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Introduction

"CALL ME ISHMAEL" is not the first line of *Moby-Dick* (1851). Before we meet our itinerant narrator, before he shares a bed with Queequeg, before Ahab announces his fiery hunt, and before Melville piles on so much information about ships and marine life as to inspire some readers to abandon the book, a prefatory section presents two characters. The first is the school Usher, who dusts his grammars and dictionaries while introducing an etymological chart of the word *whale*. The second is the Sub-Sub-Librarian, who lists seventy-nine quotations about whales compiled from the Bible, Shakespeare, Milton, and Hawthorne, as well as scientific treatises, exploration narratives, and sailors' songs. We might contrast the rule-bound orderliness of the Usher with the rollicking researches of the Sub-Sub. The former presents philological information in an attempt to fix the meaning of whales, while the later assembles a multivalent archive gleaned from "the long Vaticans and street-stalls of the earth."[1] The unruliness of the Sub-Sub can be taken to accord with the untamable aesthetic of *Moby-Dick*, a book that mocks efforts to understand the world through systems, taxonomies, and facts. *Moby-Dick* in this way may seem to prefer literary extravagance to desiccated information. Yet for all their differences, both the Usher and the Sub-Sub-Librarian are information workers, while Melville's surfeit of information about shipping and cetology surpasses satire to register something like pleasure. Ishmael, Ahab, and boatloads of critics can obsessively interpret the wondrous white whale, itself a symbol of literature's unknowability, but Melville's prefatory materials foreground the point that literature and information are hard to disentangle. As an 1851 review of *Moby-Dick* noted of Melville's writings, "In one light they are romantic fictions, in another statements of absolute fact," and so it remains "quite impossible to submit such books to a distinct classification."[2]

It is indeed tempting to try to separate literature and information, romantic fictions and absolute facts, particularly if one valorizes aesthetic experiences that inhabit autonomous imaginative worlds. Information can be taken to puncture this dream and stand in disenchanting opposition to literature. Why do *Moby-Dick*'s lading lists and zoological categories seem out of place to some readers? Why is Thoreau's measuring of the pond in *Walden* (1854) sometimes mistaken for a joke? Why does the mixing of literature and information, myth and science, seem monstrous in Mary Shelley and Bram Stoker? Why did Trollope's artistic reputation suffer when he published a ledger detailing the earnings of his books? Or to think about how information systems might govern literary knowledge and practices: Is it odd to chart the number of pages one reads or writes in a year? Are standardized literature tests wrongheaded? What about critical claims based on data collected from thousands of digitized texts? Why do I sometimes feel demoralized in institutional libraries and chagrined when skimming the vastness of Google Books? Literature can seem incommensurate with information and information systems, though why this is so—and whether it is true—is difficult to say.

Maybe literature is like most objects of enchantment. What initially seems self-contained and engrossing is interrupted by recognitions of context and contingency, as if readers and their reading are always recapitulating some kind of fall into modernity. We might take this descent as a fall into knowledge, though it increasingly can feel like a fall into information. The difference between the two is not always clear, and one goal of this book is to work toward an understanding of information that is productive for literary critics at a time of methodological instability and professional insecurity. As a starting point, we might think of knowledge as the subject of epistemology, while information—a more recent and less disciplined concept—seems more the stuff of numbers, facts, classification, computational science, and media technology. To study information in these terms is to pivot away from philosophical questions about correlations between subjects and objects or the accuracy of language, and to focus instead on the possibilities of navigating the world through algorithmic processes, bureaucratic protocols, and data-based analysis. Such approaches seem to many far afield from literary studies if not downright anathema to its traditional commitments. However, a main claim of this book is that informational concepts and practices shape not only the internal thematics of literature but also the ways in which we make meanings from texts. Writers and readers, including literary critics, have frequently been inclined to resist the rise of information, and this, too, is part of the story.

If the fall of literature into information is disenchanting for some, it can feel especially precipitous when a superabundance of data and documents encroaches on aesthetic experience—when information overload and textual excess threaten to dispel literary pleasures of unity, beauty, and immersion. The predicted death of the codex in our digital age has not come to pass, but there is a sense (and some evidence) that readers are too distracted by multitudinous screens and texts to lose themselves in any single book, while the broad ascendency of data-based knowledge is continuing to supersede humanistic authority. To choose a pointed example, the use of computers to understand literature under the auspices of the digital humanities (or DH) has gone beyond the provision of electronic resources for conventional literary criticism and now includes the statistical analysis of thousands of texts generally termed *distant reading*. That is, literary criticism has come to entail not only the careful interpretation of single texts but also the algorithmic study of keywords and syntactical patterns across corpuses of books too large for anyone to read. For some commentators, distant reading is an outrageous sign of the times and an abdication of literary study's aesthetic commitments. Literature is not data, one hears, no more than one can count the angels on the head of a pin.[3] To turn literature into information, some fear, is to diminish it or capitulate to scientism and technological utopianism. At stake is not only the legitimacy of computation-based criticism but the very status of literature and literary studies in our information age.

How one regards the situation is probably more personal than rational argument cares to admit. I like to think of myself as a sanguine scholar open to the copious possibilities of the times, but I worry that I'm more like Ishmael at the start of *Moby-Dick*—buffeted by resentments and forebodings—and that this book pursues a set of questions stirred as much by anxiety as by wonder. What happens to literature and literary studies in an information revolution? What sorts of meaningful claims can aesthetics maintain in an age of data and science? How does one experience and interpret literature when overwhelmed by huge quantities of texts? Or more radically, what is gained and lost by treating literature as information? Clearly such questions are animated by digital developments of the last few decades, yet a historically minded scholar seeking intellectual orientation and some measure of emotional reassurance might notice that concerns about the relationship of information and literature also loomed in nineteenth-century America and Britain. This history can temper humanist alarms about the ascendency of information. It can provide guidance for thinking about and addressing current challenges to literary

studies. It can feel so uncanny that a modern critic might doubt if his wonder and anxiety are his own.

Before Big Data and Big Tech, before DH and the dominance of STEM fields, the nineteenth century witnessed an unprecedented proliferation of information that shaped the content and uses of literature. As advances in publishing, distribution, and literacy drove the rapid expansion of print culture, the era's surfeit of texts, including works of literature, required what we now call information management—from bibliographic ordering and bureaucratic regulation to the quantification of literature and literary practices. It is not only that authors wrote about information overload (though they certainly did); the managing of literature within information systems influenced aesthetics, archival practices, reading habits, and the production of literary knowledge. All this happened at a time when literary studies was establishing itself as a discipline and the word *information* took on modern connotations, referring not only to edification and news (something one comes across in everyday life) but also to objective, reconfigurable data (something that functions within rule-bound systems). Debates over the fate of literature in our information age tend to swing between presentist celebration and despair, but they are powerfully conditioned by the nineteenth century, which encountered its own information revolution with wonder and anxiety. How readers and writers responded—and are responding—to the rise of information is the subject of *Overwhelmed*.

At the heart of this book is a revisionist argument about two loosely constructed domains. The first is what I call "the literary"—associated with beauty, subjectivity, interpretation, emotion, intuition, and the immersive pleasures of unified texts. The other is what I call "the informational"—characterized by instrumentalism, objectivity, transparency, bureaucratic impersonality, calculation, and reconfigurable data. Neither of these domains is internally coherent: interpretation and immersion can inhibit each other; bureaucracies are often opaque. Nor are they mutually exclusive: beauty can be instrumental; data spark feelings and intuitions. Much of what follows challenges hard distinctions between the literary and the informational, in part because differences between the two are less about ontological status (for instance, the type of text in question) and more about modes of understanding and practice (how we think about and what we do with a text). To say that the literary and the informational are

porous, overlapping, and contingent is not to deny meaningful distinctions between them but rather to suggest that their relationship is most productively approached, not with formal analysis and brightly lined categories, but through the messy work of history.

That history, as I see it, is marked by the emergence of overdetermined dualisms. Terminology and dynamics shift unevenly over time, of course, but the literary and the informational remain recognizable confederations that generations of critics have set at odds, oftentimes tracing divisions to—and projecting them onto—the nineteenth century. New Critics invoked romantic legacies when defining literary aesthetics against information. The Frankfurt school went beyond Weber in positioning art against rationality and calculation. Poststructuralists rejected empiricism, positivism, and utilitarianism when drawing on Kantian and Nietzschean traditions, as did New Historicists, who emphasized the interpretation of singular phenomena over the objective analysis of large data sets. Other historians have traced the separation of science and literature into the romantic period, and even specious but persistent neurological notions of left-brain logic versus right-brain creativity are taken to begin in the nineteenth century, as if our very minds are split between information and art. Some recent literary scholarship challenges such dualisms—from work that draws on scientific methods, to statistical analyses in the digital humanities, to arguments from some quarters that critique should move toward (not against) empiricism and facts, to approaches that constrain interpretive license by dwelling on textual surfaces, denotations, and thin descriptions.[4] Yet the resistance that such scholarship can engender, particularly when rendering literature as data, indicates that, for all the talk of interdisciplinarity, the information/literature divide remains powerfully ingrained.

Something similar can be said of broader cultural formations that point toward an enduring habitus. In nineteenth-century literature, romantic and racialized characters stand outside informational modernity. Artist figures struggle as information workers—see, for example, Melville's Bartleby, George Gissing's Edwin Reardon, or Edith Wharton's Lily Bart. Unimaginative empiricists and utilitarian businessmen square off against, and sometimes manage to woo, feminine figures of aesthetic sensibility (Hawthorne's Roger Chillingworth and Hester Prynne, George Eliot's Edward Casaubon and Dorothea Brooke, or less disastrous pairings in Charles Dickens and Harriet Beecher Stowe that reinforce the dualisms they reconcile). Such common nineteenth-century fare can feel all too familiar these days. Though Steve Jobs may be idolized as a romantic genius and

postmodernism can pursue dark obsessions with information, popular imaginings in our digital age still tend to juxtapose the informational and the literary. We have the emotionally stunted, fashion-challenged coder, the Dionysian artist who bucks bureaucratic order, and aestheticized women and racial others supposedly unfit for informational enterprises. When I was an undergraduate, we joked about "fuzzies" versus "techies," which was funnier before some people rode the rising tides of Silicon Valley and the STEM fields while others of us took our solitary way through the shadow of the valley of the humanities crisis. As much as one aspires to intellectual liberality, a critic might struggle with ungenerous feelings when the literary is not only defined against but subordinated to the informational. That such asymmetry turns out to have roots in one's chosen historical period adds irony to indignity and injury.

Yet as much as the nineteenth century shapes present-day dualisms between information and literature, its historical dynamics are less determined than our scholarly legacies and cultural stereotypes suggest. As print culture exploded in the nineteenth century, the outpouring of texts increasingly required organizational and analytic methods that rendered literature as information; and as they do today, readers and writers responded in diverse ways. Some resented the incursions of the informational into literary domains as easy access to print menaced tastemakers, statistics competed with aesthetic representations, and industrial publishing, standardized education, and the library movement threatened intimate relationships with books. Other people embraced the information revolution's influence on literature and literary practices. Authors imagined mastering superabundant information, as when artistically sensitive characters show a knack for navigating archives. Readers found calculative narratives enchanting, including detective fictions and adventure novels that involve probabilistic reasoning and informational savvy. Some literary critics adopted informational methods in bibliographic projects and pioneering statistical analyses. Reactions to the rise of information were richly mixed, as when Charlotte Brontë in *Villette* (1853) discusses factuality as necessary but subordinate to imaginative art, or when Edgar Allan Poe alternately celebrates and satirizes the growing authority of information in his age. The nineteenth century could champion an autonomous realm of aesthetics beyond the purview of system and logic, but even when the literary asserted its distinctiveness, it still worked—ambivalently, agonistically, collaboratively—within its information age. The watchwords here are entanglement instead of estrangement, accommodation as well as antagonism. To speak too generally, the literary/informational divide

emerged unevenly in the nineteenth century, hardened in the middle of the twentieth, and is ripe for reconsideration today—not only in the name of revisionist history, but in the service of the future of literature.

Which is to say that the nineteenth century establishes the conditions for our possible negotiations between the literary and the informational—even if my gestures toward "rises" (instead of "origins") acknowledges trajectories beginning well before 1800, even if claims of present relevance (what's past is prologue) remains a last refuge for historicist scoundrels. The question of continuity versus change bears on all historical thinking but is especially weighty when assessing our digital revolution, which too often is viewed as a radical break. Proponents of continuity can go too far when they argue that daily newspapers are like the internet, or epistolary networks function like social media, or the telegraph is like Twitter. But nineteenth-century commentators believed that their era's vast productions of print and data would expand knowledge, increase efficiency, advance democracy, and enrich community life, even as they worried about information overload, unregulated communications, fake news, shrinking attention spans, and the decline of privacy. Our informational dreams and nightmares have a surprisingly deep past, for if physical pages are not digital texts and Poole's and Reuters are not Google, nineteenth-century discussions of information often feel familiar because they are part of a long revolution. Yuval Noah Harari has speculated that superabundant information drove the invention of literacy in the ancient world, while book historians have shown, in Robert Darnton's words, that "every age was an age of information."[5] The nineteenth century did not invent mass print, bibliography, statistics, and bureaucracy, but it witnessed the spread of information systems into new areas of life, including literary ones.

Overwhelmed focuses on literature, though it construes the category broadly. Not only did some unexpected archives assert their explanatory force, but the topic of excessive information can exert a kind of entropy in which inclinations toward close reading and author-centric inquiry give way to more capacious hermeneutic practices. Main objects of study in the chapters that follow include canonical nineteenth-century literary texts from the United States and Britain, and lesser-known novels about lost worlds, school life, and office work, as well as writings gathered from the street-stalls and databases of the earth (poems about libraries, comments on bibliomania, inscriptions scrawled in children's books). Major figures include Coleridge, Emerson, Hawthorne, Dickens, Charlotte Brontë, Fanny Fern, Frank Webb, and Robert Louis Stevenson—a transatlantic lineup attesting to the period's widening circulation of information and

literature, though one more driven by thematic and theoretical connections than by efforts to mobilize transnationalism as a method. A trained Americanist such as me can, like a Henry James ingénue, mistake familiarities with Britain for more intimate knowledge, but studying superabundance can remind the anxious critic that mastery of even a narrowly defined field is impossible and that mutually illuminating competencies help to trace the transatlantic dynamics of nineteenth-century literature and information.

I wish I could say that my selection of authors and texts consistently reflects a grand strategy or set of principles, but my sense is that serendipity and chance have played unusually large roles in the composition of this book. I happened to be reading *Treasure Island* (1883) and watching *Raiders of the Lost Ark* (1981) with my kids when thinking about how numbers function in literature, and the endless connections of database searching led down many another unanticipated path. There is some truth to the trope of the wayward antiquarian stumbling upon a key document in the chaos of the archives, but if textual excess invites random encounters, patterns—intentional and otherwise—also figure. Some pairings of major authors in this book follow established lines of affinity, while many works were sought out because they engage an idiosyncratic theme. Authors such as Poe, Thoreau, Melville, Mary Shelley, George Eliot, Henry James, and W.E.B. Du Bois are deeply invested in informational projects but in the end have only cameos in this book for reasons no better than limited time and space. More worrisome, many of my primary texts were written by white men, which can indicate how women and people of color were discouraged from entering informational domains but might also point to some narrowness of reading on my part.[6] Chapter 2 will discuss how textual excess complicates any objective and comprehensive gathering of evidence, and so as broadly as this book samples from nineteenth-century literature, elaborations and corrections are surely in order.

If the nineteenth century created literary canons as a way to organize textual superabundance, it also witnessed the proliferation of documents that do not conform to such structuring.[7] Some objects of study in the chapters that follow come from what print historians call "informational genres," including those that, in Lisa Gitelman's words, "embrace the subjects and instruments of bureaucracy or of systematic knowledge generally."[8] I have been particularly drawn to unscrutinized materials that focus on literature and literary practices but do not take traditional literary forms. Surveys of reading habits and reports on publishing data, antiquarian journals and reference books, early statistical literary criticism and

Victorian standardized literature tests—such documents can contextualize canonical works in the service of high interpretation, but they also deserve attention in their own right as texts that straddle emerging boundaries between the literary and the informational. The facts they bear are often fascinating: among nine-year-old Chicago schoolgirls in 1897, for example, the most popular works of fiction were "Little Red Riding Hood," *Robinson Crusoe*, and *Little Women* in that order.[9] Equally important are the methods and forms of factuality with which informational genres order, analyze, and authorize the literature they treat. Making lists of best books and counting adverbs in Shakespeare struck many in the nineteenth century as misguided, though also telling (and, to me, more surprising) is how seriously some literary writers regarded informational projects, as when Emerson indexes his sprawling journals, or Webb weighs the costs and benefits of bureaucratic impersonality, or Charlotte Yonge and Louisa May Alcott critique standardized education.

As these materials suggest, *Overwhelmed* treats a lot of texts. An irony of the nineteenth century's information revolution is that efforts to control the explosion of print acted as a kind of accelerant, as when cultural authorities sought to regulate the era's profusion of books by issuing a profusion of books on "right reading." Similarly, a twenty-first-century literary critic intent on making sense of information overload can wind up studying a dizzying number of texts that both dramatize and exacerbate the glut. My excuse is that I find both explanatory power and wonder in overwhelming archives, and my hope is that by taking on as much as it does, this book shows how the nineteenth century's struggle with textual excess conditions the state of our criticism. The intensive reading of small numbers of texts remains at the core of literary studies, at least for now, but as in the nineteenth century, fantasies of escaping informational excess are just that.

So much literature, and so much scholarship! Current work on information in the humanities feels like an interdisciplinary colloquium in which conversations overlap and diverge in exciting and at times incoherent ways. We have excellent histories of the book that examine information overload in Britain and Europe from the fourteenth through eighteenth centuries.[10] Such work shows that superabundance matters—that even if the physical form of the codex has not changed much over the centuries, large quantities of texts make qualitative differences in how books are conceptualized and

used. The foundations for similar claims have been laid by print historians who focus on nineteenth-century Britain and America, while literary critics have long studied how the period's accelerating production of texts transformed literary markets, authorship, and reading publics.[11] What has not received sustained attention is how literature under conditions of excess is shaped by the rise of information.

To take up this question is to join a developing synthesis of literary studies, media studies, the history of science, and information history and theory—fields coalescing unevenly around the topic of information increasingly understood as a thickly mediated, deeply historical, and theoretically complex phenomenon. Media studies came early to the subject, but because it tends to dwell on technological disruptions, especially film and the digital, when it does track information into the nineteenth century, it often privileges innovations such as telegraphy and radio over the "old"—and, in my mind, more influential—revolution of mass print.[12] Following Friedrich Kittler but resisting his sense of epistemic rupture, Gitelman and other media archaeologists are emphasizing continuities between new technologies and nineteenth-century informational genres.[13] Such work overlaps with cultural histories of information, and literature occasionally figures in the discussion, though typically as objects within information systems rather than as an entangled discourse that reflects on its own status.[14] A central premise of this book is that literature talks with—and back to—the informational.

Less integrated than book and media histories in discussions of nineteenth-century literature are histories of science that track developments in mensuration, calculation, and data analysis. When confronted with superabundant objects of study, most disciplines turn to numbers, which become more prevalent in the nineteenth century as sociology, ethnography, history, and the life sciences begin using quantitative methods.[15] During a period in which statistics grew into a science and statistical thinking spread through Anglo-American culture, readers and writers quantified the outpourings of print and sought to measure literary qualities. Because statistical logic subordinates individuality, interiority, and ambiguity to the calculative power of numbers, it is often regarded as antithetical or irrelevant to literary epistemologies and values. Yet as controversial as distant reading is today, we lack robust descriptions of similar practices as they emerged in the nineteenth century. Jerome McGann has recently worried that the digital humanities risks operating under an "increasingly attenuated historical sense," while Andrew Piper writes of literary studies and computational science, "We are talking not only past

each other, but also past the past itself."[16] To study how literature was counted in the nineteenth century, and to reconstruct reactions to such counting, is to expand our historical understanding of DH and the debates that surround it today.

Closest to the aspirations of this book is literary criticism that can be roughly grouped in two clusters. The first focuses on the relationship between literature and information in and around the nineteenth century, including Mary Poovey's work on factuality and epistemology (primarily in Britain before 1820), Richard Menke's study of telegraphy (with an emphasis on Victorian realism), and a growing body of scholarship on information and literary modernism.[17] Such work situates the rise of information in different eras, does not share a single definition of the term (more on which below), and though it acknowledges the proliferation of data and texts, does not dwell on information overload. A second cluster of literary scholars examines the period's textual excess with an eye toward twenty-first-century concerns but remains more committed to book and print history than to information as an elaborated discourse. Here I'm thinking of Meredith McGill's *American Literature and the Culture of Reprinting, 1834–1853* (2003), Leah Price's *How to Do Things with Books in Victorian Britain* (2012), Ellen Gruber Garvey's study of reconfigurable scrapbooking, and Piper's work on the relationship between books and digital texts and between literary imagination and bibliographic forms.[18] Wandering the forests of relevant scholarship, I have felt a bit like Goldilocks—thankful for the resources I come across and sample but too particular to find any just right. This Media is too New! This era is too old! This book is insufficiently obsessed with information! Mindful of the ways in which Goldilocks has been chastened, it seems to me there is much to learn about how literature and information come fitfully into their own.

As should be apparent by this point, my own methodological commitments tend toward a historicism that remains dominant in literary studies, yielding among other things interpretations of texts animated by contexts of their time. Such readings should be regarded as case studies—strong in the ways of thick description and inference, susceptible to the dark forces of anecdotalism and subjectivity. One might wonder under conditions of superabundance what type of evidence-based argument is not to some degree a case study, though to contextualize and constrain their interpretive efforts, some of the chapters that follow move metacritically between close readings, broader literary histories, and statistical analyses (including a critique of confirmation bias in database searching and a modest experiment in distant reading). Multiscalar approaches are relatively rare

in literary criticism, for if the field has long practiced a theoretical and interdisciplinary catholicity that runs from the fecund to the flaky, data-based scholarship in the digital humanities remains difficult to synthesize with other critical methods, in part because of abiding divisions between the literary and the informational.[19] This book is more a prehistory of the digital humanities and its reception than a project within its purview, though studying the entanglements of literature and information may benefit from similarly entangled approaches, despite and because of potential friction. One gambit of what follows is that the relationship between literature and information can be simultaneously historicized and performed.

Another point to emphasize at the outset of this book, and one reason work on information is difficult to organize, is that the only thing on which scholars of information agree is that no one agrees on what information is.[20] The purpose here is not to posit a rigid definition but rather to provide some theoretical coordinates from outside literary studies to suggest how approaching information from a humanist perspective differs from but is ultimately compatible with information theory, including its mathematical roots. More specifically, the history of information theory shows it to increasingly accommodate the kinds of interpretive, complex meanings valued by literary scholars. We have grounds for understanding information as an interdisciplinary concept with practical uses for humanists.

A common way of conceptualizing information in scholarly and everyday contexts entails some version of a hierarchical model. Raw data rise to the status of information when ordered, formed, and otherwise manipulated so as to communicate meaning and enact intentions. Information then reaches the level of knowledge when analysis, validation, ideology, and method render it sufficiently authoritative. Though information theorists seldom go so far, knowledge might progress toward something like wisdom, which is the hierarchy T. S. Eliot envisions in his now frequently quoted lines: "Where is the wisdom we have lost in knowledge? / Where is the knowledge we have lost in information?"[21] As most people tend to use the term, information occupies a middle ground between unprocessed data and more significant knowledge. Yet such distinctions are easily troubled—not simply because data is never raw, and not only because thresholds between epistemological states are difficult to identify, but also because information is not a stable thing or even a thing at all.

Scholars make this case when tracing the origins of information theory to Claude Shannon's "Mathematical Theory of Communication" (1948), an essay that proposes a series of theorems on the efficiencies and probabilities of transmitting information. For Shannon, who had a background in electrical engineering, information results from a process involving senders, messages, transmission technology, noise, and receivers. Because the communication of information requires the violation of signal patterns so as to register differences, Shannon defines a system's information potential as the measure of freedom possessed by a sender. Put another way, the amount of information a message contains is equivalent to how much it breaks a pattern, which can be regarded as its unpredictability or capacity to surprise a receiver. Shannon can thus help a literary critic regard information as constituting, not constraining, creative communication, as when Shannon cites Joyce's *Finnegans Wake* (1939) when discussing how complex vocabularies achieve high levels of potential surprise.

Further suggesting how mathematical accounts of information might be brought to bear on literary topics, the information philosopher Luciano Floridi mentions Poe's "The Raven" (1845) when glossing Shannon's point that utterly predictable messages, such as the bird's repetitive cry, carry no information.[22] Perhaps the claustrophobic, solipsistic unease of Poe's highly patterned and thus relatively predictable poem evokes the terror of an information vacuum: our deepest sorrows are beyond communication; information ("lore") will be forgotten; reading volumes will provide no succor; your chamber shall have Wi-Fi nevermore. Perhaps, too, Shannon can help explain Melville's Bartleby, whose repetitive responses, like the dead letters of the story, fail to transmit information—a critique of bureaucracies that perform no informational work, and a crisis for the narrator and reader of the tale who expect some measure of communication. To repeatedly "prefer not" is to make no distinctions, admit no differences, break no patterns, and thus send no signals, unless the lack of a signal itself signals the failure of information.[23] Be that as it may, the problem with Shannon's information theory is that semantics (that is, meaning) remains in his words "irrelevant to the engineering problem," which is why his theorems are best fitted for rule-bound actors such as mechanical ravens and scriveners who would fail the Turing test.[24] Crucially, Shannon helps us conceive of information as a process, not a thing, but in and of itself, his system remains of limited use for the meaning-making work of humanistic inquiry, as if information theory (to quote from "The Raven") bears "little relevancy" to the domain of the literary.[25]

However, information theorists following Shannon were quick to address the challenge of semantics, even if doing so foregrounded interpretation and culture while pressing mathematics into the background. In an influential 1949 article, Warren Weaver retained some of Shannon's resistance to semantics while also expanding his conceptual reach. As if to rebuke the protagonist of Henry James's *In the Cage* (1898), Weaver writes: "An engineering communication theory is just like a very proper and discreet girl accepting your telegram. She pays no attention to the meaning." But Weaver also speculates on the potential applicability of Shannon's theories to writing, performance, and the arts, ending his essay by acknowledging "one of the most significant but difficult aspects of meaning, namely the influence of context."[26] Weaver in this way recognized that the potentialities of information depend on its use in the social world.

Systems theorists working with information theory would continue to focus on such contingencies. Citing Weaver and defining information as "a difference that makes a difference," Gregory Bateson in 1972 adopted Shannon's criteria of pattern breaking (difference) while adding the requirement that it must also be meaningful (must "make a difference") by changing the state of another system. Bateson argued that abstract computational models struggle to register semantic specificities, and he referred to Shakespeare, Stevenson, and Henry Wadsworth Longfellow when suggesting that literature is especially adept at enacting the "seeming magic" of communication.[27] Niklas Luhmann would draw on Bateson's work when positing an even more dynamic model: "A meaning system obtains information from its environment. One might say that it interprets surprises. In turn, this particular information processing system is integrated into a network of systems that reacts to it."[28] For Luhmann, pattern violation is open to multiple hermeneutic possibilities (a system "interprets surprises"), while any meaning made from received information is in turn interpreted within a larger environment. Understood as such, information can be taken to occur within what Kittler has termed "discourse networks" or what are often referred to now as media ecologies, while messages under such conditions take on what Stuart Hall has called a "fluidity of meaning."[29] To a literary critic, such complexities are intuitive and welcome. Information is not some essential unit within a stable hierarchy; it involves the communication of meaning through various media connecting subjects and systems that make interpretations within rhetorical, temporal, social, and epistemological contexts.

One telling example of how the literary is difficult to keep out of information theory is the transcript of a 1950 Macy Conference session that

included Shannon, Weaver, and Bateson, as well as the anthropologist Margaret Mead, the cyberneticist Norbert Wiener, and the mathematician Leonard Savage. Shannon presented on statistical approaches to cryptology, but discussion moved quickly from his probability models to literary and everyday examples—the verbal density of Joyce, attribution controversies in Shakespeare, the absurdity of reading Goethe's *Faust* in French, the meaningful redundancy of saying "I love you," the difference between humans and machines. There is some joshing about Shannon's disregard for semantics when he is asked about what book he used for his statistical experiments. Shannon: "I just walked over to the shelf and chose one." Savage: "There is the danger that the book might be about engineering." The group's turn toward meaning leaves Shannon behind as participants reflect on their lived experiences with language; and when Shannon is invited to comment at the end of the session, he admits: "I never have any trouble distinguishing signals from noise because I say, as a mathematician, that this is signal and that is noise. But there are, it seems to me, ambiguities that come in at the psychological level."[30] Ambiguity, psychology, the social world, love, our lived realities with language—information considered as semantically rich includes message and media, content and context, the sender's intention and the receiver's interpretation, the mysterious workings of the mind and heart. It's starting to sound like literature.

This is not to elaborate a history of information theory from the perspective of literary criticism, as does N. Katherine Hayles.[31] The simpler point is to challenge hard distinctions between the literary and the informational by sketching how information theory, including its mathematical foundations, comes to accommodate humanistic inquiry. As Geoffrey Nunberg has written regarding definitions of information, "the question we want to ask is phenomenological rather than lexicographical: not, What does 'information' mean? but rather, How is the impression of 'information' constituted out of certain practices of reading and the particular representations that support them?"[32] Mathematical approaches to information theory can be too narrow and abstract for some humanists, but Nunberg and other post-Shannon thinkers acknowledge how experience, culture, and history constitute the work of information.

Let me also add a final premise that draws together definitional questions and a primary concern of this book. Because communication systems, discourse networks, and media ecologies are made up of relations that have virtually no end, information can be robustly conceptualized as such only by acknowledging the dynamics of superabundance. Information, it seems to me, always entails the potential of overload and the imperatives

of management. Its disarticulated surfeit exists under the assumption, though sometimes deferred or repressed, that it must be rendered knowable and usable through some kind of systematic processing. Much of what we do with information and literature—gather, classify, store, search, privilege, aggregate, analyze, validate, forget—implies an excess that must in some way be handled, if only to leave certain portions behind. To repurpose William James (whose pragmatism emphasizes differences that make a difference, and whose pluralism posits unending relations), information is not an ontological Thing but rather something that happens to communication, including literary texts. Grammar notwithstanding, information is a gerund, a formulation that governs the structure of this book.

Chapter 1, "Reading," recovers some roots of modern literary criticism by showing how some romantics respond to textual excess by variously resisting and adopting informational strategies of skimming and excerpting. A main concept here is what I call "deserted island reading," an ideal of immersive literary experience formed in opposition to mass print. The fantasy of losing oneself in a book unfolds across the legacy of *Robinson Crusoe* (1719), which projects an account of intensive hermeneutics from the eighteenth through the nineteenth centuries. Deserted island reading was especially attractive to romantics such as Coleridge, a founding figure of modern close reading whose aesthetics and interpretive practices were formed under the pressures of information. But whereas Coleridge offers an agonistic example of the relationship between information and literature, Emerson presents a more modulated case in which the prophet of subjectivity, intuition, and motility proves surprisingly open to informational modes of reading. Romanticism has long been associated with autonomous aesthetics, though Coleridge, Emerson, and others face up to a question that literary critics learned to bracket but have come to ponder anew: What happens to the reading of literature in an information revolution?

Chapter 2, "Searching," takes up a related methodological question: How can literary meaning be recovered under conditions of information overload? Revitalizing debates over New Historical evidentiary practices that have become exponentially more powerful with the rise of digital databases, this chapter discusses how the nineteenth century's expansion of archives and concomitant attention to bibliographic processes impelled some literary thinkers to assert a special authority in matters of archival searching. As if to vindicate the value of literary judgment, Hawthorne and Dickens imagine the aesthetic retrieval of exceptionally meaningful texts, though in doing so they turn away from close reading and toward the management of information. An obverse irony is evident in reference

books designed to manage textual excess, including the antiquarian journal *Notes and Queries* (begun in 1849) and *Bartlett's Familiar Quotations* (first published in 1855), both of which privilege organization over aesthetics but cannot help but admit the pleasures of texts. Across the nineteenth century, readers and writers subjected literature to informational searching techniques—a concern this chapter projects into the twenty-first century with a statistical experiment that asks whether the influence of the slavery crisis on *The Scarlet Letter* (1850) can be settled with algorithmic searching.

The penetration of quantification into literary discourse is the subject of chapter 3, "Counting." Lovers of literature could resist information and wax nostalgic for the deserted island reading of their youths, but adventure novels of the long nineteenth century show how what I call "the accounting of literature" could also be aesthetically enchanting. British and American adventure novels from the period register a productive tension: guided by atavistic, preindustrial texts (ancient manuscripts, hieroglyphics, maps written in blood), characters flee from civilized realms marked by information overload only to impose informational modernity on the deserted islands and lost worlds they find. This chapter explores the limits and wonders of quantification by using a sustained multiscalar approach—a close reading of Stevenson's *Treasure Island*, a literary-historical argument that draws on a dozen transatlantic adventure fictions, and a distant reading project based on keyword frequencies in a corpus of 105 adventure novels. At issue is not only how nineteenth-century literature accommodated the rise of information but also the prospect that the digital humanities might begin to tell a deeper history of itself.

The fourth and final chapter, "Testing," sets aside questions of textual excess to discuss mass assessments and the production of literary knowledge—or perhaps more accurately, literary information. As the rise of liberal meritocracy in the Victorian period increasingly required bureaucratic impersonality and quantitative metrics, standardized literature tests negotiated between aesthetics and information during the formation of literary studies as a discipline. Literature exams from normal schools, the British Civil Service, and the US Bureau of Indian Affairs reflect broader controversies over what constitutes literary knowledge and whether it can be systematically assessed. Such concerns involve epistemological problems (how can one standardize and measure literary attainments?), as well as social questions (what is the role of literature and literary studies under liberal meritocracy?). Race, gender, and class inflect depictions of standardized examinations in novels by Dickens, Brontë, Trollope, Fern, Webb, Yonge, Alcott, and others. These and other texts

anticipate aspects of our current crisis in the humanities—accountability through testing, the corporatization of education, and the instrumental value of the literary. Like previous chapters, "Testing" examines the distance between the nineteenth and twenty-first centuries—in this case by turning to the Common Core standards and the GRE subject test in English literature, present-day standardized efforts to render literary learning as information.

Reading, searching, counting, testing—this is what my book is about, though I am not an objective observer. Thus with real curiosity and in the spirit of performing the informational, here is another way of describing the contents of *Overwhelmed*. An enumeration of frequent terms and their variants in my manuscript (excluding endnotes and this introduction) indicates a range and proportion of interests that, for all the obvious limits of the exercise, do not feel to me untoward:

1. literature (790 occurrences)	11. century (211)	21. number (145)
2. reading (554)	12. print (210)	22. work (142)
3. information (552)	13. test (185)	23. Dickens (139)
4. book (472)	14. writing (179)	24. like (123)
5. text (287)	15. critic (172)	25. time (118)
6. history (262)	16. America (167)	26. scholar (112)
7. novel (261)	17. Emerson (154)	27. question (112)
8. exam (228)	18. nineteenth (152)	28. practice (111)
9. standard (216)	19. account (150)	29. Crusoe (111)
10. aesthetic (212)	20. quantity (149)	30. new (111)

Numbers 31–40: island (107), method (106), education (105), world (105), knowledge (100), modern (97), culture (96), data (94), England (91), search (90)

I also counted words associated with wonder (pleasure, joy, beauty, enchantment, etc.) and anxiety (worry, fear, suspicion, disenchantment, and so forth). This measure is blunt to the point of inconsequence, and yet I found myself relieved—and surprised by some joy—that the number of words associated with wonder exceed those of anxious language 363 to 142. That's nearly 72 percent wonder! In retrospect, the ratio seems to me a fair estimate of my moods when thinking about the subject of this book. If we have plenty of reasons to doubt the future of literature in our information age, encountering literature, even under duress, leaves open the possibilities of redemption. To be overwhelmed is to be overcome by both threatening and pleasurable plentitudes.

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