

Introduction

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In the age of search, keywords increasingly organize teaching, research, and even thought itself. Imagine for a moment an online universe without keywords: search bars would stay blank, log-ins and passwords would go unentered, and indexes and databases would rest ever listless and unpopulated. Keywords encode and decode the language of modern life. They stand sentinel to the halls of knowledge and power.

This volume is a timely update and celebration of the keyword studies tradition launched by the Welsh cultural and literary critic Raymond Williams forty years ago in his 1976 classic *Keywords: A Vocabulary of Culture and Society*. It is also an invitation to all those interested in the current information society and culture, as well as a provocation to the broad set of disciplines and traditions that employ its vocabulary. Oriented toward delivering foundational points about the current information age, this volume gathers and mobilizes diverse scholarly perspectives to serve a common set of core questions: What does the language of the information age do? How does that talk matter—how does it move, shape, and affect ways of being in the current media environment? What sources of power does our current vocabulary hide and reveal about our digitally lit world?

This introductory essay first announces the purpose, intellectual context, and history of the project before summarizing and grouping each of the twenty-five keywords from our current lexicon for discussing society and culture in light of information technologies. Each keyword chapter summary is also grouped into at least one basic grammatical category: subjects, objects, verbs, and prepositions—or, in other words, actors, things, actions, and environments. A comment on a few emergent themes in the crucial work of words in the information age concludes the essay.

The Purpose of This Volume in Context

This volume is no conventional or dry reference. Rather its purpose is to accrue lively resources in the emerging and sometimes miscellaneous field of digital studies. We repeat what Williams wrote in the introduction to his 1983 edition of *Keywords*: “This is not a neutral review of meanings. It is an exploration of the vocabulary of a crucial area of social and cultural discussion, which has been inherited within precise historical and social conditions and which has to be made at once conscious and critical—subject to change as well as to continuity.” The volume takes an interdisciplinary snapshot of the evolving lexicon employed in humanistic and social scientific approaches to digital technology, offering up a small treasure chest of insight from contributors engaging with anthropology, communication studies, cultural studies, digital humanities, history, media studies, philosophy, policy studies, political science, religious studies, rhetoric, science and technology studies, social informatics, and sociology. The approach is manifold: sometimes this means scrutinizing relatively recent terms to take root in English such as **algorithm**, **analog**, **digital**, **hacker**, **internet**, and **meme**. Sometimes this means probing how older terms take on new uses—such as the **cloud** in cloud computing, the **mirror** in database mirroring, and the **forum** in online forums. Sometimes this means charting subtler shifts as classic terms such as **community**, **culture**, **democracy**, **memory**, and **sharing** migrate online and into digital forms. Throughout, this volume seeks to understand the transformational work played by socially significant words in the current information age.

Keywords matter. For Williams, language was not a transparent window to the world; it was—and is—one of the key epistemological materials of which the world is made. Keywords are not only metaphorical keys for opening new and hidden intellectual worlds—sometimes to dusty closets, sometimes to stadiums full of opposing crowds, and most often to corridors connecting to other corridors—although they certainly do that. Nor do keywords only open pathways for working across local webs of meaning, historical contexts, and the bustle and pushback of a material world, although they do that too. Rather keywords matter in ways instantly

obvious to anyone who has ever used a search engine, entered a password, researched a question, or used an index. Keywords are the lexical operators of the current information age, and we might call a vast array of information technologies today *terminological technologies*—media from dictionaries to train stations, to computers, to Siri interfaces: all *terminals* that function in the language of the user; without specific keywords, terminological technologies do not work.

Consider how real life responds differently to whether a given person is named a *terrorist* or an *activist*, a *fetus* or a *baby*, *frail* or *cute*. Every word says something about the society it occurs in, and in turn is colored and given currency by that society. Language is what Kenneth Burke calls, in a usefully infelicitous phrase, a “terministic screen” of reality.¹ Terminologies do routine work: every word that empowers action also screens what we can do in reality because reality has first limited how we can use words. We must examine the real work that terms do (otherwise, we must remain silent), and, since Williams wrote, keywords have begun to do new work. In the age of search, digital keywords are no less than the obligatory passage point through which the semiotic material of history organizes life, and users in turn organize digital records. They are the axis upon which knowledge turns, the building blocks of all kinds of worldly webs, not least the World Wide Web itself. The ways search terms both constrain and overwhelm the organization of knowledge and action begin to illustrate the sweeping technical and organizational forces unleashed by the current communication revolution. The chapters in this volume share a focus on fleshing out our understanding of those forces, and of how digital technologies and discourses about them influence information societies and cultures in a globalizing world. As the chapters suggest, the significance of those forces is anything but negligible or obvious.

Like Williams, the contributors to this volume are fundamentally interested in the process by which our ways of talking and writing change on their own terms and, in turn, change the world. The determination of this critical-historical volume is to grasp the work words do. Scholars will also immediately notice that this volume is no faithful reproduction or extension of the

format of Williams's work: this is a deliberate choice. The chapters do not always follow either the brilliant etymological method or the Marxian critical approaches that characterize Williams's studies. Adopting a broader format than did Williams, these chapters gesture toward the more encompassing and sustainable keyword project he began by ensuring that, as he did, each scholar approaches the keyword of choice in whatever way best fits the term's current relevance. For example, classic terms such as *community*, *culture*, *forum*, and *memory* bear meditations in the longer tradition of Western thought, while the meteoric rise of keywords such as *algorithm* or *geek* receive the full-court press of science and technology studies and critical feminist approaches. Neither the twenty-five essays selected here nor the appendix listing well over two hundred candidate digital keywords can pretend to comprehensiveness. We suspect no collaborative keywords project ever could—even one that benefits from both the flexibility of online interaction and the patient pace of print. In all, the resulting variety of approaches seeks to be loyal to the main point of Williams's critical-historical reference: each word that changes us deserves critical examination.

Williams began his own four-decade-long keyword study with a remark he made upon returning to Cambridge University after serving in World War II. He and another war veteran on campus observed about their nonveteran colleagues at that major and vibrant university, "The fact is, they just don't speak the same language."² During the war, while he was commanding tanks and witnessing the invasion of Normandy, something at the university had shifted: the underlying values and evaluations, "the formation and distribution of energies and interests," the discourse animating this "large and active university" were different. The search to understand why language had changed compelled Williams to complete, eleven years later in 1956, his pathbreaking *Culture and Society*, which charts the development of *culture* as a keyword. Before this seminal book was published in 1958, however, his editors excised from it an appendix containing a number of words of interest that, over the course of several decades, slowly matured into the 109 entries in the *Keywords* volume published in 1976, which he expanded and reissued with an additional 21 entries in 1983.

Like Williams's books, the present volume is preoccupied with the vocabulary of culture and society since 1945. Indeed every emerging generation of scholars would do well to admit and catalog, with Williams, the strange surprises of everyday language. Keywords arise at constitutive moments in modern media history, their semantic shifts voicing larger alliances and alignments of discursive power across the state, civil society, law, religion, economics, culture, technology, and the natural world—which is to say, *reality*. At times keywords even make history: “The emergence of a keyword in public discourse—whether a newly coined word or an old word invested with new meaning—may prove to be an illuminating historical event,” writes historian of technology Leo Marx; “such keywords often serve as markers, or chronological signposts, of subtle, virtually unremarked, yet ultimately far-reaching changes in culture and society.”³ Marx notes that the French thinker Alexis de Tocqueville, in *Democracy in America*, had to coin a new French word, *individualisme*, to give “novel expression to . . . a novel idea.” Williams too, in his survey of British culture and society, found that industrial capitalism had colored the very keywords—*culture*, *class*, *industry*, *democracy*, *art*—he had set out to understand. Economy, culture, and society, once examined, disclosed a reflexive interdependence with the currency of the terms that described them—a phenomenon Marx observed in his seminal study of the emergence of the term and concept *technology*.⁴ In light of the ongoing information technological changes, we who live bit-saturated lives may feel tempted to echo Williams: the fact is, we just don't speak the same language that we did even a few years ago.

This work situates itself in conversation with three signal volumes published in the last decade, the first of which explicitly follows the larger cultural studies tradition of *Keywords* begun by Williams forty years ago: namely, Bennett, Grossberg, and Morris's *New Keywords* (2005), as well as Fuller's *Software Studies: A Lexicon* (2008) and Mitchell and Hansen's *Critical Terms for Media Studies* (2010).⁵ Tony Bennett, Lawrence Grossberg, and Meaghan Morris offer a breathtakingly broad update to Williams with 144 very short keyword entries of public importance—from *aesthetics* to *youth*—even as that same update, now a decade later, no longer feels exactly “new.” This volume's conceptual focus on digital

discourse, itself an open experiment in unfinished projects, both narrows and responds to the awe many of us experience in encountering the ever-unfinished keyword project begun by Williams and continued by Bennett, Grossberg, and Morris, among many others.⁶ Thankfully other works have contributed in their own way. Matthew Fuller's *Software Studies: A Lexicon*, for example, takes a similar approach, offering 38 short essays on terms central to the recent subfield of critical software studies—from *algorithm* to *weird languages*. This volume has benefited directly and indirectly from this literature: it includes brief keyword overlaps with Williams (e.g., *community* and *democracy*), with Bennett et al. (*community*, *culture*, *democracy*, *information*, and *memory*), and with Fuller (*algorithm*, *analog*, *information*, and *memory*). At other times, Bennett and Fuller's common inclusion of keywords like *copy* has licensed the contributors here to venture into its neighboring keywords like *mirror* and *surrogate*. Mitchell and Hansen's influential essay collection too shares only *memory* and *information* entry overlaps with this volume, although its rich and critical orientation toward Kittlerian media aesthetics, technology, and society can be discerned in such essays in this volume as those on *analog*, *cloud*, and *digital*, among others.

Whatever else it is, the digital revolution is a revolution in language. Peripheral keys have been reclaimed for everyday use—for example, the “@” for email, the “/” of URLs, and the “#” (once a “pound” sign on rotary telephones and now the “hashtag” of Twitter); our language morphs with new corporate capitalizations and spelling combinations such as *Facebook*, *Flickr*, *WordPress*, *YouTube* or (*micro*)*blogs*, *crowdsourcing*, *mashups*, *webinars*, *wikis*, as well as under the linguistic pressures of texting, as illuminated so marvelously in the study by David Crystal.⁷ Digital work is about the print culture tradition of doing things in and by words. The *Oxford English Dictionary*, a hardy perennial in the study of English words, illustrates just how relevant a dictionary approach is to a keyword study of digital discourse. Consider a few entries and subentries that, alongside hundreds of others, entered that venerable dictionary in 2014 and 2015: *Bitcoin*, *BYOD* (Bring Your Own Device), *citizen media*, *hashtag*, *interweb* (humorous term for the internet), *LIFO* (Last In, First Out, a computing process with resonances back to at

least Mark 10:31), *single-serving site*, *tweeting* (and *retweet*), *ubiquitous computing*, *VPN* (virtual private network), *webisode*, and the curious coupling of *photobomb* and *selfie*.⁸ There is much to observe about this. It is notable how many entries refer somehow to the self; still more striking is the speed at which change in technological discourse outpaces our capacity—even that of our most admired keepers of the English language—to record such changes. Moreover, the *OED* spurs the reader to wonder at the extraordinary capacity of *all* language, once inscribed in media, to overflow the bounds we set on it. Dictionaries and keyword registers are becoming more relevant, as we all are swept up in the torrents and eddies, the current unrest of linguistic, cultural, and social change. There is no surer site for experiencing the concentrated superabundance of the English language than the *OED* today.

Williams, who served in the “corps of signals” and artillery in World War II, was of course no stranger to the extraordinary power unleashed by the techniques for inscribing language and signals. Twentieth-century philosophy—in particular the linguistic turn to ordinary or ideal language philosophy, semiotics, linguistics, and cultural studies—shares in common with the current digital age a deep interest in how language works, and in how propositional reasoning and its tools script our ways of being in the world. If Heidegger was right in calling language the “house of being,” the plumbing and wiring of the house of modern-day humans appear to be undergoing a technical reconstruction and digital update. Many other recent theorists argue that material-semiotic linkages between language, institutions, and technologies inscribe and shape our current cultural, social, and political lives; and our investigations of humans as linguistic animals must now account for how information technologies inscribe, circulate, and pulse through current culture and society.⁹ It may not be a stretch too far to claim, for example, that the core insight behind Michel Foucault’s discourse analysis, Friedrich Kittler’s discourse network (*Aufschreibesystem*, more literally “inscription systems”), and Bruno Latour’s actor-network theory is the mutual inscription of material and semiotic power, of technology and language, in modern terminological techniques (archives, discourse, networks, etc.).¹⁰ Language, once inscribed in technology and culture, reveals

propositional forces known variously as data, information, and knowledge that continually remake our social world.

The fundamental question clamoring for attention in the background of all language analysis is this: How does language condition the ways we can be in the world? Perhaps nowhere is this more obvious than in the making of a keyword. A keyword is a socially significant word that does socially significant work. We seek to set apart a keyword primarily by what it does, not by what it means. Its work does not depend on its definition. It depends on how it uses separate and privilege certain practices, institutions, cultural norms, and doctrines over others. Cryptographers, programmers, and linguists, among others, refer to keywords as highly specialized terms designating identifiers that carry special weight in their analysis: the working definition here simply holds that keywords are those terms that do some heavy lifting or distinguishably significant work for analysis—and the work of each chapter here, then, is to spell out what that work is for each keyword.

If a keyword is a socially significant word, then what exactly is a *digital* keyword? In the most mundane and commonplace sense, a digital keyword is a keyword that refers to the recent rise in digital information technologies. Most chapters, for example, chart how their keyword “goes digital” in response to this straightforward question: What difference does it make whether or not a keyword refers to a currently bit-bathed world?

We may consider still another more basic and broader proposition about what makes a keyword digital: perhaps all keywords have always already been digital. A keyword is key only if the work it does can be distinguished from and then connected to that of other terms—a keyword must serve as a discrete operator in a larger semantic system. In order to become a term that bears distinguishable special weight in analysis, a keyword must first be fixed as a pivot point in a signifying system of discrete signals and meaning. In order to become a keyword, a word must first be subjected to some form of “digital” or discrete operations and codification. Google sells, for example, ad keywords such as *Insurance*, *Loans*, and *Mortgage* for top dollar because those letter combinations do countable work in the semantic markets of the financial industries, while, say, their anagrams (e.g., *I Care Nuns*, *Salon*, and *Gag Metro*)

do not. Read broadly, the history of precise keywords stretches back as long as modern humans have manually used inscription tools to specify, index, and manipulate culture and society with language. (The **digital** chapter takes seriously what *manually* is doing in that sentence.) Semiotic precision is at least as old as language (e.g., the difference between, say, *bus* and *buzz* is fundamental to the intelligibility of both speech and writing), and standard spelling follows the development of nationalism and printing presses; but, as is well known to anyone who has tried to spell with autocorrect on, to do any programming, or to use alphabetized dictionaries, indexes, or catalogs, digital keywords propose—and fall short of—being about the disciplining work of saving ourselves with our own tools. We use digital keywords today to brand, mark, and clutch after the life rafts that buoy us in the present information deluge.

Keywords do not only organize the world for us. They also organize us in the world. For example, the terms I enter into a Google search in turn inform those searching for my user profile. Every search both consumes stored information and creates new information. “Digital keywords,” as a simple search will suggest, are the provenance first of marketers and ad agents, and second of the information system that targets us with ads following our own past keywords. Keywords online are organized algorithmically, and not organically (see **algorithm**): invested interests and actors organize keywords. Not satisfied with the obvious examples such as search engine optimization (the industry practice of tweaking a site to optimize its visibility to search engine algorithms and subsequently increase visitor traffic to the site), this volume seeks to begin to document the larger technological, social, and conceptual forces that have combined to capitalize on the most recent chapter of terminological technologies.

The critical work of keywords in world history is of course greater than this volume can describe. It is a mundane yet profound observation that to speak is to act, and to inscribe in writing is an act of potentially enduring power. Keywords perform propositional forces in reality. For example, the names parents give their children, once recorded, outlast the living; set theorists invoke new possibilities with the scribble of a pencil; and again every online search is an act of both information consumption and metadata creation. Media

history since at least the Bronze Age tells a longer story of the social power and modernization wrought by keyword technologies: lists and legal codes helped index and conscript empires, tax and domesticate early civilizations.¹¹ The movable-type printing press helped fix discrete keywords en masse in early modern Europe, and dictionaries and a slow flood of print material swept in the standardized spellings and canons behind the literate revelations and knowledge revolutions of the Protestant Reformation, the Renaissance, and the Scientific Revolution.¹² Control and communication technologies in the age of industrialization have also afforded the subsequent bureaucratization, statisticalization, and globalization of nationalist, regulatory, corporate, and academic knowledge capture, among other techniques for commanding the explosive forces of our industrial and information age.¹³

Since about the time Williams returned from the war, the English-speaking world has begun talking in the lexicon of information science: to choose one letter from that lexicon, we now find ourselves capturing, cataloging, categorizing, censoring, classifying, collecting, communicating, computing, and cultivating information (see [information](#)).¹⁴ This sprawling expression of power can be grounded with a routine example: the passport may be understood as the keyword list—name, ID number, nationality, place of origin, sex, ethnicity, photo, a signature, and so forth—by which an authorizing state governs its citizens. A passport identifies a person with the very keywords over which the person identified has virtually no say. In both law and content, our identity documents are not our own; they point to others before and beyond us. The signature itself is a fascinatingly manual biometric technique for inscribing back into a larger register of citizens one's own identity: the scrawl of a signature, like a onetime pad in cryptography, seeks to be importantly *both* repeatable *and* inimitable.¹⁵ The exercise of modern knowledge and power pivots on fixed terms.

How This Volume Came to Be

I first encountered Williams on the bookshelves in my childhood home and later in graduate school in the work of James Carey; a few years later, in the fall of 2012, my colleague Mark Brewin and

I found ourselves brainstorming a short list of words we found interesting. The project at hand quickly took wing and then molted from its initial conception about keywords in translation to a tighter focus on digital keywords: in the fall of 2013, an organizing committee of the Digital Working Group, which I chaired, invited a small gathering of scholars to draft short provocations on keywords of their choice at the scholarly blog *Culture Digitally* (culturedigitally.org), which were posted online for public review during the summer of 2014. Contributors were then invited to participate in a long weekend workshop held in the Zarrow Arts downtown facility of the University of Tulsa in Tulsa, Oklahoma, on October 10–12, 2014.

The rules of engagement at the workshop were simple if somewhat unusual: no papers were read out loud, since all texts had been circulated that previous summer. In fact the authors were invited to stay quiet about their own work. Instead, keyword panels featured a series of four or five prepared critical respondents—each of whom constructively critiqued one of the drafts posted online. Other scholars in attendance then triangulated and synthesized their comments across the feedback. This method helped optimize constructive revision suggestions as well as minimize defensive posturing (by my account, less than one minute in the long weekend went to publicly defending previous draft decisions). The dedicated discussion time also helped enrich the bigger-picture discussion about the critical and synthetic themes that introduce and interweave these chapters. These themes were rearticulated during a final internal round of peer review among the contributors in the fall of 2014, and then through the comments of outside readers at Princeton University Press.

The contributors have been selected in order to balance disciplinary coherence with interdisciplinary and international insight: generally media and communication scholarship, with supporting emphases in sociology, anthropology, and digital humanities, has the floor in this volume. Contributors were chosen in part for their willingness to make bold statements about digitally mediated culture and society that would appeal to more traditional areas of scholarly inquiry, such as the critical study of the economy and the environment, anthropology and religion, literature and

philosophy. The same should be said for the intentional, however limited, international orientation of the volume: about a quarter of the contributors live in or hail from outside North America. While no single volume could ever represent all the key international and interdisciplinary aspects of the vocabulary of the information age, it is our collective hope that the conversations begun here will lead to more ecumenical discussion on information culture and society in a globalizing world.

The contributors are for the most part not specialists in language, lexicography, and etymology, even though some chapters deliver healthful doses of those approaches and no chapter goes without any reference to the word's history. For Williams, as for these contributors, language remains the vehicle, but not the end, of critical-historical analysis. The contributors selected these keywords not because their etymological record is necessarily the richest but because the core concepts are tectonic to the intellectual interests of these contributors. Sometimes the keywords name familiar areas of scholarly expertise about the digital age: Gabriella Coleman, John Durham Peters, Limor Shifman, and Thomas Streeter, for example, have recently published books on hackers, clouds, memes, and internet, respectively. More often chosen keywords mark areas of emerging expertise and fascination—Tarleton Gillespie's algorithm, Guobin Yang's activism, my own digital, Saugata Bhaduri's gaming, Christina Dunbar-Hester's geek, Gabriella Coleman's hacker, Bernard Geoghegan's information, Stephanie Schulte's personalization, Nicholas A. John's sharing—and many other contributors have also already published and continue working on other substantial scholarly projects that take up their obviously digital keyword. Similarly, other chosen topics, such as Jonathan Sterne's analog, Julia Sonnevend's event, Sandra Braman's flow, Adam Fish's mirror, Fred Turner's prototype, and Jeffrey Drouin's surrogate, bring to attention important and often overlooked keywords that find resonances in the work of these scholars outside of conventional digital discourse. Still others, such as Katherine D. Harris's archive, Rosemary Avance's community, Ted Striphas's culture, Rasmus Kleis Nielsen's democracy, Steven Schrag's memory, and Christopher Kelty's participation, reclaim for the digital age iconic terms with deep roots in social and cultural analysis.

No one can escape keywords so deeply woven into the fabric of daily talk. Whatever our motivations we—as editor and contributors—have selected these keywords because we believe the world cannot proceed without them. We invite you to engage and to disagree. It is this ethic of critical inquiry we find most fruitful in Williams. Keyword analysis is bound to reward all those who take up Williams’s unmistakable invitation to all readers: Which words do unavoidably significant work in your life and the world, and why?

Search Results: Keywords in Review

This volume is about language in ways that resemble how a search engine sorts its results: both search through the inexhaustible repertoire of human thought, select desired results according to variable metrics, and express the results through inscription operations that bind fast language and reality, keywords and the actions. This section tries to take a snapshot of our research results—or, put more broadly, our doubly embedded language and world—by arranging brief summaries of the twenty-five keyword chapters into four basic grammatical categories that organize the English language itself: subjects, objects, verbs, and prepositions (or relational words) function as actors, things, actions, and environments (or surrounds that structure relations; stay tuned for more about the relationship between prepositions and environments). These categories are often most useful in their breakdown: the fertility of language handily dismantles such intellectual scaffolding (meant for swift construction and easier removal); and, as many chapters make clear, every keyword comes preloaded with polyphonic potential—one word can bear many perspectives, and the work of a word often manifests itself as it migrates across our mental categories. For example, words denoting what we often think of as an object, such as *prototype* or *mirror*, may best be understood variously as a subject, an action, or an environment that structures the set of possible relations between subjects, objects, and actions. Conversely, conventional verbal nouns or actions, like *sharing* or *flow*, may best be understood not as actions but alternately as subjects, objects, and environments. In short, the incomplete organization

of these chapters into the four sections—subjects, objects, verbs, and prepositional environments—helps backlight how keywords do more work than we may think.

Subjects

Perhaps only two of the six chapters noted here—**algorithm**, **geek**, **hacker**, **meme**, **prototype**, **surrogate**—sit comfortably with the designation *subject*: **geeks** and **hackers** constitute two central (and significantly misunderstood) classes of human subjects that make up the technical expertise powering the current information age. The other chapters propose entities that, once made visible in a network of actors, reveal themselves as significant subjects hard at work in the modern media environment. New subjects emerge as the actions of conventional objects are viewed in context: thus in these chapters we see **algorithms** organizing programming and corporate discourse, **memes** migrating and multiplying online, **prototypes** prophesying in Silicon Valley, and **surrogates** populating the spaces between digital and print culture. These keywords act with enough force to belie their conventional designation as “just objects.” Once these institutional, technological, and political networks have been mapped, **algorithms**, **memes**, **prototypes**, and **surrogates** join **geeks** and **hackers** as actors on the center stage of the drama that is digitally mediated behavior.

According to Christina Dunbar-Hester, the term **geek** has undergone a profound transformation in the age of computing: now detached from its pejorative association with circus freaks, no longer implying physical feebleness and weakness, the label today often applies to white middle-class males known for their technical expertise. This current use, Dunbar-Hester shows, underscores the need to situate the role that the technical classes play in propping up the global digital age. For example, while women are more likely to be computer scientists in Malaysia than in the United States, they are not necessarily more likely to be “geeks”; gender and technical affinity intersect with nationality and class in complex ways. Gabriella Coleman, too, critiques the stereotype of a **hacker** as a white male libertarian. In its place, and through a rich history of its varied sources and expressions, she uncovers an underlying hacker

commitment to what she calls “craft autonomy,” or the freedom to do technical work that motivates contemporary classes of computing experts. Hackers are not as we may have thought.

Four nonhuman actors (or at least they are not necessarily human)—**algorithm**, **meme**, **prototype**, and **surrogate**—announce themselves as subjects calling for attention. Tarleton Gillespie demystifies the many uses of the term **algorithm**, on loan from Arabic. It is at once a trick of the trade for software programmers, a synecdoche standing in for entire informational systems and their stakeholders in popular discourse, a talisman used by those stakeholders for evoking cultural authority and avoiding blame (e.g., to blame “Facebook’s algorithm” implicitly shifts responsibility away from the company that designed it), and shorthand for the broader sociocultural shift toward, as Gillespie argues, “the insertion of procedure into human knowledge and social experience.” In Limor Shifman’s chapter on another commonly misunderstood term for discussing online culture, she offers a correction to the memorable myth that the internet is made of cats; rather, she insists, it is made of **memes**. In particular, she examines how the term *meme*, despite scholarly opposition and thanks to shifts in how users consolidate and share content online, has partly come to mean for internet culture today what a gene means for biology—namely, the smallest unit of transmission and variable reproduction. **Algorithms** and **memes** take up new forms of social life online, however purely technical these subjects appear at first glance.

Other technical subjects—**prototype** and **surrogate**—straddle and rework the divide between virtual and real, projective and past. Fred Turner submits as a new subject in the information age the **prototype**, or a working model that “make[s] a possible future visible.” His analysis ties the Silicon Valley preoccupation with prototypes back to Puritan theology, showing how both cultures see in prototypes the foreshadowing of a brighter future (*typology* in Christian theology means the predictive interpretation of types and symbols binding past and future). By grounding, criticizing, and historicizing both the theology and the hucksterism at work in the term, Turner demonstrates how *prototype* points backwards in practice even as it professes to point forward to a model technology ready to symbolically save us from ourselves. As with Turner’s **prototype**,

Jeffrey Drouin's analysis of **surrogate** complicates how a digital subject stands in—or serves as deputy or effigy—for the (print) object it reproduces. Drouin concretizes his Benjaminian analysis of how digital culture is at odds with print culture in a two-page spread of a Vorticist manifesto digitally reproduced online. Not simply does the digital version fetishize the “original” (a historical precedent set by print culture, which offers many copies and no easy originals, centuries before the coining of “the digital”), it also bears revolutionary uses. Instead of thinking how digital copy merely reduces the objects, he seeks to chart new relationships digital copies take up as they play surrogate to source materials. Once examined, keyword subjects such as **geek** and **hacker**, **algorithm** and **meme**, **prototype** and **surrogate** disclose previously hidden work.

Objects

Subjects act while objects are acted upon, or at least one grouping of the chapters below—**archive**, **cloud**, **information**, **internet**, **memory**, and **mirror**—may draw its mandate from that classic and contentious distinction in Western thought. Of course modern discourse, especially digital technology talk, traverses fashionably complex actor-networks and object-orientations that admit no such straightforward distinctions.¹⁶ Every subject is also subjected, and every object acts upon us as we turn to it. Here too these lively objects do not remain mere objects for long. The **cloud** and the **mirror** stand in for metaphors for remote computing (or cloud computing and data mirroring), and in the process introduce new powers for communicating across distance and time online. **Archives** and **memory** in turn dig deep into the social construction and contestation of identity and meaning, and **internet** and **information**, by not always meaning what we think, too become, like the other objects, subjects in their own right and analytic lenses for focusing on the underlying actor entanglements. These object keywords, once analyzed, do far more than clarify philosophical muddling; they reveal powerful technological and institutional forces hard at work in the background of our analysis.

John Durham Peters unpacks the **cloud** in cloud computing—or the storing of data on remote servers. In his rich history of how

clouds have long been at the forefront of science and imagination from ancient religion to meteorology and fractal geometry, among others, he argues that clouds today must be comprehended as anything but “purely immaterial, natural, and meaningless things.” The current buzz about carbon-hungry “cloud computing” is neither natural nor environmentally friendly. Instead the cloud metaphor reveals how natural environments have long contained media, like clouds, that signal and structure, transform and elude our worldviews. Adam Fish too examines that perennial metaphor for reflection on the intertwined nature of the observing subject and the observed object—namely, the **mirror**, in digital mirroring or storing files at remote sites. Digital mirrors, for Fish, are sites of action for capturing, duplicating, and making visible information politics. His broad analysis spells out how mirrors have long replicated and distorted images, especially in the power differentials among cyberactivists and cloud computing companies.

Katherine D. Harris reflects on how **archives**, long understood as sites of copying and storing culture, become a potent site of differentiating between print and digital culture. Given that the verb *to archive* has long meant to reinterpret and canonize records, *to archive digitally* admits into play multiple interpretations of competing canons. The work of digital archives then can best be understood in light of the archivist, the database architect, the interface design, the uncertain sustainability of digital infrastructure, the act of reading, and the user experience, among other actors that make social both the texts and contexts of digital archives. Steven Schrag’s treatment of that timely and timeless keyword **memory** charts several issues underlying these and other keywords concerned with digital culture. For Schrag, memory performs a curious balancing act between the material of “natural” memory and the technologies of storage media (between neural synapses and remote servers). Memory, digital and embodied, is central to our identities even as it extends beyond ourselves. Memory media render the past at once indelible, remixable, and riddled with gaps that seem to manifest themselves at ever-greater scales and speeds, although even that observation may be an artifact of imperfect recall. If **archive**, **cloud**, and **mirror** offer operations for making and using memory media, then Schrag returns us to the basic questions: Who or what

remembers what, and how? Who controls our collective memory, and why?

Strictly speaking, there is no such thing as the **internet**. Instead, as Thomas Streeter shows, there are many competing categories for apprehending that term: among them, “hardware, software, protocols, institutional arrangements, practices, and social values.” The term *internet* has “an outsize gravitational force”—it describes too much, marshals particularly modern (with a particular 1990s flavor) networking hopes and fears, and thus ends up meaning not nearly enough. Bernard Geoghegan, too, offers insight into the changing aspirations, institutions, and social practices of the information age through a keyword study of **information**. *Information* today means something very different from its medieval sense of that which gives matter form. He traces the modern technical sense of *information* as statistical measurement of serially patterned, non-anthropocentric traces to the nineteenth-century introduction of the electric telegraph and its instruments, standards, and economies. That new technical meaning, while narrow in itself, has gained huge purchase: consider how, for example, the object keywords **archive**, **cloud**, **internet**, **memory**, and **mirror** appear as subject sites insofar as they help us process **information**. *Information* today remains perhaps *the* seminal object toward which the modern digital age is oriented.

Actions

Underlying the difference between subjects and objects—whether an actor acts or is acted upon—is of course action itself. Perhaps all words must, in the end, be grasped in terms of actions they support and carry out. The action chapters that follow—**analog**, **digital**, **flow**, **gaming**, **participation**, **personalization**, **sharing**—explore digital keywords by critically studying the actions those terms imply.

The net publishes and privatizes the same data simultaneously, and our language has been adjusting to reflect that curious fact. **Personalization** and **sharing** appear to offer opposite updates for how digital media either narrow (*personalize*) or broaden (*share*) our reach online, but, upon closer investigation, both reveal corporations

profiting off freely given user data. Stephanie Schulte diagnoses how **personalization**—or the technological targeting of individual interests and information by data service companies—appears to serve the liberal values of autonomous individuals while also enriching data companies. Personalization may occasionally deliver on its promises: it “connects users to one another . . . democratizes information, enables entrepreneurialism and civic engagement”; at the same time, Schulte warns, it also “commercializes culture and politics, alleviates productive discomfort, facilitates surveillance, and resituates or eradicates forms of agency.” **Sharing** appears at first glance the perfect antidote to the privatization implicit in personalization, for sharing promises to collectivize. After all, what is sharing about if not community and, according to the aphorism, caring? *Sharing*—derived from the same root as *shear* or to divide up, as in a *shareholder*, but also with a major role in twentieth-century therapeutic discourse—now promises to enrich the social life of Web 2.0 users as well as the pockets of large data companies that profit by selling, not sharing, freely shared user information. Let us not forget: the online user, whether **personalizing** or **sharing** data online, is also always used.

Flow and **gaming** frame the forms of collective social action and connection that have long taken place offline, and now speak especially powerfully to our networked systems. Sandra Braman observes that, for all the talk about the electronics and logics, media scholars in the information age are curiously preoccupied with a hardy metaphor of **flow**. Referring to matters that go far beyond the broadcast media content to which Williams applied the term in his breakthrough book *Television: Technology and Cultural Form* (1974), the concept of flow is used today to think about what happens in technical, social, and sociotechnical systems through which human-human and human-computer interactions unfold at the individual, group, and societal levels. Whatever the kind of system we are talking about, it is flow that makes it possible. For Saugata Bhaduri, **gaming**, like flow, is about continuous action, but unlike flow, that action comes with a distinct sense of social risk. Although his analysis only begins to hint at who bears the risks of online gaming today, his analysis of *gaming* as risky collective action—the word is derived from the proto-Germanic sense of

“people together,” coupled with the English suffix for the present continuous—reveals how the term and its variants (e.g., *gaming a system*, *gamesmanship*, *gamification*, *gambling*) infuse online gaming subcultures (hacks, mods, cheats, sandboxing, fanfiction, cosplay, machinima, etc.) with an older sense of subversion. These action keywords—**flow**, **gaming**, **personalization**, **sharing**—state something very basic about all keywords: our language matters most for what it does, not what it means, and the social risks and trade-offs built into these actions are sweeping our digital environments. Christopher Kelty makes this underlying point clear: in mining the ever-present yet overlooked intellectual roots of **participation** as both a word and a concept in political thought, he reveals that, as with perhaps all action keywords, to participate is to belong collectively, although not always voluntarily.

Now consider two framing keywords for the project. In information-age talk, **analog** and **digital** usually appear as both inseparable and opposed—as if they were two bits in a binary relationship, off and on, 0 and 1. On the contrary, an organizing point of this volume holds that digital and analog categories are *not* binary opposites: the digital is not synonymous with only artificial, discrete, finite symbols, nor is the analog identical to all that is *not* digital and to all that *is* natural, continuous, real waves. Rather the key to grasping that **analog** and **digital** are not reciprocals begins with an analysis of the actions, not the forms, these terms bear out. In the manifold openings and nonrelations occupying these two keywords, we uncover fresh insight into many current misunderstandings and themes animating the information age.

Specifically, Jonathan Sterne argues that the **analog** is not the opposite of the digital. He traces two tracks the term has followed since the 1800s: first, *analog* is employed when a specific technical process is used to represent another (analog computers that use voltage or water). He notes that the process has no necessary relation or opposition to discrete digital computing. Second, crystallizing in the writing of Stewart Brand in the 1980s, *analog* took on an expanded and misleading denotation as the negative of digital—or everything that is not digital, and thus all material reality. Only recently has our talk tried to subsume nature itself into *the analog* as a way of distinguishing it from the dawn of *the digital*.

Several problems follow this strong distinction: there is nothing natural about analog machines, nor are analog and digital techniques necessarily incompatible. In fact a lot of our so-called digital devices are analog, right down to the voltages on the logic board. The digital/analog binary tracks back to the binary thinking of digital theorists, not the binary nature of digital technologies—a false binary that Sterne unravels. In my chapter, I too seek to understand the term **digital** in its original sense—in terms of digits or *fingers* that count (compute), point (index), and manipulate; this bit of triadic thinking aims to help further tease apart the unhelpful pairing of digital-analog. The postwar explosion of computing power (in rough parallel with Claude Shannon’s sense of information) has catapulted the counting and computational sense of *digital*, but not the others. *The digital*, if grasped only narrowly, will remain a quintessentially twentieth-century buzzword, even as its techniques continue to spread into the current century: “digital television,” for example, now passes simply as *television*, and the apex of *the digital*—the notion of the convergence of all that is countable, or a digital singularity—now sounds quaintly late twentieth-century. In my brief speculative history from index fingers to file cabinets, *digits* appear among those media that have long indexed and manually manipulated many forms of information society and culture: indeed much of this work is devoted to demonstrating how digital environments manipulate how we talk and who we are.

I have grouped *analog* and *digital* here in the action keywords section in order to emphasize how they, like actions, coexist without suffering from the loggerhead logic that jams up our thinking about ontological states of being and categorical forms. Actions can happen simultaneously in the same space: for example, the work of **digits** and **analog**s coexists just as easily as one can, say, **share flows** of **participation information** by **personalizing** one’s **gaming**. As these and other chapters suggest, perhaps the most specific lesson to take from keywords is what actions they commit (analog represents and waves; digits count, point, and manipulate; etc.). What a keyword does is both more relevant and more interesting than what it is, and keywords are among our many linguistic analogs for describing our active world.

Environments

Prior to subjects (actors), objects (things), and verbs (actions) are the infrastructural surroundings and grammatical conditions in which reality and language operate. Both prepositions and environments disclose the hidden infrastructural surrounds that shape the set of possible relations, whether the relationship between words in language (grammar) or the relationship between actors in reality (environment). Both grammar and environments also signal their inner workings with the subtlest and smallest of signs—and prepositions are among such potent forms (punctuation, formatting, and design are others). Prepositions are relational words such as *of* and *for*, and spatial-temporal relations such as *in*, *under*, and *before* that, like environments, organize the relations between subjects, objects, and actions. Their work, like the room or medium in which you are reading this book, is to go unnoticed. (If I asked how many prepositions are in this sentence, most readers would have to stop and reread it.) To borrow a phrase originally about infrastructure from Geoffrey Bowker and Susan Leigh Star good environments are hard to find.¹⁷ They are harder still to fashion, since environments invariably fashion us first, even though the current ecological crisis underscores just how transactional the modern human relationship with the world is. It is no surprise that a spate of recent scholarly attention has poured onto digital environments—applications, architecture, grammars, infrastructure, platforms, scenes, settings, standards, structures, and (operating) systems make up all the hard stuff that usually goes invisible. Like a preposition in a sentence, an environment lies outside what we readily sense and read. It shows itself in the cracks.

Consider, first, two keyword chapters—**democracy** and **activism**—that concern not so much environments themselves as the everyday practices and ambiguities constituting the environments for political action. (By contrast, keyword chapters on **community**, **culture**, **event**, and **forum** speak directly to the larger conceptual environments that structure past, present, and future information ages.) If **democracy** is a universal aspiration, Rasmus Kleis Nielsen intimates, then digital democracy may be among its most cherished slogans. This chapter punctures that slogan by

observing that digital technologies have in fact had modest, indirect, and internal effects on the functioning of democratic institutions, but not at all in the deliberative, direct, and participatory ways theorists identify as common to both digital technologies and liberal representative democracies. The digital and the democratic do not necessarily have anything to do with one another. To imagine only what could be, and to ignore what actually already is, democratic, Nielsen concludes, dulls our ability to assess and address real democratic practice and problems. Guobin Yang takes a different critical approach. He argues that by identifying the ambiguities and biases in current discourses about online **activism**, one may resuscitate and reaffirm the meaning and politics of protest—which is in fact the new normal: all street protest today takes place with some form of digital organization or documentation. His central premise is that the proliferation of ways of talking about activism has weakened it as a political practice, and he illustrates this in discussing analytic ambiguities besetting modern protest in the West and in China. Activism discourse in China, for example, remains ambiguous, since protest can both subvert and stabilize (by making visible and thus more resilient) authoritarian state oversight. He argues that these ambiguities underscore the docile elements of digitally connected protest and threaten to undercut the potential radical power of activism. Together Nielsen and Yang introduce how discursive environments—namely, modern democratic society—shape and in turn are shaped by (political) action.

Reflections also follow on how several classic environments—*community*, *forum*, and *culture*—have gone digital: Rosemary Avance paints a rich intellectual backdrop for the most frequent of these twenty-five keywords in the English language—**community**. Her treatment of scholarship from the field of religion and media seeks a middle way between puncturing the utopian rhetoric of online communities and embracing the genuine experience of belonging to something larger than oneself. With the caution “not every site that calls itself a community is one—just as not every site that does not, is not,” her analysis clarifies digital, virtual, and hybrid gathering distinctions, as well as collapses the conventional online-offline divide. Like *community*, a **forum**, in Hope Forsyth’s analysis, is also a liminal environment for gathering social life around shared

civic, commercial, religious, and legal interests. Forsyth posits how forums require “human-supporting infrastructure” to meet the physical necessities of its visitors. While the internet alone cannot supply such infrastructure, once combined with physically sustaining spaces—such as the coffee shop, be it an eighteenth-century European café or a modern Wi-Fi hot spot—forums act as embodied physical environments for fostering societal interaction.

Culture is the keyword among keywords for Williams (who contributed to the founding of cultural studies between the 1960s and the 1970s). It is probably also the archetype of discursive environments. One of his careful readers, Ted Striphas, offers a sensitive update to Williams and a wide-ranging intellectual history, describing how culture has coevolved with the digital turn since the end of World War II. No longer the antithesis to technology, culture has recently interpenetrated with the computational (e.g., digital humanities, culturomics, and big-data-driven cultural studies). The current state of culture is a testament to the “dynamism and adaptability of [what Williams calls] ‘one of the two or three most complicated words in the English language.’” Finally, we encounter another chapter that seeks to frame the whole digital age: an **event**, according to Julia Sonnevend, is an *important happening* or occurrence inscribed into history. Offering a theoretical framework for describing the extended process through which occurrences “eventually” become events, her goal is not simply to understand digital media events, such as the death of Steve Jobs, or even general media events such as the collapse of the Berlin Wall. Rather she describes the process through which all events come to be as that of actors founding, universalizing, condensing, counternarrating, and then diffusing narratives across borders. The digital age will one day become an event in history—and future historians will see the vocabulary of our information society and culture as an event itself. This volume seeks to accrue intellectual resources to help eventuate that end.

Emergent Themes and Concluding Comments

To risk overprecision, the total number of connections between n nodes in a network can be expressed as the number $n(n - 1)/2$ (which is also a triangular number equal to the sum of every

positive integer one less than the number of nodes). In other words, with twenty-five chapters, there are $((25 \times 24)/2 = 24 + 23 + 22 \dots + 1 =)$ 300 possible connections between keywords in this volume alone. I limit myself here to three basic orientations and a couple of concluding comments. Those seeking more connections are invited to reflect on the cross-referencing *See in this volume . . . See in Williams* sections found at chapter ends that link individual keywords to other keywords in this volume and in Williams.

Perhaps three operations can be said to describe how these essays process our social and cultural vocabulary: discursive subtraction (critique), addition (reclamation), and multiplication (complication), although we leave the crucial task of division (critical analysis) to the reader. Without question, the most common orientation of chapter arguments in this volume is critical or subtractive. A chorus of voices—including those in **activism**, **cloud**, **community**, **democracy**, **digital**, **internet**, **mirror**, **personalization**, **prototype**, **sharing**—declares that much talk about the current information age is bunk. We do not buy it. We'd be better off without it. A certain subset highlights what happens when aspirational ideals break against the rocks of messy embodied practice: for example, when **community** falters in person as well as online, when tech-savvy **democratic** campaigns still canvas the streets and knock on doors, and when the heated debates of online chat **forums** suddenly need a bathroom break. Keywords—it should surprise no one who has walked the stacks of a library or peeked beyond the first page of search results—produce mounds of misleading hits. Given a googol search results, all but a few must be garbage to the user. There is much to subtract in a world organized by keywords.

No other theme in this volume rings out as clearly as the call to identify and hold responsible those whom digital discourse serves, although the summary critique goes beyond finger-pointing to call for the struggle for social change. Questions abound: How are interested actors and institutions shaping and exploiting the current digital lot, and to what effect? For example, with whom are we sharing when we share online? Where is the cloud? Whom do we see in the (data) mirror? Whom do we serve while democratizing, personalizing, and prototyping our media and communication? How can we reflect, reclaim, and reform the ways modern language and its

technologies serve our social lives? Under what conditions could a more equitable and beneficial world be brought about? In response, nearly all chapters press for more attention to the politics of the ideas and institutions steering and mediating everyday life. Chapters such as **community**, **event**, **forum**, **hacker**, **memory**, **mirror**, **prototype**, and **surrogate** point out potentially misleading aspects of the authenticity claims their keywords can make in a so-called virtual environment. The labels of **community**, **event**, and **forum** are often used to authenticate digital environments for what they are not, just as the analyses of **geeks**, **hackers**, and **memes** help contest and complicate once seemingly uniform actor classes.

The second orientation, then, is toward reclaiming some residual meaning in our terms and in the process revealing something significant that has been long hidden in plain sight. Among other chapters, **analog**, **cloud**, **culture**, **flow**, **forum**, **geek**, **hacker**, **meme**, **participation**, and **prototype** suggest new ways of thinking with language: **analog** has no necessary relationship to nature or reality, but it does have meaningful purchase on the techniques of representation; **culture**, by blending with information technology, renews its staying power as a significant frame for life; **hacker** has less to do with the politics of freedom itself than with the freedom to create and work in technologically constrained environments; **prototypes**, by projecting the future, invariably ground us in the ever-present history of questionable typological thinking. Many others could be listed as well.

The third orientation is toward complicating the uses of the keyword—or to add to analysis not just one but multiple distinct threads of meaning. Chapters such as **algorithm**, **analog**, **archive**, **digital**, **event**, **gaming**, **memory**, and **surrogate** leave the reader chewing on multiple meanings—sometimes countably many: **analog** has at least two pathways (representative and nondigital), **digital** has at least three (counting, pointing, manipulating), **algorithm** comes in at least four guises (trick, synecdoche, talisman, procedure), and **events** unfold in a five-step process (found, universalize, condense, counternarrate, and diffuse narratives). None of these chapters are complete or conclusive: rather discursive multiplication helps tease apart the multiple uses—the warp and the weft—tightly woven into the fabric of our language.

Several overarching themes emerge from the chapters as well. If there is a consensus position among the chapters (a fiction imagined by many editors), it is the definitive lesson that all forms of media stand in imperfectly for other forms of media. Consider print culture: before the e-tablet ever stood in for the paperback, the paperback stood in for the hardback, and the hardback for the manuscript, the manuscript for the codex, the codex for the scroll, and the scroll for the e-tablet's namesake, the clay tablet of antiquity. Digital **communities**, **mirroring**, and online **persona**, for example, all derive their metaphoric power from claiming to stand in for a supposedly more substantively real entity elsewhere—an organic community, the source of the mirrored image (or file), and the living person herself. Digital discourse is the new kid on the old block: as **cloud**, **community**, **memory**, **mirror**, **prototype**, and **surrogate** propose, the search for what is original, authentic, and real in human life has proved elusive since well before those values were enshrined in the Enlightenment.

Our metaphors elude us in part because they fall into the blurry neutral zones connecting the supposed conceptual divides between the technological and the natural, the organizational and the organic. Language, once examined, muddles this conceptual sort of digital divide. Consider the natural sources of the technological metaphors in technical **analog** from biology, the **cloud** (computing) in the sky, (online) **communities** since settled human history, (online) **culture** since agriculture, the **digit(al)** on our hands and at our fingertips, (system) **flows** from rivers and streams, **memes** from the combination of genes and memory, (flash) **memory** from human memory, (file) **mirroring** from the early mirrors of polished obsidian stone, and (online) **personalization** of a person herself—each term speaks to a much broader worldview. The language of modern technology draws deep from the word wells of media history.

This metaphorical porting from one material state to another evades us for other reasons. It is not that the metaphors are wrong to cross categories (technological and natural, the symbolic and the material, the digital and the analog). It is that the categories have already always been mixed. This is Williams's point updated for the digital present: material and symbolic production in modern

life must be understood together, not separately.¹⁸ Material and symbolic production converge precisely in information society and culture. The technological and the natural are not philosophically incompatible categories; *analog* and *digital* are neither opposed nor fused. The virtual spaces we inhabit cannot be separated from the natural world our digital devices imitate, reproduce, and sap. In the big view of media history and philosophy, the digital is profoundly normal—and normal is profoundly fascinating and worth criticizing. Power has been concentrating unevenly since the end of the cosmic inflation—a tiny fraction of a second after the Big Bang (or, more precisely, sometime between 10^{-32} or 10^{-33} seconds later). If power imbalances may then be considered natural, then modern media and terminological technologies invite us to confront what is most “natural” for humans: as the long and industrious history of the creative universe and our inventive species *Homo sapiens sapiens* indicates, terminological technology is in our nature. We live by art and artifice alike. Careful reflection suggests that media rest on the deeper orthogonal overlap, not the conceptual separation, of natural and technological resources. Media are our lot, our environments.¹⁹ Modern culture, as Hillel Schwartz details at length, emerges out of the comingling, not the categorical contrast, of so-called natural sources and their technologies that reproduce them so uncannily.²⁰ The craftsmanship of natural scientists, natural historians, and natural number theorists challenges traditional notions of “natural”: their trades teach how intensely virtual, technical, and even *digital* nature can be.

Several keyword chapters speak to how media blur categorical states of time (past, present, future) as well. **Algorithms** function as talismans for larger institutional trajectories; **archives** present themselves as present versions of the past; **digits** index longer, more diverse media histories and less singular media futures; **events** inscribe the past onto the historical record and punctuate it; **gaming** and gamification management strategies signal chances to level up in the future; **prototypes** project a future that points to the past; and **surrogate** texts deputize the present encounter with past copies. In other words, **prototypes** converge moments of the present and the perceived future, just as **archives** do the same for the present and the perceived past. In each case, keywords show media to

be prime time-axis manipulators—a political fact so bald it stares us in the face every time we gaze on the pause and replay buttons, audio and video progress bars, and text scrollbars at the edges of our screens.

In the work of history and time bending, religious thought also colors digital keywords by shades, as suggested in the **cloud**, **community**, **digital**, **forum**, and **prototype** essays, among others. Digital media do not represent, reproduce, or save our world across time and format, although they make imperfect efforts to do precisely that. Media language is irreparably superabundant in its theological overtones—it is beyond representation and at once powerfully inscribed into the saving techniques of modern life: its metonymies, proxies, surrogates, synecdoches, and analogs have long promised that modern devices might let us save ourselves by replicating versions of ourselves—something our species has been doing for generations, although the current digital and ecological crises threaten to condemn us in terms we might call “theotechnical.” Consider the bureaucratic-theological mingling in how we talk about, for example, saving a file: to save a file is not simply to copy a file. It is to make content new by giving it a different name. To save a file is to save a proxy of itself under a new name and a different time stamp. Media talk brims with troubling salvific force.

To summarize a few of these themes, the keywords outlined in this volume continue the monumental task of discovering and confronting the power words wield in society and culture. Digital keywords, once studied, do very old things: they impinge on our analytic arithmetic for understanding the past, the present, and the future; they complicate our distinctions, natural, artificial, and human; and they reveal the adamantine institutional and intellectual forces thought to be scripting our lives, sometimes even afterlives, always hard at work in the present. As Williams wrote, “If the social is always past, in the sense that it is always formed, we have indeed to find new terms for the undeniable experience of the present: not only the temporal present, the realization of this and this instant, but the specificity of the present being, the inalienably physical, within which we may discern and acknowledge institutions, formations, positions, but not always as fixed products, defining products.”²¹ That specific present is now, and in the following

analysis of the modern reality ushered in with these new terms, we must attend to our current linguistic lot. These essays draw out several themes from this small sample of the vocabulary of information society and culture, including Heideggerian reflection on the root relationship between language and practice; the productive tension between disciplinary specialization and generalist insight; critical attention to the religious and theological overtones of salvific media discourse, and to the institutions marshaling media-technical power, among others.

We must not imagine that digital keywords should (or somehow could ever) be stopped from drawing on natural and cultural resources for inspiration; by the same token, nor should we neglect the uses, consequences, and benefactors of that language: if left to the sloganeering of the unscrupulous and hucksters, the inexhaustible excess of digital keywords (among other media metaphors) will surely be channeled into covering up the significant consequences and costs of the profitable appropriation and exploitation of natural and cultural resources, both material and metaphorical. Consider a few examples: big data are not new because data are big. (Data set sizes have long been growing colossal, although digital computing marks a threshold in its exponential acceleration.) What is new about big data is the invasive inferential power of pinpoint granular data analysis, not the trivial scaling of data. The dark side of big data, in other words, is how scalably small analysis now is—its penetrating zoom. Similarly, “personalizing” your media, simply put, means that both you and others get to see more of yourself, although who the others are is not up to you (if ever it was). The “cloud” materializes in climate-controlled warehouses running stacks of data servers squirreled away from public view. Or the “media ecosystem” metaphor for the relationship between traditional news journalists and bloggers, for example, might sound like a healthful symbiosis and self-sustaining media environment, while in fact a glance at the hemorrhaging news industry calls to mind the industrial equivalent of natural selection.

This much is obvious: digital discourse demands active scrutiny. Every act of naming a keyword is an investment of institutional power—or, to paraphrase Hegel, naming is an act of sovereignty.

To name a keyword thus is always to raise questions about who names what and why. The chapters that follow instruct to this basic fact: the power of interested actors and institutions is inseparable from the language that exercises that power. Our language has long pivoted on the politics of institutions, social norms, practices, organized interests, and other cultural material forces at work in the terminological technologies that populate information society and culture (not just modern-day algorithms, archives, information, memes, networks, prototypes, and search, but also research, speech, and script themselves).

In the end, though, the superabundance of language leaves us with even more than the need for self-scrutiny between the competing forces of those who sell and those who think, however compelling that distinction may be: because keywords, once critically inquired after, continue to abound in potential uses, their moving power can and should be redirected and rechanneled in the service of the many, not just the few. With reflection and work, keyword analysis may do more still. It may effect an educational change, instilling and renewing a sense of awe at the wider world beyond even the enduring calculus of politics and competing centers of power.

I now invite readers to turn their critical attention to the following contributions of scholars who have privileged the marvelous medium of words in critiquing, revealing, complicating, and reforming our modern-day information vocabulary. To borrow and twist a phrase from Heidegger, the essence of digital keywords is neither the digit nor the keyword: once examined, these essays redirect literate attention from whatever the most recent terminological technology may be to perennial and pressing questions of the aesthetic, cultural, economic, ethical, historical, legal, medical, philosophical, poetic, political, religious, social, and much else. (Even this list, like the table of contents, is an act of alphabetic artifice.) They invite us, as all keywords ought to do, to reflect on the larger universe and the terms that position us in it.

Tulsa, OK
August 15, 2015

Notes

- 1 Kenneth Burke, *Language as Symbolic Action* (Cambridge: Cambridge University Press, 1966), 45.
- 2 Raymond Williams, *Keywords: A Vocabulary of Culture and Society*, 2nd ed. (London: Fontana Paperbacks, 1983), 9.
- 3 Leo Marx, "Technology: The Emergence of a Hazardous Concept," *Technology and Culture* 51(3) (July 2010): 562–63.
- 4 *Ibid.*
- 5 Tony Bennett, Lawrence Grossberg, and Meaghan Morris, eds., *New Keywords: A Revised Vocabulary of Culture and Society* (Malden, MA: Wiley-Blackwell, 2005); Matthew Fuller, *Software Studies: A Lexicon* (Cambridge, MA: MIT Press, 2008); and W.J.T. Mitchell and Mark B. N. Hansen, *Critical Terms for Media Studies* (Chicago: University of Chicago Press, 2010).
- 6 For other roughly related projects, see Reinhart Koselleck's *Geschichtliche Grundbegriffe: Historisches Lexikon zur politisch-sozialen Sprache in Deutschland* (Stuttgart: E. Klett, 1972–97), the Raymond Williams Society journal *Key Words, the Theory, Culture & Society* New Encyclopaedia Project, and the Keywords Project at the University of Pittsburgh (<http://keywords.pitt.edu/whatis.html>), among others.
- 7 David Crystal, *Txtng: The Gr8 Db8* (Oxford: Oxford University Press, 2008).
- 8 See a full list of previous updates, including new entries in 2014, here: <http://public.oed.com/the-oed-today/recent-updates-to-the-oed/previous-updates/>.
- 9 A long tradition in philosophy dating back at least to Spinoza has considered the almost metaphysical debt borne by reality to language. A few recent thinkers concerned about the linguistic turn and language analysis include J. L. Austin, Judith Butler, James Carey, Jacques Derrida, and Richard Rorty. (For more, see Richard Rorty, ed., *The Linguistic Turn: Recent Essays in Philosophical Method* [Chicago: University of Chicago Press, 1967].)
- 10 For more on "material-semiotic actors," see Donna Haraway, "The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others," in *Cultural Studies*, ed. Lawrence Grossberg, Cary Nelson, and Paula Treichler (New York: Routledge, 1992), 295–337; Donna Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective" and "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century," in Donna Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), 149–81 and 183–201, respectively.
- 11 See Jack Goody, *The Domestication of the Savage Mind* (Cambridge: Cambridge University Press, 1977); Eric Havelock, *Preface to Plato* (Cambridge, MA: Harvard University Press, 1963).
- 12 See Elizabeth L. Eisenstein, *The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early Modern Europe*, 2 vols. (Cambridge: Cambridge University Press, 1979); Bernard Siegert, *Passage des Digitalen: Zeichenpraktiken der neuzeitlichen Wissenschaften 1500–1900* (Berlin: Brinkmann Bose, 2003); Cornelia Vismann, *Files: Law and Media Technology* (Stanford, CA: Stanford University Press, 2008).

- 13 See Max Weber, *Economy and Society: An Outline of Interpretive Sociology* (first published in German in 1922), ed. Guenther Roth and Claus Wittich (Berkeley: University of California Press, 1968); James R. Beniger, *The Control Revolution: Technological and Economic Origins of the Information Society* (Cambridge, MA: Harvard University Press, 1986); Daniel R. Headrick, *When Information Came of Age: Technologies of Knowledge in the Age of Reason and Revolution, 1700–1850* (Oxford: Oxford University Press, 2000).
- 14 See the popular account by James Gleick, *The Information: A History, a Theory, a Flood* (New York: Knopf Doubleday Publishing Group, 2011).
- 15 Craig Robertson, *The Passport in America: The History of a Document* (New York: Oxford University Press, 2010).
- 16 For two examples of the emerging literature on actor-network theory and object-oriented ontology and philosophy, see Bruno Latour’s *Reassembling the Social: An Introduction to Actor-Network Theory* (Oxford: Oxford University Press, 2007) and Graham Harman’s *Tool-Being: Heidegger and the Metaphysics of Objects* (New York: Open Court, 2002). While the latter is intensely helpful in conceptualizing the meaningful connections between and in things, I should note that I find Harman’s rejection of the linguistic turn mistaken or hasty, in part because, as corners of both language-oriented and object-oriented philosophy argue, there is a fundamental connection between the material-semiotic work of language as objective action and objects as linguistic actors.
- 17 Geoffrey C. Bowker and Susan Leigh Star, *Sorting Things Out: Classification and Its Consequences* (Cambridge, MA: MIT Press, 1999).
- 18 Williams, *Keywords*, s.v. “Culture.”
- 19 John Durham Peters, *The Marvelous Clouds: Toward a Philosophy of Elemental Media* (Chicago: University of Chicago Press, 2015).
- 20 Hillel Schwartz, *The Culture of the Copy: Striking Likenesses, Unreasonable Facsimiles* (Cambridge, MA: MIT Press, 1996).
- 21 Raymond Williams, *Marxism and Literature* (New York: Oxford University Press, 1977), 128.