation. Based on us but not us, the profile is a post-human entity, half human and half machine.

This lens sets up and brings forth society in its own way, too, and that determines a second way in which the self is represented. The larger vision of society within which data-based marketing conceives its profiles is the geo-demo-psychographic segmentation schema. The multiple modifiers just mean that three different types of data—geographic, demographic and attitudinal—are used to parse the entire population into diverse lifestyle-based segments and to place each of us in the segment that we most resemble. Like tiles in a mosaic, however, the segments only make sense in the context of the whole.

The rarely discussed whole has three problematic features. First, it sees American society as a socio-economic stratification (SES) system. That way of understanding our social fabric is useful for marketers and the rest of us, but it's not the only way. Second, the vision of our SES system that's actually in use omits most of the socio-economic changes that occurred over the second half of the 20th century and actually challenge us today. Finally, like all feedback systems, this decision-making framework reinforces and perpetuates itself. In short, the self inside this machine is a set of probabilities useful to others, constantly changing but always tumbling in place.

Critics complain that our everyday life has become "informatized" and "interpenetrated by information flows" and that the self has become porous, "leaking out into the environment while open to entrance" and "multiplied by databases." Data-based marketing is the practice responsible in large part for these transformations. As a way of apprehending human affairs, it has, as its earliest critics feared, largely displaced people with probabilistic aggregates of ersatz "persons" and, applying Heidegger's definition of technology: it's one way

we make our world ready for our consumption and make ourselves ready to consume it.

Cyber Personas

Cyberspace is also a pervasive computer-based technology that sets us up and brings us forth but in a different way. In the datascape, computers are used for crunching data and churning out probabilistic profiles; in cyberspace computers are used for communication. To understand how we're set up and brought forth in this machine world, it's first necessary to understand two basic facts about how cyberspace itself is set up. Specifically, the Web address and the hyperlink shape the Web into a terrain in which communications flows in certain directions. That's the context in which our cyber-persona is emerging.

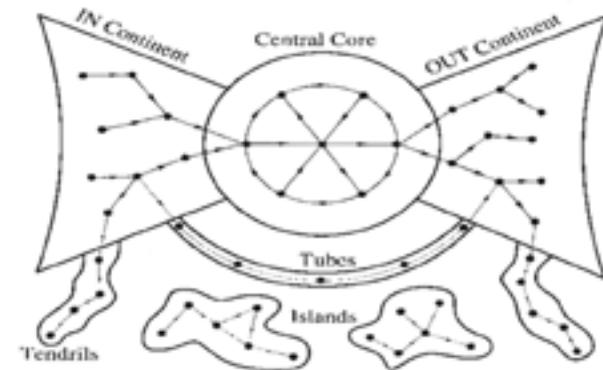
Every Web page has a unique string of numbers, called a Universal Resource Locator (URL) that serves as its address. For human convenience, each numerical string is turned into a name (www.anysite.com) and can be extended into a name for a particular page on a particular site (www.anysite.com/sitemap). The International Corporation for Assigned Names and Numbers (ICANN) organizes all these addresses into one vast branching hierarchy. As one goes down the hierarchy, the branches get smaller and smaller until one gets to the one branch and then to the one leaf that's the precise Web page one is looking for. This hierarchy includes every site, every page, every image on the Web and is mandatory. For anything to appear on the Web, it must have an assigned name and number; if not, it doesn't exist. This tightly controlled, top-down hierarchy ensures that everything on the Web has one and only one location.

The hypertext link is a one-way pointer. Placed inside one URL (the source page), a link points to another URL (the destination page). Although any URL can link to any other URL, linking behavior follows a pattern: we insert links to those URLs that we know about and deem relevant.

That behavior is called preferential attachment and has consequences. The more inbound links a Web page gathers, the more others are likely to find it. Some will create new links to that page, making it likely that even more users will find that page; some of them in turn will create new links to that page, and so on. In short, the use of one-way links creates a popularity dynamic in which the well linked become even better linked.

Every network with stable nodes and one-way pointers evolves into a *directed* network with three "continents," and the Web is no exception. Applying the following map of a generic directed network to the Web, individuals are on the left, businesses on the right and search engines, portals and major online media are in the center. Individuals can create links that go in to the Central Core, a personal Web site,

The Continents of a Directed Network



Source: Albert-László Barabási. *Linked: The New Science of Networks*. Cambridge, MA: Perseus Publishing, 2002.

for example, can link to a page at Yahoo or ESPN, but sites in the Core don't link back to individuals. From the Core, there are links going out to businesses and their brands but there are rarely any links going back; in fact, these nodes

typically dead-end. (Individuals can and do sometimes link directly to business or brand sites but, again, they rarely link back.) According to a 2002 estimate, one can reach only 24 percent of the Web by following links.⁸ Developments in the OUT and IN Continents are the contexts within which our cyberpersonas are emerging.

The book's second half explores our cyberpersona, and its leadoff chapter considers how we appear to the consumer-facing business sites of the OUT Continent. Most of us have visited this continent many times to book travel, buy a book, do our banking, shop for a car and conduct hundreds of other everyday consumer activities. From the marketer's perspective, our visits to their sites flow in an inbound direction. That's a new situation; traditionally, marketers communicate in an outbound direction. So, the buzz *du jour* along Madison Avenue is about less intrusion and more attraction, less capturing and more seducing, less talking and more listening. While marketers are busy inverting their practices, technical solutions are being developed that will take us to the logical conclusion: user-managed interfaces that enable each of us, through our ongoing and voluntary self-disclosure, to "advertise" our needs and wants as consumers to the vendors and merchants we hope will fulfill them. Such a role reversal would save marketers millions, but consumers aren't likely to get paid for making our needs and wants knowable. More likely, we'll think this empowering and freely invert ourselves from objects of marketers' desires into subjects to whom they can pay their attentions. This "virtual consumer" is a likely component of everyone's emerging cyberpersona.

Hundreds of millions of us are already busy happily disclosing ourselves, typing ourselves into public existence on the IN Continent via Web 2.0 services that enable users to generate content and connect with each other. The next chapter examines the most popular among today's services—social network sites, blogs, reviewer sites, file-hosting services and social bookmarking sites—to reveal how each service shapes our self-presentation in different and important ways

and to suggest that cyberpersona has two components: content and connections. Content has two dimensions. One's online *presence* refers to the quantity of content one has generated, whereas one's online *reputation* refers to what others think of that content's quality. Our connections are the links to and from others with whom we share content, and our cyberpersona as a network phenomenon rests on, emerges from and expresses the patterns and rhythms of those connections: You are who you network with, where you link to and with whom you share. The two-fold process for generating "virtual me"—self-disclosure through content that creates presence and co-creation through connections (links and clicks) that create reputation—will likely become inescapable as more of our everyday life either occurs or is replicated online.

Cyberspace is setting us up and bringing us forth in a third way as well: enabling us to think together. Of course, no one ever thinks alone, but we rarely notice because the social basis for thinking resides in the deep background of consciousness, language and culture. The Web isn't changing that, but it is spawning several novel mechanisms that claim to generate and harness "collective intelligence," new knowledge that is greater than the sum of its inputs. These mechanisms are used behind the scenes at Google, Amazon, Netflix, eBay and other sites we know well. The last chapter examines closely the three most popular—crowdsourcing, recommender systems and prediction markets—to reveal what these mechanisms upload from our brains, how they process our inputs and whether the outputs they generate represent us in ways that are actually collective and intelligent.

The datascape and cyberspace are different machines and our simulacra—data profiles and cyberpersonas—are different. Both, however, are hybrids—part human, part machine. Our real lives are their raw materials, but we are brought forth in machine terms, as probabilities of behaviors and patterns of connections. In both machine worlds we

become public, albeit in silicon rather than carbon, and although we cannot change how these machines set us up and bring us forth to and with others, the conclusion considers our rights and responsibilities to the post-human entities that re-present us inside these machines.

Two appendices provide practical advice for those who want to take up these matters in their personal lives: how to reduce commercial trafficking in one's personal information within the datascape and how to start building and managing one's self-presentation in cyberspace. In researching this book, I came across various satirical works that address its topics and gathered them into an interlude.

Notes

1 Sherwood Washburn, "Tools and Human Evolution," *Scientific American* 203 (September 1960), 63-75 is the classic statement.

2 This often-anthologized essay is included in Martin Heidegger, *Basic Writings*, ed. David Farrell Krell (New York: Harper & Row, 1977). Mark Poster, *What's the Matter with the Internet?* (Minneapolis: University of Minnesota Press, 2001) 27—38 provides a plain-English explanation.

3 Although the impersonal public and personal private spheres assert different claims on the individual, they are not opposed but complementary. Allan Silver, "Two Different Sorts of Commerce"—Friendship and Strangership in Civil Society," in Jeff Weintraub and Krishan Kumar, eds., *Public and Private in Thought and Practice: Perspectives on a Grand Dichotomy* (Chicago: University of Chicago Press, 1997), 43–74 suggests that making the public sphere impersonal created the opportunity for the private sphere to become personal.

4 Georg Simmel, "Individual and Society in Eighteenth- and Nineteenth-Century Views of Life" in Kurt Wolff, trans. and ed., *The Sociology of Georg Simmel* (New York: The Free Press, 1967), 58-84.

5 Mark Poster, *The Mode of Information: Post-Structuralism and Social Context* (Chicago: University of Chicago Press, 1990) applies "post-modern" perspectives to different electronic media and provides much of the theoretical background used in this book.

6 This definition is a radically simplified version of the analysis offered by N. Katherine Hayles, *How We Became Post-Human: Virtual Bodies in Cybernetics, Literature and Informatics* (Chicago: The University of Chicago Press, 1999), especially 27-36. Others use the term to refer to a embodied entity that exceeds human skills and intellect through artificial intelligence, genetic engineering, brain-computer interfaces, psychopharmacology or other technologies. See, for example, Julian Pepperell, *The Posthuman Condition: Consciousness Beyond the Brain* (Bristol, UK: Intellect Ltd., 2003).

7 Alexander Solzenitsyn, *Cancer Ward* (New York: Farrar Straus and Giroux: 1999), 192.

8 Albert-László Barabási, *Linked: The New Science of Networks* (Cambridge, MA: Perseus Publishing, 2002). See also Duncan J. Watts, *Six Degrees: The Science of a Connected Age* (New York: W.W. Norton, 2003). It should be noted that "preferential attachment" occurs at every step down the Web's hierarchies, e.g., a multi-sports site has more links to better-linked sport-specific sites which have more links to better-linked team sites which have more links to better-linked player sites.